Gaps between Medical Cannabis Research and Policy

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Abstract

As of December 2021, medical cannabis use is legal in nearly 40 U.S. states. Given the diversity of products in U.S. cannabis dispensaries and current gaps in cannabis research, medical cannabis patients who do not receive sufficient guidance are at some risk of using cannabis products in a manner that is clinically ineffective (if not harmful) to their symptoms. My three papers re-examine what is known about the therapeutic efficacy of cannabis products, the degree to which patients buy dispensary products in a manner that is consistent with clinical research, and what factors may be driving “clinically inconsistent” purchases. Despite literature review findings from my first paper (up to May 2021) suggesting that only a few health conditions have sufficient evidence to suggest cannabis products are therapeutically effective, 14 U.S. states that have legalized medical cannabis use since 2016 have listed health conditions in their laws that lack clinical evidence and yet allow patients to use cannabis medically. Additionally, according to findings from my second paper, in which I analyze sales from a single medical cannabis company in New York State, approximately half of patients make clinically inconsistent purchases despite their being sufficient research to suggest that certain cannabis products are most therapeutic for their conditions. Although it is difficult to deduce why clinically inconsistent purchases occur, evidence from my third paper—in which I do not find that recreational cannabis legalization in Massachusetts is associated with a reduction of chronic pain patients in New York, and that chronic pain patients are not more likely than non-chronic patients to report recreational cannabis use—suggests that treating pain symptoms is not necessarily a reliable predictor of recreational cannabis use, despite previous research suggesting otherwise. Overall, my findings imply that clinical research has not been adequately incorporated into the U.S. medical cannabis market, and I conclude with possible interventions that policymakers might consider to bridge the gaps between cannabis research and policy.
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#RAND2016

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صلح
("peace")
### Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADD</td>
<td>Attention Deficit Disorder</td>
</tr>
<tr>
<td>ADHD</td>
<td>Attention Deficit Hyperactivity Disorder</td>
</tr>
<tr>
<td>AHI</td>
<td>Apnea/hypopnea index</td>
</tr>
<tr>
<td>ALS</td>
<td>Amyotrophic lateral sclerosis</td>
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<tr>
<td>ASD</td>
<td>Autism Spectrum Disorder</td>
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<tr>
<td>BBS</td>
<td>Berg Balance Score</td>
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<tr>
<td>BS-11</td>
<td>Box scale</td>
</tr>
<tr>
<td>CAARS</td>
<td>Conners Adult ADHD Rating Scale</td>
</tr>
<tr>
<td>CAPS</td>
<td>Clinician-Administered PTSD Scale</td>
</tr>
<tr>
<td>CARDIA</td>
<td>Coronary Artery Risk Development in Young Adults</td>
</tr>
<tr>
<td>CBD</td>
<td>Cannabidiol</td>
</tr>
<tr>
<td>CBDV</td>
<td>Cannabidivarin</td>
</tr>
<tr>
<td>CDAI</td>
<td>Crohn’s Disease Activity Index</td>
</tr>
<tr>
<td>CCQ-Brief</td>
<td>Cocaine Craving Questionnaire – Brief</td>
</tr>
<tr>
<td>CGI-C</td>
<td>Clinical Global Impression of Change, or CGI-C</td>
</tr>
<tr>
<td>CGI-I</td>
<td>Clinical Global Impression-Improvement scale</td>
</tr>
<tr>
<td>CMA</td>
<td>Commonwealth of Massachusetts</td>
</tr>
<tr>
<td>CMAI</td>
<td>Cohen-Mansfield Agitation Inventory</td>
</tr>
<tr>
<td>C.N.M.I.</td>
<td>Commonwealth of Northern Mariana Islands</td>
</tr>
<tr>
<td>CRS</td>
<td>Category Rating Scale</td>
</tr>
<tr>
<td>CWS</td>
<td>Cannabis Withdrawal Scale</td>
</tr>
<tr>
<td>D.C.</td>
<td>District of Columbia</td>
</tr>
<tr>
<td>DDS</td>
<td>Descriptor Differential Scale</td>
</tr>
<tr>
<td>DEA</td>
<td>Drug Enforcement Administration</td>
</tr>
<tr>
<td>DOT</td>
<td>Department of Transportation</td>
</tr>
<tr>
<td>EC</td>
<td>European Commission</td>
</tr>
<tr>
<td>Abbreviation</td>
<td>Description</td>
</tr>
<tr>
<td>--------------</td>
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</tr>
<tr>
<td>EMA – C</td>
<td>Experimental Medicine in ADHD – Cannabinoids study</td>
</tr>
<tr>
<td>EORTC QLQ</td>
<td>European Organisation for Research and Treatment of Cancer Quality of Life Questionnaire</td>
</tr>
<tr>
<td>ESS</td>
<td>Epworth sleepiness scale</td>
</tr>
<tr>
<td>E.U.</td>
<td>European Union</td>
</tr>
<tr>
<td>FAACT</td>
<td>Functional Assessment of Anorexia-Cachexia Therapy</td>
</tr>
<tr>
<td>FDA</td>
<td>Food and Drug Administration</td>
</tr>
<tr>
<td>FTM</td>
<td>Fahn-Tolosa-Marin clinical scale</td>
</tr>
<tr>
<td>HIV/AIDS</td>
<td>Human immunodeficiency virus, acquired immunodeficiency syndrome and acquired immunodeficiency syndrome</td>
</tr>
<tr>
<td>HOMA-IR</td>
<td>Homeostatic model assessment</td>
</tr>
<tr>
<td>HSQ-ASD</td>
<td>Home Situation Questionnaire-ASD</td>
</tr>
<tr>
<td>IBD</td>
<td>Inflammatory Bowel Disease</td>
</tr>
<tr>
<td>IBS</td>
<td>Irritable Bowel Syndrome</td>
</tr>
<tr>
<td>IND</td>
<td>Investigational new drug</td>
</tr>
<tr>
<td>ISI</td>
<td>Insomnia Severity Index</td>
</tr>
<tr>
<td>IOM</td>
<td>Institute of Medicine</td>
</tr>
<tr>
<td>IRB</td>
<td>Institutional review board</td>
</tr>
<tr>
<td>MA</td>
<td>Massachusetts</td>
</tr>
<tr>
<td>MC</td>
<td>Medical cannabis</td>
</tr>
<tr>
<td>MCCS</td>
<td>Minnesota Cocaine Craving Scale</td>
</tr>
<tr>
<td>MCQ</td>
<td>Marijuana Craving Questionnaire</td>
</tr>
<tr>
<td>MDS-UPDRS</td>
<td>Movement Disorder Society Unified Parkinson’s Disease Rating Scale – Part I, or MDS-UPDRS Part I</td>
</tr>
<tr>
<td>MHRA</td>
<td>Medicines and Healthcare Products Regulatory Agency</td>
</tr>
<tr>
<td>MNEMONICH</td>
<td>Multi-National Survey on Epidemiology, Morbidity and Outcomes in Intracerebral Hemorrhage</td>
</tr>
<tr>
<td>mRS</td>
<td>modified Rankin Scale</td>
</tr>
<tr>
<td>MS</td>
<td>Multiple Sclerosis</td>
</tr>
<tr>
<td>MWC</td>
<td>Marijuana Withdrawal Checklist</td>
</tr>
<tr>
<td>NASEM</td>
<td>National Academies of Sciences, Engineering, and Medicine</td>
</tr>
<tr>
<td>Abbreviation</td>
<td>Full Form</td>
</tr>
<tr>
<td>--------------</td>
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</tr>
<tr>
<td>NCCTG</td>
<td>North Central Cancer Treatment Group</td>
</tr>
<tr>
<td>NHANES</td>
<td>National Health and Nutrition Examination Survey</td>
</tr>
<tr>
<td>NHS</td>
<td>National Health Service</td>
</tr>
<tr>
<td>NIDA</td>
<td>National Institute of Drug Abuse</td>
</tr>
<tr>
<td>NPI</td>
<td>Neuropsychiatric Inventory</td>
</tr>
<tr>
<td>NPS</td>
<td>Neuropathic Pain Scale</td>
</tr>
<tr>
<td>NRS</td>
<td>Numeric Rating Scale</td>
</tr>
<tr>
<td>NY</td>
<td>New York State</td>
</tr>
<tr>
<td>OSA</td>
<td>Obstructive sleep apnea</td>
</tr>
<tr>
<td>PASA VAS</td>
<td>Post-task appraisal questionnaire</td>
</tr>
<tr>
<td>PDMP</td>
<td>Prescription drug monitoring program</td>
</tr>
<tr>
<td>PTSD</td>
<td>Post-traumatic stress disorder</td>
</tr>
<tr>
<td>Qb Test</td>
<td>Quantitative Behavioural Test</td>
</tr>
<tr>
<td>QC</td>
<td>Qualifying condition</td>
</tr>
<tr>
<td>RC</td>
<td>Recreational cannabis</td>
</tr>
<tr>
<td>RCT</td>
<td>Randomized controlled trial</td>
</tr>
<tr>
<td>SCL-90R</td>
<td>Symptom Checklist-90-R</td>
</tr>
<tr>
<td>SPST</td>
<td>Simulated public speaking test</td>
</tr>
<tr>
<td>STSS</td>
<td>Shapiro Tourette’s syndrome Severity Scale</td>
</tr>
<tr>
<td>TBI</td>
<td>Traumatic brain injury</td>
</tr>
<tr>
<td>THC</td>
<td>Tetrahydrocannabinol</td>
</tr>
<tr>
<td>THCV</td>
<td>Tetrahydrocannabivarin</td>
</tr>
<tr>
<td>TWSTRS-A</td>
<td>Toronto Western Spasmodic Torticollis Rating Scale – part A subscore</td>
</tr>
<tr>
<td>TOTPAR</td>
<td>Total Pain Relief</td>
</tr>
<tr>
<td>TSC</td>
<td>Tuberous Sclerosis Complex</td>
</tr>
<tr>
<td>TSGS or TS-CGI</td>
<td>Tourette’s Syndrome Global Scale, or TSGS or TS-CGI</td>
</tr>
<tr>
<td>TSSL</td>
<td>Tourette’s Syndrome Symptom List</td>
</tr>
<tr>
<td>TSST</td>
<td>Trier Social Stress Test</td>
</tr>
<tr>
<td>UHDRS</td>
<td>Unified Huntington’s Disease Rating Scale</td>
</tr>
</tbody>
</table>
U.K.                United Kingdom
UPDRS               Unified Parkinson’s Disease Rating Scale
U.S.                United States
U.S.V.I.            U.S. Virgin Islands
VAMS                Visual Analogue Mood Scale
VAS                 Visual Analogue Scale
VAS-C               Visual Analogue Scale for Craving
WDS                 Discomfort score of the Withdrawal Checklist
YGTSS               Yale Global Tic Severity Scale
Chapter 1. Introduction

As of December 2021, 36 U.S. states and 5 non-state jurisdictions—Commonwealth of Northern Mariana Islands (C.N.M.I.), Guam, Puerto Rico, U.S. Virgin Islands (U.S.V.I.), and Washington D.C.—have legalized cannabis for recreational or medical use (see Figure 1). Each of these states or jurisdictions have legally established “qualifying conditions” that allow patients to use cannabis medically (if recreational cannabis use is not already legal). Across all U.S. states and jurisdictions for which medical cannabis (MC) use is legal (excluding states that only allow for cannabidiol use, or “CBD Only” states), there are approximately 80 qualifying conditions. However, according to a recent review published by the National Academies of Sciences, Engineering, and Medicine (2017), only a handful of these conditions have “conclusive” or “substantial” evidence that certain cannabis products are therapeutically effective for treating specific symptoms. The gaps in clinical knowledge on the therapeutic effects of cannabis or cannabinoids raise an important public health concern: without sufficient clinical guidance, MC patients are at some risk of using cannabis products in a manner that is therapeutically ineffective or harmful to their health.

To assess the scale of this issue, I use NASEM (2017) as a guiding document and analyze sales invoices from a single MC company that operates four dispensaries in New York State (NY). Specifically, I address the following questions to understand relevant aspects of the U.S. MC market:

1. Which cannabis products have been examined and found to be effective according to human clinical studies or reviews of these studies?
2. To what degree do MC patients purchase cannabis products in a manner that is inconsistent with clinical research, and do patients make fewer “clinically inconsistent” purchases over time?
3. Which patient characteristics are associated with making clinically inconsistent purchases?

In Chapter 2, I conduct a scoping review of which cannabinoids and modes of delivery have been studied and found to be effective in human clinical studies assessing the therapeutic effects of cannabis or cannabinoids for qualifying conditions covered in the U.S. I elaborate on studies covered in NASEM (2017), providing additional details not discussed in their review, and then discuss findings from human randomized controlled trials published after their report (January 2016 to May 2021). This exercise helps summarize the current evidence base and highlights existing gaps in clinical cannabis research involving human subjects. I find that nearly all
studies covered in both NASEM’s report and my literature review examine different formulations of the whole cannabis plant (e.g., smoked flower, vaporized cannabis); tetrahydrocannabinol (THC), the primary psychoactive ingredient in cannabis; and cannabidiol (CBD), a prominent, non-intoxicating ingredient in cannabis. According to clinical studies and systematic reviews covered in NASEM’s report, clinical evidence suggests oral THC or synthetic THC (dronabinol, nabilone) is effective for treating chemotherapy-induced nausea and vomiting in cancer patients; an oral spray medication containing cannabis-derived THC plus CBD (nabiximols) as well as oral, cannabis-derived THC are effective for treating patient-measured spasticity induced by multiple sclerosis (MS); and inhaled cannabis flower as well as nabiximols are effective for treating for chronic pain in adults. Additionally, between 2018 and 2021, Australia, the European Union, the United Kingdom, and the U.S. approved of a pharmaceutical-grade oral solution containing cannabis-derived CBD (Epidiolex®) for treating certain forms of epilepsy. Together, cancer, chronic pain, epilepsy, MS, nausea, and spasticity constitute over 85 percent of medical cannabis (MC) patients in the U.S. Conversely, the remaining qualifying conditions listed in U.S. MC laws currently lack sufficient evidence that certain cannabis products are therapeutically effective, including eight conditions covered in over 15 U.S. states as of December 2021 (see Table 1). Additionally, nearly all cannabis products examined for therapeutic effects in human clinical studies thus far are either federally approved prescription medications that may only be dispensed by U.S. pharmacies (dronabinol, nabilone, Epidiolex®) or cannabis-based medications that are not (yet) federally approved in the U.S. (Cannador®, Namisol®, Sativex®), neither of which may be sold in U.S. cannabis dispensaries. As a result, if U.S. MC patients find over-the-counter or prescription medications to be ineffective and/or intolerable due to side effects and wish to try dispensary products instead, their doctors may lack guidance from their usual sources of information (clinical studies, pharmacists, and pharmaceutical companies) to recommend dispensary products that can mimic the effects of these medications. Given these gaps in clinical cannabis research, there is considerable potential for MC patients to purchase dispensary products in a manner that is inconsistent with clinical research and potentially ineffective (if not harmful) for treating their health conditions. The existing policy literature has not yet examined the degree to which this phenomenon occurs.

Chapter 3 examines what percent of patients makes “clinically inconsistent” purchases, whether significantly fewer patients make clinically inconsistent purchases over time, and what demographic characteristics are associated with an increased likelihood of making clinically inconsistent purchases. Descriptive analyses of sales invoices suggest that approximately one half of MC patients make clinically inconsistent purchases, although significantly fewer patients make clinically inconsistent purchases over time. Additionally, regression analyses suggest that female patients and patients over the age of 40, compared to male patients and patients under age 40 respectively, are significantly more likely to make clinically inconsistent purchases, controlling for quantity of items in an invoice, total number of invoices, temporal trends (quarter,
year), and dispensary location. It is difficult to ascertain from sales data why clinically inconsistent purchases occur, but I do find that many patients who treat pain-related symptoms predominantly make clinically inconsistent purchases due to purchases of equal THC to CBD ratio products or CBD-dominant products, which suggests it is less likely these patients make clinically inconsistent purchases to use cannabis products recreationally.\textsuperscript{6, 23-27}

In Chapter 4, I further examine the degree to which chronic pain as a health condition predicts recreational cannabis (RC) use among MC patients. Specifically, I analyze sales invoices to observe whether there is a significant decrease in the percent of MC patients registered as chronic pain after recreational cannabis (RC) legalization takes effect in Massachusetts (MA), a neighboring U.S. state. Given that chronic pain is more broadly defined than other qualifying conditions listed in NY’s MC laws (e.g., cancer, epilepsy),\textsuperscript{28} that clinical studies have found inhaled cannabis to be effective for treating chronic pain,\textsuperscript{29-35} and that the majority of patients in this dataset are registered as chronic pain, it is theoretically possible for healthy individuals to have entered the MC market by registering with chronic pain in order to obtain cannabis products for recreational use.\textsuperscript{36-37} Hence, a significant decrease in the population of chronic pain patients would suggest these patients have exited NY’s MC market in order to purchase cannabis for recreational use in MA instead. However, controlling for demographics (age, gender), temporal trends (quarter, year), dispensary location, and whether patients reside near the MA-NY border, I find that RC legalization in MA is not associated with a decreased likelihood of MC patients registering with chronic pain as their qualifying condition. Supplemental regression analyses of survey data also suggest that chronic pain patients are not more likely than non-chronic patients to report RC use of MC products. These results suggest that chronic pain as a qualifying condition is not necessarily a reliable indicator of RC use.

Collectively, my findings suggest that policymakers have not sufficiently incorporated cannabis research findings into MC laws. Since 2016, 14 more U.S. states that legalized MC use have listed qualifying conditions in their laws that lack evidence from human clinical studies to suggest that cannabis products are therapeutically effective. Findings from Chapter 3 also suggest that a substantial share of MC patients make clinically inconsistent purchases. Given that cannabis products are now more widely available across the U.S. through medical and/or recreational cannabis dispensaries, federal and state policymakers may now pursue interventions to further distinguish the MC market from the RC market to ensure that MC patients are given proper and uniquely tailored care and guidance informed by clinical research. In Chapter 5, I discuss possible interventions policymakers can consider for future development and implementation.
References


4 National Academies of Sciences, Engineering, and Medicine (NASEM), The health effects of cannabis and cannabinoids: The current state of evidence and recommendations for research: National Academies Press, 2017


21 NASEM, The health effects of cannabis and cannabinoids, 2017, pp. 89-90


36 Williams, Arthur Robin, Mark Olfson, June H Kim, Silvia S Martins, and Herbert D Kleber, “Older, less regulated medical marijuana programs have much greater enrollment rates than newer ‘medicalized’ programs,” Health Affairs, Vol. 35, No. 3, 2016, pp. 481

Tables and Figures

Figure 1. Legal Status of Cannabis Across U.S. States (as of December 2021)

Table 1. Most Common Qualifying Health Conditions among U.S. States, and the Level of Clinical Evidence that Cannabis or Cannabinoids are Therapeutically Effective (as of December 2021)

<table>
<thead>
<tr>
<th>Qualifying Condition</th>
<th># States</th>
<th>Evidence</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chronic Pain</td>
<td>33 states</td>
<td>Substantial</td>
<td>Treating chronic pain in adults</td>
</tr>
<tr>
<td>Cancer (Nausea)</td>
<td>33 states (23 states)</td>
<td>Conclusive</td>
<td>Treating chemotherapy-induced nausea and vomiting</td>
</tr>
<tr>
<td>Epilepsy, seizures</td>
<td>32 states</td>
<td>Insufficient</td>
<td>Treating epilepsy</td>
</tr>
<tr>
<td>Multiple sclerosis (Spasticity)</td>
<td>28 states (26 states)</td>
<td>Substantial</td>
<td>Treating patient-measured spasticity in MS</td>
</tr>
</tbody>
</table>

Human immunodeficiency virus and acquired immune deficiency syndrome (HIV/AIDS)
- 33 states
  - Limited
  - Increasing appetite or weight in HIV/AIDS wasting syndrome

Post-traumatic stress disorder (PTSD)
- 31 states
  - Limited
  - Treating PTSD symptoms

Glaucoma
- 30 states
  - Limited
  - Treating glaucoma symptoms

Cachexia or wasting syndrome
- 29 states
  - Insufficient
  - Treating cancer-associated anorexia-cachexia syndrome

Crohn's disease
- 26 states
  - Insufficient
  - Treating Crohn's disease

Amyotrophic lateral sclerosis (ALS)
- 23 states
  - Insufficient
  - Treating ALS symptoms

Parkinson's disease
- 16 states
  - Insufficient
  - Treating motor symptoms in Parkinson's disease

Alzheimer's disease
- 16 states
  - Insufficient
  - Improving dementia symptoms

Sources: NASEM (2017), DISA (2021), NORML (2021)

Qualifying conditions in bold have “substantial” or “conclusive” evidence that cannabis products are therapeutic for a specific symptom (NASEM, 2017).

1 NASEM (2017) deems the existing literature at the time of authoring their report to provide “insufficient” evidence to support or refute that cannabidiol (CBD) is effective for treating epilepsy. However, since NASEM’s (2017) report, Australia, the European Union, United Kingdom, and the U.S. have all approved Epidiolex®, a pharmaceutical-grade oral solution containing cannabis-derived CBD, for treating certain forms of epilepsy.
Abstract

As of December 2021, cannabis is legal for medical use in 36 U.S. states, and yet a 2017 review by the National Academies of Sciences, Engineering, and Medicine (NASEM) finds that most health conditions that allow patients on a state-by-state basis to use cannabis medically have limited to no evidence to support or refute that certain cannabis products are therapeutically effective. Of approximately 80 qualifying health conditions across the U.S., NASEM could only address 32 of these conditions from the available evidence at the time of writing their report. In this scoping review, I catalogue all phytocannabinoids and modes of drug delivery that have been examined by studies included in NASEM (2017) and randomized controlled trials published after NASEM’s report (January 2016 to May 2021). This exercise shows which cannabis products have been found to be therapeutically effective and highlights gaps in the literature for researchers to address in future studies. According to NASEM’s assessment, certain products have been substantiated to be effective for treating specific symptoms: oral THC or synthetic THC (dronabinol, nabilone) for treating chemotherapy-induced nausea and vomiting, oral THC extract as well as an oral medication containing THC plus CBD extract (nabiximols) for treating patient-measured spasticity in multiple sclerosis, and inhaled cannabis as well as nabiximols for treating chronic pain in adults. Randomized controlled trials published after NASEM (2017) provide additional evidence that certain cannabis products are therapeutically effective, including an oral solution containing cannabis-derived CBD (Epidiolex®) that has been internationally approved for treating specific forms of epilepsy. However, approximately half of 80 state-by-state qualifying conditions in the U.S. lack any evidence from human randomized controlled trials, and 14 U.S. states that legalized medical cannabis use since 2016 have listed qualifying conditions in their laws that currently lack sufficient evidence to show that cannabis products are therapeutically effective. Additionally, nearly all cannabis products examined in clinical studies use cannabis-based medications such as dronabinol, nabilone, and nabiximols that legally cannot be sold in U.S. dispensaries. Thus, for many qualifying conditions, doctors may have limited guidance for recommending which dispensary products to use for patients who wish to use these products instead of or in addition to standard medications. In conclusion, the known therapeutic effects of certain cannabis products, existing gaps in the literature, and noteworthy developments after the NASEM report demonstrate the importance of cannabis research, but given the difficulty of conducting this research and the indefinite amount of time such research takes to influence cannabis policy, U.S. policymakers must consider interventions to make the nation’s medical cannabis market more reflective of existing research as the overall cannabis market rapidly evolves.
Introduction

As of December 2021, cannabis is legal for medical use in 36 U.S. states and 5 non-state jurisdictions (Commonwealth of Northern Mariana Islands [C.N.M.I.], Guam, Puerto Rico, U.S. Virgin Islands [U.S.V.I.], and Washington D.C.)—excluding eleven states that only allow the use of cannabidiol, or CBD (Georgia, Indiana, Iowa, Kansas, Mississippi, North Carolina, South Carolina, Tennessee, Texas, Wisconsin, and Wyoming).\(^1\)\(^,\)\(^2\)

Despite cannabis dispensary products being widely available for medical use in the U.S., a recent review finds that only a few qualifying conditions, or health conditions that legally allow patients on a state-by-state basis to use cannabis medically, are sufficiently backed by clinical evidence to show that certain cannabis-based products are therapeutically effective.\(^3\)\(^,\)\(^4\) For other qualifying conditions, both clinicians and medical cannabis (MC) patients lack guidance from clinical research on whether cannabis-based products should be recommended, and if so, which products patients should use, as well as optimal doses and dosing schedules.\(^5\) Given these gaps in clinical research, it is worth taking inventory of which cannabis products have been examined in human clinical studies. This exercise would serve two purposes: first, it would indicate which cannabis products have been found to be therapeutically effective; second, it would highlight gaps in the literature for researchers to address in future studies.

In this scoping review, I list which cannabis products have been examined for therapeutic purposes in clinical studies and summarize findings from these studies. I focus on human clinical studies because prescription medications are usually not approved by federal regulatory bodies unless they are demonstrated to be tolerable and effective in humans. Additionally, in order to comment on U.S. MC policy, I focus my review on qualifying conditions listed in MC laws by U.S. states or other jurisdictions. The review consists of two parts: first, by qualifying condition, I itemize phytocannabinoids (“cannabinoids,” or ingredients unique to cannabis) and modes of delivery (e.g., capsule, smoked flower) that have been examined by clinical studies that are included in a recent report by the National Academies of Sciences, Engineering, and Medicine (NASEM);\(^3\)\(^,\)\(^6\) second, by qualifying condition, I conduct my own literature review to see which cannabis products (i.e., cannabinoids and modes of delivery) have been examined since NASEM’s report (January 2016 to May 2021). Additionally, I note whether findings from my literature review contribute to or differ from findings in NASEM’s report.

NASEM’s report only addresses human clinical or observational studies for 32 qualifying conditions. Within five years after NASEM’s report was published, I find eight more qualifying conditions have been examined in human randomized controlled trials (RCT): attention deficit hyperactivity disorder, autism, cerebral palsy, Crohn’s disease, headache or migraine,\(^7\)

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\(^1\) As of December 2021, 18 U.S. states, C.N.M.I., Guam, and Washington D.C. have legalized recreational/adult-use cannabis; 18 U.S. states, Puerto Rico, and U.S.V.I. have only legalized medical cannabis use; 11 U.S. states have only legalized CBD use; Nebraska has only decriminalized cannabis use (excluding “CBD-only” U.S. states); and Idaho and Kentucky have zero-tolerance cannabis laws (i.e., cannabis is illegal, excluding CBD-only U.S. states).
inflammatory bowel disease, opioid use disorder, and ulcerative colitis. Nearly all clinical studies included in NASEM’s report examine different ratios of two major cannabinoids: tetrahydrocannabinol (THC), the primary psychoactive ingredient in cannabis, and CBD, a prominent, non-intoxicating ingredient. THC has been found to exhibit therapeutic properties such as analgesia, antiemetic effects, and appetite-inducing effects, especially when used in combination with other cannabis ingredients, while CBD has been found to exhibit anxiolytic, anti-inflammatory, and neuroprotective properties and to counteract the psychotropic effects of THC.

According to the NASEM report, there is “conclusive” or “substantial” evidence that certain cannabis products are effective for treating specific symptoms of the following qualifying conditions: oral THC or synthetic THC (dronabinol, nabilone) for treating chemotherapy-induced nausea and vomiting in cancer patients; a pharmaceutical-grade, oral spray containing cannabis-derived THC plus CBD (nabiximols) as well as oral THC extract for treating patient-measured spasticity induced by multiple sclerosis (MS); and inhaled cannabis as well as nabiximols for treating chronic pain in adults. Together, these qualifying conditions constitute approximately 85 percent of MC patients in the U.S. For nearly all other qualifying conditions, NASEM concludes there is limited to no evidence to support or refute that cannabis or cannabinoids are therapeutic (only sleep apnea has “moderate” evidence). Newer RCTs I identify in my literature review provide additional evidence that these same cannabis products are effective for treating the symptoms listed above. Additionally, since NASEM’s report was published, Epidiolex® (oral, cannabis-derived CBD) has been found to be effective for treating certain forms of epilepsy, and other CBD formulations have been found to be effective for treating pain in adults and social anxiety induced by public speaking tests. Nevertheless, as of May 2021, approximately half of 80 state-by-state qualifying conditions in the U.S. lack any evidence from human randomized controlled trials that demonstrate cannabis or cannabinoids are therapeutically effective. Furthermore, despite NASEM’s findings, 14 U.S. states that have legalized MC use since 2016 have listed qualifying conditions in their laws that currently have limited to no evidence to support or refute that cannabis products are therapeutically effective.

Finally, nearly all cannabis products examined in human clinical studies thus far are either federally-approved prescription medications that may only be dispensed by U.S. pharmacies (dronabinol, nabilone, Epidiolex®) or cannabis-derived medications that are not yet federally approved in the U.S. (Cannador®, Namisol®, Sativex®), neither of which may be legally sold in U.S. cannabis dispensaries. As a result, if MC patients in the U.S. find over-the-counter drugs or prescription medications to be ineffective and/or intolerable due to side effects and want to try dispensary products instead, their doctors may lack guidance from their usual sources of information (clinical studies, pharmacists, and pharmaceutical companies) to recommend dispensary products that can mimic the therapeutic effects of these medications.
Background

For decades, federal restrictions have made clinical research on the therapeutic effects of cannabis difficult to conduct in the U.S. With cannabis listed as “Schedule I” under the Controlled Substances Act, for over 50 years, researchers could only obtain cannabis from the National Institute of Drug Abuse (NIDA); the federal government only recently licensed other manufacturers in November 2021. To obtain cannabis from NIDA or another manufacturer licensed by the U.S. Drug Enforcement Administration (DEA), researchers must be approved by an institutional review board (IRB) and their state government and/or board of medical examiners, which may have special requirements for handling Schedule I substances. Additionally, researchers must register their study with the DEA to obtain a license for their research site, which requires security provisions for storing and dispensing cannabis and is subject to DEA inspection. These research requirements apply to preclinical studies on animal or cellular models as well as open-label and safety or tolerability studies on human subjects, which determine the clinical effects and tolerability of a cannabis product, optimal doses and dosing schedules, and the mechanisms driving these effects. These requirements also apply to randomized controlled trials (RCT) that compare cannabis products to placebo and/or other medications and are informed by pre-clinical, open-label, and safety or tolerability studies. However, RCTs that involve human subjects must additionally be approved by the U.S. Food and Drug Administration (FDA), for which researchers must submit an investigational new drug (IND) dossier that details study protocols, assurances of informed consent, and manufacturer details on the cannabis product being studied (e.g., strain, animal pharmacology, animal toxicology). This rigorous process of obtaining funding, registration, state and/or institutional approval, and federal approval has arguably disincentivized and prevented clinical research on cannabis.

Given the regulatory difficulties of conducting cannabis research, various pharmaceutical-grade, cannabis-based medicinal products have been developed for potentially treating various health conditions and examined in clinical studies assessing therapeutic effects of specific cannabinoids. Such medications include synthetic analogues of pure THC: dronabinol (brand name Marinol® or Syndros®), which was approved by the U.S. FDA in 1985 for treating chemotherapy-induced nausea and vomiting, and in 2006 for treating anorexia or cachexia induced by acquired immunodeficiency syndrome (AIDS); nabilone (brand name Cesamet®), which was also FDA-approved in 1992 for treating chemotherapy-induced nausea and vomiting; and levonantradol, a variation of dronabinol that has been examined in various studies for

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ii The CSA grades substances (e.g., narcotics, stimulants, depressants) on a five-point scale, or Schedules I-V, from most (Schedule I) to least regulated (Schedule V). Substances are graded based on factors such as potential for abuse, evidence of pharmacological effects, and risks to public health (DEA 2020a; DEA 2020b).
treating chemotherapy-induced nausea and vomiting but is not FDA-approved.iii, 35-39 Other medications developed outside of the U.S. use cannabis plant-based extracts. Epidiolex®, an oral solution developed by GW Pharmaceuticals in the United Kingdom (U.K.) that contains cannabis-derived CBD, was approved by the U.S. FDA in 2018 and, in 2019, the European Union’s European Commission (E.U. EC) and the U.K.’s National Health Service (U.K. NHS) for treating two rare forms of epilepsy for patients aged 2 and up (Lennox-Gastaut syndrome and Dravet syndrome).iv, 40-46 Epidiolex® was also approved in 2020 by the U.S. FDA and, in 2021, by the E.U. EC and the U.K.’s Medicines and Healthcare Products Regulatory Agency for treating seizures associated with Tuberous Sclerosis Complex (TSC) in patients aged 2 and older.iv, 47-50 The Australian government also approved Epidiolex® for Dravet syndrome in May 2021.vi Nabiximols (brand name Sativex®), an oral spray containing nearly equal parts of plant-derived THC and CBD that was also developed in the U.K. by GW Pharmaceuticals, is approved in various European countries (e.g., Denmark, Germany, the U.K.) for treating symptoms of multiple sclerosis (MS) and cancer-related, neuropathic pain but has not been FDA-approved as of December 2021.vi, 52 Cannador®, a cannabis-derived capsule containing THC and CBD at a 2 to 1 ratio that was developed in Germany by the Society for Clinical Research, has been examined in clinical studies for treating MS-induced spasticity, cancer-induced anorexia or cachexia, and post-operative pain but is also not FDA-approved as of December 2021.vi Namisol®, a tablet containing plant-derived, pure THC developed in the Netherlands by Echo Pharmaceuticals, has been examined in clinical studies for treating pain and MS-induced spasticity but is not FDA-approved as of December 2021.vi The development and examination of these medications has been critical to the proliferation and abundance of clinical cannabis studies; in fact, as of May 2021, the majority of human clinical studies on the potential therapeutic effects of cannabinoids have examined these medications rather than cannabis products that are similar to those available in U.S. dispensaries (see the Results section below).

Despite the importance of these medications in furthering our understanding on the therapeutic effects of cannabinoids, pharmaceutical companies may currently be less likely to conduct such research. Note that nearly all of the aforementioned medications (except for Epidiolex®) were developed before 2010, as cannabis products were less widely available then; globally, only 15 U.S. states, Canada, Estonia, Finland, and the Netherlands had legalized medical cannabis (MC) use, and no country had yet legalized recreational cannabis use.vi, 55-56 Given that cannabis is now more widely available worldwide and cheaper to produce than

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iii Whereas Marinol® is dronabinol in oral capsule form, dronabinol was also approved in 2016 by the U.S. FDA in oral solution form (brand name Syndros®) (clinicaltrialsarena.com, 2017; Ellis, 2017; Benuvia Therapeutics Inc, 2020).

iv Unlike in the E.U. and U.K., the U.S. FDA’s approval of Epidiolex® in 2020 for treating TSC-associated seizures applies to ages one and up and also expands Epidiolex® to ages one and up for treating LGS and Dravet syndrome (GW Pharmaceuticals, 2020).
medicinal products,\textsuperscript{v}.\textsuperscript{57-58} that cannabis research in the U.S. is difficult and expensive to conduct, and that dozens of clinical studies using cannabis-based medications have failed to produce clinically significant findings for several health conditions (see the \textit{Results} section below), it is less likely today that pharmaceutical companies will conduct new clinical trials to either create new cannabis-based medications or to assess the efficacy of cannabinoids for various health conditions, which further hinders cannabis research and our understanding of the therapeutic effects of cannabis or cannabinoids.\textsuperscript{35}

However, given the abundance of clinical cannabis studies that have been conducted, and in response to an increasing number of U.S. states legalizing MC use (including smoked flower, edibles, and other non-FDA approved cannabis products), the U.S. federal government and other national associations commissioned consensus reports to summarize the existing research on the known risks, harms, and therapeutic effects of cannabis or cannabinoids. In 1999, the U.S. Office of National Drug Control Policy tasked the Institute of Medicine (IOM) with producing one such report, for which the IOM published \textit{Marijuana and Medicine: Assessing the Science Base}.\textsuperscript{59} In 2017, as a follow-up to IOM’s work, the National Academies of Sciences, Engineering, and Medicine (NASEM) published a similar report, \textit{The Health Effects of Cannabis and Cannabinoids}; Chapter 4 of this report reviews evidence from the literature on the therapeutic effects of cannabis or cannabinoids, with a particular focus on qualifying conditions listed in U.S. MC laws (e.g., anxiety, cancer, glaucoma).\textsuperscript{60}

In their review of good- or fair-quality systematic reviews (including meta-analyses) published after 2011 and clinical or other studies published between January 1, 1999 and August 1, 2016, NASEM identifies studies that are of acceptable research quality for 32 qualifying conditions. This is fewer than half of approximately 80 qualifying conditions listed by U.S. states or other jurisdictions in their MC laws as of December 2021 (see Table 1).\textsuperscript{2,61-63} Depending on the quantity, quality, and consistency of the available clinical research, NASEM assigns a grade to indicate the level of evidence (e.g., “Conclusive,” “Moderate,” “Insufficient”) that cannabis or cannabinoids have a specific health effect for each qualifying condition. For example, NASEM concludes that the clinical evidence at the time of writing their report is “conclusive” that certain cannabinoids are effective for treating chemotherapy-induced nausea and vomiting, whereas they conclude there is “insufficient” evidence to support or refute that cannabinoids can treat cancers themselves, including glioma.

\textsuperscript{v} As of December 2021, cannabis is legal for medical or recreational use in 36 U.S. states and 5 non-state jurisdictions—including countries and U.S. states or jurisdictions in which cannabis is only decriminalized—Argentina, Barbados, Bermuda, Brazil, Canada, Chile, Colombia, Croatia, Cyprus, Czech Republic, Denmark, Ecuador, Finland, Georgia, Germany, Ghana, Greece, Ireland, Israel, Italy, Jamaica, Lebanon, Lithuania, Luxembourg, Malawi, Malta, Mexico, the Netherlands, New Zealand, North Macedonia, Norway, Peru, Poland, Portugal, Saint Vincent and the Grenadines, San Marino, Sri Lanka, Switzerland, the U.K., Uruguay, Vanuatu, Zambia, and Zimbabwe.
Although NASEM (2017) provides a thorough overview of the literature, their work can be expanded. First, there are several qualifying conditions allowed by multiple U.S. states (e.g., autism, Hepatitis C) for which NASEM does not report any findings; it is unclear whether this is because NASEM had excluded low-quality studies from their review that address these conditions or because there simply had not been any studies at the time. Thus, it is worth conducting an additional review to see what other research has been done since NASEM (2017). Second, although NASEM (2017) does detail which cannabis products have been studied and found to be effective, as well as dosing, patient sample size, treatment duration, and how study outcomes were measured, their report does not provide this information consistently for every health condition. For example, whereas much of these details are provided in Chapter 4 of their report for anxiety, Tourette’s syndrome, and Parkinson’s disease, this information is not provided to the same degree for cancer, chronic pain, and spasticity. NASEM also rarely notes the country in which studies take place (which could be useful in determining the comparability of studies examining different patient populations). Thus, it is useful to summarize and catalogue what research has been done so far, providing a useful resource for clinicians and patients to review which cannabis products may be therapeutically effective or ineffective for certain conditions, as well as a roadmap for what research has not been conducted and should be examined further. Additionally, this information helps determine how comparable findings are from various studies on the same health condition (e.g., depending on which outcome measures or drug dosages are used).

Methods

To map the available evidence on the therapeutic effects of cannabis and cannabinoids for qualifying conditions, I conduct a scoping review of clinical studies involving human subjects. I focus on human clinical studies because prescription medications are usually not approved by federal regulatory bodies unless they are demonstrated to be tolerable and effective in humans. The scoping review consists of two parts: first, I obtain details from the studies included in NASEM (2017) and Abrams (2018) (a follow-up to the 2017 report); second, I conduct my own literature review of randomized controlled trials published after NASEM’s report (January 2016 to May 2021). For each qualifying condition, I summarize the cannabinoid formulations (e.g., THC, CBD, THC plus CBD, whole cannabis) and modes of delivery (e.g., capsules, oral drop) that have been studied. I also detail the country, patient sample size, cannabis product dosages, treatment duration, and outcome measures of all studies included in Parts I and II to compare findings in NASEM (2017) with those from more recent studies, as well as factors that may have influenced these findings (e.g., drug dosing, treatment duration). Finally, because many qualifying conditions share similar symptoms (e.g., nausea, pain), I categorize all studies according to the symptom and condition for which NASEM (2017) draws a conclusion,
regardless of the patient population. For example, studies examining chronic pain among patients with cancer, multiple sclerosis (MS), or neuropathy are all grouped under “Chronic Pain” because NASEM draws a single conclusion for the effects of cannabis or cannabinoids on chronic pain in general, not specific populations of patients with chronic pain. Conversely, studies on MS-induced spasticity are grouped separately from studies on spasticity induced by spinal cord injury because NASEM draws different clinical conclusions for each of these conditions.

Part I. NASEM (2017)

In their report, NASEM examines good- or fair-quality systematic reviews (including meta-analyses) published since 2011. Additionally, NASEM reviews clinical studies published between January 1, 1999 and August 1, 2016. Although NASEM had given primacy to collecting information from good-quality randomized controlled trials (RCT), NASEM also discusses findings from non-RCTs if RCTs could not be found (i.e., open-label or non-randomized controlled trials, prospective controlled studies, analyses of secondary data, case-control studies, and—in the absence and these former three categories—case series, case studies, and pre-clinical studies). For each qualifying condition, NASEM first discusses findings from available good- or fair-quality systematic reviews and then discusses findings from individual studies (especially if they were published after the data collection period of the systematic reviews or if no good- or fair-quality systematic reviews were found). Together, NASEM uses these findings to draw clinical conclusions about the effects of cannabis or cannabinoids for a specific symptom(s) of each qualifying condition.

Having collected all clinical studies included in NASEM’s collection (NASEM, 2017; Abrams, 2018), for each qualifying condition, I summarize findings from these studies and what NASEM concludes about the degree to which therapeutic effects have been demonstrated. Note that, for the purposes of this study, I only collect clinical studies that examine the therapeutic effects of cannabis or cannabinoids, as discussed in Chapter 4 of NASEM’s (2017) report—except for diabetes, which NASEM discusses in Chapter 6—not the risk or harms of cannabis products. For consistency, I count clinical studies as “included” in NASEM’s collection if they meet the criteria below (in hierarchical order from #1 to #3) because the studies meeting these criteria are chiefly what NASEM uses to draw conclusions about the effects of cannabis or cannabinoids:

1. **Not excluded by systematic review(s) from which it was obtained.** The study that is cited by a systematic review(s) discussed by NASEM is not excluded from the systematic review(s) (if a study is covered in multiple systematic reviews, it must not have been excluded by all of them).

2. **RCT.** The study is an RCT that is either identified by a good- or fair-quality systematic review(s) discussed by NASEM or identified by NASEM in addition to or in absence of a
good- or fair-quality review. If NASEM identifies at least one RCT for a qualifying condition, all other non-RCTs are excluded (e.g., open-label studies).

3. **Non-RCT in absence of a systematic review(s) and RCT(s).** The study is a non-RCT discussed by NASEM when no good- or fair-quality systematic reviews and no RCTs of acceptable research quality are identified.\textsuperscript{vi}

Finally, I collect all studies that meet these criteria regardless of research quality. For example, if an RCT is considered low-quality but is still included in a good- or fair-quality systematic review discussed by NASEM, I count it as part of NASEM’s collection. I do this because NASEM had already implemented several strategies to collect the best quality research they could find and because NASEM already uses a grading scale to judge the quantity, quality, and consistency of the research in their collection (e.g., “Conclusive Evidence,” “Moderate Evidence,” “Limited Evidence”).\textsuperscript{64-66} In total, after searching through NASEM (2017) and Abrams (2018), as well as the systematic reviews referenced in these reports,\textsuperscript{67-81} I find 203 citations, which cover 145 studies (many articles report on the same study); of 145 studies, 121 are RCTs and 24 studies are non-RCTs (e.g., observational studies, pre-clinical studies).

**Part II. Literature Review**

I search the literature for RCTs on the therapeutic effects of cannabis or cannabinoids that have been published since NASEM’s report (January 1, 2016 to May 31, 2021). I group the studies I obtain by the specific symptom being treated, based on the primary outcome(s) each study measures.\textsuperscript{vii} To conduct my literature review, I collaborate with professional librarians to search the same databases as NASEM (2017): PubMed (which includes Medline), Cochrane Library, APA PsycInfo, and Embase. I use relevant search terms for cannabis, cannabinoids, and the qualifying condition of interest, using controlled vocabulary with respect to each database—Medline’s “Medical Subject Headings” (or “MeSH” terms for PubMed and Cochrane Library),

\textsuperscript{vi} NASEM (2017) had implemented several strategies to ensure they would review studies of acceptable research quality (i.e., low risk of bias due to sample size, lack of control group, or other factors). First, NASEM only discusses good- or fair-quality systematic reviews, as judged by metrics they had adapted from multiple sources. Second, they judge the quality of individual studies they identify using the Cochrane Quality Assessment Tool for RCTs (Higgins et al., 2011) and the Newcastle-Ottawa Scale (NOS) for cohort and case-control studies (Wells et al., 2011; NASEM 2017, pp. 409-441). Third, when drawing conclusions about the health effects of cannabis or cannabinoids, NASEM prioritizes evidence drawn from good- or fair-quality systematic reviews and RCTs. Finally, NASEM uses a grading scale to indicate the degree of evidence (e.g., “Conclusive Evidence,” “Moderate Evidence,” “Limited Evidence”) that cannabis or cannabinoids have a specified health outcome (NASEM 2017, pp. 413-419).

\textsuperscript{vii} Several studies in my collection also examine the effects of cannabis or cannabinoids based on secondary and tertiary outcomes, but I only code the studies in my collection according to the primary outcome(s) being studied. Although this may result in an underestimation of the impacts of the cannabis product(s) being studied, I do this for quality assurance, as these studies’ research designs (e.g., choice of cannabis product) had been optimized to focus on the primary outcome being examined; evaluating whether these studies are also appropriate for examining secondary or tertiary effects is beyond the scope of this analysis.
Embase’s “Emtree Subject Headings,” and APA PsycInfo’s “APA Psychological Index Terms.” To narrow my search for relevance, I generally omit phrases regarding biological markers (e.g., genes, proteins), although I make some exceptions (e.g., viral markers of Hepatitis C).

Additionally, though there is evidence that non-cannabinoid ingredients in cannabis (i.e., flavonoids, terpenes) have therapeutic properties, I focus my search on cannabinoids because NASEM only evaluates the therapeutic effects of whole cannabis or cannabinoids. Finally, I filter my searches by year (2016 to present), language (English only), species (Humans only), publication type (e.g., no Comments or Editorials), and study design (RCTs only). Here is an example of a search I conduct in PubMed for attention deficit hyperactivity disorder (see Appendix B for a complete log of search terms and results). Note that I conduct a separate search for the same qualifying condition in each database (Cochrane, Embase, PsycInfo, PubMed):


AND


AND

After completing my search, I screen each article’s title and abstract to determine if it meets the search criteria listed below. If I cannot tell from the article’s title and abstract, I screen its full text to verify its eligibility:

1. **January 2016 to May 2021.** Articles published since 2016. (11 citations excluded)

2. **English only.** I exclude non-English articles, as NASEM does.82 (2 citations excluded)

3. **Cannabis or cannabinoids AND qualifying condition.** Article must specifically address cannabis AND the qualifying condition specified. I exclude studies on health conditions that are not explicitly listed as qualifying conditions in U.S. MC laws.8iii I also exclude studies on non-cannabinoid agonists that act on the human body’s endocannabinoid system (e.g., FAAH inhibitors, anandamide). (6,853 citations excluded)

4. **Must examine therapeutic effects.** Article must assess the potential clinical benefit(s) of cannabis or cannabinoids for that health condition, not the risks or harms (including safety analyses that do not also examine efficacy) or mediators of clinical effects (e.g., genetic markers, factors that predict cannabis use). Studies that assess the therapeutic effects of cannabis or cannabinoids but fail to produce significant results are still included. Conversely, studies that assess the harms of cannabis or cannabinoids are excluded, even if they find benefits or non-significant findings. Studies that discuss cannabis or cannabinoids and the health condition but do not assess clinical benefits are excluded (e.g., impacts of cannabis laws on opioid use, biological mediators, pharmacokinetics of a cannabinoid). Finally, I exclude study protocols, even if results have been published. (2,150 citations excluded)

5. **Humans only.** I exclude animal or cellular studies, as NASEM does.83 (159 citations excluded)

6. **Randomized Controlled Trials (RCT) only.** Article must be an RCT that randomizes study subjects between a treatment and control condition. (1,029 citations excluded)

7. **Not already reviewed.** Article must not have already been reviewed in NASEM (2017) or Abrams (2018). (4 citations excluded)

**Figure 1** summarizes my search results. Omitting duplicates, the search produces 10,314 citations. Of the 1,028 citations excluded for not being RCTs (criterion #6 above), 614 are systematic or other reviews, for which I screen the “References” of these reviews to collect any additional articles that are not captured by my search and meet my inclusion criteria above.

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viii See Appendix C for citations of RCTs that examine the therapeutic effects of cannabis or cannabinoids for health conditions, symptoms, or other health-related outcomes that are not explicitly listed as qualifying conditions in medical cannabis (MC) laws of U.S. states or other jurisdictions that have legalized MC use.
From screening 614 reviews, I only find one more citation to an RCT that is already included in my collection, suggesting that my search identifies all relevant RCTs within my search period (January 2016 to May 2021). In total, I find 107 articles, which cover 71 RCTs (many articles report on the same study). Note again that these studies have not already been covered in NASEM (2017) and Abrams (2018).

Unlike NASEM, I do not judge the quality of studies in my collection because it is beyond the scope of my literature review. The central goal of my literature review is to identify which cannabis products have been found to be therapeutically effective or ineffective for qualifying conditions in RCTs published after NASEM’s report. However, in an effort to minimize the inclusion of poor-quality studies, I limit my literature review to RCTs, which can better infer causality than single-arm or observational studies because they compare cannabis products to placebo and/or other medications. Note that, because I do not judge the quality of RCTs identified in my literature review and because I do not have a medical background, I also do not use NASEM’s grading scale to draw conclusions about the degree of evidence that cannabis or cannabinoids have certain health effects. However, I do note whether the findings from studies identified in my literature review support or differ from the findings of studies in NASEM’s collection or the conclusions drawn in NASEM (2017).

**Results**

From NASEM (2017), Abrams (2018) (an update to the 2017 report), and my literature review, I identify 310 citations, which cover 216 studies—192 randomized controlled trials (RCT) and 24 non-RCTs (e.g., open-label studies, pre-clinical studies). Note that multiple articles often report on the same clinical study. Thus, if I discuss a particular study, whenever possible, I only provide citations for peer-reviewed journal articles rather than conference abstracts, clinical trial pages, or other sources that report on the same study. In cases where there are multiple journal articles, I prioritize the article with the earliest publication date. For reference, Appendix B provides citations of articles from NASEM’s collection and my literature review that report on the same study.

The majority of all RCTs identified by both NASEM’s review and my literature review were conducted outside of the U.S. (115 of 190 RCTs, or 61 percent)—excluding two RCTs from NASEM’s collection for which I could not obtain the study location,—while little over one-third of RCTs (69 of 190 RCTs, or 36 percent) were conducted in the U.S., and only six RCTs (3 percent) were conducted both within and outside the U.S.. This finding is also consistent for the RCTs in NASEM’s collection (RCTs within the U.S.: 61 percent; RCTs outside the U.S.: 39 percent) and the RCTs identified in my literature review (RCTs within the U.S.: 61 percent; RCTs outside the U.S.: 31 percent; RCTs conducted both within and outside the U.S.: 8 percent).
The clinical conclusions drawn by NASEM address 32 qualifying conditions: Alzheimer’s disease, amyotrophic lateral sclerosis, anorexia nervosa, anxiety, arthritis, cachexia or wasting syndrome, cancer, chronic or debilitating disease (e.g., Parkinson’s disease), chronic pain, depression, diabetes, dyskinetic/spastic movement disorders (e.g., dystonia), dystonia, epilepsy, glaucoma, hospice patients (e.g., cancer), human immunodeficiency virus and acquired immune deficiency syndrome, Huntington’s disease, insomnia, irritable bowel syndrome, multiple sclerosis, nausea (chemotherapy-induced nausea and vomiting), neurological disorders (e.g., epilepsy), Parkinson’s disease, post-traumatic stress disorder, sleep apnea, spasticity, spinal cord injury or disease, substance use disorders, terminal illness (e.g., cancer), Tourette’s syndrome, and traumatic brain injury.

From my literature review, I identify additional RCTs that examine 23 qualifying conditions addressed in NASEM: Alzheimer’s disease, amyotrophic lateral sclerosis, anorexia nervosa, anxiety, arthritis, cachexia or wasting syndrome, cancer (chemotherapy-induced nausea and vomiting), chronic or debilitating disease (e.g., Parkinson’s disease), chronic pain, diabetes, dyskinetic/spastic movement disorders (e.g., Parkinson’s disease), epilepsy, hospice patients (e.g., cancer), Huntington’s disease, multiple sclerosis, nausea (chemotherapy-induced nausea and vomiting), neurological disorders (e.g., epilepsy), Parkinson’s disease, post-traumatic stress disorder, sleep apnea, spasticity (due to multiple sclerosis), substance use disorders, and terminal illness (e.g., cancer). The majority of 71 total RCTs in my collection examine either chronic pain (22 RCTs) or substance use disorders (13 RCTs). I also find RCTs that examine eight additional qualifying conditions not discussed in NASEM: autism, attention deficit hyperactivity disorder, cerebral palsy, headache or migraine, inflammatory bowel disease (i.e., Crohn’s disease, ulcerative colitis), and opioid use disorder. Finally, several studies in my review examine symptoms or other aspects of qualifying conditions that are not discussed in NASEM’s report: quality of life in cancer (whereas NASEM only discusses chemotherapy-induced nausea and vomiting or whether cannabinoids can treat cancers); balance and walking in multiple sclerosis patients (whereas NASEM only discusses spasticity); post-operative nausea and vomiting (whereas NASEM only discusses chemotherapy-induced nausea and vomiting); non-motor symptoms in Parkinson’s disease (whereas NASEM only discusses motor symptoms); and alcohol, cocaine, and opioid dependence (whereas NASEM only discusses cannabis and tobacco dependence).

Table 2 summarizes the cannabis products (i.e., cannabinoids, modes of delivery) that have been examined by studies in NASEM’s collection and my literature review. Items from NASEM’s collection are described in blue, while items from my literature review are described in black. For simplicity, I generally group citations by the symptom being treated, regardless of the patient population (e.g., chronic pain in cancer, arthritis, and multiple sclerosis patients). However, if a study or systematic review is discussed by NASEM for multiple qualifying conditions, I cite that study or review for all qualifying conditions to which it applies. For example, all studies that NASEM cites to discuss the therapeutic effects of cannabis products for
depression are actually studies that examine multiple sclerosis or chronic pain that measure depressive symptom severity as a secondary outcome.

The _Qualifying Condition_ column lists the qualifying condition to which a specified symptom applies. Additionally, in the same column, I note the number of U.S. states and non-state jurisdictions that list the qualifying condition in their medical cannabis laws, the number of RCTs that have examined this condition, and, for the studies in my literature review, the maximum and minimum number of patients examined. Note that the number of patients examined reflects patients who completed the study, unless the study specifies how many patients were analyzed (e.g., in an intent-to-treat analysis). The _Cannabinoid(s)_ column lists the cannabinoids that have been examined (e.g., THC, CBD, whole cannabis), and the _Mode(s) of Delivery_ column lists the product formulations that have been examined (e.g., capsule, oromucosal spray). For simplicity and when applicable, I refer to all medication names by their drug names rather than their brand names (e.g., nabilone instead of Cesamet®), because many studies only refer to the drug name. The last column, _NASEM’s Assessment of the Clinical Effect(s) Studied_, lists the conclusion NASEM has drawn about whether certain cannabis products are therapeutically effective (e.g., in reducing seizure frequency in epilepsy) based on the evidence provided by the studies in their collection. Additionally, the last column summarizes findings from newer studies (in blue) and whether they support NASEM’s conclusions and/or findings from a specific study(s) in NASEM’s collection.

Finally, Table 2 is divided into subsections based on the grades NASEM (2017) gives to indicate how much evidence there is that cannabis or cannabinoids have a specific therapeutic effect (“Conclusive Evidence,” “Substantial Evidence,” “Moderate Evidence,” “Limited Evidence,” “Insufficient to No Evidence”). NASEM assigns these grades depending on the quality, quantity, and consistency of the studies in their collection. Newly examined qualifying conditions or treatment effects from the clinical studies identified in my literature review are grouped under the subsection “Newly Identified.” For these studies, because I do not judge the quality of research and do not have a medical background, I do not use NASEM’s grading scale to draw additional clinical conclusions about the effects of cannabis or cannabinoids.

The subsections below detail the information reflected in Table 2. Each entry for a qualifying condition contains 1) a summary of the information NASEM uses to draw their conclusions and any additional details NASEM does not provide, 2) a summary of findings from the studies identified in my literature review, and 3) whether findings from newer studies support NASEM’s conclusions and/or findings from specific a study(s) in their collection.

**Qualifying Conditions with “Conclusive” Evidence (Table 2a)**

- **Cancer (chemotherapy-induced nausea and vomiting, or CINV)**

  NASEM identifies 36 RCTs from two systematic reviews (Total: 1,575 patients examined; Range: 8 to 139 patients).  

  Twenty-one of these studies were U.S.-based, while the
remaining 15 studies were conducted outside of the U.S. Nearly every RCT in NASEM’s collection examines synthetic THC (dronabinol, nabilone, levonantradol), which has been approved by the U.S. Food and Drug Administration for the treatment of chemotherapy-induced nausea and vomiting (specifically, dronabinol, or Marinol® and Syndros®, and nabilone, or Cesamet®). NASEM reports meta-analyses and other findings from the three systematic reviews, for which I provide additional details and citations.

Findings obtained from the Smith et al. (2015) review are focused on studies examining THC and synthetic THC (dronabinol, nabilone). One meta-analysis of two studies (23 total patients) finds THC is not significantly different than placebo in the proportions of patients who report an absence of nausea. Another meta-analyses of several studies finds synthetic THC (dronabinol, nabilone) is not significantly more effective than prochlorperazine in producing an absence of nausea (252 to 325 patients) or vomiting (194 to 325 patients), although patients show a significantly higher preference for synthetic THC than for prochlorperazine (342 patients). However, according to two other meta-analyses (83 patients, 218 patients), patients taking oral THC or synthetic THC (nabilone) have a significantly higher chance (relative risk ratios) of reporting complete absence of nausea and vomiting than placebo. According to a meta-analysis of two studies (150 patients), patients also have a higher chance (relative risk ratios) of reporting a preference for nabilone than placebo. Smith et al. (2015) conclude that cannabinoids are useful adjunctive treatments when moderate or high CINV does not respond to first-line anti-emetic treatments.

The Whiting et al. (2015) and Phillips et al. (2016) reviews have similar findings. Whiting et al.'s (2015) meta-analysis of three studies (two examining dronabinol and the other examining an oral spray THC plus CBD extract, or nabiximols) finds cannabinoids are significantly more effective than placebo in reducing CINV (the authors’ supplementary material, eAppendix 3, does not clarify which dronabinol studies were used in the meta-analysis). Of three RCTs reviewed by Phillips et al. (2016) that examine children receiving chemotherapy, one study finds oral capsule THC is significantly more effective than prochlorperazine in reducing nausea and vomiting (19 patients), another study finds oral nabilone is significantly more effective than domperidone in reducing nausea severity (18 patients), and the third study demonstrates a significantly greater effect for nabilone than prochlorperazine in reducing vomiting but not in achieving absence of vomiting (30 patients). Finally, one more study discussed by NASEM finds dronabinol and ondansetron to be similarly effective (both individually and in combination) compared to placebo in reducing CINV, and that both treatments combined are no more effective than either medication alone (61 patients).

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For unspecified reasons, the Smith et al. (2015) review describes the Chang et al. (1979), Frytak et al. (1979), Sallan et al. (1975) and Shiling et al. (1981) studies as using dronabinol rather than THC, whereas the studies themselves do not reference using dronabinol. Thus, I describe these studies as having used THC.
Based on these findings, NASEM deems there is conclusive evidence that oral cannabinoids are effective antiemetics for treating CINV. Though nearly all RCTs in NASEM’s collection examine synthetic THC (dronabinol, nabilone, or levonantradol), NASEM does not specify whether their conclusion also applies other formulations of THC, THC plus CBD (particularly nabiximols), or both. NASEM does not report finding any good-quality RCTs that used whole plant cannabis (oral or inhaled), CBD, or CBD-dominant or enriched cannabis for reducing CINV, although NASEM does note these products may be worth investigating (especially CBD products for patients who wish to avoid the psychoactive effects of THC).\textsuperscript{20-22} Finally, two RCTs included but not individually discussed in NASEM also examine smoked THC (placebo cigarettes either infused with 1.93 percent THC or not infused) in addition to oral THC.\textsuperscript{86, 98} Only one of these studies finds cannabinoids (oral THC or smoked THC) to be significantly more effective than placebo in reducing CINV,\textsuperscript{86} and both studies find no significant differences between dronabinol or smoked THC in the amount of THC delivered to patients (measured by patients’ plasma concentrations of THC).

From my literature review, a single crossover trial conducted in Australia of 72 cancer patients with refractory CINV finds oral capsule THC plus CBD cannabis extract to have significantly greater reductions in CINV compared to placebo, and that the group receiving cannabinoids has significantly greater proportions of patients with no vomiting and no use of rescue medications during the overall treatment phase.\textsuperscript{127-128} These findings directly support findings from Duran et al. (2010), in which nabiximols results in a significantly greater proportion of patients than placebo who have reduced nausea and vomiting during the overall treatment phase, and the newer study examines a much larger sample of patients than Duran et al. (2010) (72 vs. 16 patients).\textsuperscript{123} Additionally, although each study uses slightly different modes of delivery (the newer study uses capsules, while nabiximols is delivered via oromucosal spray), both studies deliver similar doses of THC and CBD to study participants (up to four capsules containing 2.5mg THC plus 2.5mg CBD per dose, compared to five maximum sprays in the nabiximols study, which delivers 2.7mg THC plus 2.5mg CBD per spray).

In summary, whereas the clinical studies included in NASEM (2017) primarily examine and provide supporting evidence that THC or synthetic THC (dronabinol, nabilone) are effective in reducing CINV compared to placebo, I find one additional study that finds cannabis-derived THC plus CBD to be significantly effective compared to placebo in reducing CINV. Only one of two studies in NASEM’s collection that examines smoked THC finds it significantly more effective than placebo in reducing CINV.
Qualifying Health Conditions with “Substantial” Evidence (Table 2b)

- Chronic Pain

NASEM identifies 32 RCTs, 10 of which are U.S.-based. NASEM obtains 30 of these RCTs from five good- or fair-quality systematic reviews, while the other two RCTs are identified from NASEM’s own search of the literature (Total: 2,476 patients examined; Range: 5 to 359 patients). These studies examine cannabis or cannabinoids for relieving pain—particularly neuropathic pain—in a variety of patient populations: cancer (three studies), chronic pain (two studies), diabetes (i.e., diabetes-related neuropathic pain, three studies), fibromyalgia (two studies), volunteers under experimental conditions (one study), HIV (i.e., HIV-related neuropathic pain, two studies), multiple sclerosis (i.e., MS-related neuropathic pain, five studies), neuropathy (10 studies), rheumatoid arthritis (one study), and spinal cord injury or disease (i.e., neuropathic pain, three studies). Thirteen studies examine oral spray THC plus CBD extract (nabiximols), 11 studies examine oral synthetic THC (dronabinol, nabilone, Ajulemic acid), 7 studies examine smoked or vaporized cannabis, and 4 studies examine oral THC (Namisol® or other THC extracts).

All studies in NASEM’s collection that examine smoked or vaporized cannabis find it to be effective for pain relief. A meta-analysis of five studies by Andreea et al. (2015) finds smoked or vaporized cannabis (1 to 9 percent THC, median 3.55 percent THC) to be significantly more effective than placebo in reducing neuropathic pain (measured by the Descriptor Differential Scale, or DDS; the McGill Pain Questionnaire; the Numeric Rating Scale, or NRS; or the Visual Analogue Scale, or VAS), including two studies examining HIV patients with neuropathic pain. Two other studies find vaporized cannabis (1 to 7 percent THC) to be significantly more effective than placebo, with one study examining pain due to diabetic neuropathy (measured via VAS) and the other study examining pain due to spinal cord injury or disease (measured via NRS).

There is also supporting evidence in NASEM’s collection that nabiximols is effective for treating chronic pain. A meta-analysis by Whiting et al. (2015) of eight studies (seven examining nabiximols, one examining smoked cannabis) finds cannabinoids to be significantly more effective than placebo in relieving pain (measured via NRS or VAS). The nabiximols studies examine patients treating pain related to cancer, diabetes, MS, and neuropathy, while the smoked cannabis study (3.56 percent THC) examines HIV-related neuropathic pain. Treatment durations of nabiximols studies range between 2 weeks and 15 weeks, and mean daily sprays of nabiximols across these studies range between 1 and 16 daily sprays. Additional meta-analyses by Whiting et al. (2015) show nabiximols to be significantly more effective than placebo according to six studies that measure pain via the NRS, and five studies using the neuropathic pain scale (NPS), but not among three studies using the Brief Pain Inventory – Short Form (Whiting et al.’s, 2015 supplementary material, eAppendix 5, does not clarify which three studies they used in the meta-analyses).
smoked cannabis study examining patients with HIV-related pain finds smoked cannabis to be significantly more effective than placebo in relieving pain (measured via VAS).  

Focusing on findings from the meta-analyses, NASEM concludes there is substantial evidence that cannabis is effective for treating chronic pain in adults. It is not clear if, by “cannabis,” NASEM means smoked cannabis as well as nabiximols. Additionally, for unspecified reasons, studies examining synthetic THC or cannabis-derived THC extract are not described by either NASEM or the Whiting (2015) review (as only the Whiting et al., 2015 review includes studies examining synthetic THC, whereas the other four systematic reviews referenced by NASEM do not). Of 10 studies that examine synthetic THC (dronabinol: 5mg to 20mg per day or visit, 2 to 3 weeks treatment; nabilone: 0.25mg to 2mg daily, 4 weeks treatment; Ajulemic acid: 80mg daily, 7 days treatment), six studies find it is significantly more effective than placebo in reducing pain related to MS or chronic pain, (measured via NRS; Total Pain Relief at 8 hours, or TOTPAR; or VAS). One study of healthy volunteers finds dronabinol (20 mg, 8 hours treatment) to be significantly more effective than placebo in some experimental measures of pain (pain tolerance) but not others (heat test, pain intensity). The remaining three studies find synthetic THC to not be significantly more effective than placebo in reducing pain related to fibromyalgia or neuropathy (dronabinol: 0.5mg to 1mg daily, 4 weeks treatment; nabilone: 0.5mg to 2mg daily, 2 to 14 weeks treatment). Finally, of four studies that assess oral THC extract (5mg to 22mg daily, 4 days to 2 weeks treatment), only two studies find it to be significantly more effective than placebo in reducing patient-rated pain related to cancer and spinal cord injury (measured via box scale, or BS-11 in one study, while the other study does not specify the metric used). The third study, which examines MS patients, finds oral THC extract (Namisol®) (10 to 25mg daily, 4 weeks treatment) to be significantly more effective than placebo in some measurements of pain (NRS, McGill Questionnaire) but not according to patient diaries. The fourth study does not find oral spray THC extract (2.7mg per spray, 22mg to 24mg daily, 2 weeks treatment) to be significantly more effective than placebo in treating cancer-related pain (measured via NRS).  

From my literature review, I identify 23 RCTs examining the effects of cannabis or cannabinoids on pain, 14 of which are U.S.-based (Total: 1,323 patients examined; Range: 6 to 397 patients). Many of these studies examine inhaled cannabis, nabiximols, and synthetic THC as well as the same population of patients as the studies in NASEM’s collection (cancer, general chronic pain, fibromyalgia, HIV pain, neuropathy, osteoarthritis, spinal cord injury or disease, volunteers under experimental conditions). Other studies examine other cannabinoids and types of pain that are not covered in NASEM’s collection (acute low back pain, medical abortion, myofascial pain, noncardiac chest pain, pancreatitis, postoperative patients, sickle cell disease). Unlike the studies in NASEM’s collection, eight newer studies examine different formulations of CBD (two using topical CBD, one using topical synthetic CBD (ZYN002), and five using oral CBD); these studies provide mixed evidence that CBD is effective for pain relief.
One study of a topical CBD (67mg/mL, 2 weeks treatment) for myofascial pain and another study examining CBD topical oil (250mg/3fl. oz, 4 weeks treatment) for neuropathic pain find CBD to be significantly more effective than placebo (measured via VAS in the first study and NPS in the second). Another study finds oral capsule CBD (50mg, 72 hours examination) to be significantly more effective than alprazolam in reducing postoperative pain. Three studies—two assessing oral CBD in healthy volunteers (50mg in one study, 200mg to 800mg in the other) and one assessing a topical synthetic CBD gel (ZYN002) in osteoarthritis patients (250mg or 500mg daily, 12 weeks treatment)—find CBD to be significantly more effective than placebo for some pain endpoints but not others (measured by VAS in two studies, one of which being the osteoarthritis study, while the third study does not provide a metric). Two studies—one assessing oral CBD (400mg, 2 hours examination) for acute low back pain (measured via NRS) and the other assessing oral CBD in healthy volunteers (150mg daily, 2 days treatment; pain is measured via VAS)—find CBD to not be significantly more effective than placebo in pain reduction. Finally, one study examines cannabidivarin (CBDV) (400mg daily, 4 weeks treatment), a non-intoxicating cannabinoid, for treating neuropathic pain in HIV patients but does not find it to be more effective than placebo in reducing pain intensity (measured via NRS).

Six studies assess inhaled cannabis (three smoked, two vaporized, and one delivered via metered-dose inhaler) for providing pain relief. Three studies examining healthy volunteers (6 to 8-hour treatment sessions) find smoked cannabis (3.56 percent to 5.60 percent THC) to be significantly more effective than placebo in providing pain relief (measured by the McGill Pain Questionnaire). One study finds cannabis delivered via inhaler (22 percent THC, three clinical visits separated by at least two days each) to be significantly more effective than placebo in reducing pain (measured via VAS). One study of fibromyalgia patients examines vaporized cannabis at different THC to CBD ratios: high THC (22.4mg THC to <1mg CBD, 22 percent THC and <1 percent CBD), moderate THC (13.4mg THC to 17.8mg CBD, 6.3 percent THC and 8 percent CBD), and low THC (<1mg THC to 18.4mg CBD, <1 percent THC and 9 percent CBD). The study finds mixed results, with only the high THC and moderate THC being significantly more effective than placebo (measured via VAS). One study finds vaporized cannabis with a nearly equal percent of THC and CBD (4.4 percent THC and 4.9 percent CBD smoked 3 times daily, 5 days treatment) to not be more effective than placebo in reducing pain related to sickle cell disease (measured via VAS).

Similar to studies in NASEM’s collection, newer studies examining synthetic THC or THC extract have mixed findings, and unlike findings reported in NASEM (2017), studies examining THC plus CBD extract, too, have mixed findings. Of three studies using oral synthetic THC (dronabinol) only one study that examines 13 patients with non-cardiac chest pain finds dronabinol (10mg daily, 4 weeks treatment) to be significantly more effective than placebo in increasing pain threshold and reducing pain intensity (measured by the chest pain symptom questionnaire). Conversely, one study of 10 volunteers finds dronabinol (2.5mg or 5mg daily,
9 days treatment) to not be significantly more effective than oxycodone in reducing pain (measured via VAS), and another study of 70 women finds dronabinol (5mg daily, 10 weeks treatment) is not significantly more effective than placebo in reducing pain due to abortion (measured via NRS). Of three studies examining THC extract, only one study of 17 fibromyalgia patients finds oral drop THC (1.2mg daily, 8 weeks treatment) is significantly more effective than placebo in reducing fibromyalgia symptoms (measured by the fibromyalgia impact questionnaire, or FIQ); conversely, one study of 6 volunteers finds no significant difference between intravenous THC and placebo (3 treatment sessions separated by at least 3 days, no mean dose provided), and another study of 24 patients with pancreatitis finds no significant difference between Namisol® and placebo in pain reduction (measured via VAS in the pancreatitis study and the McGill Questionnaire – Short Form in the volunteer study). Finally, one large study of 397 cancer patients finds nabiximols is significantly more effective than placebo in reducing pain (measured via NRS) but only according to the per protocol analysis, not in the intent-to-treat population.

In summary, the studies in my collection largely support findings from NASEM’s collection. As with NASEM’s (2017) findings, the majority of studies in my collection that examine smoked cannabis find it to be therapeutically effective, using similar potencies of THC as in previous studies, although with different patient populations than those examined in NASEM’s collection. The two studies in NASEM’s collection that find smoked cannabis to be therapeutically effective for pain relief in HIV patients are particularly important, given that pain relief from smoked cannabis reported by these patients played a critical role in the movement to legalize medical cannabis use in California. There are also, again, mixed findings with studies examining synthetic THC and oral THC, with similar dosing and treatment durations as in previous studies from NASEM’s collection. It is interesting to see substantially more studies examining CBD; these studies find mixed evidence that CBD is effective for treating pain.

Nearly all studies in NASEM’s collection that provide supporting evidence that cannabinoids are therapeutically effective for pain relief are studies examining neuropathic pain. Only a few other studies in NASEM’s collection examine other pain-related conditions: rheumatoid arthritis (one study, 58 patients), healthy volunteers (one study, 12 patients), and cancer-related pain (three studies, 10 to 359 patients). Conversely, the studies identified in my literature review mostly examine pain related to other conditions: healthy volunteers (eight studies; 6 to 18 patients), fibromyalgia (one study, 20 patients), sickle cell disease (one study, 23 patients), emergency department visits for acute lower back pain (one study, 100 patients), arthritis (one study, 320 patients), post-operative pain (one study, 56 patients), non-cardiac chest pain (one study, 13 patients), and medical abortion (one study, 70 patients). Collectively, studies on these other health conditions provide mixed evidence on the ability of cannabinoids to relieve pain despite several of these studies examining over 100 patients. It is possible that many of the mixed results are due to the use of individual cannabinoids (THC, THC plus CBD, synthetic THC, CBD), whereas most of the studies identified in both NASEM’s collection and my
literature review that use inhaled cannabis (i.e., all cannabis ingredients together) find it to be significantly more effective than placebo. Finally, a novel study finds CBDV to be ineffective compared to placebo; the pain-relieving and other possible therapeutic effects of this cannabinoid and others should continue to be explored in human clinical studies.

- **Multiple Sclerosis (MS, spasticity)**

  NASEM identifies 14 RCTs, two of which are U.S.-based, on the therapeutic effects of cannabis or cannabinoids for treating MS-induced spasticity (Total: 2,509 patients examined; Range: 11 to 630 patients).\(^{72, 79, 167, 217-247}\) Because NASEM only briefly describes the Koppel et al. (2014) review as “broadly in agreement” with findings from the Whiting et al. (2015) review, I provide additional details on findings from both reviews as well as other studies in NASEM’s collection. Both Koppel et al. (2014) and Whiting et al. (2015) review several large trials assessing cannabis-derived extracts of THC plus CBD. Findings from some of these trials led to the approval of Sativex® in Canada in 2005 and, between 2010 and 2014, several European countries (Austria, Czech Republic, Denmark, Finland, Germany, Italy, New Zealand, Norway, Poland, Spain, Sweden, Switzerland, and the U.K.) and Israel, as well as marketing approval in Europe, Asia (except China, Hong Kong, and Japan), and the Middle East.\(^ {248-253}\)

  The first U.K.-based trial, “Cannabinoids in Multiple Sclerosis” (CAMS), which involves 630 patients, examines Cannador®, an oral capsule containing cannabis-derived extracts of THC plus CBD at an approximately 2 to 1 ratio (2.5mg THC to 1.25mg CBD).\(^ {53, 220}\) The study finds Cannador® is significantly more effective than placebo in reducing patient-measured spasticity (measured by the Category Rating Scale, or CRS) but not clinician-rated spasticity (measured by the Ashworth scale). The second U.K.-based trial, “Multiple Sclerosis and Extract of Cannabis” (MUSEC), which involves 277 patients, also finds Cannador® is significantly more effective compared to placebo in reducing patient-measured spasticity (measured via CRS).\(^ {230}\) Five other, more modestly sized trials that take place in Canada, Czech Republic, Italy, Poland, Spain, or the U.K. examine between 154 and 339 patients and assess the effects of nabiximols, or Sativex®, an oromucosal spray containing cannabis-derived extracts of nearly equal amounts of THC and CBD.\(^ {52, 157, 222, 228, 231-232}\) Three of these five studies find no significant difference between nabiximols and placebo in reducing patient-rated spasticity (measured by the Numeric Rating Scale, or NRS).\(^ {157, 228, 231}\)

  Although one additional study identified by NASEM finds nabiximols is significantly more effective than placebo in reducing clinician-measured spasticity (measured by the modified Ashworth Scale),\(^ {239}\) findings from the Koppel et al. (2014) and Whiting et al. (2015) reviews mostly suggest cannabinoids are effective in reducing patient-reported spasticity, not clinician-rated spasticity. Among seven studies reviewed in Koppel et al., (2014) that report the effects of THC plus CBD on patient-reported spasticity, five studies (two using nabiximols, two using Cannador®, one using another cannabis-derived extract of THC plus CBD) find it to be
significantly more effective than placebo, while two studies find no significant difference between nabiximols and placebo.\textsuperscript{219-220, 222, 228, 230-232} Of three studies included in Koppel et al. (2014) that examine the effects of THC alone, one finds neither dronabinol nor a whole plant cannabis extract containing 20 to 30 percent THC to be significantly more effective than placebo in both clinician (Ashworth scale) and patient-measured spasticity.\textsuperscript{218} However, the other two studies find oral THC\textsuperscript{219} or oral dronabinol\textsuperscript{220} to be significantly more effective than placebo in lowering patient-measured spasticity. Based on these 10 studies, Koppel et al. (2014) conclude that oral cannabis extract is “established as effective” and that nabiximols is “probably effective” for reducing patient-reported spasticity; it is unclear if, by “oral cannabis extract”, Koppel et al. (2014) are referring to THC plus CBD, whole cannabis extract, THC extract, and/or CBD extract).\textsuperscript{x} The Koppel et al. (2014) review also concludes THC is “probably effective” for reducing patient-reported scores of spasticity (without specifying if “THC” refers to both cannabis-derived THC extract and synthetic THC).

Similar to Koppel et al. (2014), a pooled analysis of three RCTs conducted by Whiting et al. (2015) finds nabiximols and oral synthetic THC (nabilone) are significantly more effective than placebo in reducing patient-reported spasticity (supplementary material from Whiting et al., 2015, eAppendix 6, does not clarify which three studies are included in the analysis). Conversely, a second pooled analysis by Whiting et al. (2015) of six studies (five examining THC plus CBD extract, one also examining synthetic THC [dronabinol]) finds oral cannabinoids to not be significantly more effective than placebo in reducing clinician-measured spasticity (measured by the Ashworth scale).\textsuperscript{220, 222, 227-228, 231}

Based on these findings, NASEM concludes there is substantial evidence that oral cannabinoids are effective for improving patient-reported spasticity due to MS, noting that oral cannabis extract (again, without specifying if “oral cannabis extract” refers to THC plus CBD as well as whole cannabis extract, THC extract, and/or CBD extract), nabiximols, and oral THC (again, without specifying if “oral THC” includes both THC extract and dronabinol) are “probably effective” for treating patient-reported spasticity. NASEM adds there is limited evidence that cannabinoids can treat spasticity according to clinician measures but also notes that the Ashworth Scale has been criticized as unreliable.\textsuperscript{254-255}

In my own literature review, I identify two additional large RCTs conducted outside of the U.S. that examine the effects of nabiximols on MS-induced spasticity: one study of 241 patients in Spain, and another multicenter study of 106 patients from the Czech Republic or Austria—"Sativex® as add-on therapy vs. further optimised first-line ANTispastics" (SAVANT).\textsuperscript{256-260}

\textsuperscript{x} When referring to “oral cannabis extract,” Koppel et al. (2014) discuss studies that examine whole cannabis extract (Killestein et al., 2002), THC plus CBD extract (including nabiximols and Cannador®) (Zajicek et al., 2003; Wade et al., 2004; Novotna et al., 2011; Zajicek et al., 2012), THC extract (Ungerleider et al., 1988; Wade et al., 2003), and CBD extract (Wade et al., 2003). Koppel et al. (2014) conclude that “oral cannabis extract is established as effective for reducing patient-reported scores [of spasticity in MS patients]” but do not clarify which cannabinoid formulations they mean.
Both studies employ the same spasticity measures as several studies included NASEM’s collection (either the NRS or modified Ashworth Scale), as well as similar dosing of nabiximols (NASEM’s collection: 7 to 15 mean daily sprays; newer studies: 7 to 8 mean daily sprays) and treatment duration (NASEM’s collection: 4 to 12 weeks; newer studies: 12 weeks). Both of these studies also find nabiximols to be significantly more effective than placebo in reducing spasticity (measured via NRS in the Spain-based study and both the NRS and modified Ashworth Scale in the SAVANT study). These results directly support findings from NASEM’s collection as well as NASEM’s conclusion that oral cannabinoids are effective in treating patient-rated spasticity; the SAVANT study provides more supporting evidence that nabiximols could be effective in treating spasticity measured by the Ashworth scale.

In summary, findings from the studies reviewed in NASEM (2017) suggest that cannabis-derived THC as well as THC plus CBD are effective in reducing patient-rated spasticity, although there is less evidence that these cannabinoid formulations are effective in reducing clinician-rated spasticity. Findings from studies in my literature review provide further evidence that nabiximols is effective in reducing both patient-rated and clinician-rated spasticity.

**Qualifying Health Conditions with “Moderate” Evidence (Table 2c)**

- **Sleep Apnea**

NASEM identifies 21 RCTs that assess cannabis or cannabinoids for treating sleep disturbance from a good-quality systematic review (Total: 3,517 patients examined; Range: 21 to 630 patients). Only two of these studies, which examine oral synthetic THC (dronabinol, nabilone), directly examine cannabinoids for sleep disturbance (as opposed to studies that examine other health conditions and only include sleep-related measures as secondary outcomes). The first U.S.-based study, which examines 22 patients with obstructive sleep apnea (OSA), finds dronabinol (2.5mg, 5mg, and 10mg for 3 weeks) is significantly more effective than placebo in treating sleep apnea (measured by the apnea/hypopnea index, or AHI). The second study, a crossover trial of 29 fibromyalgia patients in Canada, finds oral nabilone to be significantly more effective than amitriptyline in reducing insomnia (measured by the Insomnia Severity Index, or ISI) and in improving sleep restfulness (measured by the Leeds Sleep Evaluation Questionnaire).

The remaining 19 studies examine cannabis or cannabinoids for treating chronic pain or MS and only include a sleep-related measure(s) as a secondary outcome. Sixteen of these studies assess oral THC plus CBD—11 studies, nabiximols; two studies, nabilone; and as oral, cannabis-derived THC extract; one study, Cannador®; one study, Cannador® as well as dronabinol; and one study, other THC plus CBD extract—and two studies assess smoked cannabis, and one study examines nabilone. A meta-analysis of 11 of these studies (10 studies examining nabiximols, one study examining
another other THC plus CBD extract) finds that cannabinoids result in significantly greater improvements in sleep quality compared to placebo (measured by the Numeric Rating Scale, or NRS) (Whiting et al.’s, 2015 supplementary material, eAppendix 9, does not clarify which studies are included in the meta-analysis and why others are excluded from the analysis). Based on these findings, NASEM concludes there is moderate evidence that cannabinoids (particularly nabiximols) are effective in treating sleep disturbance associated with chronic pain, fibromyalgia, OSA, and MS.

From my literature review, a single U.S.-based study of 73 OSA patients finds dronabinol (2.5mg or 10mg per day, up to 6 weeks treatment) is significantly more effective than placebo in treating sleep apnea (measured via AHI) and in improving subjective sleepiness (measured by the Epworth Sleepiness Scale, or ESS). These findings directly support the study in NASEM’s collection that finds dronabinol to be effective in treating OSA, with similar dosing, a larger sample size, and the same outcome measure.

In summary, the majority of RCTs (as of May 2021) that assess cannabinoids for sleep disturbance are studies examining cannabinoids for chronic pain or MS, for which sleep-related measures are included as secondary outcomes. Nonetheless, these studies provide supporting evidence that certain cannabinoids may be therapeutically effective for treating sleep disturbance, and one additional study provides further evidence that synthetic THC could be effective for treating OSA.

**Qualifying Health Conditions with “Limited” Evidence (Table 2d)**

NASEM deems six qualifying conditions to have limited evidence that at least one cannabinoid is effective for treating a specific symptom(s): anxiety, diabetes, human immunodeficiency virus and acquired immune deficiency syndrome (HIV/AIDS), post-traumatic stress disorder (PTSD), Tourette’s syndrome, and traumatic brain injury (TBI). Conversely, NASEM finds Alzheimer’s disease or dementia, depression, and glaucoma to have limited evidence that cannabis or cannabinoids are therapeutically ineffective.

**Limited Evidence That Cannabinoids Are Effective**

- **Anxiety**

NASEM identifies one RCT from Whiting et al. (2015) that examines oral capsule CBD (2-hour treatment session, 600mg) for treating social anxiety. The study involves 36 subjects in Brazil who perform the simulated public speaking test, or SPST (24 patients with generalized social anxiety disorder and 12 healthy controls who do not receive any medications). The study
finds oral CBD to be significantly more effective than placebo in reducing anxiety (measured by the Visual Analogue Mood Scale, or VAMS).\textsuperscript{x}\textsuperscript{i}

From my literature review, six additional studies have been published since the NASEM report that examine cannabinoids for anxiety-related conditions.\textsuperscript{265-272} Three Brazil-based studies using public speaking tests—two studies of 81 total patients conducting the SPST with 2-hour treatment sessions,\textsuperscript{268, 270} and one study of 59 patients conducting “the test of speaking in a real situation” (TPSRS), which involves a 7.5-hour treatment session\textsuperscript{267}—finds oral CBD (100mg to 900mg, optimal dose at 300mg) is significantly more effective than placebo in reducing patients’ anxiety (measured via VAMS). One Japan-based study of 37 patients with social anxiety disorder also finds oral CBD (300mg daily, 4 weeks treatment) is significantly more effective than placebo in decreasing anxiety (measured by the Fear of Negative Evaluation Questionnaire and the Liebowitz Social Anxiety Scale).\textsuperscript{269} Only one Netherlands-based study of 80 patients (43 panic disorder patients with agoraphobia and 37 patients with social anxiety disorder) finds oral CBD (300mg daily, 8 weekly 1.5-hour treatment sessions) is not significantly more effective than placebo in reducing fear questionnaire scores.\textsuperscript{272} Finally, one U.S.-based study conducting the Trier Social Stress Test (TSST) on 42 healthy volunteers, which involves two 8-hour treatment sessions, finds oral capsule synthetic THC (dronabinol, 7.5mg or 12.5mg) is significantly more effective than placebo in reducing stress levels (measured by a three-item questionnaire and post-task appraisal questionnaire, or PASA VAS), although the authors note that a higher dose of dronabinol (12.5mg) also increases negative mood in some subjects.\textsuperscript{266}

In summary, four of five newer studies provide additional supporting evidence for NASEM’s conclusion that CBD is effective in treating social anxiety disorder. One additional study also finds dronabinol is effective in relieving stress, although with possible adverse effects on patients’ mood.

- Diabetes

Because NASEM does not find any RCTs of acceptable research quality that assess cannabis or cannabinoids for treating diabetes, they report six observational studies that examine cross-sectional data from U.S.-based national surveys.\textsuperscript{273-278} Note that these surveys refer to “cannabis use” without specifying a cannabis product(s). Five studies analyze data from the National Health and Nutrition Examination Survey (NHANES), which defines cannabis as “marijuana or hashish” and notes that these products are “usually smoked” (which means it is possible for survey respondents to have used other unspecified modes of delivery).\textsuperscript{279} Two of these studies that analyze NHANES data examine the association between cannabis use and the odds of

\textsuperscript{x} NASEM also discusses four other RCTs that are also identified in Whiting et al. (2015): Frank et al. (2008), Narang et al. (2008), Rog et al. (2005), and Skrabek et al. (2008). However, I omit these studies from NASEM’s collection of studies regarding anxiety because they are excluded from Whiting et al.’s (2015) analysis; Whiting et al. (2015) had excluded these studies because they are not restricted to patients with anxiety disorders.
having metabolic syndrome; whereas one study finds that current cannabis use (at least once in the past 30 days), compared to never use, is significantly associated with lower odds of metabolic syndrome, the other study finds that an increase in cannabis use each year is significantly associated with a higher odds of metabolic syndrome. One study that conducts cross-sectional and longitudinal analyses of data from the Coronary Artery Risk Development in Young Adults (CARDIA) (which also does not specify the cannabis product or mode of delivery) finds that current cannabis use (past 30 days) and lifetime cannabis use (at least 100 times), compared to never use, is each significantly associated with a higher odds of pre-diabetes but not diabetes. Conversely, two other studies using NHANES data find that cannabis use, compared to never use, is significantly associated with lower odds of having diabetes. Finally, one study analyzing NHANES data finds no significant difference in fasting mean glucose levels between current cannabis use and never use, while another study analyzing NHANES data finds current cannabis use, compared to never use, is significantly associated with lower fasting insulin levels, lower insulin resistance (measured via homeostatic model assessment, or HOMA-IR), and a smaller waist circumference. Based on these findings, NASEM concludes there is limited evidence of a statistical association between cannabis use and a decreased risk of metabolic syndrome and diabetes.

From my literature review, a single study of 60 patients with type 2 diabetes in the U.K. examines the effects of CBD, tetrahydrocannabivarin (THCV, another non-intoxicating cannabinoid), and CBD plus THCV (at 20 to 1, 1 to 1, and 1 to 20 ratios) on lipid and glucose metabolism (drug mode of delivery is not specified). Compared to placebo, THCV significantly improves glycemic control (measured by plasma glucose and other glycemic parameters), while CBD (alone or in combination with THCV) has no significant effect compared to placebo. The authors conclude the findings possibly support THCV as a new therapeutic agent in improving glycemic control in type 2 diabetes. These results are difficult to compare to the studies in NASEM’s collection, given that data from the national surveys analyzed in those studies do not specify which cannabis products had been used by survey respondents. However, findings from this study partially support the observational study referenced above that finds cannabis use, compared to never use, is associated with significantly lower fasting insulin levels and decreased insulin resistance. Findings from the newer study also partially contradict another observational study referenced above that finds no significant difference in fasting mean glucose levels between current and never cannabis use.

In summary, several studies find some evidence that there is potential for cannabis or cannabinoids to have therapeutic effects for patients with diabetes. It is important to note, however, that all of the evidence from NASEM’s collection is derived from observational studies that do not define which cannabis products individuals are using. Additionally, although several of these studies adjust for some demographic (e.g., age) and behavioral (e.g., alcohol use) characteristics, they do not rule out other sources of bias linked to individual behaviors (e.g., individuals who co-use alcohol and cannabis). Additional clinical studies that assess the effects
of specific cannabis products and that better rule out possible sources of bias (e.g., patients’ substance use history, comorbidities) are needed.

- **Human Immunodeficiency Virus and Acquired Immune Deficiency Syndrome (HIV/AIDS, anorexia and weight loss)**

  NASEM identifies five U.S.-based RCTs that examine cannabis or cannabinoids for the treatment of anorexia and weight loss associated with HIV/AIDS from two good-quality systematic reviews.\(^{69,79,281-285}\) Two of these studies examine oral synthetic THC (dronabinol). One study of 88 patients with AIDS-related anorexia finds that dronabinol (6 weeks treatment) significantly increases appetite compared to placebo (measured by the Visual Analogue Scale, or VAS),\(^{282}\) while the other crossover trial of 5 HIV-infected patients finds dronabinol (5-week treatment period) significantly increases percent body fat compared to placebo but not appetite (measured via VAS).\(^{281}\) Both studies also find dronabinol is not significantly associated with weight gain compared to placebo.

  The other three studies examine dronabinol as well as smoked cannabis. The first study, which examines 62 HIV-infected patients (3-week treatment), finds dronabinol and smoked cannabis (3.95 percent THC) each results in significantly more weight gain than placebo. However, most of the weight gain is in fat mass, similar to findings from the abovementioned crossover trial.\(^{283}\) The second study of 30 HIV-positive patients (3 to 4 weeks treatment) finds dronabinol and smoked cannabis (1.80, 2.80, and 3.90 percent THC) each result in significantly higher caloric intake, but only among patients with normal muscle mass, not among individuals with significant muscle mass loss.\(^{284}\) The third study of 14 HIV-positive patients also finds that patients taking dronabinol and smoked cannabis (approximately 5-week treatment period) each result in significantly higher caloric intake than placebo.\(^{285}\)

  Due to several risk-of-bias issues raised by both Lutge et al. (2013) and Whiting et al. (2015) (e.g., small sample size, short treatment duration, insufficient data provided), NASEM concludes there is limited evidence that cannabis and oral cannabinoids are effective in increasing appetite and decreasing weight loss associated with HIV/AIDS.

  I find no additional studies as of May 2021 that examine cannabis or cannabinoids for the treatment of weight loss in HIV/AIDS and that have been published since NASEM’s report.

- **Post-Traumatic Stress Disorder (PTSD)**

  NASEM identifies a fair-quality crossover trial conducted in Canada of 10 military personnel experiencing trauma-related nightmares despite having tried standard PTSD treatments.\(^{286}\) The study finds oral tablet synthetic THC (nabilone, 0.5mg to 3mg, 7 weeks treatment) is significantly more effective than placebo in alleviating nightmares (measured by “recurring and distressing dream” scores for the Clinician-Administered PTSD Scale, or CAPS) and in
improving patients’ global clinical state (measured by the Clinical Global Impression of Change, or CGI-C) and general well-being (measured by the General Well Being Questionnaire). The study also reports no significant difference between nabilone and placebo in improving patients’ sleep quality (measured via CAPS “difficulty falling and staying asleep” scores). Due to this study’s small sample size and previous observational studies showing that cannabis use is associated with increased PTSD severity,287-290 NASEM concludes there is limited evidence that nabilone is effective for improving PTSD symptoms. At the time of writing their report, NASEM was also awaiting results from two other ongoing clinical trials, one of which I identify in my literature review that examines smoked cannabis.xii,291

From my literature review, I identify two RCTs that examine cannabis or cannabinoids for treating PTSD. One U.S.-based study examines 71 subjects—51 trauma-exposed adults (20 with PTSD, 31 without PTSD), and 20 healthy controls—and finds oral synthetic THC (dronabinol, 7.5mg) is significantly more effective than placebo in enhancing extinction recall (measured via functional magnetic resonance imaging, or FMRI).292 Findings from this newer study appear to support findings from the crossover trial in NASEM’s collection that also finds synthetic THC (nabilone) to produce therapeutic effects, but the newer study assesses a different PTSD-related outcome. A second U.S.-based study from my literature review assesses smoked cannabis at high THC to low CBD, high CBD to low THC, and equal THC to CBD ratios (3 weeks treatment) among 76 military veterans with PTSD.xiii,291 The study finds neither of the three smoked cannabis formulations is significantly more effective than placebo in reducing PTSD symptom severity (measured by the CAPS total severity score), nor are there significant differences between any of the three cannabis concentrations.

To summarize, several studies find synthetic THC to provide therapeutic relief for specific PTSD symptoms; the different outcome measures of these studies are not comparable. A more recent study finds smoked cannabis to not be effective in reducing PTSD symptom severity, despite using cannabis with varying THC to CBD ratios. Collectively, given that several observational studies also find cannabis use is associated with increased PTSD severity (although it is not clear which cannabis products were used in those studies), there is conflicting evidence for which cannabis products could be therapeutic to PTSD patients. More research is needed on the effects of cannabis or cannabinoids on symptom severity in PTSD.

xii “If these trials are successfully completed, they will add substantially to the knowledge base (Eades, 2016; Bonn-Miller 2014), expanding the range of cannabinoids evaluated and the opportunity to examine the consistency of effects across studies” (NASEM 2017, p. 124). Although NASEM refers to two clinical trials here (Bonn-Miller, NCT02759185; Eades / Zach Walsh, NCT02517424), I can only obtain one of these in my literature review.

xiii High THC: 12 percent THC and <0.05 percent CBD; equal THC to CBD: 7.9 percent THC and 8.1 percent CBD; high CBD: 11 percent CBD and 0.5 percent THC; placebo: <0.03 percent THC and <0.01 percent CBD
- **Tourette’s Syndrome**

  NASEM identifies two RCTs that were conducted by the same research group from two good- or fair-quality systematic reviews. Both Germany-based studies assess oral THC capsules for treating 29 patients with Tourette’s syndrome (12 patients in the first study, 17 patients in the second study). The first study, which NASEM deems to have an unclear risk of bias, finds oral THC is significantly more effective than placebo in lowering patient-rated Tourette’s syndrome severity (measured by the Tourette’s syndrome Symptom List, or TSSL) but not clinician-rated Tourette’s syndrome severity (measured by the Shapiro Tourette’s syndrome Severity Scale, or STSS; Tourette’s syndrome Global Scale, or TSGS or TS-CGI; or Yale Global Tic Severity Scale, or YGTSS). The second study, which NASEM deems to have a high risk of bias, also finds oral THC is significantly more effective than placebo in lowering patient-rated scores (TSSL) but not examiner-rated scores (STSS; TS-CGI, YGTSS, and video rating scale); examiner-rated scores are only statistically significant at particular time periods (between 20 and 31 days of treatment) but not over the 6-week study period. Due to these studies’ small sample size, high or unclear risk of bias, and inadequate details on randomization or allocation concealment, NASEM concludes there is limited evidence that THC capsules are effective for improving Tourette’s syndrome symptoms.

  I find no additional studies as of May 2021 that examine cannabis or cannabinoids for the treatment of Tourette’s syndrome and that have been published since NASEM’s report.

- **Traumatic Brain Injury (TBI)**

  NASEM identifies two fair- to high-quality observational studies that examine patient registry data. Both studies identify patients who do and do not test positive for THC via urine toxicology tests, and although the authors do adjust for several patient-level characteristics in their analyses, neither study specifies which cannabis products patients had used or whether the studies accounted for factors that could affect how quickly patients metabolize THC. The first U.S.-based study, which examines data from 446 TBI patients, finds that patients who test positive for THC are significantly more likely to survive TBI than THC negative patients, according to logistic regression analyses controlling for age, gender, ethnicity, mechanism of injury, blood pressure at admission, head Abbreviated Injury Score, and Injury Severity Score. The second study examines data from the from the Multi-National Survey on Epidemiology, Morbidity, and Outcomes in Intracerebral Hemorrhage (MNEMONICH), which includes participating centers in the U.S., Europe, and South America. The study finds that being THC-positive is significantly associated with better stroke mortality and functionality outcomes at discharge (measured by the modified Rankin Scale, or mRS), controlling for age, gender, Glasgow Coma Scale, log-transformed intracerebral hemorrhage volume, infratentorial location, anticoagulant use, and intraventricular extension. Based on these findings, NASEM concludes
there is limited evidence of a statistical association between cannabinoids and improved outcomes for TBI or intracerebral hemorrhage.

I find no additional studies as of May 2021 that examine cannabis or cannabinoids for the treatment of TBI and that have been published since NASEM’s report.

Limited Evidence That Cannabinoids Are Ineffective

- Alzheimer’s Disease or Dementia

NASEM identifies three RCTs, two of which they obtain from two good-quality systematic reviews. One U.S.-based crossover trial of 12 patients with a diagnosis of probable Alzheimer’s disease finds that oral synthetic THC (dronabinol) (5mg daily, 6 weeks treatment) significantly decreases disturbed behavior severity compared to placebo (measured by the Cohen-Mansfield Agitation Inventory, or CMAI). However, the Krishnan et al. (2009) review notes that the study provides insufficient details on randomization, allocation concealment, blinding, and patients who dropped out from the study, raising its risk of bias. A Switzerland-based crossover trial of two patients with nighttime agitation in dementia finds that oral capsule synthetic THC (dronabinol) (2.5mg daily, 2 weeks treatment), decreases nocturnal motor activity compared to placebo, but no statistical test results are provided. Finally, a good-quality, Netherlands-based RCT of 50 dementia patients finds no significant difference between oral, cannabis-derived THC (Namisol®) (1.5mg three times daily, 3 weeks treatment) and placebo in alleviating neuropsychiatric symptoms (measured via NPI), agitation (measured via NPI and CMAI), quality of life (measured via Quality of Life – Alzheimer’s Disease), or activities of daily living (measured via Barthel Index); the authors estimate that increasing the sample size would only have had a five percent chance of showing clinically important effects on neuropsychiatric symptoms. Due to the first two studies having issues in study design and reporting, the lack of treatment effects found in the good-quality RCT, and the small number of patients enrolled in all three studies, NASEM agrees with Krishnan et al. (2009) that the available evidence does not suggest a therapeutic effect of cannabinoids and concludes there is limited evidence that cannabinoids (presumably, oral THC extract and synthetic THC) are ineffective treatments for improving symptoms associated with dementia.

From my literature review, I identify a Canada-based crossover trial of 38 Alzheimer’s disease patients that finds oral synthetic THC (nabilone) (1mg or 2mg daily, 6 weeks treatment) to be significantly more effective than placebo in reducing agitation (measured via CMAI) and overall neuropsychiatric symptoms (measured by the Neuropsychiatric Inventory – Nursing Home version and in the NPI-agitation/aggression subscore). The authors conclude that nabilone may be an effective treatment for agitation, although they caution against its sedative and cognition impairing effects. These results support the U.S.-based crossover trial examining dronabinol, and the newer study examines a larger sample of patients, uses a similar dosing regimen, and also measures agitation via the CMAI. Findings from this newer study regarding
NPI scores also differ from the Netherlands-based RCT, both studies analyze a comparably similar number of patients, but the newer study uses synthetic THC rather than oral THC extract (Namisol®).

Collectively, these studies provide mixed evidence on the therapeutic efficacy of THC-based products for treating agitation in Alzheimer’s disease, particularly due to research design flaws in the studies reviewed by NASEM.

- **Depression**

  NASEM does not identify any RCTs examining cannabis or cannabinoids for which reducing depressive symptoms is the primary outcome of interest. Instead, NASEM identifies five RCTs from a good-quality systematic review, that assess cannabis or cannabinoids for treating chronic pain or MS and only measure depressive symptoms as a secondary outcome. Two chronic pain studies (one U.K.-based study examining nabilone in 73 patients and a U.S.-based study examining dronabinol in 29 patients) find that oral capsule synthetic THC is not significantly effective in reducing Hospital Anxiety and Depression scores (HAD), compared to placebo in the U.K.-based study and compared to dihydrocodeine in the U.S.-based study. Additionally, one study of 359 cancer patients with chronic pain (based both in the U.S. and internationally), a U.K.-based study of 66 MS patients, and a U.K.-based study of 154 MS patients all find no significant difference between oral spray THC plus CBD extract (nabiximols) and placebo in reducing depression scores (measured by the Montgomery-Asberg Depression Rating Scale, or MADRS, in the U.S.-based study; the Beck Depression Inventory, or BDI, in the larger U.K.-based study; and the Hospital Anxiety and Depression scores in the smaller U.K.-based study). Based on these findings, NASEM concludes there is limited evidence that dronabinol, nabilone, and nabiximols are ineffective treatments for reducing depressive symptoms in patients with chronic pain or MS.

  I find no additional studies as of May 2021 that examine cannabis or cannabinoids for the treatment of depression and that have been published since NASEM’s report.

- **Glaucoma**

  NASEM identifies a single, U.K.-based crossover trial from a good-quality systematic review that deems the study to have an unclear risk of bias. Six patients with ocular hypertension or early primary open angle glaucoma are randomized to receive either oral spray THC (5mg), oral spray CBD (20mg or 40mg), or placebo. Intraocular pressure level (measured via Goldman applanation tonometry) is recorded at 1, 2, 3, 4, 5, 6, and 12 hours after treatment. Compared to placebo, THC significantly reduces intraocular pressure two hours after administration, but not afterwards (intraocular pressure returns after the 4-hour measurement). The authors add that the temporary reduction in intraocular pressure from THC is not likely to be clinically relevant.
CBD 20mg also does not significantly reduce intraocular pressure, and CBD 40mg significantly increases intraocular pressure four hours after administration but not afterwards. Based on these findings, NASEM concludes there is limited evidence that cannabinoids are ineffective for improving intraocular pressure due to glaucoma.

I find no additional studies as of May 2021 that examine cannabis or cannabinoids for the treatment of glaucoma and that have been published since NASEM’s report.

**Qualifying Health Conditions with “Insufficient or No” Evidence (Table 2e)**

NASEM deems seven qualifying conditions to have some but insufficient evidence thus far to support or refute that cannabis or cannabinoids are therapeutically effective for certain symptoms: cancer (viz., tumor activity and cancer-associated cachexia or wasting syndrome and anorexia nervosa), dystonia, epilepsy, Huntington’s disease, Irritable Bowel Syndrome (IBS), Parkinson’s disease, and spinal cord injury. Conversely, NASEM finds there is some but insufficient evidence to support or refute that cannabis or cannabinoids are ineffective for treating amyotrophic lateral sclerosis (ALS) and substance use disorders (SUD).

**Insufficient Evidence That Cannabis or Certain Cannabinoids Are Effective**

- **Cancer (including glioma)**

  NASEM identifies a single fair- to good-quality review that predominantly examines pre-clinical studies, or clinical studies involving non-human subjects.\(^{74, 304-319}\) All 16 studies included in the review (15 pre-clinical studies and a phase I clinical trial) involve an in-vivo component and find that cannabinoids (Ajulemic acid, delta-8 THC, JWH-133, THC, CBD, or THC plus CBD, depending on the study) exhibit antitumor effects. Given the absence of human RCTs demonstrating clinical effectiveness of cannabinoids for treating cancers, NASEM concludes there is insufficient evidence to support or refute that cannabinoids can treat cancers, including glioma.

  I find no additional studies as of May 2021 that examine cannabis or cannabinoids for the treatment of cancers (including glioma) and that have been published since NASEM’s report.

- **Cancer (anorexia nervosa, cachexia or wasting Syndrome)**

  NASEM identifies two RCTs examining cannabinoids for treating cachexia or wasting syndrome in cancer patients.\(^{320-321}\) One study examines 226 patients with cancer-related anorexia-cachexia syndrome in Germany, the Netherlands, and Switzerland and finds that oral capsules containing cannabis-derived extracts of THC or THC plus CBD (5mg THC extract daily or 5mg THC plus 2mg CBD extract daily for 6 weeks) significantly improve patient appetite compared to placebo (measured by the visual analogue scale, or VAS).\(^{321}\) The other
study examines 211 advanced cancer patients in the U.S. and finds synthetic THC plus placebo (dronabinol, 5mg daily, 57 and 80 days treatment) is significantly less effective than megestrol acetate plus placebo and megestrol acetate plus synthetic THC in improving appetite (measured by a questionnaire adapted by the North Central Cancer Treatment Group, or NCCTG) and in improving patient-reported and physician-reported weight gain.\textsuperscript{320} Based on these findings, NASEM concludes there is insufficient evidence to support or refute the conclusion that cannabinoids are effective for treating cancer-associated anorexia-cachexia syndrome and anorexia nervosa. NASEM does not identify any RCTs examining whole plant cannabis for cancer-associated anorexia-cachexia, but given that previous literature suggests cannabis use is associated with increased food intake,\textsuperscript{322} NASEM notes the possibility that other components of the cannabis plant interact with THC to enhance cannabis-related effects on appetite and food intake.

From my literature review, a single study conducted in Mexico of 33 lung cancer patients diagnosed with anorexia finds that, compared to placebo, oral synthetic THC (nabilone, 1mg daily, 6 weeks treatment) results in significantly greater caloric intake (measured by the AC/S-12 section of the Functional Assessment of Anorexia-Cachexia Therapy tool, or FAACT tool) and significantly greater carbohydrate intake.\textsuperscript{323} The study’s treatment duration and relatively low treatment dose are similar to the other two studies in NASEM’s collection.

In summary, unlike previous studies finding mixed evidence of appetite improvement from cannabinoids (THC, THC plus CBD, synthetic THC), a newer study with similar treatment duration and dosing finds synthetic THC results in greater caloric intake. However, because this study has a much smaller sample size and its outcome measurements are different than previous studies, its findings should be interpreted cautiously.

- **Dystonia**

NASEM identifies two crossover trials examining cannabis or cannabinoids for treating dystonia.\textsuperscript{324-325} One study, which NASEM obtained from a fair-quality systematic review,\textsuperscript{72} is a Canada-based study of 7 patients with cervical dystonia that finds no significant difference between oral synthetic THC (dronabinol) and placebo for treating dystonia (measured by the Toronto Western Spasmodic Torticollis Rating Scale – part A subscore, or TWSTRS-A).\textsuperscript{325} The second study, which examines 13 patients with dystonia in the U.K., also finds no significant difference between oral capsule synthetic THC (nabilone) and placebo in reducing dystonia (measured by the dystonia-movement scale portion of the Burke, Fahn, Marsden dystonia scale).\textsuperscript{324} Given the small sample sizes and lack of treatment effects in these studies, NASEM
concludes there is insufficient evidence to support or refute the conclusion that cannabinoids are an effective treatment for dystonia.xiv

I find no additional studies as of May 2021 that examine cannabis or cannabinoids for the treatment of dystonia and that have been published since NASEM’s report.

- **Epilepsy**

NASEM identifies four RCTs from a Cochrane systematic review, which are also described in Koppel et al., 2014, that examine oral CBD for treating epilepsy.71-72, 326-329 The Cochrane review deems these studies to be of low research quality, and the authors conclude that no reliable conclusion can be drawn about the efficacy of cannabinoids for epilepsy.71 Koppel et al. (2014) also do not identify any RCTs of acceptable research quality and conclude that the existing research at the time provides insufficient evidence to support or refute the efficacy of cannabinoids for reducing seizure frequency.72 With these two reviews being unable to find RCTs of acceptable research quality, NASEM identifies and describes two unblinded clinical studies.330-332 A U.S-based study that examines 137 patients with treatment-resistant epilepsy finds that CBD (delivered orally or via gastric tube, 2mg/kg to 5mg/kg daily, 25 to 50mg/kg maximum, 12 weeks treatment) results in a 37 percent median reduction in monthly motor seizures over the study’s 12-week treatment period.330 The second study examines oral CBD (3mg/kg daily, 30 days treatment) in 74 child and adolescent epilepsy patients in Israel (ages 1 to 18) and finds that eighty-nine percent of patients (66 of 74 patients) experience a reduction in seizure frequency, with 18 percent (13 of 66 patients) experiencing a 75 to 100 percent reduction, and 34 percent (25 of 74 patients) experiencing a 50 to 75 percent reduction.332 Due to the lack of discernable findings from the first four RCTs and the lack of a control group in the last two studies, NASEM concurs with Koppel et al. (2014) that there is insufficient evidence to support or refute the use of cannabinoids for treating epilepsy.

From my literature review, I identify five RCTs examining Epidiolex®, a pharmaceutical grade oral solution containing cannabis-derived CBD, all of which find Epidiolex® to be significantly effective compared to placebo for reducing seizures associated with three forms of epilepsy: Lennox-Gastaut syndrome (LGS), Dravet syndrome, and Tuberous Sclerosis Complex (TSC) (Total: 3,517 patients examined; Range: 120 to 244 patients).333-354 Results from the first three multicenter studies (GWPCARE1, GWPCARE3, and GWPCARE4, all of which are based in both Europe and the U.S.) led to both the U.S. Food and Drug Administration’s (U.S. FDA) and European Union European Commission’s (E.U. EC) approval of Epidiolex® for the treatment of seizures associated with LGS or Dravet syndrome in patients two years or older.40-44, 335, 344, 346 An additional, multicenter clinical study (GWPCARE 2, based in Australia, Europe,
Israel, Netherlands, Poland, and the U.S.) finds that, compared to placebo, Epidiolex® significantly reduces seizure frequency associated with Dravet syndrome.\textsuperscript{349} In response to one more study (GWPCARE6) finding Epidiolex® is significantly effective compared to placebo in reducing seizures associated with TSC, in 2021, the U.S. FDA, E.U. EC, and the United Kingdom Medicines and Healthcare Products Regulatory Agency approved Epidiolex® for treating TSC for patients two years or older.\textsuperscript{45-49, 351} Australia also approved Epidiolex® for Dravet syndrome in May 2021.\textsuperscript{51}

Finally, a U.S.-based study of 186 patients finds no significant difference between a topical synthetic CBD gel (ZYN002, 195mg or 390 mg twice daily, 12 weeks treatment) and placebo in reducing the frequency of focal seizures in adults, although in a 12-month, open-label extension of the study, there were progressively greater reductions in seizures every three months.\textsuperscript{355}

Together, these study findings and subsequent approvals of Epidiolex® are significant updates since the NASEM report, in which there had been insufficient evidence at the time to support CBD for the treatment of epilepsy. That several clinical trials find clinically significant results, leading to international approval of Epidiolex®, strongly suggests that cannabis-derived CBD is effective for treating epilepsy due to LGS, Dravet syndrome, or TSC. Findings from an additional RCT on synthetic CBD for focal epilepsy, including its open-label phase, warrants another long-term, blinded study.

- **Huntington’s Disease**

  NASEM identifies two studies from a fair-quality systematic review.\textsuperscript{72} One study examines oral CBD (average 700mg daily, 6 weeks treatment) in a crossover trial of 15 Huntington’s disease patients in the U.S.,\textsuperscript{356} while the other study examines oral synthetic THC (nabilone, 1mg to 2mg daily, 5 weeks treatment) in a crossover trial of 37 Huntington’s disease patients in the U.K.\textsuperscript{357} Both of these studies finds cannabinoids to reduce chorea severity (measured by the Unified Huntington’s Disease Rating Scale, or UHDRS, in the nabilone study and the Marsden and Quinn Chorea Severity Scale in the CBD study), but the reduction is only statistically significant in the nabilone study. The nabilone study also finds no significant improvement in the UHDRS behavior score compared to placebo, although there is a slight, significant improvement in Neuropsychiatric Inventory scores (NPI). Additionally, the CBD study finds no significant improvement in distress compared to placebo (measured by the symptom checklist, or SCL-90R).\textsuperscript{356} Due to small treatment effects in the nabilone study and the CBD study being underpowered, NASEM concludes there is insufficient evidence to support or refute that oral cannabinoids can treat chorea and certain neuropsychiatric symptoms in Huntington’s disease.

  From my literature review, a single crossover trial of 24 Huntington’s disease patients in Spain examines oral spray THC plus CBD extract (nabiximols, 12 daily sprays of 2.7mg THC to 2.5mg CBD, 12 weeks treatment).\textsuperscript{358} This study also finds no significant differences between nabiximols and placebo in UHDRS scores measuring cognition, behavior, or functionality.
Findings from this study are similar to those in NASEM’s collection, given that all three studies are similarly sized crossover trials, although this newer study uses a much smaller dose of CBD than the previous CBD study and has a longer treatment duration than both the CBD and nabilone studies.

Together, these findings make it difficult to determine which cannabinoids may be effective treatments for Huntington’s disease patients, as several studies find synthetic THC, CBD, and THC plus CBD to not exhibit significant treatment effects compared to placebo (except for synthetic THC in reducing chorea severity). Such findings could be confusing to patients who wish to try cannabis dispensary products to treat this condition, as well as clinicians who would need to rely on the available clinical evidence to recommend a dispensary product(s). However, it is worth noting that findings from these studies may have been underpowered and used insufficient dosing; it is possible for future research using different treatment regimens to find more evidence of a therapeutic relationship between cannabinoids and symptom relief in Huntington’s disease.

- **Irritable Bowel Syndrome (IBS)**

  NASEM identifies a single U.S.-based RCT that examines oral capsule synthetic THC (dronabinol, 2.5mg or 5mg, 2 days treatment) for treating IBS in 36 patients. The study finds no significant difference between dronabinol and placebo in gastric, small bowel, and gut transit (measured via scintigraphy). Given the lack of treatment effect, the study’s small sample size, short treatment duration, and short duration for follow-up (1 day), NASEM concludes there is insufficient evidence to support or refute that dronabinol is effective for treating IBS symptoms.\(^{xv}\)

  I find no additional studies as of May 2021 that examine cannabis or cannabinoids for the treatment of IBS and that have been published since NASEM’s report.

- **Parkinson’s Disease**

  NASEM identifies three RCTs examining different formulations of THC and CBD for treating Parkinson’s disease.\(^{360-362}\) NASEM obtains two of these studies from a fair-quality systematic review, both of which are U.K.-based and examine 24 total patients with levodopa-induced dyskinesia.\(^{72, 360-361}\) One study finds oral capsule synthetic THC (nabilone, 0.03mg/kg to nearest whole milligram, 2 treatment sessions separated by 2 weeks) is significantly more effective than placebo in treating dyskinesia in 7 patients (measured by the Rush Dyskinesia Disability Scale), although NASEM highlights the study’s small sample size and low dose of

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\(^{xv}\) Given that none of the studies in NASEM’s collection find cannabinoids to be effective for treating IBS symptoms, it is unclear why NASEM does not word their conclusion differently to say instead that the evidence thus far suggests cannabinoids are therapeutically ineffective (as they do for dementia, depression, and glaucoma).
synthetic THC. The other study finds oral capsule THC plus CBD extract (Cannador®, 2.5mg THC to 1.25mg CBD, maximum dose of 0.25mg/kg, 4 weeks treatment) is not significantly more effective than placebo in treating dyskinesia in 17 patients (measured by the Unified Parkinson’s Disease Rating Scale, or UPDRS). The third study of 21 Parkinson’s disease patients in Brazil finds no significant difference between oral capsule CBD (75mg or 300mg daily, 6 weeks treatment) and placebo in Parkinson’s disease motor and general symptoms scores (measured via UPDRS). Based on these three studies, NASEM concludes there is insufficient evidence that cannabinoids are effective for treating motor symptoms associated with Parkinson’s disease or levodopa-induced dyskinesia.

From my literature review, a single study of 76 patients in Brazil also finds oral CBD (300mg, 2 treatment sessions separated by 2 weeks) is not significantly more effective than placebo in reducing upper limb tremors in Parkinson’s disease (measured by the Fahn-Tolosa-Marin clinical scale, or FTM), supporting findings from the previous Brazil-based study that uses a similar dose of CBD. This newer study also examines a larger sample of patients than the previous Brazil-based study but has a shorter treatment duration.

Similar to clinical studies on Huntington’s disease, these studies could make it difficult for clinicians and patients to determine which cannabinoid formulations, if any, could be effective for treating motor symptoms in Parkinson’s disease, given that CBD and THC plus CBD extract have not been found to be effective and that Koppel et al. (2014) conclude that cannabinoids are “probably ineffective” for treating levodopa-induced dyskinesia. The nabilone study, however, does show significant treatment effects, and the literature would benefit from a larger study of more patients, different dosages, and a longer treatment duration.

- **Spinal Cord Injury (spasticity)**

Three RCTs that examine cannabinoids for treating spasticity due to spinal cord injury are included in a good-quality systematic review discussed by NASEM. A Canada-based study of 11 patients with spinal cord injury and spasticity finds that oral synthetic THC (nabilone, 0.5mg to 1mg daily, 4 weeks treatment) significantly reduces spasticity compared to placebo according to the clinician-rated Ashworth score for the most involved muscle group (which is chosen by the patient and clinician) and total Ashworth scores. There is also a non-

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\[xvi\] According to NASEM (p. 101), Whiting et al. (2015) do not include these three studies in meta-analyses due to none of these studies having published papers (only conference abstracts), and Whiting et al. (2015) excludes crossover trials from meta-analyses. However, Whiting et al. (2015) does provide citations for published papers for one of these studies (Pooyania et al., 2010). For another citation (Hagenbach et al., 2003), I was able to obtain a published paper (Hagenbach et al., 2007) that was published within Whiting et al.’s (2015) research period. Additionally, Berman et al. (2007) is included in a meta-analysis of several studies examining cannabinoids for MS-induced spasticity (see the Multiple Sclerosis subsection above) (p. 2464). Finally, for meta-analyses, Whiting et al. (2015) do include crossover trials in sensitivity analyses (pp. 2458, 2463). Therefore, I treat these studies as being included in the Whiting et al. (2015) review and, by extension, in NASEM’s collection.
significant reduction in spasticity according to the patient-rated Visual Analogue Scale (VAS).  
A U.K.-based study of 117 patients with spinal cord injury and pain finds no significant difference between oral spray THC plus CBD extract (Sativex®) and placebo in patient-reported spasticity (measured by the numeric rating scale, or NRS). Finally, the third phase of a Switzerland-based study of 13 patients with spinal cord injury finds oral capsule synthetic THC (dronabinol) significantly reduces clinician-rated spasticity compared to placebo (measured by the modified Ashworth scale). Because the Whiting et al. (2015) review deems these studies to have provided insufficient data, NASEM concludes there is insufficient evidence to support or refute the conclusion that cannabinoids are effective for treating spasticity in patients with paralysis due to spinal cord injury.

I find no additional studies as of May 2021 that examine cannabis or cannabinoids for the treatment of spasticity related to spinal cord injury and that have been published since NASEM’s report.

Insufficient Evidence That Certain Cannabis-Based Products Are Ineffective

- **Addiction, Dependence, Substance Use Disorders**

NASEM identifies three RCTs from two systematic reviews. Two studies assess cannabinoids for the treatment of cannabis dependence, one of which is an Australia-based study of 51 patients that examines oral capsule synthetic THC (dronabinol, 40mg daily, 8 weeks treatment), and the other is a U.S.-based study of 156 patients that examines oral spray THC plus CBD extract (nabiximols, 8 to 32 daily sprays, 6 days treatment). Each study finds a significant reduction in withdrawal symptoms compared to placebo (measured by the Cannabis Withdrawal Scale, or CWS, in the nabiximols study and the withdrawal discomfort score of the Withdrawal Checklist, or WDS, in the dronabinol study). The dronabinol study finds synthetic THC is not significantly more effective than placebo in achieving two weeks of abstinence.

However, the Marshall et al. (2014) review concludes there is “moderate quality” evidence that completing substance use treatment is significantly more likely with “preparations containing THC” than placebo. Finally, one study of 24 patients in the U.K. finds no significant difference between CBD in inhaler form and placebo in the number of tobacco cigarettes smoked. Based on findings from these three studies, NASEM concludes there is no evidence to support or refute that cannabinoids are an effective treatment for achieving abstinence in the use of addictive substances.

From my literature review, 13 RCTs examine specific cannabinoids for reducing substance use and/or conditions related to withdrawal (including craving). Seven of these studies examine cannabinoids for treating cannabis dependence: three examine oral capsule synthetic THC (dronabinol, 60mg to 240mg daily, 12 days to 11 weeks treatment; nabilone, 6mg daily, 8 days treatment), three examine nabiximols (4 to 40 daily sprays, 8 to 12 weeks treatment), and one uses oral capsule synthetic CBD (50mg, 100mg, or 200mg daily, 4
weeks treatment). Four studies (two studies examining synthetic THC, one study examining nabiximols, and one study examining synthetic CBD) find cannabinoids to be significantly more effective than placebo in alleviating cannabis withdrawal symptoms (measured via CWS or food, sleep, and body weight). Conversely, the other three studies (two examining nabiximols; one examining synthetic THC) find no significant difference between cannabinoids and placebo in reducing withdrawal symptoms (measured via CWS or the Marijuana Withdrawal Checklist, or MWC). Of five studies that assess cannabis use as an outcome, four studies find cannabinoids to be significantly more effective than placebo in reducing cannabis use (two studies examining synthetic THC, one study examining nabiximols, and one study examining using synthetic CBD), whereas another study using nabiximols does not. Only one of four studies that assess cannabis craving finds that dronabinol significantly reduces craving compared to placebo (measured by the Drug Effects Questionnaire), while the other three studies examining nabiximols find no significant difference between cannabinoids and placebo in reducing cannabis craving (measured by the Marijuana Craving Questionnaire, or MCQ). Finally, of three studies that assess cannabinoids for abstinence in cannabis use, two studies (one examining dronabinol and the other examining nabiximols) find no significant difference in achieving abstinence between cannabinoids and placebo—despite the authors of the dronabinol study using a higher dose than their previous 2011 study—while one study finds synthetic CBD to be significantly more effective than placebo in achieving more days of abstinence.

Six other studies in my collection examine cannabinoids for treating dependence for alcohol (one study), cocaine (one study) or crack cocaine (one study), nicotine (one study), and opioids (two studies). Smoked cannabis (3 or 7 percent THC) is found to be significantly more effective than placebo in reducing alcohol use but not in reducing alcohol craving (measurement for craving is not provided). Oral capsule synthetic CBD (800mg daily, 12 weeks treatment) is not found to be significantly more effective than placebo for reducing cocaine craving (measured by the Visual Analogue Scale, or VAS) or in increasing time to relapse. Oral capsule CBD (300mg daily, 10 days treatment) is also not found to be significantly more effective than placebo in reducing crack cocaine craving (measured by the Cocaine Craving Questionnaire – Brief, or CCQ – Brief, and Minnesota Cocaine Craving Scale, or MCCS). In another study, oral capsule CBD (800mg per treatment session, 3 sessions within 2 to 4 weeks) is also not found to be significantly more effective than placebo in reducing cognition impairments (memory, impulsivity) related to nicotine dependence. However, oral solution CBD (Epidiolex®, 400 or 800mg daily, 3 days treatment) is found to be significantly more effective than placebo in reducing heroin craving (measured via VAS for craving, or VAS-C). Oral capsule synthetic THC (dronabinol; 5mg, 10mg, 20mg, or 30mg; 5 weeks treatment) at higher doses (20mg or 30mg) is found to be significantly more effective than placebo in reducing opioid-related withdrawals, but due to its adverse effects (e.g., heart racing, sedation) the authors conclude dronabinol is not effective as a monotreatment for opioid withdrawal.
In summary, without evaluating for quality of research, these newer studies provide mixed evidence that certain cannabis products might be useful aids in decreasing substance use (e.g., alcohol, cannabis) and in alleviating craving or withdrawal symptoms of certain substances (opioids and possibly cannabis but not cocaine or tobacco). However, only four of thirteen studies in my collection evaluate abstinence as an outcome, and only one of these studies finds cannabinoids (oral synthetic CBD) is effective for achieving abstinence in cannabis use. The lack of significant findings for abstinence from these studies lends further support to NASEM’s conclusion of there being no evidence that cannabinoids are effective for achieving abstinence of addictive substances.

- **Amyotrophic Lateral Sclerosis (ALS)**

  NASEM identifies two crossover trials, both of which assess oral synthetic THC (dronabinol) for treating ALS. The U.S.-based study examines 19 ALS patients, while the Switzerland-based study examines 22 ALS patients. Both studies find no significant difference between dronabinol and placebo in treating cramps and fasciculations (involuntary muscle twitches). Due to the small sample sizes of both studies, short study durations (4 weeks treatment in the U.S.-based study, 2 weeks treatment in the Switzerland-based study), and possibly insufficient drug dosing (2.5 to 10mg daily in the U.S.-based study, 5mg twice daily in the Switzerland-based study), NASEM concludes there is insufficient evidence that cannabinoids are ineffective treatments.

  One new study from my literature review—Cannabis Sativa Extract in Amyotrophic Lateral Sclerosis and other Motor Neuron Disease (CANALS)—examines 59 ALS patients in Italy. The study finds that oral spray THC plus CBD extract (nabiximols, 8 mean daily sprays, 4 weeks treatment) significantly reduces clinician-rated spasticity compared to placebo (measured by the modified Ashworth scale). The study contrasts with two previous studies in NASEM’s collection that find cannabinoids to be therapeutically ineffective. This newer study also evaluates a slightly more patients and uses a similar treatment duration than the two previous studies.

  Although spasticity-related symptoms may not be comparable between different conditions such as ALS and MS, it is not surprising that a newer study finds nabiximols is therapeutically effective, given the substantial evidence from previous, larger trials that find nabiximols is effective in reducing patient-reported spasticity. It is also interesting that this newer study finds nabiximols to be effective in relieving clinician-rated spasticity, unlike previous studies on MS-induced spasticity that find nabiximols to be ineffective according to Ashworth scale scores, including studies of over 100 patients. Future studies examining THC plus CBD formulations for ALS with comparable treatment durations are warranted.
**Newly Identified Findings from Studies Published after NASEM (January 2016 to May 2021) (Table 2e)**

Eleven RCTs examine cannabis or cannabinoids for treating eight more qualifying conditions that are not discussed in NASEM’s report (note that two studies on opioid use disorder are already discussed under the subsection *Substance Use Disorders*). It is unclear which grade NASEM would assign to reflect the degree of evidence that cannabis or cannabinoids are effective or ineffective as treatments. Additionally, several studies in my collection examine other symptoms of qualifying conditions for which NASEM does not provide clinical conclusions.

**Additional Qualifying Conditions Examined in Recent Randomized Controlled Trials Published after NASEM (2017) (January 2016 to May 2021)**

- **Attention Deficit Hyperactivity Disorder (ADHD)**
  
The Experimental Medicine in ADHD-Cannabinoids study, or EMA-C, examined 26 ADHD patients in the U.K.\(^{393-394}\) The study finds a non-significant difference between oral spray THC plus CBD extract (nabiximols, 5 mean daily sprays, 6 weeks treatment) and placebo in cognitive performance and activity levels (measured by the Quantitative Behavioural Test, or QbTest) as well as in ADHD symptom severity (measured by the Conners Adult ADHD Rating Scale, or CAARS).

- **Autism**
  
  A single crossover trial of 132 patients in Israel examines CBD-dominant extracts of THC plus CBD (either THC and CBD both extracted from the whole cannabis plant, or purified CBD extract added to THC, 21mg THC daily and a maximum of 420mg CBD, 12 weeks treatment) delivered in oral drop form for treating behavioral problems associated with autism spectrum disorder (ASD).\(^{395-396}\) The study finds no significant difference between either of the THC plus CBD extracts and placebo in scores of the Home Situation Questionnaire-ASD (HSQ-ASD). The study also finds significant improvements in disruptive behavior on the Clinical Global Impression-Improvement scale (CGI-I) among patients who received the whole plant cannabis extract but not among patients who received the purified CBD plus THC extract. The authors conclude the evidence for the efficacy of these extracts is “mixed and insufficient.”
• **Headache or Migraine**

A single study of 560 patients in Italy (370 suffering migraine, 190 suffering cluster headache) examines orally delivered, whole plant cannabis extract (an extract containing 19 percent added to another extract containing 9 percent CBD, 200mg daily, 3 months treatment) for treating migraines or cluster headaches. Among migraine patients, pain relief in the cannabis extract is 40.4 percent, compared to 40.1 percent from amitriptyline (no statistical test results are provided). Among cluster headache patients randomized to either whole plant extract or verapamil, the authors report “scant decrease of severity and number of attacks” without providing further details. Finally, the authors note that whole plant extract decreases attack pain by 43.5 percent in patients with a history of childhood migraine but not in cluster headache patients without a migraine history (again, no statistical tests results are provided).

• **Inflammatory Bowel Disease (Crohn’s disease)**

Two Israel-based studies (19 patients in the first study, 46 patients in the second study) examine oral CBD for treating Crohn’s disease (measured by the Crohn’s Disease Activity Index, or CDAI, a patient-rated score). The first study of 19 patients finds sublingual CBD (20mg daily, 8 weeks treatment) to not be significantly more effective than placebo. A second study of 46 patients, however, finds CBD-dominant, oral cannabis extract (15 percent CBD, 4 percent THC, 8 weeks treatment) to be significantly more effective than placebo in reducing Crohn’s disease activity (measured via CDAI) and having a significantly higher remission rate than placebo (measured via CDAI) but not in improving clinician-rated endoscopic health (measured by the Simple Endoscopic Score for Crohn Disease, or SES-CD) or in reducing inflammatory activity (measured via clinician-reported C reactive protein or calprotectin levels).

• **Inflammatory Bowel Disease (Ulcerative Colitis)**

Three studies examine cannabis or cannabinoids for treating ulcerative colitis (UC). Two Israel-based studies (28 patients in the first study, 32 patients in the second study) find smoked whole cannabis (0.02 to 0.16 percent THC, 23mg to 160mg daily, 8 weeks treatment) is significantly more effective than placebo in reducing disease activity (measured by the Disease Activity Index in one study and the Lichtiger Colitis Activity Index in the other), but only one of two studies finds smoked cannabis is significantly more effective than placebo in improving endoscopic health (measured by the Mayo endoscopic score), and neither study finds smoked cannabis is significantly more effective than placebo in reducing inflammatory activity (measured by stool calprotectin and blood C reactive protein levels). A third U.K.-based study of 60 patients finds oral capsule CBD (50mg to 250mg twice daily, 10 weeks treatment) is significantly more effective than placebo in improving endoscopic health (Mayo endoscopic...
score) and in improving patients’ global impression of change, but the study also finds no significant difference between CBD and placebo in the percent of patients in remission (based on Mayo endoscopic scores) and physician’s global assessment of illness severity.\textsuperscript{400}

Qualifying Conditions for Which Recent Randomized Controlled (January 2016 to May 2021) Evaluate Other Symptoms Not Discussed in NASEM (2017)

- **Cancer (Quality of Life)**
  A study of 56 patients with head and neck cancers in Canada finds no significant difference between oral tablet synthetic THC (nabilone, 1mg to 2mg daily, 4 weeks treatment) and placebo in improving quality of life (measured by the European Organisation for Research and Treatment of Cancer QLQ-C30 and EORTC QLQ-H\&N35).\textsuperscript{403}

- **Multiple Sclerosis (balance and walking)**
  A study of 32 MS patients in Italy assesses the effects of oral spray THC plus CBD extract (nabiximols, 3 daily sprays, 4 weeks treatment) for improving balance and walking.\textsuperscript{404} The study finds that, from the start of treatment to first time point (T0 to T1 – after 45 minutes), nabiximols significantly improves balance and walking compared to placebo (measured by the Numeric Rating Scale for spasticity, or NRS, as well as the Berg Balance Score, or BBS). However, there is no significant difference between nabiximols and placebo at the second time point (T1 to T2- after four weeks of treatment). The authors conclude that nabiximols demonstrates a short-term effect on balance and walking in patients with MS.

- **Nausea (postoperative nausea and vomiting, or PONV)**
  A study in Canada examines oral synthetic THC (nabilone, 0.5mg, single dose prior to surgery) for treating PONV among 340 patients scheduled for elective surgery under general anesthesia and who have an over 60 percent pre-operative risk of developing PONV.\textsuperscript{405} Compared to placebo, synthetic THC does not result in significantly fewer incidences of PONV. The authors conclude that oral nabilone as a single dose is ineffective in preventing PONV.

- **Neurological Disorders (Cerebral Palsy)**
  A multicenter study conducted in the Czech Republic (one site), Israel (one site), and the U.K. (11 sites) examines oral spray THC plus CBD extract (nabiximols, 6 mean daily sprays, 12 weeks treatment) for treating spasticity in 72 children or adolescents with cerebral palsy or traumatic central nervous system injury.\textsuperscript{406-407} The study finds no significant difference in spasticity (measured by the Numeric Rating Scale, or NRS) between nabiximols and placebo.
• Parkinson’s Disease (non-motor symptoms)

A study of 71 Parkinson’s disease patients in Austria finds that oral synthetic THC (nabilone, 2mg daily, 4 weeks treatment) is significantly more effective than placebo in reducing non-motor symptoms (measured by the Movement Disorder Society Unified Parkinson’s Disease Rating Scale – Part I, or MDS-UPDRS Part I). The authors conclude that nabilone is potentially effective in treating disturbing, non-motor symptoms associated with Parkinson’s disease.

Discussion

In its 2017 report, the National Academies of Sciences, Engineering, and Medicine (NASEM) is only able to identify good- to fair-quality systematic reviews and clinical studies to draw conclusions for 32 of approximately 80 qualifying health conditions covered in nearly 40 U.S. states (on a state-by-state basis) that have legalized medical cannabis (MC) use. From additional studies published within five years after the NASEM report (January 2016 to May 2021), I identify (English-only) human randomized controlled trials (RCT) for eight more qualifying conditions: amyotrophic lateral sclerosis (ALS), attention deficit hyperactivity disorder (ADHD), autism, cerebral palsy, headache or migraine, inflammatory bowel disease (i.e., Crohn’s disease and ulcerative colitis), and opioid reduction. These findings suggest, as of May 2021, only half of approximately 80 qualifying conditions in the U.S. have been examined in human RCTs that assess the therapeutic effects of cannabis or cannabinoids and that could possibly justify using cannabis products as a form of treatment. Furthermore, NASEM’s conclusions suggest that the majority of qualifying conditions lack sufficient clinical evidence to demonstrate that cannabis products are therapeutically effective, which is largely supported by findings from human RCTs up to May 2021.

Given the current lack of clinical evidence for many qualifying conditions, it is worth noting that, despite NASEM’s (2017) findings, as of December 2021, many U.S. states or other jurisdictions that legalized MC use after the NASEM report was published have listed qualifying conditions with limited to no clinical evidence. Table 3 lists the qualifying conditions (as of December 2021) of U.S. states or other jurisdictions that have legalized MC use since 2016. Qualifying conditions in purple have human clinical studies covered in NASEM (2017) that all find cannabis products to be therapeutically ineffective, but at least one RCT

xvii Although NASEM’s report was published in 2017, I use the year 2016 as a benchmark because MC laws can take years to formulate and change over time, including qualifying conditions. For example, although New York State legalized MC use in 2014, the state added chronic pain as a qualifying condition in 2017; opioid use disorder as a qualifying condition in 2018; and in 2022, having legalized recreational cannabis use in 2021, allowed any medical condition to qualify for MC use (NYDOH, 2016; NYDOH, 2017; Knopf, 2019; Amentano, 2022; NuggMD, 2022).
identified in my literature review finds at least one cannabis product to be therapeutically
effective. For example, whereas NASEM (2017) finds the studies in their collection to suggest
cannabinoids are ineffective for treating dementia symptoms, a newer RCT identified in my
literature review finds that synthetic THC significantly reduces nighttime agitation in dementia
compared to placebo. Qualifying conditions in orange have not been examined by any human
clinical study covered in either the NASEM report or my literature review (January 2016 to May
2021) that examines the therapeutic effects of cannabis or cannabinoids (e.g., Hepatitis C,
Wilson’s disease). Qualifying conditions in red have been examined by clinical studies included
in NASEM’s collection or my literature review, but no study finds cannabinoids to be
therapeutically effective. For example, sickle cell anemia is listed as a qualifying condition in
several U.S. states, despite the only human clinical cannabis study for this condition (as of May
2021) finding no significant difference between inhaled cannabis and placebo in providing
therapeutic relief. Additionally, nearly every U.S. state or jurisdiction listed in Table 3 lists
glaucoma as a qualifying condition despite clinical evidence (as of May 2021) failing to
demonstrate longer-term therapeutic effects of cannabinoids.

However, keep in mind that it is unknown whether the lack of clinical evidence (as of May
2021) is due to cannabis or cannabinoids actually being therapeutically ineffective or because
there has been insufficient (high-quality) research to establish whether there is a therapeutic
relationship between cannabis products and various ailments. That most human RCTs included
in NASEM (2017) and my literature review were conducted outside of the U.S. (including RCTs
that NASEM uses to draw its conclusions) is reflective of U.S. federal laws having severely
hindered cannabis research in the U.S., which has likely affected our understanding on the
therapeutic effects of cannabis ingredients. It is also possible for many clinical studies to have
used insufficient drug dosing (which could have been the case, for example, with studies on
ALS, Huntington’s disease, and Parkinson’s disease) and for future studies to find therapeutic
effects of various cannabis products.

In fact, according to findings from my literature review, several clinical studies published
after NASEM (2017) suggest that certain cannabis products are therapeutically effective for
several qualifying conditions that NASEM deems to have had weaker evidence at the time.
Particularly noteworthy findings include clinically significant effects of cannabis-derived CBD
for certain forms of epilepsy—which led to the approval of Epidiolex® in Australia, the U.S.,
and over two dozen countries in Europe—and several clinical studies finding CBD to be
effective in relieving pain in adults. Additionally, whereas NASEM (2017) deems the clinical evidence at the time of writing their report to suggest certain cannabinoids are
ineffective for treating Alzheimer’s disease and ALS, I identify one newer study for each
condition that finds cannabinoids to be significantly effective compared to placebo. I also
identify one newer study that finds oral spray THC plus CBD extract (nabiximols) to be effective
in reducing clinician-measured spasticity in MS, whereas the studies in NASEM’s collection
primarily provide evidence for patient-rated spasticity.
Several studies identified in my literature review also support NASEM’s (2017) findings that cannabis products are therapeutically effective for certain qualifying conditions. Similar to NASEM’s (2017) review, I identify additional studies that find oral THC plus CBD extract to be effective in alleviating chemotherapy-induced nausea and vomiting,\textsuperscript{78-79, 81, 123, 127} inhaled cannabis to be effective in relieving pain in adults,\textsuperscript{76, 79, 190, 192, 195, 204} and nabiximols to be effective in treating MS-induced spasticity.\textsuperscript{72, 79, 256, 258} Recall that these are health conditions for which NASEM (2017) deems the literature at the time of writing their report to provide “substantial” or “conclusive” evidence. Four newer studies also provide more supporting evidence that CBD is effective in reducing social anxiety, using similar dosing regimens, study durations, and public speaking tests as the studies included in NASEM (2017),\textsuperscript{267-270} and one study finds synthetic THC (dronabinol) to be effective in treating obstructive sleep apnea, using similar dosing, a larger sample size, and the same outcome measure as a previous study included in NASEM (2017) that had the same finding.\textsuperscript{261-262}

It is also interesting that, similar to NASEM (2017), most studies identified in my literature review examine oral formulations of cannabinoids, followed by inhaled cannabis (smoked or vaporized). Although the range of potencies for inhaled cannabis studies were slightly higher among the studies included in NASEM (2017) (Range: 1 to 30 percent THC; Mean: 5.78 percent THC) than the newer studies identified in my literature review (Range: 0.02 to 22 percent THC; Mean: 5.66 percent THC), the mean potencies for inhaled cannabis are similar. Overall, however, the potencies of inhaled cannabis used in clinical studies are comparably smaller than the mean THC content of cannabis confiscated by the U.S. Drug Enforcement Administration in 2019 (14 percent THC) and cannabis flower sold in U.S. MC dispensaries in 2018 (19 percent THC).\textsuperscript{415-417}

Although therapeutic benefits of inhaled cannabis have been reported in clinical studies (particularly for treating chronic pain in adults), there are some research- and health-related concerns regarding the medicinal use of smoked or vaporized cannabis. First, it is often not clear to what degree the therapeutic benefits of whole cannabis observed in clinical studies are due to THC itself or the synergistic effects of other cannabis ingredients,\textsuperscript{13} which is problematic given that different strains of cannabis can vary dramatically in the composition of cannabis ingredients, and thus it may difficult for patients to be provided with consistent dosing of cannabinoids.\textsuperscript{5, 418} Second, smoking or vaping could have deleterious health effects for immunocompromised patients (including for the very condition patients are treating), such as the risks of inhaling combusted toxins as well as pesticides and other contaminants carried over from cannabis cultivation.\textsuperscript{419-429} Despite these concerns, one important research-related advantage of examining smoked or vaporized cannabis in clinical studies is that smoking is one of the most common modes of administration for MC patients, and thus it makes sense for clinical studies to examine what therapeutic benefits may be derived from inhaled cannabis products.\textsuperscript{430-434}

Otherwise (except for studies examining smoked or vaporized cannabis), nearly all studies in both NASEM’s collection and my literature review examine cannabis products that are not sold
in cannabis dispensaries. Several cannabis-based medicinal products such as nabiximols (Sativex®), Cannador®, Namisol®, and plant-based extracts are not approved by the U.S. Food and Drug Administration (FDA) and, as such, may not be imported for use in the U.S. Even FDA-approved, cannabis-based medications (dronabinol, or Marinol®; nabilone, or Cesamet®; or Epidiolex®) cannot be sold in cannabis dispensaries, as all prescription medications in the U.S. must be dispensed by licensed pharmacies. Thus, if patients find over-the-counter drugs, prescription medications, and even FDA-approved, cannabis-based medications to be ineffective and/or intolerable due to side effects and want to try cannabis dispensary products instead, doctors and patients may find it difficult to determine which dispensary products to recommend that can mimic the therapeutic effects of the cannabis-based medications examined in clinical studies.23-25, 35 For certain qualifying conditions such as MS, clinicians have sufficient evidence to select a dispensary product(s) that can induce a therapeutic effect (in this case, whichever product can mimic nabiximols, Cannador®, or oral THC extract).72, 79, 256, 258 Similarly, clinical studies (as of May 2021) suggests that THC-dominant products are likely to be effective for treating chemotherapy-induced nausea.78-79, 81, 123, 127 Conversely, as of May 2021, there is insufficient evidence for qualifying conditions such as depression (for which neither synthetic THC nor nabiximols has been found to be effective),79, 136, 145-146, 156, 222 Huntington’s disease (neither synthetic THC, CBD, nor nabiximols has been found to effective)72, 356-358, and glaucoma (neither THC extract nor CBD extract have been found to produce longer-term therapeutic effects).303 For these qualifying conditions, there is far less clinical evidence to suggest which dispensary products to recommend, or even to support whether dispensary products should be used to treat these conditions.

Limitations

In this scoping review, I highlight whether the studies collected from my literature review support or differ from either specific studies included in the 2017 report by the National Academies of Sciences, Engineering, and Medicine (NASEM) or conclusions drawn by NASEM (2017). However, because I do not have a medical background and do not evaluate the studies collected in my literature review for research quality, I cannot determine with certainty whether these newer studies contribute to the literature to such a degree that NASEM (2017) would change the grades it had assigned for some qualifying conditions (e.g., from “Limited Evidence” to “Moderate Evidence”). A future report should evaluate newer studies to provide an update to NASEM (2017) or a similar report (although clinical conclusions may still be difficult to draw due to considerable variations in the cannabis products used, drug dosing, treatment duration, how outcomes are measured, and how researchers account for sources of bias, such as differences in patient demographics or substance use history). Additionally, I generally do not present findings from non-randomized controlled trials (e.g., open-label studies), which might
have provided additional insight on the therapeutic effects of cannabis or cannabinoids, but I apply this restriction in an effort to focus on studies with lower risks of bias. Similarly, as NASEM (2017) had done, I exclude non-English studies from my literature review that also might have provided more insight; a future report could expand the search criteria to include non-English studies.

Conclusion

It is understandable that, in earlier years of medical cannabis legalization, many U.S. states included qualifying conditions that had yet to be supported by clinical research as a means to give patients access to cannabis, so that patients could utilize the therapeutic properties of cannabis where standard medications had failed to provide therapeutic relief to the same degree. However, 25 years after California first legalized medical cannabis use in the U.S., 35 other U.S. states and 5 non-state jurisdictions (Commonwealth of Northern Mariana Islands, Guam, Puerto Rico, U.S. Virgin Islands, Washington D.C.) have legalized recreational or medical cannabis use. Given that cannabis is now more widely available in the U.S. and that cannabis use patterns can change with the rapidly evolving U.S. cannabis market, it is imperative for policymakers to consider interventions that can help distinguish the medical cannabis market from the recreational market, so that the former more closely meets clinical standards established for medicinal products. This ensures medical cannabis patients can derive the most benefits from cannabis therapy.

One intervention advocates might immediately suggest is to push federal policymakers to expand funding and other resources to support further cannabis research. For example, after over 50 years of only permitting the U.S. National Institute of Drug Abuse to supply cannabis for research purposes, in November 2021, the U.S. Drug Enforcement Administration licensed several additional manufacturers, increasing the supply of research-grade cannabis. In the same vein, the federal government could set aside additional grant funding for research on the therapeutic effects of cannabis or cannabinoids for specific qualifying conditions, given that grants from the National Institute of Health in the past have tended to prefer research examining the risks and harms of cannabis use rather than its therapeutic potential. To help guide the direction of future cannabis studies, more research can be prioritized for ailments that are commonly listed as qualifying conditions in over a dozen U.S. states (e.g., Alzheimer’s, cancer, Crohn’s disease), as well as qualifying conditions for which there is limited but some evidence that certain cannabis products are therapeutically effective (e.g., anxiety, post-traumatic stress disorder). The federal government could also de-schedule cannabis or cannabis-based products under the Controlled Substances Act from Schedule I to Schedules II or III, which would officially recognize that cannabis or certain cannabis products have known therapeutic properties and perhaps inspire further research.
However, simply expanding cannabis research alone is not an adequate intervention to sufficiently impact the U.S. medical cannabis market in the short run. The difficulties and expenses of conducting cannabis research, particularly under U.S. federal law, the fact that dozens of studies have failed to produce clinically meaningful findings (including large trials evaluating hundreds of patients\textsuperscript{157, 220, 228, 231}), and that cannabis dispensary products are widely available and dominate the medical cannabis market suggests that many pharmaceutical companies are less likely to invest in cannabis research to the same degree they would have before many U.S. states and other countries legalized cannabis use.\textsuperscript{35} Even if cannabis research is successfully expanded, it could take years for researchers to find the correct cannabinoid formulation and dosing regimens needed to produce therapeutic effects for various health conditions, especially with dosing being difficult to make consistent for certain cannabis products such as smoked flower.

Furthermore, even if clinical studies continue to uncover new and meaningful findings each year, it is unclear to what degree these findings will be adequately incorporated into U.S. medical cannabis laws without further policy interventions; in fact, the opposite appears to be true. Despite the NASEM report finding that only a handful of health conditions have sufficient evidence to show that cannabis products are effective—cancer (chemotherapy-induced nausea), chronic pain, epilepsy (specifically, Dravet syndrome, Lennox-Gastaut syndrome, and tuberous sclerosis complex), and multiple sclerosis (spasticity)—and even though these qualifying conditions cover over 85 percent of U.S. medical cannabis patients,\textsuperscript{4} various U.S. states that have legalized medical cannabis use since 2016 have listed qualifying conditions in their laws that have inconsistent or non-significant findings from clinical studies (e.g., glaucoma, and post-traumatic stress disorder). Although the lack of knowledge on the therapeutic effects on cannabis could largely and arguably be attributed to U.S. federal laws or inadequate research (e.g., insufficient dosing, low sample size, low treatment duration), the fact is we still do not fully understand the effects of cannabis or cannabinoids despite half a century’s worth of pre-clinical and clinical studies.\textsuperscript{443-444}

Thus, in addition to expanding cannabis research, U.S. state governments and other institutions (e.g., state medical boards) must consider short-term interventions to bridge the current gaps between medical cannabis research and policy. For example, new states legalizing medical cannabis use can develop criteria to restrict which medical conditions can qualify patients to obtain cannabis for medical use (e.g., medical conditions for which there is evidence from at least one human clinical study that at least one cannabis-based product is therapeutically effective). State governments could also mandate additional pamphlets or warning labels about the limited research on cannabis products for certain qualifying conditions. Finally, the diversity of cannabis research and the fact that newer studies can easily provide key updates to previous findings (as shown in this review) underscores the need for a centralized and regularly updated database of clinical cannabis studies to map which cannabis products, qualifying conditions, and associated symptoms have been studied. Such tools can help clinicians, dispensary staff, and
patients quickly review which cannabis products, doses, and dosing schedules have been
examined for treating specific symptoms; provide a useful aid for continuing medical education
(CME) courses for clinicians and other staff receiving clinical training; and show which gaps in
the literature researchers can address in future studies.

In conclusion, the findings of this scoping review and the NASEM report demonstrate that
simply because certain health conditions are codified into state law to enable medical cannabis
use does not mean they are sufficiently backed by clinical evidence. It is important for
clinicians, dispensary staff, and patients to have more evidence from clinical studies to help
guide which cannabis-based products and dosing schedules should be used according to patients’
individual needs. The current gaps in research despite cannabis’ widespread availability for
medical use in the U.S. raise public health-related concerns as to what degree patients are
purchasing cannabis products either inconsistently with clinical research or in place of
conventional treatments that would be more therapeutically effective for their needs. These
issues only broaden with the evolving U.S. cannabis market and could potentially harm patients
who may derive significant benefits from using or avoiding particular cannabis products. The
U.S. federal government can address this issue by increasing support of cannabis research to
broaden our understanding on the therapeutic effects of cannabis products and implementing
further interventions to distinguish the medical cannabis market from the recreational market.
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# Table 1. Qualifying Health Conditions Covered by U.S. Medical Cannabis Laws, as of December 2021

<table>
<thead>
<tr>
<th>Condition</th>
<th>States Covered</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cancer</td>
<td>(33 states, 4 j.d.)</td>
<td></td>
</tr>
<tr>
<td>Epilepsy, seizures</td>
<td>(32 states, 4 j.d.)</td>
<td></td>
</tr>
<tr>
<td>Human immunodeficiency virus (HIV) / Acquired immune deficiency syndrome (AIDS)</td>
<td>(33 states, 4 j.d.)</td>
<td></td>
</tr>
<tr>
<td>Chronic pain*</td>
<td>(33 states, 2 j.d.)</td>
<td></td>
</tr>
<tr>
<td>Post-traumatic stress disorder (PTSD)</td>
<td>(31 states, 3 j.d.)</td>
<td></td>
</tr>
<tr>
<td>Cachexia or wasting syndrome</td>
<td>(29 states, 3 j.d.)</td>
<td></td>
</tr>
<tr>
<td>Glaucoma</td>
<td>(30 states, 3 j.d.)</td>
<td></td>
</tr>
<tr>
<td>Crohn's disease</td>
<td>(26 states, 3 j.d.)</td>
<td></td>
</tr>
<tr>
<td>Multiple sclerosis (MS)</td>
<td>(28 states, 3 j.d.)</td>
<td></td>
</tr>
<tr>
<td>Spasticity</td>
<td>(26 states, 4 j.d.)</td>
<td></td>
</tr>
<tr>
<td>Amyotrophic lateral sclerosis (ALS, Lou Gehrig’s disease)</td>
<td>(23 states, 3 j.d.)</td>
<td></td>
</tr>
<tr>
<td>Nausea</td>
<td>(23 states, 3 j.d.)</td>
<td></td>
</tr>
<tr>
<td>Parkinson’s disease</td>
<td>(16 states, 3 j.d.)</td>
<td></td>
</tr>
<tr>
<td>Alzheimer’s disease, dementia, Lewy body disease</td>
<td>(16 states, 3 j.d.)</td>
<td></td>
</tr>
<tr>
<td>Autism</td>
<td>(14 states, 1 j.d.)</td>
<td></td>
</tr>
<tr>
<td>Spinal cord injury or disease</td>
<td>(11 states, 2 j.d.)</td>
<td></td>
</tr>
<tr>
<td>Hepatitis C</td>
<td>(13 states, 3 j.d.)</td>
<td></td>
</tr>
<tr>
<td>Terminal illness</td>
<td>(11 states, 0 j.d.)</td>
<td></td>
</tr>
<tr>
<td>Tourette’s syndrome</td>
<td>(11 states, 0 j.d.)</td>
<td></td>
</tr>
<tr>
<td>Arthritis</td>
<td>(8 states, 3 j.d.)</td>
<td></td>
</tr>
<tr>
<td>Ulcerative Colitis</td>
<td>(8 states, 2 j.d.)</td>
<td></td>
</tr>
<tr>
<td>Sickle Cell</td>
<td>(7 states, 0 j.d.)</td>
<td></td>
</tr>
<tr>
<td>Anorexia nervosa</td>
<td>(7 states, 1 j.d.)</td>
<td></td>
</tr>
<tr>
<td>Headache, migraine</td>
<td>(7 states, 1 j.d.)</td>
<td></td>
</tr>
<tr>
<td>Huntington’s disease</td>
<td>(6 states, 1 j.d.)</td>
<td></td>
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<tr>
<td>Anxiety</td>
<td>(6 states, 1 j.d.)</td>
<td></td>
</tr>
<tr>
<td>Opioid use disorder</td>
<td>(5 states, 0 j.d.)</td>
<td></td>
</tr>
<tr>
<td>Traumatic brain injury (TBI)</td>
<td>(5 states, 2 j.d.)</td>
<td></td>
</tr>
<tr>
<td>Inflammatory bowel disease (IBD)**</td>
<td>(6 states, 2 j.d.)</td>
<td></td>
</tr>
<tr>
<td>Muscular dystrophy</td>
<td>(5 states, 1 j.d.)</td>
<td></td>
</tr>
</tbody>
</table>

### Notes
- **Hospice patients** (3 states, 2 j.d.)
- **Spinal muscular atrophy** (1 state, 0 j.d.)
- **Chronic or debilitating disease** (4 states, 1 j.d.)
- **Ehlers-Danlos syndrome** (4 states, 0 j.d.)
- **Interstitial cystitis** (3 states, 0 j.d.)
- **Arnold Chiari malformation** (1 state, 0 j.d.)
- **Lupus** (3 states, 0 j.d.)
- **Autoimmune disorders** (1 state, 0 j.d.)
- **Complex regional pain syndrome, causalgia, reflex sympathetic dystrophy (RSD)** (2 states, 0 j.d.)
- **Hepatitis C** (13 states, 3 j.d.)
- **Medicinal cannabis** (Commonwealth of Northern Mariana Islands, Guam, Puerto Rico, U.S. Virgin Islands, and Washington D.C.) that have legalized cannabis for medical use. Qualifying conditions in **bold** are addressed by sections of NASEM (2017) that discuss the therapeutic effects of cannabis or cannabinoids. Qualifying conditions in blue are not addressed by NASEM (2017) but are examined directly (i.e., as the primary health condition of interest, not just by secondary outcome measures of studies examining other conditions) by randomized controlled trials (RCT) that I identify from my literature review (January 2016 to May 2021). The remaining qualifying conditions (not in bold) are those for which NASEM (2017) does not identify systematic reviews or primary studies of adequate medical research quality and for which I do not identify any RCTs published since NASEM’s report (January 2016 to May 2021) that directly examine the qualifying condition.
- * Includes debilitating/intractable pain, fibromyalgia, neuropathy, pain caused by another qualifying condition, radiculopathy, and post laminectomy syndrome
- ** Crohn’s disease and ulcerative colitis are both specific forms of IBD.

Figure 1. Summary of Part II. Literature Review

Obtained **10,314** citations from Cochrane Reviews, Embase, PsycInfo, PubMed databases

Dropped **10,208** citations of articles that do not meet inclusion criteria

1. January 2016 to May 2021
   (-11 citations)
2. English only
   (-2 citations)
3. Discusses cannabis or cannabinoids AND qualifying condition (excluding non-qualifying conditions\(^1\), excluding non-cannabinoid agonists such as FAAH inhibitors)
   (-6,853 citations)
4. Must examine therapeutic effects
   (-2,150 citations)
5. Humans only
   (-159 citations)
6. Randomized Controlled Trials (RCT) only
   (-1,029 citations)
   (-4 articles)

Citations remaining: **106**
Additional citations from reviews: **1**
Total articles: **107**
Total RCTs: **71***

* many articles report on the same clinical study

\(^1\) See Appendix B for citations of RCTs that examine the therapeutic effects of cannabis or cannabinoids for health conditions, symptoms, or other health-related outcomes that are not explicitly listed as qualifying conditions in medical cannabis (MC) laws of U.S. states or other jurisdictions that have legalized MC use.
Table 2a. Cannabinoids Examined in Human Studies for Qualifying Conditions with “Conclusive” Evidence, as of May 2021

<table>
<thead>
<tr>
<th>Qualifying Condition</th>
<th>Cannabinoid(s)</th>
<th>Mode(s) of Delivery</th>
<th>NASEM’s Assessment of Clinical Effect Studied</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cancer 78-79, 81, 85-126 (33 U.S. states, 4 jurisdictions)</td>
<td>THC:CBD (nabiximols) THC (other) synthetic THC (dronabinol, levonantradol, nabilone)</td>
<td>Unknown (THC, levonantradol) capsule (dronabinol, nabilone, THC) oral (dronabinol, nabilone, THC) oromucosal spray (nabiximols) smoked THC (1.93% THC)</td>
<td>CONCLUSION 4-3 There is conclusive evidence that oral cannabinoids are effective antiemetics in the treatment of chemotherapy induced nausea and vomiting. NASEM does not specify which cannabinoids, although the vast majority of studies in NASEM’s collection examine synthetic THC.</td>
</tr>
<tr>
<td>Total unique RCTs: 36</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total patients: 72</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Additional studies from literature review 127-128

<table>
<thead>
<tr>
<th>Qualifying Condition</th>
<th>Cannabinoid(s)</th>
<th>Mode(s) of Delivery</th>
<th>NASEM’s Assessment of Clinical Effect Studied</th>
</tr>
</thead>
<tbody>
<tr>
<td>THC:CBD (other)</td>
<td>capsule (THC:CBD)</td>
<td></td>
<td>One newer study supports a prior nabiximols study in NASEM’s collection that finds THC:CBD extract is more effective in reducing CINV than placebo.</td>
</tr>
<tr>
<td>Total unique RCTs: 1</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Conclusive Evidence: Strong evidence from the literature; risk of bias and other confounders can be ruled out with reasonable confidence (NASEM, 2017).

“other” in the Cannabinoid(s) column means the cannabinoid itself (e.g., THC, CBD, THC:CBD) is used, and that a specific, pharmaceutical-grade drug (e.g., nabiximols) is not indicated. “THC:CBD” means THC plus CBD (1:1 ratio unless otherwise specified).

“oral” in the Mode(s) of Delivery column means the study(s) indicates an oral mode of delivery without specifying the product formulation (e.g., capsule, tablet, sublingual drop).

“Unknown” means not specified in the study.

Table 2b. Cannabinoids Examined in Human Studies for Qualifying Conditions with “Substantial” Evidence, as of May 2021

<table>
<thead>
<tr>
<th>Qualifying Condition</th>
<th>Cannabinoid(s)</th>
<th>Mode(s) of Delivery</th>
<th>NASEM’s Assessment of Clinical Effect Studied</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chronic Pain 68, 70, 78, 79-80, 129-189 (33 U.S. states, 2 jurisdictions)</td>
<td>THC:CBD (nabiximols) THC (GW-2000-02, Namisol®, other) synthetic THC (nabilone, dronabinol, Ajulemic acid) flower whole cannabis</td>
<td>capsule (Ajulemic acid, dronabinol, nabilone, THC) oral (dronabinol, Namisol®) oromucosal spray (GW-2000-02, nabiximols, THC, THC:CBD) smoked flower (1% to 9% THC) vaporized cannabis (1% to 7% THC)</td>
<td>CONCLUSION 4-1 There is substantial evidence that cannabis is an effective treatment for chronic pain in adults. NASEM does not detail whether “cannabis” can mean smoked flower, nabiximols, and/or synthetic THC. The studies in NASEM’s collection examine the following patient populations: ● General, miscellaneous, or chronic pain (including neuropathic pain) ● Cancer ● Diabetes ● Fibromyalgia ● HIV ● MS ● Rheumatoid arthritis ● Spinal cord injury ● Volunteers under experimental conditions</td>
</tr>
<tr>
<td>Total unique RCTs: 32</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The studies in NASEM’s collection examine the following patient populations:
- General, miscellaneous, or chronic pain (including neuropathic pain)
- Cancer
- Diabetes
- Fibromyalgia
- HIV
- MS
- Rheumatoid arthritis
- Spinal cord injury
- Volunteers under experimental conditions
## Qualifying Condition

- Additional studies from literature review 190-214

### Total unique RCTs: 22

### Total patients: 1,323

### MIN patients: 6

### MAX patients: 397

### Cannabinoid(s)

- CBDV
- synthetic CBD (ZYNO02)
- CBD
- THC:CBD (nabiximols)
- THC (Namisol®, other)
- synthetic THC (dronabinol) flower (Bedrocan®, Bediol®, Bedrolite®)
- whole cannabis

### Mode(s) of Delivery

- capsule (CBD, dronabinol) inhaler (Bedrocan®)
- intravenous (THC)
- oral (CBD)
- oral drop (CBD)
- oral solution (CBDV)
- oromucosal spray (nabiximols, THC:CBD)
- tablet (Namisol®)
- topical (CBD, ZYNO02)
- smoked flower (3.56% to 5.6% THC)
- vaporized cannabis (Bedrocan®, Bediol®, Bedrolite®) (other: 4.4% to 4.9% THC)

### NASEM’s Assessment of Clinical Effect Studied

Twenty-two studies examine the following patient populations:

- General, miscellaneous, or chronic pain (including neuropathic pain)
- Abortion
- Acute low back pain
- Cancer • Diabetes
- Fibromyalgia • HIV
- Noncardiac chest pain
- Osteoarthritis • Pancreatitis
- Sickle cell disease
- Volunteers under experimental conditions

Similar to previous studies, five newer studies find inhaled flower is more effective in pain relief than placebo, and 11 newer studies provide mixed evidence for synthetic THC and THC extract.

### Multiple Sclerosis 72, 79, 167, 217-247

(28 U.S. states, 3 jurisdictions)

### Total unique RCTs: 15

### Cannabinoid(s)

- CBD
- THC:CBD (Cannador®, 2:1 ratio; nabiximols; other, 3:1 ratio)
- THC
- synthetic THC (dronabinol) flower

### Mode(s) of Delivery

- capsule (Cannador®, dronabinol, THC:CBD, whole cannabis)
- oral (THC)
- oromucosal spray (CBD, nabiximols, THC, THC:CBD)
- smoked flower (4% THC)

### CONCLUSION 4-7(a)

There is substantial evidence that oral cannabinoids are effective in improving patient-reported multiple sclerosis spasticity.

NASEM notes that oral cannabis extract, nabiximols, and oral THC are “probably effective” for treating patient-rated spasticity.

### Additional studies from literature review 256-260

### Total unique RCTs: 2

### Total patients: 347

### MIN patients: 106

### MAX patients: 241

### Cannabinoid(s)

- THC:CBD (nabiximols)

### Mode(s) of Delivery

- oromucosal spray (nabiximols)

### CONCLUSION 4-7(a)

Two newer studies support meta-analyses of studies in NASEM’s collection that find nabiximols is effective in improving patient-rated spasticity. One of these studies also finds nabiximols is effective in improving clinician-rated spasticity, in contrast with meta-analyses of studies in NASEM’s collection that find nabiximols is not more effective than placebo in improving clinician-rated spasticity.

---

**Substantial Evidence:** Several supportive findings from the literature; minor risk of bias and other confounders cannot be ruled out with reasonable confidence (NASEM, 2017).

“other” in the **Cannabinoid(s)** column means the cannabinoid itself (e.g., THC, CBD, THC:CBD) is administered, and that a specific, pharmaceutical-grade drug (e.g., nabiximols) is not indicated. “THC:CBD” means THC plus CBD (1:1 ratio unless otherwise specified).

“oral” in the **Mode(s) of Delivery** column means the study(s) indicates an oral mode of delivery without specifying the product formulation (e.g., capsule, tablet, sublingual drop).

“Unknown” means not specified in the study.

“Bedrocan®” contains 22% THC, <1% CBD; “Bediol®” contains 6.3% THC, 8% CBD; and “Bedrolite®” contains <1% THC, 9% CBD.
Table 2c. Cannabinoids Examined in Human Studies for Qualifying Conditions with “Moderate” Evidence, as of May 2021

<table>
<thead>
<tr>
<th>Qualifying Condition</th>
<th>Cannabinoid(s)</th>
<th>Mode(s) of Delivery</th>
<th>NASEM’s Assessment of Clinical Effect Studied</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sleep Apnea</td>
<td>THC:CBD (Cannador®, 2:1 ratio; nabiximols; other, 3:1 ratio)</td>
<td>capsule (Cannador®, dronabinol, nabilone, THC:CBD)</td>
<td>CONCLUSION 4-19 There is moderate evidence that cannabinoids, primarily nabiximols, are an effective treatment to improve short-term sleep outcomes in individuals with sleep disturbance associated with obstructive sleep apnea syndrome, fibromyalgia, chronic pain, and multiple sclerosis.</td>
</tr>
<tr>
<td>(2 U.S. states, 0 jurisdictions)</td>
<td>THC (GW-2000-02) synthetic THC (dronabinol, nabilone) flower</td>
<td>THC (GW-2000-02) oromucosal spray (GW-2000-02, nabiximols) smoked flower (2.50% to 9.40% THC)</td>
<td></td>
</tr>
<tr>
<td>Total unique RCTs: 21</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Additional studies from literature review 262-263

Moderate Evidence: Some findings from the literature; minor risk of bias and other confounders cannot be ruled out with reasonable confidence (NASEM, 2017).

“other” in the Cannabinoid(s) column means the cannabinoid itself (e.g., THC, CBD, THC:CBD) is administered, and that a specific, pharmaceutical-grade drug (e.g., nabiximols) is not indicated. “THC:CBD” means THC plus CBD (1:1 ratio unless otherwise specified).

“oral” in the Mode(s) of Delivery column means the study(s) indicates an oral mode of delivery without specifying the product formulation (e.g., capsule, tablet, sublingual drop).

Table 2d. Cannabinoids Examined in Human Studies for Qualifying Conditions with “Limited” Evidence, as of May 2021

<table>
<thead>
<tr>
<th>Qualifying Condition</th>
<th>Cannabinoid(s)</th>
<th>Mode(s) of Delivery</th>
<th>NASEM’s Assessment of Clinical Effect Studied</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alzheimer’s Disease, Dementia</td>
<td>THC (Namisol®) synthetic THC (dronabinol)</td>
<td>capsule (dronabinol) tablet (Namisol®)</td>
<td>CONCLUSION 4-13 There is limited evidence that cannabinoids are ineffective treatments for improving the symptoms associated with dementia.</td>
</tr>
<tr>
<td>(16 U.S. states, 3 jurisdictions)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total unique RCTs: 3</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

Additional studies from literature review 302

One study finds nabilone is more effective in reducing both agitation and neuropsychiatric symptoms than placebo, supporting a previous study in NASEM’s collection that finds dronabinol is effective in reducing agitation, and partially contradicting a previous study that finds Namisol® is not more effective than placebo in alleviating agitation and neuropsychiatric symptoms.
<table>
<thead>
<tr>
<th>Qualifying Condition</th>
<th>Cannabinoid(s)</th>
<th>Mode(s) of Delivery</th>
<th>NASEM’s Assessment of Clinical Effect Studied</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anxiety&lt;sup&gt;79, 264&lt;/sup&gt; (6 U.S. states, 1 jurisdiction)</td>
<td>CBD</td>
<td>capsule (CBD)</td>
<td>CONCLUSION 4-17 There is limited evidence that cannabidiol is an effective treatment for the improvement of anxiety symptoms, as assessed by a public speaking test, in individuals with social anxiety disorders.</td>
</tr>
<tr>
<td>Additional studies from literature review&lt;sup&gt;265-272&lt;/sup&gt;</td>
<td>CBD synthetic THC (dronabinol)</td>
<td>capsule (CBD, dronabinol) oral (CBD)</td>
<td>Four newer studies (three of which are assessed by public speaking tests) find that CBD improves anxiety symptoms in social anxiety disorder more than placebo, supporting NASEM’s conclusion. One newer study also finds dronabinol improves distress symptoms more than placebo, as assessed by a public speaking test. In contrast, one newer study finds CBD is not more effective than placebo in relieving anxiety in patients with agoraphobia and patients with social anxiety disorder.</td>
</tr>
<tr>
<td>Depression&lt;sup&gt;79, 136, 145-146, 156, 222&lt;/sup&gt; (1 U.S. state, 0 jurisdictions)</td>
<td>THC:CBD (nabiximols) synthetic THC (dronabinol, nabilone)</td>
<td>capsule (dronabinol, nabilone) oromucosal spray (nabiximols)</td>
<td>CONCLUSION 4-18 There is limited evidence that nabiximols, dronabinol, and nabilone are ineffective treatments for the reduction of depressive symptoms in individuals with chronic pain or multiple sclerosis.</td>
</tr>
<tr>
<td>Diabetes&lt;sup&gt;273-278&lt;/sup&gt; (0 U.S. states, 2 jurisdictions)</td>
<td>whole cannabis Unknown (whole cannabis) smoked (whole cannabis) (% THC: Unknown)</td>
<td></td>
<td>CONCLUSION 6-3(a) There is limited evidence of a statistical association between cannabis use and decreased risk of metabolic syndrome and diabetes. Data from national surveys are analyzed across five studies: CARDIA, NHANES, NSDUH. Neither survey specifies a cannabis product (including mode of delivery).</td>
</tr>
<tr>
<td>Additional studies from literature review&lt;sup&gt;280&lt;/sup&gt;</td>
<td>CBD CBD:THCV THCV Unknown (CBD, CBD:THCV, THCV)</td>
<td></td>
<td>One newer study finds THCV alone is effective in improving glycemic control in diabetes patients, partially in contrast with a previous study that analyzes NHANES data and finds no difference in fasting mean glucose levels between “current” (at least once in the past 30 days) and “never” cannabis users.</td>
</tr>
<tr>
<td>Human Immunodeficiency Virus and Acquired Immunodeficiency Syndrome (HIV/AIDS)&lt;sup&gt;69, 79, 281-285&lt;/sup&gt; (33 U.S. states, 4 jurisdictions)</td>
<td>synthetic THC (dronabinol) flower oral (dronabinol) smoked flower (1.80% to 3.95% THC)</td>
<td>capsule (dronabinol)</td>
<td>CONCLUSION 4-4(a) There is limited evidence that cannabis and oral cannabinoids are effective in Increasing appetite and decreasing weight loss associated with HIV/AIDS.</td>
</tr>
<tr>
<td>Qualifying Condition</td>
<td>Cannabinoid(s)</td>
<td>Mode(s) of Delivery</td>
<td>NASEM’s Assessment of Clinical Effect Studied</td>
</tr>
<tr>
<td>--------------------------------------------</td>
<td>------------------------</td>
<td>--------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Glaucoma</td>
<td>CBD, THC</td>
<td>oromucosal spray (CBD, THC)</td>
<td>CONCLUSION 4-14 There is limited evidence that cannabinoids are an ineffective treatment for improving intraocular pressure associated with glaucoma.</td>
</tr>
<tr>
<td></td>
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</tr>
<tr>
<td>Post-Traumatic Stress Disorder (PTSD)</td>
<td>synthetic THC (nabioxide)</td>
<td>tablet (nabioxide)</td>
<td>CONCLUSION 4-20 There is limited evidence (a single, small fair-quality trial) that nabioxide is effective for improving symptoms of posttraumatic stress disorder.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Additional studies from literature review</td>
<td>synthetic THC (dronabinol) flower</td>
<td>oral (dronabinol) smoked flower (12% THC and &lt;0.05% CBD, 7.9% THC and 8.1% CBD, 0.5% THC and 11% CBD)</td>
<td>One newer study finds dronabinol is effective in improving extinction recall, supporting findings from a previous study in NASEM’s collection examining nabioxide. One newer study finds smoked flower is not more effective than placebo in alleviating PTSD symptoms.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tourette’s Syndrome</td>
<td>THC</td>
<td>capsule (THC)</td>
<td>CONCLUSION 4-8 There is limited evidence that THC capsules are an effective treatment for improving symptoms of Tourette syndrome.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Traumatic Brain Injury (TBI), Intracranial Hemorrhage</td>
<td>whole cannabis</td>
<td>Unknown (whole cannabis)</td>
<td>CONCLUSION 4-15 There is limited evidence of a statistical association between cannabinoids and better outcomes (i.e., mortality, disability) after a traumatic brain injury or intracranial hemorrhage. Neither of these studies specify a cannabis product (including mode of delivery). Both studies examine patient registry data that identifies patients who do and do not test positive for THC via urine toxicology tests.</td>
</tr>
</tbody>
</table>

Limited Evidence: Weak evidence from the literature; significant uncertainty due to risk of bias and other confounders (NASEM, 2017).

“other” in the Cannabinoid(s) column means the cannabinoid itself (e.g., THC, CBD, THC:CBD) is administered, and that a specific, pharmaceutical-grade drug (e.g., nabiximols) is not indicated. “THC:CBD” means THC plus CBD (1:1 ratio unless otherwise specified).

“oral” in the Mode(s) of Delivery column means the study(s) indicates an oral mode of delivery without specifying the product formulation (e.g., capsule, tablet, sublingual drop).

“Unknown” means not specified in the study.
### Table 2e. Cannabinoids Examined in Human Studies for Qualifying Conditions with “Insufficient or No” Evidence, as of May 2021

<table>
<thead>
<tr>
<th>Qualifying Condition</th>
<th>Cannabinoid(s)</th>
<th>Mode(s) of Delivery</th>
<th>NASEM’s Assessment of Clinical Effect Studied</th>
</tr>
</thead>
<tbody>
<tr>
<td>Addiction, Substance Use Disorders</td>
<td>CBD (other)</td>
<td>capsule (dronabinol)</td>
<td>CONCLUSION 4-16 There is no evidence to support or refute the conclusion that cannabinoids are an effective treatment for achieving abstinence in the use of addictive substances. Two studies find cannabinoids (dronabinol, nabiximols) are more effective than placebo in alleviating cannabis withdrawal symptoms but not in reducing cannabis use or, in the dronabinol study, abstinence. One study finds CBD is not more effective than placebo in reducing tobacco cigarette use.</td>
</tr>
<tr>
<td></td>
<td>THC:CBD (nabiximols)</td>
<td>inhaler (CBD)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>synthetic THC (dronabinol)</td>
<td>oromucosal spray (nabiximols)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total unique RCTs: 3</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Additional studies from literature review**

- CBD (Epidiolex®, other)
- THC:CBD (nabiximols)
- synthetic THC (dronabinol, nabilone)
- flower

<table>
<thead>
<tr>
<th>Cannabinoid(s)</th>
<th>Mode(s) of Delivery</th>
<th>NASEM’s Assessment of Clinical Effect Studied</th>
</tr>
</thead>
<tbody>
<tr>
<td>CBD (Epidiolex®, other)</td>
<td>capsule (CBD, dronabinol, nabilone, synthetic CBD)</td>
<td>Partially in contrast with prior studies in NASEM’s collection, seven newer studies find mixed evidence that cannabinoids (dronabinol, nabilone, nabiximols, synthetic CBD) are effective than placebo in reducing cannabis withdrawal symptoms, similar to prior studies in NASEM’s collection. Six newer studies find certain cannabinoids (specified in parentheses) are not more effective than placebo in reducing cravings related to alcohol (smoked flower), cocaine (synthetic CBD), and crack-cocaine (CBD), as well as cognition impairments in nicotine dependence (CBD) but are more effective than placebo in alleviating heroin craving (Epidiolex®) and opioid-related withdrawals (dronabinol). In contrast with prior studies, four of five newer studies find cannabinoids (dronabinol, nabilone, nabiximols, synthetic THC) are more effective than placebo in reducing cannabis use; one newer study finds nabiximols is not more effective than placebo. One study also finds smoked flower is effective in reducing alcohol use. One newer study finds synthetic CBD is more effective than placebo in achieving abstinence of cannabis, but three newer studies find nabiximols is not more effective than placebo in achieving abstinence of cannabis (supporting NASEM’s conclusion).</td>
</tr>
<tr>
<td>THC:CBD (nabiximols)</td>
<td>oral solution (Epidiolex®, synthetic CBD)</td>
<td></td>
</tr>
<tr>
<td>synthetic THC (dronabinol, nabilone)</td>
<td>oromucosal spray (nabiximols)</td>
<td></td>
</tr>
<tr>
<td>flower</td>
<td>smoked flower (3.00% to 7.00% THC)</td>
<td></td>
</tr>
</tbody>
</table>

**Additional studies from literature review**

- Total unique RCTs: 13
- Total patients: 637
- MIN patients: 9
- MAX patients: 128
<table>
<thead>
<tr>
<th>Qualifying Condition</th>
<th>Cannabinoid(s)</th>
<th>Mode(s) of Delivery</th>
<th>NASEM’s Assessment of Clinical Effect Studied</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amyotrophic Lateral Sclerosis (ALS, Lou Gehrig’s) (^{588-589}) (23 U.S. states, 3 jurisdictions)</td>
<td>synthetic THC (dronabinol)</td>
<td>oral (dronabinol) oral drop (dronabinol)</td>
<td>CONCLUSION 4-9 There is insufficient evidence that cannabinoids are an effective treatment for symptoms associated with amyotrophic lateral sclerosis. Two studies find dronabinol is not more effective than placebo in treating cramps and fasciculations (involuntary muscle twitches) in ALS patients.</td>
</tr>
<tr>
<td><strong>Total unique RCTs:</strong> 2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Additional studies from literature review</strong> (^{390-392})</td>
<td>THC:CBD (nabiximols)</td>
<td>oromucosal spray (nabiximols)</td>
<td>One newer study finds nabiximols is effective in reducing clinician-rated spasticity, unlike two previous studies that find dronabinol is not more effective than placebo.</td>
</tr>
<tr>
<td><strong>Total unique RCTs:</strong> 1</td>
<td><strong>Total patients:</strong> 59</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cancer (Anti-tumor Activity) (^{74, 304-319}) (33 U.S. states, 4 jurisdictions)</td>
<td>CBD (other) THC:CBD (other) THC (other) synthetic THC (Ajulemic acid, JHW-133) delta-8 THC</td>
<td>in-vivo (Ajulemic acid, CBD, delta-8 THC, JHW-133, THC, THC:CBD)</td>
<td>CONCLUSION 4-2 There is insufficient evidence to support or refute the conclusion that cannabinoids are an effective treatment for cancers, including glioma.</td>
</tr>
<tr>
<td><strong>Total unique RCTs:</strong> 0</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Cancer (Cachexia or Wasting Syndrome and Anorexia Nervosa) (^{320-321}) (33 U.S. states, 4 jurisdictions)</td>
<td>THC:CBD (other) THC (other) synthetic THC (dronabinol)</td>
<td>capsule (dronabinol, THC, THC:CBD)</td>
<td>CONCLUSION 4-4(b) There is insufficient evidence to support or refute the conclusion that cannabinoids are an effective treatment for cancer-associated anorexia-cachexia syndrome and anorexia nervosa.</td>
</tr>
<tr>
<td><strong>Total unique RCTs:</strong> 2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Additional studies from literature review</strong> (^{323})</td>
<td>synthetic THC (nabilone)</td>
<td>oral (nabilone)</td>
<td>One newer study finds synthetic THC (nabilone) is more effective than placebo in increasing caloric intake and carbohydrates intake.</td>
</tr>
<tr>
<td><strong>Total unique RCTs:</strong> 1</td>
<td><strong>Total patients:</strong> 33</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dystonia (^{72, 324-325}) (2 U.S. states, 0 jurisdictions)</td>
<td>synthetic THC (dronabinol, nabilone)</td>
<td>capsule (nabilone) tablet (dronabinol)</td>
<td>CONCLUSION 4-12 There is insufficient evidence to support or refute the conclusion that nabilone and dronabinol are an effective treatment for dystonia. Two studies find synthetic THC is not more effective than placebo in treating dystonia.</td>
</tr>
<tr>
<td>Qualifying Condition</td>
<td>Cannabinoid(s)</td>
<td>Mode(s) of Delivery</td>
<td>NASEM's Assessment of Clinical Effect Studied</td>
</tr>
<tr>
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</tr>
<tr>
<td>Epilepsy, Seizures[^71-72, 326-332] (32 U.S. states, 4 jurisdictions)</td>
<td>CBD (Epidiolex®, other) gastric tube (Epidiolex®) oral (CBD) oral solution (Epidiolex®)</td>
<td>CONCLUSION 4-6 There is insufficient evidence to support or refute the conclusion that cannabinoids are an effective treatment for epilepsy.</td>
<td></td>
</tr>
<tr>
<td><strong>Total unique RCTs:</strong> 4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Additional studies from literature review[^333-355]</td>
<td>synthetic CBD (ZYN002) CBD (Epidiolex®) oral solution (Epidiolex®) topical (ZYN002)</td>
<td></td>
<td>Five newer RCTs find that a specific formulation of cannabis-derived CBD (Epidiolex®) is effective for treating Dravet Syndrome, Lennox-Gastaut Syndrome, and Tuberous Sclerosis Complex, which led to Epidiolex® getting approved in Australia, the European Union, the United Kingdom, and the U.S. In contrast with NASEM (2017), these findings provide strong evidence to support Epidiolex® for the treatment of these forms of epilepsy. One newer study finds synthetic CBD is not more effective than placebo in treating focal seizures in adults.</td>
</tr>
<tr>
<td><strong>Total unique RCTs:</strong> 6</td>
<td></td>
<td></td>
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</tr>
<tr>
<td><strong>Total patients:</strong> 1,111</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>MIN patients:</strong> 120</td>
<td></td>
<td></td>
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</tr>
<tr>
<td><strong>MAX patients:</strong> 224</td>
<td></td>
<td></td>
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<tr>
<td>Huntington’s Disease[^72, 356-357] (6 U.S. states, 1 jurisdiction)</td>
<td>CBD synthetic THC (nabilone) capsule (CBD, nabilone)</td>
<td>CONCLUSION 4-10 There is insufficient evidence to support or refute the conclusion that oral cannabinoids are an effective treatment for chorea and certain neuropsychiatric symptoms associated with Huntington's disease. Although one study finds nabilone is more effective than placebo in reducing chorea severity, both studies find cannabinoids are not more effective than placebo in alleviating neuropsychiatric symptoms, including behavior.</td>
<td></td>
</tr>
<tr>
<td><strong>Total unique RCTs:</strong> 2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Additional studies from literature review[^358]</td>
<td>THC:CBD (nabiximols) oromucosal spray (nabiximols)</td>
<td></td>
<td>A newer study finds nabiximols is not more effective than placebo in improving cognition, behavior, or functionality, similar to findings from studies in NASEM’s collection.</td>
</tr>
<tr>
<td><strong>Total unique RCTs:</strong> 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total patients:</strong> 24</td>
<td></td>
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</tr>
<tr>
<td>Irritable Bowel Syndrome (IBS)[^359] (2 U.S. states, 0 jurisdictions)</td>
<td>synthetic THC (dronabinol) capsule (dronabinol)</td>
<td>CONCLUSION 4-5 There is insufficient evidence to support or refute the conclusion that dronabinol is an effective treatment for the symptoms of irritable bowel syndrome. One study finds dronabinol is not more effective than placebo in improving gastric, small bowel, and gut transit.</td>
<td></td>
</tr>
<tr>
<td><strong>Total unique RCTs:</strong> 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Qualifying Condition</td>
<td>Cannabinoid(s)</td>
<td>Mode(s) of Delivery</td>
<td>NASEM's Assessment of Clinical Effect Studied</td>
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</tr>
<tr>
<td>Parkinson's Disease[^72, 360-362] (16 U.S. states, 3 jurisdictions)</td>
<td>CBD (other) THC:CBD (Cannador®, 2:1 ratio) synthetic THC (nabilone)</td>
<td>capsule (Cannador®, CBD, nabilone)</td>
<td><strong>CONCLUSION 4-11</strong> There is insufficient evidence that cannabinoids are an effective treatment for the motor system symptoms associated with Parkinson's disease or the levodopa induced dyskinesia. Although one study finds nabilone is more effective than placebo in reducing dyskinesia, the two other studies find cannabinoids are not more effective than placebo in treating dyskinesia (Cannador®) or in reducing Parkinson's general and motor symptoms (CBD).</td>
</tr>
<tr>
<td>Additional studies from literature review[^363]</td>
<td>CBD (other)</td>
<td>oral (CBD)</td>
<td>A newer study finds CBD is not more effective than placebo in improving reducing upper limb tremors, supporting findings a previous study in NASEM's collection that also finds CBD is not more effective than placebo.</td>
</tr>
<tr>
<td>Spinal Cord Injury or Disease[^72, 227, 364-367] (11 U.S. states, 2 jurisdictions)</td>
<td>THC:CBD (nabiximols) THC (other) synthetic THC (dronabinol, nabilone)</td>
<td>capsule (dronabinol) oromucosal spray (nabiximols) suppository (THC) tablet (nabilone)</td>
<td><strong>CONCLUSION 4-7(b)</strong> There is insufficient evidence to support or refute the conclusion that cannabinoids are an effective treatment for spasticity in patients with paralysis due to spinal cord injury. One study finds dronabinol and THC are more effective than placebo in reducing clinician-rated spasticity. One study finds nabilone is more effective in than placebo in reducing clinician-rated but not patient-rated spasticity. One study finds nabiximols is not more effective than placebo in reducing patient-rated spasticity.</td>
</tr>
</tbody>
</table>

Insufficient or No Evidence: Insufficient evidence from the literature; no conclusion can be made due to risk of bias and other confounders (NASEM, 2017).

“other” in the Cannabinoid(s) column means the cannabinoid itself (e.g., THC, CBD, THC:CBD) is administered, and that a specific, pharmaceutical-grade drug (e.g., nabiximols) is not indicated. “THC:CBD” means THC plus CBD (1:1 ratio unless otherwise specified).

“oral” in the Mode(s) of Delivery column means the study(s) indicates an oral mode of delivery without specifying the product formulation (e.g., capsule, tablet, sublingual drop).

Cancer (anti-tumor activity) is the only health condition for which NASEM (2017) reviews non-human studies because the vast majority of studies examining cannabis or cannabinoids for antitumor activity (at the time of NASEM writing their report) are pre-clinical trials examining animals or cellular models rather than human subjects (Abrams 2018, p. 10). Specifically, NASEM identifies a single fair-to-good quality systematic review (Rocha et al., 2014) and one phase I clinical trial.
<table>
<thead>
<tr>
<th>Qualifying Condition</th>
<th>Cannabinoid(s)</th>
<th>Mode(s) of Delivery</th>
<th>NASEM’s Assessment of Clinical Effect Studied</th>
</tr>
</thead>
</table>
| Attention Deficit Disorder (ADD), Attention-Deficit/Hyperactivity Disorder (ADHD)\(^{395-394}\)  
(2 U.S. states, 1 jurisdiction) | THC:CBD (nabiximols)  
oromucosal spray (nabiximols) | One newer study finds nabiximols is not more effective than placebo in reducing ADHD symptoms and in improving cognitive performance and activity. |
| Autism\(^{395-396}\)  
(14 U.S. States, 1 jurisdiction) | THC:CBD (other, 1:20 ratio)  
oral drop (THC:CBD) | One newer study finds mixed evidence that oral THC plus CBD can treat behavioral problems associated with autism spectrum disorder. |
| Cancer\(^{403}\)  
(33 U.S. states, 4 jurisdictions) | synthetic THC (nabilone)  
tablet (nabilone) | One newer study finds nabilone is not more effective than placebo in improving quality of life in head and neck cancer patients. |
| Cerebral Palsy\(^{406-407}\)  
(2 U.S. states, 1 jurisdiction) | THC:CBD (nabiximols)  
oromucosal spray (THC:CBD) | One newer study finds nabiximols is not more effective than placebo for relieving patient-rated spasticity in children or adolescents with cerebral palsy or traumatic central nervous system injury. |
| Headache or Migraine\(^{397}\)  
(7 U.S. state, 1 jurisdiction) | whole cannabis (Bedrocan® + Bedrolite®)  
oral (Bedrocan® + Bedrolite®) | One newer study finds evidence that oral cannabis extract can relieve pain in migraines and cluster headaches, although measures of clinical or statistical significance are not provided. |
| Inflammatory Bowel Disease (IBD), Crohn’s Disease, Ulcerative Colitis (UC)\(^{398-402}\)  
(IBD: 6 U.S. states, 2 jurisdictions)  
(Crohn’s disease: 26 U.S. states, 3 jurisdictions)  
(Ulcerative colitis: 8 U.S. states, 2 jurisdictions) | CBD (other)  
THC:CBD (other, 1:4 ratio) flower  
capsule (CBD)  
oil (THC:CBD)  
sublingual (CBD)  
smoked flower (0.02% to 0.16% THC) | Two studies find mixed evidence that CBD is effective in reducing Crohn’s disease activity. One of these studies also finds CBD has significantly higher disease remission rates than placebo but is not more effective than placebo in improving endoscopic health.  
Two of three studies find evidence that smoked flower is effective in reducing UC disease activity but mixed evidence that smoked flower is effective in improving endoscopic health. A third study finds CBD is more effective than placebo in improving endoscopic health and patient-rated global impression of change but not physician-rated illness severity or percent of patients in remission. |
<table>
<thead>
<tr>
<th>Qualifying Condition</th>
<th>Cannabinoid(s)</th>
<th>Mode(s) of Delivery</th>
<th>NASEM’s Assessment of Clinical Effect Studied</th>
</tr>
</thead>
</table>
| **Multiple Sclerosis**<sup>404</sup>  
(28 U.S. state, 3 jurisdictions) | THC:CBD (nabiximols) | oromucosal spray (THC:CBD) | One newer study finds that nabiximols provides more short-term improvements in balance and walking than placebo in patients with multiple sclerosis. |
| Total unique RCTs: 1  
Total patients: 32 | | | |
| **Nausea**<sup>405</sup>  
(23 U.S. states, 3 jurisdictions) | synthetic THC (nabilone) | oral (nabilone) | One newer study finds nabilone is not more effective than placebo in preventing postoperative nausea and vomiting. |
| Total unique RCTs: 1  
Total patients: 340 | | | |
| **Parkinson’s Disease**<sup>408-409</sup>  
(16 U.S. states, 3 jurisdictions) | synthetic THC (nabilone) | oral (nabilone) | One newer study finds nabilone is more effective than placebo in reducing non-motor symptoms associated with Parkinson’s disease. |
| Total unique RCTs: 2  
Total patients: 57  
MIN patients: 19  
MAX patients: 38 | | | |

For these conditions or symptoms, I do not assign a grade to suggest the degree of evidence there is that cannabis or cannabinoids have a specified health outcome.

“other” in the *Cannabinoid(s)* column means the cannabinoid itself (e.g., THC, CBD, THC:CBD) is administered, and that a specific, pharmaceutical-grade drug (e.g., nabiximols) is not indicated. “THC:CBD” means THC plus CBD (1:1 ratio unless otherwise specified).

“oral” in the *Mode(s) of Delivery* column means one or more studies indicated the cannabinoid is delivered orally, but the specific mode(s) of delivery (e.g., capsule, tablet, sublingual drop) is not specified.

“Bedrocan®” contains 22% THC, <1% CBD; “Bediol®” contains 6.3% THC, 8% CBD; and “Bedrolite®” contains <1% THC, 9% CBD.
Table 3. Qualifying Conditions (as of December 2021) Listed by U.S. States or Other Jurisdictions that Legalized Medical Cannabis Use between 2016 and 2021, by Legalization Year

<table>
<thead>
<tr>
<th>U.S. State or Jurisdiction</th>
<th>Qualifying Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>2016</strong></td>
<td></td>
</tr>
<tr>
<td>Arkansas</td>
<td><strong>ALS</strong>, autism, cancer, cachexia, chronic pain, Crohn’s disease, <strong>depression</strong>, epilepsy (or condition that causes seizures), HIV/AIDS, nausea, MS, motor neuron disease, panic disorder, Parkinson’s disease, PTSD, <strong>sickle cell anemia</strong>, spinal cord injury, terminal illness, Tourette’s syndrome</td>
</tr>
<tr>
<td>Florida</td>
<td><strong>ALS</strong>, cancer, Crohn’s disease, chronic pain, epilepsy, <strong>glaucoma</strong>, HIV/AIDS, MS, Parkinson's disease, PTSD, seizures, terminal illness, other debilitating medical conditions comparable to those enumerated</td>
</tr>
<tr>
<td>Louisiana</td>
<td>autism, cachexia, cancer, chronic pain, Crohn’s disease, epilepsy, <strong>glaucoma</strong>, HIV/AIDS, <strong>muscular dystrophy</strong>, MS, Parkinson’s disease, PTSD, seizure disorders, spasticity; any other condition not otherwise specified</td>
</tr>
<tr>
<td>North Dakota</td>
<td><strong>ALS</strong>, <strong>Alzheimer’s disease</strong>, anorexia nervosa, anxiety, autism, Bulimia nervosa, cachexia, cancer, chronic or debilitating disease, Crohn’s disease, Ehlers-Danlos, endometriosis, epilepsy, fibromyalgia, <strong>glaucoma</strong>, Hepatitis C; HIV/AIDS, <strong>interstitial cystitis</strong>, nausea, neuropathy, migraine, MS, PTSD, rheumatoid arthritis, seizures, spasticity, <strong>spinal stenosis</strong>, spinal cord injury, terminal illness, Tourette’s syndrome, TBI</td>
</tr>
<tr>
<td>Ohio</td>
<td><strong>ALS</strong>, <strong>Alzheimer’s disease</strong>, cachexia, cancer, chronic traumatic encephalopathy, Crohn’s disease, epilepsy or other seizure disorders, fibromyalgia, <strong>glaucoma</strong>, Hepatitis C, HIV/AIDS, IBD, MS, Parkinson’s disease, PTSD, <strong>sickle cell anemia</strong>, spinal cord injury, Tourette’s syndrome, TBI, ulcerative colitis</td>
</tr>
<tr>
<td>Pennsylvania</td>
<td><strong>ALS</strong>, <strong>Alzheimer’s disease</strong>, anxiety, autism, cancer, Crohn’s disease, dysskinetic/spastic movement disorders, epilepsy, <strong>glaucoma</strong>, HIV/AIDS, Huntington’s, IBD, MS, neurodegenerative disorders, neuropathies, <strong>opioid use disorder</strong>, Parkinson’s disease, PTSD, seizures, <strong>sickle cell anemia</strong>, spasticity, terminal illness, Tourette’s syndrome, spinal cord injury</td>
</tr>
<tr>
<td><strong>2017</strong></td>
<td></td>
</tr>
<tr>
<td>West Virginia</td>
<td><strong>ALS</strong>, cancer, chronic pain, Crohn’s disease, Epilepsy, HIV/AIDS, Huntington’s, MS, neuropathy, Parkinson’s disease, PTSD, seizures, spinal cord injury, <strong>sickle cell anemia</strong>, terminal illness</td>
</tr>
<tr>
<td><strong>2018</strong></td>
<td></td>
</tr>
<tr>
<td>Commonwealth of Northern Mariana Islands</td>
<td>ADD/ADHD, <strong>ALS</strong>, <strong>Alzheimer’s disease</strong>, asthma, cachexia, cancer, cerebral palsy, chronic pain, Crohn’s disease, diabetes, <strong>glaucoma</strong>, Hepatitis C, hospice care, HIV/AIDS, immune-modulated inflammatory diseases, <strong>muscular dystrophy</strong>, nausea, neurological disorders, Parkinson’s disease, PTSD, seizures, spasticity, stroke, TBI, ulcerative colitis, Wilson’s disease; any condition for which the qualified patient’s practitioner has determined that the use of medical cannabis may provide relief</td>
</tr>
<tr>
<td>Missouri</td>
<td><strong>ALS</strong>, <strong>Alzheimer’s disease</strong>, autism, cachexia, cancer, chronic condition that is treated with prescription medications that could lead to dependence, chronic pain, Crohn’s disease, debilitating psychiatric disorders, epilepsy, <strong>glaucoma</strong>, Hepatitis C, HIV/AIDS, Huntington’s, IBD, migraine, MS, neuropathy, other immune-modulated inflammatory diseases, seizures, <strong>sickle cell anemia</strong>, spasticity, Parkinson’s disease, PTSD, terminal illness, Tourette’s syndrome; other chronic, debilitating or other medical condition that may be alleviated by cannabis in the professional judgement of a physician</td>
</tr>
<tr>
<td>U.S. State or Jurisdiction</td>
<td>Qualifying Conditions</td>
</tr>
<tr>
<td>---------------------------</td>
<td>-----------------------</td>
</tr>
<tr>
<td>Oklahoma</td>
<td>The decision to recommend cannabis therapy is up to the discretion of the treating physician.</td>
</tr>
<tr>
<td><strong>2018</strong></td>
<td></td>
</tr>
<tr>
<td>Utah</td>
<td><strong>ALS, Alzheimer’s disease</strong>, autism, cachexia, cancer, Crohn’s disease, chronic pain, epilepsy, hospice care, HIV/AIDS, MS, nausea, PTSD, seizures, spasticity, terminal illness, any rare condition that effects fewer than 200,000 persons in the U.S. as defined by Section 526 of the Federal Food, Drug and Cosmetic Act</td>
</tr>
<tr>
<td><strong>2019</strong></td>
<td></td>
</tr>
<tr>
<td>U.S. Virgin Islands</td>
<td><strong>ALS, Alzheimer’s disease</strong>, arthrosis, autism, cachexia, cancer, chronic pain, Crohn’s disease, diabetes, epilepsy, <strong>glaucoma</strong>, Hepatitis C, HIV/AIDS, hospice care, Huntington’s, MS, nausea, neuropathy, <strong>opioid use disorder</strong>, Parkinson’s disease, PTSD, TBI, seizures, spasticity</td>
</tr>
<tr>
<td><strong>2020</strong></td>
<td></td>
</tr>
<tr>
<td>South Dakota</td>
<td><strong>ALS, cachexia</strong>, cancer, chronic pain, Crohn’s disease, epilepsy, <strong>glaucoma</strong>, HIV/AIDS, MS, nausea, PTSD</td>
</tr>
<tr>
<td>Virginia</td>
<td>Any diagnosed condition or disease determined by the practitioner to benefit from such use.</td>
</tr>
<tr>
<td><strong>2021</strong></td>
<td></td>
</tr>
<tr>
<td>Alabama</td>
<td><strong>ALS, autism, cachexia</strong>, cancer, chronic pain, Crohn’s disease, <strong>depression</strong>, epilepsy, HIV/AIDS, MS, nausea, panic disorder, Parkinson’s disease, PTSD, <strong>sickle cell anemia</strong>, spasticity, spinal cord injury, terminal illness, Tourette’s syndrome</td>
</tr>
<tr>
<td><strong>2022</strong></td>
<td></td>
</tr>
<tr>
<td>Mississippi</td>
<td><strong>ALS, autism, Alzheimer’s disease, cachexia</strong>, cancer, chronic pain, Crohn’s disease, <strong>glaucoma</strong>, muscular dystrophy, Hepatitis C, HIV/AIDS, Huntington’s, MS, nausea, neuropathy, Parkinson’s disease, PTSD, spasticity, seizures, <strong>sickle cell anemia</strong>, spastic quadriplegia, spinal cord injury, ulcerative colitis</td>
</tr>
</tbody>
</table>

Qualifying conditions in **orange** have not been examined by any human clinical study covered in either NASEM (2017) or my literature review in Chapter 2 (January 2016 to May 2021) that examines the therapeutic effects of cannabis or cannabinoids.

Qualifying conditions in **red** have human clinical studies (as of May 2021) that find cannabinoids to be ineffective for treating a specific symptom or the condition itself.

Qualifying conditions in **purple** have human clinical studies covered in NASEM (2017) that find cannabinoids to be ineffective for treating a specific symptom or the condition itself, but at least one recent randomized controlled trial (RCT) identified in my literature review (January 2016 to May 2021) finds at least one cannabis product to be therapeutically effective.

1 Nausea except that caused by pregnancy, cannabis-induced cyclical vomiting syndrome, or cannabinoid hyperemesis syndrome

2 Chronic nonmalignant pain caused by a qualifying medical condition or that originates from a qualifying medical condition and persists beyond the usual course of that qualifying medical condition

3 Patients diagnosed with no more than 12 months to live

4 Intractable pain (defined as “pain so chronic or severe as to otherwise warrant an opiate prescription”)

5 “that a physician, in his medical opinion, considers debilitating to an individual patient and is qualified through his medical education and training to treat”

6 Pain lasting longer than two weeks that is not adequately managed despite treatment attempts

7 Patients diagnosed with no more than 6 months to live
Appendix A. Literature Review Search Log

Addiction, Dependence, and Substance Use Disorders

Cochrane

**Search Run:** 4 March 2021  
**Coverage:** 2016-present  
**Limits:** Sources- CINAHL, Embase, and PubMed

[mh "Cannabis"] OR [mh "Cannabinol"] OR [mh "Cannabidiol"] OR [mh "Marijuana Smoking"] OR [mh "Marijuana Use"] OR [mh "Medical Marijuana"] OR [mh "Dronabinol"] OR (bhang OR cannabidiol OR cannabigerol OR cannabin* OR cannabis* OR cannador OR cardiolrx OR charas OR delta 9 tetrahydrocannabinol OR delta 9 trans tetrahydrocannabinol OR Dronabinol OR epidiolex OR ganja* OR ganjha* OR hashish* OR hemp* OR herba cannabis OR marihuana* OR marijuana* OR Marinol OR medical cannabis OR medical marihuana OR medical marijuana OR medicinal cannabis OR medicinal marijuana OR nabidiolex OR nabiximols OR sativex OR syndros OR tetrahydro cannabinol* OR tetrahydrocannabinol* OR Tetrahydrocannabinol* OR tetrahydrocannabinol*):ti,ab,kw

AND

[mh "Alcohol Amnestic Disorder"] OR [mh "Alcohol-Induced Disorders"] OR [mh "Alcohol-Induced Disorders, Nervous System"] OR [mh "Alcohol-Related Disorders"] OR [mh "Alcoholic Intoxication"] OR [mh "Alcoholic Neuropathy"] OR [mh "Alcoholism"] OR [mh "Alcohol Withdrawal Delirium"] OR [mh "Alcohol Withdrawal Seizures"] OR [mh "Binge Drinking"] OR [mh "Cardiomyopathy, Alcoholic"] OR [mh "Chemically-Induced Disorders"] OR [mh "Fetal Alcohol Spectrum Disorders"] OR [mh "Liver Diseases, Alcoholic"] OR [mh "Marijuana Abuse"] OR [mh "Opioid-Related Disorders"] OR [mh "Pancreatitis, Alcoholic"] OR [mh "Psychoses, Alcoholic"] OR [mh "Substance-Related Disorders"] OR (addict* OR alcohol* OR binge* OR cannabis use disorder OR chemically-induced disorder* OR chronic alcohol* OR cigarette* OR dependence* OR dependent* OR dipsomania* OR drug abuse* OR drug addict* OR drug depend* OR drug facilitation OR drug habit* OR ethanol* OR fatal alcohol* OR heroin* OR inhalant* OR korsakoffs psychos* OR marijuana abuse OR morphine* OR opiate* OR opioid* OR opium* OR physical dependence OR stimulant* OR substance* OR tobacco* OR toxicomani* OR wernicke*):ti,ab,kw

**Results:** 39 Reviews, 1,482 Trials

Embase

**Search Run:** 3 May 2021  
**Coverage:** 2016 - present  
**Limits:** Embase; English language; Humans; case control study, clinical article, clinical study, clinical trial, cohort analysis, comparative effectiveness, control group, controlled clinical trial, controlled study, correlational study, cross sectional study, crossover procedure, disease model, double blind procedure, evidence based medicine, human experiment, intention to treat analysis, longitudinal study, major clinical study, medical record review, meta analysis, model, multicenter study (topic), normal human, observational study, open study, phase 2 clinical trial (topic), phase 3
Clinical trial (topic), pilot study, population based case control study, prospective study, randomized controlled trial (topic), retrospective study, secondary analysis, systematic review

'cannabidiol'/exp/mj OR 'cannabinoid'/exp/mj OR 'cannabinol'/exp/mj OR 'Cannabis sativa'/exp/mj OR 'cannabis smoking'/exp OR 'cannabis use'/exp/mj OR 'cannabis'/exp/mj OR 'dronabinol'/exp/mj OR 'medical cannabis'/exp OR 'nabiximols'/exp/mj OR 'tetrahydrocannabinol'/exp/mj OR 'delta 9 tetrahydrocannabinol':ti,ab,kw OR 'bhang':ti,ab,kw OR 'cannabidiol':ti,ab,kw OR 'cannabinol':ti,ab,kw OR 'cannabinol':ti,ab,kw OR 'cannabigerol':ti,ab,kw OR 'cannabin*':ti,ab,kw OR 'cannabin':ti,ab,kw OR 'cannabis*':ti,ab,kw OR 'cannabis':ti,ab,kw OR 'epidiolex':ti,ab,kw OR 'epidiolex':ti,ab,kw OR 'gaanja':ti,ab,kw OR 'ganja':ti,ab,kw OR 'hashish':ti,ab,kw OR 'hashish':ti,ab,kw OR 'herba cannabis':ti,ab,kw OR 'hashish oil':ti,ab,kw OR 'herba cannabis':ti,ab,kw OR 'marihuana*':ti,ab,kw OR 'marijuana*':ti,ab,kw OR 'Marinol':ti,ab,kw OR 'marijuana':ti,ab,kw OR 'medical cannabis':ti,ab,kw OR 'medical marhuana':ti,ab,kw OR 'medical marijuana':ti,ab,kw OR 'medicinal cannabis':ti,ab,kw OR 'medicinal marijuana':ti,ab,kw OR 'mexican marhuana':ti,ab,kw OR 'nabidiolex':ti,ab,kw OR 'nabiximols':ti,ab,kw OR 'sativex':ti,ab,kw OR 'syndros':ti,ab,kw OR 'tetrahydrocannabinol*':ti,ab,kw OR 'tetrahydrocannabinol*':ti,ab,kw OR 'thc':ti,ab,kw OR 'tetrahydrocannabinol*':ti,ab,kw OR 'THC':ti,ab,kw OR 'CBC':ti,ab,kw OR 'CBD':ti,ab,kw OR 'CBG':ti,ab,kw

AND

'alcoholism'/exp OR 'drug dependence'/exp/mj OR 'opiate addiction'/exp/mj OR 'addict*':ti,ab,kw OR 'Alcohol Amnestic Disorder':ti,ab,kw OR 'Alcohol Induced':ti,ab,kw OR 'Alcohol Related':ti,ab,kw OR 'Alcohol Withdrawal':ti,ab,kw OR 'Alcoholic':ti,ab,kw OR 'Alcoholism':ti,ab,kw OR 'binge':ti,ab,kw OR 'cannabis use disorder':ti,ab,kw OR 'Chemically Induced Disorder':ti,ab,kw OR 'chronic alcohol':ti,ab,kw OR 'cigarette':ti,ab,kw OR 'dependence':ti,ab,kw OR 'drug abuse':ti,ab,kw OR 'drug addiction':ti,ab,kw OR 'drug dependence':ti,ab,kw OR 'drug facilitation':ti,ab,kw OR 'drug habit':ti,ab,kw OR 'ethanol':ti,ab,kw OR 'fetal alcohol':ti,ab,kw OR 'heroin':ti,ab,kw OR 'inhalant':ti,ab,kw OR 'korsakoffs psychos':ti,ab,kw OR 'marijuana abuse':ti,ab,kw OR 'morphine':ti,ab,kw OR 'opiate':ti,ab,kw OR 'opioid':ti,ab,kw OR 'opium':ti,ab,kw OR 'physical dependence':ti,ab,kw OR 'stimulant':ti,ab,kw OR 'Substance Related Disorder':ti,ab,kw OR 'tobacco':ti,ab,kw OR 'toxicomani':ti,ab,kw OR 'wernicke':ti,ab,kw

AND

'randomized controlled trial'/exp OR 'controlled clinical trial'/exp OR randomized:ti,ab OR placebo:ti,ab OR 'drug therapy':lnk OR randomly:ti,ab OR trial:ti,ab OR groups:ti,ab OR review/it OR meta-analysis/de OR 'systematic review':ti OR "literature review":ti OR "meta analysis":ti OR metaanalysis:ti OR metasynthesis:ti

Results: 3,068

PsycInfo

Search Run: 23 May 2021
Coverage: 2016-present

Limits: Phrase Searching (Boolean): Clinical Case Study, Clinical Trial, Empirical Study, Literature Review, Meta Analysis, Quantitative Study, Treatment Outcome, Twin Study; English; Human

MM "Cannabis" OR MM "Marijuana" OR MM "Marijuana Usage" OR MM "Cannabinoids" OR MM "Tetrahydrocannabinol") OR TI ("bhang" OR "cannabid" OR "cannabigerol" OR "cannabin" OR "cannabis" OR "cannador" OR "delta 9 tetrahydrocannabinol" OR "delta tetrahydrocannabinol" OR
Results: 249

AND


AND

Results: 2,294
Alzheimer's Disease or Dementia

Cochrane

**Search Run:** 9 April 2021  
**Coverage:** 2016-present

**Limits:** Sources- CINAHL, Embase, and PubMed

[mh "Cannabis"] OR [mh "Cannabinol"] OR [mh "Cannabinoid"] OR [mh "Marijuana Smoking"] OR [mh "Marijuana Use"] OR [mh "Medical Marijuana"] OR [mh "Dronabinol"] OR (bhang OR cannabid* OR cannabigerol OR cannabin* OR cannabis* OR cannador OR cardiolrx OR charas OR delta 9 tetrahydrocannabinol OR delta 9 trans tetrahydrocannabinol OR Dronabinol OR epidoilex OR epidoylex OR ganja* OR ganjah* OR hashish* OR hemp* OR herba cannabis OR marihuana* OR marijuana* OR Mariol OR medical cannabis OR medical marihuana OR medical marijuana OR medicinal cannabis OR medicinal marijuana OR nabidiolex OR nabiximols OR sativex OR syndros OR tetrahydro cannabino* OR tetrahydrocannibinal* OR Tetrahydrocannabinol* OR tetrahydrocannabiol*):ti,ab,kw

AND

[mh "Alzheimer Disease"] OR [mh "Amyotrophic Lateral Sclerosis"] OR [mh "CADASIL"] OR [mh "Chorea"] OR [mh "Dementia"] OR [mh "Dementia"] OR [mh "Frontotemporal Dementia"] OR [mh "Mental Status and Dementia Tests"] OR [mh "Myoclonic Epilepsies, Progressive"] OR [mh "Neurocognitive Disorders"] OR [mh "Nootropic Agents"] OR [mh "Rett Syndrome"] OR [mh "Schizophrenia"] OR [Alzheimer* OR Alzheimer* OR Presenile Dementia* OR CADASIL OR Dementia* OR Familial encephalopathy* OR encephalopathy* OR Frontotemporal Dementia* OR Hereditary Diffuse Leukoencephalopathy* OR leukoencephalopathy* OR Jensen syndrome OR Kohlschutter Tonz syndrome* OR Neurocognitive Disorder* OR Presenile And Senile Dementia* OR Presenile Dementia* OR Pseudodementia* OR Senile Psychosis]:ti,ab,kw

**Results:** 3 Reviews, 71 Trials

Embase

**Search Run:** 3 May 2021  
**Coverage:** 2016 – present

**Limits:** Embase; English language; Humans; case control study, clinical article, clinical study, clinical trial, cohort analysis, comparative effectiveness, control group, controlled clinical trial, controlled study, correlational study, cross sectional study, crossover procedure, disease model, double blind procedure, evidence based medicine, human experiment, intention to treat analysis, longitudinal study, major clinical study, medical record review, meta analysis, model, multicenter study (topic), normal human, observational study, open study, phase 2 clinical trial (topic), phase 3 clinical trial (topic), pilot study, population based case control study, prospective study, randomized controlled trial (topic), retrospective study, secondary analysis, systematic review

'cannabidiol'/exp/mj OR 'cannabinoid'/exp/mj OR 'cannabinol'/exp/mj OR 'Cannabis sativa'/exp/mj OR 'cannabis smoking'/exp OR 'cannabis use'/exp OR 'cannabis'/exp/mj OR 'dronabinol'/exp/mj OR 'medical cannabis'/exp OR 'nabiximols'/exp/mj OR 'tetrahydrocannabinol'/exp/mj OR 'tetrahydrocannabinol':ti,ab,kw OR 'bhang':ti,ab,kw OR 'cannabid*':ti,ab,kw OR 'cannabigerol':ti,ab,kw OR 'cannabin*':ti,ab,kw OR 'cannabin*':ti,ab,kw OR 'cannador':ti,ab,kw OR 'delta 9 tetrahydrocannabinol':ti,ab,kw OR 'dronabinol':ti,ab,kw OR
'epidiolex':ti,ab,kw OR 'epidyolex':ti,ab,kw OR 'ganja':ti,ab,kw OR 'ganjah':ti,ab,kw OR 'hashish':ti,ab,kw OR 'hashish oil':ti,ab,kw OR 'hashish smoking':ti,ab,kw OR 'hemp*':ti,ab,kw OR 'herba cannabis':ti,ab,kw OR 'marihuana*':ti,ab,kw OR 'marijuana*':ti,ab,kw OR 'Marinol':ti,ab,kw OR 'medical cannabis':ti,ab,kw OR 'medical marihuana':ti,ab,kw OR 'medical marijuana':ti,ab,kw OR 'medicinal cannabis':ti,ab,kw OR 'medicinal marijuana':ti,ab,kw OR 'mexican marihuana':ti,ab,kw OR 'nabidiolex':ti,ab,kw OR 'nabiximols':ti,ab,kw OR 'sativex':ti,ab,kw OR 'syndros':ti,ab,kw OR 'tetrahydro cannabinoi':ti,ab,kw OR 'tetrahydrocannabinol*':ti,ab,kw OR 'tetrahydrocannabinal*':ti,ab,kw OR 'tetrahydrocannabinol*':ti,ab,kw OR 'tetrahydrocannabinol*':ti,ab,kw OR 'THC':ti,ab,kw OR 'CBC':ti,ab,kw OR 'CBD':ti,ab,kw OR 'CBG':ti,ab,kw

AND

dementia'/exp/mj OR Alzheimer disease'/exp/mj OR 'AIDS Dementia Complex':ti,ab,kw OR 'Alzheimer*':ti,ab,kw OR 'Alzheimer*':ti,ab,kw OR 'Dementia*':ti,ab,kw OR 'Familial encephalopathy*':ti,ab,kw OR 'encephalopathy*':ti,ab,kw OR 'Frontotemporal Dementia*':ti,ab,kw OR 'Hereditary Diffuse Leukoencephalopathy*':ti,ab,kw OR 'Leukoencephalopathy*':ti,ab,kw OR 'Jensen syndrome':ti,ab,kw OR 'Kohlschutter Tonz syndrome':ti,ab,kw OR 'Neurocognitive Disorder*':ti,ab,kw OR 'Presenile And Senile Dementia*':ti,ab,kw OR 'Presenile Dementia*':ti,ab,kw OR 'Pseudodementia*':ti,ab,kw OR 'Rett Syndrome*':ti,ab,kw

AND

'randomized controlled trial'/exp OR 'controlled clinical trial'/exp OR randomized:ti,ab OR placebo:ti,ab OR 'drug therapy':lnk OR randomly:ti,ab OR trial:ti,ab OR groups:ti,ab OR review/it OR meta-analysis/de OR 'systematic review':ti OR "literature review":ti OR "meta analysis":ti OR metaanalysis:ti OR metasynthesis:ti

Results: 269

PsycInfo

Search Run: 23 May 2021

Coverage: 2016-present

Limits: Phrase Searching (Boolean): Clinical Case Study, Clinical Trial, Empirical Study, Literature Review, Meta Analysis, Quantitative Study, Treatment Outcome, Twin Study; English; Human

MM "Cannabis" OR MM "Marijuana" OR MM "Marijuana Usage" OR MM "Cannabinoids" OR MM "Tetrahydrocannabinol") OR TI ("bhang" OR "cannabid*" OR "cannabigerol" OR "cannabin*" OR "cannabis" OR "cannador" OR "delta 9 tetrahydrocannabinol" OR "delta tetrahydrocannabinol" OR "Dronabinol" OR "epidiolex" OR "epidyolex" OR "ganja" OR "ganjah" OR "hashish*" OR "hemp*" OR "herba cannabis" OR "marihuana*" OR "marijuana*" OR "Marinol" OR "medical cannabis" OR "medical marihuana" OR "medical marijuana" OR "medicinal cannabis" OR "medicinal marijuana" OR "nabidiolex" OR "nabiximols" OR "Sativex" OR "sp 104" OR "syndros" OR "tetrahydro cannabinol"" OR "tetrahydrocannabinol" OR "Tetrahydrocannabinol" OR "tetrahydrocannabinol*" OR "tetranabinex" OR "THC" OR "CBC" OR "CBD" OR "CBG") OR AB ("bhang" OR "cannabid*" OR "cannabigerol" OR "cannabin*" OR "cannabis" OR "cannador" OR "delta 9 tetrahydrocannabinol" OR "delta tetrahydrocannabinol" OR "Dronabinol" OR "epidiolex" OR "epidyolex" OR "ganja" OR "ganjah" OR "hashish*" OR "hemp*" OR "herba cannabis" OR "marihuana*" OR "marijuana*" OR "Marinol" OR "medical cannabis" OR "medical marihuana" OR "medical marijuana" OR "medicinal cannabis" OR "medicinal marijuana" OR "nabidiolex" OR "nabiximols" OR "Sativex" OR "sp 104" OR...
“syndros” OR “tetrahydro cannabinoil” OR “tetrahydrocannabinal” OR “Tetrahydrocannabinol” OR “tetrahydrocannabinol” OR “tetranabinex” OR “THC” OR “CBC” OR “CBD” OR “CBG”

AND

(MM “AIDS Dementia Complex” OR MM “Alzheimer’s Disease” OR MM “Creutzfeldt Jakob Syndrome” OR MM “Dementia with Lewy Bodies” OR MM “Dementia” OR MM “Pick’s Disease” OR MM “Presenile Dementia” OR MM “Pseudodementia” OR MM “Semantic Dementia” OR MM “Senile Dementia” OR MM “Senile Psychosis” OR MM “Vascular Dementia”) OR TI (“Alzheimer*” OR “Alzheimer’s*” OR “Amyloidosis*” OR “CADASIL” OR “Chorea” OR “cortical sclerosis” OR “Dementia*” OR “Familial encephalopathy with neuroserpin inclusion bodies” OR “Frontotemporal Dementia*” OR “Hereditary Diffuse Leukoencephalopathy with Spheroids” OR “Jensen syndrome” OR “Kohlschutter Tonz syndrome” OR “Kufor-Rakeb syndrome” OR “Mental Status and Dementia Tests” OR “Neurocognitive Disorder*” OR “Nootropic Agents” OR “Olivopontocerebellar Atrophy V” OR “Pick Disease of the Brain” OR “Pick’s Disease” OR “Polycystic lipomembranous osteodysplasia with sclerosing leukoencephalopathy” OR “Presenile And Senile Dementia” OR “Presenile Dementia” OR “Prion Diseases” OR “Progressive Myoclonic Epilepsies” OR “Progressive supranuclear palsy atypical” OR “Pseudodementia” OR “Rett Syndrome” OR “Senile Psychosis” OR “Spastic Paraplegia”) OR AB (“Alzheimer*” OR “Alzheimer’s*” OR “Amyloidosis*” OR “CADASIL” OR “Chorea” OR “cortical sclerosis” OR “Dementia*” OR “Familial encephalopathy with neuroserpin inclusion bodies” OR “Frontotemporal Dementia*” OR “Hereditary Diffuse Leukoencephalopathy with Spheroids” OR “Jensen syndrome” OR “Kohlschutter Tonz syndrome” OR “Kufor-Rakeb syndrome” OR “Mental Status and Dementia Tests” OR “Neurocognitive Disorder*” OR “Nootropic Agents” OR “Olivopontocerebellar Atrophy V” OR “Pick Disease of the Brain” OR “Pick’s Disease” OR “Polycystic lipomembranous osteodysplasia with sclerosing leukoencephalopathy” OR “Presenile And Senile Dementia” OR “Presenile Dementia” OR “Prion Diseases” OR “Progressive Myoclonic Epilepsies” OR “Progressive supranuclear palsy atypical” OR “Pseudodementia” OR “Rett Syndrome” OR “Senile Psychosis” OR “Spastic Paraplegia”)

Results: 56

PubMed

Search Run: 26 May 2021

Coverage: 2016 - present

Limits: English language, Humans

AND


AND


Results: 237
Amyotrophic Lateral Sclerosis (ALS, Lou Gehrig’s disease)

Cochrane

**Search Run:** 9 April 2021  
**Coverage:** 2016-present

**Limits:** Sources- CINAHL, Embase, and PubMed

[mh "Cannabis"] OR [mh "Cannabinol"] OR [mh "Cannabinol"] OR [mh "Marijuana Smoking"] OR [mh "Marijuana Use"] OR [mh "Medical Marijuana"] OR [mh "Dronabinol"] OR (bhang OR cannabidi* OR cannabigerol OR cannabin* OR cannnabis* OR cannador OR cardiolrx OR charas OR delta 9 tetrahdrocannabinol OR delta 9 trans tetrahdrocannabinol OR Dronabinol OR epidiolex OR epidiyolex OR ganja* OR ganjah* OR hashish* OR hemp* OR herba cannabis OR marihuana* OR Mariol OR medical cannabis OR medical marihuana OR medical marijuana OR medicinal cannabis OR medicinal marijuana OR nabidiolex OR nabiximols OR sativex OR syndros OR tetrahydro cannabinol* OR tetrahydrocannabinal* OR Tetrahydrocannabinol* OR tetrahydrocannabinol*):ti,ab,kw

AND

[mh “Amyotrophic Lateral Sclerosis”] OR (ALS OR ALS (amyotrophic lateral sclerosis) OR als demen* OR amyotrophic lateral sclerosis OR Lou Gehrig*):ti,ab,kw

**Results:** 1 Review, 7 Trials

Embse

**Search Run:** 3 May 2021

**Coverage:** 2016 – present

**Limits:** Embase; English language; Humans; case control study, clinical article, clinical study, clinical trial, cohort analysis, comparative effectiveness, control group, controlled clinical trial, controlled study, correlational study, cross sectional study, crossover procedure, disease model, double blind procedure, evidence based medicine, human experiment, intention to treat analysis, longitudinal study, major clinical study, medical record review, meta analysis, model, multicenter study (topic), normal human, observational study, open study, phase 2 clinical trial (topic), phase 3 clinical trial (topic), pilot study, population based case control study, prospective study, randomized controlled trial (topic), retrospective study, secondary analysis, systematic review

‘cannabidiol'/exp/mj OR 'cannabinoid'/exp/mj OR 'cannabinoil'/exp/mj OR 'Cannabis sativa'/exp/mj OR 'cannabis smoking'/exp OR 'cannabis use'/exp OR 'cannabis'/exp/mj OR 'dronabinol'/exp/mj OR 'medical cannabis'/exp OR 'nabiximols'/exp/mj OR 'tetrahydrocannabinol'/exp/mj OR 'tetrahydrocannabinol':ti,ab,kw OR 'bhang':ti,ab,kw OR 'cannabidi*':ti,ab,kw OR 'cannabigerol':ti,ab,kw OR 'cannabin*':ti,ab,kw OR 'cannador':ti,ab,kw OR 'delta 9 tetrahydrocannabinol':ti,ab,kw OR 'dronabinol':ti,ab,kw OR 'epipoidolex':ti,ab,kw OR 'epipodyolex':ti,ab,kw OR 'ganja*':ti,ab,kw OR 'ganjah*':ti,ab,kw OR 'hashish':ti,ab,kw OR 'hashish oil':ti,ab,kw OR 'hashish smoking':ti,ab,kw OR 'hemp*':ti,ab,kw OR 'herba cannabis':ti,ab,kw OR 'marihuana*':ti,ab,kw OR 'marijuana*':ti,ab,kw OR 'Mariol':ti,ab,kw OR 'medical cannabis':ti,ab,kw OR 'medical marihuana':ti,ab,kw OR 'medical marijuana':ti,ab,kw OR 'medicinal cannabis':ti,ab,kw OR 'medicinal marijuana':ti,ab,kw OR 'mexican marihuana':ti,ab,kw OR 'nabidiolex':ti,ab,kw OR 'nabiximols':ti,ab,kw OR 'sativex':ti,ab,kw OR 'syndros':ti,ab,kw OR 'tetrahydro cannabinoil*':ti,ab,kw OR 'tetrahydrocannabinal*':ti,ab,kw OR
Results: 38

PsyInfo

Search Run: 23 May 2021
Coverage: 2016-present

Limits: Phrase Searching (Boolean); Clinical Case Study, Clinical Trial, Empirical Study, Literature Review, Meta Analysis, Quantitative Study, Treatment Outcome, Twin Study; English; Human

MM “Cannabis” OR MM “Marijuana” OR MM “Marijuana Usage” OR MM “Cannabinoids” OR MM “Tetrahydrocannabinol”) OR TI (“bhang” OR “cannabid*” OR “cannabigerol” OR “cannabin*” OR “cannabis*” OR “cannabinoid” OR “delta 9 tetrahydrocannabinol” OR “delta tetrahydrocannabinol” OR “Dronabinol” OR “epidiolex” OR “epidyolex” OR “ganja*” OR “ganjah*” OR “hashish*” OR “hemp*” OR “herba cannabis” OR “marihuana*” OR “marijuana*” OR “Marinol” OR “medical cannabis” OR “medical marijuana” OR “medical marihuana” OR “medical marijuana” OR “medicinal cannabis” OR “medicinal marijuana” OR “nabidiolex” OR “nabiximols” OR “Sativex” OR “sp 104” OR “syndros” OR “tetrahydrocannabinol*” OR “tetrahydrocannabinol*” OR “Tetrahydrocannabinol*” OR “tetrahydrocannabinol*” OR “tilanabinex” OR “THC” OR “CBC” OR “CBD” OR “CBG”) OR AB (“bhang” OR “cannabid*” OR “cannabigerol” OR “cannabin*” OR “cannabis*” OR “cannabinoid” OR “delta 9 tetrahydrocannabinol” OR “delta tetrahydrocannabinol” OR “Dronabinol” OR “epidiolex” OR “epidyolex” OR “ganja*” OR “ganjah*” OR “hashish*” OR “hemp*” OR “herba cannabis” OR “marihuana*” OR “marijuana*” OR “Marinol” OR “medical cannabis” OR “medical marijuana” OR “medical marihuana” OR “medical marijuana” OR “medicinal cannabis” OR “medicinal marijuana” OR “nabidiolex” OR “nabiximols” OR “Sativex” OR “sp 104” OR “syndros” OR “tetrahydrocannabinol*” OR “tetrahydrocannabinol*” OR “Tetrahydrocannabinol*” OR “tetrahydrocannabinol*” OR “tiranabinex” OR “THC” OR “CBC” OR “CBD” OR “CBG”)

AND

(MM “Amyotrophic Lateral Sclerosis”) OR TI (“ALS” OR “ALS (amyotrophic lateral sclerosis)” OR “als demen*” OR “amyotrophic lateral sclerosis” OR “Lou Gehrig*”) OR AB (“ALS” OR “ALS (amyotrophic lateral sclerosis)” OR “als demen*” OR “amyotrophic lateral sclerosis” OR “Lou Gehrig*”)

Results: 13

PubMed

Search Run: 26 May 2021
Coverage: 2016 - present

Limits: English language, Humans


AND


AND


Results: 24
Anxiety, Anxiety Disorders

Cochrane

Search Run: 10 April 2021
Coverage: 2016-present

Limits: Sources- CINAHL, Embase, and PubMed

[mh "Cannabis"] OR [mh "Cannabinol"] OR [mh "Cannabidiol"] OR [mh "Marijuana Smoking"] OR [mh "Marijuana Use"] OR [mh "Medical Marijuana"] OR [mh "Dronabinol"] OR (bhang OR cannabinid* OR cannabigerol OR cannabin* OR cannabidiol* OR cannador OR cardiolpr OR charas OR delta 9 trans tetrahydrocannabinol OR Dronabinol OR epidioplex OR epidioplex OR ganja* OR ganjaha* OR hashish* OR hemp* OR herba cannabis OR marihuana* OR marinol OR medical cannabis OR medical marihuana OR medical marijuana OR medicinal cannabis OR medicinal marijuana OR nabidiolex OR nabiximols OR savix OR syndros OR tetrahydrocannabinol* OR tetrahydrocannabinol*):ti,ab,kw

AND

[mh "Anxiety"] OR [mh "Anxiety Disorders"] OR (anxiet* OR Panic* OR Phobia* OR Trichotillomania*):ti,ab,kw

Results: 1 Review, 183 Trials

Embase

Search Run: 3 May 2021
Coverage: 2016 – present

Limits: Embase; English language; Humans; case control study, clinical article, clinical study, clinical trial, cohort analysis, comparative effectiveness, control group, controlled clinical trial, controlled study, corrollational study, cross sectional study, crossover procedure, disease model, double blind procedure, evidence based medicine, human experiment, intention to treat analysis, longitudinal study, major clinical study, medical record review, meta analysis, model, multicenter study (topic), normal human, observational study, open study, phase 2 clinical trial (topic), phase 3 clinical trial (topic), pilot study, population based case control study, prospective study, randomized controlled trial (topic), retrospective study, secondary analysis, systematic review

‘cannabidiol'/exp/mj OR 'cannabinoid'/exp/mj OR 'cannabinol'/exp/mj OR 'Cannabis sativa'/exp/mj OR 'cannabis smoking'/exp OR 'cannabis use'/exp/mj OR 'cannabis'/exp/mj OR 'dronabinol'/exp/mj OR 'medical cannabis'/exp OR 'nabiximols'/exp/mj OR 'tetrahydrocannabinol'/exp/mj OR 'tetrahydrocannabinol':ti,ab,kw OR 'bhang':ti,ab,kw OR 'cannabinid*:ti,ab,kw OR 'cannabigerol':ti,ab,kw OR 'cannabin*':ti,ab,kw OR 'cannador':ti,ab,kw OR 'delta 9 tetrahydrocannabinol':ti,ab,kw OR 'dronabinol':ti,ab,kw OR 'epidioplex':ti,ab,kw OR 'epidioplex':ti,ab,kw OR 'ganja':ti,ab,kw OR 'ganjaha':ti,ab,kw OR 'hashish':ti,ab,kw OR 'hashish oil':ti,ab,kw OR 'hashish smoking':ti,ab,kw OR 'hemp*':ti,ab,kw OR 'herba cannabis':ti,ab,kw OR 'marihuana*':ti,ab,kw OR 'Marinol':ti,ab,kw OR 'medicinal cannabis':ti,ab,kw OR 'medical marijuana':ti,ab,kw OR 'medical marihuana':ti,ab,kw OR 'medicinal marijuana':ti,ab,kw OR 'mexican marihuana':ti,ab,kw OR 'nabidiolex':ti,ab,kw OR 'nabiximols':ti,ab,kw OR 'sativex':ti,ab,kw OR 'syndros':ti,ab,kw OR 'tetrahydro cannabidiol*':ti,ab,kw OR 'tetrahydrocannabinol*':ti,ab,kw OR
Results: 718

PsycInfo

Search Run: 23 May 2021
Coverage: 2016-present

Limits: Phrase Searching (Boolean); Clinical Case Study, Clinical Trial, Empirical Study, Literature Review, Meta Analysis, Quantitative Study, Treatment Outcome, Twin Study; English; Human

MM “Cannabis” OR MM “Marijuana” OR MM “Marijuana Usage” OR MM “Cannabinoids” OR MM “Tetrahydrocannabinol”) OR TI (“bhang” OR “cannabid*” OR “cannabigerol” OR “cannabin*” OR “cannabis*” OR “cannador” OR “delta 9 tetrahydrocannabinol” OR “delta tetrahydrocannabinol” OR “Dronabinol” OR “epidiolex” OR “epidyolex” OR “ganja*” OR “ganjah*” OR “hashish*” OR “hemp*” OR “herba cannabis” OR “marihuana*” OR “marijuana*” OR “Marinol” OR “medical cannabis” OR “medical marihuana” OR “medical marijuana” OR “medicinal cannabis” OR “medicinal marijuana” OR “nabidiolex” OR “nabiximols” OR “Sativex” OR “sp 104” OR “syndros” OR “tetrahydro cannabinol*” OR “tetrahydrocannabinol*” OR “Tetrahydrocannabinol*” OR “tetrahydrocannabinol*” OR “tetranabinex” OR “THC” OR “CBC” OR “CBD” OR “CBG”) OR AB (“bhang” OR “cannabid*” OR “cannabigerol” OR “cannabin*” OR “cannador” OR “delta 9 tetrahydrocannabinol” OR “delta tetrahydrocannabinol” OR “Dronabinol” OR “epidiolex” OR “epidyolex” OR “ganja*” OR “ganjah*” OR “hashish*” OR “hemp*” OR “herba cannabis” OR “marihuana*” OR “marijuana*” OR “Marinol” OR “medical cannabis” OR “medical marihuana” OR “medical marijuana” OR “medicinal cannabis” OR “medicinal marijuana” OR “nabidiolex” OR “nabiximols” OR “Sativex” OR “sp 104” OR “syndros” OR “tetrahydro cannabinol*” OR “tetrahydrocannabinol*” OR “Tetrahydrocannabinol*” OR “tetrahydrocannabinol*” OR “tetranabinex” OR “THC” OR “CBC” OR “CBD” OR “CBG”

AND

(MM “Anxiety” OR MM “Anxiety Sensitivity” OR MM “Computer Anxiety” OR MM “Death Anxiety” OR MM “Health Anxiety” OR MM “Mathematics Anxiety” OR MM “Performance Anxiety” OR MM “Social Anxiety” OR MM “Speech Anxiety” OR MM “Test Anxiety” OR MM “Anxiety Disorders” OR MM “Castration Anxiety” OR MM “Generalized Anxiety Disorder” OR MM “Obsessive Compulsive Disorder” OR MM “Panic Attack” OR MM “Panic Disorder” OR MM “Phobias” OR MM “Separation Anxiety Disorder” OR MM “Trichotillomania”) OR TI (“anxiet*” OR “Panic*” OR “Phobia*” OR “Trichotillomania*”) OR AB (“anxiet*” OR “Panic*” OR “Phobia*” OR “Trichotillomania*”)

Results: 552
PubMed

Search Run: 26 May 2021

Coverage: 2016 - present

Limits: English language, Humans


AND


AND


Results: 332
Arnold Chiari Malformation

Cochrane

**Search Run:** 10 April 2021  
**Coverage:** 2016-present  
**Limits:** Sources- CINAHL, Embase, and PubMed

[mh "Cannabis"] OR [mh "Cannabinol"] OR [mh "Cannabinol"] OR [mh "Marijuana Smoking"] OR [mh "Marijuana Use"] OR [mh "Medical Marijuana"] OR [mh "Dronabinol"] OR (bhang OR cannabid* OR cannabigerol OR cannabin* OR cannabis* OR cannador OR cardiolrx OR charas OR delta 9 tetrahydrocannabinol OR delta 9 trans tetrahydrocannabinol OR Dronabinol OR epidiolex OR epidiol* OR ganja* OR ganjah* OR hashish* OR hemp* OR herba cannabis OR marihuana* OR marijuana* OR Marinol OR medical cannabis OR medical marihuana OR medical marijuana OR medicinal cannabis OR medicinal marihuana OR nabilo* OR nabiximols OR sativex OR syndros OR tetrahydrocannabinol* OR tetrahydrocannabinal* OR Tetrahydrocannabinol* OR tetrahydrocannabinol*):ti,ab,kw

AND

[mh “Arnold-Chiari Malformation”] OR (Chiari*):ti,ab,kw

**Results:** 0 Reviews, 0 Trials

Embase

**Search Run:** 23 May 2021  
**Coverage:** 2016 – present  
**Limits:** Embase; English language; Humans; case control study, clinical article, clinical study, clinical trial, cohort analysis, comparative effectiveness, control group, controlled clinical trial, controlled study, correlational study, cross sectional study, crossover procedure, disease model, double blind procedure, evidence based medicine, human experiment, intention to treat analysis, longitudinal study, major clinical study, medical record review, meta analysis, model, multicenter study (topic), normal human, observational study, open study, phase 2 clinical trial (topic), phase 3 clinical trial (topic), pilot study, population based case control study, prospective study, randomized controlled trial (topic), retrospective study, secondary analysis, systematic review

‘cannabidiol’/exp/mj OR ‘cannabinoid’/exp/mj OR ‘cannabinol’/exp/mj OR ‘Cannabis sativa’/exp/mj OR ‘cannabis smoking’/exp OR ‘cannabis use’/exp/mj OR ‘cannabis*/exp/mj OR ‘dronabinol’/exp/mj OR ‘medical cannabis’/exp OR ‘nabiximols’/exp/mj OR ‘tetrahydrocannabinol’/exp/mj OR ‘tetrahydrocannabinol*’:ti,ab,kw OR ‘delta 9 tetrahydrocannabinol*:ti,ab,kw OR ‘dronabinol*:ti,ab,kw OR ‘epidiol*:ti,ab,kw OR ‘epidiol*:ti,ab,kw OR ‘ganja*:ti,ab,kw OR ‘hashish*:ti,ab,kw OR ‘hashish oil*:ti,ab,kw OR ‘hashish smoking*:ti,ab,kw OR ‘herba cannabis*:ti,ab,kw OR ‘marihuana*:ti,ab,kw OR ‘marijuana*:ti,ab,kw OR ‘Marinol*:ti,ab,kw OR ‘medical cannabis*:ti,ab,kw OR ‘medical marihuana*:ti,ab,kw OR ‘medicinal cannabis*:ti,ab,kw OR ‘medical marihuana*:ti,ab,kw OR ‘mexican marihuana*:ti,ab,kw OR ‘nabiximols*:ti,ab,kw OR ‘sativex*:ti,ab,kw OR ‘syndros*:ti,ab,kw OR ‘tetrahydrocannabinol*:ti,ab,kw OR ‘tetrahydrocannabinal*:ti,ab,kw OR
"tetrahydrocannabinol":ti,ab,kw OR "tetrahydrocannabiol":ti,ab,kw OR 'THC':ti,ab,kw OR "CBC":ti,ab,kw OR 'CBD':ti,ab,kw OR 'CBG':ti,ab,kw

AND

'Arnold Chiari malformation'/exp/mj OR 'Chiari*':ti,ab,kw

AND

'randomized controlled trial'/exp OR 'controlled clinical trial'/exp OR randomized:ti,ab OR placebo:ti,ab OR 'drug therapy':lnk OR randomly:ti,ab OR trial:ti,ab OR groups:ti,ab OR review/it OR meta-analysis/de OR "systematic review":ti OR "literature review":ti OR "meta analysis":ti OR metaanalysis:ti OR metasynthesis:ti

Results: 1

PsycInfo

Search Run: 23 May 2021
Coverage: 2016-present

Limits: Phrase Searching (Boolean); Clinical Case Study, Clinical Trial, Empirical Study, Literature Review, Meta Analysis, Quantitative Study, Treatment Outcome, Twin Study; English; Human

MM “Cannabis” OR MM “Marijuana” OR MM “Marijuana Usage” OR MM “Cannabinoids” OR MM “Tetrahydrocannabinol”) OR TI (“bhang” OR “cannabid*” OR “cannabigerol” OR “cannabin*” OR “cannabis*” OR “cannador” OR “delta 9 tetrahydrocannabinol” OR “delta tetrahydrocannabinol” OR “Dronabinol” OR “epidiolex” OR “epidyolex” OR “ganja*” OR “ganjah*” OR “hashish*” OR “hemp*” OR “herba cannabis” OR “marihuana*” OR “marijuana*” OR “Marinol” OR “medical cannabis” OR “medical marihuana” OR “medical marijuana” OR “nabidiolex” OR “nabiximols” OR “Sativex” OR “sp 104” OR “syndros” OR “tetrahydrocannabinol*” OR “tetrahydrocannabinal*” OR “Tetrahydrocannabinol*” OR “tetrahydrocannabiol*” OR “tetranabinex” OR “THC” OR “CBC” OR “CBD” OR “CBG”) OR AB (“bhang” OR “cannabid*” OR “cannabigerol” OR “cannabin*” OR “cannabis*” OR “cannador” OR “delta 9 tetrahydrocannabinol” OR “delta tetrahydrocannabinol” OR “Dronabinol” OR “epidiolex” OR “epidyolex” OR “ganja*” OR “ganjah*” OR “hashish*” OR “hemp*” OR “herba cannabis” OR “marihuana*” OR “marijuana*” OR “Marinol” OR “medical cannabis” OR “medical marihuana” OR “medical marijuana” OR “nabidiolex” OR “nabiximols” OR “Sativex” OR “sp 104” OR “syndros” OR “tetrahydrocannabinol*” OR “tetrahydrocannabinal*” OR “Tetrahydrocannabinol*” OR “tetrahydrocannabiol*” OR “tetranabinex” OR “THC” OR “CBC” OR “CBD” OR “CBG”

AND

TI (“Chiari*”) OR AB (“Chiari*”)

Results: 0

PubMed

Search Run: 26 May 2021
Coverage: 2016 - present

Limits: English language, Humans


"Arnold-Chiari Malformation"[Majr] OR "Chiari*"[tiab] OR "Chiari*"[ot]

Results: 1
Arthritis

Cochrane

Search Run: 10 April 2021
Coverage: 2016-present

Limits: Sources- CINAHL, Embase, and PubMed

[mh "Cannabis"] OR [mh "Cannabinol"] OR [mh "Cannabidiol"] OR [mh "Marijuana Smoking"] OR [mh "Marijuana Use"] OR [mh "Medical Marijuana"] OR [mh "Dronabinol"] OR (bhang OR cannabid* OR cannabigerol OR cannabin* OR cannabis* OR cannador OR cardiolrx OR charas OR delta 9 tetrahydrocannabinol OR delta 9 trans tetrahydrocannabinol OR Dronabinol OR epidiolex OR epidiyolex OR ganja* OR ganjah* OR hashish* OR hemp* OR herba cannabis OR marihuana* OR marjuana* OR Marinol OR medical cannabis OR medical marihuana OR medical marijuana OR medicinal cannabis OR medicinal marajuana OR medicinal marijuana OR nabidiolex OR nabiximols OR sativex OR syndros OR tetrahydro cannabino* OR tetrahydrocannabinol* OR Tetrahydrocannabinol* OR tetrahydrocannabiol*):ti,ab,kw

AND

[mh "Arthritis"] OR [mh "Arthritis, Infectious"] OR [mh "Arthritis"] OR [mh "Arthralgia"] OR [mh "Joint Inflammation (Arthritis)"] OR (Arthralgia OR Arthritis* OR arthrochondritis OR arthros* OR beauvais disease OR chronic articular rheumatism OR chronic polyarthritis OR chronic progressive poly* OR chronic senescent arthritis OR Gouty Arthritis OR infantile rheumatoid arthritis OR Infectious Arthritis OR inflammatory arthritis OR joint inflammation OR joint pain OR Arthralgia OR Juvenile Arthritis OR Rheumatoid Arthritis OR oligoarthritides OR primary chronic polyarthritis OR Psoriatic Arthritis OR Reactive Arthritis OR rheumarthritides OR rheumatic OR rheumatoid arthritis OR sero negative arthritis OR undifferentiated arthritis):ti,ab,kw

Results: 2 Reviews, 18 Trials

Embase

Search Run: 3 May 2021
Coverage: 2016 – present

Limits: Embase; English language; Humans; case control study, clinical article, clinical study, clinical trial, cohort analysis, comparative effectiveness, control group, controlled clinical trial, controlled study, correlational study, cross sectional study, crossover procedure, disease model, double blind procedure, evidence based medicine, human experiment, intention to treat analysis, longitudinal study, major clinical study, medical record review, meta analysis, model, multicenter study (topic), normal human, observational study, open study, phase 2 clinical trial (topic), phase 3 clinical trial (topic), pilot study, population based case control study, prospective study, randomized controlled trial (topic), retrospective study, secondary analysis, systematic review

'cannabidiol'/exp/mj OR 'cannabinoid'/exp/mj OR 'cannabinol'/exp/mj OR 'Cannabis sativa'/exp/mj OR 'cannabis smoking'/exp OR 'cannabis use'/exp/mj OR 'cannabis'/exp/mj OR 'dronabinol'/exp/mj OR 'medical cannabis'/exp OR 'nabiximols'/exp/mj OR 'tetrahydrocannabinol'/exp/mj OR 'tetrahydrocannabinol':ti,ab,kw OR 'bhang':ti,ab,kw OR 'cannabid*':ti,ab,kw OR 'cannabigerol':ti,ab,kw OR 'cannabin*:ti,ab,kw OR 'cannabis*':ti,ab,kw OR 'cannador':ti,ab,kw OR 'delta 9 tetrahydrocannabinol':ti,ab,kw OR 'dronabinol':ti,ab,kw OR 'epidiolex':ti,ab,kw OR 'epidiyolex':ti,ab,kw OR 'ganja':ti,ab,kw OR 'ganjah':ti,ab,kw OR
Results: 106
“syndros” OR “tetrahydro cannabiol*” OR “tetrahydrocannabinol*” OR “Tetrahydrocannabinol*” OR “tetrahydrocannabiol*” OR “tetrabinex” OR “THC” OR “CBC” OR “CBD” OR “CBG”

AND

(MM “Arthritis” OR MM “Rheumatoid Arthritis”) OR TI (“Arthralgia” OR “Arthritis*” OR “arthrochondritis” OR “arthrosis deformans” OR “arthroosynovitis” OR “beauvais disease” OR “chronic articular rheumatism” OR “chronic polyarthritis” OR “chronic progressive poly*” OR “chronic senescent arthritis” OR “Gouty Arthritis” OR “infantile rheumatoid arthritis” OR “Infectious Arthritis” OR “inflammatory arthritis” OR “joint inflammation” OR “Juvenile Arthritis” OR “Rheumatoid Arthritis” OR “oligoarthritis” OR “primary chronic polyarthritis” OR “Psoriatic Arthritis” OR “Reactive Arthritis” OR “rheumarthritis” OR “rheumatic*” OR “rheumatoid arthritis” OR “sero negative arthritis” OR “undifferentiated arthritis”) OR AB (“Arthritis*” OR “arthrochondritis” OR “arthrosis deformans” OR “arthrosynovitis” OR “beauvais disease” OR “chronic articular rheumatism” OR “chronic polyarthritis” OR “chronic progressive poly arthritis” OR “chronic progressive polyarthritis” OR “chronic senescent arthritis” OR “Gouty Arthritis” OR “infantile rheumatoid arthritis” OR “Infectious Arthritis” OR “inflammatory arthritis” OR “joint inflammation” OR “joint pain” OR “Arthralgia” OR “Juvenile Arthritis” OR “MM Rheumatoid Arthritis” OR “oligoarthritis” OR “primary chronic polyarthritis” OR “Psoriatic Arthritis” OR “Reactive Arthritis” OR “rheumarthritis” OR “rheumatic*” OR “rheumatoid arthritis” OR “sero negative arthritis” OR “undifferentiated arthritis”)

Results: 13

PubMed

Search Run: 27 May 2021

Coverage: 2016 - present

Limits: English language, Humans

AND


AND


Results: 60
Asthma

Cochrane

**Search Run:** 10 April 2021  
**Coverage:** 2016–present  
**Limits:** Sources- CINAHL, Embase, and PubMed

[mh "Cannabis"] OR [mh "Cannabidiol"] OR [mh "Marijuana Smoking"] OR [mh "Marijuana Use"] OR [mh "Medical Marijuana"] OR [mh "Dronabinol"] OR (bhang OR cannabid* OR cannabigerol OR cannab* OR cannab* OR cannador OR cardioRx OR charas OR delta 9 tetrahydrocannabinol OR delta 9 trans tetrahydrocannabinol OR Dronabinol OR epidojex OR epidojyl OR ganja* OR ganjah* OR hashish* OR hemp* OR herba cannabis OR marihuana* OR marujana* OR Marinol OR medical cannabis OR medical marihuana OR medical marijuana OR medicinal cannabis OR medicinal marijuana OR nabidiolex OR nabiximols OR sativex OR syndros OR tetrahydrocannabinol* OR tetrahydrocannabinol*:ti,ab,kw

AND

[mh "Asthma"] OR (asthma* OR bronchial asthma* OR bronchus asthma* OR childhood asthma* OR chronic asthma*):ti,ab,kw

**Results:** 0 Reviews, 8 Trials

Embase

**Search Run:** 4 May 2021  
**Coverage:** 2016 – present  
**Limits:** Embase; English language; Humans; case control study, clinical article, clinical study, clinical trial, cohort analysis, comparative effectiveness, control group, controlled clinical trial, controlled study, correalational study, cross sectional study, crossover procedure, disease model, double blind procedure, evidence based medicine, human experiment, intention to treat analysis, longitudinal study, major clinical study, medical record review, meta analysis, model, multicenter study (topic), normal human, observational study, open study, phase 2 clinical trial (topic), phase 3 clinical trial (topic), pilot study, population based case control study, prospective study, randomized controlled trial (topic), retrospective study, secondary analysis, systematic review

‘cannabidiol'/exp/mj OR ‘cannabinoid'/exp/mj OR 'cannabinol'/exp/mj OR 'Cannabis sativa'/exp/mj OR 'cannabis smoking'/exp OR 'cannabis use'/exp/mj OR 'cannabis'/exp/mj OR 'dronabinol'/exp/mj OR 'medical cannabis'/exp OR 'nabiximols'/exp/mj OR 'tetrahydrocannabinol'/exp/mj OR 'tetrahydrocannabinol':ti,ab,kw OR 'bhang':ti,ab,kw OR 'cannabid*:ti,ab,kw OR 'cannabigerol':ti,ab,kw OR 'cannabin*':ti,ab,kw OR 'cannabin*:ti,ab,kw OR 'cannador':ti,ab,kw OR 'delta 9 tetrahydrocannabinol':ti,ab,kw OR 'dronabinol':ti,ab,kw OR 'epidojlex':ti,ab,kw OR 'epidojyl':ti,ab,kw OR 'ganja':ti,ab,kw OR 'ganjah':ti,ab,kw OR 'hashish':ti,ab,kw OR 'hashish oil':ti,ab,kw OR 'hashish smoking':ti,ab,kw OR 'hemp*':ti,ab,kw OR 'herba cannabis':ti,ab,kw OR 'marihuana*':ti,ab,kw OR 'marijuana*':ti,ab,kw OR 'Marinol':ti,ab,kw OR 'medical cannabis':ti,ab,kw OR 'medical marihuana':ti,ab,kw OR 'medical marijuana':ti,ab,kw OR 'medicinal cannabis':ti,ab,kw OR 'medicinal marijuana':ti,ab,kw OR 'mexican marihuana':ti,ab,kw OR 'nabidiolex':ti,ab,kw OR 'nabiximols':ti,ab,kw OR 'sativex':ti,ab,kw OR 'syndros':ti,ab,kw OR 'tetrahydro cannabis':ti,ab,kw OR 'tetrahydrocannabinol*':ti,ab,kw OR 'tetrahydrocannabinol':ti,ab,kw OR 'tetrahydrocannabinol':ti,ab,kw OR
Results: 70
PsycInfo

Search Run: 23 May 2021
Coverage: 2016-present

Limits: Phrase Searching (Boolean); Clinical Case Study, Clinical Trial, Empirical Study, Literature Review, Meta Analysis, Quantitative Study, Treatment Outcome, Twin Study; English; Human

MM “Cannabis” OR MM “Marijuana” OR MM “Marijuana Usage” OR MM “Cannabinoids” OR MM “Tetrahydrocannabinol”) OR TI (“bhang” OR “cannabid*” OR “cannabigerol” OR “cannabin*” OR “cannabis” OR “cannador” OR “delta 9 tetrahydrocannabinol” OR “delta tetrahydrocannabinol” OR “Dronabinol” OR “epidiolex” OR “epidyolex” OR “ganja” OR “ganjah*” OR “hashish” OR “hemp” OR “herba cannabis” OR “marihuana” OR “marijuana” OR “Marinol” OR “medical cannabis” OR “medical marihuana” OR “medical marijuana” OR “medicinal cannabis” OR “medicinal marijuana” OR “nabidiolex” OR “nabiximols” OR “Sativex” OR “sp 104” OR “syndros” OR “tetrahydrocannabinol” OR “tetrahydrocannabinols” OR “Tetrahydrocannabinol” OR “tetranabinex” OR “THC” OR “CBC” OR “CBD” OR “CBG”) OR AB (“bhang” OR “cannabid*” OR “cannabigerol” OR “cannabin*” OR “cannador” OR “delta 9 tetrahydrocannabinol” OR “delta tetrahydrocannabinol” OR “Dronabinol” OR “epidiolex” OR “epidyolex” OR “ganja” OR “ganjah*” OR “hashish” OR “hemp” OR “herba cannabis” OR “marihuana” OR “marijuana” OR “Marinol” OR “medical cannabis” OR “medical marihuana” OR “medical marijuana” OR “medicinal cannabis” OR “medicinal marijuana” OR “nabidiolex” OR “nabiximols” OR “Sativex” OR “sp 104” OR “syndros” OR “tetrahydrocannabinol” OR “tetrahydrocannabinols” OR “Tetrahydrocannabinol” OR “tetranabinex” OR “THC” OR “CBC” OR “CBD” OR “CBG” AND

(MM “Asthma”) OR TI (“asthma*” OR “bronchial asthma*” OR “bronchus asthma*” OR “childhood asthma*” OR “chronic asthma*” OR “lung allerg*”) OR AB (“asthma*” OR “bronchial asthma*” OR “bronchus asthma*” OR “childhood asthma*” OR “chronic asthma*” OR “lung allerg*”)

Results: 8

PubMed

Search Run: 27 May 2021
Coverage: 2016 - present
Limits: English language, Humans

AND


AND

“Arnold-Chiari Malformation”[Majr] OR “Chiari*”[tiab] OR “Chiari*”[ot]

Results: 26
Ataxia

Cochrane

**Search Run:** 10 April 2021  
**Coverage:** 2016-present  
**Limits:** Sources- CINAHL, Embase, and PubMed

[mh "Cannabis"] OR [mh "Cannabinol"] OR [mh "Cannabidiol"] OR [mh "Marijuana Smoking"] OR [mh "Marijuana Use"] OR [mh "Medical Marijuana"] OR [mh "Dronabinol"] OR (bhang OR cannabid* OR cannabigerol OR cannabin* OR cannabis* OR cannador OR cardiolrx OR charas OR delta 9 tetrahydrocannabinol OR delta 9 trans tetrahydrocannabinol OR Dronabinol OR epidiolex OR epidiol OR ganja* OR ganjah* OR hashish* OR hemp* OR herba cannabis OR marihuana* OR marijuana* OR Marinol OR medical cannabis OR medical marihuana OR medical marijuana OR medicinal cannabis OR medicinal marhua OR nabidiolex OR nabiximols OR sativex OR syndros OR tetrahydro cannabino* OR tetrahydrocannabino* OR Tetrahydrocannabinol* OR tetrahydrocannabiol*):ti,ab,kw

AND

[mh "Friedreich Ataxia"] OR [mh "Ataxins"] OR [mh "Spinocerebellar Degenerations"] OR [mh "Spinocerebellar Ataxias"] OR [mh "Infantile onset spinocerebellar ataxia"] OR [mh "Anemia, sideroblastic spinocerebellar ataxia"] OR [mh "Spinocerebellar Ataxia with Epilepsy"] OR (Ataxia* OR Friedreich Ataxia* OR friedreich disease OR friedreich marie disease OR friedreich syndrome* OR friedreics ataxia* OR hereditary spinal ataxia* OR spinal hereditary ataxia* OR spinal heredoataxia OR Ataxin* OR Autosomal Recessive Cerebellar Ataxia* OR Autosomal Recessive Spinocerebellar Ataxia* OR Friedreich Ataxia* OR Gemignani syndrome* OR Hypogonadotropic Hypogonadism OR Infantile onset spinocerebellar ataxia* OR Machado Joseph Disease OR sideroblastic spinocerebellar ataxia* OR Spinocerebellar Ataxia* OR Spinocerebellar Degeneration* OR X Linked Spinocerebellar Ataxia):ti,ab,kw

**Results:** 0 Reviews, 5 Trials

Embase

**Search Run:** 4 May 2021  
**Coverage:** 2016 – present  
**Limits:** Embase; English language; Humans; case control study, clinical article, clinical study, clinical trial, cohort analysis, comparative effectiveness, control group, controlled clinical trial, controlled study, correlational study, cross sectional study, crossover procedure, disease model, double blind procedure, evidence based medicine, human experiment, intention to treat analysis, longitudinal study, major clinical study, medical record review, meta analysis, model, multicenter study (topic), normal human, observational study, open study, phase 2 clinical trial (topic), phase 3 clinical trial (topic), pilot study, population based case control study, prospective study, randomized controlled trial (topic), retrospective study, secondary analysis, systematic review

‘cannabidiol’/exp/mj OR ‘cannabinoid’/exp/mj OR ‘cannabinol’/exp/mj OR ‘Cannabis sativa’/exp/mj OR ‘cannabis smoking’/exp OR ‘cannabis use’/exp/mj OR ‘cannabis’/exp/mj OR ‘dronabinol’/exp/mj OR ‘medical cannabis’/exp OR ‘nabiximols’/exp/mj OR ‘tetrahydrocannabinol’/exp/mj OR ‘tetrahydrocannabinol’:ti,ab,kw OR ‘bhang’:ti,ab,kw OR ‘cannabid*’:ti,ab,kw OR ‘cannabinoid’:ti,ab,kw OR ‘cannabin’:ti,ab,kw OR ‘cannabis*’:ti,ab,kw OR
Results: 25

PsycInfo

Search Run: 23 May 2021
Coverage: 2016-present

Limits: Phrase Searching (Boolean); Clinical Case Study, Clinical Trial, Empirical Study, Literature Review, Meta Analysis, Quantitative Study, Treatment Outcome, Twin Study; English; Human

MM “Cannabis” OR MM “Marijuana” OR MM “Marijuana Usage” OR MM “Cannabinoids” OR MM “Tetrahydrocannabinol”) OR TI (“bhang” OR “cannabid*” OR “cannabigerol” OR “cannabin*” OR “cannabis*” OR “cannador” OR “delta 9 tetrahydrocannabinol” OR “delta tetrahydrocannabinol” OR “Dronabinol” OR “epidiolex” OR “epidyolex” OR “ganja*” OR “ganjah*” OR “hashish*” OR “hemp*” OR “herba cannabis” OR “marihuana” OR “marijuana” OR “Marinol” OR “medical cannabis” OR “medical marijuana” OR “nabidiolex” OR “nabiximols” OR “Sativex” OR “sp 104” OR “syndros” OR “tetrahydrocannabinol” OR “tetrahydrocannabinal” OR “Tetrahydrocannabinol” OR “tetrahydrocannabiol” OR “tetrabaminex” OR “THC” OR “CBC” OR “CBD” OR “CBG”) OR AB (“bhang” OR “cannabid*” OR “cannabigerol” OR “cannabin*” OR “cannabis*” OR “cannador” OR “delta 9 tetrahydrocannabinol” OR “delta tetrahydrocannabinol” OR “Dronabinol” OR “epidiolex” OR “epidyolex” OR “ganja*” OR “ganjah*” OR “hashish*” OR “hemp*” OR “herba cannabis” OR “marihuana” OR “marijuana” OR “Marinol” OR “medical cannabis” OR “medical marijuana” OR “nabidiolex” OR “nabiximols” OR “Sativex” OR “sp 104” OR “syndros” OR “tetrahydrocannabinol” OR “tetrahydrocannabinal” OR “Tetrahydrocannabinol” OR “tetrahydrocannabiol” OR “tetrabaminex” OR “THC” OR “CBC” OR “CBD” OR “CBG”
(MM "Ataxia") OR TI ("Ataxi**" OR "friedreich Ataxia**" OR "friedreich disease" OR "friedreich marie disease**" OR "friedreich syndrome**" OR "friedrech's ataxia**" OR "hereditary spinal ataxia**" OR "spinal hereditary ataxia**" OR "spinal heredoataxia**") OR AB ("Ataxia**" OR "friedreich Ataxia**" OR "friedreich disease**" OR "friedreich marie disease**" OR "friedreich syndrome**" OR "friedrech's ataxia**" OR "hereditary spinal ataxia**" OR "spinal hereditary ataxia**" OR "spinal heredoataxia**")

**Results:** 4

PubMed

**Search Run:** 27 May 2021

**Coverage:** 2016 - present

**Limits:** English language, Humans


AND


AND

“Arnold-Chiari Malformation”[Majr] OR “Chiari*”[tiab] OR “Chiari*”[ot]

**Results:** 11
Atherosclerosis

Cochrane

Search Run: 10 April 2021
Coverage: 2016-present

Limits: Sources- CINAHL, Embase, and PubMed

[mh "Cannabis"] OR [mh "Cannabidiol"] OR [mh "Marijuana Smoking"] OR [mh "Marijuana Use"] OR [mh "Medical Marijuana"] OR [mh "Dronabinol"] OR (bhang OR cannabid* OR cannabigerol OR cannabin* OR cannabidiol* OR cannador OR cardiolrx OR charas OR delta 9 tetrahydrocannabinol OR delta 9 trans tetrahydrocannabinol OR Dronabinol OR epidiolex OR epidioley OR ganja* OR ganjah* OR hashish* OR hemp* OR herba cannabis OR marihuana* OR Mariol OR Marinol OR medical cannabis OR medical marihuana OR medical marijuana OR medicinal cannabis OR medicinal marihuana OR nabidiolex OR nabiximols OR sativex OR syndros OR tetrahydro cannabino* OR tetrahydrocannabinal* OR Tetrahydrocannabinol* OR tetrahydrocannabinol*):ti,ab,kw
AND
[mh "Atherosclerosis"] OR (atheromatous* OR athero-sclerosis OR atherosclero*):ti,ab,kw

Results: 1 Review, 3 Trials

Embase

Search Run: 4 May 2021
Coverage: 2016 – present

Limits: Embase; English language; Humans; case control study, clinical article, clinical study, clinical trial, cohort analysis, comparative effectiveness, control group, controlled clinical trial, controlled study, correlation, cross sectional study, crossover procedure, disease model, double blind procedure, evidence based medicine, human experiment, intention to treat analysis, longitudinal study, major clinical study, medical record review, meta analysis, model, multienrollment study, open study, phase 2 clinical trial (topic), phase 3 clinical trial (topic), pilot study, population based case control study, prospective study, randomized controlled trial (topic), retrospective study, secondary analysis, systematic review

‘cannabidiol’/exp/mj OR ‘cannabinoid’/exp/mj OR ‘cannabino’/exp/mj OR ‘Cannabis sativa’/exp/mj OR ‘cannabis smoking’/exp OR ‘cannabis use’/exp/mj OR ‘cannabis’/exp/mj OR ‘dronabinol’/exp/mj OR ‘medicinal cannabis’/exp OR ‘nabiximols’/exp/mj OR ‘tetrahydrocannabinol’/exp/mj OR ‘tetrahydrocannabinol’/exp OR ‘delta 9 tetrahydrocannabinol’:ti,ab,kw OR ‘dronabinol’:ti,ab,kw OR ‘epidiolex’:ti,ab,kw OR ‘epidioley’:ti,ab,kw OR ‘ganja’:ti,ab,kw OR ‘ganjah’:ti,ab,kw OR ‘hashish’/ti,ab,kw OR ‘hashish oil’:ti,ab,kw OR ‘hashish smoking’:ti,ab,kw OR ‘herba cannabis’:ti,ab,kw OR ‘marihuana’/:ti,ab,kw OR ‘marijuana’/:ti,ab,kw OR ‘Mariol’:ti,ab,kw OR ‘Marinol’:ti,ab,kw OR ‘medical cannabis’:ti,ab,kw OR ‘medical marihuana’:ti,ab,kw OR ‘medical marijuana’:ti,ab,kw OR ‘medicinal cannabis’:ti,ab,kw OR ‘mexican marihuana’:ti,ab,kw OR ‘nabidiolex’:ti,ab,kw OR ‘nabiximols’:ti,ab,kw OR ‘sativex’:ti,ab,kw OR ‘syndros’:ti,ab,kw OR ‘tetrahydro cannabino*’:ti,ab,kw OR ‘tetrahydrocannabinal*’:ti,ab,kw OR
‘tetrahydrocannabinol*’:ti,ab,kw OR ‘tetrahydrocannabiol*’:ti,ab,kw OR ‘THC’:ti,ab,kw OR ‘CBC’:ti,ab,kw OR ‘CBD’:ti,ab,kw OR ‘CBG’:ti,ab,kw

AND

‘atherosclerosis’/exp/mj OR ‘atherosclero*’:ti,ab,kw OR ‘atheromatous*’:ti,ab,kw OR ‘atherosclerosis’:ti,ab,kw

AND

‘randomized controlled trial’/exp OR ‘controlled clinical trial’/exp OR randomized:ti,ab OR placebo:ti,ab OR ‘drug therapy’:lnk OR randomly:ti,ab OR trial:ti,ab OR groups:ti,ab OR review/it OR meta-analysis/de OR “systematic review”:ti OR “literature review”:ti OR “meta analysis”:ti OR metaanalysis:ti OR metasythesis:ti

Results: 37

PsycInfo

Search Run: 23 May 2021
Coverage: 2016-present

Limits: Phrase Searching (Boolean); Clinical Case Study, Clinical Trial, Empirical Study, Literature Review, Meta Analysis, Quantitative Study, Treatment Outcome, Twin Study; English; Human

MM “Cannabis” OR MM “Marijuana” OR MM “Marijuana Usage” OR MM “Cannabinoids” OR MM “Tetrahydrocannabinol”) OR TI (“bhang” OR “cannabid*” OR “cannabigerol” OR “cannabin*” OR “cannabis” OR “cannador” OR “delta 9 tetrahydrocannabinol” OR “delta tetrahydrocannabinol” OR “Dronabinol” OR “epidiolex” OR “epidyolex” OR “ganja*” OR “ganjah*” OR “hashish*” OR “hemp*” OR “herba cannabis” OR “marihuana*” OR “marijuana*” OR “Marinol” OR “medical cannabis” OR “medical marihuana” OR “medical marijuana” OR “medicinal cannabis” OR “medicinal marijuana” OR “nabidiolex” OR “nabiximols” OR “Sativex” OR “sp 104” OR “syndros” OR “tetrahydrocannabinol*” OR “tetrahydrocannabinol**” OR “Tetrahydrocannabinol*” OR “tetrahydrocannabinol**” OR “tetranabinex” OR “THC” OR “CBC” OR “CBD” OR “CBG”) OR AB (“bhang” OR “cannabid*” OR “cannabigerol” OR “cannabin*” OR “cannador” OR “delta 9 tetrahydrocannabinol” OR “delta tetrahydrocannabinol” OR “Dronabinol” OR “epidiolex” OR “epidyolex” OR “ganja*” OR “ganjah*” OR “hashish*” OR “hemp*” OR “herba cannabis” OR “marihuana*” OR “marijuana*” OR “Marinol” OR “medical cannabis” OR “medical marihuana” OR “medical marijuana” OR “medicinal cannabis” OR “medicinal marijuana” OR “nabidiolex” OR “nabiximols” OR “Sativex” OR “sp 104” OR “syndros” OR “tetrahydrocannabinol*” OR “tetrahydrocannabinol**” OR “Tetrahydrocannabinol*” OR “tetrahydrocannabinol**” OR “tetranabinex” OR “THC” OR “CBC” OR “CBD” OR “CBG”

AND

(MM “Atherosclerosis”) OR TI (“atheromatous*” OR “atherosclerosis” OR “atherosclero*”) OR AB (“atheromatous*” OR “atherosclerosis” OR “atherosclero*”)

Results: 2

PubMed

Search Run: 27 May 2021
Coverage: 2016 - present

Limits: English language, Humans

AND


AND

“Arnold-Chiari Malformation”[Majr] OR “Chiari*”[tiab] OR “Chiari*”[ot]

Results: 27
Attention Deficit Disorder (ADD), Attention Deficit Hyperactivity Disorder (ADHD)

Cochrane

**Search Run:** 8 April 2021

**Coverage:** 2016-present [March 2021]

**Limits:** Sources- CINAHL, Embase, and PubMed

[mh "Cannabis"] OR [mh "Cannabinol"] OR [mh "Cannabinol"] OR [mh "Marijuana Smoking"] OR [mh "Marijuana Use"] OR [mh "Medical Marijuana"] OR [mh "Dronabinol"] OR (bhang OR cannabid* OR cannabigerol OR cannabin* OR cannabis* OR cannador OR cardiolrx OR charas OR delta 9 tetrahydrocannabinol OR delta 9 trans tetrahydrocannabinol OR Dronabinol OR epidiolex OR epidiolex OR ganja* OR ganjah* OR hashish* OR hemp* OR herba cannabis OR marihuana* OR marijuana* OR Marinol OR medical cannabis OR medical marihuana OR medical marijuana OR medicinal cannabis OR medicinal marihuana OR medical marijuana OR nabiximols OR sativex OR syndros OR tetrahydro cannabino* OR tetrahydrocannabinol* OR Tetrahydrocannabinol* OR 'cannabidiol'/exp/mj OR 'cannabinoid'/exp/mj OR 'cannabinol'/exp/mj OR 'Cannabis sativa'/exp/mj OR 'cannabis smoking'/exp OR 'cannabis use'/exp OR 'cannabis'/exp/mj OR 'dronabinol'/exp/mj OR 'medical cannabis'/exp OR 'nabiximols'/exp/mj OR 'tetrahydrocannabinol'/exp OR 'tetrahydrocannabinol':ti,ab,kw OR 'dronabinol':ti,ab,kw OR 'bhang':ti,ab,kw OR 'cannabin*':ti,ab,kw OR 'cannabigerol':ti,ab,kw OR 'cannabin*':ti,ab,kw OR 'cannabis*':ti,ab,kw OR 'cannador':ti,ab,kw OR 'delta 9 tetrahydrocannabinol':ti,ab,kw OR 'dronabinol':ti,ab,kw OR 'epidiolex':ti,ab,kw OR 'epidyolex':ti,ab,kw OR 'ganja':ti,ab,kw OR 'ganjah':ti,ab,kw OR 'hashish':ti,ab,kw OR 'hashish oil':ti,ab,kw OR 'hashish smoking':ti,ab,kw OR 'hemp*':ti,ab,kw OR 'herba cannabis':ti,ab,kw OR 'marihuana*':ti,ab,kw OR 'marijuana*':ti,ab,kw OR 'Marinol':ti,ab,kw OR 'medical cannabis':ti,ab,kw OR 'medical marihuana':ti,ab,kw OR 'medical marijuana':ti,ab,kw OR 'medicinal cannabis':ti,ab,kw OR 'medicinal marihuana':ti,ab,kw OR 'mexican marihuana':ti,ab,kw OR 'nabiximols':ti,ab,kw OR 'sativex':ti,ab,kw OR 'syndros':ti,ab,kw OR

AND

[mh “Attention Deficit Disorder with Hyperactivity”] OR (Attention Deficit and Disruptive Behavior Disorders OR attention deficit* OR ADHD):ti,ab,kw

**Results:** 0 Reviews, 48 Trials

Embase

**Search Run:** 3 May 2021

**Coverage:** 2016 – present [March 2021]

**Limits:** Embase; English language; Humans; case control study, clinical article, clinical study, clinical trial, cohort analysis, comparative effectiveness, control group, controlled clinical trial, controlled study, correlative study, cross sectional study, crossover procedure, disease model, double blind procedure, evidence based medicine, human experiment, intention to treat analysis, longitudinal study, major clinical study, medical record review, meta analysis, model, multicenter study (topic), normal human, observational study, open study, phase 2 clinical trial (topic), phase 3 clinical trial (topic), pilot study, population based case control study, prospective study, randomized controlled trial (topic), retrospective study, secondary analysis, systematic review

‘cannabidiol'/exp/mj OR ‘cannabinoid'/exp/mj OR ‘cannabinol'/exp/mj OR ‘Cannabis sativa'/exp/mj OR ‘cannabis smoking'/exp OR ‘cannabis use'/exp OR ‘cannabis'/exp/mj OR ‘dronabinol'/exp/mj OR ‘medical cannabis'/exp OR ‘nabiximols'/exp/mj OR ‘tetrahydrocannabinol'/exp OR ‘tetrahydrocannabinol':ti,ab,kw OR ‘bhang':ti,ab,kw OR ‘cannabin*':ti,ab,kw OR ‘cannabigerol':ti,ab,kw OR ‘cannabin*':ti,ab,kw OR ‘cannabis*':ti,ab,kw OR ‘cannador':ti,ab,kw OR ‘delta 9 tetrahydrocannabinol':ti,ab,kw OR ‘dronabinol':ti,ab,kw OR ‘epidiolex':ti,ab,kw OR ‘epidyolex':ti,ab,kw OR ‘ganja':ti,ab,kw OR ‘ganjah':ti,ab,kw OR ‘hashish':ti,ab,kw OR ‘hashish oil':ti,ab,kw OR ‘hashish smoking':ti,ab,kw OR ‘hemp*':ti,ab,kw OR ‘herba cannabis':ti,ab,kw OR ‘marihuana*':ti,ab,kw OR ‘marijuana*':ti,ab,kw OR ‘Marinol':ti,ab,kw OR ‘medical cannabis':ti,ab,kw OR ‘medical marihuana':ti,ab,kw OR ‘medical marijuana':ti,ab,kw OR ‘medicinal cannabis':ti,ab,kw OR ‘medicinal marihuana':ti,ab,kw OR ‘mexican marihuana':ti,ab,kw OR ‘nabiximols':ti,ab,kw OR ‘sativex':ti,ab,kw OR ‘syndros':ti,ab,kw OR
Results: 122

PsycInfo

Search Run: 23 May 2021
Coverage: 2016 – present

Limits: Phrase Searching (Boolean); Clinical Case Study, Clinical Trial, Empirical Study, Literature Review, Meta Analysis, Quantitative Study, Treatment Outcome, Twin Study; English; Human

Results: 95

PubMed

Search Run: 26 May 2021
Coverage: 2016 - present

Limits: English language, Humans

AND


AND


Results: 47
Autism, Autism Spectrum Disorder (ASD)

Cochrane

Search Run: 10 April 2021
Coverage: 2016–present

Limits: Sources- CINAHL, Embase, and PubMed

[mh "Cannabis"] OR [mh "Cannabinol"] OR [mh "Cannabidiol"] OR [mh "Marijuana Smoking"] OR [mh "Marijuana Use"] OR [mh "Medical Marijuana"] OR [mh "Dronabinol"] OR (bhang OR cannabid* OR cannabigerol OR cannabin* OR cannabis* OR cannador OR cardiolrx OR charas OR delta 9 tetrahydrocannabinol OR delta 9 trans tetrahydrocannabinol OR Dronabinol OR epidiolox OR epidyleox OR ganja* OR ganjah* OR hashish* OR hemp* OR herba cannabis OR marihuana* OR marijuana* OR Marinol OR medical cannabis OR medical marihuana OR medical marijuana OR medicinal cannabis OR medicinal marjuana OR nabidiolex OR nabiximols OR satiavax OR syndros OR tetrahydro cannabino* OR tetrahydrocannabinol* OR Tetrahydrocannabinol*:ti,ab,kw

AND

[mh "Autistic Disorder"] OR [mh "Autism Spectrum Disorder"] OR [mh "Rett Syndrome"] OR [mh "Akinetic Mutism"] OR (Akinetic Mutism OR autism* OR autistic* OR childhood autism* OR classical autism* OR early infantile autism* OR Echolalia OR infantile autism* OR Kanner syndrome OR Macrocephaly Autism* OR pervasive child development disorder* OR pervasive developmental disorder* OR Rett Syndrome OR typical autism*):ti,ab,kw

Results: 0 Reviews, 8 Trials

Embase

Search Run: 4 May 2021
Coverage: 2016 – present

Limits: Embase; English language; Humans; case control study, clinical article, clinical study, clinical trial, cohort analysis, comparative effectiveness, control group, controlled clinical trial, controlled study, correlative study, cross sectional study, crossover procedure, disease model, double blind procedure, evidence based medicine, human experiment, intention to treat analysis, longitudinal study, major clinical study, medical record review, meta analysis, model, multicenter study (topic), normal human, observational study, open study, phase 2 clinical trial (topic), phase 3 clinical trial (topic), pilot study, population based case control study, prospective study, randomized controlled trial (topic), retrospective study, secondary analysis, systematic review

‘cannabidiol’/exp/mj OR ‘cannabinoid’/exp/mj OR ‘cannabinol’/exp/mj OR ‘Cannabinis sativa’/exp/mj OR ‘cannabis smoking’/exp OR ‘cannabis use’/exp/mj OR ‘cannabis’/exp/mj OR ‘dronabinol’/exp/mj OR ‘medical cannabis’/exp OR ‘nabiximols’/exp/mj OR ‘tetrahydrocannabinol’/exp/mj OR ‘tetroxytocannabinol’:ti,ab,kw OR ‘bhang’.ti,ab,kw OR ‘cannabidiol*:ti,ab,kw OR ‘cannabigerol*:ti,ab,kw OR ‘cannabin*:ti,ab,kw OR ‘cannabin*:ti,ab,kw OR ‘cannador*:ti,ab,kw OR ‘delta 9 tetrahydrocannabinol’:ti,ab,kw OR ‘dronabinol*:ti,ab,kw OR ‘epidyolex*:ti,ab,kw OR ‘epidyleox*:ti,ab,kw OR ‘ganja*:ti,ab,kw OR ‘ganjah*:ti,ab,kw OR ‘hashish*:ti,ab,kw OR ‘hashish oil*:ti,ab,kw OR ‘hashish smoking*:ti,ab,kw OR ‘hemp*:ti,ab,kw OR ‘herba cannabis*:ti,ab,kw OR ‘marihuana*:ti,ab,kw OR ‘marijuana*:ti,ab,kw OR ‘Mariol*:ti,ab,kw OR ‘medical cannabis*:ti,ab,kw OR ‘medical marihuana*:ti,ab,kw OR ‘medical marijuana*:ti,ab,kw OR
'medicinal cannabis':ti,ab,kw OR 'medicinal marijuana':ti,ab,kw OR 'mexican marihuana':ti,ab,kw OR 'nabidiolex':ti,ab,kw OR 'nabiximols':ti,ab,kw OR 'sativex':ti,ab,kw OR 'syndros':ti,ab,kw OR 'tetrahydro cannabino':ti,ab,kw OR 'tetrahydrocannabinal':ti,ab,kw OR 'tetrahydrocannabinol':ti,ab,kw OR 'tetrahydrocannabinol*':ti,ab,kw OR 'tetrahydrocannabinol':ti,ab,kw OR 'THC':ti,ab,kw OR 'CBC':ti,ab,kw OR 'CBD':ti,ab,kw OR 'CBG':ti,ab,kw
AND
'autism'/exp/mj OR 'Akinetic Mutism':ti,ab,kw OR 'autism*':ti,ab,kw OR 'autistic*':ti,ab,kw OR 'childhood autism*':ti,ab,kw OR 'classical autism*':ti,ab,kw OR 'early infantile autism*':ti,ab,kw OR 'Echolalia':ti,ab,kw OR 'infantile autism*':ti,ab,kw OR 'Kanner syndrome':ti,ab,kw OR 'Macrocephaly Autism*':ti,ab,kw OR 'pervasive child development disorder*':ti,ab,kw OR 'pervasive developmental disorder*':ti,ab,kw OR 'Rett Syndrome':ti,ab,kw OR 'typical autism*':ti,ab,kw
AND
'randomized controlled trial'/exp OR 'controlled clinical trial'/exp OR randomized:ti,ab OR placebo:ti,ab OR 'drug therapy':lnk OR randomly:ti,ab OR trial:ti,ab OR groups:ti,ab OR review/it OR meta-analysis/de OR "systematic review":ti OR "literature review":ti OR "meta analysis":ti OR metaanalysis:ti OR metasynthesis:ti
Results: 65
autism*”) OR AB (“autistic*” OR “autism*” OR “Rett Syndrome*” OR “Akinetic Mutism” OR “Macrocephaly Autism Syndrome” OR “childhood autism*” OR “classical autism*” OR “early infantile autism*” OR “Echolalia” OR “infantile autism*” OR “Kanner syndrome” OR “pervasive child development disorder*” OR “pervasive developmental disorder*” OR “Rett Syndrome” OR “typical autism*”)

Results: 19

PubMed

Search Run: 27 May 2021

Coverage: 2016 - present

Limits: English language, Humans


“Arnold-Chiari Malformation”[Majr] OR “Chiari*”[tiab] OR “Chiari*”[ot]

Results: 38
Autoimmune Disorders (Lupus, Neuro-Behcet's, HIV/AIDS)

Cochrane

Search Run: 10 April 2021
Coverage: 2016–present

Limits: Sources- CINAHL, Embase, and PubMed

[mh "Cannabis"] OR [mh "Cannabinol"] OR [mh "Cannabidiol"] OR [mh "Marijuana Smoking"] OR [mh "Marijuana Use"] OR [mh "Medical Marijuana"] OR [mh "Dronabinol"] OR [bhang OR cannabid* OR cannabigerol OR cannabin* OR cannab* OR cannador OR cardiolrx OR charas OR delta 9 tetrahydrocannabino1 OR delta 9 trans tetrahydrocannabino1 OR Dronabinol OR epidiolex OR epidiolox OR ganja* OR ganjah* OR hashish* OR hemp* OR herba cannabis OR marihuana* OR marjuna* OR Marinol OR medical cannabis OR medical marihuana OR medical marijuana OR medicinal cannabis OR medicinal marijuana OR nabidolex OR nabiximols OR sativex OR syndros OR tetrahydro cannabinol* OR tetrahydrocannabinol* OR Tetrahydrocannabinol*:ti,ab,kw

AND


Results: 38 Reviews, 1,479 Trials

Embase

Search Run: 4 May 2021
Coverage: 2016 – present

Limits: Embase; English language; Humans; case control study, clinical article, clinical study, clinical trial, cohort analysis, comparative effectiveness, control group, controlled clinical trial, controlled study, cor relational study, cross sectional study, crossover procedure, disease model, double blind procedure, evidence based medicine, human experiment, intention to treat analysis,
longitudinal study, major clinical study, medical record review, meta analysis, model, multicenter study (topic), normal human, observational study, open study, phase 2 clinical trial (topic), phase 3 clinical trial (topic), pilot study, population based case control study, prospective study, randomized controlled trial (topic), retrospective study, secondary analysis, systematic review

'cannabidiol'/exp/mj OR 'cannabinoid'/exp/mj OR 'cannabinol'/exp/mj OR 'Cannabis sativa'/exp/mj OR 'cannabis smoking'/exp OR 'cannabis use'/exp/mj OR 'cannabis'/exp/mj OR 'dronabinol'/exp/mj OR 'medical cannabis'/exp OR 'nabiximols'/exp/mj OR 'tetrahydrocannabinol'/exp/mj OR 'tetrahydrocannabinol':ti,ab,kw OR 'bhang':ti,ab,kw OR 'cannabidiol*:ti,ab,kw OR 'cannabigerol':ti,ab,kw OR 'cannabin*:ti,ab,kw OR 'cannabis*:ti,ab,kw OR 'cannador':ti,ab,kw OR 'delta 9 tetrahydrocannabinol':ti,ab,kw OR 'dronabinol':ti,ab,kw OR 'epidiolex':ti,ab,kw OR 'epidyolex':ti,ab,kw OR 'ganja':ti,ab,kw OR 'ganjah':ti,ab,kw OR 'hashish':ti,ab,kw OR 'hashish oil':ti,ab,kw OR 'hashish smoking':ti,ab,kw OR 'hemp':ti,ab,kw OR 'herba cannabis':ti,ab,kw OR 'marihuana*':ti,ab,kw OR 'marijuana*':ti,ab,kw OR 'Marinol':ti,ab,kw OR 'medical cannabis':ti,ab,kw OR 'medical marihuana':ti,ab,kw OR 'medical marijuana':ti,ab,kw OR 'medicinal cannabis':ti,ab,kw OR 'medicinal marihuana':ti,ab,kw OR 'mexican marihuana':ti,ab,kw OR 'nabidiolex':ti,ab,kw OR 'nabiximols':ti,ab,kw OR 'sativex':ti,ab,kw OR 'syndros':ti,ab,kw OR 'tetrahydrocannabinol*':ti,ab,kw OR 'tetrahydrocannabinol':ti,ab,kw OR 'tetrahydrocannabinol*':ti,ab,kw OR 'tetrahydrocannabinol*':ti,ab,kw OR 'tetrahydrocannabinol*':ti,ab,kw OR 'tetrahydrocannabinol*':ti,ab,kw OR 'tetrahydrocannabinol*':ti,ab,kw OR 'CBD':ti,ab,kw OR 'CBG':ti,ab,kw AND

'autoimmune disease'/exp/mj OR 'Human immunodeficiency virus'/exp/mj OR 'Human immunodeficiency virus infection'/exp/mj OR 'acquired immune deficiency syndrome'/exp/mj OR 'acquired immune deficiency syndrome':ti,ab,kw OR 'AIDS*':ti,ab,kw OR 'auto immu*':ti,ab,kw OR 'autoimmune disease*':ti,ab,kw OR 'autoimmun*':ti,ab,kw OR 'autoimmune disease':ti,ab,kw OR 'autoimmun*':ti,ab,kw OR 'auto-inflammatory disease':ti,ab,kw OR 'Central Nervous System AIDS*':ti,ab,kw OR 'Central Nervous System Lupus*':ti,ab,kw OR 'chronic lupus*':ti,ab,kw OR 'Cutaneous Lupus*':ti,ab,kw OR 'Discoid Lupus*':ti,ab,kw OR 'disseminated lupus*':ti,ab,kw OR 'Familial antiphospholipid*':ti,ab,kw OR 'HIV*':ti,ab,kw OR 'Human immunodeficien*:ti,ab,kw OR 'Human immunodeficiency':ti,ab,kw OR 'immune autoaggression':ti,ab,kw OR 'acquired immunodeficien*':ti,ab,kw OR 'immunodeficien*':ti,ab,kw OR 'LAV (AIDS)':ti,ab,kw OR 'Lupus*':ti,ab,kw OR 'lymphadenopathy associated*':ti,ab,kw OR 'Murine Acquired Immunodeficien*':ti,ab,kw OR 'murine AIDS*':ti,ab,kw OR 'Neonatal Systemic lupus*':ti,ab,kw OR 'neuro behcet*':ti,ab,kw OR 'SS-B antigen*':ti,ab,kw OR 'Systemic Lupus*':ti,ab,kw AND

'randomized controlled trial'/exp OR 'controlled clinical trial'/exp OR randomized:ti,ab OR placebo:ti,ab OR 'drug therapy'\lnk OR randomly:ti,ab OR trial:ti,ab OR groups:ti,ab OR review/it OR meta-analysis/de OR 'systematic review':ti OR "literature review":ti OR "meta analysis":ti OR metaanalysis:ti OR metasynthesis:ti

Results: 400

PsycInfo

Search Run: 23 May 2021
Coverage: 2016-present

Limits: Phrase Searching (Boolean); Clinical Case Study, Clinical Trial, Empirical Study, Literature Review, Meta Analysis, Quantitative Study, Treatment Outcome, Twin Study; English; Human
Results: 218

PubMed

Search Run: 27 May 2021

Coverage: 2016 - present

Limits: English language, Humans


Results: 218

AND


AND

“Arnold-Chiari Malformation”[Majr] OR “Chiari*”[tiab] OR “Chiari*”[ot]

Results: 205
Bipolar Disease

Cochrane

Search Run: 11 April 2021
Coverage: 2016–present

Limits: Sources- CINAHL, Embase, and PubMed

[mh "Cannabis"] OR [mh "Cannabinol"] OR [mh "Cannabinol"] OR [mh "Marjuana Smoking"] OR [mh "Marijuana Use"] OR [mh "Medical Marijuana"] OR [mh "Dronabinol"] OR (bhang OR cannabid* OR cannabigerol OR cannabin* OR cannabis* OR cannador OR cardiolrx OR charas OR delta 9 tetrahydrocannabinol OR delta 9 trans tetrahydrocannabinol OR Dronabinol OR epidiolex OR epidyolex OR ganja* OR ganjah* OR hashish* OR hemp* OR herba cannabis OR marihuana* OR mariguana* OR Marinol OR medical cannabis OR medical marihuana OR medical marijuana OR medicinal cannabis OR medicinal marijuana OR nabilox OR nabilox OR nabiximols OR sativex OR syndros OR tetrahydrocannabinol* OR tetrahydrocannabinol* OR Tetrahydrocannabinol*:ti,ab,kw

AND

[mh "Bipolar Disorder"] OR [mh "Bipolar and Related Disorders"] OR (bipolar affective disorder OR Bipolar and Related Disorders OR Bipolar Disorder OR Bipolar I Disorder OR Bipolar II Disorder OR bipolar illness OR bipolar psychosis OR Cyclothymic Disorder OR Euthymia OR Mania OR manic depress* OR maniodepressive psychosis OR mano depressive syndrome):ti,ab,kw

Results: 2 Reviews, 11 Trials

Embase

Search Run: 4 May 2021
Coverage: 2016–present

Limits: Embase; English language; Humans; case control study, clinical article, clinical study, clinical trial, cohort analysis, comparative effectiveness, control group, controlled clinical trial, controlled study, correlative study, cross sectional study, crossover procedure, disease model, double blind procedure, evidence based medicine, human experiment, intention to treat analysis, longitudinal study, major clinical study, medical record review, meta analysis, model, multicenter study (topic), normal human, observational study, open study, phase 2 clinical trial (topic), phase 3 clinical trial (topic), pilot study, population based case control study, prospective study, randomized controlled trial (topic), retrospective study, secondary analysis, systematic review

‘cannabidiol’/exp/mj OR ‘cannabinoid’/exp/mj OR ‘cannabinol’/exp/mj OR ‘Cannabis sativa’/exp/mj OR ‘cannabis smoking’/exp OR ‘cannabis use’/exp/mj OR ‘cannabis’/exp/mj OR ‘dronabinol’/exp/mj OR ‘medical cannabis’/exp OR ‘nabiximols’/exp/mj OR ‘tetrahydrocannabinol’/exp/mj OR ‘tetrahydrocannabinol’:ti,ab,kw OR ‘bhang’:ti,ab,kw OR ‘cannabidiol*:ti,ab,kw OR ‘cannabigerol’:ti,ab,kw OR ‘cannabin*:ti,ab,kw OR ‘cannador’:ti,ab,kw OR ‘delta 9 tetrahydrocannabinol’:ti,ab,kw OR ‘dronabinol’:ti,ab,kw OR ‘epidiolex’:ti,ab,kw OR ‘epidyolex’:ti,ab,kw OR ‘ganja’:ti,ab,kw OR ‘ganjah’:ti,ab,kw OR ‘hashish’:ti,ab,kw OR ‘hashish oil’:ti,ab,kw OR ‘hashish smoking’:ti,ab,kw OR ‘hemp*:ti,ab,kw OR ‘herba cannabis’:ti,ab,kw OR ‘marihuana*:ti,ab,kw OR ‘marijuana*:ti,ab,kw OR ‘Marinol’:ti,ab,kw OR ‘medical cannabis’:ti,ab,kw OR ‘medical marihuana’:ti,ab,kw OR ‘medical marijuana’:ti,ab,kw OR ‘medicinal cannabis’:ti,ab,kw OR ‘medicinal marihuana’:ti,ab,kw OR ‘mexican marihuana’:ti,ab,kw OR
Results: 139

PsycInfo

Search Run: 23 May 2021
Coverage: 2016-present

Limits: Phrase Searching (Boolean); Clinical Case Study, Clinical Trial, Empirical Study, Literature Review, Meta Analysis, Quantitative Study, Treatment Outcome, Twin Study; English; Human

MM “Cannabis” OR MM “Marijuana” OR MM “Marijuana Usage” OR MM “Cannabinoids” OR MM “Tetrahydrocannabinol”) OR TI (“bhang” OR “cannabid*” OR “cannabigerol” OR “cannabin*” OR “cannabis*” OR “cannador” OR “delta 9 tetrahydrocannabinol” OR “delta tetrahydrocannabinol” OR “Dronabinol” OR “epidiolex” OR “epidyolex” OR “ganja*” OR “ganjah*” OR “hashish*” OR “hemp*” OR “herba cannabis” OR “marihuana*” OR “marijuana*” OR “Marinol” OR “medical cannabis” OR “medical marihuana” OR “medical marijuana” OR “medicinal cannabis” OR “medicinal marijuana” OR “nabidiolex” OR “nabiximols” OR “Sativex” OR “sp 104” OR “syndros” OR “tetrahydrocannabinol*” OR “tetrahydrocannabina*” OR “Tetrahydrocannabinol*” OR “tetrahydrocannabinol**” OR “tetranabinex” OR “THC” OR “CBC” OR “CBD” OR “CBG”) OR AB (“bhang” OR “cannabid*” OR “cannabigerol” OR “cannabin*” OR “cannabis*” OR “cannador” OR “delta 9 tetrahydrocannabinol” OR “delta tetrahydrocannabinol” OR “Dronabinol” OR “epidiolex” OR “epidyolex” OR “ganja*” OR “ganjah*” OR “hashish*” OR “hemp*” OR “herba cannabis” OR “marihuana*” OR “marijuana*” OR “Marinol” OR “medical cannabis” OR “medical marihuana” OR “medical marijuana” OR “medicinal cannabis” OR “medicinal marijuana” OR “nabidiolex” OR “nabiximols” OR “Sativex” OR “sp 104” OR “syndros” OR “tetrahydrocannabinol*” OR “tetrahydrocannabina*” OR “Tetrahydrocannabinol*” OR “tetrahydrocannabinol**” OR “tetranabinex” OR “THC” OR “CBC” OR “CBD” OR “CBG”) AND

(MM “Bipolar Disorder” OR MM “Bipolar I Disorder” OR MM “Bipolar II Disorder” OR MM “Cyclothymic Disorder” OR MM “Mania” OR MM “Bipolar I Disorder” OR MM “Bipolar II Disorder” OR MM “Euthymia”) OR TI (“bipolar affective disorder” OR “Bipolar and Related Disorders” OR “Bipolar Disorder” OR “Bipolar I Disorder” OR “Bipolar II Disorder” OR “bipolar illness” OR “bipolar psychosis” OR “Cyclothymic Disorder” OR “Euthymia” OR “Mania” OR “manic depress*” OR “maniodepressive psychosis” OR “mano depressive syndrome”) OR AB (“bipolar affective disorder”
OR “Bipolar and Related Disorders” OR “Bipolar Disorder” OR “Bipolar I Disorder” OR “Bipolar II Disorder” OR “bipolar illness” OR “bipolar psychosis” OR “Cyclothymic Disorder” OR “Euthymia” OR “Mania” OR “manic depress*” OR “maniodepressive psychosis” OR “mano depressive syndrome”

Results: 73

PubMed

Search Run: 27 May 2021

Coverage: 2016 - present

Limits: English language, Humans


AND


AND

“Arnold-Chiari Malformation”[Majr] OR “Chiari*”[tiab] OR “Chiari*”[ot]

Results: 50
Cachexia, Anorexia, or Eating Disorders

Cochrane

**Search Run:** 11 April 2021  
**Coverage:** 2016-present  
**Limits:** Sources- CINAHL, Embase, and PubMed

[mh "Cannabis"] OR [mh "Cannabinol"] OR [mh "Cannabidiol"] OR [mh "Marijuana Smoking"] OR [mh "Marijuana Use"] OR [mh "Medical Marijuana"] OR [mh "Dronabinol"] OR (bhang OR cannabid* OR cannabigerol OR cannabin* OR cannabis* OR cannador OR cardiolrx OR charas OR delta 9 tetrahydrocannabinol OR delta 9 trans tetrahydrocannabinol OR Dronabinol OR epidiolex OR epidiyolex OR ganja* OR ganjah* OR hashish* OR hemp* OR herba cannabis OR marihuana* OR marijuana* OR Marinol OR medical cannabis OR medical marihuana OR medical marijuana OR medicinal cannabis OR medicinal marijuana OR nabidiolex OR nabiximols OR sativex OR syndros OR tetrahydro cannabinol* OR tetrahydrocannabinol* OR Tetrahydrocannabinol* OR tetrahydrocannabinol*:ti,ab,kw

AND


**Results:** 4 Reviews, 106 Trials

Embase

**Search Run:** 6 May 2021  
**Coverage:** 2016 – present  
**Limits:** Embase; English language; Humans; case control study, clinical article, clinical study, clinical trial, cohort analysis, comparative effectiveness, control group, controlled clinical trial, controlled study, correllational study, cross sectional study, crossover procedure, disease model, double blind procedure, evidence based medicine, human experiment, intention to treat analysis, longitudinal study, major clinical study, medical record review, meta analysis, model, multicenter study (topic), normal human, observational study, open study, phase 2 clinical trial (topic), phase 3 clinical trial (topic), pilot study, population based case control study, prospective study, randomized controlled trial (topic), retrospective study, secondary analysis, systematic review

‘cannabidiol'/exp/mj OR 'cannabinoid'/exp/mj OR 'cannabinol'/exp/mj OR 'Cannabis sativa'/exp/mj OR 'cannabis smoking'/exp OR 'cannabis use'/exp/mj OR 'cannabis'/exp/mj OR 'dronabinol'/exp/mj OR 'medical cannabis'/exp OR 'nabiximols'/exp/mj OR ‘tetrahydrocannabinol'/exp/mj OR 'tetrahydrocannabinol':ti,ab,kw OR 'bhang':ti,ab,kw OR 'cannabid*':ti,ab,kw OR 'cannabigerol':ti,ab,kw OR 'cannabin*':ti,ab,kw OR 'cannador':ti,ab,kw OR 'delta 9 tetrahydrocannabinol':ti,ab,kw OR 'dronabinol':ti,ab,kw OR 'epidiolex':ti,ab,kw OR 'epidiyolex':ti,ab,kw OR 'ganja':ti,ab,kw OR 'ganjah':ti,ab,kw OR
'hashish':ti,ab,kw OR 'hashish oil':ti,ab,kw OR 'hashish smoking':ti,ab,kw OR 'hemp*':ti,ab,kw OR 'herba cannabis':ti,ab,kw OR 'marihuana*':ti,ab,kw OR 'marijuana*':ti,ab,kw OR 'Marinol':ti,ab,kw OR 'medical cannabis':ti,ab,kw OR 'medical marihuana':ti,ab,kw OR 'medical marijuana':ti,ab,kw OR 'medicinal cannabis':ti,ab,kw OR 'medicinal marihuana':ti,ab,kw OR 'medicinal marijuana':ti,ab,kw OR 'mexican marihuana':ti,ab,kw OR 'nabidiolex':ti,ab,kw OR 'nabiximols':ti,ab,kw OR 'sativex':ti,ab,kw OR 'syndros':ti,ab,kw OR 'tetrahydro cannabionol*':ti,ab,kw OR 'tetrahydrocannabinal*':ti,ab,kw OR 'tetrahydrocannabinol*':ti,ab,kw OR 'THC':ti,ab,kw OR 'CBC':ti,ab,kw OR 'CBD':ti,ab,kw OR 'CBG':ti,ab,kw

AND

'wasting syndrome'/exp/mj OR 'anorexia'/exp/mj OR 'cachexia'/exp/mj OR 'Kwashiorkor':ti,ab,kw OR 'Fatigue':ti,ab,kw OR 'HIV Wasting Syndrome':ti,ab,kw OR 'immunodeficiency associated weight loss':ti,ab,kw OR 'infantile atrophy':ti,ab,kw OR 'infantile cachexia':ti,ab,kw OR 'marasmic kwashiorkor':ti,ab,kw OR 'marasmus':ti,ab,kw OR 'Nutritional Deficiencies':ti,ab,kw OR 'nutritional infantile cachexia':ti,ab,kw OR 'pedatrophy':ti,ab,kw OR 'PMWS':ti,ab,kw OR 'postweaning multisystemic wasting syndrome':ti,ab,kw OR 'post weaning multisystemic wasting syndrome':ti,ab,kw OR 'postweaning multisystemic wasting syndrome':ti,ab,kw OR 'slim disease':ti,ab,kw OR 'wasting disease':ti,ab,kw OR 'wasting syndrome':ti,ab,kw OR 'Weight Loss':ti,ab,kw

AND

'randomized controlled trial'/exp OR 'controlled clinical trial'/exp OR randomized:ti,ab OR placebo:ti,ab OR 'drug therapy':lnk OR randomly:ti,ab OR trial:ti,ab OR groups:ti,ab OR review/it OR meta-analysis/de OR "systematic review":ti OR "literature review":ti OR "meta analysis":ti OR metaanalysis:ti OR metasynthesis:ti

Results: 275

PsycInfo

Search Run: 23 May 2021

Coverage: 2016-present

Limits: Phrase Searching (Boolean); Clinical Case Study, Clinical Trial, Empirical Study, Literature Review, Meta Analysis, Quantitative Study, Treatment Outcome, Twin Study; English; Human

MM "Cannabis" OR MM "Marijuana" OR MM "Marijuana Usage" OR MM "Cannabinoids" OR MM "Tetrahydrocannabinol") OR TI ("bhang" OR "cannabid*" OR "cannabigerol" OR "cannabin*" OR "cannabis" OR "cannador" OR "delta 9 tetrahydrocannabinol" OR "delta tetrahydrocannabinol" OR "Dronabinol" OR "epidiolex" OR "epidyolex" OR "ganja*" OR "ganjah*" OR "hashish*" OR "hemp*" OR "herba cannabis" OR "marihuana*" OR "marijuana*" OR "Marinol" OR "medical cannabis" OR "medical marihuana" OR "medical marijuana" OR "medicinal cannabis" OR "medicinal marijuana" OR "medicinal marijuana" OR "nabidiolex" OR "nabiximols" OR "Sativex" OR "sp 104" OR "syndros" OR "tetrahydro cannabinol*" OR "tetrahydrocannabinol*" OR "Tetrahydrocannabinol*" OR "tetranabinex" OR "THC" OR "CBC" OR "CBD" OR "CBG") OR AB ("bhang" OR "cannabid*" OR "cannabigerol" OR "cannabin*" OR "cannabis" OR "cannador" OR "delta 9 tetrahydrocannabinol" OR "delta tetrahydrocannabinol" OR "Dronabinol" OR "epidiolex" OR "epidyolex" OR "ganja*" OR "ganjah*" OR "hashish*" OR "hemp*" OR "herba cannabis" OR "marihuana*" OR "marijuana*" OR "Marinol" OR "medical cannabis" OR "medical marihuana" OR "medical marijuana" OR "medicinal cannabis" OR "medicinal marijuana" OR "nabidiolex" OR "nabiximols" OR "Sativex" OR "sp 104" OR
“syndros” OR “tetrahydrocannabinol*” OR “tetrahydrocannabinal*” OR “Tetrahydrocannabinol*” OR “tetrahydrocannabinol*” OR “tetrabnaminex” OR “THC” OR “CBC” OR “CBD” OR “CBG”

AND

MM (“Cachexia” OR “Fatigue” OR “Nutritional Deficiencies” OR “Weight Loss” OR “Anorexia Nervosa”) OR TI (“Kwashiorkor” OR “Fatigue” OR “HIV Wasting Syndrome” OR “immunodeficiency associated weight loss” OR “infantile atrophy” OR “infantile cachexia” OR “marasmic kwashiorkor” OR “marasmus” OR “Nutritional Deficiencies” OR “nutritional infantile cachexia” OR “pedatrophy” OR “PMWS” OR “postweaning multisystemic wasting syndrome” OR “post weaning multisystemic wasting syndrome” OR “slim disease” OR “wasting disease” OR “wasting syndrome” OR “Weight Loss” OR “Weight loss associated with HIV/AIDS”) OR AB (“Kwashiorkor” OR “Fatigue” OR “HIV Wasting Syndrome” OR “immunodeficiency associated weight loss” OR “infantile atrophy” OR “infantile cachexia” OR “marasmic kwashiorkor” OR “marasmus” OR “Nutritional Deficiencies” OR “nutritional infantile cachexia” OR “pedatrophy” OR “PMWS” OR “postweaning multisystemic wasting syndrome” OR “post weaning multisystemic wasting syndrome” OR “slim disease” OR “wasting disease” OR “wasting syndrome” OR “Weight Loss” OR “Weight loss associated with HIV/AIDS”)

Results: 26

PubMed

Search Run: 27 May 2021

Coverage: 2016 - present

Limits: English language, Humans


**Results:** 80
Cancer

Cochrane

Search Run: 11 April 2021  
Coverage: 2016-present

Limits: Sources- CINAHL, Embase, and PubMed

[mh "Cannabis"] OR [mh "Cannabinol"] OR [mh "Cannabinol"] OR [mh "Marijuana Smoking"] OR [mh "Marijuana Use"] OR [mh "Medical Marijuana"] OR [mh "Dronabinol"] OR (bhang OR cannabid* OR cannabigerol OR cannabin* OR cannabis* OR cannador OR cardiolrx OR charas OR delta 9 tetrahydrocannabinol OR delta 9 trans tetrahydrocannabinol OR Dronabinol OR epidiolex OR epidiolex OR ganja* OR ganjah* OR hashish* OR hemp* OR herba cannabis OR marihuana* OR marijuana* OR Marinol OR medical cannabis OR medical marihuana OR medical marijuana OR medicinal cannabis OR medicinal marijuana OR nabidiolex OR nabiximols OR sativex OR syndros OR tetrahydro cannabino* OR tetrahydrocannabinol* OR Tetrahydrocannabinol* OR tetrahydrocannabi*)ti,ab,kw

AND

[mh "Neoplasms"] OR [mh "Antineoplastic Agents"] OR [mh "Antineoplastic Combined Chemotherapy Protocols"] OR [mh "Antineoplastic Protocols"] OR [mh "Chemotherapy, Cancer, Regional Perfusion"] OR [mh "Cancer Pain"] OR (neoplas* OR cancer* OR lymphedema* OR carcinogen* OR tumor* OR tumour* OR antineoplastic protocol* OR antineoplastic agent* OR chemotherap*)ti,ab,kw

Results: 9 Reviews, 90 Trials

Embase

Search Run: 6 May 2021  
Coverage: 2016 – present

Limits: Embase; English language; Humans; case control study, clinical article, clinical study, clinical trial, cohort analysis, comparative effectiveness, control group, controlled clinical trial, controlled study, correlative study, cross sectional study, crossover procedure, disease model, double blind procedure, evidence based medicine, human experiment, intention to treat analysis, longitudinal study, major clinical study, medical record review, meta analysis, model, multicenter study (topic), normal human, observational study, open study, phase 2 clinical trial (topic), phase 3 clinical trial (topic), pilot study, population based case control study, prospective study, randomized controlled trial (topic), retrospective study, secondary analysis, systematic review

‘cannabidiol’/exp/mj OR ‘cannabinoid’/exp/mj OR ‘cannabinol’/exp/mj OR ‘Cannabis sativa’/exp/mj OR ‘cannabis smoking’/exp OR ‘cannabis use’/exp/mj OR ‘cannabis’/exp/mj OR ‘dronabinol’/exp/mj OR ‘medical cannabis’/exp OR ‘nabiximols’/exp/mj OR ‘tetrahydrocannabinol’/exp/mj OR ‘tetrahydrocannabinol’:ti,ab,kw OR ‘bhang’:ti,ab,kw OR ‘cannabid*’:ti,ab,kw OR ‘cannabigerol’:ti,ab,kw OR ‘cannabin*’:ti,ab,kw OR ‘cannador’:ti,ab,kw OR ‘delta 9 tetrahydrocannabinol’:ti,ab,kw OR ‘dronabinol’:ti,ab,kw OR ‘epidiolex’:ti,ab,kw OR ‘epidyolex’:ti,ab,kw OR ‘ganja’:ti,ab,kw OR ‘ganjah’:ti,ab,kw OR ‘hashish’:ti,ab,kw OR ‘hashish oil’:ti,ab,kw OR ‘hashish smoking’:ti,ab,kw OR ‘hemp*’:ti,ab,kw OR ‘herba cannabis’:ti,ab,kw OR ‘marijuana*’:ti,ab,kw OR ‘marijuana’/exp OR ‘Marinol’/ti,ab,kw OR ‘medical cannabis’:ti,ab,kw OR ‘medical marihuana’:ti,ab,kw OR ‘medical marijuana’:ti,ab,kw OR
'medicinal cannabis':ti,ab,kw OR 'medicinal marijuana':ti,ab,kw OR 'mexican marihuana':ti,ab,kw OR 'nabidiolex':ti,ab,kw OR 'nabiximols':ti,ab,kw OR 'sativa':ti,ab,kw OR 'syndros':ti,ab,kw OR 'tetrahydro cannabidiol*':ti,ab,kw OR 'tetrahydrocannabina':ti,ab,kw OR 'tetrahydrocannabinol*':ti,ab,kw OR 'THC':ti,ab,kw OR 'CBC':ti,ab,kw OR 'CBD':ti,ab,kw OR 'CBG':ti,ab,kw

AND

'malignant neoplasm'/exp/mj OR 'glioma'/exp/mj OR 'neoplas*':ti,ab,kw OR 'lymphedema*':ti,ab,kw OR 'carcinogen*':ti,ab,kw OR 'tumor*':ti,ab,kw OR 'tumour*':ti,ab,kw OR 'antineoplastic protocol*':ti,ab,kw OR 'antineoplastic agent*':ti,ab,kw OR 'chemotherap*':ti,ab,kw

AND

'randomized controlled trial'/exp OR 'controlled clinical trial'/exp OR randomized:ti,ab OR placebo:ti,ab OR 'drug therapy':lnk OR randomly:ti,ab OR trial:ti,ab OR groups:ti,ab OR review/it OR meta-analysis/de OR 'systematic review':ti OR 'literature review':ti OR 'meta analysis':ti OR metaanalysis:ti OR metasynthesis:ti

Results: 961

PsycInfo

Search Run: 23 May 2021
Coverage: 2016-present

Limits: Phrase Searching (Boolean); Clinical Case Study, Clinical Trial, Empirical Study, Literature Review, Meta Analysis, Quantitative Study, Treatment Outcome, Twin Study; English; Human

MM "Cannabis" OR MM "Marijuana" OR MM "Marijuana Usage" OR MM "Cannabinoids" OR MM "Tetrahydrocannabinol" OR TI ("bhang" OR "cannabinoid" OR "cannabinoids" OR "cannabigerol" OR "cannabinol" OR "cannabis*" OR "cannabidiol" OR "cannabigerol" OR "delta 9 tetrahydrocannabinol" OR "delta tetrahydrocannabinol" OR "Dronabinol" OR "epidiolex" OR "epidyolex" OR "ganja*" OR "ganja*" OR "hashish*" OR "herb*" OR "herba cannabis" OR "marihuana*" OR "marijuana*" OR "Marinol" OR "medical cannabis" OR "medical marihuana" OR "medical marijuana" OR "marihuana*" OR "marijuana*" OR "Marinol" OR "medical cannabis" OR "medical marihuana" OR "medical marijuana" OR "marihuana*" OR "marijuana*" OR "Marinol" OR "medical cannabis" OR "medical marihuana" OR "medical marijuana" OR "marihuana*" OR "marijuana*" OR "Marinol" OR "medical cannabis" OR "medical marihuana" OR "medical marijuana"

AND

(MM "Terminal Cancer" OR MM "Metastasis" OR MM "Melanoma" OR MM "Chemotherapy") OR TI ("neoplas*" OR "cancer*" OR "lymphedema" OR "carcinogen*" OR "tumor*" OR "tumour*" OR "antineoplastic protocol*" OR "antineoplastic agent*" OR "chemotherap*") OR AB ("neoplas*" OR "cancer*" OR "lymphedema" OR "carcinogen*" OR "tumor*" OR "tumour*" OR "antineoplastic protocol*" OR "antineoplastic agent*" OR "chemotherap*")

Results: 71
"Arnold-Chiari Malformation"[Majr] OR "Chiari*"[tiab] OR "Chiari*"[ot] Results: 530
Causalgia

Cochrane

**Search Run:** 11 April 2021  
**Coverage:** 2016-present  
**Limits:** Sources: CINAHL, Embase, and PubMed

[mh "Cannabis"] OR [mh "Cannabinol"] OR [mh "Cannabidiol"] OR [mh "Marijuana Smoking"] OR [mh "Marijuana Use"] OR [mh "Medical Marijuana"] OR [mh "Dronabinol"] OR (bhang OR cannabid* OR cannabigerol OR cannabin* OR cannabis* OR cannador OR cardiolrx OR charas OR delta 9 tetrahydrocannabinol OR delta 9 trans tetrahydrocannabinol OR Dronabinol OR epidoylex OR epidyoylex OR ganja* OR ganjah* OR hashish* OR hemp* OR herba cannabis OR marihuana* OR marijuana* OR Marinol OR medical cannabis OR medical marihuana OR medical marijuana OR medicinal cannabis OR medicinal marijuana OR nabilox OR nabiximol* OR sativex OR syndros OR tetrahydro cannabinol* OR tetrahydrocannabinol* OR Tetrahydrocannabinol*:ti,ab,kw

AND

[mh "Causalgia"] OR (Causalgia OR complex regional pain syndrome type II OR CRPS 2 OR CRPS II OR CRPS type 2 OR CRPS type II OR CRPS-II OR Neuralgia OR Trigeminal Neuralgia):ti,ab,kw

**Results:** 2 Reviews, 9 Trials

Embase

**Search Run:** 6 May 2021  
**Coverage:** 2016 – present  
**Limits:** Embase; English language; Humans; case control study, clinical article, clinical study, clinical trial, cohort analysis, comparative effectiveness, control group, controlled clinical trial, controlled study, correlational study, cross sectional study, crossover procedure, disease model, double blind procedure, evidence based medicine, human experiment, intention to treat analysis, longitudinal study, major clinical study, medical record review, meta analysis, model, multicenter study (topic), normal human, observational study, open study, phase 2 clinical trial (topic), phase 3 clinical trial (topic), pilot study, population based case control study, prospective study, randomized controlled trial (topic), retrospective study, secondary analysis, systematic review

[cannabidiol]:exp/mj OR [cannabinoid]:exp/mj OR [cannabinol]:exp/mj OR 'Cannabis sativa':exp/mj OR 'cannabin smoking':exp OR 'cannabis use':exp/mj OR 'cannabis':exp/mj OR ['dronabinol']:exp/mj OR ['medical cannabis']:exp OR 'nabiximols':exp/mj OR ['tetrahydrocannabinol']:exp/mj OR ['tetrahydrocannabinol':ti,ab,kw OR 'bhang':ti,ab,kw OR 'cannabid*':ti,ab,kw OR 'cannabigerol':ti,ab,kw OR 'cannabin*':ti,ab,kw OR 'cannador':ti,ab,kw OR 'delta 9 tetrahydrocannabinol':ti,ab,kw OR 'dronabinol':ti,ab,kw OR 'epidoylex':ti,ab,kw OR 'epidyolex':ti,ab,kw OR 'ganja':ti,ab,kw OR 'ganjah':ti,ab,kw OR 'hashish':ti,ab,kw OR 'hashish oil':ti,ab,kw OR 'hashish smoking':ti,ab,kw OR 'hemp*':ti,ab,kw OR 'herba cannabis':ti,ab,kw OR 'marihuana*':ti,ab,kw OR 'marijuana*':ti,ab,kw OR 'Marinol':ti,ab,kw OR 'medical cannabis':ti,ab,kw OR 'medical marihuana':ti,ab,kw OR 'medical marijuana':ti,ab,kw OR 'medicinal cannabis':ti,ab,kw OR 'medicinal marijuana':ti,ab,kw OR 'mexican marihuana':ti,ab,kw OR 'nabidiol':ti,ab,kw OR 'nabiximol*':ti,ab,kw OR 'sativex':ti,ab,kw OR 'syndros':ti,ab,kw OR 'tetrahydro cannabinol*':ti,ab,kw OR 'tetrahydrocannabinol*':ti,ab,kw
Results: 18

PsycInfo

Search Run: 23 May 2021
Coverage: 2016-present

Limits: Phrase Searching (Boolean); Clinical Case Study, Clinical Trial, Empirical Study, Literature Review, Meta Analysis, Quantitative Study, Treatment Outcome, Twin Study; English; Human

MM “Cannabis” OR MM “Marijuana” OR MM “Marijuana Usage” OR MM “Cannabinoids” OR MM “Tetrahydrocannabinol”) OR TI (“bhang” OR “cannabid*” OR “cannabigerol” OR “cannabin*” OR “cannabis*” OR “cannador” OR “delta 9 tetrahydrocannabinol” OR “delta tetrahydrocannabinol” OR “Dronabinol” OR “epidiolex” OR “epidyolex” OR “ganja” OR “ganjah” OR “hashish*” OR “hemp*” OR “herba cannabis” OR “marihuana*” OR “marijuana*” OR “Marinol” OR “medical cannabis” OR “medical marihuana” OR “medical marijuana” OR “medicinal cannabis” OR “medicinal marihuana” OR “nabidiolex” OR “nabiximols” OR “Sativex” OR “sp 104” OR “syndros” OR “tetrahydrocannabinol*” OR “tetrahydrocannabinal*” OR “Tetrahydrocannabinol*” OR “tetrahydrocannabinol*” OR “tetranabinex” OR “THC” OR “CBC” OR “CBD” OR “CBG”) OR AB (“bhang” OR “cannabid*” OR “cannabigerol” OR “cannabin*” OR “cannabis*” OR “cannador” OR “delta 9 tetrahydrocannabinol” OR “delta tetrahydrocannabinol” OR “Dronabinol” OR “epidiolex” OR “epidyolex” OR “ganja” OR “ganjah” OR “hashish*” OR “hemp*” OR “herba cannabis” OR “marihuana*” OR “marijuana*” OR “Marinol” OR “medical cannabis” OR “medical marihuana” OR “medical marijuana” OR “medicinal cannabis” OR “medicinal marihuana” OR “nabidiolex” OR “nabiximols” OR “Sativex” OR “sp 104” OR “syndros” OR “tetrahydrocannabinol*” OR “tetrahydrocannabinal*” OR “Tetrahydrocannabinol*” OR “tetrahydrocannabinol*” OR “tetranabinex” OR “THC” OR “CBC” OR “CBD” OR “CBG”

AND

(MM “Neuralgia” OR MM “Trigeminal Neuralgia”) OR TI (“Causalgia” OR “complex regional pain syndrome type II” OR “CRPS 2” OR “CRPS II” OR “CRPS type 2” OR “CRPS type II” OR “Neuralgia” OR “Neuralgia” OR “Trigeminal Neuralgia”) OR AB (“Causalgia” OR “complex regional pain syndrome type II” OR “CRPS 2” OR “CRPS II” OR “CRPS type 2” OR “CRPS type II” OR “Neuralgia” OR “Neuralgia” OR “Trigeminal Neuralgia”)

Results: 1
PubMed

Search Run: 27 May 2021

Coverage: 2016 - present

Limits: English language, Humans


“Arnold-Chiari Malformation”[Majr] OR “Chiari*”[tiab] OR “Chiari*”[ot]

Results: 6
Cerebral Palsy

Cochrane

Search Run: 11 April 2021
Coverage: 2016-presentation

Limits: Sources- CINAHL, Embase, and PubMed

[mh "Cannabis"] OR [mh "Cannabinol"] OR [mh "Cannabinoid"] OR [mh "Marijuana Smoking"] OR [mh "Marijuana Use"] OR [mh "Medical Marijuana"] OR [mh "Dronabinol"] OR (bhang OR cannabinid* OR cannabigerol OR cannabin* OR cannabiol OR cannador OR cardiolrx OR charas OR delta 9 tetrahydrocannabinol OR delta 9 trans tetrahydrocannabinol OR Dronabinol OR epidiolex OR epidiyolex OR ganja* OR ganjah* OR hashish* OR hemp* OR herba cannabis OR marihuana* OR marijuana* OR Marinol OR medical cannabis OR medical marihuana OR medical marijuana OR medicinal cannabis OR medicinal mariguana OR nabidiolex OR nabiximols OR sativex OR syndros OR tetrahydrocannabinol* OR tetrahydrocannabinol*):ti,ab,kw

AND

[mh "Cerebral Palsy"] OR [Cerebral Palsy OR brain palsy OR brain paralysis OR central palsy OR central paralysis OR cerebral paralysis OR cerebral paresis OR chronic pancreatitis OR encephalopathy infantilis OR Microphthalmia and mental deficiency OR Neuhauser syndrome OR Periventricular Leukomalacia OR spastic diplegia):ti,ab,kw

Results: 2 Reviews, 9 Trials

Embase

Search Run: 6 May 2021
Coverage: 2016 – present

Limits: Embase; English language; Humans; case control study, clinical article, clinical study, clinical trial, cohort analysis, comparative effectiveness, control group, controlled clinical trial, controlled study, correlative analysis, cross sectional study, crossover procedure, evidence based medicine, human experiment, intention to treat analysis, longitudinal study, major clinical study, medical record review, meta analysis, model, multicenter study (topic), normal human, observational study, open study, phase 2 clinical trial (topic), phase 3 clinical trial (topic), pilot study, population based case control study, prospective study, randomized controlled trial (topic), retrospective study, secondary analysis, systematic review

‘cannabidiol’/exp/mj OR ‘cannabinoid’/exp/mj OR ‘cannabis sativa’/exp/mj OR ‘cannabis smoking’/exp OR ‘cannabis use’/exp/mj OR ‘cannabis’/exp/mj OR ‘dronabinol’/exp/mj OR ‘medical cannabis’/exp OR ‘nabiximols’/exp/mj OR ‘tetrahydrocannabinol’/exp/mj OR ‘tetrahydrocannabinol’:ti,ab,kw OR ‘bhang’:ti,ab,kw OR ‘cannabinid’*:ti,ab,kw OR ‘cannabigerol’:ti,ab,kw OR ‘cannabin*’:ti,ab,kw OR ‘cannador’:ti,ab,kw OR ‘delta 9 tetrahydrocannabinol’:ti,ab,kw OR ‘dronabinol’:ti,ab,kw OR ‘epidiyolex’:ti,ab,kw OR ‘ganja’:ti,ab,kw OR ‘ganjah’:ti,ab,kw OR ‘hashish’:ti,ab,kw OR ‘hashish oil’:ti,ab,kw OR ‘hashish smoking’:ti,ab,kw OR ‘hemp*’:ti,ab,kw OR ‘herba cannabis’:ti,ab,kw OR ‘marihuana*’:ti,ab,kw OR ‘marijuana*’:ti,ab,kw OR ‘Marinol’:ti,ab,kw OR ‘medical cannabis’:ti,ab,kw OR ‘medical mariguana’:ti,ab,kw OR ‘medical marijuana’:ti,ab,kw OR ‘medicinal cannabis’:ti,ab,kw OR ‘medicinal mariguana’:ti,ab,kw OR ‘mexican marihuana’:ti,ab,kw OR
Results: 34
Results: 3

PubMed

Search Run: 27 May 2021

Coverage: 2016 - present

Limits: English language, Humans


AND


AND

"Arnold-Chiari Malformation"[Majr] OR "Chiari*"[tiab] OR "Chiari*[ot]

Results: 10
Chronic Pancreatitis

Cochrane

**Search Run:** 11 April 2021  
**Coverage:** 2016-present

**Limits:** Sources- CINAHL, Embase, and PubMed

[mh "Cannabis"] OR [mh "Cannabinol"] OR [mh "Cannabinol"] OR [mh "Marijuana Smoking"] OR [mh "Marijuana Use"] OR [mh "Medical Marijuana"] OR [mh "Dronabinol"] OR (bhang OR cannabid* OR cannabigerol OR cannabin* OR cannabis* OR cannador OR cardiolrx OR charas OR delta 9 tetrahydrocannabinol OR delta 9 trans tetrahydrocannabinol OR Dronabinol OR epidirolex OR epidiolex OR ganja* OR ganjah* OR hashish* OR hemp* OR herba cannabis OR marihuana* OR marijuana* OR Marinol OR medical cannabis OR medical marihuana OR medical marijuana OR medicinal cannabis OR medicinal marijuana OR nabidiolex OR nabiximols OR sativex OR syndros OR tetrahydrocannabinol* OR tetrahydrocannabinol* OR Tetrahydrocannabinol* OR tetrahydrocannabinol*:ti,ab,kw

AND

(chronic pancreatitis OR Hereditary pancreatitis):ti,ab,kw

**Results:** 0 Reviews, 7 Trials

Embase

**Search Run:** 6 May 2021  
**Coverage:** 2016 – present

**Limits:** Embase; English language; Humans; case control study, clinical article, clinical study, clinical trial, cohort analysis, comparative effectiveness, control group, controlled clinical trial, controlled study, correlational study, cross sectional study, crossover procedure, disease model, double blind procedure, evidence based medicine, human experiment, intention to treat analysis, longitudinal study, major clinical study, medical record review, meta analysis, model, multicenter study (topic), normal human, observational study, open study, phase 2 clinical trial (topic), phase 3 clinical trial (topic), pilot study, population based case control study, prospective study, randomized controlled trial (topic), retrospective study, secondary analysis, systematic review

‘cannabidiol’/exp/mj OR ‘cannabinoid’/exp/mj OR ‘cannabinol’/exp/mj OR ‘Cannabis sativa’/exp/mj OR ‘cannabis smoking’/exp OR ‘cannabis use’/exp/mj OR ‘cannabis’/exp/mj OR ‘dronabinol’/exp/mj OR ‘medical cannabis’/exp OR ‘nabiximols’/exp/mj OR ‘tetrahydrocannabinol’/exp/mj OR ‘tetrahydrocannabinol’/ti,ab,kw OR ‘bhang’:ti,ab,kw OR ‘cannabid*’:ti,ab,kw OR ‘cannabigerol’:ti,ab,kw OR ‘cannabin*’:ti,ab,kw OR ‘cannadore’:ti,ab,kw OR ‘cannador’:ti,ab,kw OR ‘cannador’:ti,ab,kw OR ‘delta 9 tetrahydrocannabinol’:ti,ab,kw OR ‘dronabinol’:ti,ab,kw OR ‘epidirolex’:ti,ab,kw OR ‘epidirolex’:ti,ab,kw OR ‘ganja’:ti,ab,kw OR ‘ganjah’:ti,ab,kw OR ‘hashish’:ti,ab,kw OR ‘hashish oil’:ti,ab,kw OR ‘hashish smoking’:ti,ab,kw OR ‘herba cannabis’:ti,ab,kw OR ‘marihuana*’:ti,ab,kw OR ‘marijuana*’:ti,ab,kw OR ‘Marinol’:ti,ab,kw OR ‘medical cannabis’:ti,ab,kw OR ‘medical marhuana’:ti,ab,kw OR ‘medicinal cannabis’:ti,ab,kw OR ‘medicinal marhuana’:ti,ab,kw OR ‘mexican marihuana’:ti,ab,kw OR ‘nabidiolex’:ti,ab,kw OR ‘nabiximols’:ti,ab,kw OR ‘sativex’:ti,ab,kw OR ‘syndros’:ti,ab,kw OR ‘tetrahydro cannabisol*’:ti,ab,kw OR ‘tetrahydrocannabinol*’:ti,ab,kw OR ‘tetrahydrocannabinol*':ti,ab,kw
'tetrahydrocannabinol*' OR 'tetrahydrocannabiol*' OR 'THC' OR 'CBC' OR 'CBD'

AND

'chronic pancreatitis' OR 'Hereditary pancreatitis'

AND

'randomized controlled trial' OR 'controlled clinical trial' OR 'randomized:ti,ab' OR 'placebo:ti,ab' OR 'drug therapy:lnk' OR 'randomly:ti,ab' OR 'trial:ti,ab' OR 'groups:ti,ab' OR 'review/it' OR 'meta-analysis/de' OR 'systematic review:ti' OR 'literature review:ti' OR 'meta analysis:ti' OR 'metasynthesis:ti'

Results: 24

PsycInfo

Search Run: 23 May 2021
Coverage: 2016-present

Limits: Phrase Searching (Boolean); Clinical Case Study, Clinical Trial, Empirical Study, Literature Review, Meta Analysis, Quantitative Study, Treatment Outcome, Twin Study; English; Human

MM "Cannabis" OR MM "Marijuana" OR MM "Marijuana Usage" OR MM "Cannabinoids" OR MM "Tetrahydrocannabinol" OR TI ("bhang" OR "cannabid*" OR "cannabigerol" OR "cannabin*" OR "cannabis*" OR "cannador" OR "delta 9 tetrahydrocannabinol" OR "delta tetrahydrocannabinol" OR "Dronabinol" OR "epidiolex" OR "epidyolex" OR "ganja*" OR "ganja*" OR "hashish*" OR "hemp*" OR "herba cannabis" OR "marihuana*" OR "marijuana*" OR "Marinol" OR "medical cannabis" OR "medical marihuana" OR "medical marijuana" OR "medicinal cannabis" OR "medicinal marijuana"

OR "nabidiolex" OR "nabiximols" OR "Sativex" OR "sp 104" OR "syndros" OR "tetrahydro cannabino*l*" OR "tetrahydrocannabinol*" OR "Tetrahydrocannabinol*" OR "tetranabinex" OR "THC" OR "CBC" OR "CBD" OR "CBG") OR AB ("bhang" OR "cannabid*" OR "cannabigerol" OR "cannabin*" OR "cannador" OR "delta 9 tetrahydrocannabinol" OR "delta tetrahydrocannabinol" OR "Dronabinol" OR "epidiolex" OR "epidyolex" OR "ganja*" OR "ganja*" OR "hashish*" OR "hemp*" OR "herba cannabis" OR "marihuana*" OR "marijuana*" OR "Marinol" OR "medical cannabis" OR "medical marihuana" OR "medical marijuana" OR "medicinal cannabis" OR "medicinal marijuana"

OR "nabidiolex" OR "nabiximols" OR "Sativex" OR "sp 104" OR "syndros" OR "tetrahydro cannabino*l*" OR "tetrahydrocannabinol*" OR "Tetrahydrocannabinol*" OR "tetranabinex" OR "THC" OR "CBC" OR "CBD" OR "CBG"

AND

TI ("chronic pancreatitis" OR "Hereditary pancreatitis") OR AB ("chronic pancreatitis" OR "Hereditary pancreatitis")

Results: 1

PubMed

Search Run: 27 May 2021
Coverage: 2016 - present

Limits: English language, Humans

AND


AND

“Arnold-Chiari Malformation”[Majr] OR “Chiari*”[tiab] OR “Chiari”[ot]

Results: 5
Chronic Traumatic Encephalopathy

Cochrane

**Search Run:** 12 April 2021  
**Coverage:** 2016–present

**Limits:** Sources - CINAHL, Embase, and PubMed

[mh "Cannabis"] OR [mh "Cannabidiol"] OR [mh "Marijuana Smoking"] OR [mh "Marijuana Use"] OR [mh "Medical Marijuana"] OR [mh "Dronabinol"] OR (bhang OR cannabid* OR cannabigerol OR cannabin* OR cannab* OR cannador OR cardiolrx OR charas OR delta 9 tetrahydrocannabinol OR delta 9 trans tetrahydrocannabinol OR Dronabinol OR epidiolx OR epidolex OR ganja* OR ganjah* OR hashish* OR hemp* OR herba cannabis OR marihuana* OR marjuna* OR Marinol OR medical cannabis OR medical marihuana OR medical marijuana OR medicinal cannabis OR medicinal marijuana OR nabidiolex OR nabiximols OR sativex OR syndros OR tetrahydro cannabinol* OR tetrahydrocannabinol* OR Tetrahydrocannabinol* OR (tetrahydrocannabinol*):ti,ab,kw

AND

[mh "Chronic Traumatic Encephalopathy"] OR (chronic traumatic brain injury OR Chronic Traumatic Encephalopathy OR Creutzfeldt Jakob Syndrome OR dementia pugulistica OR MELAS OR Posterior Reversible Encephalopathy):ti,ab,kw

**Results:** 0 Reviews, 0 Trials

Embase

**Search Run:** 6 May 2021  
**Coverage:** 2016–present

**Limits:** Embase; English language; Humans; case control study, clinical article, clinical study, clinical trial, cohort analysis, comparative effectiveness, control group, controlled clinical trial, controlled study, correalional study, cross sectional study, crossover procedure, disease model, double blind procedure, evidence based medicine, human experiment, intention to treat analysis, longitudinal study, major clinical study, medical record review, meta analysis, model, multicenter study (topic), normal human, observational study, open study, phase 2 clinical trial (topic), phase 3 clinical trial (topic), pilot study, population based case control study, prospective study, randomized controlled trial (topic), retrospective study, secondary analysis, systematic review

'cannabidiol'/exp/mj OR 'cannabinoid'/exp/mj OR 'Cannabis sativa'/exp/mj OR 'cannabis smoking'/exp OR 'cannabis use'/exp/mj OR 'cannabis'/exp/mj OR 'dronabinol'/exp/mj OR 'medical cannabis'/exp OR 'nabiximols'/exp/mj OR 'tetrahydrocannabinol'/exp/mj OR 'tetrahydrocannabinol':ti,ab,kw OR 'bhang':ti,ab,kw OR 'cannabidiol':ti,ab,kw OR 'cannabigerol':ti,ab,kw OR 'cannabin':ti,ab,kw OR 'cannador':ti,ab,kw OR 'delta 9 tetrahydrocannabinol':ti,ab,kw OR 'dronabinol':ti,ab,kw OR 'epidiolx':ti,ab,kw OR 'epidiolx':ti,ab,kw OR 'ganja':ti,ab,kw OR 'ganjah':ti,ab,kw OR 'hashish':ti,ab,kw OR 'hashish':ti,ab,kw OR 'hashish smoking':ti,ab,kw OR 'herba cannabis':ti,ab,kw OR 'herba cannabis':ti,ab,kw OR 'marihuana':ti,ab,kw OR 'marijuana':ti,ab,kw OR 'Marinol':ti,ab,kw OR 'medical cannabis':ti,ab,kw OR 'medical marihuana':ti,ab,kw OR 'medicinal cannabis':ti,ab,kw OR 'medical marijuana':ti,ab,kw OR 'mexican marihuana':ti,ab,kw OR 'nabidiolex':ti,ab,kw OR 'nabiximols':ti,ab,kw OR 'sativex':ti,ab,kw OR 'syndros':ti,ab,kw OR
'tetrahydro cannabinol*:ti,ab,kw OR 'tetrahydrocannabinol*:ti,ab,kw OR 'tetrahydrocannabinol*:ti,ab,kw OR 'tetrahydrocannabinol*:ti,ab,kw OR 'THC':ti,ab,kw OR 'CBC':ti,ab,kw OR 'CBD':ti,ab,kw OR 'CBG':ti,ab,kw

AND

'chronic traumatic brain injury':ti,ab,kw OR 'Chronic Traumatic Encephalopathy':ti,ab,kw OR 'Creutzfeldt Jakob Syndrome':ti,ab,kw OR 'dementia pugilistica':ti,ab,kw OR 'MELAS':ti,ab,kw OR 'Posterior Reversible Encephalopathy':ti,ab,kw

AND

'randomized controlled trial'/exp OR 'controlled clinical trial'/exp OR randomized:ti,ab OR placebo:ti,ab OR 'drug therapy':lnk OR randomly:ti,ab OR trial:ti,ab OR groups:ti,ab OR review/it OR meta-analysis/de OR "systematic review":ti OR "literature review":ti OR "meta analysis":ti OR metaanalysis:ti OR metasynthesis:ti

Results: 5

PsycInfo

Search Run: 24 May 2021
Coverage: 2016-present

Limits: Phrase Searching (Boolean); Clinical Case Study, Clinical Trial, Empirical Study, Literature Review, Meta Analysis, Quantitative Study, Treatment Outcome, Twin Study; English; Human

MM "Cannabis" OR MM “Marijuana” OR MM “Marijuana Usage” OR MM “Cannabinoids” OR MM “Tetrahydrocannabinol”) OR TI (“bhang” OR “cannabid*” OR “cannabigerol” OR “cannabin*” OR “cannabis*” OR “cannador” OR “delta 9 tetrahydrocannabinol” OR “delta tetrahydrocannabinol” OR “Dronabinol” OR “epidiolex” OR “epidyolex” OR “ganja” OR “ganjah*” OR “hashish*” OR “hemp*” OR “herba cannabis” OR “marihuana*” OR “marijuana*” OR “Marinol” OR “medical cannabis” OR “medical marihuana” OR “medical marijuana” OR “medicinal cannabis” OR “medicinal marijuana” OR “nabidiolex” OR “nabiximols” OR “Sativex” OR “sp 104” OR “syndros” OR “tetrahydrocannabinol*” OR “tetrahydrocannabinol*” OR “Tetrahydrocannabinol*” OR “tetrahydrocannabinol*” OR “tetrabihexinex” OR “THC” OR “CBC” OR “CBD” OR “CBG”) OR AB (“bhang” OR “cannabid*” OR “cannabigerol” OR “cannabin*” OR “cannabis*” OR “cannador” OR “delta 9 tetrahydrocannabinol” OR “Dronabinol” OR “epidiolex” OR “epidyolex” OR “ganja” OR “ganjah*” OR “herba cannabis” OR “marihuana*” OR “marijuana*” OR “Marinol” OR “medical cannabis” OR “medical marihuana” OR “medical marijuana” OR “medicinal cannabis” OR “medicinal marijuana” OR “nabidiolex” OR “nabiximols” OR “Sativex” OR “sp 104” OR “syndros” OR “tetrahydrocannabinol*” OR “tetrahydrocannabinol*” OR “tetrabihexinex” OR “THC” OR “CBC” OR “CBD” OR “CBG”

AND

(MM “Posterior Reversible Encephalopathy” OR MM “MELAS” OR MM “Creutzfeldt Jakob Syndrome”) OR TI (“chronic traumatic brain injury” OR “Chronic Traumatic Encephalopathy” OR “Creutzfeldt Jakob Syndrome” OR “dementia pugilistica” OR “MELAS” OR “Posterior Reversible Encephalopathy”) OR AB (“chronic traumatic brain injury” OR “Chronic Traumatic Encephalopathy” OR “Creutzfeldt Jakob Syndrome” OR “dementia pugilistica” OR “MELAS” OR “Posterior Reversible Encephalopathy”)

Results: 1

AND


AND


Results: 0
Cirrhosis

Cochrane

Search Run: 12 April 2021
Coverage: 2016-present

Limits: Sources- CINAHL, Embase, and PubMed

[mh "Cannabis"] OR [mh "Cannabiodiol"] OR [mh "Marijuana Smoking"] OR [mh "Marijuana Use"] OR [mh "Medical Marijuana"] OR [mh "Dronabinol"] OR (bhang OR cannabid* OR cannabigerol OR cannabin* OR cannabins* OR cannador OR cardiolrx OR charas OR delta 9 tetrahydrocannabinol OR delta 9 trans tetrahydrocannabinol OR Dronabinol OR epidiolex OR epidiyolex OR ganja* OR ganjah* OR hashish* OR hemp* OR herba cannabis OR marihuana* OR marujana* OR Marinol OR medical cannabis OR medical marihuana OR medical marijuana OR medicinal cannabis OR medicinal marijuana OR nabidiolex OR nabiximols OR sativex OR syndros OR tetrahydro cannabino* OR tetrahydrocannabinol* OR Tetrahydrocannabinol* OR tetrahydrocannabiol*):ti,ab,kw

AND

[mh "Liver Cirrhosis"] OR [mh "Cirrhosis, Familial"] OR [mh "Chlorpropamide-Alcohol Flushing"] OR [mh "Diffuse Cerebral Sclerosis of Schilder"] OR [mh "Hemochromatosis"] OR (alcoholic liver OR Chlorpropamide-Alcohol Flushing OR cirrhosis OR Hemochromatosis OR liver disease):ti,ab,kw

Results: 7 Reviews, 18 Trials

Embase

Search Run: 6 May 2021
Coverage: 2016 – present

Limits: Embase; English language; Humans; case control study, clinical article, clinical study, clinical trial, cohort analysis, comparative effectiveness, control group, controlled clinical trial, controlled study, correlative study, cross sectional study, crossover procedure, disease model, double blind procedure, evidence based medicine, human experiment, intention to treat analysis, longitudinal study, major clinical study, medical record review, meta analysis, model, multicenter study (topic), normal human, observational study, open study, phase 2 clinical trial (topic), phase 3 clinical trial (topic), pilot study, population based case control study, prospective study, randomized controlled trial (topic), retrospective study, secondary analysis, systematic review

‘cannabidiol'/exp/mj OR ‘cannabinoid'/exp/mj OR ‘Cannabis sativa'/exp/mj OR ‘cannabis smoking'/exp OR ‘cannabis use'/exp/mj OR ‘cannabis'/exp/mj OR ‘dronabinol'/exp/mj OR ‘medical cannabis'/exp OR ‘nabiximols'/exp/mj OR ‘tetrahydrocannabinol'/exp/mj OR ‘tetrahydrocannabinol':ti,ab,kw OR ‘bhang':ti,ab,kw OR ‘cannabidiol':ti,ab,kw OR ‘cannabigerol':ti,ab,kw OR ‘cannabinoid':ti,ab,kw OR ‘cannabinol':ti,ab,kw OR ‘cannador':ti,ab,kw OR ‘delta 9 tetrahydrocannabinol':ti,ab,kw OR ‘dronabinol':ti,ab,kw OR ‘epidiyolex':ti,ab,kw OR ‘epidiyolex':ti,ab,kw OR ‘ganja':ti,ab,kw OR ‘ganjah':ti,ab,kw OR ‘hashish':ti,ab,kw OR ‘hashish oil':ti,ab,kw OR ‘hashish smoking':ti,ab,kw OR ‘hemp*':ti,ab,kw OR ‘herba cannabis':ti,ab,kw OR ‘marihuana*':ti,ab,kw OR ‘marijuana*':ti,ab,kw OR ‘Marinol':ti,ab,kw OR ‘medical cannabis':ti,ab,kw OR ‘medical marihuana':ti,ab,kw OR ‘medical marijuana':ti,ab,kw OR ‘medicinal cannabis':ti,ab,kw OR ‘medicinal marijuana':ti,ab,kw OR ‘mexican marihuana':ti,ab,kw OR ‘nabidiolex':ti,ab,kw OR ‘nabiximols':ti,ab,kw OR ‘sativex':ti,ab,kw OR ‘syndros':ti,ab,kw OR
tetrahydrocannabinol*” OR “tetrahydrocannabinol*” OR “tetrahydrocannabinol*” OR “tetrahydrocannabinol*” OR “tetrahydrocannabinol*” OR “THC” OR “CBC” OR “CBD” OR “CBG”

AND

“liver disease”/exp/mj OR “alcohol liver cirrhosis”/exp/mj OR “liver cirrhosis”/exp/mj OR “alcoholic liver”/ti,ab,kw OR “Chlorpropamide-Alcohol Flushing”/ti,ab,kw OR “cirrhosis”/ti,ab,kw OR “Hemochromatosis”/ti,ab,kw OR “liver disease”/ti,ab,kw

AND

‘randomized controlled trial’/exp OR ‘controlled clinical trial’/exp OR randomized:ti,ab OR placebo:ti,ab OR ‘drug therapy’:lnk OR randomly:ti,ab OR trial:ti,ab OR groups:ti,ab OR review/it OR meta-analysis/de OR “systematic review”:ti OR “literature review”:ti OR “meta analysis”:ti OR metaanalysis:ti OR metasynthesis:ti

Results: 183

PsycInfo

Search Run: 24 May 2021
Coverage: 2016-present

Limits: Phrase Searching (Boolean); Clinical Case Study, Clinical Trial, Empirical Study, Literature Review, Meta Analysis, Quantitative Study, Treatment Outcome, Twin Study; English; Human

MM “Cannabis” OR MM “Marijuana” OR MM “Marijuana Usage” OR MM “Cannabinoids” OR MM “Tetrahydrocannabinol” OR TI (“bhang” OR “cannabinoid” OR “cannabigerol” OR “cannabinoid” OR “cannabidiol” OR “delta 9 tetrahydrocannabinol” OR “delta tetrahydrocannabinol” OR “Dronabinol” OR “epidiolex” OR “epidyolex” OR “ganja” OR “ganja” OR “hashish” OR “hemp” OR “herba cannabis” OR “marihuana” OR “marijuana” OR “Marinol” OR “medical cannabis” OR “medical marihuana” OR “medical marijuana” OR “medicinal cannabis” OR “medicinal marijuana” OR “nabidiolex” OR “nabiximols” OR “Sativex” OR “sp 104” OR “syndros” OR “tetrahydrocannabinol” OR “tetrahydrocannabinol” OR “Tetrahydrocannabinol” OR “tetrahydrocannabinol” OR “tetracyabine” OR “THC” OR “CBC” OR “CBD” OR “CBG”)

AND

TI (“alcoholic liver” OR “Chlorpropamide-Alcohol Flushing” OR “cirrhosis” OR “Hemochromatosis” OR “liver disease”) OR AB (“alcoholic liver” OR “Chlorpropamide-Alcohol Flushing” OR “cirrhosis” OR “Hemochromatosis” OR “liver disease”)

Results: 4

PubMed

Search Run: 27 May 2021
Coverage: 2016 - present

Limits: English language, Humans


AND


AND

“Arnold-Chiari Malformation”[Majr] OR “Chiari*”[tiab] OR “Chiari*”[ot]

Results: 40
Colitis, Ulcerative Colitis

Cochrane

**Search Run:** 12 April 2021  
**Coverage:** 2016–present  
**Limits:** Sources- CINAHL, Embase, and PubMed  
[mh "Cannabis"] OR [mh "Cannabinol"] OR [mh "Cannabidiol"] OR [mh "Marijuana Smoking"] OR [mh "Marijuana Use"] OR [mh "Medical Marijuana"] OR [mh "Dronabinol"] OR (bhang OR cannabid* OR cannabinerol OR cannabin* OR cannabidiol* OR cannador OR cardiolrx OR charas OR delta 9 tetrahydrocannabinol OR delta 9 trans tetrahydrocannabinol OR Dronabinol OR epidiolex OR epidiylex OR ganja* OR ganjah* OR hashish* OR hemp* OR herba cannabis OR marihuana* OR marinol OR medical cannabis OR medical marihuana OR medical marijuana OR medicinal cannabis OR medicinal marihuana OR medicinal marijuana OR nabidiolex OR nabiximols OR sativex OR syndros OR tetrahydrocannabinol* OR tetrahydrocannabinal* OR Tetrahydrocannabinol* OR tetrahydrocannabinol*):ti,ab,kw

AND

[mh "Colitis, Ulcerative"] OR ((colitis OR colon inflammation OR (inflammatory disease*: AND colon)):ti,ab,kw

**Results:** 2 Reviews, 7 Trials

Embase

**Search Run:** 6 May 2021  
**Coverage:** 2016–present  
**Limits:** Embase; English language; Humans; case control study, clinical article, clinical study, clinical trial, cohort analysis, comparative effectiveness, control group, controlled clinical trial, controlled study, correlational study, cross sectional study, crossover procedure, disease model, double blind procedure, evidence based medicine, human experiment, intention to treat analysis, longitudinal study, major clinical study, medical record review, meta analysis, model, multicenter study (topic), normal human, observational study, open study, phase 2 clinical trial (topic), phase 3 clinical trial (topic), pilot study, population based case control study, prospective study, randomized controlled trial (topic), retrospective study, secondary analysis, systematic review

'cannabidiol'/exp/mj OR 'cannabinoid'/exp/mj OR 'cannabinol'/exp/mj OR 'Cannabis sativa'/exp/mj OR 'cannabis smoking'/exp OR 'cannabis use'/exp/mj OR 'cannabis'/exp/mj OR 'dronabinol'/exp/mj OR 'medical cannabis'/exp OR 'nabiximols'/exp/mj OR 'tetrahydrocannabinol'/exp/mj OR 'tetrahydrocannabinol':ti,ab,kw OR 'bhang':ti,ab,kw OR 'cannabid*':ti,ab,kw OR 'cannabinol':ti,ab,kw OR 'cannabin*':ti,ab,kw OR 'cannador':ti,ab,kw OR 'delta 9 tetrahydrocannabinol':ti,ab,kw OR 'dronabinol':ti,ab,kw OR 'epidiolex':ti,ab,kw OR 'epidiylex':ti,ab,kw OR 'ganja':ti,ab,kw OR 'ganjah':ti,ab,kw OR 'hashish':ti,ab,kw OR 'hashish oil':ti,ab,kw OR 'hashish smoking':ti,ab,kw OR 'hemp*':ti,ab,kw OR 'herba cannabis':ti,ab,kw OR 'marihuana*':ti,ab,kw OR 'marijuana*':ti,ab,kw OR 'Marinol':ti,ab,kw OR 'medical cannabis':ti,ab,kw OR 'medical marihuana':ti,ab,kw OR 'medical marijuana':ti,ab,kw OR 'medicinal cannabis':ti,ab,kw OR 'medicinal marihuana':ti,ab,kw OR 'medicinal marijuana':ti,ab,kw OR 'mexican marihuana':ti,ab,kw OR 'nabidiolex':ti,ab,kw OR 'nabiximols':ti,ab,kw OR 'sativex':ti,ab,kw OR 'syndros':ti,ab,kw OR 'tetrahydrocannabinol*':ti,ab,kw OR 'tetrahydrocannabinol*':ti,ab,kw OR
'tetrahydrocannabinol*' OR 'tetrahydrocannabinol*' OR 'THC' OR 'CBC' OR 'CBD' OR 'CBG'

AND

'colitis' OR 'colon inflammation' OR ('inflammatory disease*' AND 'colon')

AND

'ranged controlled trial' OR 'controlled clinical trial' OR 'randomized' OR 'placebo' OR 'drug therapy' OR 'meta-analysis' OR 'systematic review' OR 'literature review' OR 'metaanalysis' OR 'metasynthesis'

Results: 49

PsycInfo

Search Run: 24 May 2021
Coverage: 2016-present

Limits: Phrase Searching, Clinical Case Study, Clinical Trial, Empirical Study, Literature Review, Meta Analysis, Quantitative Study, Treatment Outcome, Twin Study; English; Human

PubMed

Search Run: 27 May 2021
Coverage: 2016 - present

Limits: English language, Humans

AND


AND

“Arnold-Chiari Malformation”[Majr] OR “Chiari*”[tiab] OR “Chiari*”[ot]

Results: 26
Cystic Fibrosis

Cochrane

**Search Run:** 12 April 2021  
**Coverage:** 2016-present  
**Limits:** Sources- CINAHL, Embase, and PubMed

[mh "Cannabis"] OR [mh "Cannabinol"] OR [mh "Cannabinol"] OR [mh "Marijuana Smoking"] OR [mh "Marijuana Use"] OR [mh "Medical Marijuana"] OR [mh "Dronabinol"] OR (bhang OR cannabid* OR cannabigerol OR cannabin* OR cannabino* OR cannador OR cardiolrx OR charas OR delta 9 tetrahydrocannabinol OR delta 9 trans tetrahydrocannabinol OR Dronabinol OR epidoylex OR epydylex OR ganja* OR ganjah* OR hashish* OR hemp* OR herba cannabis OR marihuana* OR marinol OR medical cannabis OR medical marihuana OR medical marijuana OR medicinal cannabis OR medicinal marijuana OR nabidiolex OR nabiximols OR sativex OR syndros OR tetrahydro cannabinol* OR tetrahydrocannabinol* OR Tetrahydrocannabinol* OR tetrahydrocannabinol*:ti,ab,kw

AND

[mh "Cystic Fibrosis"] OR [mh "Cystic Fibrosis Transmembrane Conductance Regulator"] OR [mh "Calgranulin A"] OR [mh "Follicular hamartoma alopecia cystic fibrosis"] OR [mh “cystic fibrosis transmembrane conductance regulator (505-511)"] OR [mh “ciliary dyskinesia factor"] OR [mh “Cystic Fibrosis with Helicobacter Pylori Gastritis, Megaloblastic Anemia, and Subnormal Mentality"] OR [mh “cystic fibrosis serum factor"] OR (Chloride Channel OR Chronically Ill Children OR ciliary dyskinesia factor OR Cystic Fibrosis OR cystic pancreatic fibrosis OR fibrocystic disease OR mckusick 21970 OR mucoviscidosis OR mucoviscoidosis OR pancreas cystic disease OR pancreas fibro cystic disease OR pancreas fibrosis OR pancreatic cystic disease OR pancreatic fibrosis):ti,ab,kw

**Results:** 3 Reviews, 5 Trials

Embase

**Search Run:** 6 May 2021  
**Coverage:** 2016 – present

**Limits:** Embase; English language; Humans; case control study, clinical article, clinical study, clinical trial, cohort analysis, comparative effectiveness, control group, controlled clinical trial, controlled study, correlational study, cross sectional study, crossover procedure, disease model, double blind procedure, evidence based medicine, human experiment, intention to treat analysis, longitudinal study, major clinical study, medical record review, meta analysis, model, multicenter study (topic), normal human, observational study, open study, phase 2 clinical trial (topic), phase 3 clinical trial (topic), pilot study, population based case control study, prospective study, randomized controlled trial (topic), retrospective study, secondary analysis, systematic review

‘cannabidiol’/exp/mj OR ‘cannabinoid’/exp/mj OR ‘cannabinol’/exp/mj OR ‘Cannabis sativa’/exp/mj OR ‘cannabis smoking’/exp OR ‘cannabis use’/exp OR ‘cannabis’/exp/mj OR ‘dronabinol’/exp/mj OR ‘medical cannabis’/exp OR ‘nabiximols’/exp/mj OR ‘tetrahydrocannabinol’/exp/mj OR ‘tetrahydrocannabinol’:ti,ab,kw OR ‘bhang’:ti,ab,kw OR ‘cannabid*’:ti,ab,kw OR ‘cannabigerol’:ti,ab,kw OR ‘cannabin*’:ti,ab,kw OR ‘cannabis*’:ti,ab,kw OR ‘cannador’:ti,ab,kw OR ‘delta 9 tetrahydrocannabinol’:ti,ab,kw OR ‘dronabinol’:ti,ab,kw OR
‘epidiolex’:ti,ab,kw OR ‘epidyolex’:ti,ab,kw OR ‘ganja’:ti,ab,kw OR ‘ganjah’:ti,ab,kw OR ‘hashish’:ti,ab,kw OR ‘hashish oil’:ti,ab,kw OR ‘hashish smoking’:ti,ab,kw OR ‘hemp*’:ti,ab,kw OR ‘herba cannabis’:ti,ab,kw OR ‘marihuana*’:ti,ab,kw OR ‘marijuana*’:ti,ab,kw OR ‘Marinol’:ti,ab,kw OR ‘medical cannabis’:ti,ab,kw OR ‘medical marihuana’:ti,ab,kw OR ‘medical marijuana’:ti,ab,kw OR ‘medicinal cannabis’:ti,ab,kw OR ‘medicinal marijuana’:ti,ab,kw OR ‘mexican marihuana’:ti,ab,kw OR ‘nabidiolex’:ti,ab,kw OR ‘nabiximols’:ti,ab,kw OR ‘sativex’:ti,ab,kw OR ‘syndros’:ti,ab,kw OR ‘tetrahydrocannabinol*’:ti,ab,kw OR ‘tetrahydrocannabinal*’:ti,ab,kw OR ‘tetrahydrocannabinol’:ti,ab,kw OR ‘THC’:ti,ab,kw OR ‘CBC’:ti,ab,kw OR ‘CBD’:ti,ab,kw OR ‘CBG’:ti,ab,kw

AND

cystic fibrosis'/exp/mj ‘ciliary dyskinesia factor’:ti,ab,kw OR cystic fibrosis’:ti,ab,kw OR cystic pancreatic fibrosis’:ti,ab,kw OR ‘fibrocystic disease’:ti,ab,kw OR ‘mckusick 21970’:ti,ab,kw OR ‘mucoviscidosis’:ti,ab,kw

AND

‘randomized controlled trial’/exp OR ‘controlled clinical trial’/exp OR randomized:ti,ab OR placebo:ti,ab OR ‘drug therapy’:lnk OR randomly:ti,ab OR trial:ti,ab OR groups:ti,ab OR review/it OR meta-analysis/de OR “systematic review”:ti OR “literature review”:ti OR “meta analysis”:ti OR metaanalysis:ti OR metasynthesis:ti

Results: 400

PsycInfo

Search Run: 24 May 2021

Coverage: 2016-present

Limits: Phrase Searching (Boolean); Clinical Case Study, Clinical Trial, Empirical Study, Literature Review, Meta Analysis, Quantitative Study, Treatment Outcome, Twin Study; English; Human

MM “Cannabis” OR MM “Marijuana” OR MM “Marijuana Usage” OR MM “Cannabinoids” OR MM “Tetrahydrocannabinol”) OR TI (“bhang” OR “cannabinoid” OR “cannabigerol” OR “cannabinol” OR “cannabis” OR “cannador” OR “delta 9 tetrahydrocannabinol” OR “delta tetrahydrocannabinol” OR “Dronabinol” OR “epidiolex” OR “epidyolex” OR “ganja” OR “ganjah” OR “hashish” OR “hemp” OR “herba cannabis” OR “marihuana” OR “marijuana” OR “Marinol” OR “medical cannabis” OR “medical marihuana” OR “medical marijuana” OR “medicinal cannabis” OR “medicinal marijuana” OR “nabidiolex” OR “nabiximols” OR “Sativex” OR “sp 104” OR “syndros” OR “tetrahydrocannabinol” OR “tetrahydrocannabinol*” OR “Tetrahydrocannabinol” OR “tetrahydrocannabinol*” OR “tetrahydrocannabinol” OR “tetranabinex” OR “THC” OR “CBC” OR “CBD” OR “CBG”) OR AB (“bhang” OR “cannabinoid” OR “cannabigerol” OR “cannabinol” OR “cannabis” OR “cannador” OR “delta 9 tetrahydrocannabinol” OR “delta tetrahydrocannabinol” OR “Dronabinol” OR “epidiolex” OR “epidyolex” OR “ganja” OR “ganjah” OR “hashish” OR “hemp” OR “herba cannabis” OR “marihuana” OR “marijuana” OR “Marinol” OR “medical cannabis” OR “medical marihuana” OR “medical marijuana” OR “medicinal cannabis” OR “medicinal marijuana” OR “nabidiolex” OR “nabiximols” OR “Sativex” OR “sp 104” OR “syndros” OR “tetrahydrocannabinol” OR “tetrahydrocannabinol” OR “tetrahydrocannabinol*” OR “tetrahydrocannabinol*” OR “tetranabinex” OR “THC” OR “CBC” OR “CBD” OR “CBG”

AND

(MM “Cystic Fibrosis”) OR TI (“ciliary dyskinesia factor” OR “Cystic Fibrosis” OR “mckusick 21970” OR “mucoviscidosis” OR “follicular hamartoma alopecia cystic fibrosis”) OR AB (“ciliary dyskinesia
factor” OR “Cystic Fibrosis” OR “cystic pancreatic fibrosis” OR “mckusick 21970” OR “mucoviscidosis” OR “follicular hamartoma alopecia cystic fibrosis”

Results: 0

PubMed

Search Run: 27 May 2021

Coverage: 2016 - present

Limits: English language, Humans


AND


AND

“Arnold-Chiari Malformation”[Majr] OR “Chiari*”[tiab] OR “Chiari*”[ot]

Results: 4
Depression

Cochrane

**Search Run:** 12 April 2021  
**Coverage:** 2016-present  
**Limits:** Sources: CINAHL, Embase, and PubMed

[mh "Cannabis"] OR [mh "Cannabinol"] OR [mh "Cannabidiol"] OR [mh "Marijuana Smoking"] OR [mh "Marijuana Use"] OR [mh "Medical Marijuana"] OR [mh "Dronabinol"] OR (bhang OR cannabid* OR cannabigerol OR cannabin* OR cannabina* OR cannabin OR cannador OR cardiolrx OR charas OR delta 9 tetrahydrocannabinol OR delta 9 trans tetrahydrocannabinol OR Dronabinol OR epidiolex OR epoxylex OR ganja* OR ganjah* OR hashish* OR hemp* OR herba cannabis OR marihuana* OR marijuana* OR Marlin OR medical cannabis OR medical marihuana OR medical marijuana OR medicinal cannabis OR medicinal marijuana OR nabidiolex OR nabiximols OR sativex OR syndros OR tetrahydro cannabino* OR tetrahydrocannabinol* OR Tetrahydrocannabinol* OR tetrahydrocannabinol*):ti,ab,kw

AND

[mh "Depression"] OR [mh "Depressive Disorder"] OR [mh "Depression, Postpartum"] OR [mh "Depressive Disorder, Major"] OR [mh "Adjustment Disorders"] OR [mh "Affective Disorders, Psychotic"] OR (depression OR central depression OR clinical depression OR depressive* OR mental depression OR parental depression OR adjustment disorder* OR anacatic depression OR atypical depression OR cyclothymic disorder OR dysthymic disorder OR endogenous depression OR late life depression OR long-term depression OR long term depression OR major depressive disorder OR major depression OR postpartum depression OR reactive depression OR recurrent depression OR seasonal affective disorder OR treatment resistant depression):ti,ab,kw

**Results:** 2 Reviews, 107 Trials

Embase

**Search Run:** 6 May 2021  
**Coverage:** 2016 – present  
**Limits:** Embase; English language; Humans; case control study, clinical article, clinical study, clinical trial, cohort analysis, comparative effectiveness, control group, controlled clinical trial, controlled study, correlative study, cross sectional study, crossover procedure, disease model, double blind procedure, evidence based medicine, human experiment, intention to treat analysis, longitudinal study, major clinical study, medical record review, meta analysis, model, multicenter study (topic), normal human, observational study, open study, phase 2 clinical trial (topic), phase 3 clinical trial (topic), pilot study, population based case control study, prospective study, randomized controlled trial (topic), retrospective study, secondary analysis, systematic review

‘cannabinoid’/exp/mj OR ‘cannabinoid’/exp/mj OR ‘cannabino’/exp/mj OR ‘Cannabis sativa’/exp/mj OR ‘cannabis smoking’/exp OR ‘cannabis use’/exp/mj OR ‘cannabis’/exp/mj OR ‘dronabinol’/exp/mj OR ‘medicinal cannabis’/exp OR ‘nabiximols’/exp/mj OR ‘tetrahydrocannabinol’/exp/mj OR ‘tetrahydrocannabinol’:ti,ab,kw OR ‘bhang’:ti,ab,kw OR ‘cannabidiol’:ti,ab,kw OR ‘cannabigerol’:ti,ab,kw OR ‘cannabin’*:ti,ab,kw OR ‘cannabis’*:ti,ab,kw OR ‘cannador’:ti,ab,kw OR ‘delta 9 tetrahydrocannabinol’:ti,ab,kw OR ‘dronabinol’:ti,ab,kw OR ‘epidiolex’:ti,ab,kw OR ‘epidiolex’:ti,ab,kw OR ‘ganja’:ti,ab,kw OR ‘ganjah’:ti,ab,kw OR
Results: 761
AND
(MM “Anaclitic Depression” OR MM “Atypical Depression” OR MM “Depression (Emotion)” OR MM “Endogenous Depression” OR MM “Late Life Depression” OR MM “Long-term Depression (Neuronal)” OR MM “Postpartum Depression” OR MM “Reactive Depression” OR MM “Recurrent Depression” OR MM “Seasonal Affective Disorder” OR MM “Spreading Depression” OR MM “Treatment Resistant Depression”) OR TI (“depression” OR “central depression” OR “clinical depression” OR “depressive*” OR “mental depression” OR “parental depression” OR “adjustment disorder*” OR “anaclitic depression” OR “atypical depression” OR “cyclothymic disorder” OR “dysthymic disorder” OR “endogenous depression” OR “late life depression” OR “long-term depression” OR “major depressive disorder” OR “major depression” OR “postpartum depression” OR “reactive depression” OR “recurrent depression” OR “seasonal affective disorder” OR “treatment resistant depression”) OR AB (“depression” OR “central depression” OR “clinical depression” OR “depressive*” OR “mental depression” OR “parental depression” OR “adjustment disorder*” OR “anaclitic depression” OR “atypical depression” OR “cyclothymic disorder” OR “dysthmic disorder” OR “endogenous depression” OR “late life depression” OR “long-term depression” OR “major depressive disorder” OR “major depression” OR “postpartum depression” OR “reactive depression” OR “recurrent depression” OR “seasonal affective disorder” OR “treatment resistant depression”)

Results: 679

PubMed

Search Run: 27 May 2021

Coverage: 2016 - present

Limits: English language, Humans

AND
“Arnold-Chiari Malformation”[Majr] OR “Chiari*”[tiab] OR “Chiari*”[ot]

Results: 329
Diabetes

Cochrane

**Search Run:** 12 April 2021
**Coverage:** 2016–present

**Limits:** Sources- CINAHL, Embase, and PubMed

[mh "Cannabis"] OR [mh "Cannabinol"] OR [mh "Cannabidiol"] OR [mh "Marijuana Smoking"] OR [mh "Marijuana Use"] OR [mh "Medical Marijuana"] OR [mh "Dronabinol"] OR (bhang OR cannabid* OR cannabigerol OR cannabin* OR cannabis* OR cannador OR cardiolrx OR charas OR delta 9 tetrahydrocannabinol OR delta 9 trans tetrahydrocannabinol OR Dronabinol OR epidoylex OR epidyolex OR ganja* OR ganjah* OR hashish* OR hemp* OR herba cannabis OR marihuana* OR marijuana* OR Marinol OR medical cannabis OR medical marihuana OR medical marijuana OR medicinal cannabis OR medicinal marijuana OR nabidiolex OR nabiximols OR sativex OR syndros OR tetrahydro cannabinol* OR tetrahydrocannabinal* OR Tetrahydrocannabinol* OR tetrahydrocannabidiol*:ti,ab,kw
AND

[mh "Diabetes Complications"] OR [mh "Diabetes Mellitus"] OR [mh "Diabetes Mellitus, Type 1"] OR [mh "Diabetes Mellitus, Type 2"] OR [mh "Diabetic Retinopathy"] OR (Blood Sugar OR Diabetes OR diabetic OR Endocrine Disorders OR Endocrine Neoplasms OR Endocrine Sexual Disorders OR Metabolic Syndrome OR niddm OR Parathyroid Disorders OR Pituitary Disorder* OR T2DM OR Thyroid Disorder*):ti,ab,kw

**Results:** 1 Reviews, 17 Trials

Embase

**Search Run:** 6 May 2021
**Coverage:** 2016 – present

**Limits:** Embase; English language; Humans; case control study, clinical article, clinical study, clinical trial, cohort analysis, comparative effectiveness, control group, controlled clinical trial, controlled study, correlative study, cross sectional study, crossover procedure, disease model, double blind procedure, evidence based medicine, human experiment, intention to treat analysis, longitudinal study, major clinical study, medical record review, meta analysis, model, multcenter study (topic), normal human, observational study, open study, phase 2 clinical trial (topic), phase 3 clinical trial (topic), pilot study, population based case control study, prospective study, randomized controlled trial (topic), retrospective study, secondary analysis, systematic review

‘cannabidiol’/exp/mj OR ‘cannabinoid’/exp/mj OR ‘cannabinol’/exp/mj OR ‘Cannabis sativa’/exp/mj OR ‘cannabis smoking’/exp OR ‘cannabis use’/exp/mj OR ‘cannabis’/exp/mj OR ‘dronabinol’/exp/mj OR ‘medical cannabis’/exp OR ‘nabiximols’/exp/mj OR ‘tetrahydrocannabinol’/exp/mj OR ‘tetrahydrocannabinol’:ti,ab,kw OR ‘bhang’:ti,ab,kw OR ‘cannabid*’:ti,ab,kw OR ‘cannabigerol’:ti,ab,kw OR ‘cannabin*’:ti,ab,kw OR ‘cannador’:ti,ab,kw OR ‘delta 9 tetrahydrocannabinol’:ti,ab,kw OR ‘dronabinol’:ti,ab,kw OR ‘epidiol*’:ti,ab,kw OR ‘epidylex’:ti,ab,kw OR ‘ganja’:ti,ab,kw OR ‘ganjah’:ti,ab,kw OR ‘hashish’:ti,ab,kw OR ‘hashish oil’:ti,ab,kw OR ‘hashish smoking’:ti,ab,kw OR ‘hemp*’:ti,ab,kw OR ‘herba cannabis’:ti,ab,kw OR ‘marihuana*’:ti,ab,kw OR ‘marijuana*’:ti,ab,kw OR ‘Marinol’:ti,ab,kw OR ‘medical cannabis’:ti,ab,kw OR ‘medical marihuana’:ti,ab,kw OR ‘medical marijuana’:ti,ab,kw OR


Results: 300

PsycInfo

Search Run: 24 May 2021
Coverage: 2016-present

Limits: Phrase Searching (Boolean); Clinical Case Study, Clinical Trial, Empirical Study, Literature Review, Meta Analysis, Quantitative Study, Treatment Outcome, Twin Study; English; Human

AND

‘medicinal cannabis’:ti,ab,kw OR ‘medicinal marijuana’:ti,ab,kw OR ‘mexican marihuana’:ti,ab,kw OR ‘nabidiolex’:ti,ab,kw OR ‘nabiximols’:ti,ab,kw OR ‘sativex’:ti,ab,kw OR ‘syndros’:ti,ab,kw OR ‘tetrahydro cannabiol*’:ti,ab,kw OR ‘tetrahydrocannabinal*’:ti,ab,kw OR ‘tetrahydrocannabinol*’:ti,ab,kw OR ‘THC’:ti,ab,kw OR ‘CBC’:ti,ab,kw OR ‘CBD’:ti,ab,kw OR ‘CBG’:ti,ab,kw

AND

‘diabetes mellitus’/exp/mj OR ‘non insulin dependent diabetes mellitus’/exp/mj OR ‘Blood Sugar’:ti,ab,kw OR ‘Diabetes’:ti,ab,kw OR ‘diabetic’:ti,ab,kw OR ‘Endocrine Disorders’:ti,ab,kw OR ‘Endocrine Neoplasms’:ti,ab,kw OR ‘Endocrine Sexual Disorders’:ti,ab,kw OR ‘Metabolic Syndrome’:ti,ab,kw OR ‘niddm’:ti,ab,kw OR ‘Parathyroid Disorders’:ti,ab,kw OR ‘Pituitary Disorder*’:ti,ab,kw OR ‘T2DM’:ti,ab,kw OR ‘Thyroid Disorder*’:ti,ab,kw

AND

‘randomized controlled trial’/exp OR ‘controlled clinical trial’/exp OR randomized:ti,ab OR placebo:ti,ab OR ‘drug therapy’:lnk OR randomly:ti,ab OR trial:ti,ab OR groups:ti,ab OR review/it OR meta-analysis/de OR “systematic review”:ti OR “literature review”:ti OR “meta analysis”:ti OR metaanalysis:ti OR metasynthesis:ti

183
Disorders” OR DE “Pituitary Disorders” OR DE “Thyroid Disorders”) OR TI (“Blood Sugar” OR “Diabetes” OR “diabetic” OR “Endocrine Disorders” OR ‘Endocrine Neoplasms’ OR “Endocrine Sexual Disorders” OR “Metabolic Syndrome” OR “niddm” OR “Parathyroid Disorders” OR “Pituitary Disorder*” OR “T2DM” OR “Thyroid Disorder*”) OR AB (“Blood Sugar” OR “Diabetes” OR “diabetic” OR “Endocrine Disorders” OR “Endocrine Neoplasms” OR “Endocrine Sexual Disorders” OR “Metabolic Syndrome” OR “niddm” OR “Parathyroid Disorders” OR “Pituitary Disorder*” OR “T2DM” OR “Thyroid Disorder*”)

Results: 33

PubMed

Search Run: 27 May 2021

Coverage: 2016 - present

Limits: English language, Humans


AND


AND

“Arnold-Chiari Malformation”[Majr] OR “Chiari*”[tiab] OR “Chiari*”[ot]

Results: 117
**Dysmenorrhea**

Cochrane

**Search Run:** 12 April 2021  
**Coverage:** 2016-present

**Limits:** Sources- CINAHL, Embase, and PubMed

[mh "Cannabis"] OR [mh "Cannabinol"] OR [mh "Cannabinol"] OR [mh "Marijuana Smoking"] OR [mh "Marijuana Use"] OR [mh "Medical Marijuana"] OR [mh "Dronabinol"] OR (bhang OR cannabis* OR cannabigerol OR cannabidiol* OR cannabid* OR cannabigerol OR cannabid* OR cannabidiol* OR delta 9 tetrahydrocannabinol OR delta 9 trans tetrahydrocannabinol OR Dronabinol OR epidoxol OR epidoxol OR ganja* OR ganjah* OR hashish* OR hemp* OR herba cannabis OR marihuana* OR marijuana* OR Marinol OR medical cannabis OR medical marihuana OR medical marijuana OR medicinal cannabis OR medicinal marihuana OR nabilone OR nabilone OR sativex OR syndros OR tetrahydrocannabinol* OR tetrahydrocannabinol* OR Tetrahydrocannabinol*:ti,ab,kw

AND

[mh “Dysmenorrhea”] OR (dysmenorrhoea OR menstrual pain OR Dysmenorrhea):ti,ab,kw

**Results:** 0 Reviews, 1 Trials

Embase

**Search Run:** 6 May 2021  
**Coverage:** 2016 – present

**Limits:** Embase; English language; Humans; case control study, clinical article, clinical study, clinical trial, cohort analysis, comparative effectiveness, control group, controlled clinical trial, controlled study, cross sectional study, crossover procedure, disease model, double blind procedure, evidence based medicine, human experiment, intention to treat analysis, longitudinal study, major clinical study, medical record review, meta analysis, model, multicenter study (topic), normal human, observational study, open study, phase 2 clinical trial (topic), phase 3 clinical trial (topic), pilot study, population based case control study, prospective study, randomized controlled trial (topic), retrospective study, secondary analysis, systematic review

‘cannabinol’/exp/mj OR ‘cannabinoid’/exp/mj OR ‘cannabinol’/exp/mj OR ‘Cannabis sativa’/exp/mj OR ‘cannabis smoking’/exp OR ‘cannabis use’/exp/mj OR ‘cannabis’/exp/mj OR ‘dronabinol’/exp/mj OR ‘medical cannabis’/exp OR ‘nabiximols’/exp/mj OR ‘tetrahydrocannabinol’/exp/mj OR ‘tetrahydrocannabinol’/exp/mj OR ‘delta 9 tetrahydrocannabinol’/ti,ab,kw OR ‘dronabinol’/ti,ab,kw OR ‘epidoxol’/ti,ab,kw OR ‘epidoxol’/ti,ab,kw OR ‘ganja’/ti,ab,kw OR ‘ganjah’/ti,ab,kw OR ‘hashish’/ti,ab,kw OR ‘hashish oil’/ti,ab,kw OR ‘hashish smoking’/ti,ab,kw OR ‘hemp’/ti,ab,kw OR ‘herba cannabis’/ti,ab,kw OR ‘marihuana’/ti,ab,kw OR ‘marijuana’/ti,ab,kw OR ‘Mariolin’/ti,ab,kw OR ‘medical cannabis’/ti,ab,kw OR ‘medical marihuana’/ti,ab,kw OR ‘medical marijuana’/ti,ab,kw OR ‘medicinal cannabis’/ti,ab,kw OR ‘medicinal marihuana’/ti,ab,kw OR ‘mexican marihuana’/ti,ab,kw OR ‘nabidiolex’/ti,ab,kw OR ‘nabiximols’/ti,ab,kw OR ‘sativex’/ti,ab,kw OR ‘syndros’/ti,ab,kw OR ‘tetrahydrocannabinol’/ti,ab,kw OR ‘tetrahydrocannabinol’/ti,ab,kw OR
Results: 8

PsycInfo

Search Run: 24 May 2021
Coverage: 2016-present

Limits: Phrase Searching (Boolean); Clinical Case Study, Clinical Trial, Empirical Study, Literature Review, Meta Analysis, Quantitative Study, Treatment Outcome, Twin Study; English; Human

Results: 0

PubMed

Search Run: 27 May 2021
Coverage: 2016 - present

Limits: English language, Humans

AND


AND


Results: 2
Dystonia, Cervical Dystonia

Cochrane

**Search Run:** 12 April 2021  
**Coverage:** 2016–present  
**Limits:** Sources- CINAHL, Embase, and PubMed

[mh "Cannabis"] OR [mh "Cannabinol"] OR [mh "Cannabidiol"] OR [mh "Marijuana Smoking"] OR [mh "Marijuana Use"] OR [mh "Medical Marijuana"] OR [mh "Dronabinol"] OR (bhang OR cannabid* OR cannabigerol OR cannabin* OR cannabis* OR cannador OR cardiolrx OR charas OR delta 9 tetrahydrocannabinol OR delta 9 trans tetrahydrocannabinol OR Dronabinol OR epidiolex OR epidiolyex OR ganja* OR ganjah* OR hashish* OR hemp* OR herba cannabis OR marihuana* OR marijuana* OR Marolin OR medical cannabis OR medical marihuana OR medical marijuana OR medicinal cannabis OR medicinal marihuana OR nabidiolex OR nabiximols OR sativex OR syndros OR tetrahydrocannabinol* OR tetrahydrocannabina* OR Tetrahydrocannabinol* OR tetrahydrocannabiol*):ti,ab,kw

AND

[mh "Dystonic Disorders"] OR [mh "Dystonia"] OR (anterocollis OR Autosomal Recessive Torsion Dystonia OR Cataplexy OR Dystonia OR dystonias OR dystonic disorder* OR dystonic movement disorder* OR Fibromyalgia OR laterocollis OR Meige Syndrome OR Mohr-Tranebjaerg syndrome OR Muscular Atrophy OR Muscular Disorder* OR Muscular dystonia OR Muscular Dystrophy OR Myasthenia Gravis OR Myoclonic dystonia OR myodyostonia OR Myofascial Pain OR Myotonia OR Progressive Supranuclear Palsy OR retrocollis OR spasmodic torticollis OR Torticollis):ti,ab,kw

**Results:** 1 Reviews, 16 Trials

Embaise

**Search Run:** 10 May 2021  
**Coverage:** 2016 – present  
**Limits:** Embase; English language; Humans; case control study, clinical article, clinical study, clinical trial, cohort analysis, comparative effectiveness, control group, controlled clinical trial, controlled study, correlational study, cross sectional study, crossover procedure, disease model, double blind procedure, evidence based medicine, human experiment, intention to treat analysis, longitudinal study, major clinical study, medical record review, meta analysis, model, multicenter study (topic), normal human, observational study, open study, phase 2 clinical trial (topic), phase 3 clinical trial (topic), pilot study, population based case control study, prospective study, randomized controlled trial (topic), retrospective study, secondary analysis, systematic review

‘cannabidiol’/exp/mj OR ‘cannabinoid’/exp/mj OR ‘cannabinol’/exp/mj OR ‘Cannabis sativa’/exp/mj OR ‘cannabis smoking’/exp OR ‘cannabis use’/exp/mj OR ‘cannabis’/exp/mj OR ‘dronabinol’/exp/mj OR ‘medical cannabis’/exp OR ‘nabiximols’/exp/mj OR ‘tetrahydrocannabinol’/exp/mj OR ‘tetrahydrocannabinol’:ti,ab,kw OR ‘bhang’:ti,ab,kw OR ‘cannabid*’:ti,ab,kw OR ‘cannabigerol’:ti,ab,kw OR ‘cannabin*’:ti,ab,kw OR ‘cannabis*’:ti,ab,kw OR ‘cannador’:ti,ab,kw OR ‘delta 9 tetrahydrocannabinol’:ti,ab,kw OR ‘dronabinol’:ti,ab,kw OR ‘epidiolyex’:ti,ab,kw OR ‘epidiolyex’:ti,ab,kw OR ‘ganja’:ti,ab,kw OR ‘ganjah’:ti,ab,kw OR ‘hashish’:ti,ab,kw OR ‘hashish oil’:ti,ab,kw OR ‘hashish smoking’:ti,ab,kw OR ‘hemp*’:ti,ab,kw OR
herba cannabis**:ti,ab,kw OR 'marihuana':ti,ab,kw OR 'marijuana':ti,ab,kw OR 'Marinol':ti,ab,kw OR 'medical cannabis':ti,ab,kw OR 'medical marihuana':ti,ab,kw OR 'medical marijuana':ti,ab,kw OR 'medicinal cannabis':ti,ab,kw OR 'medicinal marihuana':ti,ab,kw OR 'mexican marihuana':ti,ab,kw OR 'nabidiolex':ti,ab,kw OR 'nabiximols':ti,ab,kw OR 'sativex':ti,ab,kw OR 'syndros':ti,ab,kw OR 'tetrahydro cannabinol':ti,ab,kw OR 'tetrahydrocannabinol':ti,ab,kw OR 'tetrahydrocannabinol':ti,ab,kw OR 'tetrahydrocannabinol*':ti,ab,kw OR 'tetrahydrocannabinol*':ti,ab,kw OR 'THC':ti,ab,kw OR 'CBC':ti,ab,kw OR 'CBD':ti,ab,kw OR 'CBG':ti,ab,kw

AND

cervical dystonia'/exp/mj OR 'dystonia'/exp/mj OR 'dystonic disorder'/exp/mj OR 'anterocollis':ti,ab,kw OR 'autosomal recessive torsion dystonia':ti,ab,kw OR 'cataplexy':ti,ab,kw OR 'dystonia':ti,ab,kw OR 'dystoniias':ti,ab,kw OR 'dystonic disorder*':ti,ab,kw OR 'dystonic movement disorder*':ti,ab,kw OR 'fibromyalgia':ti,ab,kw OR 'lateralocollis':ti,ab,kw OR 'meige syndrome':ti,ab,kw OR 'mohr-tranebjaerg syndrome':ti,ab,kw OR 'muscular atrophy':ti,ab,kw OR 'muscular disorder*':ti,ab,kw OR 'muscular dystonia':ti,ab,kw OR 'muscular dystrophy':ti,ab,kw OR 'myasthenia gravis':ti,ab,kw OR 'myoclonic dystonia':ti,ab,kw OR 'myodystonia':ti,ab,kw OR 'myofascial pain':ti,ab,kw OR 'myotonia':ti,ab,kw OR 'progressive supranuclear palsy':ti,ab,kw OR 'retrocollis':ti,ab,kw OR 'spasmodic torticollis':ti,ab,kw

AND

'randomized controlled trial'/exp OR 'controlled clinical trial'/exp OR randomized:ti,ab OR placebo:ti,ab OR 'drug therapy':lnk OR randomly:ti,ab OR trial:ti,ab OR groups:ti,ab OR review/it OR meta-analysis/de OR 'systematic review'.ti OR "literature review":ti OR "meta analysis":ti OR metaanalysis:ti OR metasynthesis:ti

Results: 154

PsycInfo

Search Run: 24 May 2021

Coverage: 2016-present

Limits: Phrase Searching (Boolean); Clinical Case Study, Clinical Trial, Empirical Study, Literature Review, Meta Analysis, Quantitative Study, Treatment Outcome, Twin Study; English; Human

MM “Cannabis” OR MM “Marijuana” OR MM “Marijuana Usage” OR MM “Cannabinoids” OR MM “Tetrahydrocannabinol”) OR TI (“bhang” OR “cannabinoid” OR “cannabigerol” OR “cannabinoid” OR “cannabis*” OR “cannador” OR “delta 9 tetrahydrocannabinol” OR “delta tetrahydrocannabinol” OR “Dronabinol” OR “epidioleax” OR “epidiolex” OR “ganja*” OR “ganjah*” OR “hashish**” OR “hemp**” OR “herba cannabis” OR “marihuana” OR “marijuana” OR “Marinol” OR “medical cannabis” OR “medical marihuana” OR “medical marijuana” OR “medicinal cannabis” OR “medicinal marihuana” OR “medicinal marijuana” OR “nabidiolex” OR “nabiximols” OR “Sativex” OR “sp 104” OR “syndros” OR “tetrahydro cannabinol” OR “tetrahydrocannabinol” OR “Tetrahydrocannabinol” OR “tetrahydrocannabinol*” OR “tetrabihexin” OR “THC” OR “CBC” OR “CBD” OR “CBG”) OR AB (“bhang” OR “cannabid” OR “cannabigerol” OR “cannabinoid” OR “cannabis*” OR “cannador” OR “delta 9 tetrahydrocannabinol” OR “delta tetrahydrocannabinol” OR “Dronabinol” OR “epidioleax” OR “epidiolex” OR “ganja*” OR “ganjah*” OR “hashish**” OR “hemp**” OR “herba cannabis” OR “marihuana” OR “marijuana” OR “Marinol” OR “medical cannabis” OR “medical marihuana” OR “medical marijuana” OR “medicinal cannabis” OR “medicinal marihuana” OR “medicinal marijuana” OR “nabidiolex” OR “nabiximols” OR “Sativex” OR “sp 104” OR
“syndros” OR “tetrahydro cannabinol” OR “tetrahydrocannabinal” OR “Tetrahydrocannabinol” OR “tetrahydrocannabinol*” OR “tetranabinex” OR “THC” OR “CBC” OR “CBD” OR “CBG”

AND

(DE “Cataplexy” OR DE “Torticollis” OR MM “Progressive Supranuclear Palsy”) OR TI (“anterocollis” OR “Autosomal Recessive Torsion Dystonia” OR “Cataplexy” OR “Dystonia” OR “dystonias” OR “dystonic disorder*” OR “dystonic movement disorder*” OR “Fibromyalgia” OR “laterocollis” OR “Meige Syndrome” OR “Mohr-Tranebjaerg syndrome” OR “Muscular Atrophy” OR “Muscular Disorder*” OR “Muscular dystonia” OR “Muscular Dystrophy” OR “Myasthenia Gravis” OR “Myoclonic dystonia” OR “myodystonia” OR “myodystony” OR “Myofascial Pain” OR “Myotonia” OR “Progressive Supranuclear Palsy” OR “retrocollis” OR “spasmodic torticollis” OR “Torticollis”) OR AB (“anterocollis” OR “Autosomal Recessive Torsion Dystonia” OR “Cataplexy” OR “Dystonia” OR “dystonias” OR “dystonic disorder*” OR “dystonic movement disorder*” OR “Fibromyalgia” OR “laterocollis” OR “Meige Syndrome” OR “Mohr-Tranebjaerg syndrome” OR “Muscular Atrophy” OR “Muscular Disorder*” OR “Muscular dystonia” OR “Muscular Dystrophy” OR “Myasthenia Gravis” OR “Myoclonic dystonia” OR “myodystonia” OR “myodystony” OR “Myofascial Pain” OR “Myotonia” OR “Progressive Supranuclear Palsy” OR “retrocollis” OR “spasmodic torticollis” OR “Torticollis”)

Results: 34

PubMed

Search Run: 27 May 2021

Coverage: 2016 - present

Limits: English language, Humans


AND
AND
“Arnold-Chiari Malformation”[Majr] OR “Chiari*”[tiab] OR “Chiari*”[ot]

Results: 64
Ehlers-Danlos Syndrome

Cochrane

Search Run: 12 April 2021
Coverage: 2016–present

Limits: Sources- CINAHL, Embase, and PubMed

[mh "Cannabis"] OR [mh "Cannabino"] OR [mh "Cannabinol"] OR [mh "Marijuana Smoking"] OR [mh "Marijuana Use"] OR [mh "Medical Marijuana"] OR [mh "Dronabinol"] OR (bhang OR cannabin* OR cannabigerol OR cannabin* OR cannabidiol* OR cannador OR cardiolrx OR charas OR delta 9 tetrahydrocannabinol OR delta 9 trans tetrahydrocannabinol OR Dronabinol OR epidiolex OR epidiylex OR ganja* OR ganjah* OR hashish* OR hemp* OR herba cannabis OR marihuana* OR mariona* OR Marinol OR medical cannabis OR medical marihuana OR medical marijuana OR medicinal cannabis OR medicinal marihuana OR medicinal cannabis OR nabilone OR nabilone OR nabiximols OR sativex OR synergos OR tetrahydrocannabinol* OR tetrahydrocannabinol* OR Tetrahydrocannabinol*:ti,ab,kw

AND

[mh "Ehlers-Danlos Syndrome"] OR (Ehlers Danlos OR Ehler Danlos OR Hernandez Aguirre-Negrete syndrome OR Occipital horn syndrome):ti,ab,kw

Results: 3 Reviews, 236 Trials

Embaise

Search Run: 10 May 2021
Coverage: 2016 – present

Limits: Embase; English language; Humans; case control study, clinical article, clinical study, clinical trial, cohort analysis, comparative effectiveness, control group, controlled clinical trial, controlled study, correlative study, cross sectional study, crossover procedure, disease model, double blind procedure, evidence based medicine, human experiment, intention to treat analysis, longitudinal study, major clinical study, medical record review, meta analysis, model, multicenter study (topic), normal human, observational study, open study, phase 2 clinical trial (topic), phase 3 clinical trial (topic), pilot study, population based case control study, prospective study, randomized controlled trial (topic), retrospective study, secondary analysis, systematic review

‘cannabinoid’/exp/mj OR ‘cannabinoid’/exp/mj OR ‘Cannabis sativa’/exp/mj OR ‘cannabis smoking’/exp OR ‘cannabis use’/exp OR ‘cannabis’/exp/mj OR ‘dronabinol’/exp/mj OR ‘medical cannabis’/exp OR ‘nabiximols’/exp/mj OR ‘tetrahydrocannabinol’/exp/mj OR ‘tetrahydrocannabinol’:ti,ab,kw OR ‘bhang’:ti,ab,kw OR ‘cannabidiol*’:ti,ab,kw OR ‘cannabin*’:ti,ab,kw OR ‘cannabis*’:ti,ab,kw OR ‘cannador’:ti,ab,kw OR ‘delta 9 tetrahydrocannabinol’:ti,ab,kw OR ‘dronabinol’:ti,ab,kw OR ‘epidiylex’:ti,ab,kw OR ‘epidiylex’:ti,ab,kw OR ‘ganja’:ti,ab,kw OR ‘ganjah’:ti,ab,kw OR ‘hashish’:ti,ab,kw OR ‘hashish oil’:ti,ab,kw OR ‘hashish smoking’:ti,ab,kw OR ‘hemp*’:ti,ab,kw OR ‘herba cannabis’:ti,ab,kw OR ‘marihuana*’:ti,ab,kw OR ‘marijuana*’:ti,ab,kw OR ‘Mariinol’:ti,ab,kw OR ‘medical cannabis’:ti,ab,kw OR ‘medical marihuana’:ti,ab,kw OR ‘medical marijuana’:ti,ab,kw OR ‘medicinal cannabis’:ti,ab,kw OR ‘medicinal marihuana’:ti,ab,kw OR ‘mexican marihuana’:ti,ab,kw OR ‘nabidiolex’:ti,ab,kw OR ‘nabiximols’:ti,ab,kw OR ‘sativex’:ti,ab,kw OR ‘syndros’:ti,ab,kw OR ‘tetrahydro cannabino’:ti,ab,kw OR ‘tetrahydrocannabinol*:ti,ab,kw OR ‘tetrahydrocannabinol*:ti,ab,kw
‘tetrahydrocannabinol*’:ti,ab,kw OR ‘tetrahydrocannabinol*’:ti,ab,kw OR ‘THC’:ti,ab,kw OR ‘CBC’:ti,ab,kw OR ‘CBD’:ti,ab,kw OR ‘CBG’:ti,ab,kw

AND

‘Ehlers Danlos syndrome’/exp/mj OR ‘ehlers danlos syndrome type 4’/exp/mj OR ‘ehlers danlos syndrome type 6’/exp/mj OR ‘Ehlers Danlos’:ti,ab,kw OR ‘Ehler Danlos’:ti,ab,kw OR ‘Hernandez Aguirre-Negrete syndrome’:ti,ab,kw OR ‘Occipital horn syndrome’:ti,ab,kw

AND

‘randomized controlled trial’/exp OR ‘controlled clinical trial’/exp OR randomized:ti,ab OR placebo:ti,ab OR ‘drug therapy’:lnk OR randomly:ti,ab OR trial:ti,ab OR groups:ti,ab OR review/it OR meta-analysis/de OR “systematic review”:ti OR “literature review”:ti OR “meta analysis”:ti OR metaanalysis:ti

Results: 4

PubMed

Search Run: 27 May 2021
Coverage: 2016 - present

AND


Results: 0

PsycInfo

Search Run: 24 May 2021
Coverage: 2016-present

Limits: Phrase Searching (Boolean); Clinical Case Study, Clinical Trial, Empirical Study, Literature Review, Meta Analysis, Quantitative Study, Treatment Outcome, Twin Study; English; Human

MM “Cannabis” OR MM “Marijuana” OR MM “Marijuana Usage” OR MM “Cannabinoids” OR MM “Tetrahydrocannabinol”) OR TI (“bhang” OR “cannabin*” OR “cannabigerol” OR “cannabin*” OR “cannad” OR “delta 9 tetrahydrocannabinol” OR “delta tetrahydrocannabinol” OR “Dronabinol” OR “epidiolex” OR “epidyolex” OR “ganja*” OR “ganja*” OR “hashish**” OR “hemp**” OR “herba cannabis” OR “marihuana**” OR “marijuana**” OR “Marinol” OR “medical cannabis” OR “medical marihuana” OR “medical marijuana” OR “medicinal cannabis” OR “medicinal marijuana” OR “nabidiolex” OR “nabiximols” OR “Sativex” OR “sp 104” OR “syndros” OR “tetrahydro cannabino**” OR “tetrahydrocannabinino**” OR “Tetrahydrocannabinol**” OR “tetranabinex” OR “THC” OR “CBC” OR “CBD” OR “CBG”) OR AB (“bhang” OR “cannabin*” OR “cannabigerol” OR “cannabin*” OR “cannad” OR “delta 9 tetrahydrocannabinol” OR “delta tetrahydrocannabinol” OR “Dronabinol” OR “epidiolex” OR “epidyolex” OR “ganja*” OR “ganja*” OR “hashish**” OR “hemp**” OR “herba cannabis” OR “marihuana**” OR “marijuana**” OR “Marinol” OR “medical cannabis” OR “medical marihuana” OR “medical marijuana” OR “medicinal cannabis” OR “medicinal marijuana” OR “nabidiolex” OR “nabiximols” OR “Sativex” OR “sp 104” OR “syndros” OR “tetrahydro cannabino**” OR “tetrahydrocannabinino**” OR “Tetrahydrocannabinol**” OR “tetranabinex” OR “THC” OR “CBC” OR “CBD” OR “CBG”

AND

**Limits:** English language, Humans


**AND**


**AND**

“Arnold-Chiari Malformation”[Majr] OR “Chiari*”[tiab] OR “Chiari*”[ot]

**Results:** 0
Endometriosis

Cochrane

**Search Run:** 12 April 2021  
**Coverage:** 2016–present  
**Limits:** Sources- CINAHL, Embase, and PubMed


[mh "Cannabis"] OR [mh "Cannabinol"] OR [mh "Cannabinoid"] OR [mh "Marijuana Smoking"] OR [mh "Marijuana Use"] OR [mh "Medical Marijuana"] OR [mh "Dronabinol"] OR (bhang OR cannabid* OR cannabigerol OR cannabin* OR cannabidiol* OR cannador OR cardiolrx OR charas OR delta 9 trans tetrahydrocannabinol OR Dronabinol OR epidiolex OR epidiolate OR ganja* OR ganjah* OR hashish* OR hemp* OR herba cannabis OR marihuana* OR marijuana* OR Marinol OR medical cannabis OR medical marihuana OR medical marijuana OR medicinal cannabis OR medicinal marijuana OR nabidiolex OR nabiximols OR sativex OR syndros OR tetrahydrocannabinol* OR tetrahydrocannabinol* OR Tetrahydrocannabinol* OR tetrahydrocannabinol*):ti,ab,kw

AND

[mh "Endometriosis"] OR (endometriosis):ti,ab,kw

**Results:** 0 Reviews, 1 Trials

Embase

**Search Run:** 10 May 2021  
**Coverage:** 2016 – present  
**Limits:** Embase; English language; Humans; case control study, clinical article, clinical study, clinical trial, cohort analysis, comparative effectiveness, control group, controlled clinical trial, controlled study, correlative study, cross sectional study, crossover procedure, disease model, double blind procedure, evidence based medicine, human experiment, intention to treat analysis, longitudinal study, major clinical study, medical record review, meta analysis, model, multicenter study (topic), normal human, observational study, open study, phase 2 clinical trial (topic), phase 3 clinical trial (topic), pilot study, population based case control study, prospective study, randomized controlled trial (topic), retrospective study, secondary analysis, systematic review

‘cannabidiol’/exp/mj OR ‘cannabinoi’/exp/mj OR ‘cannabinoi’/exp/mj OR ‘Cannabis sativa’/exp/mj OR ‘cannabis smoking’/exp OR ‘cannabis use’/exp/mj OR ‘cannabis’/exp/mj OR ‘dronabinol’/exp/mj OR ‘medical cannabis’/exp OR ‘nabiximols’/exp/mj OR ‘tetrahydrocannabinol’/exp/mj OR ‘epidiolex’/ti,ab,kw OR ‘ganja’:ti,ab,kw OR ‘hashish’:ti,ab,kw OR ‘hashish smoking’:ti,ab,kw OR ‘herba cannabis’:ti,ab,kw OR ‘marihuana’*:ti,ab,kw OR ‘marijuana’*:ti,ab,kw OR ‘Marinol’:ti,ab,kw OR ‘medical cannabis’:ti,ab,kw OR ‘medical marihuana’:ti,ab,kw OR ‘medical marijuana’:ti,ab,kw OR ‘medicinal cannabis’:ti,ab,kw OR ‘medicinal marijuana’:ti,ab,kw OR ‘mexican marihuana’:ti,ab,kw OR ‘nabidiolex’:ti,ab,kw OR ‘nabiximols’:ti,ab,kw OR ‘sativex’:ti,ab,kw OR ‘syndros’:ti,ab,kw OR ‘tetrahydro cannabinoi’*:ti,ab,kw OR ‘tetrahydrocannabinol’*:ti,ab,kw
'tetrahydrocannabinol*':ti,ab,kw OR 'tetrahydrocannabinol*':ti,ab,kw OR 'THC':ti,ab,kw OR 'CBC':ti,ab,kw OR 'CBD':ti,ab,kw OR 'CBG':ti,ab,kw

AND

'endometriosis'/exp/mj OR 'endometriosis':ti,ab,kw

AND

'randomized controlled trial'/exp OR 'controlled clinical trial'/exp OR randomized:ti,ab OR placebo:ti,ab OR 'drug therapy':lnk OR randomly:ti,ab OR trial:ti,ab OR groups:ti,ab OR review/it OR meta-analysis/de OR "systematic review":ti OR "literature review":ti OR "meta analysis":ti OR metaanalysis:ti OR metasynthesis:ti

Results: 17

PsycInfo

Search Run: 24 May 2021
Coverage: 2016-present

Limits: Phrase Searching (Boolean); Clinical Case Study, Clinical Trial, Empirical Study, Literature Review, Meta Analysis, Quantitative Study, Treatment Outcome, Twin Study; English; Human

MM "Cannabis" OR MM "Marijuana” OR MM "Marijuana Usage" OR MM "Cannabinoids" OR MM "Tetrahydrocannabinol") OR TI ("bhang" OR "cannabid*" OR "cannabigerol" OR "cannabin*" OR "cannabis*" OR "cannador" OR "delta 9 tetrahydrocannabinol" OR "delta tetrahydrocannabinol" OR "Dronabinol" OR "epidiolex" OR "epidayolex" OR "ganja*" OR "ganjah*" OR "hashish*" OR "hemp*" OR "herba cannabis" OR "marihuana*" OR "marijuana*" OR "Marinol" OR "medical cannabis" OR "medical marihuana" OR "medical marijuana" OR "medicinal cannabis" OR "medicinal marijuana" OR "nabidiolex" OR "nabiximols" OR "Sativex" OR "sp 104" OR "syndros" OR "tetrahydro cannabinoil*" OR "tetrahydrocannabinol*" OR "Tetrahydrocannabinol*" OR "tetrahydrocannabial*" OR "Tetrahydrocannabinol*" OR "tetrahydrocannabiol*" OR "tetranabinex" OR "THC" OR "CBC" OR "CBD" OR "CBG") OR AB ("bhang" OR "cannabid*" OR "cannabigerol" OR "cannabin*" OR "cannabis*" OR "cannador" OR "delta 9 tetrahydrocannabinol" OR "delta tetrahydrocannabinol" OR "Dronabinol" OR "epidiolex" OR "epidayolex" OR "ganja*" OR "ganjah*" OR "hashish*" OR "hemp*" OR "herba cannabis" OR "marihuana*" OR "marijuana*" OR "Marinol" OR "medical cannabis" OR "medical marihuana" OR "medical marijuana" OR "medicinal cannabis" OR "medicinal marijuana" OR "nabidiolex" OR "nabiximols" OR "Sativex" OR "sp 104" OR "syndros" OR "tetrahydro cannabinoil*" OR "tetrahydrocannabinol*" OR "tetrahydrocannabiol*" OR "tetrahydrocannabinol*" OR "tetrahydrocannabiol*"

AND

TI ("endometriosis") OR AB ("endometriosis")

Results: 0

PubMed

Search Run: 27 May 2021
Coverage: 2016 - present

Limits: English language, Humans


AND


AND

“Arnold-Chiari Malformation”[Majr] OR “Chiari*”[tiab] OR “Chiari*”[ot]

Results: 5
Epilepsy

Cochrane

Search Run: 12 April 2021
Coverage: 2016-present

Limits: Sources- CINAHL, Embase, and PubMed

[mh "Cannabis"] OR [mh "Cannabidiol"] OR [mh "Marijuana Smoking"] OR [mh "Marijuana Use"] OR [mh "Medical Marijuana"] OR [mh "Dronabinol"] OR (bhang OR cannabid* OR cannabigerol OR cannabin* OR cannab* OR cannador OR cardiolrx OR charas OR delta 9 tetrahydrocannabinol OR delta 9 trans tetrahydrocannabinol OR Dronabinol OR epidiolox OR epidiol OR ganja* OR ganjahl* OR hashish* OR hemp* OR herba cannabis OR marihuana* OR marjuna* OR Marinol OR medical cannabis OR medical marihuana OR medical marijuana OR medicinal cannabis OR medicinal marijuana OR nabidiolex OR nabiximols OR sativex OR syndros OR tetrahydro cannabino* OR tetrahydrocannabinol* OR Tetrahydrocannabinol* OR 'tetrahydrocannabinol*':ti,ab,kw

AND

[mh "Epilepsy"] OR (comitial disease OR epilepsy OR Epilepsy OR epileptic OR falling sickness OR Hemispherectomy OR Kindling OR Lennox Gastaut Syndrome OR Partial Epilepsies OR Periventricular Leukomalacia OR Progressive Myoclonic Epilepsies):ti,ab,kw

Results: 0 Reviews, 122 Trials

Embase

Search Run: 10 May 2021
Coverage: 2016 – present

Limits: Embase; English language; Humans; case control study, clinical article, clinical study, clinical trial, cohort analysis, comparative effectiveness, control group, controlled clinical trial, controlled study, correlative study, cross sectional study, crossover procedure, disease model, double blind procedure, evidence based medicine, human experiment, intention to treat analysis, longitudinal study, major clinical study, medical record review, meta analysis, model, multicenter study (topic), normal human, observational study, open study, phase 2 clinical trial (topic), phase 3 clinical trial (topic), pilot study, population based case control study, prospective study, randomized controlled trial (topic), retrospective study, secondary analysis, systematic review

‘cannabidiol’/exp/mj OR ‘cannabinoid’/exp/mj OR ‘Cannabis sativa’/exp/mj OR ‘cannabis smoking’/exp OR ‘cannabis use’/exp/mj OR ‘cannabis’/exp/mj OR ‘dronabinol’/exp/mj OR ‘medical cannabis’/exp OR ‘nabiximols’/exp/mj OR ‘tetrahydrocannabinol’/exp/mj OR ‘tetrahydrocannabinol’:ti,ab,kw OR ‘bhang’:ti,ab,kw OR ‘cannabidiol’:ti,ab,kw OR ‘cannabigerol’:ti,ab,kw OR ‘cannabinoid’:ti,ab,kw OR ‘cannabinol’:ti,ab,kw OR ‘cannabin*’:ti,ab,kw OR ‘cannador’:ti,ab,kw OR ‘delta 9 tetrahydrocannabinol’:ti,ab,kw OR ‘dronabinol’:ti,ab,kw OR ‘epidiol’:ti,ab,kw OR ‘epidiolox’:ti,ab,kw OR ‘ganja’:ti,ab,kw OR ‘ganjah’:ti,ab,kw OR ‘hashish’:ti,ab,kw OR ‘hashish oil’:ti,ab,kw OR ‘hemp*’:ti,ab,kw OR ‘herba cannabis’:ti,ab,kw OR ‘marihuana’:ti,ab,kw OR ‘marijuana’:ti,ab,kw OR ‘Marinol’:ti,ab,kw OR ‘medical cannabis’:ti,ab,kw OR ‘medical marihuana’:ti,ab,kw OR ‘medical marijuana’:ti,ab,kw OR ‘medicinal cannabis’:ti,ab,kw OR ‘medicinal marijuana’:ti,ab,kw OR ‘mexican marihuana’:ti,ab,kw OR ‘nabidiolex’:ti,ab,kw OR ‘nabiximols’:ti,ab,kw OR ‘sativex’:ti,ab,kw OR ‘syndros’:ti,ab,kw OR
tetrahydrocannabinol* OR 'tetrahydrocannabinol' OR 'tetrahydrocannabinol' OR 'tetrahydrocannabinol' OR 'tetrahydrocannabinol'

 AND
epilepsy/exp OR 'comitial disease':ti,ab,kw OR 'epilepsia':ti,ab,kw OR 'Epilepsy':ti,ab,kw OR 'epileptic':ti,ab,kw OR 'falling sickness':ti,ab,kw OR 'Hemispherectomy':ti,ab,kw OR 'Kindling':ti,ab,kw OR 'Lennox Gastaut Syndrome':ti,ab,kw OR 'Partial Epilepsies':ti,ab,kw OR 'Periventricular Leukomalacia':ti,ab,kw OR 'Progressive Myoclonic Epilepsies':ti,ab,kw

 AND

'randomized controlled trial'/exp OR 'controlled clinical trial'/exp OR randomized:ti,ab OR placebo:ti,ab OR 'drug therapy':lnk OR randomly:ti,ab OR trial:ti,ab OR groups:ti,ab OR review/it OR meta-analysis/de OR "systematic review":ti OR "literature review":ti OR "meta analysis":ti OR metaanalysis:ti OR metasynthesis:ti

 Results: 502

PsycInfo

Search Run: 24 May 2021
Coverage: 2016-present

Limits: Phrase Searching (Boolean): Clinical Case Study, Clinical Trial, Empirical Study, Literature Review, Meta Analysis, Quantitative Study, Treatment Outcome, Twin Study; English; Human

MM "Cannabis" OR MM "Marijuana" OR MM "Marijuana Usage" OR MM "Cannabinoids" OR MM "Tetrahydrocannabinol") OR TI ("bhang" OR "cannabinoid" OR "cannabigerol" OR "cannabinoid" OR "cannabinoid" OR "cannadion" OR "delta 9 tetrahydrocannabinol" OR "delta tetrahydrocannabinol" OR "Dronabinol" OR "epidiolex" OR "epidiolex" OR "ganja" OR "ganja" OR "hashish" OR "hemp" OR "herba cannabis" OR "marihuana" OR "marijuana" OR "Marinol" OR "medical cannabis" OR "medical marijuana" OR "nabidiolex" OR "nabiximols" OR "Sativex" OR "sp 104" OR "syndros" OR "tetrahydrocannabinol" OR "tetrahydrocannabinol" OR "tetrahydrocannabinol")

 AND

(MM "Epilepsy" OR MM "Experimental Epilepsy" OR MM "Periventricular Leukomalacia" OR MM "Lennox Gastaut Syndrome" OR MM "Kindling" OR MM "Hemispherectomy" OR MM "Epileptic Seizures") OR TI ("comitial disease" OR "epilepsia" OR "Epilepsy" OR "epileptic" OR "falling sickness" OR "Hemispherectomy" OR "Kindling" OR "Lennox Gastaut Syndrome" OR "Partial Epilepsies" OR "Periventricular Leukomalacia" OR "Progressive Myoclonic Epilepsies") OR AB ("comitial disease" OR "epilepsia" OR "Epilepsy" OR "epileptic" OR "falling sickness" OR "Hemispherectomy" OR "Kindling" OR "Lennox Gastaut Syndrome" OR "Partial Epilepsies" OR "Periventricular Leukomalacia" OR "Progressive Myoclonic Epilepsies")
Results: 84

PubMed

Search Run: 27 May 2021

Coverage: 2016 - present

Limits: English language, Humans


AND


AND

"Arnold-Chiari Malformation"[Majr] OR "Chiari*"[tiab] OR "Chiari*"[ot]

Results: 260
Fatigue

Cochrane

Search Run: 12 April 2021
Coverage: 2016-presents

Limits: Sources- CINAHL, Embase, and PubMed

[mh "Cannabis"] OR [mh "Cannabinol"] OR [mh "Cannabinoid"] OR [mh "Marijuana Smoking"] OR [mh "Marijuana Use"] OR [mh "Medical Marijuana"] OR [mh "Dronabinol"] OR (bhang OR cannabid* OR cannabigerol OR cannabin* OR cannabis* OR cannador OR cardiolrx OR charas OR delta 9 tetrahydrocannabinol OR delta 9 trans tetrahydrocannabinol OR Dronabinol OR epidiolex OR epidyolex OR ganja* OR ganjah* OR hashish* OR hemp* OR herba cannabis OR marihuana* OR marijuana* OR Marinol OR medical cannabis OR medical marihuana OR medical marijuana OR medicinal cannabis OR medicinal marijuana OR nabidiolex OR nabiximols OR sativex OR syndros OR tetrahydrocannabinol* OR tetrahydrocannabinal* OR Tetrahydrocannabinol* OR tetrahydrocannabinol*):ti,ab,kw

AND

[mh "Fatigue"] OR [mh "Mental Fatigue"] OR (Addisons Disease OR Addison's Disease OR benign myalgic encephalomyelitis OR chronic fatigue* OR Compassion Fatigue OR epidemic neuromyasthenia OR Fatigue OR fatigue syndrome OR Iceland disease OR Mental Fatigue OR Muscle Fatigue OR myalgic encephalomyelitis OR Myasthenia OR Myasthenia Gravis OR Neurasthenia OR systemic exertion intolerance disease OR tiredness):ti,ab,kw

Results: 3 Reviews, 83 Trials

Embase

Search Run: 10 May 2021
Coverage: 2016–present

Limits: Embase; English language; Humans; case control study, clinical article, clinical study, clinical trial, cohort analysis, comparative effectiveness, control group, controlled clinical trial, controlled study, correlative study, cross-sectional study, crossover procedure, disease model, double blind procedure, evidence-based medicine, human experiment, intention to treat analysis, longitudinal study, major clinical study, medical record review, meta-analysis, model, multicenter study (topic), normal human, observational study, open study, phase 2 clinical trial (topic), phase 3 clinical trial (topic), pilot study, population based case control study, prospective study, randomized controlled trial (topic), retrospective study, secondary analysis, systematic review

'cannabidiol'/exp/mj OR 'cannabinoid'/exp/mj OR 'cannabinoi'/exp/mj OR 'Cannabis sativa'/exp/mj OR 'cannabis smoking'/exp OR 'cannabis use'/exp/mj OR 'cannabis'/exp/mj OR 'dronabinol'/exp/mj OR 'medicinal cannabis'/exp OR 'nabiximols'/exp/mj OR 'tetrahydrocannabinol'/exp/mj OR 'tetrahydrocannabinol':ti,ab,kw OR 'bhang':ti,ab,kw OR 'cannabinoid*':ti,ab,kw OR 'cannabigerol':ti,ab,kw OR 'cannabin*':ti,ab,kw OR 'cannabis*':ti,ab,kw OR 'cannador':ti,ab,kw OR 'delta 9 tetrahydrocannabinol':ti,ab,kw OR 'dronabinol':ti,ab,kw OR 'epidiolex':ti,ab,kw OR 'epidylox':ti,ab,kw OR 'ganja':ti,ab,kw OR 'ganjah':ti,ab,kw OR 'hashish':ti,ab,kw OR 'hashish oil':ti,ab,kw OR 'hashish smoking':ti,ab,kw OR 'hemp*':ti,ab,kw OR 'herba cannabis':ti,ab,kw OR 'marihuana*':ti,ab,kw OR 'marijuana*':ti,ab,kw OR 'Marinol':ti,ab,kw OR 'medical cannabis':ti,ab,kw OR 'medical marihuana':ti,ab,kw OR 'medical marijuana':ti,ab,kw OR
'medicinal cannabis':ti,ab,kw OR 'medicinal marijuana':ti,ab,kw OR 'mexican marihuana':ti,ab,kw OR 'nabidiolex':ti,ab,kw OR 'nabiximols':ti,ab,kw OR 'sativex':ti,ab,kw OR 'syndros':ti,ab,kw OR 'tetrahydro cannabinol*':ti,ab,kw OR 'tetrahydrocannabinal*':ti,ab,kw OR 'tetrahydrocannabinol*':ti,ab,kw OR 'tetrahydrocannabinol*':ti,ab,kw OR 'THC':ti,ab,kw OR 'CBC':ti,ab,kw OR 'CBD':ti,ab,kw OR 'CBG':ti,ab,kw
AND
'fatigue'/exp/mj OR 'chronic fatigue'/exp/mj OR 'chronic fatigue syndrome'/exp/mj OR 'Addisons Disease':ti,ab,kw OR 'Addisons Disease':ti,ab,kw OR 'benign myalgic encephalomyelitis':ti,ab,kw OR 'chronic fatigue*':ti,ab,kw OR 'Compassion Fatigue':ti,ab,kw OR 'epidemic neuromyasthenia':ti,ab,kw OR 'Fatigue':ti,ab,kw OR 'fatigue syndrome':ti,ab,kw OR 'Iceland disease':ti,ab,kw OR 'Mental Fatigue':ti,ab,kw OR 'Muscle Fatigue':ti,ab,kw
AND
'randomized controlled trial'/exp OR 'controlled clinical trial'/exp OR randomized:ti,ab OR placebo:ti,ab OR 'drug therapy':lnk OR randomly:ti,ab OR trial:ti,ab OR groups:ti,ab OR review/it OR meta-analysis/de OR "systematic review":ti OR "literature review":ti OR "meta analysis":ti OR metaanalysis:ti OR metasynthesis:ti

Results: 162

PsycInfo

Search Run: 24 May 2021
Coverage: 2016-present

Limits: Phrase Searching (Boolean); Clinical Case Study, Clinical Trial, Empirical Study, Literature Review, Meta Analysis, Quantitative Study, Treatment Outcome, Twin Study; English; Human

MM “Cannabis” OR MM “Marijuana” OR MM “Marijuana Usage” OR MM “Cannabinoids” OR MM “Tetrahydrocannabinol”) OR TI (“bhang” OR “cannabid*” OR “cannabigerol” OR “cannabin*” OR “cannabis” OR “cannador” OR “delta 9 tetrahydrocannabinol” OR “delta tetrahydrocannabinol” OR “Dronabinol” OR “epidiolex” OR “epidyolex” OR “ganja” OR “ganja*” OR “hashish*” OR “hemp*” OR “herba cannabis” OR “marihuana” OR “marijuana” OR “Marinol” OR “medical cannabis” OR “medical marihuana” OR “medical marijuana” OR “medicinal cannabis” OR “medicinal marijuana” OR “nabidiolex” OR “nabiximols” OR “Sativex” OR “sp 104” OR “syndros” OR “tetrahydro cannabinol*” OR “tetrahydrocannabinol**” OR “Tetrahydrocannabinol**” OR “tetrahydrocannabinol” OR “tetranabinex” OR “THC” OR “CBC” OR “CBD” OR “CBG”) OR AB (“bhang” OR “cannabid*” OR “cannabigerol” OR “cannabin*” OR “cannabin” OR “cannador” OR “delta 9 tetrahydrocannabinol” OR “delta tetrahydrocannabinol” OR “Dronabinol” OR “epidiolex” OR “epidyolex” OR “ganja” OR “ganja*” OR “hashish” OR “hemp” OR “herba cannabis” OR “marihuana” OR “marijuana” OR “Marinol” OR “medical cannabis” OR “medical marihuana” OR “medical marijuana” OR “medicinal cannabis” OR “medicinal marijuana” OR “nabidiolex” OR “nabiximols” OR “Sativex” OR “sp 104” OR “syndros” OR “tetrahydro cannabinol*” OR “tetrahydrocannabinol**” OR “Tetrahydrocannabinol**” OR “tetrahydrocannabinol” OR “tetranabinex” OR “THC” OR “CBC” OR “CBD” OR “CBG”
AND
(MM “Fatigue” OR MM “Chronic Fatigue Syndrome” OR MM “Compassion Fatigue” OR MM “Neuralasthenia” OR MM “Myasthenia Gravis” OR MM “Myasthenia” OR MM “Addisons Disease”) OR TI (“Addisons Disease” OR “Addison’s Disease” OR “benign myalgic encephalomyelitis” OR “chronic fatigue*” OR “Compassion Fatigue” OR “epidemic neuromyasthenia” OR “Fatigue” OR “fatigue syndrome” OR “Iceland disease” OR “Mental Fatigue” OR “Muscle Fatigue” OR “myalgic
encephalomyelitis” OR “Myastenia” OR “Myasthenia Gravis” OR “Neurasthenia” OR “systemic exertion intolerance disease” OR “tiredness”) OR AB (“Addisons Disease” OR “Addison’s Disease” OR “benign myalgic encephalomyelitis” OR “chronic fatigue*” OR “Compassion Fatigue” OR “epidemic neuromyasthenia” OR “Fatigue” OR “fatigue syndrome” OR “Iceland disease” OR “Mental Fatigue” OR “Muscle Fatigue” OR “myalgic encephalomyelitis” OR “Myasthenia” OR “Myasthenia Gravis” OR “Neurasthenia” OR “systemic exertion intolerance disease” OR “tiredness”)

Results: 20

PubMed

Search Run: 27 May 2021

Coverage: 2016 - present

Limits: English language, Humans


AND


AND

“Arnold-Chiari Malformation”[Majr] OR “Chiari*”[tiab] OR “Chiari*”[ot]

Results: 39
Fibromyalgia

Cochrane

Search Run: 12 April 2021
Coverage: 2016-present

Limits: Sources- CINAHL, Embase, and PubMed
[mh "Cannabis"] OR [mh "Cannabinol"] OR [mh "Cannabidiol"] OR [mh "Marijuana Smoking"] OR [mh "Marijuana Use"] OR [mh "Medical Marijuana"] OR [mh "Dronabinol"] OR (bhang OR cannabid* OR cannabigerol OR cannabin* OR cannabis* OR cannador OR cardiolrx OR charas OR delta 9 tetrahydrocannabinol OR delta 9 trans tetrahydrocannabinol OR Dronabinol OR epidiolex OR epidiolex OR ganja* OR ganjah* OR hashish* OR hemp* OR herba cannabis OR marihuana* OR marijuana* OR Marinol OR medical cannabis OR medical marihuana OR medical marijuana OR medicinal cannabis OR medicinal marijuana OR nabidiolex OR nabiximols OR sativex OR syndros OR tetrahydro cannabino* OR tetrahydrocannabinol* OR Tetrahydrocannabinol*:ti,ab,kw
AND
[mh "Fibromyalgia"] OR (Chronic Fatigue Syndrome OR fibro OR Fibromyalgia* OR (Fibrositic AND Nodule) OR Fibrositis*):ti,ab,kw

Results: 3 Reviews, 9 Trials

Embase

Search Run: 10 May 2021
Coverage: 2016 – present

Limits: Embase; English language; Humans; case control study, clinical article, clinical study, clinical trial, cohort analysis, comparative effectiveness, control group, controlled clinical trial, controlled study, correlative study, cross sectional study, crossover procedure, disease model, double blind procedure, evidence based medicine, human experiment, intention to treat analysis, longitudinal study, major clinical study, medical record review, meta analysis, model, multicenter study (topic), normal human, observational study, open study, phase 2 clinical trial (topic), phase 3 clinical trial (topic), pilot study, population based case control study, prospective study, randomized controlled trial (topic), retrospective study, secondary analysis, systematic review
‘cannabidiol'/exp/mj OR 'cannabinoid'/exp/mj OR 'cannabinol'/exp/mj OR 'Cannabis sativa'/exp/mj OR 'cannabis smoking'/exp OR 'cannabis use'/exp/mj OR 'cannabis'/exp/mj OR 'dronabinol'/exp/mj OR 'medical cannabis'/exp OR 'nabiximols'/exp/mj OR 'tetrahydrocannabinol'/exp/mj OR 'tetrahydrocannabinol':ti,ab,kw OR 'bhang':ti,ab,kw OR 'cannabinoid':ti,ab,kw OR 'cannabigerol':ti,ab,kw OR 'cannabin*':ti,ab,kw OR 'cannador':ti,ab,kw OR 'delta 9 tetrahydrocannabinol':ti,ab,kw OR 'dronabinol':ti,ab,kw OR 'epidiolex':ti,ab,kw OR 'epidiolex':ti,ab,kw OR 'ganja':ti,ab,kw OR 'gannah':ti,ab,kw OR 'hashish':ti,ab,kw OR 'hashish oil':ti,ab,kw OR 'hashish smoking':ti,ab,kw OR 'hemp*':ti,ab,kw OR 'herba cannabis':ti,ab,kw OR 'marihuana*':ti,ab,kw OR 'marijuana*':ti,ab,kw OR 'Marinol':ti,ab,kw OR 'medicinal cannabis':ti,ab,kw OR 'medicinal marijuana':ti,ab,kw OR 'medical cannabis':ti,ab,kw OR 'medical marihuana':ti,ab,kw OR 'medical marijuana':ti,ab,kw OR 'Mexican marihuana':ti,ab,kw OR 'nabidiolex':ti,ab,kw OR 'nabiximols':ti,ab,kw OR 'sativex':ti,ab,kw OR 'syndros':ti,ab,kw OR 'tetrahydro cannabino*':ti,ab,kw OR 'tetrahydrocannabinol*':ti,ab,kw OR 'tetrahydrocannabinol':ti,ab,kw OR 'tetrahydrocannabinol':ti,ab,kw OR
Results: 55

PubMed

Search Run: 28 May 2021
Coverage: 2016 - present

Results: 9

PsycInfo

Search Run: 24 May 2021
Coverage: 2016-present

Limits: Phrase Searching (Boolean); Clinical Case Study, Clinical Trial, Empirical Study, Literature Review, Meta Analysis, Treatment Outcome, Twin Study; English; Human
**Limits:** English language, Humans


AND


AND

“Arnold-Chiari Malformation”[Majr] OR “Chiari*”[tiab] OR “Chiari*”[ot]

**Results:** 26
Fibrous dysplasia

Cochrane

**Search Run:** 12 April 2021  
**Coverage:** 2016-present

**Limits:** Sources- CINAHL, Embase, and PubMed

[mh "Cannabis"] OR [mh "Cannabinol"] OR [mh "Cannabidiol"] OR [mh "Marijuana Smoking"] OR [mh "Marijuana Use"] OR [mh "Medical Marijuana"] OR [mh "Dronabinol"] OR (bhang OR cannabid* OR cannabigerol OR cannabin* OR cannabin* OR cannador OR cardiolrx OR charas OR delta 9 tetrahydrocannabinol OR delta 9 trans tetrahydrocannabinol OR Dronabinol OR epidiolex OR epidiolex OR ganja* OR ganjah* OR hashish* OR hemp* OR herba cannabis OR marihuana* OR marajuana* OR Marinol OR medical cannabis OR medical marihuana OR medical marijuana OR medicinal cannabis OR medicinal marihuana OR medicinal marijuana OR nabidiolex OR nabiximols OR sativex OR syndros OR tetrahydrocannabinol* OR tetrahydrocannabinol* OR Tetrahydrocannabinol* OR tetrahydrocannabinol*):ti,ab,kw

AND

[mh “Fibrous Dysplasia of Bone”] OR [mh “Cementoma”] OR [mh “Cherubism”] OR (bone fibrous dysplasia OR Cementoma OR Cherubism OR Craniofacial Fibrous Dysplasia OR dysplasia fibrosa OR fibrodisplasia OR fibroosseous dysplasia OR fibrous bone defect OR fibrous bone disease OR fibrous bone dysplasia OR fibrous bone dystrophy OR fibrous chondrodisplasia OR fibrous dysplasia OR fibrous dysplasia of bone OR fibrous osteodysplasia OR fibrous osteodystrophy OR Monostotic Fibrous Dysplasia OR osteodystrophia fibrosa OR Panostotic fibrous dysplasia OR Polyostotic Fibrous Dysplasia):ti,ab,kw

**Results:** 0 Reviews, 0 Trials

Embase

**Search Run:** 4 March 2021  
**Coverage:** 2016 – present

**Limits:** Embase; English language; Humans; case control study, clinical article, clinical study, clinical trial, cohort analysis, comparative effectiveness, control group, controlled clinical trial, controlled study, correlational study, cross sectional study, crossover procedure, disease model, double blind procedure, evidence based medicine, human experiment, intention to treat analysis, longitudinal study, major clinical study, medical record review, meta analysis, model, multicenter study (topic), normal human, observational study, open study, phase 2 clinical trial (topic), phase 3 clinical trial (topic), pilot study, population based case control study, prospective study, randomized controlled trial (topic), retrospective study, secondary analysis, systematic review

‘cannabidiol’/exp/mj OR ‘cannabinoid’/exp/mj OR ‘cannabinol’/exp/mj OR ‘Cannabis sativa’/exp/mj OR ‘cannabis smoking’/exp OR ‘cannabis use’/exp/mj OR ‘cannabis’/exp/mj OR ‘dronabinol’/exp/mj OR ‘medical cannabis’/exp OR ‘nabiximols’/exp/mj OR ‘tetrahydrocannabinol’/exp/mj OR ‘tetrahydrocannabinol’:ti,ab,kw OR ‘bhang’:ti,ab,kw OR ‘cannabid*’:ti,ab,kw OR ‘cannabigerol’:ti,ab,kw OR ‘cannabin*’:ti,ab,kw OR ‘cannabis*’:ti,ab,kw OR ‘cannador’:ti,ab,kw OR ‘delta 9 tetrahydrocannabinol’:ti,ab,kw OR ‘dronabinol’:ti,ab,kw OR ‘epidiolex’:ti,ab,kw OR ‘epidiolex’:ti,ab,kw OR ‘ganja’:ti,ab,kw OR ‘ganjah’:ti,ab,kw OR ‘hashish’:ti,ab,kw OR ‘hashish oil’:ti,ab,kw OR ‘hashish smoking’:ti,ab,kw OR ‘hemp*’:ti,ab,kw OR
herba cannabis':ti,ab,kw OR 'marihuana*':ti,ab,kw OR 'marijuana*':ti,ab,kw OR 'Marinol':ti,ab,kw OR 'medical cannabis':ti,ab,kw OR 'medical marihuana':ti,ab,kw OR 'medical marijuana':ti,ab,kw OR 'medicinal cannabis':ti,ab,kw OR 'medicinal marihuana':ti,ab,kw OR 'mexican marihuana':ti,ab,kw OR 'nabidiolex':ti,ab,kw OR 'nabiximols':ti,ab,kw OR 'sativex':ti,ab,kw OR 'syndros':ti,ab,kw OR 'tetrahydro cannabinoi':ti,ab,kw OR 'tetrahydrocannabinol*':ti,ab,kw OR 'tetrahydrocannabial*':ti,ab,kw OR 'tetrahydrocannabinol*':ti,ab,kw OR 'tetrahydrocannabinol*':ti,ab,kw OR 'THC':ti,ab,kw OR 'CBC':ti,ab,kw OR 'CBD':ti,ab,kw OR 'CBG':ti,ab,kw

AND

'Arnold Chiari malformation'/exp/mj OR 'Chiari*':ti,ab,kw

AND

'randomized controlled trial'/exp OR 'controlled clinical trial'/exp OR randomized:ti,ab OR placebo:ti,ab OR 'drug therapy':lnk OR randomly:ti,ab OR trial:ti,ab OR groups:ti,ab OR review/it OR meta-analysis/de OR 'systematic review':ti OR 'literature review':ti OR "meta analysis":ti OR metaanalysis:ti OR metasynthesis:ti

Results: 400

PsycInfo

Search Run: 24 May 2021
Coverage: 2016-present

Limits: Phrase Searching (Boolean); Clinical Case Study, Clinical Trial, Empirical Study, Literature Review, Meta Analysis, Quantitative Study, Treatment Outcome, Twin Study; English; Human

MM “Cannabis” OR MM “Marijuana” OR MM “Marijuana Usage” OR MM “Cannabinoids” OR MM “Tetrahydrocannabinol”) OR TI ("bhang" OR "cannabid*" OR "cannabigerol" OR "cannabin*" OR "cannabis*" OR "cannador" OR "delta 9 tetrahydrocannabinol" OR "delta tetrahydrocannabinol" OR "Dronabinol" OR "epidiolex" OR "epidyolex" OR "ganja*" OR "ganjah*" OR "hashish*" OR "hemp*" OR "herba cannabis" OR "marihuana*" OR "marijuana*" OR "Marinol" OR "medical cannabis" OR "medical marihuana" OR "medical marijuana" OR "nabidiolex" OR "nabiximols" OR "Sativex" OR "$ 104" OR "syndros" OR "tetrahydro cannabinoi" OR "tetrahydrocannabinol*" OR "tetrahydrocannabinol*" OR "tetrahydrocannabinol*" OR "tetrahydrocannabinol*" OR "tetrahydrocannabinol*" OR "tetrahydrocannabinol*" OR "tetrahydrocannabinol*" OR "Dronabinol" OR "epidiolex" OR "epidyolex" OR "ganja*" OR "ganjah*" OR "hashish*" OR "hemp*" OR "herba cannabis" OR "marihuana*" OR "marijuana*" OR "Marinol" OR "medical cannabis" OR "medical marihuana" OR "medical marijuana" OR "nabidiolex" OR "nabiximols" OR "Sativex" OR "$ 104" OR "syndros" OR "tetrahydro cannabinoi" OR "tetrahydrocannabinol*" OR "Tetrahydrocannabinol" OR "Tetrahydrocannabinol" OR "Tetrahydrocannabinol*"

AND

TI ("bone fibrous dysplasia" OR "Cementoma" OR "Cherubism" OR "Craniofacial Fibrous Dysplasia" OR "dysplasia fibrosa" OR "fibrodyplasia" OR "fibroosseous dysplasia" OR "fibrous bone defect" OR "fibrous bone disease" OR "fibrous bone dysplasia" OR "fibrous bone dystrophy" OR "fibrous chondrodyplasia" OR "fibrous dysplasia" OR "fibrous dysplasia of bone" OR "fibrous osteoaplasia" OR "fibrous osteodystrophy" OR "Monostotic Fibrous Dysplasia" OR "osteodystrophia fibrosa" OR "Panostotic fibrous dysplasia" OR "Polyostotic Fibrous Dysplasia") OR AB ("bone fibrous dysplasia" OR "Cementoma" OR "Cherubism" OR "Craniofacial Fibrous Dysplasia"
OR "dysplasia fibrosa" OR "fibrodyplasia" OR “fibroosseous dysplasia” OR "fibrous bone defect” OR “fibrous bone disease” OR "fibrous bone dysplasia” OR “fibrous bone dystrophy” OR “fibrous chondroosseous dysplasia” OR “fibrous dysplasia” OR “fibrous dysplasia of bone” OR “fibrous osteodysplasia” OR “fibrous osteodystrophy” OR “Monostotic Fibrous Dysplasia” OR “osteodystrophy fibrosa” OR “Panhustotic fibrous dysplasia” OR “Polyostotic Fibrous Dysplasia”

Results: 0

PubMed

Search Run: 28 May 2021

Coverage: 2016 - present

Limits: English language, Humans


AND


AND

“Arnold-Chiari Malformation”[Majr] OR “Chiari*”[tiab] OR “Chiari*”[ot]

Results: 0
Glaucoma

Cochrane

Search Run: 12 April 2021
Coverage: 2016-present

Limits: Sources- CINAHL, Embase, and PubMed
[mh "Cannabis"] OR [mh "Cannabino1"] OR [mh "Cannabidiol"] OR [mh "Marijuana Smoking"] OR [mh "Marijuana Use"] OR [mh "Medical Marijuana"] OR [mh "Dronabinol"] OR (bhang OR cannabid* OR cannabigerol OR cannabin* OR cannabis* OR cannador OR cardiolrx OR charas OR delta 9 tetrahydrocannabinol OR delta 9 trans tetrahydrocannabinol OR Dronabinol OR epidiolex OR epidyolex OR ganja* OR ganjah* OR hashish* OR hemp* OR herba cannabis OR marihuana* OR marijuana* OR Marinol OR medical cannabis OR medical marihuana OR medical marijuana OR medicinal cannabis OR medicinal marijuana OR nabidiolex OR nabiximols OR sativex OR syndros OR tetrahydrocannabinol* OR tetrahydrocannabinal* OR Tetrahydrocannabinol* OR tetrahydrocannabinol*):ti,ab,kw
AND
[mh "Ocular Hypertension"] OR [mh "Iridocorneal Endothelial Syndrome"] OR (Ackerman syndrome OR dominant type Iridogoniodygenesis OR GEMSS syndrome OR Glaucoma* OR Iridocorneal Endothelial Syndrome OR Lowry Maclean syndrome OR MacKay Shek Carr syndrome OR Vitreoretinchoroidopathy OR Weill Marchesani Syndrome):ti,ab,kw

Results: 0 Reviews, 4 Trials

Embase

Search Run: 10 May 2021
Coverage: 2016 – present

Limits: Embase; English language; Humans; case control study, clinical article, clinical study, clinical trial, cohort analysis, comparative effectiveness, control group, controlled clinical trial, controlled study, correlational study, cross sectional study, crossover procedure, disease model, double blind procedure, evidence based medicine, human experiment, intention to treat analysis, longitudinal study, major clinical study, medical record review, meta analysis, model, multicenter study (topic), normal human, observational study, open study, phase 2 clinical trial (topic), phase 3 clinical trial (topic), pilot study, population based case control study, prospective study, randomized controlled trial (topic), retrospective study, secondary analysis, systematic review
‘cannabidiol’/exp/mj OR ‘cannabinoid’/exp/mj OR ‘cannabinol’/exp/mj OR ‘Cannabis sativa’/exp/mj OR ‘cannabis smoking’/exp OR ‘cannabis use’/exp/mj OR ‘cannabis’/exp/mj OR ‘dronabinol’/exp/mj OR ‘medical cannabis’/exp OR ‘nabiximols’/exp/mj OR ‘tetrahydrocannabinol’/exp/mj OR ‘tetrahydrocannabinol’:ti,ab,kw OR ‘bhang’:ti,ab,kw OR ‘cannabid*’:ti,ab,kw OR ‘cannabigerol’:ti,ab,kw OR ‘cannabin*’:ti,ab,kw OR ‘cannador’:ti,ab,kw OR ‘delta 9 tetrahydrocannabinol’:ti,ab,kw OR ‘dronabinol’:ti,ab,kw OR ‘epidyolex’:ti,ab,kw OR ‘epidyolex’:ti,ab,kw OR ‘ganja’:ti,ab,kw OR ‘ganjah’:ti,ab,kw OR ‘hashish’:ti,ab,kw OR ‘hashish oil’:ti,ab,kw OR ‘hashish smoking’:ti,ab,kw OR ‘hemp*’:ti,ab,kw OR ‘herba cannabis’:ti,ab,kw OR ‘marihuana*’:ti,ab,kw OR ‘marijuana*’:ti,ab,kw OR ‘Marinol’:ti,ab,kw OR ‘medical cannabis’:ti,ab,kw OR ‘medical marihuana’:ti,ab,kw OR ‘medical marijuana’:ti,ab,kw OR ‘medicinal cannabis’:ti,ab,kw OR ‘medicinal marihuana’:ti,ab,kw OR ‘mexican marihuana’:ti,ab,kw OR
Results: 32
Maclean syndrome" OR "MacKay Shek Carr syndrome" OR "Vitreoretinochoroidopathy" OR "Weill-Marchesani Syndrome")

Results: 6

PubMed

Search Run: 28 May 2021

Coverage: 2016 - present

Limits: English language, Humans


AND


AND

"Arnold-Chiari Malformation"[Majr] OR "Chiari*"[tiab] OR "Chiari*"[ot]

Results: 26
Headaches or migraines

Cochrane

Search Run: 12 April 2021
Coverage: 2016-present

Limits: Sources- CINAHL, Embase, and PubMed

[mh "Cannabis"] OR [mh "Cannabinol"] OR [mh "Cannabidiol"] OR [mh "Marijuana Smoking"] OR [mh "Marijuana Use"] OR [mh "Medical Marijuana"] OR [mh "Dronabinol"] OR (bhang OR cannabid* OR cannabigerol OR cannabin* OR cannabis* OR cannador OR cardiolrx OR charas OR delta 9 tetrahydrocannabinol OR delta 9 trans tetrahydrocannabinol OR Dronabinol OR epidiolex OR epidoylex OR ganja* OR ganjah* OR hashish* OR hemp* OR herba cannabis OR marihuana* OR marijuana* OR Marinol OR medical cannabis OR medical marihuana OR medical marijuana OR medicinal cannabis OR medicinal marijuana OR nabiximols OR nabiximo OR nativex OR syndros OR tetrahydrocannabinol* OR tetrahydrocannabinol* OR Tetrahydrocannabinol*:ti,ab,kw

AND

[mh "Migraine Disorders"] OR [mh "Ophthalmoplegic Migraine"] OR [mh "Migraine without Aura"] OR [mh "Migraine with Aura"] OR [mh "Headache"] OR [mh "Headache Disorders"] OR (cephalalgia OR cephalalgias OR cepheala OR cephalgia OR cephalgias OR cerebral pain OR cranialgia OR head ache* OR Headache* OR Ciliary Neuralgia* OR hemicrania OR Migraine* OR status hemicranicus):ti,ab,kw

Results: 3 Reviews, 60 Trials

Embase

Search Run: 10 May 2021
Coverage: 2016 – present

Limits: Embase; English language; Humans; case control study, clinical article, clinical study, clinical trial, cohort analysis, comparative effectiveness, control group, controlled clinical trial, controlled study, correlative study, cross sectional study, crossover procedure, disease model, double blind procedure, evidence based medicine, human experiment, intention to treat analysis, longitudinal study, major clinical study, medical record review, meta analysis, model, multicenter study (topic), normal human, observational study, open study, phase 2 clinical trial (topic), phase 3 clinical trial (topic), pilot study, population based case control study, prospective study, randomized controlled trial (topic), retrospective study, secondary analysis, systematic review

‘cannabidiol’/exp/mj OR ‘cannabinoid’/exp/mj OR ‘cannabino’/exp/mj OR ‘Cannabis sativa’/exp/mj OR ‘cannabis smoking’/exp OR ‘cannabis use’/exp/mj OR ‘cannabis’/exp/mj OR ‘dronabinol’/exp/mj OR ‘medical cannabis’/exp OR ‘nabiximols’/exp/mj OR ‘tetrahydrocannabinol’/exp/mj OR ‘tetrahydrocannabinol’:ti,ab,kw OR ‘bhang’:ti,ab,kw OR ‘cannabinoid’:ti,ab,kw OR ‘cannabigerol’:ti,ab,kw OR ‘cannabin*’:ti,ab,kw OR ‘cannabin*’/exp OR ‘cannabis’:ti,ab,kw OR ‘cannador’:ti,ab,kw OR ‘delta 9 tetrahydrocannabinol’:ti,ab,kw OR ‘dronabinol’:ti,ab,kw OR ‘epidiolex’:ti,ab,kw OR ‘epidoylex’:ti,ab,kw OR ‘ganja’:ti,ab,kw OR ‘ganjah’:ti,ab,kw OR ‘hashish’:ti,ab,kw OR ‘hashish oil’:ti,ab,kw OR ‘hashish smoking’:ti,ab,kw OR ‘hemp’:ti,ab,kw OR ‘herba cannabis’:ti,ab,kw OR ‘marihuana’:ti,ab,kw OR ‘marijuana*’:ti,ab,kw OR ‘Marinol’:ti,ab,kw OR ‘medical cannabis’:ti,ab,kw OR ‘medical marihuana’:ti,ab,kw OR ‘medical marijuana’:ti,ab,kw OR
Results: 146
Results: 13

PubMed

Search Run: 28 May 2021

Coverage: 2016 - present

Limits: English language, Humans


AND


AND

“Arnold-Chiari Malformation”[Majr] OR “Chiari*”[tiab] OR “Chiari*”[ot]

Results: 41
Hepatitis C

Cochrane

Search Run: 12 April 2021
Coverage: 2016-present

Limits: Sources- CINAHL, Embase, and PubMed

[mh "Cannabis"] OR [mh "Cannabinol"] OR [mh "Cannabidiol"] OR [mh "Marijuana Smoking"] OR [mh "Marijuana Use"] OR [mh "Medical Marijuana"] OR [mh "Dronabinol"] OR (bhang OR cannabid* OR cannabigerol OR cannabin* OR cannabin* OR cannador OR cardiolrx OR charas OR delta 9 tetrahydrocannabinol OR delta 9 trans tetrahydrocannabinol OR Dronabinol OR epidioylex OR epidiylex OR ganja* OR ganjah* OR hashish* OR hemp* OR herba cannabis OR marihuana* OR marijuana* OR Marinol OR medical cannabis OR medical marihuana OR medical marijuana OR medicinal cannabis OR medicinal marijuana OR nabidiolex OR nabiximols OR sativex OR syndros OR tetrahydro cannabinol* OR tetrahydrocannabinol*):ti,ab,kw

AND

[mh "Hepatitis C"] OR [mh "Hepacivirus"] OR [mh "Hepatitis C Antibodies"] OR [mh "Hepatitis C Antigens"] OR (Dihydroergotamine OR Hepacivirus OR Hepatitis C OR hepatitis C-like virus* OR human hepatitis C immune globulin OR parenterally transmitted non a non b hepatitis OR PT-NANBH OR Triptans):ti,ab,kw

Results: 0 Reviews, 17 Trials

Embase

Search Run: 12 May 2021
Coverage: 2016 – present

Limits: Embase; English language; Humans; case control study, clinical article, clinical study, clinical trial, cohort analysis, comparative effectiveness, control group, controlled clinical trial, controlled study, correlativelational study, cross sectional study, crossover procedure, disease model, double blind procedure, evidence based medicine, human experiment, intention to treat analysis, longitudinal study, major clinical study, medical record review, meta analysis, model, multicenter study (topic), normal human, observational study, open study, phase 2 clinical trial (topic), phase 3 clinical trial (topic), pilot study, population based case control study, prospective study, randomized controlled trial (topic), retrospective study, secondary analysis, systematic review

'cannabidiol'/exp/mj OR 'cannabinoid'/exp/mj OR 'cannabinoi'/exp/mj OR 'Cannabis sativa'/exp/mj OR 'cannabis smoking'/exp OR 'cannabinoid'/exp OR 'cannabinol'/exp OR 'Cannabinol'/exp OR 'Cannabidiol'/exp OR 'dronabinol'/exp OR 'medical cannabis'/exp OR 'nabiximols'/exp OR 'tetrahydrocannabinol'/exp OR 'tetrahydrocannabinol':ti,ab,kw OR 'bhang':ti,ab,kw OR 'cannabidiol':ti,ab,kw OR 'cannabigerol':ti,ab,kw OR 'cannabinol':ti,ab,kw OR 'cannabidiol':ti,ab,kw OR 'cannador':ti,ab,kw OR 'delta 9 tetrahydrocannabinol':ti,ab,kw OR 'dronabinol':ti,ab,kw OR 'epidiylex':ti,ab,kw OR 'epidioylex':ti,ab,kw OR 'ganja':ti,ab,kw OR 'ganjah':ti,ab,kw OR 'hashish':ti,ab,kw OR 'hashish oil':ti,ab,kw OR 'hemp':ti,ab,kw OR 'herba cannabis':ti,ab,kw OR 'marihuana':ti,ab,kw OR 'marijuana':ti,ab,kw OR 'Marinol':ti,ab,kw OR 'medical cannabis':ti,ab,kw OR 'medical marihuana':ti,ab,kw OR 'medical marijuana':ti,ab,kw OR 'medicinal cannabis':ti,ab,kw OR 'mexican marihuana':ti,ab,kw
Results: 118

PsycInfo

Search Run: 24 May 2021
Coverage: 2016-present

Limits: Phrase Searching (Boolean); Clinical Case Study, Clinical Trial, Empirical Study, Literature Review, Meta Analysis, Quantitative Study, Treatment Outcome, Twin Study; English; Human

AND

(MM “Migraine Headache” OR MM “Triptans” OR MM “Dihydroergotamine” OR MM “Aura”) OR TI ("Dihydroergotamine" OR "Hepacivirus" OR "Hepatitis C" OR "hepatitis C-like virus*" OR "human hepatitis C immune globulin" OR "parenterally transmitted non a non b hepatitis" OR PT-NANBH OR ‘Triptans’) OR AB ("Dihydroergotamine" OR "Hepacivirus" OR "Hepatitis C" OR "hepatitis C-like virus*" OR "human hepatitis C immune globulin" OR "parenterally transmitted non a non b hepatitis" OR PT-NANBH OR “Triptans”)
Results: 27

PubMed

Search Run: 28 May 2021

Coverage: 2016 - present

Limits: English language, Humans


AND


AND

"Arnold-Chiari Malformation"[Majr] OR "Chiari*"[tiab] OR "Chiari*"[ot]

Results: 30
Huntington's Disease

Cochrane

**Search Run:** 20 April 2021  
**Coverage:** 2016–present  
**Limits:** Sources- CINAHL, Embase, and PubMed

- [mh “Cannabis”] OR [mh “Cannabinol”] OR [mh “Cannabidiol”] OR [mh “Marijuana Smoking”] OR [mh “Marijuana Use”] OR [mh “Medical Marijuana”] OR [mh “Dronabinol”] OR (bhang OR cannabidi* OR cannabigerol OR cannabin* OR cannabidiol* OR cannador OR cardiolrx OR charas OR delta 9 tetrahydrocannabinol OR delta 9 trans tetrahydrocannabinol OR Dronabinol OR epidiolex OR epidyolex OR ganja* OR ganjah* OR hashish* OR hemp* OR herba cannabis OR marihuana* OR marijuana* OR Marinol OR medical cannabis OR medical marihuana OR medical marijuana OR medicinal cannabis OR medicinal marajuana OR nabiloxel OR nabiloxol OR nabiloxons OR nabiloxors OR sativex OR syndros OR tetrahydro cannabino* OR tetrahydrocannabinol* OR Tetrahydrocannabinol* OR tetrahydrocannabiol*:ti,ab,kw

AND

- [mh “Huntington Disease”] OR [mh “Haloperidol”] OR (chorea Huntington OR chorea major OR chronic progressive chorea OR Haloperidol OR hereditary chorea OR Huntington chorea OR Huntington Disease* OR Huntington Disease-Like Syndrome OR Huntington’s chorea OR Huntingtonons Disease OR Huntington’s disease* OR juvenile chorea):ti,ab,kw

**Results:** 0 Reviews, 9 Trials

Embase

**Search Run:** 12 May 2021  
**Coverage:** 2016 – present  
**Limits:** Embase; English language; Humans; case control study, clinical article, clinical study, clinical trial, cohort analysis, comparative effectiveness, control group, controlled clinical trial, controlled study, correlative study, cross sectional study, crossover procedure, disease model, double blind procedure, evidence based medicine, human experiment, intention to treat analysis, longitudinal study, major clinical study, medical record review, meta analysis, model, multicenter study (topic), normal human, observational study, open study, phase 2 clinical trial (topic), phase 3 clinical trial (topic), pilot study, population based case control study, prospective study, randomized controlled trial (topic), retrospective study, secondary analysis, systematic review

- ‘cannabidiol’/exp/mj OR ‘cannabinoid’/exp/mj OR ‘cannabidiol’/exp/mj OR ‘Cannabidiol’/exp/mj OR ‘Cannabis sativa’/exp/mj OR ‘cannabis smoking’/exp OR ‘cannabis use’/exp/mj OR ‘cannabis’/exp/mj OR ‘dronabinol’/exp/mj OR ‘medical cannabis’/exp OR ‘nabiximols’/exp/mj OR ‘tetrahydrocannabinol’/exp/mj OR ‘tetrohydrocannabinol’:ti,ab,kw OR ‘bhang’:ti,ab,kw OR ‘cannabinoid*:ti,ab,kw OR ‘cannabigerol’:ti,ab,kw OR ‘cannabin*’:ti,ab,kw OR ‘cannador*:ti,ab,kw OR ‘cannabinol*:ti,ab,kw OR ‘cannador’:ti,ab,kw OR ‘delta 9 tetrahydrocannabinol’:ti,ab,kw OR ‘dronabinol’:ti,ab,kw OR ‘epidiolex’:ti,ab,kw OR ‘epidiolex*:ti,ab,kw OR ‘ganja*:ti,ab,kw OR ‘ganjah’:ti,ab,kw OR ‘hashish*:ti,ab,kw OR ‘hashish oil*:ti,ab,kw OR ‘hashish smoking’:ti,ab,kw OR ‘hemp*:ti,ab,kw OR ‘herba cannabis*:ti,ab,kw OR ‘marihuana*:ti,ab,kw OR ‘marijuana*:ti,ab,kw OR ‘Marinol’:ti,ab,kw OR ‘medical cannabis*:ti,ab,kw OR ‘medical marihuana’:ti,ab,kw OR ‘medical marijuana*:ti,ab,kw OR ‘medicinal cannabis’:ti,ab,kw OR ‘medicinal marihuana’:ti,ab,kw OR ‘mexican marihuana’:ti,ab,kw OR
'nabidiolex':ti,ab,kw OR 'nabiximols':ti,ab,kw OR 'sativex':ti,ab,kw OR 'syndros':ti,ab,kw OR 
'tetrahydrocannabinol*':ti,ab,kw OR 'tetrahydrocannabinol*':ti,ab,kw OR 'tetrahydrocannabinol*':ti,ab,kw OR 
'CBC':ti,ab,kw OR 'CBD':ti,ab,kw OR 'CBG':ti,ab,kw
AND
'huntington chorea'/exp/mj OR 'chorea huntington':ti,ab,kw OR 'chorea major':ti,ab,kw OR 'chronic progressive chorea':ti,ab,kw OR 'haloperidol':ti,ab,kw OR 'hereditary chorea':ti,ab,kw OR 
'huntington chorea':ti,ab,kw OR 'huntington disease*':ti,ab,kw OR 'huntingtons chorea':ti,ab,kw OR 
'huntingtons disease':ti,ab,kw OR 'huntingtons disease*':ti,ab,kw OR 'juvenile chorea':ti,ab,kw
AND
'randomized controlled trial'/exp OR 'controlled clinical trial'/exp OR randomized:ti,ab OR 
placebo:ti,ab OR 'drug therapy':lnk OR randomly:ti,ab OR trial:ti,ab OR groups:ti,ab OR review/it OR 
meta-analysis/de OR 'systematic review':ti OR 'literature review':ti OR 'meta analysis':ti OR 
metaanalysis:ti OR metasynthesis:ti
Results: 41

PsycInfo

Search Run: 24 May 2021
Coverage: 2016-present

Limits: Phrase Searching (Boolean); Clinical Case Study, Clinical Trial, Empirical Study, Literature Review, Meta Analysis, Quantitative Study, Treatment Outcome, Twin Study; English; Human

MM "Cannabis" OR MM "Marijuana" OR MM "Marijuana Usage" OR MM "Cannabinoids" OR MM 
"Tetrahydrocannabinol") OR T1 ("bhang" OR "cannabid*" OR "cannabigerol" OR "cannabin*" OR 
"cannabis*" OR "cannador" OR "delta 9 tetrahydrocannabinol" OR "delta tetrahydrocannabinol" OR 
"Dronabinol" OR "epidiolex" OR "epidyolex" OR "ganja*" OR "ganjah*" OR "hashish*" OR "hemp*" OR 
"herba cannabis" OR "marihuana*" OR "marijuana*" OR "Marinol" OR "medical cannabis" OR 
"medical marihuana" OR "medical marijuana" OR "medicinal cannabis" OR "medicinal marijuana" 
OR "nabidiolex" OR "nabiximols" OR "Sativex" OR "sp 104" OR "syndros" OR "tetrahydro 
cannabinol*" OR "tetrahydrocannabinol*" OR "Tetrahydrocannabinol*" OR "tetrahydrocannabinol*" OR 
"tetranabinex" OR "THC" OR "CBC" OR "CBD" OR "CBG") OR AB ("bhang" OR "cannabid*" OR 
"cannabigerol" OR "cannabin*" OR "cannador" OR "delta 9 tetrahydrocannabinol" OR 
"delta tetrahydrocannabinol" OR "Dronabinol" OR "epidiolex" OR "epidyolex" OR "ganja*" OR 
"ganjah*" OR "hashish*" OR "hemp*" OR "herba cannabis" OR "marihuana*" OR "marijuana*" OR 
"Marinol" OR "medical cannabis" OR "medical marihuana" OR "medical marijuana" OR "medicinal 
cannabis" OR "medicinal marijuana" OR "nabidiolex" OR "nabiximols" OR "Sativex" OR "sp 104" OR 
"syndros" OR "tetrahydro cannabinol*" OR "tetrahydrocannabinol*" OR "Tetrahydrocannabinol*" OR 
"tetrahydrocannabinol*" OR "tetranabinex" OR "THC" OR "CBC" OR "CBD" OR "CBG"
AND
(MM "Huntingtons Disease") OR T1 ("chorea Huntington" OR "chorea major" OR "chronic progressive chorea" OR 
"Haloperidol" OR "hereditary chorea" OR "Huntington chorea" OR "Huntington Disease" OR 
"Huntington Disease-Like Syndrome" OR "Huntington's chorea" OR 
"Huntingtons Disease" OR "Huntington's disease" OR "juvenile chorea") OR AB ("chorea 
Huntington" OR "chorea major" OR "chronic progressive chorea" OR "Haloperidol" OR "hereditary 
chorea" OR "Huntington chorea" OR "Huntington Disease" OR "Huntington Disease-Like
Syndrome” OR “Huntington’s chorea” OR “Huntingtons Disease” OR “Huntington's disease” OR “juvenile chorea”)

Results: 6

PubMed

Search Run: 28 May 2021

Coverage: 2016 - present

Limits: English language, Humans


AND


AND

“Arnold-Chiari Malformation”[Majr] OR “Chiari*”[tiab] OR “Chiari*”[ot]

Results: 41
Hydrocephalus

Cochrane

Search Run: 20 April 2021
Coverage: 2016-present

Limits: Sources- CINAHL, Embase, and PubMed

[mh "Cannabis"] OR [mh "Cannabinol"] OR [mh "Cannabinol"] OR [mh "Marijuana Smoking"] OR [mh "Marijuana Use"] OR [mh "Medical Marijuana"] OR [mh "Dronabinol"] OR (bhang OR cannabid* OR cannabigerol OR cannabin* OR cannabis* OR cannador OR cardiolrx OR charas OR delta 9 tetrahydrocannabinol OR delta 9 trans tetrahydrocannabinol OR Dronabinol OR epidiolex OR epidolex OR ganja* OR ganjah* OR hashish* OR hemp* OR herba cannabis OR marihuana* OR marigold OR medical cannabis OR medical marihuana OR medical marijuana OR medicinal cannabis OR medicinal marihuana OR nabidiolex OR nabiximols OR sativex OR syndros OR tetrahydrocannabinol* OR tetrahydrocannabinol*:ti,ab,kw
AND
[mh "Hydrocephalus"] OR [mh "Walker-Warburg Syndrome"] OR (Aase Smith syndrome OR Baker Vinters syndrome OR Chudley-Mccullough syndrome OR Daentl Towsend Siegel syndrome OR Daish Hardman Lamont syndrome OR Dandy-Walker Syndrome OR Game Friedman Paradice syndrome OR Hydrocephalus OR hydrocephaly OR hyroencephalus OR Mental Retardation Aphasia, Shuffling Gait Adducted Thumbs OR MASA Syndrome OR Mecalamencephaly Polymicrogyria-Polydactyly Hydrocephalus Syndrome OR occlusive hydrocephalus OR Rhizomelic Osteochondrodysplasia* OR Schwartz Cohen-Addad Lambert syndrome OR Thoracic Dysplasia-Hydrocephalus Syndrome OR Walker-Warburg Syndrome OR Yim Ebbin syndrome):ti,ab,kw

Results: 25 Reviews, 396 Trials

Embase

Search Run: 12 May 2021
Coverage: 2016 – present

Limits: Embase; English language; Humans; case control study, clinical article, clinical study, clinical trial, cohort analysis, comparative effectiveness, control group, controlled clinical trial, controlled study, correaltional study, cross sectional study, crossover procedure, disease model, double blind procedure, evidence based medicine, human experiment, intention to treat analysis, longitudinal study, major clinical study, medical record review, meta analysis, model, multicenter study (topic), normal human, observational study, open study, phase 2 clinical trial (topic), phase 3 clinical trial (topic), pilot study, population based case control study, prospective study, randomized controlled trial (topic), retrospective study, secondary analysis, systematic review

‘cannabinoid’/exp/mj OR ‘cannabinoid’/exp/mj OR ‘cannabinol’/exp/mj OR ‘Cannabis sativa’/exp/mj OR ‘cannabis smoking’/exp OR ‘cannabis use’/exp/mj OR ‘cannabis’/exp/mj OR ‘dronabinol’/exp/mj OR ‘medical cannabis’/exp OR ‘nabiximols’/exp/mj OR ‘tetrahydrocannabinol’/exp/mj OR ‘tetrahydrocannabinol’:ti,ab,kw OR ‘bhang’:ti,ab,kw OR ‘cannabidiol’:ti,ab,kw OR ‘cannabigerol’:ti,ab,kw OR ‘cannabinol’:ti,ab,kw OR ‘cannabinol’:ti,ab,kw OR ‘cannador’:ti,ab,kw OR ‘delta 9 tetrahydrocannabinol’:ti,ab,kw OR ‘dronabinol’:ti,ab,kw OR ‘epidiolex’:ti,ab,kw OR ‘epidolex’:ti,ab,kw OR ‘ganja’:ti,ab,kw OR ‘ganjah’:ti,ab,kw OR
Results: 6

PsycInfo

Search Run: 24 May 2021
Coverage: 2016-present

Limits: Phrase Searching (Boolean); Clinical Case Study, Clinical Trial, Empirical Study, Literature Review, Meta Analysis, Quantitative Study, Treatment Outcome, Twin Study; English; Human

MM “Cannabis” OR MM “Marijuana” OR MM “Marijuana Usage” OR MM “Cannabinoids” OR MM “Tetrahydrocannabinol”) OR TI (“bhang” OR “cannabid*” OR “cannabigerol” OR “cannabin*” OR “cannabis*” OR “cannador” OR “delta 9 tetrahydrocannabinol” OR “delta tetrahydrocannabinol” OR “Dronabinol” OR “epidiolex” OR “epidyolex” OR “ganja*” OR “ganjah*” OR “hashish*” OR “hemp*” OR “herba cannabis” OR “marihuana*” OR “marijuana*” OR “Marinol” OR “medical cannabis” OR “medical marijuana” OR “nabidiolex” OR “nabiximols” OR “Sativex” OR “sp 104” OR “syndros” OR “tetrahydrocannabinol” OR “tetrahydrocannabinol*” OR “Tetrahydrocannabinol*” OR “tetrahydrocannabinol*” OR “tetrabynex” OR “THC” OR “CBC” OR “CBD” OR “CBG”) OR AB (“bhang” OR “cannabid*” OR “cannabigerol” OR “cannabin*” OR “cannabis*” OR “cannador” OR “delta 9 tetrahydrocannabinol” OR “delta tetrahydrocannabinol” OR “Dronabinol” OR “epidiolex” OR “epidyolex” OR “ganja*” OR “ganjah*” OR “hashish*” OR “hemp*” OR “herba cannabis” OR “marihuana*” OR “marijuana*” OR “Marinol” OR “medical cannabis” OR “medical marijuana” OR “nabidiolex” OR “nabiximols” OR “Sativex” OR “sp 104” OR
"syndros" OR "tetrahydro cannabinol*" OR "tetrahydrocannabinal*" OR "Tetrahydrocannabinol*" OR "tetrahydrocannabinol*" OR "tetrabainex" OR "THC" OR "CBC" OR "CBD" OR "CBG"

AND


Results: 0

PubMed

Search Run: 28 May 2021

Coverage: 2016 - present

Limits: English language, Humans

AND


AND

“Arnold-Chiari Malformation”[Majr] OR “Chiari*”[tiab] OR “Chiari*”[ot]

Results: 0
**Hydromyelia**

*Cochrane*

**Search Run:** 20 April 2021  
**Coverage:** 2016-present  
**Limits:** Sources- CINAHL, Embase, and PubMed  

[mh "Cannabis"] OR [mh "Cannabinol"] OR [mh "Cannabinoid"] OR [mh "Marijuana Smoking"] OR [mh "Marijuana Use"] OR [mh "Medical Marijuana"] OR [mh "Dronabinol"] OR (bhang OR cannabinid* OR cannabigerol OR cannabin* OR canabin* OR cannador OR cardiolrx OR charas OR delta 9 tetrahydrocannabinol OR delta 9 trans tetrahydrocannabinol OR Dronabinol OR epidiolox OR epidiolox OR ganja* OR ganjah* OR hashish* OR hemp* OR herba cannabis OR marihuana* OR marijuana* OR Marinol OR medical cannabis OR medical marihuana OR medical marijuana OR medicinal cannabis OR medicinal marijuana OR nabidiolex OR nabiximols OR sativex OR syndros OR tetrahydrocannabinol* OR tetrahydrocannabinol* OR Tetrahydrocannabinol* OR tetrahydrocannabiol*:ti,ab,kw]  

AND  

(hydromyelia OR hydrorachis OR myelia):ti,ab,kw  

**Results:** 0 Reviews, 0 Trials

*Embase*

**Search Run:** 12 May 2021  
**Coverage:** 2016 – present  
**Limits:** Embase; English language; Humans; case control study, clinical article, clinical study, clinical trial, cohort analysis, comparative effectiveness, control group, controlled clinical trial, controlled study, cross sectional study, crossover procedure, disease model, double blind procedure, evidence based medicine, human experiment, intention to treat analysis, longitudinal study, major clinical study, medical record review, meta analysis, model, multicenter study (topic), normal human, observational study, open study, phase 2 clinical trial (topic), phase 3 clinical trial (topic), pilot study, population based case control study, prospective study, randomized controlled trial (topic), retrospective study, secondary analysis, systematic review  

‘cannabidiol’/exp/mj OR ‘cannabinoid’/exp/mj OR ‘cannabinol’/exp/mj OR ‘Cannabis sativa’/exp/mj OR ‘cannabis smoking’/exp OR ‘cannabis use’/exp/mj OR ‘cannabis’/exp/mj OR ‘dronabinol’/exp/mj OR ‘medical cannabis’/exp OR ‘nabiximols’/exp/mj OR ‘tetrahydrocannabinol’/exp/mj OR ‘tetrahydrocannabinol’/exp OR ‘delta 9 tetrahydrocannabinol’:ti,ab,kw OR ‘dronabinol’:ti,ab,kw OR ‘epidiolox’:ti,ab,kw OR ‘ganja’:ti,ab,kw OR ‘herba cannabis’:ti,ab,kw OR ‘hashish smoking’:ti,ab,kw OR ‘hashish’:ti,ab,kw OR ‘hashish oil’:ti,ab,kw OR ‘herba cannabis’:ti,ab,kw OR ‘marihuana’*:ti,ab,kw OR ‘marijuana’*:ti,ab,kw OR ‘Marinol’:ti,ab,kw OR ‘medical cannabis’:ti,ab,kw OR ‘medical marihuana’:ti,ab,kw OR ‘medical marijuana’:ti,ab,kw OR ‘medicinal cannabis’:ti,ab,kw OR ‘medicinal marijuana’:ti,ab,kw OR ‘mexican marihuana’:ti,ab,kw OR ‘nabidiolex’:ti,ab,kw OR ‘nabiximols’:ti,ab,kw OR ‘sativex’:ti,ab,kw OR ‘syndros’:ti,ab,kw OR ‘tetrahydrocannabinol’*:ti,ab,kw OR ‘tetrahydrocannabinol’* OR ‘tetrahydrocannabinol’*:ti,ab,kw OR
'tetrahydrocannabinol*':ti,ab,kw OR 'tetrahydrocannabinol*':ti,ab,kw OR 'THC':ti,ab,kw OR 'CBC':ti,ab,kw OR 'CBD':ti,ab,kw OR 'CBG':ti,ab,kw
AND
'hydromyelia'/exp/mj OR 'Hydromyelia':ti,ab,kw OR 'Hydrorachis':ti,ab,kw OR 'myelia':ti,ab,kw
AND
'randomized controlled trial'/exp OR 'controlled clinical trial'/exp OR randomized:ti,ab OR placebo:ti,ab OR 'drug therapy':lnk OR randomly:ti,ab OR trial:ti,ab OR groups:ti,ab OR review/it OR meta-analysis/de OR "systematic review":ti OR "literature review":ti OR "meta analysis":ti OR metaanalysis:ti OR metasynthesis:ti

Results: 0

PsycInfo

Search Run: 24 May 2021
Coverage: 2016-present

Limits: Phrase Searching (Boolean); Clinical Case Study, Clinical Trial, Empirical Study, Literature Review, Meta Analysis, Quantitative Study, Treatment Outcome, Twin Study; English; Human

MM "Cannabis" OR MM "Marijuana" OR MM "Marijuana Usage" OR MM "Cannabinoids" OR MM "Tetrahydrocannabinol") OR TI ("bhang" OR "cannabin*" OR "cannabigerol" OR "cannabin*" OR "cannabis*" OR "cannad*) OR "delta 9 tetrahydrocannabinol" OR "delta tetrahydrocannabinol" OR "Dronabinol" OR "epidiolex" OR "epidyolex" OR "ganja*" OR "ganjah*" OR "hashish*" OR "hemp*" OR "herba cannabis" OR "marihuana*" OR "marijuana*" OR "Marinol" OR "medical cannabis" OR "medical marihuana" OR "medical marijuana" OR "medicinal cannabis" OR "medicinal marihuana" OR "nabidiolex" OR "nabiximols" OR "Sativex" OR "syndros" OR "tetrahydrocannabinol*" OR "tetrahydrocannabinol*" OR "Tetrahydrocannabinol" OR "tetrahydrocannabinol*" OR "tetrabiolex" OR "THC" OR "CBC" OR "CBD" OR "CBG") OR AB ("bhang" OR "cannabin*" OR "cannabigerol" OR "cannabin*" OR "cannad*) OR "delta 9 tetrahydrocannabinol" OR "delta tetrahydrocannabinol" OR "Dronabinol" OR "epidiolex" OR "epidyolex" OR "ganja*" OR "ganjah*" OR "hashish*" OR "hemp*" OR "herba cannabis" OR "marihuana*" OR "marijuana*" OR "Marinol" OR "medical cannabis" OR "medical marihuana" OR "medical marijuana" OR "medicinal cannabis" OR "medicinal marihuana" OR "nabidiolex" OR "nabiximols" OR "Sativex" OR "sp 104" OR "syndros" OR "tetrahydrocannabinol*" OR "tetrabiolex" OR "THC" OR "CBC" OR "CBD" OR "CBG"
AND
TI ("hydromyelia" OR "hydrorachis" OR "myelia" OR "hydro") OR AB ("hydromyelia" OR "hydrorachis" OR "myelia" OR "hydro")

Results: 0

PubMed

Search Run: 28 May 2021
Coverage: 2016 - present
Limits: English language, Humans

AND


AND

“Arnold-Chiari Malformation”[Majr] OR “Chiari*”[tiab] OR “Chiari*”[ot]

Results: 2
Hypertension

Cochrane

**Search Run:** 20 April 2021  
**Coverage:** 2016-present

**Limits:** Sources- CINAHL, Embase, and PubMed

[mh "Cannabis"] OR [mh "Cannabinol"] OR [mh "Cannabidiol"] OR [mh "Marijuana Smoking"] OR [mh "Marijuana Use"] OR [mh "Medical Marijuana"] OR [mh "Dronabinol"] OR [bhang OR cannabid* OR cannabigerol OR cannabin* OR cannabis* OR cannador OR cardiolrx OR charas OR delta 9 tetrahydrocannabinol OR delta 9 trans tetrahydrocannabinol OR Dronabinol OR epidiolex OR epidirolex OR ganja* OR ganjah* OR hashish* OR hemp* OR herba cannabis OR marihuana* OR marijuana* OR Marinol OR medical cannabis OR medical marihuana OR medical marijuana OR medicinal cannabis OR medicinal marihuana OR medicinal marijuana OR nabilone OR nabiximols OR nabilone OR nabilone OR nabilone OR nabiximols OR sativex OR syndros OR tetrahydrocannabinol* OR tetrahydrocannabinol* OR Tetrahydrocannabinol* OR tetrahydrocannabinol*):ti,ab,kw

AND

[mh "Hypertension"] OR [mh "Intra-Abdominal Hypertension"] OR [mh "Intracranial Hypertension"] OR [mh "Hypertension, Portal"] OR [mh "Dietary Approaches To Stop Hypertension"] OR [mh "Pseudohypoaldosteronism"] OR [mh "Persistent Fetal Circulation Syndrome"] OR [mh "Prehypertension"] OR (high blood pressure OR Hypertension OR hypertensive disease OR hypertensive effect OR hypertensive response OR Persistent Fetal Circulation Syndrome OR Pre-Eclampsia OR preeclampsia OR Prehypertension OR Pseudohypoaldosteronism OR Rhizomelic Osteochondrodysplasia*):ti,ab,kw

**Results:** 0 Reviews, 24 Trials

Embase

**Search Run:** 12 May 2021  
**Coverage:** 2016 – present

**Limits:** Embase; English language; Humans; case control study, clinical article, clinical study, clinical trial, cohort analysis, comparative effectiveness, control group, controlled clinical trial, controlled study, correlational study, cross sectional study, crossover procedure, disease model, double blind procedure, evidence based medicine, human experiment, intention to treat analysis, longitudinal study, major clinical study, medical record review, meta analysis, model, multicenter study (topic), normal human, observational study, open study, phase 2 clinical trial (topic), phase 3 clinical trial (topic), pilot study, population based case control study, prospective study, randomized controlled trial (topic), retrospective study, secondary analysis, systematic review

‘cannabidiol’/exp/mj OR ‘cannabinoid’/exp/mj OR ‘cannabinol’/exp/mj OR ‘Cannabis sativa’/exp/mj OR ‘cannabis smoking’/exp OR ‘cannabis use’/exp/mj OR ‘cannabis’/exp/mj OR ‘dronabinol’/exp/mj OR ‘medical cannabis’/exp OR ‘nabiximols’/exp/mj OR ‘tetrahydrocannabinol’/exp/mj OR ‘tetrahydrocannabinol’:ti,ab,kw OR ‘bhang’:ti,ab,kw OR ‘cannabidiol’:ti,ab,kw OR ‘cannabigerol’:ti,ab,kw OR ‘cannabinol’:ti,ab,kw OR ‘cannabinoid’:ti,ab,kw OR ‘cannador’:ti,ab,kw OR ‘delta 9 tetrahydrocannabinol’:ti,ab,kw OR ‘dronabinol’:ti,ab,kw OR ‘epidiolex’:ti,ab,kw OR ‘epidirolex’:ti,ab,kw OR ‘ganja’:ti,ab,kw OR ‘ganjah’:ti,ab,kw OR ‘hashish’:ti,ab,kw OR ‘hashish oil’:ti,ab,kw OR ‘hashish smoking’:ti,ab,kw OR ‘hemp’:ti,ab,kw OR
'herba cannabis':ti,ab,kw OR 'marihuana*':ti,ab,kw OR 'marijuana*':ti,ab,kw OR 'Marinol':ti,ab,kw OR 'medical cannabis':ti,ab,kw OR 'medical marihuana':ti,ab,kw OR 'medical marijuana':ti,ab,kw OR 'medicinal cannabis':ti,ab,kw OR 'medicinal marihuana':ti,ab,kw OR 'mexican marihuana':ti,ab,kw OR 'nabidiolex':ti,ab,kw OR 'nabiximols':ti,ab,kw OR 'sativex':ti,ab,kw OR 'syndros':ti,ab,kw OR 'tetrahydrocannabinol*':ti,ab,kw OR 'tetrahydrocannabinal*':ti,ab,kw OR 'tetrahydrocannabinol*':ti,ab,kw OR 'tetrahydrocannabiol*':ti,ab,kw OR 'THC':ti,ab,kw OR 'CBC':ti,ab,kw OR 'CBD':ti,ab,kw OR 'CBG':ti,ab,kw

AND

'hypertension'/exp/mj OR 'high blood pressure':ti,ab,kw OR 'Hypertension':ti,ab,kw OR 'hypertensive disease':ti,ab,kw OR 'hypertensive effect':ti,ab,kw OR 'hypertensive response':ti,ab,kw OR 'Persistent Fetal Circulation Syndrome':ti,ab,kw OR 'Pre-Eclampsia':ti,ab,kw OR 'preeclampsia':ti,ab,kw OR 'Prehypertension':ti,ab,kw OR 'Pseudohypoaldosteronism':ti,ab,kw OR 'Rhizomelic Osteochondrodysplasia*':ti,ab,kw

AND

'randomized controlled trial'/exp OR 'controlled clinical trial'/exp OR randomized:ti,ab OR placebo:ti,ab OR 'drug therapy':lnk OR randomly:ti,ab OR trial:ti,ab OR groups:ti,ab OR review/it OR meta-analysis/de OR "systematic review":ti OR "literature review":ti OR "meta analysis":ti OR metaanalysis:ti OR metasynthesis:ti

Results: 165

PsycInfo

Search Run: 24 May 2021

Coverage: 2016-present

Limits: Phrase Searching (Boolean); Clinical Case Study, Clinical Trial, Empirical Study, Literature Review, Meta Analysis, Quantitative Study, Treatment Outcome, Twin Study; English; Human

MM “Cannabis” OR MM “Marijuana” OR MM “Marijuana Usage” OR MM “Cannabinoids” OR MM “Tetrahydrocannabinol”) OR TI (“bhang” OR “cannabid*” OR “cannabigerol” OR “cannabin*” OR “cannabis”*” OR “cannabinoid” OR “delta 9 tetrahydrocannabinol” OR “delta tetrahydrocannabinol” OR “Dronabinol” OR “epidiolex” OR “epidyolex” OR “ganja”*” OR “ganjah”*” OR “hashish”*” OR “hemp”*” OR “herba cannabis” OR “marihuana”*” OR “marijuana”*” OR “Marinol” OR “medical cannabis” OR “medical marihuana” OR “medical marijuana” OR “medicinal cannabis” OR “medicinal marihuana” OR “nabidiolex” OR “nabiximols” OR “Sativex” OR “sp 104” OR “syndros” OR “tetrahydro cannabinol”*” OR “tetrahydrocannabinol*” OR “Tetrahydrocannabinol*” OR “tetrahydrocannabiol*” OR “tetranabinex” OR “THC” OR “CBC” OR “CBD” OR “CBG”) OR AB (“bhang” OR “cannabid”*” OR “cannabigerol” OR “cannabin”*” OR “cannabinoid” OR “delta 9 tetrahydrocannabinol” OR “delta tetrahydrocannabinol” OR “Dronabinol” OR “epidiolex” OR “epidyolex” OR “ganja”*” OR “ganjah”*” OR “hashish”*” OR “hemp”*” OR “herba cannabis” OR “marihuana”*” OR “marijuana”*” OR “Marinol” OR “medical cannabis” OR “medical marihuana” OR “medical marijuana” OR “medicinal cannabis” OR “medicinal marihuana” OR “nabidiolex” OR “nabiximols” OR “Sativex” OR “sp 104” OR “syndros” OR “tetrahydro cannabinol”*” OR “tetrahydrocannabinol”*” OR “Tetrahydrocannabinol”*” OR “tetrahydrocannabiol”*” OR “tetranabinex” OR “THC” OR “CBC” OR “CBD” OR “CBG”

AND

(MM “Hypertension” OR MM “Essential Hypertension” OR MM “Channel Blockers”) OR TI (“high blood pressure” OR “Hypertension” OR “hypertensive disease” OR “hypertensive effect” OR
“hypertensive response” OR “Persistent Fetal Circulation Syndrome” OR “Pre-Eclampsia” OR preeclampsia OR “Prehypertension” OR “Pseudohypoaldosteronism” OR “Rhizomelic Osteochondrodysplasia*”) OR AB (“high blood pressure” OR “Hypertension” OR “hypertensive disease” OR “hypertensive effect” OR “hypertensive response” OR “Persistent Fetal Circulation Syndrome” OR “Pre-Eclampsia” OR preeclampsia OR “Prehypertension” OR “Pseudohypoaldosteronism” OR “Rhizomelic Osteochondrodysplasia*”)

Results: 15

PubMed

Search Run: 28 May 2021

Coverage: 2016 - present

Limits: English language, Humans


AND


AND

“Arnold-Chiari Malformation”[Majr] OR “Chiari*”[tiab] OR “Chiari*”[ot]

Results: 50
Inflammatory Bowel Disease (IBD), Irritable Bowel Syndrome (IBS), Crohn’s Disease

Cochrane

Search Run: 20 April 2021
Coverage: 2016-present
Limits: Sources- CINAHL, Embase, and PubMed

[mh "Cannabis"] OR [mh "Cannabinol"] OR [mh "Cannabidiol"] OR [mh "Marijuana Smoking"] OR [mh "Marijuana Use"] OR [mh "Medical Marijuana"] OR [mh "Dronabinol"] OR (bhang OR cannabid* OR cannabigerol OR cannabin* OR cannabis* OR cannador OR cardiolrx OR charas OR delta 9 tetrahydrocannabinol OR delta 9 trans tetrahydrocannabinol OR Dronabinol OR epidiolex OR epidiylex OR ganja* OR ganjah* OR hashish* OR hemp* OR herba cannabis OR marihuana* OR marijuana* OR Marinol OR medical cannabis OR medical marihuana OR medical marijuana OR medicinal cannabis OR medicinal marihuana OR nabilodex OR nabiximols OR sativex OR syndros OR tetrahydro cannabinol* OR tetrahydrocannabinol* OR Tetrahydrocannabinol*:ti,ab,kw
AND
[mh "Abdominal Pain"] OR [mh "Inflammatory Bowel Diseases"] OR [mh "Irritable Bowel Syndrome"] OR (Abdominal Pain OR cleron disease OR regional enteritis OR Crohn Disease OR Crohns disease OR Crohn's disease OR enteritis regionalis OR Inflammatory Bowel Disease* OR Irritable Bowel Syndrome* OR irritable colon OR morbus crohn OR regional colitis OR regional enteritis OR regional enterocolitis OR spastic colon):ti,ab,kw

Results: 5 Reviews, 43 Trials

Embase

Search Run: 12 May 2021
Coverage: 2016 – present
Limits: Embase; English language; Humans; case control study, clinical article, clinical study, clinical trial, cohort analysis, comparative effecteriveness, control group, controlled clinical trial, controlled study, corational study, cross sectionol study, crossover procedure, disease model, double blind procedure, evidence based medicine, human experiment, intention to treat analysis, longitudinal study, major clinical study, medical record review, meta analysis, model, multicerter study (topic), normal human, observational study, open study, phase 2 clinical trial (topic), phase 3 clinical trial (topic), pilot study, population based case control study, prospective study, randomized controlled trial (topic), retrospective study, secondary analysis, systematic review

‘cannabidiol’/exp/mj OR ‘cannabinoid’/exp/mj OR ‘cannabis sativa’/exp/mj OR ‘cannabis smoking’/exp OR ‘cannabis use’/exp/mj OR ‘cannabis’/exp/mj OR ‘dronabinol’/exp/mj OR ‘medical cannabis’/exp OR ‘nabiximols’/exp/mj OR ‘tetrahydrocannabinol’/exp/mj OR ‘tetrahydrocannabinol’:ti,ab,kw OR ‘bhang’:ti,ab,kw OR ‘cannabid*’:ti,ab,kw OR ‘cannabigerol’:ti,ab,kw OR ‘cannabin*’:ti,ab,kw OR ‘cannador’:ti,ab,kw OR ‘delta 9 tetrahydrocannabinol’:ti,ab,kw OR ‘dronabinol’:ti,ab,kw OR ‘epidiolex’:ti,ab,kw OR ‘epidyylex’:ti,ab,kw OR ‘ganja’:ti,ab,kw OR ‘ganjah’:ti,ab,kw OR ‘hashish’:ti,ab,kw OR ‘hashish oil’:ti,ab,kw OR ‘hashish smoking’:ti,ab,kw OR ‘hemp*’:ti,ab,kw OR ‘herba cannabis’:ti,ab,kw OR ‘marihuana*’:ti,ab,kw OR ‘marijuana*’:ti,ab,kw OR ‘Marinol’:ti,ab,kw OR ‘medical cannabis’:ti,ab,kw OR ‘medical marihuana’:ti,ab,kw OR ‘medical marijuana’:ti,ab,kw OR
'medicinal cannabis':ti,ab,kw OR 'medicinal marijuana':ti,ab,kw OR 'mexican marihuana':ti,ab,kw OR 'nabidiolex':ti,ab,kw OR 'nabiximols':ti,ab,kw OR 'sativex':ti,ab,kw OR 'syndros':ti,ab,kw OR 'tetrahydro cannabidiol*':ti,ab,kw OR 'tetrahydrocannabinal*':ti,ab,kw OR 'tetrahydrocannabinol*':ti,ab,kw OR 'THC':ti,ab,kw OR 'CBC':ti,ab,kw OR 'CBD':ti,ab,kw OR 'CBG':ti,ab,kw

AND

'inflammatory bowel disease'/exp/mj OR 'irritable colon'/exp/mj OR 'irritable bowel syndrome with constipation'/exp/mj OR 'Crohn disease'/exp/mj OR 'Colon Crohn disease'/exp/mj OR 'Abdominal Pain':ti,ab,kw OR 'Crohn disease':ti,ab,kw OR 'Crohns disease':ti,ab,kw OR 'enteritis regionalis':ti,ab,kw OR 'Inflammatory Bowel Disease*':ti,ab,kw OR 'Irritable Bowel Syndrome*':ti,ab,kw OR 'irritable colon':ti,ab,kw OR 'morbus cromh':ti,ab,kw OR 'regional colitis':ti,ab,kw OR 'regional enteritis':ti,ab,kw OR 'regional enterocolitis':ti,ab,kw OR 'spastic colon':ti,ab,kw

AND

'randomized controlled trial'/exp OR 'controlled clinical trial'/exp OR randomized:ti,ab OR placebo:ti,ab OR 'drug therapy':lnk OR randomly:ti,ab OR trial:ti,ab OR groups:ti,ab OR review/it OR meta-analysis/de OR "systematic review":ti OR "literature review":ti OR "meta analysis":ti OR metaanalysis:ti OR metasynthesis:ti

Results: 400

PsycINFO

Search Run: 24 May 2021
Coverage: 2016-present

Limits: Phrase Searching (Boolean): Clinical Case Study, Clinical Trial, Empirical Study, Literature Review, Meta Analysis, Quantitative Study, Treatment Outcome, Twin Study; English; Human

MM "Cannabis" OR MM "Marijuana" OR MM "Marijuana Usage" OR MM "Cannabinoids" OR MM "Tetrahydrocannabinol") OR TI ("bhang" OR "cannabidiol" OR "cannabigerol" OR "cannabinol" OR "cannabis" OR "cannador" OR "delta 9 tetrahydrocannabinol" OR "delta tetrahydrocannabinol" OR "Dronabinol" OR "epidiolex" OR "epidyolex" OR "ganja" OR "ganjah" OR "hashish" OR "hemp" OR "herba cannabis" OR "marihuana" OR "marijuana" OR "Marinol" OR "medical cannabis" OR "medical marihuana" OR "medical marijuana" OR "medicinal cannabis" OR "medicinal marijuana" OR "nabidiolex" OR "nabiximols" OR "Sativex" OR "sp 104" OR "syndros" OR "tetrahydro cannabidiol" OR "tetrahydrocannabinoi" OR "Tetrahydrocannabinol" OR "tetranabinex" OR "THC" OR "CBC" OR "CBD" OR "CBG") OR AB ("bhang" OR "cannabidiol" OR "cannabigerol" OR "cannabinol" OR "cannabis" OR "cannador" OR "delta 9 tetrahydrocannabinol" OR "delta tetrahydrocannabinol" OR "Dronabinol" OR "epidiolex" OR "epidyolex" OR "ganja" OR "ganjah" OR "hashish" OR "hemp" OR "herba cannabis" OR "marihuana" OR "marijuana" OR "Marinol" OR "medical cannabis" OR "medical marihuana" OR "medical marijuana" OR "medicinal cannabis" OR "medicinal marijuana" OR "nabidiolex" OR "nabiximols" OR "Sativex" OR "sp 104" OR "syndros" OR "tetrahydro cannabidiol" OR "tetrahydrocannabinoi" OR "Tetrahydrocannabinol" OR "tetranabinex" OR "THC" OR "CBC" OR "CBD" OR "CBG"

AND

(MM "Irritable Bowel Syndrome") OR TI ("Abdominal Pain" OR "cleron disease" OR "regional enteritis" OR "Crohn Disease" OR "Crohn's disease" OR "Crohn's disease" OR "Crohn's disease" OR "enteritis regionalis" OR "Inflammatory Bowel Disease*" OR "Irritable Bowel Syndrome*" OR "irritable colon" OR"
“morbus crohn” OR “regional colitis” OR “regional enteritis” OR “regional enterocolitis” OR “spastic colon”) OR AB (“Abdominal Pain” OR “cleron disease” OR “regional enteritis” OR “Crohn Disease” OR “Crohns disease” OR “Crohn’s disease” OR “enteritis regionalis” OR “Inflammatory Bowel Disease*” OR “Irritable Bowel Syndrome*” OR “irritable colon” OR “morbus crohn” OR “regional colitis” OR “regional enteritis” OR “regional enterocolitis” OR “spastic colon”)

Results: 1

PubMed

Search Run: 28 May 2021

Coverage: 2016 - present

Limits: English language, Humans


AND


AND

“Arnold-Chiari Malformation”[Majr] OR “Chiari*”[tiab] OR “Chiari*”[ot]

Results: 92
Interstitial Cystitis

Cochrane

**Search Run:** 20 April 2021  
**Coverage:** 2016-present  
**Limits:** Sources- CINAHL, Embase, and PubMed

[mh "Cannabis"] OR [mh "Cannabidiol"] OR [mh "Marijuana Smoking"] OR [mh "Marijuana Use"] OR [mh "Medical Marijuana"] OR [mh "Dronabinol"] OR (bhang OR cannabid* OR cannabinerol OR cannabin* OR cannab* OR cannador OR cardiolrx OR charas OR delta 9 tetrahydrocannabinol OR delta 9 trans tetrahydrocannabinol OR Dronabinol OR epidiolex OR epidiolex OR ganja* OR ganjah* OR hasheish* OR hemp* OR herba cannabis OR marihuana* OR marihuana OR Marinol OR medical cannabis OR medical marihuana OR medical marijuana OR medicinal cannabis OR medicinal marijuana OR nabidiolex OR nabiximols OR sativex OR syndros OR tetrahydrocannabinol* OR tetrahydrocannabinal* OR Tetrahydrocannabinol* OR tetrahydrocannabinol*):ti,ab,kw

AND

[mh "Cystitis"] OR [mh "Sclerosis"] OR (bladder ulcer OR bladder ulcer OR chronic bladder ulcer OR Cystitis OR hunner ulcer OR painful bladder syndrome OR Sclerosis OR submucosal ulcer OR ulcus hunneri):ti,ab,kw

**Results:** 0 Reviews, 0 Trials

Embase

**Search Run:** 12 May 2021  
**Coverage:** 2016 – present  
**Limits:** Embase; English language; Humans; case control study, clinical article, clinical study, clinical trial, cohort analysis, comparative effectiveness, control group, controlled clinical trial, controlled study, corralional study, cross sectional study, crossover procedure, disease model, double blind procedure, evidence based medicine, human experiment, intention to treat analysis, longitudinal study, major clinical study, medical record review, meta analysis, model, multicenter study (topic), normal human, observational study, open study, phase 2 clinical trial (topic), phase 3 clinical trial (topic), pilot study, population based case control study, prospective study, randomized controlled trial (topic), retrospective study, secondary analysis, systematic review

‘cannabidiol'/exp/mj OR ‘cannabinoid'/exp/mj OR ‘Cannabis sativa'/exp/mj OR ‘cannabis smoking'/exp OR ‘cannabis use'/exp OR ‘cannabis'/exp OR ‘dronabinol'/exp OR ‘medical cannabis'/exp OR ‘nabiximols'/exp/mj OR ‘tetrahydrocannabinol'/exp/mj OR ‘tetrohydrocannabino1'/ti,ab,kw OR ‘bhang’:ti,ab,kw OR ‘cannabid*’:ti,ab,kw OR ‘cannabinerol’:ti,ab,kw OR ‘cannabin*’:ti,ab,kw OR ‘cannador’:ti,ab,kw OR ‘delta 9 tetrahydrocannabinol’:ti,ab,kw OR ‘dronabinol’:ti,ab,kw OR ‘epidiolex’:ti,ab,kw OR ‘epidiolex’:ti,ab,kw OR ‘ganja*:ti,ab,kw OR ‘ganjah*:ti,ab,kw OR ‘hashish*:ti,ab,kw OR ‘hashish oil*:ti,ab,kw OR ‘hashish smoking*:ti,ab,kw OR ‘hemp*:ti,ab,kw OR ‘herba cannabis*:ti,ab,kw OR ‘marihuana*:ti,ab,kw OR ‘marijuana*:ti,ab,kw OR ‘Marinol*:ti,ab,kw OR ‘medical cannabis*:ti,ab,kw OR ‘medical marihuana*:ti,ab,kw OR ‘medical marijuana*:ti,ab,kw OR ‘medicinal cannabis*:ti,ab,kw OR ‘medicinal marijuana*:ti,ab,kw OR ‘mexican marihuana*:ti,ab,kw OR ‘nabidiolex*:ti,ab,kw OR ‘nabiximols*:ti,ab,kw OR ‘sativex*:ti,ab,kw OR ‘syndros*:ti,ab,kw
Results: 297

PsycInfo

Search Run: 24 May 2021
Coverage: 2016-present

Limits: Phrase Searching (Boolean); Clinical Case Study, Clinical Trial, Empirical Study, Literature Review, Meta Analysis, Quantitative Study, Treatment Outcome, Twin Study; English; Human

MM “Cannabis” OR MM “Marijuana” OR MM “Marijuana Usage” OR MM “Cannabinoids” OR MM “Tetrahydrocannabinol”) OR TI (“bhang” OR “cannabid*” OR “cannabigerol” OR “cannabin*” OR “cannabis*” OR “cannador” OR “delta 9 tetrahydrocannabinol” OR “delta tetrahydrocannabinol” OR “Dronabinol” OR “epidiolex” OR “epidiolex” OR “ganja*” OR “ganjah*” OR “hashish*” OR “hemp*” OR “herba cannabis” OR “marihuana*” OR “marijuana*” OR “Marinol” OR “medical cannabis” OR “medical marihuana” OR “medical marijuana” OR “nabidiolex” OR “nabiximols” OR “Sativex” OR “sp 104” OR “syndros” OR “tetrahydrocannabinol*” OR “tetrahydrocannabinol*” OR “Tetrahydrocannabinol*” OR “tetrahydrocannabinol*” OR “tetranabinex” OR “THC” OR “CBC” OR “CBD” OR “CBG”) OR AB (“bhang” OR “cannabid*” OR “cannabigerol” OR “cannabin*” OR “cannabis*” OR “cannador” OR “delta 9 tetrahydrocannabinol” OR “delta tetrahydrocannabinol” OR “Dronabinol” OR “epidiolex” OR “epidiolex” OR “ganja*” OR “ganjah*” OR “hashish*” OR “hemp*” OR “herba cannabis” OR “marihuana*” OR “marijuana*” OR “Marinol” OR “medical cannabis” OR “medical marihuana” OR “medical marijuana” OR “medicinal cannabis” OR “medicinal marihuana” OR “nabidiolex” OR “nabiximols” OR “Sativex” OR “sp 104” OR “syndros” OR “tetrahydrocannabinol*” OR “tetrahydrocannabinol*” OR “Tetrahydrocannabinol*” OR “tetrahydrocannabinol*” OR “tetranabinex” OR “THC” OR “CBC” OR “CBD” OR “CBG” AND

(MM “Sclerosis (Nervous System)”) OR TI (“bladder ulcer” OR “bladder ulcus” OR “chronic bladder ulcer” OR “Cystitis” OR “hunner ulcer” OR “painful bladder syndrome” OR “Sclerosis” OR “submucosal ulcer” OR “submucosal ulcus” OR “ulcus hunneri”) OR AB (“bladder ulcer” OR “bladder ulcer” OR “chronic bladder ulcer” OR “Cystitis” OR “hunner ulcer” OR “painful bladder syndrome” OR “Sclerosis” OR “submucosal ulcer” OR “submucosal ulcus” OR “ulcus hunneri”)

Results: 0
PubMed

Search Run: 28 May 2021

Coverage: 2016 - present

Limits: English language, Humans


AND


AND

“Arnold-Chiari Malformation”[Majr] OR “Chiari*”[tiab] OR “Chiari*”[ot]

Results: 190
**Cannabis**

**Search Run:** 20 April 2021  
**Coverage:** 2016–present  
**Limits:** Sources- CINAHL, Embase, and PubMed

[mh "Cannabis"] OR [mh "Cannabidiol"] OR [mh "Cannabinol"] OR [mh "Marijuana Smoking"] OR [mh "Marijuana Use"] OR [mh "Medical Marijuana"] OR [mh "Dronabinol"] OR (bhang OR cannabid* OR cannabigerol OR cannabin* OR cannabins* OR cannador OR cardiolrx OR charas OR delta 9 tetrahydrocannabinol OR delta 9 trans tetrahydrocannabinol OR Dronabinol OR epidiolex OR epidyolex OR ganja* OR ganjah* OR hashish* OR hemp* OR herba cannabis OR marihuana* OR marijuana* OR Marinol OR medical cannabis OR medical marihuana OR medical marijuana OR medicinal cannabis OR medicinal marijuana OR nabiximols OR nativex OR syndros OR tetrahydrocannabinol* OR Tetrahydrocannabinol* OR tetrahydrocannabinol*:ti,ab,kw

AND

[mh "Macular Degeneration"] OR (atrophia maculae luteae OR degeneratio maculae luteae retinae OR disciform macula lutea degeneration OR Geographic Atrophy OR heredomacular degeneration OR jenius kuhnt disease OR Kuster Majewski Hammerstein syndrome OR MacKay Shek Carr syndrome OR macula atrophy OR macula bilateral degeneration OR macula degeneration OR macula lutea atrophy OR macula lutea degeneration OR macula lutea disciform degeneration OR macula lutea retina atrophy OR macula lutea retina degeneration OR macula retina degeneration OR macular atrophy OR Macular Degeneration OR macular disciform degeneration OR macular dystrophy OR retina heredomacular degeneration OR retina macula atrophy OR retina macula bilateral degeneration OR retina macula disciform degeneration OR retina macula lutea atrophy OR Spinocerebellar Ataxias OR Stargardt Disease):ti,ab,kw

**Results:** 0 Reviews, 0 Trials
PsycInfo

Search Run: 24 May 2021

Coverage: 2016-present

Limits: Phrase Searching (Boolean); Clinical Case Study, Clinical Trial, Empirical Study, Literature Review, Meta Analysis, Quantitative Study, Treatment Outcome, Twin Study; English; Human

MM "Cannabis" OR MM "Marijuana" OR MM "Marijuana Usage" OR MM "Cannabinoids" OR MM "Tetrahydrocannabinol") OR TI ("bhang" OR "cannabinoid" OR "cannabigerol" OR "cannabinoid" OR "cannador" OR "delta 9 tetrahydrocannabinol" OR "delta tetrahydrocannabinol" OR "Dronabinol" OR "epidiolex" OR "epidiolex" OR "ganja" OR "ganjah" OR "hashish" OR "hemp" OR "herba cannabis" OR "marihuana" OR "marijuana" OR "Marinol" OR "medical cannabis" OR "medical cannabis" OR "medical marijuana" OR "medicinal cannabis" OR "medicinal marijuana" OR "nabidiolex" OR "nabiximols" OR "Sativex" OR "sp 104" OR "syndros" OR "tetrahydro cannabinol" OR "tetrahydrocannabinol" OR "Tetrahydrocannabinol" OR "tetrahydrocannabinol" OR "tetrahydrocannabinol" OR "tetranabinex" OR "THC" OR "CBC" OR "CBD" OR "CBG") OR AB ("bhang" OR "cannabinoid" OR "cannabigerol" OR "cannabinoid" OR "cannador" OR "delta 9 tetrahydrocannabinol" OR "delta tetrahydrocannabinol" OR "Dronabinol" OR "epidiolex" OR "epidiolex" OR "ganja" OR "ganjah" OR "hashish" OR "hemp" OR "herba cannabis" OR "marihuana" OR "marijuana" OR "Marinol" OR "medical cannabis" OR "medical cannabis" OR "medical marijuana" OR "medicinal cannabis" OR "medicinal marijuana" OR "nabidiolex" OR "nabiximols" OR "Sativex" OR "sp 104" OR "syndros" OR "tetrahydro cannabinol" OR "tetrahydrocannabinol" OR "Tetrahydrocannabinol" OR "tetrahydrocannabinol" OR "tetranabinex" OR "THC" OR "CBC" OR "CBD" OR "CBG"

AND
(MM “Dementia with Lewy Bodies”) OR TI (“dementia with Lewy body” OR “Dementia with Lewy Bodies” OR “Diffuse Lewy body disease*” OR “DLBD” OR “Lewy body dementia*” OR “Lewy body disease*” OR “Lewy body disease”) AB (“dementia with Lewy body” OR “Dementia with Lewy Bodies” OR “Diffuse Lewy body disease*” OR “DLBD” OR “Lewy body dementia*” OR “Lewy body disease*”)

**Results:** 7

PubMed

**Search Run:** 28 May 2021

**Coverage:** 2016 - present

**Limits:** English language, Humans


AND


AND

“Arnold-Chiari Malformation”[Majr] OR “Chiari*”[tiab] OR “Chiari*”[ot]

**Results:** 10
**Macular Degeneration (age-related)**

Cochrane

**Search Run:** 20 April 2021  
**Coverage:** 2016–present  
**Limits:** Sources- CINAHL, Embase, and PubMed

[mh "Cannabis"] OR [mh "Cannabidiol"] OR [mh "Marijuana Smoking"] OR [mh “Marijuana Use”] OR [mh “Medical Marijuana”] OR [mh “Dronabinol”] OR (bhang OR cannabid* OR cannabigerol OR cannabin* OR cannabis* OR cannador OR cardiolrx OR charas OR delta 9 tetrahydrocannabinol OR delta 9 trans tetrahydrocannabinol OR Dronabinol OR epidiolex OR epidoylex OR ganja* OR ganjah* OR hashish* OR hemp* OR herba cannabis OR marihuana* OR marijuana* OR Marinol OR medical cannabis OR medical marihuana OR medical marijuana OR medicinal cannabis OR medicinal marijuana OR nabidiolex OR nabiximols OR sativex OR syndros OR tetrahydro cannabis* OR tetrahydrocannabinol* OR Tetrahydrocannabinol* OR tetrahydrocannabiol*:ti,ab,kw

AND

[mh “Macular Degeneration”] OR (atrophia maculae luteae OR degeneratio maculae luteae retinae OR disciform macula lutea degeneration OR Geographic Atrophy OR heredomacular degeneration OR junius kuhnt disease OR Kuster Majewski Hammerstein syndrome OR MacKay Shek Carr syndrome OR macula atrophy OR macula bilateral degeneration OR macula degeneration OR macula lutea atrophy OR macula lutea degeneration OR macula lutea disciform degeneration OR macula lutea retina atrophy OR macula lutea retina degeneration OR macula retina degeneration OR macular atrophy OR Macular Degeneration OR macular disciform degeneration OR macular dystrophy OR retina heredomacular degeneration OR retina macula atrophy OR retina macula bilateral degeneration OR retina macula disciform degeneration OR retina macula lutea atrophy OR Spino cerebellar Ataxias OR Stargardt Disease):ti,ab,kw

**Results:** 0 Reviews, 0 Trials

Embase

**Search Run:** 12 May 2021  
**Coverage:** 2016 – present  
**Limits:** Embase; English language; Humans; case control study, clinical article, clinical study, clinical trial, cohort analysis, comparative effectiveness, control group, controlled clinical trial, controlled study, correllational study, cross sectional study, crossover procedure, disease model, double blind procedure, evidence based medicine, human experiment, intention to treat analysis, longitudinal study, major clinical study, medical record review, meta analysis, model, multicenter study (topic), normal human, observational study, open study, phase 2 clinical trial (topic), phase 3 clinical trial (topic), pilot study, population based case control study, prospective study, randomized controlled trial (topic), retrospective study, secondary analysis, systematic review

‘cannabidiol’/exp/mj OR ‘cannabinoid’/exp/mj OR ‘cannabinol’/exp/mj OR ‘Cannabis sativa’/exp/mj OR ‘cannabis smoking’/exp OR ‘cannabis use’/exp/mj OR ‘cannabis’/exp/mj OR ‘dronabinol’/exp/mj OR ‘medical cannabis’/exp OR ‘nabiximols’/exp/mj OR ‘tetrahydrocannabinol’/exp/mj OR ‘tetrahydrocannabinol’:ti,ab,kw OR ‘bhang’:ti,ab,kw OR ‘cannabid*’:ti,ab,kw OR ‘cannabigerol’:ti,ab,kw OR ‘cannabin*’:ti,ab,kw OR ‘cannabis*’:ti,ab,kw OR
'cannador':ti,ab,kw OR 'delta 9 tetrahydrocannabinol':ti,ab,kw OR 'epidiolex':ti,ab,kw OR 'epipolyx':ti,ab,kw OR 'ganja':ti,ab,kw OR 'ganjah':ti,ab,kw OR 'hashish':ti,ab,kw OR 'hashish oil':ti,ab,kw OR 'hashish smoking':ti,ab,kw OR 'hemp*':ti,ab,kw OR 'herba cannabis':ti,ab,kw OR 'marihuana*':ti,ab,kw OR 'marijuana*':ti,ab,kw OR 'Mariinol':ti,ab,kw OR 'medical cannabis':ti,ab,kw OR 'medical marihuana':ti,ab,kw OR 'medical marijuana':ti,ab,kw OR 'medicinal cannabis':ti,ab,kw OR 'medicinal marihuana':ti,ab,kw OR 'mexican marihuana':ti,ab,kw OR 'nabidiolex':ti,ab,kw OR 'nabiximols':ti,ab,kw OR 'sativex':ti,ab,kw OR 'syndros':ti,ab,kw OR 'tetrahydro cannabionol*':ti,ab,kw OR 'tetrahydrocannabinal*':ti,ab,kw OR 'tetrahydrocannabinol*':ti,ab,kw OR 'tetrahydrocannabinol*':ti,ab,kw OR 'tetrahydrocannabinol*':ti,ab,kw OR 'tetrahydrocannabinol*':ti,ab,kw OR 'tetrahydrocannabinol*':ti,ab,kw OR 'THC':ti,ab,kw OR 'CBC':ti,ab,kw OR 'CBD':ti,ab,kw OR 'CBG':ti,ab,kw

AND

'retina macular degeneration'/exp/mj OR 'atrophia maculae luteae':ti,ab,kw OR 'degeneratio maculae luteae':ti,ab,kw OR 'disciform macula lutea degeneration':ti,ab,kw OR 'Geographic Atrophy':ti,ab,kw OR 'heredomacular degeneration':ti,ab,kw OR 'junius kuhnt disease':ti,ab,kw OR 'Kuster Majewski Hammerstein syndrome':ti,ab,kw OR 'MacKay Shek Carr syndrome':ti,ab,kw OR 'macula atrophy':ti,ab,kw OR 'macula bilateral degeneration':ti,ab,kw OR 'macula degeneration':ti,ab,kw OR 'macula lutea atrophy':ti,ab,kw OR 'macula lutea degeneration':ti,ab,kw OR 'macula lutea disciform degeneration':ti,ab,kw OR 'macula lutea retina atrophy':ti,ab,kw OR 'macula lutea retina degeneration':ti,ab,kw OR 'macular atrophy':ti,ab,kw OR 'Macular Degeneration':ti,ab,kw OR 'macular disciform degeneration':ti,ab,kw OR 'macular dystrophy':ti,ab,kw OR 'retina heredomacular degeneration':ti,ab,kw OR 'retina macular atrrophy':ti,ab,kw OR 'retina macula bilateral degeneration':ti,ab,kw OR 'retina macula disciform degeneration':ti,ab,kw OR 'retina macula lutea atrophy':ti,ab,kw OR 'Spinocerebellar Ataxias':ti,ab,kw OR 'Stargardt Disease':ti,ab,kw

AND

'randomized controlled trial'/exp OR 'controlled clinical trial'/exp OR randomized:ti,ab OR placebo:ti,ab OR 'drug therapy':lnk OR randomly:ti,ab OR trial:ti,ab OR groups:ti,ab OR review/it OR meta-analysis/de OR 'systematic review':ti OR 'literature review':ti OR "meta analysis":ti OR metaanalysis:ti OR metasynthesis:ti

Results: 1 Duplicates:
“cannabigerol” OR “cannabin*” OR “cannador” OR “delta 9 tetrahydrocannabinol” OR “delta tetrahydrocannabinol” OR “Dronabinol” OR “epidiolex” OR “epidiolex” OR “ganja*” OR “ganjah*” OR “hashish*” OR “hemp*” OR “herba cannabis” OR “marihuana*” OR “marijuana*” OR “Marinol” OR “medical cannabis” OR “medical marihuana” OR “medical marijuana” OR “medicinal cannabis” OR “medicinal marijuana” OR “nabidiolex” OR “nabiximols” OR “Sativex” OR “sp 104” OR “syndros” OR “tetrahydrocannabinol*” OR “tetrahydrocannabinol*” OR “Tetrahydrocannabinol*” OR “tetrahydrocannabinol*” OR “tetranabinex” OR “THC” OR “CBC” OR “CBD” OR “CBG”

AND

TI (“atrophia maculae luteae” OR “degeneratio maculae luteae retinae” OR “disciform macula lutea degeneration” OR “Geographic Atrophy” OR “heredomacular degeneration” OR “junius kuhnt disease” OR “Kuster Majewski Hammerstein syndrome” OR “MacKay Shek Carr syndrome” OR “macula atrophy” OR “macula bilateral degeneration” OR “macula degeneration” OR “macula lutea atrophy” OR “macula lutea degeneration” OR “macula lutea disciform degeneration” OR “macula lutea retia atrophy” OR “macula lutea retina degeneration” OR “macula retina degeneration” OR “macular atrophy” OR “Macular Degeneration” OR “macular disciform degeneration” OR “macular dystrophy” OR “retina heredomacular degeneration” OR “retina macula atrophy” OR “retina macula bilateral degeneration” OR “retina macula disciform degeneration” OR “retina macula lutea atrophy” OR “Spinocerebellar Ataxias” OR “Stargardt Disease”) OR AB (“atrophia maculae luteae” OR “degeneratio maculae luteae retinae” OR “disciform macula lutea degeneration” OR “Geographic Atrophy” OR “heredomacular degeneration” OR “junius kuhnt disease” OR “Kuster Majewski Hammerstein syndrome” OR “MacKay Shek Carr syndrome” OR “macula atrophy” OR “macula bilateral degeneration” OR “macula degeneration” OR “macula lutea atrophy” OR “macula lutea degeneration” OR “macula lutea disciform degeneration” OR “macula lutea retina atrophy” OR “macula lutea retina degeneration” OR “macula retina degeneration” OR “macular atrophy” OR “Macular Degeneration” OR “macular disciform degeneration” OR “macular dystrophy” OR “retina heredomacular degeneration” OR “retina macula atrophy” OR “retina macula bilateral degeneration” OR “retina macula disciform degeneration” OR “retina macula lutea atrophy” OR “Spinocerebellar Ataxias” OR “Stargardt Disease”)

Results: 1

PubMed

Search Run: 28 May 2021

Coverage: 2016 - present

Limits: English language, Humans

AND


AND


Results: 2
Median Arcuate Ligament Syndrome, or MALS Syndrome

Cochrane

**Search Run:** 20 April 2021  
**Coverage:** 2016–present  
**Limits:** Sources- CINAHL, Embase, and PubMed

[mh "Cannabis"] OR [mh "Cannabinol"] OR [mh "Cannabidiol"] OR [mh “Marijuana Smoking”] OR [mh “Marijuana Use”] OR [mh “Medical Marijuana”] OR [mh “Dronabinol”] OR (bhang OR cannabid* OR cannabigerol OR cannabin* OR cannabis* OR cannador OR cardiolrx OR charas OR delta 9 tetrahydrocannabinol OR delta 9 trans tetrahydrocannabinol OR Dronabinol OR epidiolex OR epidolex OR ganja* OR ganjah* OR hashish* OR hemp* OR herba cannabis OR marihuana* OR marijuana* OR Marinos OR medical cannabis OR medical marihuana OR medical marijuana OR medicinal cannabis OR medicinal marihuana OR medicinal marijuana OR nabidiolex OR nabiximols OR sativex OR syndros OR tetrahydro cannabis* OR tetrahydrocannabinol* OR Tetrahydrocannabinol* OR tetrahydrocannabinol*:ti,ab,kw

AND

[mh “Median Arcuate Ligament Syndrome”] OR (celiac artery compression OR celiac artery occlusion OR celiac artery stenosis OR celiac axis compression OR celiac axis obstruction OR celiac axis stenosis OR celiac trunc stenosis OR celiac trunk compression OR celiac trunk obstruction OR celiac trunk stenosis OR coeliac artery compression OR coeliac artery obstruction OR coeliac artery occlusion OR coeliac artery stenosis OR coeliac axis compression OR coeliac axis compression syndrome OR coeliac axis obstruction OR coeliac axis stenosis OR coeliac trunc stenosis OR coeliac trunk compression OR coeliac trunk obstruction OR coeliac trunc stenosis OR MALS syndrome OR Medial arcuate ligament syndrome OR Median arcuate ligament syndrome OR dunbar syndrome):ti,ab,kw

**Results:** 0 Reviews, 0 Trials

Embase

**Search Run:** 12 May 2021  
**Coverage:** 2016 – present  
**Limits:** Embase; English language; Humans; case control study, clinical article, clinical study, clinical trial, cohort analysis, comparative effectiveness, control group, controlled clinical trial, controlled study, correlational study, cross sectional study, crossover procedure, disease model, double blind procedure, evidence based medicine, human experiment, intention to treat analysis, longitudinal study, major clinical study, medical record review, meta analysis, model, multicenter study (topic), normal human, observational study, open study, phase 2 clinical trial (topic), phase 3 clinical trial (topic), pilot study, population based case control study, prospective study, randomized controlled trial (topic), retrospective study, secondary analysis, systematic review

‘cannabidiol’/exp/mj OR ‘cannabinoid’/exp/mj OR ‘cannabino1’/exp/mj OR ‘Cannabis sativa’/exp/mj OR ‘cannabis smoking’/exp OR ‘cannabis use’/exp OR ‘cannabis’/exp/mj OR ‘dronabinol’/exp/mj OR ‘medical cannabis’/exp OR ‘nabiximols’/exp/mj OR ‘tetrahydrocannabinol’/exp OR ‘tetrahydrocannabinol’:ti,ab,kw OR ‘bhang’:ti,ab,kw OR ‘cannabid*’:ti,ab,kw OR ‘cannabigerol’:ti,ab,kw OR ‘cannabin*’:ti,ab,kw OR ‘cannabis*’:ti,ab,kw OR ‘cannador’:ti,ab,kw OR ‘delta 9 tetrahydrocannabinol’:ti,ab,kw OR ‘dronabinol’:ti,ab,kw OR ‘dronabinol’/exp/mj
Results: 0
Results: 0


"Arnold-Chiari Malformation"[Majr] OR "Chiari*"[tiab] OR "Chiari*"[ot]

**Results:** 0
**Methicillin-Resistant Staphylococcus Aureus (MRSA)**

Cochrane

**Search Run:** 20 April 2021  
**Coverage:** 2016–present  

**Limits:** Sources- CINAHL, Embase, and PubMed

[mh "Cannabis"] OR [mh "Cannabidiol"] OR [mh "Marijuana Smoking"] OR [mh "Marijuana Use"] OR [mh "Medical Marijuana"] OR [mh "Dronabinol"] OR (bhang OR cannabid* OR cannabigerol OR cannabin* OR cannabis* OR cannador OR cardiolrx OR charas OR delta 9 tetrahydrocannabinol OR delta 9 trans tetrahydrocannabinol OR Dronabinol OR epidiolex OR epidiylex OR ganja* OR ganjah* OR hashish* OR hemp* OR herba cannabis OR marihuana* OR marihuana* OR Marinol OR medical cannabis OR medical marihuana OR medical marijuana OR medicinal cannabis OR medicinal marijuana OR nabidiolex OR nabiximols OR sativex OR syndros OR tetrahydrocannabinol* OR tetrahydrocannabinal* OR Tetrahydrocannabinol* OR tetrahydrocannabinol*):ti,ab,kw

AND

[mh "Methicillin-Resistant Staphylococcus aureus"] OR (methicillin resistant Staphylococcus aureus OR methillicin resistant Staphylococcus aureus OR meticillin resistant Staphylococcus aureus OR MRSA OR Staphylococcus aureus methicillin resistant):ti,ab,kw

**Results:** 0 Reviews, 67 Trials

Embase

**Search Run:** 12 May 2021  
**Coverage:** 2016 – present  

**Limits:** Embase; English language; Humans; case control study, clinical article, clinical study, clinical trial, cohort analysis, comparative effectiveness, control group, controlled clinical trial, controlled study, correlative study, cross sectional study, crossover procedure, disease model, double blind procedure, evidence based medicine, human experiment, intention to treat analysis, longitudinal study, major clinical study, medical record review, meta analysis, model, multicenter study (topic), normal human, observational study, open study, phase 2 clinical trial (topic), phase 3 clinical trial (topic), pilot study, population based case control study, prospective study, randomized controlled trial (topic), retrospective study, secondary analysis, systematic review

‘cannabidiol'/exp/mj OR ‘cannabinoid'/exp/mj OR ‘Cannabis sativa'/exp/mj OR ‘cannabis smoking'/exp OR ‘cannabis use'/exp/mj OR ‘cannabis'/exp/mj OR ‘dronabinol'/exp/mj OR ‘epidiolex'/exp OR ‘nabiximols'/exp/mj OR ‘tetrahydrocannabinol'/exp/mj OR ‘tetrahydrocannabinol':ti,ab,kw OR ‘bhang':ti,ab,kw OR ‘cannabid*':ti,ab,kw OR ‘cannabin*':ti,ab,kw OR ‘cannabin*:ti,ab,kw OR ‘cannador*:ti,ab,kw OR ‘delta 9 tetrahydrocannabinol*:ti,ab,kw OR ‘dronabinol*:ti,ab,kw OR ‘epidiolex*:ti,ab,kw OR ‘epidiylex*:ti,ab,kw OR ‘ganja*:ti,ab,kw OR ‘gangjah*:ti,ab,kw OR ‘hashish*:ti,ab,kw OR ‘hashish oil*:ti,ab,kw OR ‘hashish smoking*:ti,ab,kw OR ‘hemp*:ti,ab,kw OR ‘herba cannabis*:ti,ab,kw OR ‘marihuana*':ti,ab,kw OR ‘marijuana*':ti,ab,kw OR ‘Marinol*:ti,ab,kw OR ‘medical cannabis*:ti,ab,kw OR ‘medical marihuana*:ti,ab,kw OR ‘medical marijuana*:ti,ab,kw OR ‘medicinal cannabis*:ti,ab,kw OR ‘medicinal marijuana*:ti,ab,kw OR ‘mexican marihuana*:ti,ab,kw OR ‘nabidiolex*:ti,ab,kw OR ‘nabiximols*:ti,ab,kw OR ‘sativex*:ti,ab,kw OR ‘syndros*:ti,ab,kw OR
Results: 1

PsycInfo

Search Run: 25 May 2021
Coverage: 2016-present

Limits: Phrase Searching (Boolean); Clinical Case Study, Clinical Trial, Empirical Study, Literature Review, Meta Analysis, Quantitative Study, Treatment Outcome, Twin Study; English; Human

MM “Cannabis” OR MM “Marijuana” OR MM “Marijuana Usage” OR MM “Cannabinoids” OR MM “Tetrahydrocannabinol”) OR TI (“bhang” OR “cannabid*” OR “cannabigerol” OR “cannabin*” OR “cannabis” OR “cannador” OR “delta 9 tetrahydrocannabinol” OR “delta tetrahydrocannabinol” OR “Dronabinol” OR “epidiolex” OR “epidyolex” OR “ganja” OR “ganjah” OR “hashish” OR “hemp” OR “herba cannabis” OR “marihuana” OR “marijuana” OR “Marinol” OR “medical cannabis” OR “medical marihuana” OR “medical marijuana” OR “medicinal cannabis” OR “medicinal marijuana” OR “nabidiolex” OR “nabiximols” OR “Sativex” OR “sp 104” OR “syndros” OR “tetrahydrocannabinol” OR “tetrahydrocannabinol*” OR “Tetrahydrocannabinol*” OR “tetrahydro cannabinol” OR “tetrahydro cannabinol*” OR “tetrahydro cannabinol*” OR “tetrahydro cannabinol*” OR “tetrahydro cannabinol*” OR “tetrahydro cannabinol*” OR “tetrahydro cannabinol*” OR “tetrahydro cannabinol*” OR “tetrahydro cannabinol*” OR “tetrahydro cannabinol*” OR “tetrahydro cannabinol*” OR “tetrahydro cannabinol*” OR “tetranabinex” OR “THC” OR “CBC” OR “CBD” OR “CBG”) OR AB (“bhang” OR “cannabid*” OR “cannabigerol” OR “cannabin*” OR “cannabis” OR “cannador” OR “delta 9 tetrahydrocannabinol” OR “delta tetrahydrocannabinol” OR “Dronabinol” OR “epidiolex” OR “epidyolex” OR “ganja” OR “ganjah” OR “hashish” OR “hemp” OR “herba cannabis” OR “marihuana” OR “marijuana” OR “Marinol” OR “medical cannabis” OR “medical marihuana” OR “medical marijuana” OR “medicinal cannabis” OR “medicinal marijuana” OR “nabidiolex” OR “nabiximols” OR “Sativex” OR “sp 104” OR “syndros” OR “tetrahydro cannabinol” OR “tetrahydro cannabinol*” OR “Tetrahydrocannabinol*” OR “tetrahydro cannabinol*” OR “tetrahydro cannabinol*” OR “tetrahydro cannabinol*” OR “tetrahydro cannabinol*” OR “tetrahydro cannabinol*” OR “tetrahydro cannabinol*” OR “tetrahydro cannabinol*” OR “tetrahydro cannabinol*” OR “tetrahydro cannabinol*” OR “tetranabinex” OR “THC” OR “CBC” OR “CBD” OR “CBG” AND

TI (“methicillin resistant Staphylococcus aureus” OR “meticillin resistant Staphylococcus aureus” OR “meticillin resistant Staphylococcus aureus” OR “meticillin resistant Staphylococcus aureus” OR “MRSA”) OR AB (“methicillin resistant Staphylococcus aureus” OR “meticillin resistant Staphylococcus aureus” OR “meticillin resistant Staphylococcus aureus” OR “MRSA”)
Limits: English language, Humans


AND


AND

“Arnold-Chiari Malformation”[Majr] OR “Chiari*”[tiab] OR “Chiari*”[ot]

Results: 1
Multiple Sclerosis (MS)

Cochrane

Search Run: 25 April 2021
Coverage: 2016-present

Limits: Sources - CINAHL, Embase, and PubMed

[mh "Cannabis"] OR [mh "Cannabidiol"] OR [mh "Marijuana Smoking"] OR [mh "Marijuana Use"] OR [mh "Medical Marijuana"] OR [mh "Dronabinol"] OR (bhang OR cannabinoids* OR canna* OR cannador OR cardiolrx OR charas OR delta 9 tetrahydrocannabinol OR delta 9 trans tetrahydrocannabinol OR Dronabinol OR epidoxel OR epidiol OR ganja* OR ganjah* OR hashish* OR hemp* OR herba cannabis OR marihuana* OR Marind OR medical cannabis OR medical marihuana OR medical marijuana OR medicinal cannabis OR medicinal marijuana OR nabiximols OR sativex OR syndros OR tetrahydrocannabinol* OR tetrahydrocannabinol* OR Tetrahydrocannabinol* OR tetrahydrocannabinol*):ti,ab,kw

AND

[mh "Multiple Sclerosis"] OR (Baclofen OR demyelinating factors OR disseminated sclerosis OR insular sclerosis OR Leukodystrophy OR Multiple Sclerosis OR Optic Neuritis OR sclerosis multiplex):ti,ab,kw

Results: 2 Reviews, 41 Trials

Embase

Search Run: 12 May 2021
Coverage: 2016 – present

Limits: Embase; English language; Humans; case control study, clinical article, clinical study, clinical trial, cohort analysis, comparative effectiveness, control group, controlled clinical trial, controlled study, correlational study, cross sectional study, crossover procedure, disease model, double blind procedure, evidence based medicine, human experiment, intention to treat analysis, longitudinal study, major clinical study, medical record review, meta analysis, model, multicenter study (topic), normal human, observational study, open study, phase 2 clinical trial (topic), phase 3 clinical trial (topic), pilot study, population based case control study, prospective study, randomized controlled trial (topic), retrospective study, secondary analysis, systematic review

‘cannabidiol’/exp/mj OR ‘cannabinoid’/exp/mj OR ‘Cannabis sativa’/exp/mj OR ‘cannabis smoking’/exp OR ‘cannabis use’/exp/mj OR ‘cannabis’:exp/mj OR ‘dronabinol’/exp/mj OR ‘medical cannabis’/exp OR ‘nabiximols’/exp/mj OR ‘tetrahydrocannabinol’/exp/mj OR ‘tetrahydrocannabinol’/ti,ab,kw OR ‘bhang’:ti,ab,kw OR ‘cannabin’*:ti,ab,kw OR ‘cannabigerol’:ti,ab,kw OR ‘cannabin’*:ti,ab,kw OR ‘cannador’:ti,ab,kw OR ‘delta 9 tetrahydrocannabinol’:ti,ab,kw OR ‘dronabinol’:ti,ab,kw OR ‘epidoxel’:ti,ab,kw OR ‘epidiol’:ti,ab,kw OR ‘ganja’*:ti,ab,kw OR ‘ganjah’*:ti,ab,kw OR ‘hashish’:ti,ab,kw OR ‘hashish oil’:ti,ab,kw OR ‘hashish smoking’:ti,ab,kw OR ‘hemp’*:ti,ab,kw OR ‘herba cannabis’:ti,ab,kw OR ‘marihuana’*:ti,ab,kw OR ‘marijuana’*:ti,ab,kw OR ‘Marinol’:ti,ab,kw OR ‘medical cannabis’:ti,ab,kw OR ‘medical marihuana’:ti,ab,kw OR ‘medicinal cannabis’:ti,ab,kw OR ‘medicinal marihuana’:ti,ab,kw OR ‘mexican marihuana’:ti,ab,kw OR ‘nabiximols’:ti,ab,kw OR ‘sativex’:ti,ab,kw OR ‘syndros’:ti,ab,kw OR
Results: 239

PsycInfo

Search Run: 25 May 2021
Coverage: 2016-present

Limits: Phrase Searching (Boolean); Clinical Case Study, Clinical Trial, Empirical Study, Literature Review, Meta Analysis, Quantitative Study, Treatment Outcome, Twin Study; English; Human

MM “Cannabis” OR MM “Marijuana” OR MM “Marijuana Usage” OR MM “Cannabinoids” OR MM “Tetrahydrocannabinol”) OR TI (“bhang” OR “cannabid*” OR “cannabigerol” OR “cannabin*” OR “cannabis”” OR “cannador” OR “delta 9 tetrahydrocannabinol” OR “delta tetrahydrocannabinol” OR “Dronabinol” OR “epidiolex” OR “epidyolex” OR “ganja”” OR “ganjah”” OR “hashish”” OR “hemp”” OR “herba cannabis” OR “marihuana”” OR “marijuana”” OR “Marinol” OR “medical cannabis” OR “medical marihuana” OR “medical marijuana” OR “nabidiolex” OR “nabiximols” OR “Sativex” OR “sp 104” OR “syndros” OR “tetrahydrocannabinol”” OR “tetrahydrocannabinol*” OR “Tetrahydrocannabinol*” OR “tetrahydrocannabinol*” OR “tetranabinex” OR “THC” OR “CBC” OR “CBD” OR “CBG”) OR AB (“bhang” OR “cannabin*” OR “cannabigerol” OR “cannador” OR “cannabin” OR “cannabidiol” OR “Dronabinol” OR “epidiolex” OR “epidyolex” OR “ganja”” OR “ganjah”” OR “hashish”” OR “hemp”” OR “herba cannabis” OR “marihuana”” OR “marijuana”” OR “Marinol” OR “medical cannabis” OR “medical marihuana” OR “medical marijuana” OR “nabidiolex” OR “nabiximols” OR “Sativex” OR “sp 104” OR “syndros” OR “tetrahydrocannabinol”*” OR “tetrahydrocannabinol*” OR “Tetrahydrocannabinol*” OR “tetrahydrocannabinol*” OR “tetranabinex” OR “THC” OR “CBC” OR “CBD” OR “CBG”

AND

(MM “Multiple Sclerosis” OR MM “Optic Neuritis” OR MM “Baclofen”) OR TI (“Baclofen” OR “demyelinating factors” OR “disseminated sclerosis” OR “insular sclerosis” OR “Leukodystrophy” OR “Multiple Sclerosis” OR “Optic Neuritis” OR “sclerosis multiplex”) OR AB (“Baclofen” OR “demyelinating factors” OR “disseminated sclerosis” OR “insular sclerosis” OR “Leukodystrophy” OR “Multiple Sclerosis” OR “Optic Neuritis” OR “sclerosis multiplex”)

Results: 37

PubMed

Search Run: 28 May 2021
Coverage: 2016 - present

Limits: English language, Humans


AND


AND

“Arnold-Chiari Malformation”[Majr] OR “Chiari*”[tiab] OR “Chiari*”[ot]

Results: 160
Muscle Spasticity

Cochrane

Search Run: 25 April 2021
Coverage: 2016–present

Limits: Sources- CINAHL, Embase, and PubMed

[mh "Cannabis"] OR [mh "Cannabinol"] OR [mh "Cannabidiol"] OR [mh "Marijuana Smoking"] OR [mh "Marijuana Use"] OR [mh "Medical Marijuana"] OR [mh "Dronabinol"] OR [bhang OR cannabin* OR cannabigerol OR cannabin* OR cannador OR cardiolrx OR charas OR delta 9 tetrahydrocannabinol OR delta 9 trans tetrahydrocannabinol OR Dronabinol OR epidiolex OR epidiol OR ganja* OR ganjah* OR hashish* OR hemp* OR herba cannabis OR marihuana* OR marijuana* OR Marinol OR medical cannabis OR medical marihuana OR medical marijuana OR medicinal cannabis OR medicinal marijuana OR nabidiolex OR nabiximols OR sativex OR syndros OR tetrahydrocannabinol* OR tetrahydrocannabinol* OR Tetrahydrocannabinol* OR tetrahydrocannabinol*):ti,ab,kw

AND

[mh "Spasm"] OR [mh "Muscle Spasticity"] OR [mh "Sjogren-Larsson Syndrome"] OR [Distal Transverse Limb Defect* OR involuntary muscle contraction OR Koone Rizzo Elias syndrome OR Mental retardation spasticity ectrodactyly OR myosspas* OR Pigmentary Tapetoretinal Degeneration OR Sjogren-Larsson Syndrome OR Spasm* OR spastic*:ti,ab,kw]

Results: 15 Reviews, 473 Trials

Embase

Search Run: 12 May 2021
Coverage: 2016 – present

Limits: Embase; English language; Humans; case control study, clinical article, clinical study, clinical trial, cohort analysis, comparative effectiveness, control group, controlled clinical trial, controlled study, correlative study, cross sectional study, crossover procedure, disease model, double blind procedure, evidence based medicine, human experiment, intention to treat analysis, longitudinal study, major clinical study, medical record review, meta analysis, model, multicenter study (topic), normal human, observational study, open study, phase 2 clinical trial (topic), phase 3 clinical trial (topic), pilot study, population based case control study, prospective study, randomized controlled trial (topic), retrospective study, secondary analysis, systematic review

‘cannabidiol’/exp/mj OR ‘cannabinoid’/exp/mj OR ‘cannabidiol’/exp/mj OR ‘Cannabis sativa’/exp/mj OR ‘cannabis smoking’/exp OR ‘cannabis use’/exp/mj OR ‘cannabis’/exp/mj OR ‘dronabinol’/exp/mj OR ‘medical cannabis’/exp OR ‘nabiximols’/exp/mj OR ‘tetrahydrocannabinol’/exp/mj OR ‘tetrahydrocannabinol’:ti,ab,kw OR ‘bhang’:ti,ab,kw OR ‘cannabidiol’:ti,ab,kw OR ‘cannabigerol’:ti,ab,kw OR ‘cannabin’:ti,ab,kw OR ‘cannador’:ti,ab,kw OR ‘delta 9 tetrahydrocannabinol’:ti,ab,kw OR ‘dronabinol’:ti,ab,kw OR ‘epidiol’:ti,ab,kw OR ‘epidiol’:ti,ab,kw OR ‘ganja’:ti,ab,kw OR ‘hashish’:ti,ab,kw OR ‘hashish oil’:ti,ab,kw OR ‘hashish smoking’:ti,ab,kw OR ‘hemp*’:ti,ab,kw OR ‘herba cannabis’:ti,ab,kw OR ‘marihuana*’:ti,ab,kw OR ‘marijuana*’:ti,ab,kw OR ‘Marinol’:ti,ab,kw OR ‘medical cannabis’:ti,ab,kw OR ‘medical marihuana’:ti,ab,kw OR ‘medical marijuana’:ti,ab,kw OR ‘medicinal cannabis’:ti,ab,kw OR ‘medicinal marijuana’:ti,ab,kw OR ‘mexican marihuana’:ti,ab,kw OR
Results: 232

PsyInfo

Search Run: 25 May 2021
Coverage: 2016-present

Limits: Phrase Searching (Boolean); Clinical Case Study, Clinical Trial, Empirical Study, Literature Review, Meta Analysis, Quantitative Study, Treatment Outcome, Twin Study; English; Human

MM “Cannabis” OR MM “Marijuana” OR MM “Marijuana Usage” OR MM “Cannabinoids” OR MM “Tetrahydrocannabinol”) OR TI (“bhang” OR “cannabid*” OR “cannabigerol” OR “cannabin*” OR “cannabis”” OR “cannador” OR “delta 9 tetrahydrocannabinol” OR “delta tetrahydrocannabinol” OR “Dronabinol” OR “epidiolex” OR “epidyolex” OR “ganja”” OR “ganjah*” OR “hashish”” OR “hemp”” OR “herba cannabis” OR “marihuana”” OR “marijuana” OR “Marinol” OR “medical cannabis” OR “medical marihuana” OR “medical marijuana” OR “nabidiolex” OR “nabiximols” OR “Sativex” OR “sp 104” OR “syndros” OR “tetrahydrocannabinol” OR “tetrahydrocannabinol” OR “tetrahydrocannabinol” OR “tetrabidiex” OR “THC” OR “CBC” OR “CBD” OR “CBG”) OR AB (“bhang” OR “cannabid*” OR “cannabigerol” OR “cannabin*” OR “cannador” OR “delta 9 tetrahydrocannabinol” OR “delta tetrahydrocannabinol” OR “Dronabinol” OR “epidiolex” OR “epidyolex” OR “ganja”” OR “ganjah*” OR “hashish”” OR “hemp”” OR “herba cannabis” OR “marihuana”” OR “marijuana” OR “Marinol” OR “medical cannabis” OR “medical marihuana” OR “medical marijuana” OR “nabidiolex” OR “nabiximols” OR “Sativex” OR “sp 104” OR “syndros” OR “tetrahydrocannabinol” OR “tetrahydrocannabinol” OR “tetrahydrocannabinol” OR “tetrabidiex” OR “THC” OR “CBC” OR “CBD” OR “CBG”) AND

(MM “Spasms” OR MM “Muscle Spasms” OR MM “Muscle Spasms”) OR TI (“Distal Transverse Limb Defect” OR “involuntary muscle contraction” OR “Koone Rizzo Elias syndrome” OR “Mental retardation spasticity ectrodactyly” OR “myospas”” OR “Pigmentary Tapetoretinal Degeneration” OR “Sjogren-Larsson Syndrome” OR “Spasm” OR “spastic” OR “Trismus” OR “X-Linked Mental Retardation”) OR AB (“Distal Transverse Limb Defect” OR “involuntary muscle contraction” OR “Koone Rizzo Elias syndrome” OR “Mental retardation spasticity ectrodactyly” OR “myospas”” OR “Pigmentary Tapetoretinal Degeneration” OR “Sjogren-Larsson Syndrome” OR “Spasm” OR “spastic” OR “Trismus” OR “X-Linked Mental Retardation”)

Results: 30
PubMed

**Search Run:** 28 May 2021

**Coverage:** 2016 - present

**Limits:** English language, Humans


AND

“Arnold-Chiari Malformation”[Majr] OR “Chiari*[tiab] OR “Chiari*[ot]

**Results:** 118
Muscular Dystrophy

Cochrane

Search Run: 25 April 2021
Coverage: 2016-present

Limits: Sources- CINAHL, Embase, and PubMed

[mh "Cannabis"] OR [mh "Cannabinol"] OR [mh "Cannabinoid"] OR [mh "Marijuana Smoking"] OR [mh "Marijuana Use"] OR [mh "Medical Marijuana"] OR [mh "Dronabinol"] OR (bhang OR cannabid* OR cannabigerol OR cannabin* OR cannabis* OR cannador OR cardiolrx OR charas OR delta 9 tetrahydrocannabinol OR delta 9 trans tetrahydrocannabinol OR Dronabinol OR epidoylex OR epidoylex OR ganja* OR ganjah* OR hashish* OR hemp* OR herba cannabis OR marihuana* OR marijuana* OR Marinol OR medical cannabis OR medical marihuana OR medical marijuana OR medicinal cannabis OR medicinal marijuana OR nabidiolex OR nabiximols OR sativex OR syndros OR tetrahydro cannabinol* OR tetrahydrocannabinal* OR Tetrahydrocannabinol* OR tetrahydrocannabinol*):ti,ab,kw
AND
[mh "Muscular Dystrophies"] OR (Bethlem myopath* OR Distal Myopath* OR DMD circulating plasma factor OR Miyoshi myopathy OR Muscle dystroph* OR Muscular Dystroph* OR myodystrophia OR myodystrophy OR (early onset myopathy AND fatal cardiomyopathy) OR Chronic Progressive External Ophthalmoplegia OR Rigid spine syndrome OR Sarcoglycanopathies OR Type 4 Congenital Generalized Lipodystrophy OR Vacuolar Neuromyopathy OR Visceral myopathy familial external ophthalmoplegia OR Walker Warburg Syndrome*):ti,ab,kw

Results: 0 Reviews, 0 Trials

Embase

Search Run: 13 May 2021
Coverage: 2016 – present

Limits: Embase; English language; Humans; case control study, clinical article, clinical study, clinical trial, cohort analysis, comparative effectiveness, control group, controlled clinical trial, controlled study, correlational study, cross sectional study, crossover procedure, disease model, double blind procedure, evidence based medicine, human experiment, intention to treat analysis, longitudinal study, major clinical study, medical record review, meta analysis, model, multicenter study (topic), normal human, observational study, open study, phase 2 clinical trial (topic), phase 3 clinical trial (topic), pilot study, population based case control study, prospective study, randomized controlled trial (topic), retrospective study, secondary analysis, systematic review

‘cannabidiol’/exp/mj OR ‘cannabinoid’/exp/mj OR ‘cannabinol’/exp/mj OR ‘Cannabis sativa’/exp/mj OR ‘cannabis smoking’/exp OR ‘cannabis use’/exp/mj OR ‘cannabis’/exp/mj OR ‘dronabinol’/exp/mj OR ‘medical cannabis’/exp OR ‘nabiximols’/exp/mj OR ‘tetrahydrocannabinol’/exp/mj OR ‘tetrahydrocannabinol’:ti,ab,kw OR ‘bhang’:ti,ab,kw OR ‘cannabinoid’:ti,ab,kw OR ‘cannabigerol’:ti,ab,kw OR ‘cannabinol’:ti,ab,kw OR ‘cannador’:ti,ab,kw OR ‘delta 9 tetrahydrocannabinol’:ti,ab,kw OR ‘dronabinol’:ti,ab,kw OR ‘epidoylex’:ti,ab,kw OR ‘epidoylex’:ti,ab,kw OR ‘ganja’:ti,ab,kw OR ‘ganjah’:ti,ab,kw OR ‘hashish’:ti,ab,kw OR ‘hashish oil’:ti,ab,kw OR ‘hashish smoking’:ti,ab,kw OR ‘hemp’:ti,ab,kw OR ‘herba cannabis’:ti,ab,kw OR ‘marihuana*:ti,ab,kw OR ‘marijuana*:ti,ab,kw OR ‘Marinol’:ti,ab,kw
OR 'medical cannabis':ti,ab,kw OR 'medical marihuana':ti,ab,kw OR 'medical marijuana':ti,ab,kw OR 'medical cannabis':ti,ab,kw OR 'medical marihuana':ti,ab,kw OR 'medical marijuana':ti,ab,kw OR 'nabidiolex':ti,ab,kw OR 'nabiximols':ti,ab,kw OR 'sativex':ti,ab,kw OR 'syndros':ti,ab,kw OR 'tetrahydro cannabinol*':ti,ab,kw OR 'tetrahydrocannabinal*':ti,ab,kw OR 'tetrahydrocannabinol*':ti,ab,kw OR 'tetrahydrocannabiol*':ti,ab,kw OR 'THC':ti,ab,kw OR 'CBC':ti,ab,kw OR 'CBD':ti,ab,kw OR 'CBG':ti,ab,kw

AND

'Bethlem myopathy*':ti,ab,kw OR 'Distal Myopathy*':ti,ab,kw OR 'DMD circulating plasma factor*':ti,ab,kw OR 'Inclusion Body Myopathy With Early-Onset Paget Disease And Frontotemporal Dementia*':ti,ab,kw OR 'Miyoshi myopathy':ti,ab,kw OR 'Muscle dystroph*':ti,ab,kw OR 'Muscular Dystrophy*':ti,ab,kw OR 'myodystrophy':ti,ab,kw OR 'myodystrophy':ti,ab,kw OR '(early onset myopathy AND fatal cardiomyopathy)':ti,ab,kw OR 'Chronic Progressive External Ophthalmoplegia':ti,ab,kw OR 'Rigid spine syndrome*':ti,ab,kw OR 'Sarcoglycanopathies':ti,ab,kw OR 'Type 4 Congenital Generalized Lipodystrophy':ti,ab,kw OR 'Vacuolar Neuromyopathy':ti,ab,kw OR 'Visceral myopathy familial external ophthalmoplegia':ti,ab,kw OR 'Walker-Warburg Syndrome*':ti,ab,kw

AND

'randomized controlled trial'/exp OR 'controlled clinical trial'/exp OR randomized:ti,ab OR placebo:ti,ab OR 'drug therapy':lnk OR randomly:ti,ab OR trial:ti,ab OR groups:ti,ab OR review/it OR meta-analysis/de OR "systematic review":ti OR "literature review":ti OR "meta analysis":ti OR metaanalysis:ti OR metasynthesis:ti

Results: 3
(MM “Muscular Dystrophy”) OR TI (“Bethlem myopathy*” OR “Distal Myopath*” OR “DMD circulating plasma factor” OR “Inclusion Body Myopathy With Early-Onset Paget Disease And Frontotemporal Dementia” OR “Miyoshi Muscular Dystrophy*” OR “Miyoshi myopathy” OR “Muscle dystroph*” OR “Muscular Dystroph*” OR “myodystrophia” OR “myodystrophy” OR (“early onset myopathy” AND “fatal cardiomyopathy”) OR “Oculopharyngeal Muscular Dystrophy” OR “Chronic Progressive External Ophthalmoplegia” OR “Sarcoglycanopathies” OR “Type 4 Congenital Generalized Lipodystrophy” OR “Vacuolar Neuromyopathy” OR “Visceral myopathy familial external ophthalmoplegia” OR “Walker-Warburg Syndrome*”) OR AB (“Bethlem myopathy*” OR “Distal Myopath*” OR “DMD circulating plasma factor” OR “Inclusion Body Myopathy With Early-Onset Paget Disease And Frontotemporal Dementia” OR “Miyoshi Muscular Dystrophy*” OR “Miyoshi myopathy” OR “Muscle dystroph*” OR “Muscular Dystroph*” OR “myodystrophia” OR “myodystrophy” OR (“early onset myopathy” AND “fatal cardiomyopathy”) OR “Oculopharyngeal Muscular Dystrophy” OR “Chronic Progressive External Ophthalmoplegia” OR “Rigid spine syndrome” OR “Type 4 Congenital Generalized Lipodystrophy” OR “Visceral myopathy familial external ophthalmoplegia” OR “Walker-Warburg Syndrome*”)

Results: 0

PubMed

Search Run: 28 May 2021

Coverage: 2016 - present

Limits: English language, Humans


AND

AND

“Arnold-Chiari Malformation”[Majr] OR “Chiari*”[tiab] OR “Chiari*”[ot]

Results: 3
Myasthenia Gravis

Cochrane

Search Run: 25 April 2021
Coverage: 2016-present

Limits: Sources- CINAHL, Embase, and PubMed

[mh "Cannabis"] OR [mh "CannabinoL"] OR [mh "Cannabinol"] OR [mh "Marijuana Smoking"] OR [mh "Marijuana Use"] OR [mh "Medical Marijuana"] OR [mh "Dronabinol"] OR (bhang OR cannabidi* OR cannabigerol OR cannabin* OR cannabin* OR cannador OR cardiolrx OR charas OR delta 9 tetrahydrocannabinol OR delta 9 trans tetrahydrocannabinol OR Dronabinol OR epidiolox OR epidiolox OR ganja* OR ganjah* OR hashish* OR hemp* OR herba cannabis OR marihuana* OR marinol OR medical cannabis OR medical marihuana OR medical marijuana OR medicinal cannabis OR medicinal marihuana OR medicinal marijuana OR nabidiolex OR nabisimols OR sativex OR syndros OR tetrahydrocannabinol* OR tetrahydrocannabinol*):ti,ab,kw

AND

[mh "Myasthenia Gravis"] OR (Autoimmune Myasthenia OR Congenital Myasthenic Syndrome* OR erb goldflam disease OR Myasthenia Gravis):ti,ab,kw

Results: 0 Reviews, 1 Trials

Embase

Search Run: 13 May 2021
Coverage: 2016 – present

Limits: Embase; English language; Humans; case control study, clinical article, clinical study, clinical trial, cohort analysis, comparative effectiveness, control group, controlled clinical trial, controlled study, correlational study, cross sectional study, crossover procedure, disease model, double blind procedure, evidence based medicine, human experiment, intention to treat analysis, longitudinal study, major clinical study, medical record review, meta analysis, model, multicenter study (topic), normal human, observational study, open study, phase 2 clinical trial (topic), phase 3 clinical trial (topic), pilot study, population based case control study, prospective study, randomized controlled trial (topic), retrospective study, secondary analysis, systematic review

‘cannabidiol'/exp/mj OR ‘cannabinoid'/exp/mj OR ‘cannabinol'/exp/mj OR ‘medical cannabis'/exp OR ‘cannabis sativa'/exp OR ‘cannabis smoking'/exp OR ‘cannabis use'/exp OR ‘cannabis'/exp OR ‘dronabinol'/exp/mj OR ‘medical cannabis'/exp OR ‘nabiximols'/exp/mj OR ‘tetrahydrocannabinol'/exp/mj OR ‘tetrahydrocannabinol':ti,ab,kw OR ‘bhang':ti,ab,kw OR ‘cannabidi*':ti,ab,kw OR ‘cannabigerol':ti,ab,kw OR ‘cannabin*':ti,ab,kw OR ‘cannador':ti,ab,kw OR ‘delta 9 tetrahydrocannabinol':ti,ab,kw OR ‘dronabinol':ti,ab,kw OR ‘epidiolox':ti,ab,kw OR ‘epidiolox':ti,ab,kw OR ‘ganja':ti,ab,kw OR ‘ganjah':ti,ab,kw OR ‘hashish':ti,ab,kw OR ‘hashish oil':ti,ab,kw OR ‘hashish smoking':ti,ab,kw OR ‘hemp*:ti,ab,kw OR ‘herba cannabis':ti,ab,kw OR ‘marihuana*':ti,ab,kw OR ‘marijuana*':ti,ab,kw OR ‘Marinol':ti,ab,kw OR ‘Medical cannabis':ti,ab,kw OR ‘medical marihuana':ti,ab,kw OR ‘medical marijuana':ti,ab,kw OR ‘medicinal cannabis':ti,ab,kw OR ‘medicinal marihuana':ti,ab,kw OR ‘mexican marihuana':ti,ab,kw OR ‘nabidiolex':ti,ab,kw OR ‘nabisimols':ti,ab,kw OR ‘sativex':ti,ab,kw OR ‘syndros':ti,ab,kw OR ‘tetrahydro cannabidiol*':ti,ab,kw OR ‘tetrahydrocannabinol*':ti,ab,kw OR

AND


AND

“Arnold-Chiari Malformation”[Majr] OR “Chiari*”[tiab] OR “Chiari*”[ot]

Results: 2
Myoclonus

Cochrane

Search Run: 25 April 2021
Coverage: 2016-present

Limits: Sources- CINAHL, Embase, and PubMed

[mh "Cannabis"] OR [mh "Cannabinol"] OR [mh "Cannabidiol"] OR [mh "Marijuana Smoking"] OR [mh "Marijuana Use"] OR [mh "Medical Marijuana"] OR [mh "Dronabinol"] OR (bhang OR cannabid* OR cannabigerol OR cannabin* OR cannabis* OR cannador OR cardiolrx OR charas OR delta 9 tetrahydrocannabinol OR delta 9 trans tetrahydrocannabinol OR Dronabinol OR epidiolex OR epidolex OR ganja* OR ganjah* OR hashish* OR hemp* OR herba cannabis OR marihuana* OR marijuana* OR Marinol OR medical cannabis OR medical marihuana OR medical marijuana OR medicinal cannabis OR medicinal marijuana OR nabidiolex OR nabiximols OR sativex OR syndros OR tetrahydro cannabino* OR tetrahydrocannibinal* OR Tetrahydrocannabinol* OR tetrahydrocannabiol*:ti,ab,kw

AND

[mh "Myoclonus"] OR [mh "Nocturnal Myoclonus Syndrome"] OR [mh "Myoclonic Epilepsies, Progressive"] OR [mh "Mucolipidoses"] OR [mh "Parasomnias"] OR [mh "Epilepsies, Myoclonic"] OR [mh "MERRF Syndrome"] OR [mh "Lafora Disease"] OR (Branchial Myoclonus with Spastic Paraparesis and Cerebellar Ataxia OR clonic spasm OR clonic twitch* OR lafora disease OR Hunts syndrome OR jankovic Rivera syndrome OR lafora body disease OR lafora disease OR Lundborg syndrome OR MERRF Syndrome OR Mucolipidoses OR myoclonia OR myoclonic* OR myoclonus OR paramyoclonus multiplex OR Parasomnias OR unverricht):ti,ab,kw

Results: 0 Reviews, 48 Trials

Embase

Search Run: 13 May 2021
Coverage: 2016 – present

Limits: Embase; English language; Humans; case control study, clinical article, clinical study, clinical trial, cohort analysis, comparative effectiveness, control group, controlled clinical trial, controlled study, correlative study, cross sectional study, crossover procedure, disease model, double blind procedure, evidence based medicine, human experiment, intention to treat analysis, longitudinal study, major clinical study, medical record review, meta analysis, model, multicenter study (topic), normal human, observational study, open study, phase 2 clinical trial (topic), phase 3 clinical trial (topic), pilot study, population based case control study, prospective study, randomized controlled trial (topic), retrospective study, secondary analysis, systematic review

‘cannabidiol’/exp/mj OR ‘cannabinoid’/exp/mj OR ‘cannabinol’/exp/mj OR ‘Cannabis sativa’/exp/mj OR ‘cannabis smoking’/exp OR ‘cannabis use’/exp/mj OR ‘cannabis’/exp/mj OR ‘dronabinol’/exp/mj OR ‘medical cannabis’/exp OR ‘nabiximols’/exp/mj OR ‘tetrahydrocannabinol’/exp/mj OR ‘tetrahydrocannabinol’:ti,ab,kw OR ‘bhang’:ti,ab,kw OR ‘cannabid*’:ti,ab,kw OR ‘cannabigerol’:ti,ab,kw OR ‘cannabin*’:ti,ab,kw OR ‘cannabis*’:ti,ab,kw OR ‘cannador’:ti,ab,kw OR ‘delta 9 tetrahydrocannabinol’:ti,ab,kw OR ‘dronabinol’:ti,ab,kw OR ‘epidiolex’:ti,ab,kw OR ‘epidolex’:ti,ab,kw OR ‘ganja’:ti,ab,kw OR ‘ganjah’:ti,ab,kw OR ‘hashish’:ti,ab,kw OR ‘hashish oil’:ti,ab,kw OR ‘hashish smoking’:ti,ab,kw OR ‘hemp*’:ti,ab,kw OR
herba cannabis**:ti,ab,kw OR 'marihuana*':ti,ab,kw OR 'marijuana*':ti,ab,kw OR 'Mariol':ti,ab,kw OR 'medical cannabis':ti,ab,kw OR 'medical marihuana':ti,ab,kw OR 'medical marijuana':ti,ab,kw OR 'medicinal cannabis':ti,ab,kw OR 'medicinal marihuana':ti,ab,kw OR 'mexican marihuana':ti,ab,kw OR 'nabidiolex':ti,ab,kw OR 'nabiximols':ti,ab,kw OR 'sativex':ti,ab,kw OR 'syndros':ti,ab,kw OR 'tetrahydrocannabinol*':ti,ab,kw OR 'tetrahydrocannabinal*':ti,ab,kw OR 'tetrahydrocannabinol':ti,ab,kw OR 'tetrahydrocannabial*':ti,ab,kw OR 'tetranabinex':ti,ab,kw OR 'tetrahydrocannabinol':ti,ab,kw OR 'CBC':ti,ab,kw OR 'CBD':ti,ab,kw OR 'CBG':ti,ab,kw

AND

'myoclonus'/exp/mj OR 'myoclonus epilepsy'/exp/mj OR 'lafora body disease':ti,ab,kw OR 'Branchial Myoclonus with Spastic Paraparesis and Cerebellar Ataxia':ti,ab,kw OR 'clonic spasm':ti,ab,kw OR 'clonic twitch*':ti,ab,kw OR 'Hunts syndrome':ti,ab,kw OR 'Jankovic Rivera syndrome':ti,ab,kw OR 'lafora disease':ti,ab,kw OR 'lundborg syndrome':ti,ab,kw OR 'MERRF Syndrome':ti,ab,kw OR 'Mucolipidoses':ti,ab,kw OR 'myoclonia':ti,ab,kw OR 'myoclonic*':ti,ab,kw OR 'myoclonus':ti,ab,kw OR 'paramyoclonus multiplex':ti,ab,kw OR 'Parasomnias':ti,ab,kw OR 'unverricht':ti,ab,kw

AND

'randomized controlled trial'/exp OR 'controlled clinical trial'/exp OR randomized:ti,ab OR placebo:ti,ab OR 'drug therapy':lnk OR randomly:ti,ab OR trial:ti,ab OR groups:ti,ab OR review/it OR meta-analysis/de OR 'systematic review':ti OR "literature review":ti OR "meta analysis":ti OR metaanalysis:ti

Results: 27

PsycInfo

Search Run: 25 May 2021
Coverage: 2016-present

Limits: Phrase Searching (Boolean); Clinical Case Study, Clinical Trial, Empirical Study, Literature Review, Meta Analysis, Quantitative Study, Treatment Outcome, Twin Study; English; Human
(MM "Myoclonus") OR TI ("clonic spasm" OR "clonic twitch" OR "lafora disease" OR "familiar progressive myoclonus epilepsy" OR "Hunts syndrome" OR "Jankovic Rivera syndrome" OR "juvenile myoclonic epilepsies" OR "lafora body disease" OR "Lafora Disease" OR "lundborg syndrome" OR "lundborg unverricht syndrome" OR "MERRF Syndrome" OR "Mucolipidoses" OR "myoclonia" OR "myoclonic" OR "myoclonus" OR "paramyoclonus multiplex" OR "Parasomnias" OR "unverricht") OR AB ("clonic spasm" OR "clonic twitch" OR "lafora disease" OR "familiar progressive myoclonus epilepsy" OR "Hunts syndrome" OR "Jankovic Rivera syndrome" OR "juvenile myoclonic epilepsies" OR "lafora body disease" OR "Lafora Disease" OR "lundborg syndrome" OR "lundborg unverricht syndrome" OR "MERRF Syndrome" OR "Mucolipidoses" OR "myoclonia" OR "myoclonic" OR "myoclonus" OR "paramyoclonus multiplex" OR "Parasomnias" OR "unverricht")

Results: 3

PubMed

Search Run: 28 May 2021

Coverage: 2016 - present

Limits: English language, Humans


AND


AND

“Arnold-Chiari Malformation”[Majr] OR “Chiari*”[tiab] OR “Chiari*”[ot]

Results: 36
Nail Patella Syndrome

Cochrane

**Search Run:** 25 April 2021  
**Coverage:** 2016-present  
**Limits:** Sources- CINAHL, Embase, and PubMed

[mh "Cannabis"] OR [mh "Cannabinol"] OR [mh "Cannabinol"] OR [mh "Marijuana Smoking"] OR [mh "Marijuana Use"] OR [mh "Medical Marijuana"] OR [mh "Dronabinol"] OR (bhang OR cannabid* OR cannabigerol OR cannabin* OR cannabis* OR cannador OR cardiolrx OR charas OR delta 9 trans tetrahydrocannabinol OR Dronabinol OR epdiolex OR epidolex OR ganja* OR ganjah* OR hashish* OR hemp* OR herba cannabis OR marihuana* OR marhuana* OR Marinol OR medical cannabis OR medical marihuana OR medical marijuana OR medicinal cannabis OR medicinal marijuana OR nabidiolex OR nabiximols OR sativex OR syndros OR tetrahydrocannabinol* OR tetrahydrocannabinol* OR Tetrahydrocannabinol* OR tetrahydrocannabinol*:ti,ab,kw

AND

(absent patella syndrome OR arthroonychodysplasia OR fong sign OR fong syndrome OR hereditary onycho osteodysplasia OR hereditary onycho osteodysplasia syndrome OR hereditary onychoosteadysplasia OR hood syndrome OR iliac horn syndrome OR nail patella elbow syndrome OR nail patella syndrome OR nail-patella syndrome OR onycho arthrodysplasia OR onychochondrodystrophy OR onychodysplasia enchondromatosa OR onychoosteopathodysplasia OR onychoosteodysplasia OR osteo onycho dysplasia OR osteoarchoonychodysplasia OR osteoonychodysplasia ORosterreicher syndrome OR patella nail syndrome OR pelvic horn syndrome OR Salcedo syndrome OR touraine syndrome OR turner kieser syndrome OR turner kiezer syndrome):ti,ab,kw

**Results:** 0 Reviews, 0 Trials

Embase

**Search Run:** 13 May 2021  
**Coverage:** 2016 – present  
**Limits:** Embase; English language; Humans; case control study, clinical article, clinical study, clinical trial, cohort analysis, comparative effectiveness, control group, controlled clinical trial, controlled study, correlational study, cross sectional study, crossover procedure, disease model, double blind procedure, evidence based medicine, human experiment, intention to treat analysis, longitudinal study, major clinical study, medical record review, meta analysis, model, multicenter study (topic), normal human, observational study, open study, phase 2 clinical trial (topic), phase 3 clinical trial (topic), pilot study, population based case control study, prospective study, randomized controlled trial (topic), retrospective study, secondary analysis, systematic review

'cannabidiol'/exp/mj OR 'cannabinoid'/exp/mj OR 'cannabinol'/exp/mj OR 'Cannabis sativa'/exp/mj OR 'cannabinoid' OR 'cannabis smoking'/exp OR 'cannabis use'/exp OR 'cannabis'/exp/mj OR 'dronabinol'/exp/mj OR 'medical cannabis'/exp OR 'nabidiolex'/exp OR 'tetrahydrocannabinol'/exp/mj OR 'tetrahydrocannabinol':ti,ab,kw OR 'bhang':ti,ab,kw OR 'cannabid*':ti,ab,kw OR 'cannabigerol':ti,ab,kw OR 'cannabin*':ti,ab,kw OR 'cannabis*':ti,ab,kw OR 'cannador':ti,ab,kw OR 'delta 9 tetrahydrocannabinol':ti,ab,kw OR 'dronabinol':ti,ab,kw OR
Results: 1
Results: 0

PubMed

Search Run: 28 May 2021

Coverage: 2016 - present

Limits: English language, Humans

"ganjah*" OR "hashish*" OR "hemp*" OR "herba cannabis" OR "marihuana*" OR "marijuana*" OR "Mariol" OR "medical cannabis" OR "medical marihuana" OR "medical marijuana" OR "medicinal cannabis" OR "medicinal marijuana" OR "nabidiolex" OR "nabiximols" OR "Sativex" OR "sp 104" OR "syndros" OR "tetrahydro cannabinoil*" OR "tetrahydrocannabinol*" OR "Tetrahydrocannabinol*" OR "tetrahydrocannabinol" OR "tetranabinex" OR "THC" OR "CBC" OR "CBD" OR "CBG"

AND

TI ("absent patella syndrome" OR "arthroonychodysplasia" OR "fong sign" OR "fong syndrome" OR "hereditary onycho osteodysplasia" OR "hereditary onycho osteodysplasia syndrome" OR "hereditary onychoosteodysplasia" OR "hood syndrome" OR "iliac horn syndrome" OR "nail patella elbow syndrome" OR "nail patella syndrome" OR "nail-patella syndrome" OR "onycho arthrodysplasia" OR "onychochondrodystrophy" OR "onychodystrophy enchondromatosa" OR "onychoosteoaarthrodysplasia" OR "onychoosteeosteodysplasia" OR "osteo onycho dysplasia" OR "osteoarthroonychodysplasia" OR "osteeonychodysplasia" OR "osterreicher syndrome" OR "patella nail syndrome" OR "pelvic horn syndrome" OR "Salcedo syndrome" OR "touraine syndrome" OR "turner kieser syndrome" OR "turner kiesser syndrome") OR AB ("absent patella syndrome" OR "arthroonychodysplasia" OR "fong sign" OR "fong syndrome" OR "hereditary onycho osteodysplasia" OR "hereditary onychoosteodysplasia" OR "hood syndrome" OR "iliac horn syndrome" OR "nail patella elbow syndrome" OR "nail patella syndrome" OR "nail-patella syndrome" OR "onycho arthrodysplasia" OR "onychochondrodystrophy" OR "onychodystrophy enchondromatosa" OR "onychoosteoaarthrodysplasia" OR "onychoosteeosteodysplasia" OR "osteo onycho dysplasia" OR "osteoarthroonychodysplasia" OR "osteeonychodysplasia" OR "osterreicher syndrome" OR "patella nail syndrome" OR "pelvic horn syndrome" OR "Salcedo syndrome" OR "touraine syndrome" OR "turner kieser syndrome" OR "turner kiesser syndrome")
AND
AND
“Arnold-Chiari Malformation”[Majr] OR "Chiari*"[tiab] OR “Chiari*”[ot]

Results: 2
Nausea

Cochrane

Search Run: 27 April 2021
Coverage: 2016-present

Limits: Sources- CINAHL, Embase, and PubMed

[mh "Cannabis"] OR [mh "Cannabinol"] OR [mh "Cannabinol"] OR [mh "Marijuana Smoking"] OR [mh “Marijuana Use”] OR [mh “Medical Marijuana”] OR [mh “Dronabinol”] OR (bhang OR cannabid* OR cannabigerol OR cannabin* OR cannabin* OR cannador OR cardiolrx OR charas OR delta 9 tetrahydrocannabinol OR delta 9 trans tetrahydrocannabinol OR Dronabinol OR epidoylex OR epidoylex OR ganja* OR ganjah* OR hashish* OR hemp* OR herba cannabis OR marihuana* OR marijuana* OR Marinol OR medical cannabis OR medical marihuana OR medical marijuana OR medicinal cannabis OR medicinal marijuana OR nabidiolex OR nabiximols OR sativex OR syndros OR tetrahydrocannabinol* OR tetrahydrocannabinol* OR Tetrahydrocannabinol* OR tetrahydrocannabiol*):ti,ab,kw

AND

[mh “Nausea”] OR [mh “Postoperative Nausea and Vomiting”] OR (Apomorphine OR creatic nausea OR cyclic vomit* OR cyclical vomit* OR Disulfiram OR emesia OR emesis OR Emetic Drug* OR emetic agent* OR induced vomit* OR Nausea* OR nausea and emesis OR nausea and vomiting OR nauseaeemesis OR nauseation OR Postoperative Nausea and Vomiting OR vomit*):ti,ab,kw

Results: 5 Reviews, 128 Trials

Embase

Search Run: 13 May 2021
Coverage: 2016 – present

Limits: Embase; English language; Humans; case control study, clinical article, clinical study, clinical trial, cohort analysis, comparative effectiveness, control group, controlled clinical trial, controlled study, correlational study, cross sectional study, crossover procedure, disease model, double blind procedure, evidence based medicine, human experiment, intention to treat analysis, longitudinal study, major clinical study, medical record review, meta analysis, model, multicenter study (topic), normal human, observational study, open study, phase 2 clinical trial (topic), phase 3 clinical trial (topic), pilot study, population based case control study, prospective study, randomized controlled trial (topic), retrospective study, secondary analysis, systematic review

'cannabidiol'/exp/mj OR 'cannabinoid'/exp/mj OR 'cannabis sativa'/exp/mj OR 'cannabis smoking'/exp OR 'cannabis use'/exp/mj OR 'cannabin/'exp/mj OR 'dronabinol'/exp/mj OR 'medical cannabis'/exp OR 'nabiximols'/exp/mj OR 'tetrahydrocannabinol'/exp/mj OR 'tetrahydrocannabinol':ti,ab,kw OR 'bhang':ti,ab,kw OR 'cannabid*':ti,ab,kw OR 'cannabigerol':ti,ab,kw OR 'cannabin*':ti,ab,kw OR 'cannador':ti,ab,kw OR 'delta 9 tetrahydrocannabinol':ti,ab,kw OR 'dronabinol':ti,ab,kw OR 'epidoylex':ti,ab,kw OR 'ganja':ti,ab,kw OR 'herba cannabis':ti,ab,kw OR 'hashish oil':ti,ab,kw OR 'hashish smoking':ti,ab,kw OR 'herba cannabis':ti,ab,kw OR 'herba cannabis':ti,ab,kw OR 'marihuana*':ti,ab,kw OR 'marijuana*':ti,ab,kw OR 'Marinol':ti,ab,kw OR 'medical cannabis':ti,ab,kw OR 'medical marihuana':ti,ab,kw OR 'medical marijuana':ti,ab,kw OR 'medicinal cannabis':ti,ab,kw OR 'medicinal marijuana':ti,ab,kw OR 'mexican marihuana':ti,ab,kw OR
‘nabidiolex’:ti,ab,kw OR ‘nabiximols’:ti,ab,kw OR ‘sativex’:ti,ab,kw OR ‘syndros’:ti,ab,kw OR ‘tetrahydrocannabinol*’:ti,ab,kw OR ‘tetrahydrocannabinol*’:ti,ab,kw OR ‘tetrahydrocannabinol*’:ti,ab,kw OR ‘CBC’:ti,ab,kw OR ‘CBD’:ti,ab,kw OR ‘THC’:ti,ab,kw OR

AND

‘Arnold Chiari malformation’/exp/mj OR ‘Chiari*’:ti,ab,kw

AND

‘nauseation’/exp/mj AND ‘nausea and vomiting’/exp/mj OR ‘vomiting’/exp/mj OR ‘nausea’/exp/mj OR ‘apomorphine’:ti,ab,kw OR ‘creatic nausea’:ti,ab,kw OR ‘cyclic vomit*’:ti,ab,kw OR ‘cyclical vomit*’:ti,ab,kw OR ‘disulfiram’:ti,ab,kw OR ‘emesis’:ti,ab,kw OR ‘emetic agent*’:ti,ab,kw OR ‘emetic drug*’:ti,ab,kw OR ‘induced vomit*’:ti,ab,kw OR ‘metoclophen-modified nausea suppository’:ti,ab,kw OR ‘nausea*’:ti,ab,kw OR ‘postoperative nausea and vomiting’:ti,ab,kw OR ‘vomit*’:ti,ab,kw

Results: 416

PsycInfo

Search Run: 25 May 2021
Coverage: 2016-present

Limits: Phrase Searching (Boolean); Clinical Case Study, Clinical Trial, Empirical Study, Literature Review, Meta Analysis, Quantitative Study, Treatment Outcome, Twin Study; English; Human

MM “Cannabis” OR MM “Marijuana” OR MM “Marijuana Usage” OR MM “Cannabinoids” OR MM “Tetrahydrocannabinol”) OR TI (“bhang” OR “cannabid*” OR “cannabigerol” OR “cannabin*” OR “cannabis*” OR “cannador” OR “delta 9 tetrahydrocannabinol” OR “delta tetrahydrocannabinol” OR “Dronabinol” OR “epidiolex” OR “epidyolex” OR “ganja” OR “ganjah” OR “hashish” OR “hemp” OR “herba cannabis” OR “marihuana” OR “marijuana” OR “Marinol” OR “medical cannabis” OR “medical marijuana” OR “nabidiolex” OR “nabiximols” OR “Sativex” OR “sp 104” OR “syndros” OR “tetrahydrocannabinol*” OR “tetrahydrocannabinol*” OR “Tetrahydrocannabinol*” OR “tetrahydrocannabinol*” OR “tetranabinex” OR “THC” OR “CBC” OR “CBD” OR “CBG”) OR AB (“bhang” OR “cannabid*” OR “cannabigerol” OR “cannabin*” OR “cannador” OR “delta 9 tetrahydrocannabinol” OR “delta tetrahydrocannabinol” OR “Dronabinol” OR “epidiolex” OR “epidyolex” OR “ganja” OR “ganjah” OR “hashish” OR “hemp” OR “herba cannabis” OR “marihuana” OR “marijuana” OR “Marinol” OR “medical cannabis” OR “medical marijuana” OR “medical cannabis” OR “medical marijuana” OR “nabidiolex” OR “nabiximols” OR “Sativex” OR “sp 104” OR “syndros” OR “tetrahydrocannabinol*” OR “tetrahydrocannabinol*” OR “Tetrahydrocannabinol*” OR “tetrahydrocannabinol*” OR “tetranabinex” OR “THC” OR “CBC” OR “CBD” OR “CBG”

AND

(MM “Nausea” OR MM “Emetic Drugs” OR MM “Apomorphine” OR MM “Disulfiram”) OR TI (“Apomorphine” OR “creatic nausea” OR “cyclic vomit*” OR “cyclical vomit*” OR “Disulfiram” OR “emesis” OR “emesis” OR “Emetic Drug*” OR “induced vomit*” OR “metoclophen-modified nausea suppository” OR “Nausea” OR “nausea and emesis” OR “nausea and vomiting” OR “nauseaemesis” OR “nauseation” OR “Postoperative Nausea and Vomiting” OR “vomit*” OR “emetic agent*”) OR AB (“Apomorphine” OR “creatic nausea” OR “cyclic vomit*” OR “cyclical vomit*” OR “Disulfiram” OR “emesis” OR “emesis” OR “Emetic Drug*” OR “induced vomit*” OR “metoclophen-modified nausea
suppository” OR “Nausea*” OR “nausea and emesis” OR “nausea and vomiting” OR “nauseaemesis” OR “nauseation” OR “Postoperative Nausea and Vomiting” OR “vomit*” OR “emetic agent*”

Results: 43

PubMed

Search Run: 28 May 2021

Coverage: 2016 - present

Limits: English language, Humans


AND


AND

“Arnold-Chiari Malformation”[Majr] OR “Chiari*”[tiab] OR “Chiari*”[ot]

Results: 169
Neurofibromatosis

Cochrane

**Search Run:** 27 April 2021  
**Coverage:** 2016-present  
**Limits:** Sources- CINAHL, Embase, and PubMed

- [mh "Cannabis"] OR [mh "Cannabinol"] OR [mh "Cannabinoid"] OR [mh "Marijuana Smoking"] OR [mh "Marijuana Use"] OR [mh "Medical Marijuana"] OR [mh "Dronabinol"] OR (bhang OR cannabid* OR cannabigerol OR cannabis* OR cannabin* OR cannab* OR cannabin* OR cannabis OR carboxyl OR charas OR delta 9 tetrahydrocannabinol OR delta 9 trans tetrahydrocannabinol OR Dronabinol OR epidiolox OR epidiolox OR ganja* OR ganjah* OR hashish* OR hemp* OR herba cannabis OR marihuana* OR marijuana* OR Marinol OR medical cannabis OR medical marihuana OR medical marijuana OR medicinal cannabis OR medicinal marijuana OR nabilone OR nabilone OR nabiximols OR sativex OR syndros OR tetrahydrocannabinol* OR tetrahydrocannabinol*:ti,ab,kw AND
- [mh "Neurofibromatoses"] OR [mh "Neurofibrom 2"] OR [mh "Neurofibromin 1"] OR (nerve filament inflammation OR Legius syndrome OR multiple mucosal neuroma syndrome OR multiple neurofibroma OR multiple neuroma OR nerve filament inflammation OR neurofibromatosis OR Neurofibromin* OR neurofibrosis* OR neuroinomatosis OR multiple neuroma OR neomatosis OR Recklinghausen disease):ti,ab,kw

**Results:** 0 Reviews, 0 Trials

Embase

**Search Run:** 13 May 2021  
**Coverage:** 2016 – present  
**Limits:** Embase; English language; Humans; case control study, clinical article, clinical study, clinical trial, cohort analysis, comparative effectiveness, control group, controlled clinical trial, controlled study, correlative study, cross sectional study, crossover procedure, disease model, double blind procedure, evidence based medicine, human experiment, intention to treat analysis, longitudinal study, major clinical study, medical record review, meta analysis, model, multicenter study (topic), normal human, observational study, open study, phase 2 clinical trial (topic), phase 3 clinical trial (topic), pilot study, population based case control study, prospective study, randomized controlled trial (topic), retrospective study, secondary analysis, systematic review

- ‘cannabidiol’/exp/mj OR ‘cannabinoid’/exp/mj OR ‘cannabinol’/exp/mj OR ‘Cannabis sativa’/exp/mj OR ‘cannabis smoking’/exp OR ‘cannabis use’/exp/mj OR ‘cannabis’/exp/mj OR ‘dronabinol’/exp/mj OR ‘medical cannabis’/exp OR ‘nabiximols’/exp/mj OR ‘tetrahydrocannabinol’/exp/mj OR ‘tetrahydrocannabinol’:ti,ab,kw OR ‘bhang’:ti,ab,kw OR ‘cannabid*’:ti,ab,kw OR ‘cannabigerol’:ti,ab,kw OR ‘cannabin*’:ti,ab,kw OR ‘cannabis*’:ti,ab,kw OR ‘cannador’:ti,ab,kw OR ‘delta 9 tetrahydrocannabinol’:ti,ab,kw OR ‘dronabinol’:ti,ab,kw OR ‘epidiolox’:ti,ab,kw OR ‘epidiolox’:ti,ab,kw OR ‘ganja’:ti,ab,kw OR ‘ganjah’:ti,ab,kw OR ‘hashish’:ti,ab,kw OR ‘hashish oil’:ti,ab,kw OR ‘hashish smoking’:ti,ab,kw OR ‘hemp*’:ti,ab,kw OR ‘herba cannabis’:ti,ab,kw OR ‘marihuana*’:ti,ab,kw OR ‘marijuana*’:ti,ab,kw OR ‘Mariol’:ti,ab,kw OR ‘medical cannabis’:ti,ab,kw OR ‘medical marihuana’:ti,ab,kw OR ‘medical marijuana’:ti,ab,kw OR
'medicinal cannabis':ti,ab,kw OR 'medicinal marijuana':ti,ab,kw OR 'mexican marihuana':ti,ab,kw OR 'nabidiolex':ti,ab,kw OR 'nabiximols':ti,ab,kw OR 'sativex':ti,ab,kw OR 'syndros':ti,ab,kw OR 'tetrahydro cannabinol*':ti,ab,kw OR 'tetrahydrocannabinol*':ti,ab,kw OR 'tetrahydrocannabinol*':ti,ab,kw OR 'tetrahydrocannabinol*':ti,ab,kw OR 'THC':ti,ab,kw OR 'CBC':ti,ab,kw OR 'CBD':ti,ab,kw OR 'CBG':ti,ab,kw
AND
'neurofibromatosis'/exp/mj OR 'Legius syndrome':ti,ab,kw OR 'multiple mucosal neuroma syndrome':ti,ab,kw OR 'multiple neurofibroma':ti,ab,kw OR 'multiple neuroma':ti,ab,kw OR 'nerve filament inflammation':ti,ab,kw OR 'neurofibromatose':ti,ab,kw OR 'neurofibromatosis':ti,ab,kw OR 'Neurofibromin*':ti,ab,kw OR 'neurofibrositis':ti,ab,kw OR 'neuroinomatosis':ti,ab,kw OR 'neuromatosis':ti,ab,kw OR 'Recklinghausen disease':ti,ab,kw
AND
'randomized controlled trial'/exp OR 'controlled clinical trial'/exp OR randomized:ti,ab OR placebo:ti,ab OR 'drug therapy':lnk OR randomly:ti,ab OR trial:ti,ab OR groups:ti,ab OR review/it OR meta-analysis/de OR "systematic review":ti OR "literature review":ti OR "meta analysis":ti OR metaanalysis:ti OR metasynthesis:ti

Results: 3

PsycInfo

Search Run: 25 May 2021
Coverage: 2016-present

Limits: Phrase Searching (Boolean); Clinical Case Study, Clinical Trial, Empirical Study, Literature Review, Meta Analysis, Quantitative Study, Treatment Outcome, Twin Study; English; Human
neurofibroma” OR “multiple neuroma” OR “neurofibromatoses” OR “neurofibromatosis” OR “Neurofibromin*” OR “neurofibroisis” OR “neuroinomatosis” OR “neuromatosis” OR “Recklinghausen disease”)

**Results:** 0

**PubMed**

**Search Run:** 28 May 2021

**Coverage:** 2016 - present

**Limits:** English language, Humans


AND


AND

“Arnold-Chiari Malformation”[Majr] OR “Chiari*”[tiab] OR “Chiari*”[ot]

**Results:** 0
Obsessive Compulsive Disorder (OCD)

Cochrane

Search Run: 27 April 2021
Coverage: 2016–present

Limits: Sources- CINAHL, Embase, and PubMed

[mh "Cannabis"] OR [mh "Cannabinol"] OR [mh "Cannabidiol"] OR [mh "Marijuana Smoking"] OR [mh "Marijuana Use"] OR [mh "Medical Marijuana"] OR [mh "Dronabinol"] OR (bhang OR cannabid* OR cannabigerol OR cannabin* OR cannabis* OR cannador OR cardiolrx OR charas OR delta 9 tetrahydrocannabinol OR delta 9 trans tetrahydrocannabinol OR Dronabinol OR epidiolex OR epidyolex OR ganja* OR ganjah* OR hashish* OR hemp* OR herba cannabis OR marihuana* OR marijuana* OR Marinol OR medical cannabis OR medical marihuana OR medical marijuana OR medicinal cannabis OR medicinal marijuana OR nabidiolex OR nabiximols OR sativex OR syndros OR tetrahydro cannabino* OR tetrahydrocannabinol* OR Tetrahydrocannabinol* OR tetrahydrocannabinol*):ti,ab,kw

AND

[mh "Obsessive-Compulsive Disorder"] OR [mh "Obsessive Behavior"] OR (obsessive compulsive* OR compulsion neurosis OR compulsive neurosis OR obsessional neurosis OR obsessive neurosis OR obsessive syndrome OR OCD OR preoccupation neurosis OR Obsessive Behavior* OR Rumination* OR Anankastic Personality):ti,ab,kw

Results: 0 Reviews, 11 Trials

Embase

Search Run: 13 May 2021
Coverage: 2016 – present

Limits: Embase; English language; Humans; case control study, clinical article, clinical study, clinical trial, cohort analysis, comparative effectiveness, control group, controlled clinical trial, controlled study, correlational study, cross sectional study, crossover procedure, disease model, double blind procedure, evidence based medicine, human experiment, intention to treat analysis, longitudinal study, major clinical study, medical record review, meta analysis, model, multicenter study (topic), normal human, observational study, open study, phase 2 clinical trial (topic), phase 3 clinical trial (topic), pilot study, population based case control study, prospective study, randomized controlled trial (topic), retrospective study, secondary analysis, systematic review

'cannabidiol'/exp/mj OR 'cannabinoid'/exp/mj OR 'cannabinoi'/exp/mj OR 'Cannabis sativa'/exp/mj OR 'cannabis smoking'/exp OR 'cannabiose'/exp/mj OR 'cannabis'/exp/mj OR 'dronabinol'/exp/mj OR 'medical cannabis'/exp OR 'nabiximols'/exp/mj OR 'tetrahydrocannabinol'/exp/mj OR 'tetrahydrocannabinol':ti,ab,kw OR 'bhang':ti,ab,kw OR 'cannabidi*':ti,ab,kw OR 'cannabigerol':ti,ab,kw OR 'cannabin*':ti,ab,kw OR 'cannador':ti,ab,kw OR 'delta 9 tetrahydrocannabinol':ti,ab,kw OR 'dronabinol':ti,ab,kw OR 'epidyolex':ti,ab,kw OR 'ganja':ti,ab,kw OR 'hashish*':ti,ab,kw OR 'hashish oil':ti,ab,kw OR 'hashish smoking':ti,ab,kw OR 'herba cannabis':ti,ab,kw OR 'marihuana*':ti,ab,kw OR 'marijuana*':ti,ab,kw OR 'Marinol':ti,ab,kw OR 'medical cannabis':ti,ab,kw OR 'medical marihuana':ti,ab,kw OR 'medical marijuana':ti,ab,kw OR 'medicinal cannabis':ti,ab,kw OR 'medicinal marihuana':ti,ab,kw OR 'mexican marihuana':ti,ab,kw OR
'nabidiolex':ti,ab,kw OR 'nabiximols':ti,ab,kw OR 'sativex':ti,ab,kw OR 'syndros':ti,ab,kw OR
'tetrahydrocannabinol*':ti,ab,kw OR 'tetrahydrocannabinol*':ti,ab,kw OR 'THC':ti,ab,kw OR
'CBC':ti,ab,kw OR 'CBD':ti,ab,kw OR 'CBG':ti,ab,kw
AND
'obsessive compulsive disorder'/exp/mj OR 'obsessive compulsive*':ti,ab,kw OR 'compulsion'
neuroobsessive compulsive*':ti,ab,kw OR 'compulsion neurosis':ti,ab,kw OR 'compulsive'
neurosis':ti,ab,kw OR 'obsessional neurosis':ti,ab,kw OR 'obsessive neurosis':ti,ab,kw OR 'obsessive syndrome':ti,ab,kw OR 'ocd':ti,ab,kw OR 'preoccupation neurosis':ti,ab,kw OR 'obsessive behavior*':ti,ab,kw OR 'rumination*':ti,ab,kw OR 'anankastic personality':ti,ab,kw
AND
'randomized controlled trial'/exp OR 'controlled clinical trial'/exp OR randomized:ti,ab OR
placebo:ti,ab OR ‘drug therapy’:lnk OR randomly:ti,ab OR trial:ti,ab OR groups:ti,ab OR review/it OR
meta-analysis/de OR “systematic review”:ti OR “literature review”:ti OR “meta analysis”:ti OR
metaanalysis:ti OR metasynthesis:ti

Results: 45

PsycINFO

Search Run: 25 May 2021
Coverage: 2016-present

Limits: Phrase Searching (Boolean); Clinical Case Study, Clinical Trial, Empirical Study, Literature
Review, Meta Analysis, Quantitative Study, Treatment Outcome, Twin Study; English; Human

MM “Cannabis” OR MM “Marijuana” OR MM “Marijuana Usage” OR MM “Cannabinoids” OR MM
“Tetrahydrocannabinol”) OR TI (“bhang” OR “cannabid*” OR “cannabigerol” OR “cannabin*” OR
“cannabis”” OR “cannador” OR “delta 9 tetrahydrocannabinol” OR “delta tetrahydrocannabinol” OR
“Dronabinol” OR “epidiolex” OR “epidyolex” OR “ganja*” OR “ganjah*” OR “hashish*” OR “hemp*” OR
“herba cannabis” OR “marihuana*” OR “marijuana*” OR “Marinol” OR “medical cannabis” OR
“medical marihuana” OR “medical marijuana” OR “medicinal cannabis” OR “medicinal marijuana”
OR “nabidiolex” OR “nabiximols” OR “Sativex” OR “sp 104” OR “syndros” OR “tetrahydro
cannabinol*” OR “tetrahydrocannabinol*” OR “Tetrahydrocannabinol*” OR “tetrahydrocannabinol*
OR “tetranabinex” OR “THC” OR “CBC” OR “CBD” OR “CBG”) OR AB (“bhang” OR “cannabid*” OR
“cannabigerol” OR “cannabin**” OR “cannador” OR “delta 9 tetrahydrocannabinol” OR
“delta tetrahydrocannabinol” OR “Dronabinol” OR “epidiolex” OR “epidyolex” OR “ganja*” OR
“ganjah*” OR “hashish*” OR “hemp*” OR “herba cannabis” OR “marihuana*” OR “marijuana*” OR
“Marinol” OR “medical cannabis” OR “medical marihuana” OR “medical marijuana” OR “medicinal
cannabis” OR “medicinal marijuana” OR “nabidiolex” OR “nabiximols” OR “Sativex” OR “sp 104” OR
“syndros” OR “tetrahydrocannabinol*” OR “tetrahydrocannabinol*” OR “Tetrahydrocannabinol*”
OR “tetrahydrocannabinol*” OR “tetranabinex” OR “THC” OR “CBC” OR “CBD” OR “CBG”
AND
(MM “Obsessive Compulsive Disorder” OR MM “Rumination (Cognitive Process)”) OR TI “obsessive
compulsive*” OR “compulsion neurosis” OR “compulsive neurosis” OR “obsessional neurosis” OR
“obsessive neurosis” OR “obsessional syndrome” OR “OCD” OR “preoccupation neurosis” OR
“Obsessive Behavior*” OR “Rumination*” OR “Anankastic Personality”) OR AB (“obsessive
compulsive*” OR “compulsion neurosis” OR “compulsive neurosis” OR “obsessional neurosis” OR
“obsessive neurosis” OR “obsessive syndrome” OR “OCD” OR “preoccupation neurosis” OR “Obsessive Behavior*” OR “Rumination*” OR “Anankastic Personality”)

Results: 21

PubMed

Search Run: 28 May 2021

Coverage: 2016 - present

Limits: English language, Humans


AND


AND

“Arnold-Chiari Malformation”[Majr] OR “Chiari*”[tiab] OR “Chiari*”[ot]

Results: 13
Osteogenesis imperfecta

Search Run: 27 April 2021
Coverage: 2016-present
Limits: Sources- CINAHL, Embase, and PubMed

[mh "Cannabis"] OR [mh "Cannabinol"] OR [mh "Cannabinol"] OR [mh "Marijuana Smoking"] OR [mh "Marijuana Use"] OR [mh "Medical Marijuana"] OR [mh "Dronabinol"] OR (bhang OR cannabid* OR cannabigerol OR cannabin* OR cannabis* OR cannador OR cardiolrx OR charas OR delta 9 tetrahydrocannabinol OR delta 9 trans tetrahydrocannabinol OR Dronabinol OR epidiolex OR epidiolex OR ganja* OR ganjah* OR hashish* OR hemp* OR herba cannabis OR marihuana* OR marijuana* OR Marinol OR medical cannabis OR medical marihuana OR medical marijuana OR medicinal cannabis OR medicinal marijuana OR nabiximols OR nabiximols OR sativex OR syndros OR tetrahydrocannabinol* OR tetrahydrocannabinol* OR Tetrahydrocannabinol* OR tetrahydrocannabinol*):ti,ab,kw
AND
[mh "Osteogenesis Imperfecta"] OR [mh "Dentinogenesis Imperfecta"] OR (brittle bone OR Bruck syndrome OR Dentinogenesis Imperfecta OR fibrogenesis imperfecta ossium OR idiopathic osteopsathyrosis OR lobstein* OR osteogenesis imperfecta* OR Osteopathic Medicine OR Osteoporosis OR Osteoporosis-pseudoglioma syndrome OR osteopsathyrosis OR periostal aplasia):ti,ab,kw

Results: 2 Reviews, 0 Trials

Embase

Search Run: 13 May 2021
Coverage: 2016 – present
Limits: Embase; English language; Humans; case control study, clinical article, clinical study, clinical trial, cohort analysis, comparative effectiveness, control group, controlled clinical trial, controlled study, correlative study, cross sectional study, crossover procedure, disease model, double blind procedure, evidence based medicine, human experiment, intention to treat analysis, longitudinal study, major clinical study, medical record review, meta analysis, model, multicenter study (topic), normal human, observational study, open study, phase 2 clinical trial (topic), phase 3 clinical trial (topic), pilot study, population based case control study, prospective study, randomized controlled trial (topic), retrospective study, secondary analysis, systematic review

‘cannabidiol’/exp/mj OR ‘cannabinoid’/exp/mj OR ‘cannabinol’/exp/mj OR ‘Cannabis sativa’/exp/mj OR ‘cannabis smoking’/exp OR ‘cannabis use’/exp/mj OR ‘cannabis’/exp/mj OR ‘dronabinol’/exp/mj OR ‘medical cannabis’/exp OR ‘nabiximols’/exp/mj OR ‘tetrahydrocannabinol’/exp/mj OR ‘tetrahydrocannabinol’:ti,ab,kw OR ‘bhang’:ti,ab,kw OR ‘cannabid*’:ti,ab,kw OR ‘cannabigerol’:ti,ab,kw OR ‘cannabin*’:ti,ab,kw OR ‘cannabis*’:ti,ab,kw OR ‘cannador’:ti,ab,kw OR ‘delta 9 tetrahydrocannabinol’:ti,ab,kw OR ‘dronabinol’:ti,ab,kw OR ‘epidiolex’:ti,ab,kw OR ‘epidyolex’:ti,ab,kw OR ‘ganja’:ti,ab,kw OR ‘ganjah’:ti,ab,kw OR ‘hashish’:ti,ab,kw OR ‘hashish oil’:ti,ab,kw OR ‘hashish smoking’:ti,ab,kw OR ‘hemp*’:ti,ab,kw OR ‘herba cannabis’:ti,ab,kw OR ‘marihuana*’:ti,ab,kw OR ‘marijuana*’:ti,ab,kw OR ‘Marinol’:ti,ab,kw OR ‘medical cannabis’:ti,ab,kw OR ‘medical marihuana’:ti,ab,kw OR ‘medical marijuana’:ti,ab,kw OR

281
'medicinal cannabis':ti,ab,kw OR 'medicinal marijuana':ti,ab,kw OR 'mexican marihuana':ti,ab,kw OR 'nabidiolex':ti,ab,kw OR 'nabiximols':ti,ab,kw OR 'sativex':ti,ab,kw OR 'syndros':ti,ab,kw OR 'tetrahydro cannabidiol*':ti,ab,kw OR 'tetrahydrocannabinol*':ti,ab,kw OR 'tetrahydrocannabinol*':ti,ab,kw OR 'tetrahydrocannabinol*':ti,ab,kw OR 'CBC':ti,ab,kw OR 'CBD':ti,ab,kw OR 'CBG':ti,ab,kw AND

'osteogenesis imperfecta'/exp/mj OR 'brittle bone':ti,ab,kw OR 'Bruck syndrome':ti,ab,kw OR 'Dentinogenesis Imperfecta':ti,ab,kw OR 'fibrogenesis imperfecta ossium':ti,ab,kw OR 'idiopathic osteopsathyrosis':ti,ab,kw OR 'lobstein*':ti,ab,kw OR 'osteogenesis imperfecta*':ti,ab,kw OR 'Osteopathic Medicine':ti,ab,kw OR 'Osteoporosis':ti,ab,kw OR 'Osteoporosis-pseudoglioma syndrome':ti,ab,kw OR 'periostal aplasia':ti,ab,kw AND

'randomized controlled trial'/exp OR 'controlled clinical trial'/exp OR randomized:ti,ab OR placebo:ti,ab OR 'drug therapy':lnk OR randomly:ti,ab OR trial:ti,ab OR groups:ti,ab OR review/it OR meta-analysis/de OR 'systematic review':ti OR "literature review":ti OR "meta analysis":ti OR metaanalysis:ti OR metasynthesis:ti

**Results:** 18

PsycInfo

**Search Run:** 25 May 2021

**Coverage:** 2016-present

**Limits:** Phrase Searching (Boolean); Clinical Case Study, Clinical Trial, Empirical Study, Literature Review, Meta Analysis, Quantitative Study, Treatment Outcome, Twin Study; English; Human

MM “Cannabis” OR MM “Marijuana” OR MM “Marijuana Usage” OR MM “Cannabinoids” OR MM “Tetrahydrocannabinol”) OR TI (“bhang” OR “cannabid*” OR “cannabigerol” OR “cannabin*” OR “cannabis” OR “cannador” OR “delta 9 tetrahydrocannabinol” OR “delta tetrahydrocannabinol” OR “Dronabinol” OR “epidiolex” OR “epidyolex” OR “ganja” OR “ganjah” OR “hashish” OR “hemp” OR “herba cannabis” OR “marihuana” OR “marijuana” OR “Marinol” OR “medical cannabis” OR “medical marihuana” OR “medical marijuana” OR “medicinal cannabis” OR “medicinal marijuana” OR “nabidiolex” OR “nabiximols” OR “Sativex” OR “sp 104” OR “syndros” OR “tetrahydro cannabidiol*” OR “tetrahydrocannabinol*” OR “Tetrahydrocannabinol*” OR “tetranabinex” OR “THC” OR “CBC” OR “CBD” OR “CBG”) OR AB (“bhang” OR “cannabid*” OR “cannabigerol” OR “cannabin*” OR “cannabis” OR “cannador” OR “delta 9 tetrahydrocannabinol” OR “delta tetrahydrocannabinol” OR “Dronabinol” OR “epidiolex” OR “epidyolex” OR “ganja” OR “ganjah” OR “hashish” OR “hemp” OR “herba cannabis” OR “marihuana” OR “marijuana” OR “Marinol” OR “medical cannabis” OR “medical marihuana” OR “medical marijuana” OR “medicinal cannabis” OR “medicinal marijuana” OR “nabidiolex” OR “nabiximols” OR “Sativex” OR “sp 104” OR “syndros” OR “tetrahydro cannabidiol*” OR “tetrahydrocannabinol*” OR “Tetrahydrocannabinol*” OR “tetranabinex” OR “THC” OR “CBC” OR “CBD” OR “CBG” AND

(MM “Osteopathic Medicine” OR MM “Osteoporosis”) OR TI (“brittle bone” OR “Bruck syndrome” OR “Dentinogenesis Imperfecta” OR “fibrogenesis imperfecta ossium” OR “idiopathic osteopsathyrosis” OR “lobstein*” OR “osteogenesis imperfecta*” OR “Osteopathic Medicine” OR “Osteoporosis” OR “Osteoporosis-pseudoglioma syndrome” OR “osteopsathyrosis” OR “periostal aplasia”) OR AB (“brittle bone” OR “Bruck syndrome” OR “Dentinogenesis Imperfecta” OR “fibrogenesis imperfecta
ossium" OR "idiopathic osteopathsathyrosis" OR "lobstein*" OR "osteogenesis imperfecta*" OR "Osteopathic Medicine" OR "Osteoporosis" OR "Osteoporosis-pseudoglioma syndrome" OR "osteopathsathyrosis" OR "periostal aplasia")

Results: 0

PubMed

Search Run: 28 May 2021

Coverage: 2016 - present

Limits: English language, Humans


AND


AND

“Arnold-Chiari Malformation”[Majr] OR “Chiari*”[tiab] OR “Chiari*”[ot]

Results: 13
Pain (including chronic pain, generalized pain, intractable pain, neuropathic pain, and severe pain)

Cochrane

Search Run: 27 April 2021
Coverage: 2016-present

Limits: Sources- CINAHL, Embase, and PubMed

[mh “Cannabis”] OR [mh “Cannabinol”] OR [mh “Cannabidiol”] OR [mh “Marijuana Smoking”] OR [mh “Marijuana Use”] OR [mh “Medical Marijuana”] OR [mh “Dronabinol”] OR (bhang OR cannabid* OR cannabigerol OR cannabin* OR cannabis* OR cannador OR cardiolrx OR charas OR delta 9 tetrahydrocannabinol OR delta 9 trans tetrahydrocannabinol OR Dronabinol OR epidioplex OR episolex OR ganja* OR ganjah* OR hashish* OR hemp* OR herba cannabis OR marihuana* OR marijuana* OR Marinol OR medical cannabis OR medical marihuana OR medical marijuana OR medicinal cannabis OR medicinal marijuana OR nabidiolex OR nabiximols OR sativex OR syndros OR tetrahydrocannabinol* OR tetrahydrocannabinol* OR Tetrahydrocannabinol* OR tetrahydrocannabinol*):ti,ab,kw

AND


Results: 15 Reviews, 232 Trials

Embase

Search Run: 13 May 2021
Coverage: 2016 – present
Results: 1,492

PsycInfo

Search Run: 25 May 2021
Coverage: 2016–present

Limits: Phrase Searching (Boolean); Clinical Case Study, Clinical Trial, Empirical Study, Literature Review, Meta Analysis, Quantitative Study, Treatment Outcome, Twin Study; English; Human
Results: 299

PubMed

Search Run: 28 May 2021

Coverage: 2016 - present

Limits: English language, Humans


(MM “Pain” OR MM “Somatoform Pain Disorder” OR MM “Complex Regional Pain Syndrome (Type I)” OR MM “Acute Pain” OR MM “Pain Measurement” OR MM “Neuropathic Pain” OR MM “Pain Thresholds” OR MM “Pain Perception” OR MM “Pain Management” OR MM “Myofascial Pain” OR MM “Chronic Pain” OR MM “Back Pain” OR MM “Nociceptors” OR MM “Neuralgia” OR MM “Analgesic Drugs” OR MM “Trigeminal Neuralgia” OR MM “Neuropathy” OR MM “Peripheral Neuropathy” OR MM “Oxycodone”) OR TI (“Fibromyalgia” OR “Headache” OR “Mastodynia” OR “Myalgia” OR “nerve disease” OR “nerve dystrophy” OR “Neuralgia” OR “neurodystrophy” OR “Neuropath” OR “Nociceptors” OR “Oxycodone” OR “Pain” OR “Phantom Limb” OR “phenyl di-n-pentylphosphinate” OR “Prostatitis” OR “Somatoform Disorders” OR “Somatosensory Disorders” OR “Subacute Combined Degeneration” OR “Temporomandibular Joint Dysfunction Syndrome”) OR AB (“Fibromyalgia” OR “Headache” OR “Mastodynia” OR “Myalgia” OR “nerve disease” OR “nerve dystrophy” OR “Neuralgia” OR “neurodystrophy” OR “Neuropath” OR “Nociceptors” OR “Oxycodone” OR “Pain” OR “Phantom Limb” OR “phenyl di-n-pentylphosphinate” OR “Prostatitis” OR “Somatoform Disorders” OR “Somatosensory Disorders” OR “Subacute Combined Degeneration” OR “Temporomandibular Joint Dysfunction Syndrome”)

AND


AND

"Arnold-Chiari Malformation"[Majr] OR "Chiari*"[tiab] OR "Chiari*"[ot]

Results: 694
Parkinson’s Disease

Cochrane

**Search Run:** 27 April 2021  
**Coverage:** 2016–present

**Limits:** Sources- CINAHL, Embase, and PubMed

[mh "Cannabis"] OR [mh "Cannabinol"] OR [mh "Cannabidiol"] OR [mh “Marijuana Smoking”] OR [mh “Marijuana Use”] OR [mh “Medical Marijuana”] OR [mh “Dronabinol”] OR (bhang OR cannabid* OR cannabinerol OR cannabin* OR cannabin* OR cannador OR cardiolrx OR charas OR delta 9 tetrahydrocannabinol OR delta 9 trans tetrahydrocannabinol OR Dronabinol OR epidiolex OR epitdylex OR ganja* OR ganjah* OR hashish* OR hemp* OR herba cannabis OR marihuana* OR marijuana* OR Marinol OR medical cannabis OR medical marihuana OR medical marijuana OR medicinal cannabis OR medicinal marajuana OR nabiliolex OR nabiximols OR sativex OR syndros OR tetrahydro cannabinol* OR tetrahydrocannabinol* OR Tetrahydrocannabinol* OR tetrahydrocannibiol*:ti,ab,kw

AND

[mh “Parkinson Disease”] OR (Parkinson* OR paralysis agitans OR Multiple System Atrophy):ti,ab,kw

**Results:** 1 Reviews, 25 Trials

Embase

**Search Run:** 13 May 2021  
**Coverage:** 2016 – present

**Limits:** Embase; English language; Humans; case control study, clinical article, clinical study, clinical trial, cohort analysis, comparative effectiveness, control group, controlled clinical trial, controlled study, correlational study, cross sectional study, crossover procedure, disease model, double blind procedure, evidence based medicine, human experiment, intention to treat analysis, longitudinal study, major clinical study, medical record review, meta analysis, model, multicenter study (topic), normal human, observational study, open study, phase 2 clinical trial (topic), phase 3 clinical trial (topic), pilot study, population based case control study, prospective study, randomized controlled trial (topic), retrospective study, secondary analysis, systematic review

‘cannabidiol’/exp/mj OR ‘cannabinoid’/exp/mj OR ‘cannabinol’/exp/mj OR ‘Cannabis sativa’/exp/mj OR ‘cannabis smoking’/exp OR ‘cannabis use’/exp/mj OR ‘cannabis’/exp/mj OR ‘dronabinol’/exp/mj OR ‘medicinal cannabis’/exp OR ‘nabiximols’/exp/mj OR ‘tetrahydrocannabinol’/exp/mj OR ‘tetrahydrocannabinol’:ti,ab,kw OR ‘bhang’:ti,ab,kw OR ‘cannabid*’:ti,ab,kw OR ‘cannabinerol’:ti,ab,kw OR ‘cannabin*’:ti,ab,kw OR ‘cannadon’:ti,ab,kw OR ‘delta 9 tetrahydrocannabinol’:ti,ab,kw OR ‘dronabinol’:ti,ab,kw OR ‘epidiolex’:ti,ab,kw OR ‘epidylex’:ti,ab,kw OR ‘ganja’:ti,ab,kw OR ‘ganjah’:ti,ab,kw OR ‘hashish’:ti,ab,kw OR ‘hashish oil’:ti,ab,kw OR ‘hashish smoking’:ti,ab,kw OR ‘hemp*’:ti,ab,kw OR ‘herba cannabis’:ti,ab,kw OR ‘marihuana*’:ti,ab,kw OR ‘marijuana*’:ti,ab,kw OR ‘Marinol’:ti,ab,kw OR ‘medicinal cannabis’:ti,ab,kw OR ‘medical marihuana’:ti,ab,kw OR ‘medical marijuana’:ti,ab,kw OR ‘Mexican marihuana’:ti,ab,kw OR ‘nabidiol’:ti,ab,kw OR ‘nabiximols’:ti,ab,kw OR ‘sativex’:ti,ab,kw OR ‘syndros’:ti,ab,kw OR ‘tetrahydro cannabinol*’:ti,ab,kw OR ‘tetrahydrocannabinol*’:ti,ab,kw OR
Search Run: 25 May 2021
Coverage: 2016-present

Limits: Phrase Searching (Boolean); Clinical Case Study, Clinical Trial, Empirical Study, Literature Review, Meta Analysis, Quantitative Study, Treatment Outcome, Twin Study; English; Human

PsycInfo

Search Run: 25 May 2021
Coverage: 2016-present

Results: 154

PubMed

Search Run: 28 May 2021
Coverage: 2016 - present

Results: 38
Limits: English language, Humans


AND


AND

“Arnold-Chiari Malformation”[Majr] OR “Chiari*”[tiab] OR “Chiari*”[ot]

Results: 100
**Polycystic Kidney Disease**

Cochrane

**Search Run:** 27 April 2021

**Coverage:** 2016-present

**Limits:** Sources- CINAHL, Embase, and PubMed

[mh "Cannabis"] OR [mh "Cannabinoles"] OR [mh "Cannabinol"] OR [mh "Marijuana Smoking"] OR [mh "Marijuana Use"] OR [mh "Medical Marijuana"] OR [mh "Dronabinol"] OR (bhang OR cannabidi* OR cannabigerol OR cannahin* OR cannab* OR cannador OR cardiolrx OR charas OR delta 9 tetrahydrocannabinol OR delta 9 tetrahydrocannabiol OR Dronabinol OR epidoylex OR epidioylex OR ganja* OR ganjah* OR hashish* OR hemp* OR herba cannabis OR marihuana* OR Mariol OR medical cannabis OR medical marihuana OR medical marijuana OR medicinal cannabis OR medicinal marijuana OR nabidiolex OR nabiximols OR sativex OR syndros OR tetrahydrocannabinol* OR tetrahydrocannabial* OR Tetrahydrocannabinol* OR tetrahydrocannabiol*):ti,ab,kw

AND

[mh "Polycystic Kidney Diseases"] OR (polycystic kidney* OR autosomal dominant polycyst* OR cystic kidney* OR kidney cystic disease OR kidney disease* OR kidney multicy* OR kidney polycyst* OR polycystic renal disease OR renal cystic disease OR renal polycystic disease):ti,ab,kw

**Results:** 0 Reviews, 7 Trials

Embase

**Search Run:** 13 May 2021

**Coverage:** 2016 – present

**Limits:** Embase; English language; Humans; case control study, clinical article, clinical study, clinical trial, cohort analysis, comparative effectiveness, control group, controlled clinical trial, controlled study, correlative study, cross sectional study, crossover procedure, disease model, double blind procedure, evidence based medicine, human experiment, intention to treat analysis, longitudinal study, major clinical study, medical record review, meta analysis, model, multicenter study (topic), normal human, observational study, open study, phase 2 clinical trial (topic), phase 3 clinical trial (topic), pilot study, population based case control study, prospective study, randomized controlled trial (topic), retrospective study, secondary analysis, systematic review

‘cannabidiol'/exp/mj OR ‘cannabinoid'/exp/mj OR ‘Cannabinis sativa'/exp/mj OR ‘cannabis smoking'/exp OR ‘cannabis use'/exp OR ‘cannabis'/exp OR ‘dronabinol'/exp/mj OR ‘medical cannabis'/exp OR ‘nabiximols'/exp/mj OR ‘tetrahydrocannabinol'/exp/mj OR ‘tetrahydrocannabial'/ti,ab,kw OR ‘bhang’ :ti,ab,kw OR ‘cannabidi*’ :ti,ab,kw OR ‘cannabigerol’ :ti,ab,kw OR ‘cannabin*’ :ti,ab,kw OR ‘cannador’ :ti,ab,kw OR ‘delta 9 tetrahydrocannabinol’ :ti,ab,kw OR ‘dronabinol’ :ti,ab,kw OR ‘epidoylex’ :ti,ab,kw OR ‘epidioylex’ :ti,ab,kw OR ‘ganja*’ :ti,ab,kw OR ‘ganjah*’ :ti,ab,kw OR ‘herba cannabis’ :ti,ab,kw OR ‘hashish’ :ti,ab,kw OR ‘hashish oil’ :ti,ab,kw OR ‘hashish smoking’ :ti,ab,kw OR ‘hemp*’ :ti,ab,kw OR ‘herba cannabis’ :ti,ab,kw OR ‘marihuana*’ :ti,ab,kw OR ‘marijuana*’ :ti,ab,kw OR ‘Mariol’ :ti,ab,kw OR ‘medical cannabis’ :ti,ab,kw OR ‘medical marihuana’ :ti,ab,kw OR ‘medical marijuana’ :ti,ab,kw OR ‘medicinal cannabis’ :ti,ab,kw OR ‘medicinal marijuana’ :ti,ab,kw OR ‘mexican marihuana’ :ti,ab,kw OR ‘nabidiolex’ :ti,ab,kw OR ‘nabiximols’ :ti,ab,kw OR ‘sativex’ :ti,ab,kw OR ‘syndros’ :ti,ab,kw OR
'tetrahydro cannabino*':ti,ab,kw OR 'tetrahydrocannabinal*':ti,ab,kw OR 'tetrahydrocannabinol*':ti,ab,kw OR 'tetrahydrocannabiol*':ti,ab,kw OR 'THC':ti,ab,kw OR 'CBC':ti,ab,kw OR 'CBD':ti,ab,kw OR 'CBG':ti,ab,kw

AND

'kidney polycystic disease'/exp/mj OR 'polycystic kidney*':ti,ab,kw OR 'autosomal dominant polycyst*':ti,ab,kw OR 'cystic kidney*':ti,ab,kw OR 'kidney cystic disease':ti,ab,kw OR 'kidney disease*':ti,ab,kw OR 'kidney multicy*':ti,ab,kw OR 'kidney polycyst*:ti,ab,kw OR 'polycystic renal disease':ti,ab,kw OR 'renal cystic disease*:ti,ab,kw OR 'renal polycystic disease':ti,ab,kw

AND

'randomized controlled trial'/exp OR 'controlled clinical trial'/exp OR randomized:ti,ab OR placebo:ti,ab OR 'drug therapy':lnk OR randomly:ti,ab OR trial:ti,ab OR groups:ti,ab OR review/it OR meta-analysis/de OR "systematic review":ti OR "literature review":ti OR "meta analysis":ti OR metaanalysis:ti OR metasynthesis:ti

Results: 49

PsycInfo

Search Run: 25 May 2021
Coverage: 2016-present

Limits: Phrase Searching (Boolean); Clinical Case Study, Clinical Trial, Empirical Study, Literature Review, Meta Analysis, Quantitative Study, Treatment Outcome, Twin Study; English; Human

MM "Cannabis" OR MM "Marijuana" OR MM "Marijuana Usage" OR MM "Cannabinoids" OR MM "Tetrahydrocannabinol") OR TI ("bhang" OR "cannabid*" OR "cannabigerol" OR "cannabin*" OR "cannabis*" OR "cannador" OR "delta 9 tetrahydrocannabinol" OR "delta tetrahydrocannabinol" OR "Dronabinol" OR "epidiolex" OR "epidyolex" OR "ganja*" OR "ganjah*" OR "hashish*" OR "hemp*" OR "herba cannabis" OR "marihuana*" OR "marijuana*" OR "Marinol" OR "medical cannabis" OR "medical marihuana" OR "medical marijuana" OR "medicinal cannabis" OR "medicinal marihuana" OR "nabidiolex" OR "nabiximols" OR "Sativex" OR "sp 104" OR "syndros" OR "tetrahydro cannabino*" OR "tetrahydrocannabino*" OR "Tetrahydrocannabinol*" OR "tetrahydrocannabinol*" OR "tetrabienex" OR "THC" OR "CBC" OR "CBD" OR "CBG") OR AB ("bhang" OR "cannabid*" OR "cannabigerol" OR "cannabin*" OR "cannador" OR "delta 9 tetrahydrocannabinol" OR "delta tetrahydrocannabinol" OR "Dronabinol" OR "epidiolex" OR "epidyolex" OR "ganja*" OR "ganjah*" OR "hashish*" OR "hemp*" OR "herba cannabis" OR "marihuana*" OR "marijuana*" OR "Marinol" OR "medical cannabis" OR "medical marihuana" OR "medical marijuana" OR "medicinal cannabis" OR "medicinal marihuana" OR "nabidiolex" OR "nabiximols" OR "Sativex" OR "sp 104" OR "syndros" OR "tetrahydro cannabino*" OR "tetrahydrocannabino*" OR "Tetrahydrocannabinol*" OR "tetrahydrocannabinol*" OR "tetrabienex" OR "THC" OR "CBC" OR "CBD" OR "CBG"

AND

(MM "Kidney Diseases") OR TI ("polycystic kidney*" OR "autosomal dominant polycyst*" OR "cystic kidney*" OR "kidney cystic disease" OR "kidney disease*" OR "kidney multicy*" OR "kidney polycyst*" OR "polycystic renal disease" OR "renal cystic disease" OR "renal polycystic disease") OR AB ("polycystic kidney*" OR "autosomal dominant polycyst*" OR "cystic kidney*" OR "kidney cystic disease" OR "kidney disease*" OR "kidney multicy*" OR "kidney polycyst*" OR "polycystic renal disease" OR "renal cystic disease" OR "renal polycystic disease")

Results: 0
PubMed

**Search Run:** 28 May 2021

**Coverage:** 2016 - present

**Limits:** English language, Humans


AND


AND

"Arnold-Chiari Malformation"[Majr] OR "Chiari*"[tiab] OR "Chiari*"[ot]

**Results:** 24
Post Laminectomy Syndrome

Cochrane

Search Run: 28 April 2021
Coverage: 2016-present

Limits: Sources- CINAHL, Embase, and PubMed

[mh "Cannabis"] OR [mh "Cannabinol"] OR [mh "Cannabidiol"] OR [mh "Marijuana Smoking"] OR [mh "Marijuana Use"] OR [mh "Medical Marijuana"] OR [mh "Dronabinol"] OR (bhang OR cannabid* OR cannabigerol OR cannabin* OR cannabis* OR cannador OR cardioRx OR charas OR delta 9 tetrahydrocannabinol OR delta 9 trans tetrahydrocannabinol OR Dronabinol OR epidioloeX OR ganja* OR ganjah* OR hashish* OR hemp* OR herba cannabis OR marihuana* OR marihuana* OR Marinol OR medical cannabis OR medical marihuana OR medical marijuana OR medicinal cannabis OR medicinal marijuana OR nabidiolex OR nabiximols OR sativex OR syndros OR tetrahydro cannabino* OR tetrahydrocannabinal* OR Tetrahydrocannabinol* OR tetrahydrocannabinol*):ti,ab,kw

AND

[mh "Radiculopathy"] OR (hemilaminectomy OR Laminectomy OR nerve root disease OR polyradiculopathy OR radicular neuropathy OR Radiculopathy):ti,ab,kw

Results: 0 Reviews, 2 Trials

Embase

Search Run: 13 May 2021
Coverage: 2016 – present

Limits: Embase; English language; Humans; case control study, clinical article, clinical study, clinical trial, cohort analysis, comparative effectiveness, control group, controlled clinical trial, controlled study, correlative study, cross sectional study, crossover procedure, disease model, double blind procedure, evidence based medicine, human experiment, intention to treat analysis, longitudinal study, major clinical study, medical record review, meta analysis, model, multicenter study (topic), normal human, observational study, open study, phase 2 clinical trial (topic), phase 3 clinical trial (topic), pilot study, population based case control study, prospective study, randomized controlled trial (topic), retrospective study, secondary analysis, systematic review

‘cannabidiol’/exp/mj OR ‘cannabinoid’/exp/mj OR ‘cannabinol’/exp/mj OR ‘Cannabis sativa’/exp/mj OR ‘cannabis smoking’/exp OR ‘cannabis use’/exp/mj OR ‘cannabis’/exp/mj OR ‘dronabinol’/exp/mj OR ‘medical cannabis’/exp OR ‘nabiximols’/exp/mj OR ‘tetrahydrocannabinol’/exp/mj OR ‘tetrahydrocannabinol’:ti,ab,kw OR ‘bhang’:ti,ab,kw OR ‘cannabinid*’:ti,ab,kw OR ‘cannabigerol’:ti,ab,kw OR ‘cannabin*’:ti,ab,kw OR ‘cannador’:ti,ab,kw OR ‘delta 9 tetrahydrocannabinol’:ti,ab,kw OR ‘dronabinol’:ti,ab,kw OR ‘epidioloeX’:ti,ab,kw OR ‘epidioloeX’:ti,ab,kw OR ‘ganja’:ti,ab,kw OR ‘ganjah’:ti,ab,kw OR ‘hashish’:ti,ab,kw OR ‘hashish oil’:ti,ab,kw OR ‘hashish smoking’:ti,ab,kw OR ‘hemp*’:ti,ab,kw OR ‘herba cannabis’:ti,ab,kw OR ‘marihuana*’:ti,ab,kw OR ‘marijuana*’:ti,ab,kw OR ‘Marinol’:ti,ab,kw OR ‘medical cannabis’:ti,ab,kw OR ‘medical marihuana’:ti,ab,kw OR ‘medical marijuana’:ti,ab,kw OR ‘medicinal cannabis’:ti,ab,kw OR ‘medicinal marijuana’:ti,ab,kw OR ‘mexican marihuana’:ti,ab,kw OR ‘nabidiolex’:ti,ab,kw OR ‘nabiximols’:ti,ab,kw OR ‘sativex’:ti,ab,kw OR ‘syndros’:ti,ab,kw OR ‘tetrahydro cannabino*’:ti,ab,kw OR ‘tetrahydrocannabinal*’:ti,ab,kw OR
'tetrahydrocannabinol*':ti,ab,kw OR 'tetrahydrocannabiol*':ti,ab,kw OR 'THC':ti,ab,kw OR 'CBC':ti,ab,kw OR 'CBD':ti,ab,kw OR 'CBG':ti,ab,kw

AND

'laminectomy'/exp/mj OR 'radiculopathy'/exp/mj OR 'hemilaminectomy':ti,ab,kw OR 'Laminectomy':ti,ab,kw OR 'nerve root disease':ti,ab,kw OR 'polyradiculopathy':ti,ab,kw OR 'radicular neuropathy':ti,ab,kw OR 'Radiculopathy':ti,ab,kw

AND

'randomized controlled trial'/exp OR 'controlled clinical trial'/exp OR randomized:ti,ab OR placebo:ti,ab OR 'drug therapy':lnk OR randomly:ti,ab OR trial:ti,ab OR groups:ti,ab OR review/it OR meta-analysis/de OR "systematic review":ti OR "literature review":ti OR "meta analysis":ti OR metaanalysis:ti OR metasynthesis:ti

Results: 10

PsycInfo

Search Run: 25 May 2021
Coverage: 2016-present

Limits: Phrase Searching (Boolean); Clinical Case Study, Clinical Trial, Empirical Study, Literature Review, Meta Analysis, Quantitative Study, Treatment Outcome, Twin Study; English; Human

MM “Cannabis" OR MM “Marijuana” OR MM “Marijuana Usage” OR MM “Cannabinoids" OR MM “Tetrahydrocannabinol”) OR TI (“bhang” OR “cannabid*” OR “cannabigerol” OR “cannabin*” OR “cannabis” OR “cannabinador” OR “delta 9 tetrahydrocannabinol” OR “delta tetrahydrocannabinol” OR “Dronabinol” OR “epidiolex” OR “epidyolex” OR “ganja*” OR “ganjah*” OR “hashish*” OR “hemp*” OR “herba cannabis” OR “marihuana*” OR “marijuana*” OR “Mariol” OR “medical cannabis” OR “medical marihuana” OR “medical marijuana” OR “medicinal cannabis” OR “medicinal marijuana” OR “nabidiolex” OR “nabiximols” OR “Sativex” OR “sp 104” OR “syndros” OR “tetrahydrocannabinol*” OR “tetrahydrocannabinol**” OR “Tetrahydrocannabinol*” OR “tetrahydrocannabinol**” OR “tetrabionex” OR “THC” OR “CBC” OR “CBD” OR “CBG”) OR AB (“bhang” OR “cannabid*” OR “cannabigerol” OR “cannabin*” OR “cannabis” OR “cannabinador” OR “delta 9 tetrahydrocannabinol” OR “delta tetrahydrocannabinol” OR “Dronabinol” OR “epidiolex” OR “epidyolex” OR “ganja*” OR “ganjah*” OR “hashish*” OR “hemp*” OR “herba cannabis” OR “marihuana*” OR “marijuana*” OR “Mariol” OR “medical cannabis” OR “medical marihuana” OR “medical marijuana” OR “medicinal cannabis” OR “medicinal marijuana” OR “nabidiolex” OR “nabiximols” OR “Sativex” OR “sp 104” OR “syndros” OR “tetrahydrocannabinol*” OR “tetrahydrocannabinol**” OR “Tetrahydrocannabinol*” OR “tetrahydrocannabinol**” OR “tetranabinex” OR “THC” OR “CBC” OR “CBD” OR “CBG”

AND

TI (“hemilaminectomy” OR “Laminectomy” OR “nerve root disease” OR “polyradiculopathy” OR “radicular neuropathy” OR “Radiculopathy”) OR AB (“hemilaminectomy” OR “Laminectomy” OR “nerve root disease” OR “polyradiculopathy” OR “radicular neuropathy” OR “Radiculopathy”)

Results: 0

PubMed

Search Run: 29 May 2021
Coverage: 2016 - present
Limits: English language, Humans


AND


AND

“Arnold-Chiari Malformation”[Majr] OR “Chiari*”[tiab] OR “Chiari*”[ot]

Results: 0
Post-Traumatic Stress Disorder (PTSD)

Cochrane

**Search Run:** 28 April 2021  
**Coverage:** 2016-presentation

**Limits:** Sources: CINAHL, Embase, and PubMed

- [mh "Cannabis"] OR [mh "Cannabinol"] OR [mh "Cannabidiol"] OR [mh "Marijuana Smoking"] OR [mh "Marijuana Use"] OR [mh "Medical Marijuana"] OR [mh "Dronabinol"] OR (bhang OR cannabid* OR cannabigerol OR cannabin* OR cannabis* OR cannador OR cardiolrx OR charas OR delta 9 tetrahydrocannabinol OR delta 9 trans tetrahydrocannabinol OR Dronabinol OR epidiolex OR episyllex OR ganja* OR ganjah* OR hashish* OR hemp* OR herba cannabis OR marihuana* OR marijuana* OR Marinal OR medical cannabis OR medical marihuana OR medical marijuana OR medicinal cannabis OR medicinal marijuana OR nabidiolex OR nabiximols OR sativex OR syndros OR tetrahydrocannabinol* OR tetrahydrocannabinol*):ti,ab,kw

AND

- [mh "Stress Disorders, Post-Traumatic"] OR (Complex PTSD OR posttraumatic neurosis OR posttraumatic psychic syndrome OR posttraumatic psychosis OR Posttraumatic Stress OR posttraumatic stress OR posttraumatic syndrome OR posttraumatic psychosis OR PTSD OR Stress Reactions OR trauma and stressor related disorders OR Traumatic Loss OR Traumatic Neurosis OR traumatic stress* OR Virtual Reality Exposure Therapy):ti,ab,kw

**Results:** 0 Reviews, 35 Trials

Embase

**Search Run:** 13 May 2021  
**Coverage:** 2016 – present

**Limits:** Embase; English language; Humans; case control study, clinical article, clinical study, clinical trial, cohort analysis, comparative effectiveness, control group, controlled clinical trial, controlled study, correlational study, cross sectional study, crossover procedure, disease model, double blind procedure, evidence based medicine, human experiment, intention to treat analysis, longitudinal study, major clinical study, medical record review, meta analysis, model, multicenter study (topic), normal human, observational study, open study, phase 2 clinical trial (topic), phase 3 clinical trial (topic), pilot study, population based case control study, prospective study, randomized controlled trial (topic), retrospective study, secondary analysis, systematic review

- ‘cannabidiol'/exp/mj OR ‘cannabinoid'/exp/mj OR ‘cannabinol'/exp/mj OR ‘Cannabis sativa'/exp/mj OR ‘cannabis smoking'/exp OR ‘cannabis use'/exp/mj OR ‘cannabis'/exp/mj OR ‘dronabinol'/exp/mj OR ‘medical cannabis'/exp OR ‘nabiximols'/exp/mj OR ‘tetrahydrocannabinol'/exp/mj OR ‘tetrahydrocannabinol':ti,ab,kw OR ‘bhang’:ti,ab,kw OR ‘cannabid*’:ti,ab,kw OR ‘cannabigerol’:ti,ab,kw OR ‘cannabin*’:ti,ab,kw OR ‘cannabis*’:ti,ab,kw OR ‘cannador’:ti,ab,kw OR ‘delta 9 tetrahydrocannabinol’:ti,ab,kw OR ‘dronabinol’:ti,ab,kw OR ‘epidiolex’:ti,ab,kw OR ‘epidyolex’:ti,ab,kw OR ‘ganja’:ti,ab,kw OR ‘ganjah’:ti,ab,kw OR ‘hashish’:ti,ab,kw OR ‘hashish oil’:ti,ab,kw OR ‘hashish smoking’:ti,ab,kw OR ‘hemp*’:ti,ab,kw OR ‘herba cannabis’:ti,ab,kw OR ‘marihuana*:ti,ab,kw OR ‘marijuana*:ti,ab,kw OR ‘Marinol*:ti,ab,kw OR ‘medical cannabis*:ti,ab,kw OR ‘medical marihuana*:ti,ab,kw OR ‘medical marijuana*:ti,ab,kw OR
‘medicinal cannabis’:ti,ab,kw OR ‘medicinal marijuana’:ti,ab,kw OR ‘mexican marihuana’:ti,ab,kw OR ‘nabidiolex’:ti,ab,kw OR ‘nabiximols’:ti,ab,kw OR ‘sativex’:ti,ab,kw OR ‘syndros’:ti,ab,kw OR ‘tetrahydrocannabinol*’:ti,ab,kw OR ‘tetrahydrocannabinal*’:ti,ab,kw OR ‘tetrahydrocannabinol*’:ti,ab,kw OR ‘tetrahydrocannabiol*’:ti,ab,kw OR ‘THC’:ti,ab,kw OR ‘CBC’:ti,ab,kw OR ‘CBD’:ti,ab,kw OR ‘CBG’:ti,ab,kw

AND

‘posttraumatic stress disorder’/exp/mj OR ‘Complex PTSD’:ti,ab,kw OR ‘posttraumatic neurosis’:ti,ab,kw OR ‘posttraumatic psychic syndrome’:ti,ab,kw OR ‘posttraumatic psychosis’:ti,ab,kw OR ‘Posttraumatic Stress’:ti,ab,kw OR ‘post-traumatic stress’:ti,ab,kw OR ‘posttraumatic syndrome’:ti,ab,kw OR ‘PTSD’:ti,ab,kw OR ‘Stress Reactions’:ti,ab,kw OR ‘trauma and stressor related disorders’:ti,ab,kw OR ‘Traumatic Loss’:ti,ab,kw OR ‘Traumatic Neurosis’:ti,ab,kw OR ‘traumatic stress*’:ti,ab,kw OR ‘Virtual Reality Exposure Therapy’:ti,ab,kw

AND

‘randomized controlled trial’/exp OR ‘controlled clinical trial’/exp OR randomized:ti,ab OR placebo:ti,ab OR ‘drug therapy’:lnk OR randomly:ti,ab OR Trial:ti,ab OR groups:ti,ab OR review/it OR meta-analysis/de OR “systematic review”:ti OR “literature review”:ti OR “meta analysis”:ti OR metaanalysis:ti OR metasynthesis:ti

Results: 169

PsycInfo

Search Run: 25 May 2021
Coverage: 2016-present

Limits: Phrase Searching (Boolean); Clinical Case Study, Clinical Trial, Empirical Study, Literature Review, Meta Analysis, Quantitative Study, Treatment Outcome, Twin Study; English; Human

MM “Cannabis” OR MM “Marijuana” OR MM “Marijuana Usage” OR MM “Cannabinoids” OR MM “Tetrahydrocannabinol”) OR TI (“bhang” OR “cannabinoid*” OR “cannabigerol” OR “cannabis*” OR “cannaboid” OR “cannador” OR “delta 9 tetrahydrocannabinol” OR “delta tetrahydrocannabinol” OR “Dronabinol” OR “epidiolex” OR “epidolex” OR “ganja” OR “ganja*” OR “hashish*” OR “hemp*” OR “herba cannabis” OR “marihuana” OR “marijuana” OR “Marinol” OR “medical cannabis” OR “medical marihuana” OR “medical marijuana” OR “medicinal cannabis” OR “medicinal marijuana” OR “nabidiolex” OR “nabiximols” OR “Sativex” OR “sp 104” OR “syndros” OR “tetrahydrocannabinol” OR “tetrahydrocannabinal” OR “tetrahydrocannabinol*” OR “tetrahydrocannabinol**” OR “tetrahydrocannabinol***” OR “tetrahydrocannabinol****” OR “tetranabinex” OR “THC” OR “CBC” OR “CBD” OR “CBG”) OR AB (“bhang” OR “cannabinoid*” OR “cannabigerol” OR “cannabinoid*” OR “cannaboid” OR “cannador” OR “delta 9 tetrahydrocannabinol” OR “delta tetrahydrocannabinol” OR “Dronabinol” OR “epidiolex” OR “epidolex” OR “ganja*” OR “ganja*” OR “hashish*” OR “hemp*” OR “herba cannabis” OR “marihuana” OR “marijuana” OR “Marinol” OR “medical cannabis” OR “medical marihuana” OR “medical marijuana” OR “medicinal cannabis” OR “medicinal marijuana” OR “nabidiolex” OR “nabiximols” OR “Sativex” OR “sp 104” OR “syndros” OR “tetrahydrocannabinol” OR “tetrahydrocannabinol*” OR “tetrahydrocannabinol**” OR “tetrahydrocannabinol***” OR “tetrahydrocannabinol****” OR “tetranabinex” OR “THC” OR “CBC” OR “CBD” OR “CBG”

AND

(MM “Complex PTSD” OR MM “Posttraumatic Stress Disorder” OR MM “Virtual Reality Exposure Therapy” OR MM “Posttraumatic Stress” OR MM “Traumatic Neurosis” OR MM “Stress Reactions”)
OR TI (“posttraumatic syndrome” OR “PTSD” OR “Stress Reactions” OR “trauma and stressor related disorders” OR “Traumatic Loss” OR “Traumatic Neurosis” OR “traumatic stress*” OR “Virtual Reality
Exposure Therapy" OR "posttraumatic psychosis") OR AB ("posttraumatic syndrome" OR "PTSD" OR "Stress Reactions" OR "trauma and stressor related disorders" OR "Traumatic Loss" OR "Traumatic Neurosis" OR "traumatic stress*" OR "Virtual Reality Exposure Therapy" OR "posttraumatic psychosis")

Results: 121

PubMed

Search Run: 29 May 2021

Coverage: 2016 - present

Limits: English language, Humans


AND


AND

“Arnold-Chiari Malformation”[Majr] OR “Chiari*[tiab] OR “Chiari*[ot]

Results: 102
Psoriasis

Cochrane

**Search Run:** 28 April 2021  
**Coverage:** 2016–present

**Limits:** Sources- CINAHL, Embase, and PubMed

[mh "Cannabis"] OR [mh "Cannabinol"] OR [mh "Cannabinoid"] OR [mh "Marijuana Smoking"] OR [mh "Marijuana Use"] OR [mh "Medical Marijuana"] OR [mh "Dronabinol"] OR (bhang OR cannabid* OR cannabigerol OR cannabin* OR cannabidiol* OR cannonador OR cardiolrx OR charas OR delta 9 tetrahydrocannabinol OR delta 9 trans tetrahydrocannabinol OR Dronabinol OR epidiolex OR edipiolex OR ganja* OR ganjah* OR hashish* OR hemp* OR herba cannabis OR marihuana* OR Mariol OR medical cannabis OR medical marihuana OR medical marijuana OR medicinal cannabis OR medicinal marihuana OR nabidiolex OR nabiximols OR sativex OR syndros OR tetrahydro cannabinol* OR tetrahydrocannabinal* OR Tetrahydrocannabinol* OR tetrahydrocannabinol*:ti,ab,kw

AND

[mh "Psoriasis"] OR (psoriasiform* OR Psoriasis* OR psoriatic* OR willan lepra OR Pustulosis):ti,ab,kw

**Results:** 0 Reviews, 0 Trials

Embase

**Search Run:** 13 May 2021  
**Coverage:** 2016 – present

**Limits:** Embase; English language; Humans; case control study, clinical article, clinical study, clinical trial, cohort analysis, comparative effectiveness, control group, controlled clinical trial, controlled study, correlational study, cross sectional study, crossover procedure, disease model, double blind procedure, evidence based medicine, human experiment, intention to treat analysis, longitudinal study, major clinical study, medical record review, meta analysis, model, multicenter study (topic), normal human, observational study, open study, phase 2 clinical trial (topic), phase 3 clinical trial (topic), pilot study, population based case control study, prospective study, randomized controlled trial (topic), retrospective study, secondary analysis, systematic review

‘cannabidiol'/exp/mj OR 'cannabinoid'/exp/mj OR 'cannabinol'/exp/mj OR 'Cannabis sativa'/exp/mj OR 'cannabis smoking'/exp OR 'cannabis use'/exp/mj OR 'cannabis'/exp/mj OR 'dronabinol'/exp/mj OR 'medical cannabis'/exp OR 'nabiximols'/exp/mj OR ‘tetrahydrocannabinol'/exp/mj OR 'tetrahydrocannabinol':ti,ab,kw OR 'bhang':ti,ab,kw OR 'cannabid*':ti,ab,kw OR 'cannabigerol':ti,ab,kw OR 'cannabin*':ti,ab,kw OR 'cannabis*':ti,ab,kw OR 'cannador':ti,ab,kw OR 'delta 9 tetrahydrocannabinol':ti,ab,kw OR 'dronabinol':ti,ab,kw OR 'epidiolex':ti,ab,kw OR 'epidyolex':ti,ab,kw OR 'ganja':ti,ab,kw OR 'ganjah':ti,ab,kw OR 'hashish':ti,ab,kw OR 'hashish oil':ti,ab,kw OR 'hashish smoking':ti,ab,kw OR 'hemp*':ti,ab,kw OR 'herba cannabis':ti,ab,kw OR 'marihuana*':ti,ab,kw OR 'marijuana*':ti,ab,kw OR 'Marinol':ti,ab,kw OR 'medical cannabis':ti,ab,kw OR 'medical marihuana':ti,ab,kw OR 'medical marijuana':ti,ab,kw OR 'medicinal cannabis':ti,ab,kw OR 'medicinal marihuana':ti,ab,kw OR 'mexican marihuana':ti,ab,kw OR 'nabidiolex':ti,ab,kw OR 'nabiximols':ti,ab,kw OR 'sativex':ti,ab,kw OR 'syndros':ti,ab,kw OR 'tetrahydro cannabinol*':ti,ab,kw OR 'tetrahydrocannabinal*':ti,ab,kw OR
Results: 28

PsycInfo

Search Run: 25 May 2021
Coverage: 2016-present

Limits: Phrase Searching (Boolean); Clinical Case Study, Clinical Trial, Empirical Study, Literature Review, Meta Analysis, Quantitative Study, Treatment Outcome, Twin Study; English; Human

Results: 0

PubMed

Search Run: 29 May 2021
Coverage: 2016 - present

Limits: English language, Humans

AND


AND

“Arnold-Chiari Malformation”[Majr] OR “Chiari*”[tiab] OR “Chiari*”[ot]

Results: 19
Reflex Sympathetic Dystrophy (RSD)

Cochrane

**Search Run:** 28 April 2021  
**Coverage:** 2016-present

**Limits:** Sources- CINAHL, Embase, and PubMed

[mh "Cannabis"] OR [mh "Cannabinol"] OR [mh "Cannabidiol"] OR [mh "Marijuana Smoking"] OR [mh "Marijuana Use"] OR [mh "Medical Marijuana"] OR [mh "Dronabinol"] OR (bhang OR cannabidi* OR cannabigerol OR cannabin* OR cannabis* OR cannador OR cardiolrx OR charas OR delta 9 tetrahydrocannabinol OR delta 9 trans tetrahydrocannabinol OR Dronabinol OR epidiol* OR epidyolex OR ganja* OR ganjah* OR hashish* OR hemp* OR herba cannabis OR marihuana* OR marijuana* OR Marinol OR medical cannabis OR medical marihuana OR medical marijuana OR medicinal cannabis OR medicinal marijuana OR nabidiolex OR nabiximols OR sativex OR syndros OR tetrahydrocannabinol* OR tetrahydrocannabinal* OR Tetrahydrocannabinol* OR tetrahydrocannabiol*):ti,ab,kw

AND

[mh “Reflex Sympathetic Dystrophy”] OR (complex regional pain syndrome 1 OR complex regional pain syndrome 2 OR complex regional pain syndrome I OR complex regional pain syndrome II OR complex regional pain syndrome type 1 OR complex regional pain syndrome type 2 OR complex regional pain syndrome type I OR complex regional pain syndrome type II OR CRPS 1 OR CRPS 2 OR CRPS I OR CRPS II OR CRPS type 1 OR CRPS type 2 OR CRPS type I OR CRPS type II OR neuralgic shoulder amyotrophy OR posttraumatic dystrophy OR post-traumatic dystrophy OR Reflex Sympathetic Dystrophy OR shoulder arm syndrome OR shoulder hand syndrome OR sympathetic dystrophy syndrome OR sympathetic reflex dystrophy):ti,ab,kw

**Results:** 0 Reviews, 2 Trials

Embase

**Search Run:** 13 May 2021  
**Coverage:** 2016 – present

**Limits:** Embase; English language; Humans; case control study, clinical article, clinical study, clinical trial, cohort analysis, comparative effectiveness, control group, controlled clinical trial, controlled study, correlative study, cross sectional study, crossover procedure, disease model, double blind procedure, evidence based medicine, human experiment, intention to treat analysis, longitudinal study, major clinical study, medical record review, meta analysis, model, multicenter study (topic), normal human, observational study, open study, phase 2 clinical trial (topic), phase 3 clinical trial (topic), pilot study, population based case control study, prospective study, randomized controlled trial (topic), retrospective study, secondary analysis, systematic review

‘cannabidiol’:exp/mj OR ‘cannabinoid’:exp/mj OR ‘cannabinol’:exp/mj OR ‘Cannabis sativa’:exp/mj OR ‘cannabis smoking’:exp OR ‘cannabis use’:exp/mj OR ‘cannabis’:exp/mj OR ‘dronabinol’:exp/mj OR ‘medical cannabis’:exp OR ‘nabiximols’:exp/mj OR ‘tetrahydrocannabinol’:exp/mj OR ‘tetrahydrocannabinol’:ti,ab,kw OR ‘bhang’:ti,ab,kw OR ‘cannabinol’:ti,ab,kw OR ‘cannabigerol’:ti,ab,kw OR ‘cannabin*:ti,ab,kw OR ‘cannabin*:ti,ab,kw OR ‘cannador’:ti,ab,kw OR ‘delta 9 tetrahydrocannabinol’:ti,ab,kw OR ‘dronabinol’:ti,ab,kw OR ‘epidiol*:ti,ab,kw OR ‘epidyolex*:ti,ab,kw OR ‘ganja*:ti,ab,kw OR ‘ganjah*:ti,ab,kw OR
Results: 2
Results: 1

AND


AND

“Arnold-Chiari Malformation”[Majr] OR “Chiari*”[tiab] OR “Chiari*”[ot]

Results: 1
Schizophrenia

Cochrane

Search Run: 28 April 2021
Coverage: 2016-present

Limits: Sources- CINAHL, Embase, and PubMed

[mh "Cannabis"] OR [mh "Cannabinol"] OR [mh "Cannabidiol"] OR [mh "Marijuana Smoking"] OR [mh "Marijuana Use"] OR [mh "Medical Marijuana"] OR [mh "Dronabinol"] OR (bhang OR cannabid* OR cannabigerol OR cannabin* OR cannabid* OR cannador OR cardiolrx OR charas OR delta 9 tetrahydrocannabinol OR delta 9 trans tetrahydrocannabinol OR Dronabinol OR epidiolox OR epidiolox OR ganja* OR ganjah* OR hashish* OR hemp* OR herba cannabis OR marihuana* OR marihuana* OR Marinol OR medical cannabis OR medical marihuana OR medical marijuana OR medicinal cannabis OR medicinal marijuana OR nabidiolex OR nabiximols OR sativex OR syndros OR tetrahydro cannabinol* OR tetrahydrocannabinol* OR Tetrahydrocannabinol* OR tetrahydrocannabinol*):ti,ab,kw

AND

[mh “Schizophrenia Spectrum and Other Psychotic Disorders"] OR [mh “Schizophrenia, Childhood”] OR [mh “Schizotypal Personality Disorder”] OR (dementia praecox OR dementia precox OR encephalopschychosis OR Insulin Shock Therapy OR Neologisms OR Neurosis OR Paranoia OR Psychosis OR psychotic* OR Psychotomimetic Drugs OR Schizoaffective* OR Schizophrenia* OR schizophrenic* OR Schizophreniform Disorder OR Schizophrenogenenic Mothers OR Schizotypal Personality Disorder OR Schizotypy OR substance-induced psychoses OR Toxic Psychoses):ti,ab,kw

Results: 2 Reviews, 120 Trials

Embase

Search Run: 13 May 2021
Coverage: 2016 – present

Limits: Embase; English language; Humans; case control study, clinical article, clinical study, clinical trial, cohort analysis, comparative effectiveness, control group, controlled clinical trial, controlled study, correlational study, cross sectional study, crossover procedure, disease model, double blind procedure, evidence based medicine, human experiment, intention to treat analysis, longitudinal study, major clinical study, medical record review, meta analysis, model, multicenter study (topic), normal human, observational study, open study, phase 2 clinical trial (topic), phase 3 clinical trial (topic), pilot study, population based case control study, prospective study, randomized controlled trial (topic), retrospective study, secondary analysis, systematic review

‘cannabinol’/exp/mj OR ‘cannabinoid’/exp/mj OR ‘cannabidiol’/exp/mj OR ‘Cannabis sativa’/exp/mj OR ‘cannabis smoking’/exp OR ‘cannabis use’/exp OR ‘cannabis’/exp/mj OR ‘dronabinol’/exp/mj OR ‘medical cannabis’/exp OR ‘nabiximols’/exp/mj OR ‘tetrahydrocannabinol’/exp/mj OR ‘tetrahydrocannabinol’:ti,ab,kw OR ’bhang’:ti,ab,kw OR ‘cannabin*’:ti,ab,kw OR ‘cannabigerol’:ti,ab,kw OR ‘cannabidiol’:ti,ab,kw OR ‘cannador’:ti,ab,kw OR ‘delta 9 tetrahydrocannabinol’:ti,ab,kw OR ‘dronabinol’:ti,ab,kw OR ‘epidiolox’:ti,ab,kw OR ‘epidiolox’:ti,ab,kw OR ‘ganja’:ti,ab,kw OR ‘ganjah’:ti,ab,kw OR ‘hashish’:ti,ab,kw OR ‘hashish oil’:ti,ab,kw OR ‘hashish smoking’:ti,ab,kw OR ‘hemp*’:ti,ab,kw OR ‘herba cannabis’:ti,ab,kw OR ‘marihuana*’:ti,ab,kw OR ‘marijuana*’:ti,ab,kw OR ‘Marinol’:ti,ab,kw
OR 'medical cannabis':ti,ab,kw OR 'medical marihuana':ti,ab,kw OR 'medical marijuana':ti,ab,kw OR 'medicinal cannabis':ti,ab,kw OR 'medicinal marihuana':ti,ab,kw OR 'medicinal marijuana':ti,ab,kw OR 'nabidiolex':ti,ab,kw OR 'nabiximols':ti,ab,kw OR 'sativex':ti,ab,kw OR 'syndros':ti,ab,kw OR 'tetrahydro cannabinoi*':ti,ab,kw OR 'tetrahydrocannabinal*':ti,ab,kw OR 'tetrahydrocannabinol*':ti,ab,kw OR 'tetrahydrocannabinol':ti,ab,kw OR 'tetrahydrocannabiol*':ti,ab,kw OR 'tetrahydrocannabinol':ti,ab,kw OR 'THC':ti,ab,kw OR 'CBC':ti,ab,kw OR 'CBD':ti,ab,kw OR 'CBG':ti,ab,kw

AND

'schizophrenia'/exp/mj OR 'schizophrenia spectrum disorder'/exp/mj OR 'dementia praecox':ti,ab,kw OR 'dementia precox':ti,ab,kw OR 'encephalopsychosis':ti,ab,kw OR 'Insulin Shock Therapy':ti,ab,kw OR 'Neologisms':ti,ab,kw OR 'Neurosis':ti,ab,kw OR 'Paranoia':ti,ab,kw OR 'Psychosis':ti,ab,kw OR 'psychotic*':ti,ab,kw OR 'Psychotomimetic Drugs':ti,ab,kw OR 'Schizoaffective*':ti,ab,kw OR 'Schizophrenia*':ti,ab,kw OR 'Schizophrenic*':ti,ab,kw OR 'Schizophreniform Disorder':ti,ab,kw OR 'Schizophrrenogenic Mothers':ti,ab,kw OR 'Schizotypal Personality Disorder':ti,ab,kw OR 'Schizotypy':ti,ab,kw OR 'substance-induced psychoses':ti,ab,kw OR 'Toxic Psychoses':ti,ab,kw

AND

'randomized controlled trial'/exp OR 'controlled clinical trial'/exp OR randomized:ti,ab OR placebo:ti,ab OR 'drug therapy':lnk OR randomly:ti,ab OR trial:ti,ab OR groups:ti,ab OR review/it OR meta-analysis/de OR 'systematic review':ti OR "literature review":ti OR "meta analysis":ti OR metaanalysis:ti OR "meta synthesis":ti

Results: 752

PsycInfo

Search Run: 25 May 2021
Coverage: 2016-present

Limits: Phrase Searching (Boolean); Clinical Case Study, Clinical Trial, Empirical Study, Literature Review, Meta Analysis, Quantitative Study, Treatment Outcome, Twin Study; English; Human

MM “Cannabis” OR MM “Marijuana” OR MM “Marijuana Usage” OR MM “Cannabinoids” OR MM “Tetrahydrocannabinol”) OR TI (“bhang” OR “cannabid*” OR “cannabigerol” OR “cannabin*” OR “cannabis*” OR “cannador” OR “delta 9 tetrahydrocannabinol” OR “delta tetrahydrocannabinol” OR “Dronabinol” OR “epidiolex” OR “epidyolex” OR “ganja*” OR “ganjah*” OR “hashish*” OR “hemp*” OR “herba cannabis” OR “marihuana*” OR “marijuana*” OR “Marinol” OR “medical cannabis” OR “medical marihuana” OR “medicinal cannabis” OR “medicinal marijuana” OR “nabidiolex” OR “nabiximols” OR “Sativex” OR “sp 104” OR “syndros” OR “tetrahydro cannabinol*” OR “tetrahydrocannabinol*” OR “Tetrahydrocannabinol*” OR “tetrahydrocannabiol*” OR “tetranabinex” OR “THC” OR “CBC” OR “CBD” OR “CBG”) OR AB (“bhang” OR “cannabid*” OR “cannabigerol” OR “cannabin*” OR “cannador” OR “delta 9 tetrahydrocannabinol” OR “delta tetrahydrocannabinol” OR “Dronabinol” OR “epidiolex” OR “epidyolex” OR “ganja*” OR “ganjah*” OR “hashish*” OR “hemp*” OR “herba cannabis” OR “marihuana*” OR “marijuana*” OR “Marinol” OR “medical cannabis” OR “medical marihuana” OR “medicinal cannabis” OR “medicinal marijuana” OR “nabidiolex” OR “nabiximols” OR “Sativex” OR “sp 104” OR “syndros” OR “tetrahydro cannabinol*” OR “tetrahydrocannabinol*” OR “Tetrahydrocannabinol*” OR “tetrahydrocannabiol*” OR “tetranabinex” OR “THC” OR “CBC” OR “CBD” OR “CBG”

AND

Results: 485

AND


AND

“Arnold-Chiari Malformation”[Majr] OR “Chiari*”[tiab] OR “Chiari*”[ot]

Results: 332
Seizures

Cochrane

Search Run: 28 April 2021
Coverage: 2016-present

Limits: Sources- CINAHL, Embase, and PubMed

[mh "Cannabis"] OR [mh "Cannabidiol"] OR [mh "Marijuana Smoking"] OR [mh "Marijuana Use"] OR [mh "Medical Marijuana"] OR [mh "Dronabinol"] OR (bhang OR cannabid* OR cannabigerol OR cannabin* OR cannabin* OR cannador OR cardiolrx OR charas OR delta 9 tetrahydrocannabinol OR delta 9 trans tetrahydrocannabinol OR Dronabinol OR epidoilex OR epidoilex OR ganja* OR ganjah* OR hashish* OR hemp* OR herba cannabis OR marihuana* OR marihuana* OR Marinol OR medical cannabis OR medical marihuana OR medical marijuana OR medicinal cannabis OR medicinal marijuana OR nabidiolex OR nabiximols OR sativex OR syndros OR tetrahydro cannabino* OR tetrahydrocannabinol* OR Tetrahydrocannabinol* OR tetrahydrocannabinol*):ti,ab,kw

AND

[mh "Seizures"] OR [mh "Epilepsy, Partial, Sensory"] OR [mh "Epilepsy, Post-Traumatic"] OR [mh "Epilepsies, Partial"] OR [mh "Epilepsy, Benign Neonatal"] OR [mh "Myoclonic Epilepsies, Progressive"] OR (Arx-Related* OR Benign Familial Infantile Convulsion* OR convulsion* OR epilep* OR Fragile X Syndrome OR Gabapentin OR Hypoparathyroidism-retardation-dysmorphism syndrome OR Hypotonia* OR Infantile Spasm* OR Kuzniecky syndrome OR Lennox Gastaut Syndrome OR MEHMO syndrome OR MELAS OR Mental retardation* OR Microcephaly* OR Muller Barth Menger syndrome OR Neuhauser syndrome OR Posterior Reversible Encephalopathy OR Post-Traumatic Epilepsy OR seizure* OR SeSAME syndrome OR Status Epilepticus OR Stomatin-Deficient Cryohydrocytosis OR Tranebjaerg Svejgaard syndrome OR X-linked*):ti,ab,kw

Results: 7 Reviews, 144 Trials

Embase

Search Run: 13 May 2021
Coverage: 2016 – present

Limits: Embase; English language; Humans; case control study, clinical article, clinical study, clinical trial, cohort analysis, comparative effectiveness, control group, controlled clinical trial, controlled study, correlational study, cross sectional study, crossover procedure, disease model, double blind procedure, evidence based medicine, human experiment, intention to treat analysis, longitudinal study, major clinical study, medical record review, meta analysis, model, multicenter study (topic), normal human, observational study, open study, phase 2 clinical trial (topic), phase 3 clinical trial (topic), pilot study, population based case control study, prospective study, randomized controlled trial (topic), retrospective study, secondary analysis, systematic review

'cannabidiol'/exp/mj OR 'cannabinoid'/exp/mj OR 'cannabinol'/exp/mj OR 'Cannabis sativa'/exp/mj OR 'cannabis smoking'/exp OR 'cannabis use'/exp OR 'cannabis'/exp/mj OR 'dronabinol'/exp/mj OR 'medical cannabis'/exp OR 'nabiximols'/exp/mj OR 'tetrahydrocannabinol'/exp/mj OR 'tetrahydrocannabinol':ti,ab,kw OR 'bhang':ti,ab,kw OR 'cannabid*':ti,ab,kw OR 'cannabigerol':ti,ab,kw OR 'cannabin*':ti,ab,kw OR 'cannabis*':ti,ab,kw OR 'cannador':ti,ab,kw OR 'delta 9 tetrahydrocannabinol':ti,ab,kw OR 'dronabinol':ti,ab,kw OR
‘epidiolex’:ti,ab,kw OR ‘epidyolex’:ti,ab,kw OR ‘ganja’:ti,ab,kw OR ‘ganjah’:ti,ab,kw OR ‘hashish’:ti,ab,kw OR ‘hashish oil’:ti,ab,kw OR ‘hashish smoking’:ti,ab,kw OR ‘hemp*’:ti,ab,kw OR ‘herba cannabis’:ti,ab,kw OR ‘marihuana*’:ti,ab,kw OR ‘marijuana*’:ti,ab,kw OR ‘Mariol’:ti,ab,kw OR ‘medical cannabis’:ti,ab,kw OR ‘medical marihuana’:ti,ab,kw OR ‘medical marijuana’:ti,ab,kw OR ‘medicinal cannabis’:ti,ab,kw OR ‘medicinal marijuana’:ti,ab,kw OR ‘mexican marihuana’:ti,ab,kw OR ‘nabidiolex’:ti,ab,kw OR ‘nabiximols’:ti,ab,kw OR ‘sativas’:ti,ab,kw OR ‘sativex’:ti,ab,kw OR ‘syndros’:ti,ab,kw OR ‘tetrahydro cannabino*:ti,ab,kw OR ‘tetrahydrocannabinal*:ti,ab,kw OR ‘tetrahydrocannabinol*:ti,ab,kw OR ‘tetrahydrocannabinol*’:ti,ab,kw OR ‘THC’:ti,ab,kw OR ‘CBD’:ti,ab,kw OR ‘CBC’:ti,ab,kw OR ‘CBG’:ti,ab,kw

AND

‘seizure, epilepsy and convulsion’/exp/mj OR ‘seizure’/exp/mj OR ‘Arx-Related**/:ti,ab,kw OR ‘Benign Familial Infantile Convulsion*’:ti,ab,kw OR ‘convulsion*’:ti,ab,kw OR ‘epilep*:ti,ab,kw OR ‘Fragile X Syndrome’:ti,ab,kw OR ‘Gabapentin’:ti,ab,kw OR ‘Hypoparathyroidism-retardation-dysmorphism syndrome’:ti,ab,kw OR ‘Hypopotnia*’:ti,ab,kw OR ‘Infantile Spasm*’:ti,ab,kw OR ‘Kuzniecky syndrome’:ti,ab,kw OR ‘Lennox Gastaut Syndrome’:ti,ab,kw OR ‘MEHMO syndrome’:ti,ab,kw OR ‘MELAS’:ti,ab,kw OR ‘Mental retardation*’:ti,ab,kw OR ‘Microcephaly*’:ti,ab,kw OR ‘Muller Barth Menger syndrome’:ti,ab,kw OR ‘Neuhauser syndrome’:ti,ab,kw OR ‘Posterior Reversible Encephalopathy’/ti,ab,kw OR ‘Post-Traumatic Epilepsy’:ti,ab,kw OR ‘seizure*’:ti,ab,kw OR ‘SeSAME syndrome’:ti,ab,kw OR ‘Status Epilepticus’:ti,ab,kw OR ‘Stomatin-Deficient Cryohydrocytosis’:ti,ab,kw OR ‘Tranebjaerg Svejgaard syndrome’:ti,ab,kw OR ‘X-linked*’:ti,ab,kw

AND

‘randomized controlled trial’/exp OR ‘controlled clinical trial’/exp OR randomized:ti,ab OR placebo:ti,ab OR ‘drug therapy’:lnk OR randomly:ti,ab OR trial:ti,ab OR groups:ti,ab OR review/it OR meta-analysis/de OR “systematic review”:ti OR “literature review”:ti OR “meta analysis”:ti OR metaanalysis:ti OR metasynthesis:ti

Results: 678

PsycInfo

Search Run: 25 May 2021
Coverage: 2016-present

Limits: Phrase Searching (Boolean); Clinical Case Study, Clinical Trial, Empirical Study, Literature Review, Meta Analysis, Quantitative Study, Treatment Outcome, Twin Study; English; Human

MM “Cannabis” OR MM “Marijuana” OR MM “Marijuana Usage” OR MM “Cannabinoids” OR MM “Tetrahydrocannabinol”) OR TI (“bhang” OR “cannabid*” OR “cannabigerol” OR “cannabin*” OR “cannabis*” OR “cannadore” OR “delta 9 tetrahydrocannabinol” OR “delta tetrahydrocannabinol” OR “Dronabinol” OR “epidiolex” OR “epidyolex” OR “ganja*” OR “ganjah*” OR “hashish*” OR “hemp*” OR “herba cannabis” OR “marihuana*” OR “marijuana*” OR “Marinol” OR “medical cannabis” OR “medical marihuana” OR “medical marijuana” OR “nabidiolex” OR “nabiximols” OR “Sativex” OR “sp 104” OR “syndros” OR “tetrahydrocannabinol*” OR “tetrahydrocannabinol*” OR “Tetrahydrocannabinol*” OR “tetrahydrocannabinol*” OR “tetranabinex” OR “THC” OR “CBC” OR “CBD” OR “CBG”) AB (“bhang” OR “cannabid*” OR “cannabigerol” OR “cannabin*” OR “cannabis*” OR “cannadore” OR “delta 9 tetrahydrocannabinol” OR “delta tetrahydrocannabinol” OR “Dronabinol” OR “epidiolex” OR “epidyolex” OR “ganja*” OR “ganjah*” OR “hashish*” OR “hemp*” OR “herba cannabis” OR “marihuana*” OR “marijuana*” OR “tetrahydrocannabinol*” OR “Tetrahydrocannabinol*” OR “Tetrahydrocannabinol*” OR “tetrahydrocannabinol*” OR “tetranabinex” OR “THC” OR “CBC” OR “CBD” OR “CBG”)
“Marinol” OR “medical cannabis” OR “medical marihuana” OR “medical marijuana” OR “medicinal
cannabis” OR “medicinal marijuana” OR “nabidiolex” OR “nabiximols” OR “Sativex” OR “sp 104” OR
“syndros” OR “tetrahydro cannabinol*” OR “tetrahydrocannabinal*” OR “Tetrahydrocannabinol*”
OR “tetrahydrocannabiol*” OR “tetranabinex” OR “THC” OR “CBC” OR “CBD” OR “CBG”
AND
(MM “Seizures” OR MM “Petit Mal Seizures” OR MM “Grand Mal Seizures” OR MM “Status
Epilepticus” OR MM “Epileptic Seizures” OR MM “Audiogenic Seizures” OR MM “Posterior
Reversible Encephalopathy” OR MM “MELAS” OR MM “Lennox Gastaut Syndrome” OR MM
“Gabapentin” OR MM “Fragile X Syndrome” OR MM “Epilepsy”) OR TI (“Arx-Related*” OR “Benign
Familial Infantile Convulsion*” OR “convulsion*” OR “epilep*” OR “Fragile X Syndrome” OR
“Gabapentin” OR “Hypoparathyroidism-retardation-dysmorphism syndrome” OR “Hypotonia*” OR
“Infantile Spasm*” OR “Kuzniecky syndrome” OR “Lennox Gastaut Syndrome” OR “MEHMO
syndrome” OR “MELAS” OR “Mental retardation*” OR “Microcephaly*” OR “Muller Barth Menger
syndrome” OR “Neuhauser syndrome” OR “Petit Mal Seizures” OR “Posterior Reversible
Encephalopathy” OR “seizure*” OR “SeSAME syndrome” OR “Status Epilepticus” OR “StomatinDeficient Cryohydrocytosis” OR “Tranebjaerg Svejgaard syndrome” OR “X-linked*”) OR AB (“ArxRelated*” OR “Benign Familial Infantile Convulsion*” OR “convulsion*” OR “epilep*” OR “Fragile X
Syndrome” OR “Gabapentin” OR “Hypoparathyroidism-retardation-dysmorphism syndrome” OR
“Hypotonia*” OR “Infantile Spasm*” OR “Kuzniecky syndrome” OR “Lennox Gastaut Syndrome” OR
“MEHMO syndrome” OR “MELAS” OR “Mental retardation*” OR “Microcephaly*” OR “Muller Barth
Menger syndrome” OR “Neuhauser syndrome” OR “Petit Mal Seizures” OR “Posterior Reversible
Encephalopathy” OR “seizure*” OR “SeSAME syndrome” OR “Status Epilepticus” OR “StomatinDeficient Cryohydrocytosis” OR “Tranebjaerg Svejgaard syndrome” OR “X-linked*”)
Results: 127
PubMed
Search Run: 29 May 2021
Coverage: 2016 - present
Limits: English language, Humans
“sativex”[tiab] OR “syndros”[tiab] OR “tetrahydro cannabinol*”[tiab] OR
“tetrahydrocannabinal*”[tiab] OR “Tetrahydrocannabinol*”[tiab] OR “tetrahydrocannabiol*”[tiab]
“cannador”[ot] OR “cardiolrx”[ot] OR “charas”[ot] OR “delta 9 tetrahydrocannabinol”[ot] OR
OR “Marinol”[ot] OR “medical cannabis”[ot] OR “medical marihuana”[ot] OR “medical

313



AND


AND

“Arnold-Chiari Malformation”[Majr] OR “Chiari*”[tiab] OR “Chiari*”[ot]

Results: 329
**Sickle Cell**

**Cochrane**

**Search Run:** 28 April 2021  
**Coverage:** 2016–present  
**Limits:** Sources- CINAHL, Embase, and PubMed

[mh "Cannabis"] OR [mh "Cannabinol"] OR [mh "Cannabinoid"] OR [mh "Marijuana Smoking"] OR [mh “Marijuana Use"] OR [mh "Medical Marijuana"] OR [mh “Dronabinol"] OR (bhang OR cannabid* OR cannabigerol OR cannabin* OR cannabis* OR cannador OR cardiolrx OR charas OR delta 9 tetrahydrocannabinol OR delta 9 trans tetrahydrocannabinol OR Dronabinol OR epidoilex OR epidoilex OR ganja* OR ganjah* OR hashish* OR hemp* OR herba cannabis OR marihuana* OR marijuana* OR Marinal OR medical cannabis OR medical marihuana OR medical marijuana OR medicinal cannabis OR medicinal marijuana OR nabidiolex OR nabiximols OR sativex OR syndros OR tetrahydrocannabinol* OR tetrahydrocannabinol*:ti,ab,kw  
AND
[mh “Anemia, Sickle Cell"] OR (drepanocytemia OR drepanocytic* OR drepanocytosis OR haemoglobin SS* OR Hb SS disease OR Hemoglobin SC Disease OR hemoglobin SS* OR meniscocytosis OR sickle anaemia OR sickle anemia OR Sickle Cell* OR SS disease):ti,ab,kw

**Results:** 2 Reviews, 7 Trials

**Embase**

**Search Run:** 13 May 2021  
**Coverage:** 2016 – present  
**Limits:** Embase; English language; Humans; case control study, clinical article, clinical study, clinical trial, cohort analysis, comparative effectiveness, control group, controlled clinical trial, controlled study, correlational study, cross sectional study, crossover procedure, disease model, double blind procedure, evidence based medicine, human experiment, intention to treat analysis, longitudinal study, major clinical study, medical record review, meta analysis, model, multicenter study (topic), normal human, observational study, open study, phase 2 clinical trial (topic), phase 3 clinical trial (topic), pilot study, population based case control study, prospective study, randomized controlled trial (topic), retrospective study, secondary analysis, systematic review

‘cannabidiol’/exp/mj OR ‘cannabinoid’/exp/mj OR ‘Cannabis sativa’/exp/mj OR ‘cannabis smoking’/exp OR ‘cannabis use’/exp/mj OR ‘cannabis’/exp/mj OR ‘dronabinol’/exp/mj OR ‘medical cannabis’/exp OR ‘nabiximols’/exp/mj OR ‘tetrahydrocannabinol’/exp/mj OR ‘tetrahydrocannabinol’:ti,ab,kw OR ‘bhang’:ti,ab,kw OR ‘cannabid’*:ti,ab,kw OR ‘cannabigerol’:ti,ab,kw OR ‘cannabin’*:ti,ab,kw OR ‘cannador’:ti,ab,kw OR delta 9 tetrahydrocannabinol’:ti,ab,kw OR ‘dronabinol’:ti,ab,kw OR ‘epidoilex’:ti,ab,kw OR ‘epidoilex’:ti,ab,kw OR ‘ganja’*:ti,ab,kw OR ‘ganjah’*:ti,ab,kw OR ‘hashish’*:ti,ab,kw OR ‘hashish oil’*:ti,ab,kw OR ‘hemp’*:ti,ab,kw OR ‘herba cannabis’:ti,ab,kw OR ‘marihuana’*:ti,ab,kw OR ‘marijuana’*:ti,ab,kw OR ‘Marinal’:ti,ab,kw OR ‘medical cannabis’:ti,ab,kw OR ‘medical marihuana’:ti,ab,kw OR ‘medical marijuana’:ti,ab,kw OR ‘medicinal cannabis’:ti,ab,kw OR ‘medicinal marihuana’:ti,ab,kw OR ‘mexican marihuana’:ti,ab,kw OR ‘nabidiolex’:ti,ab,kw OR ‘nabiximols’/exp/mj OR ‘sativex’/ti,ab,kw OR ‘syndros’/ti,ab,kw OR
Results: 40
Results: 0

PubMed

Search Run: 29 May 2021

Coverage: 2016 - present

Limits: English language, Humans


AND


AND

“Arnold-Chiari Malformation”[Majr] OR “Chiari*”[tiab] OR “Chiari*”[ot]

Results: 9
Sjogren's Syndrome

Cochrane

Search Run: 28 April 2021  
Coverage: 2016-present  
Limits: Sources- CINAHL, Embase, and PubMed

[mh "Cannabis"] OR [mh "Cannabinol"] OR [mh "Cannabidiol"] OR [mh "Marijuana Smoking"] OR [mh "Marijuana Use"] OR [mh "Medical Marijuana"] OR [mh "Dronabinol"] OR (bhang OR cannabid* OR cannabigerol OR cannabin* OR cannabidiol* OR cannador OR cardiolrx OR charas OR delta 9 tetrahydrocannabinol OR delta 9 trans tetrahydrocannabinol OR Dronabinol OR epidiolex OR epidyolex OR ganja* OR ganjah* OR hashish* OR hemp* OR herba cannabis OR marihuana* OR marijuana* OR Marinol OR medical cannabis OR medical marihuana OR medical marijuana OR medicinal cannabis OR medicinal marijuana OR nabidiolex OR nabiximols OR sativex OR syndros OR tetrahydrocannabinol* OR tetrahydrocannabinol*:ti,ab,kw 
AND 
[mh "Sjogren's Syndrome"] OR (dacryosialoadenopathia atrophicans OR mucoserous dyssecretosis OR mukilicz radecki syndrome OR oculobuccopharyngeal dryness OR rheumatic sialosis OR sicca syndrome OR sjogren disease OR sjogren syndrome OR sjogren disease OR sjogren syndrome OR sjogren's syndrome OR SS-B antigen):ti,ab,kw

Results: 0 Reviews, 0 Trials

Embase

Search Run: 13 May 2021  
Coverage: 2016 – present  
Limits: Embase; English language; Humans; case control study, clinical article, clinical study, clinical trial, cohort analysis, comparative effectiveness, control group, controlled clinical trial, controlled study, correlative study, cross sectional study, crossover procedure, disease model, double blind procedure, evidence based medicine, human experiment, intention to treat analysis, longitudinal study, major clinical study, medical record review, meta analysis, model, multicenter study (topic), normal human, observational study, open study, phase 2 clinical trial (topic), phase 3 clinical trial (topic), pilot study, population based case control study, prospective study, randomized controlled trial (topic), retrospective study, secondary analysis, systematic review

‘cannabidiol’/exp/mj OR ‘cannabinoid’/exp/mj OR ‘cannabidiol’/exp/mj OR ‘Cannabis sativa’/exp/mj OR ‘cannabis smoking’/exp OR ‘cannabis use’/exp/mj OR ‘cannabis’/exp/mj OR ‘dronabinol’/exp/mj OR ‘medical cannabis’/exp OR ‘nabiximols’/exp/mj OR ‘tetrahydrocannabinol’/exp/mj OR ‘tetrahydrocannabinol’:ti,ab,kw OR ‘bhang’:ti,ab,kw OR ‘cannabinoid*’:ti,ab,kw OR ‘cannabigerol’:ti,ab,kw OR ‘cannabin’:ti,ab,kw OR ‘cannador’:ti,ab,kw OR ‘cannador’/exp/mj OR ‘delta 9 tetrahydrocannabinol’:ti,ab,kw OR ‘dronabinol’:ti,ab,kw OR ‘epidyolex’:ti,ab,kw OR ‘epidyolex’:ti,ab,kw OR ‘ganja’:ti,ab,kw OR ‘ganjah’:ti,ab,kw OR ‘hashish’:ti,ab,kw OR ‘hashish oil’:ti,ab,kw OR ‘hashish smoking’:ti,ab,kw OR ‘hemp*’:ti,ab,kw OR ‘herba cannabis’:ti,ab,kw OR ‘marihuana*’:ti,ab,kw OR ‘marijuana*’:ti,ab,kw OR ‘Marinol’:ti,ab,kw OR ‘medical cannabis’:ti,ab,kw OR ‘medical marihuana’:ti,ab,kw OR ‘medical marijuana’:ti,ab,kw OR ‘medicinal cannabis’:ti,ab,kw OR ‘medicinal marihuana’:ti,ab,kw OR ‘mexican marihuana’:ti,ab,kw OR
'nabidiolex':ti,ab,kw OR 'nabiximols':ti,ab,kw OR 'sativex':ti,ab,kw OR 'syndros':ti,ab,kw OR 'tetrahydro cannabino1*':ti,ab,kw OR 'tetrahydrocannabinol*':ti,ab,kw OR 'tetrahydrocannabinol*':ti,ab,kw OR 'tetrahydrocannabinol*':ti,ab,kw OR 'THC':ti,ab,kw OR 'CBC':ti,ab,kw OR 'CBD':ti,ab,kw OR 'CBG':ti,ab,kw
AND
'sjoegren syndrome'/exp OR 'dacryosialoadenopathia atrophicans':ti,ab,kw OR 'mucoseros dyssecretosis':ti,ab,kw OR 'mukilicz radecki syndrome':ti,ab,kw OR 'oculobuccopharyngeal dryness':ti,ab,kw OR 'rheumatic sialosis':ti,ab,kw OR 'sicca syndrome':ti,ab,kw OR 'sjoegren disease':ti,ab,kw OR 'sjogren syndrome':ti,ab,kw OR 'sjogren syndrome':ti,ab,kw OR 'sjogrens syndrome':ti,ab,kw OR 'SS-B antigen':ti,ab,kw
AND
'randomized controlled trial'/exp OR 'controlled clinical trial'/exp OR randomized:ti,ab OR placebo:ti,ab OR 'drug therapy':lnk OR randomly:ti,ab OR trial:ti,ab OR groups:ti,ab OR review/it OR meta-analysis/de OR "systematic review":ti OR "literature review":ti OR "meta analysis":ti OR metaanalysis:ti OR metasynthesis:ti

Results: 400

PsycInfo

Search Run: 25 May 2021
Coverage: 2016-present

Limits: Phrase Searching (Boolean); Clinical Case Study, Clinical Trial, Empirical Study, Literature Review, Meta Analysis, Quantitative Study, Treatment Outcome, Twin Study; English; Human

MM “Cannabis” OR MM “Marijuana” OR MM “Marijuana Usage” OR MM “Cannabinoids” OR MM “Tetrahydrocannabinol”) OR TI (“bhang” OR “cannabid*” OR “cannabigerol” OR “cannabin*” OR “cannabis*” OR “cannador” OR “delta 9 tetrahydrocannabinol” OR “delta tetrahydrocannabinol” OR “Dronabinol” OR “epidiolex” OR “epidyolex” OR “ganja*” OR “ganjah*” OR “hashish*” OR “hemp*” OR “herba cannabis” OR “marihuana*” OR “marijuana*” OR “Marinol” OR “medical cannabis” OR “medical marihuana” OR “medical marijuana” OR “medicinal cannabis” OR “medicinal marijuana” OR “nabidiolex” OR “nabiximols” OR “Sativex” OR "sp 104" OR “syndros” OR “tetrahydro cannabinol*” OR “tetrahydrocannabinol*” OR “Tetrahydrocannabinol*” OR “tetrahydrocannabinol*” OR “tetranabinex" OR “THC” OR “CBC” OR “CBD” OR “CBG”) OR AB (“bhang” OR “cannabid*” OR “cannabigerol” OR “cannabin*” OR “cannador” OR “delta 9 tetrahydrocannabinol” OR “delta tetrahydrocannabinol” OR “Dronabinol” OR “epidiolex” OR “epidyolex” OR “ganja*” OR “ganjah*” OR “hashish*” OR “hemp*” OR “herba cannabis” OR “marihuana*” OR “marijuana*” OR “Marinol” OR “medical cannabis” OR “medical marihuana” OR “medical marijuana” OR “medicinal cannabis” OR “medicinal marijuana” OR “nabidiolex” OR “nabiximols” OR “Sativex” OR “sp 104” OR “syndros” OR “tetrahydro cannabinol*” OR “tetrahydrocannabinol*” OR “Tetrahydrocannabinol*” OR “tetrahydrocannabinol*” OR “tetranabinex” OR “THC” OR “CBC” OR “CBD” OR “CBG”

AND

TI (“dacryosialoadenopathia atrophicans” OR “mukilicz radecki syndrome” OR “mucoseros dyssecretosis” OR “mukilicz radecki syndrome” OR “oculobuccopharyngeal dryness” OR “rheumatic sialosis” OR “sicca syndrome” OR “sjoegren disease” OR “sjoegren syndrome” OR “sjoegren syndrome” OR “sjoegren’s syndrome” OR “SS-B antigen”) OR AB
“dacryosialoadenopathia atrophicans” OR “mukilicz radecki syndrome” OR “mucoseros dyssecretosis” OR “mukilicz radecki syndrome” OR “oculobuccopharyngeal dryness” OR “rheumatic
sialosis” OR “sicca syndrome” OR “sjoeugen disease” OR “sjoeugen syndrome” OR “sjogren disease” OR “sjogren syndrome” OR “sjogren’s syndrome” OR “SS-B antigen”)

**Results:** 0

PubMed

**Search Run:** 29 May 2021

**Coverage:** 2016 - present

**Limits:** English language, Humans


AND


AND

“Arnold-Chiari Malformation”[Majr] OR “Chiari*”[tiab] OR “Chiari*”[ot]

**Results:** 0
Cochrane

**Search Run:** 29 April 2021  
**Coverage:** 2016-present  
**Limits:** Sources- CINAHL, Embase, and PubMed

\[mh\ "Cannabis"] OR [mh "Cannabino"] OR [mh "Cannabinid"] OR [mh "Marijuana Smoking"] OR [mh "Marijuana Use"] OR [mh "Medical Marijuana"] OR [mh "Dronabinol"] OR (bhang OR cannabid* OR cannabigerol OR cannabis* OR cannabids OR cannabis* OR cannador OR cardiolrx OR charas OR delta 9 tetrahydrocannabinol OR delta 9 trans tetrahydrocannabinol OR Dronabinol OR epidiolex OR epidiyolex OR ganja* OR ganjah* OR hashish* OR hemp* OR herba cannabis OR marihuana* OR marijuana* OR Marinol OR medical cannabis OR medical marihuana OR medical marijuana OR medicinal cannabis OR medicinal marihuana OR nabidiolex OR nabiximols OR sativex OR syndros OR tetrahydro cannabis* OR tetrahydrocannabinol* OR Tetrahydrocannabinol* OR tetrahydrocannabiol*):ti,ab,kw

AND

[mh "Sleep Wake Disorders"] OR [mh "Dyssomnias"] OR [mh "Nocturnal Myoclonus Syndrome"] OR (chronobiology disorders OR dyssomnia* OR Narcolepsy OR Nocturnal Myoclonus Syndrome OR Sleep OR Sleepiness OR Sleepwalking):ti,ab,kw

**Results:** 5 Reviews, 114 Trials

Embase

**Search Run:** 13 May 2021  
**Coverage:** 2016 – present  
**Limits:** Embase; English language; Humans; case control study, clinical article, clinical study, clinical trial, cohort analysis, comparative effectiveness, control group, controlled clinical trial, controlled study, correllational study, cross sectional study, crossover procedure, disease model, double blind procedure, evidence based medicine, human experiment, intention to treat analysis, longitudinal study, major clinical study, medical record review, meta analysis, model, multicenter study (topic), normal human, observational study, open study, phase 2 clinical trial (topic), phase 3 clinical trial (topic), pilot study, population based case control study, prospective study, randomized controlled trial (topic), retrospective study, secondary analysis, systematic review

‘cannabidiol'/exp/mj OR ‘cannabinoid'/exp/mj OR ‘Cannabis sativa'/exp/mj OR ‘cannabis smoking'/exp OR ‘cannabis use'/exp OR ‘cannabis'/exp OR ‘dronabinol'/exp OR ‘medical cannabis'/exp OR ‘nabiximols'/exp/mj OR ‘tetrahydrocannabinol'/exp/mj OR ‘tetrahydrocannabinol':ti,ab,kw OR ‘bhang':ti,ab,kw OR ‘cannabid*':ti,ab,kw OR ‘cannabigerol':ti,ab,kw OR ‘cannabis*':ti,ab,kw OR ‘cannador':ti,ab,kw OR ‘delta 9 tetrahydrocannabinol':ti,ab,kw OR ‘dronabinol':ti,ab,kw OR ‘epidiyolex':ti,ab,kw OR ‘epidoylex':ti,ab,kw OR ‘ganja':ti,ab,kw OR ‘ganjah':ti,ab,kw OR ‘hashish':ti,ab,kw OR ‘hashish oil':ti,ab,kw OR ‘hashish smoking':ti,ab,kw OR ‘hemp*':ti,ab,kw OR ‘herba cannabis':ti,ab,kw OR ‘marihuana*':ti,ab,kw OR ‘marijuana*':ti,ab,kw OR ‘Marinol':ti,ab,kw OR ‘medical cannabis':ti,ab,kw OR ‘medical marihuana':ti,ab,kw OR ‘medical marijuana':ti,ab,kw OR ‘medicinal cannabis':ti,ab,kw OR ‘medicinal marihuana':ti,ab,kw OR ‘mexican marihuana':ti,ab,kw OR ‘nabidiolex':ti,ab,kw OR ‘nabiximols':ti,ab,kw OR ‘sativex':ti,ab,kw OR ‘syndros':ti,ab,kw OR
'tetrahydrocannabinol*':ti,ab,kw OR 'tetrahydrocannabinal*':ti,ab,kw OR 'tetrahydrocannabinol*':ti,ab,kw OR 'tetrahydrocannabinol*':ti,ab,kw OR 'tetrahydrocannabinol*':ti,ab,kw OR 'THC':ti,ab,kw OR 'CBC':ti,ab,kw OR 'CBD':ti,ab,kw OR 'CBG':ti,ab,kw

AND

'sleep disorder'/exp/mj OR 'chronobiology disorders':ti,ab,kw OR 'dyssomnia*':ti,ab,kw OR 'Narcolepsy':ti,ab,kw OR 'Nocturnal Myoclonus Syndrome':ti,ab,kw OR 'Sleep':ti,ab,kw OR 'Sleepiness':ti,ab,kw OR 'Sleepwalking':ti,ab,kw

AND

'randomized controlled trial'/exp OR 'controlled clinical trial'/exp OR randomized:ti,ab OR placebo:ti,ab OR 'drug therapy':lnk OR randomly:ti,ab OR trial:ti,ab OR groups:ti,ab OR review/it OR meta-analysis/de OR "systematic review":ti OR "literature review":ti OR "meta analysis":ti OR metaanalysis:ti OR "meta synthesis":ti

Results: 376

PsycInfo

Search Run: 25 May 2021
Coverage: 2016-present

Limits: Phrase Searching (Boolean); Clinical Case Study, Clinical Trial, Empirical Study, Literature Review, Meta Analysis, Quantitative Study, Treatment Outcome, Twin Study; English; Human

MM "Cannabis" OR MM “Marijuana” OR MM “Marijuana Usage” OR MM “Cannabinoids” OR MM “Tetrahydrocannabinol”) OR TI (“bhang” OR “cannabinoid” OR “cannabinoid” OR “cannabinoid” OR “cannabinoid” OR “dronabinol” OR “epidiolex” OR “epidiolex” OR “ganja” OR “ganja” OR “hashish” OR “hemp” OR “herba cannabis” OR “marihuana” OR “marijuana” OR “Marinol” OR “medical cannabis” OR “medical marihuana” OR “medical marijuana” OR “nabidiolex” OR “nabiximols” OR “Sativex” OR “sp 104” OR “syndros” OR “tetrahydrocannabinol” OR “tetrahydrocannabinol” OR “Tetrahydrocannabinol” OR “tetrahydrocannabinol” OR “tetenabinex” OR “THC” OR “CBC” OR “CBD” OR “CBG”) OR AB (“bhang” OR “cannabinoid” OR “cannabinoid” OR “cannabinoid” OR “cannabinoid” OR “dronabinol” OR “epidiolex” OR “epidiolex” OR “ganja” OR “hashish” OR “hemp” OR “herba cannabis” OR “marihuana” OR “marijuana” OR “Marinol” OR “medical cannabis” OR “medical marihuana” OR “medical marijuana” OR “medicinal cannabis” OR “medical marihuana” OR “medicinal marihuana” OR “nabidiolex” OR “nabiximols” OR “Sativex” OR “sp 104” OR “syndros” OR “tetrahydrocannabinol” OR “Tetrahydrocannabinol” OR “tetrahydrocannabinol” OR “tetenabinex” OR “THC” OR “CBC” OR “CBD” OR “CBG”

AND

(MM “Sleep Treatment” OR MM “Sleep Wake Disorders” OR MM “Sleepiness” OR MM “Sleepwalking” OR DE “Sleep Apnea” OR DE “Sleep Deprivation” OR DE “Sleep” OR DE “Narcolepsy”) OR TI (“chronobiology disorders” OR “dyssomnia*” OR “Narcolepsy” OR “Nocturnal Myoclonus Syndrome” OR “Sleep” OR “Sleepiness” OR “Sleepwalking”) OR AB (“chronobiology disorders” OR “dyssomnia*” OR “Narcolepsy” OR “Nocturnal Myoclonus Syndrome” OR “Sleep” OR “Sleepiness” OR “Sleepwalking”)

Results: 135
Pubmed

Search Run: 29 May 2021

Coverage: 2016 - present

Limits: English language, Humans


AND


AND

“Arnold-Chiari Malformation”[Majr] OR “Chiari*”[tiab] OR “Chiari**”[ot]

Results: 180
Spasmodic Torticollis

Cochrane

**Search Run:** 29 April 2021  
**Coverage:** 2016-present  
**Limits:** Sources- CINAHL, Embase, and PubMed

[mh "Cannabis"] OR [mh "Cannabinol"] OR [mh "Cannabidiol"] OR [mh "Marijuana Smoking"] OR [mh "Marijuana Use"] OR [mh "Medical Marijuana"] OR [mh "Dronabinol"] OR (bhang OR cannabid* OR cannabigerol OR cannabin* OR cannabidiol* OR cannador OR cardiolRx OR charas OR delta 9 tetrahydrocannabinol OR delta 9 trans tetrahydrocannabinol OR Dronabinol OR epidiolox OR epidiolux OR ganja* OR ganjah* OR hashish* OR hemp* OR herba cannabis OR marihuana* OR marijuana* OR Marinol OR medical cannabis OR medical marihuana OR medical marijuana OR medicinal cannabis OR medicinal marijuana OR nabidiolex OR nabiximols OR sativex OR syndros OR tetrahydro cannabino* OR tetrahydrocannabinol* OR Tetrahydrocannabinol* OR tetrahydrocannabiol*):ti,ab,kw

AND

[mh “Torticollis"] OR (cervical dystonia OR anterocollis OR laterocollis OR retrocollis OR torticollis):ti,ab,kw

**Results:** 0 Reviews, 0 Trials

Embase

**Search Run:** 13 May 2021  
**Coverage:** 2016 – present  
**Limits:** Embase; English language; Humans; case control study, clinical article, clinical study, clinical trial, cohort analysis, comparative effectiveness, control group, controlled clinical trial, controlled study, correlational study, cross sectional study, crossover procedure, disease model, double blind procedure, evidence based medicine, human experiment, intention to treat analysis, longitudinal study, major clinical study, medical record review, meta analysis, model, multicenter study (topic), normal human, observational study, open study, phase 2 clinical trial (topic), phase 3 clinical trial (topic), pilot study, population based case control study, prospective study, randomized controlled trial (topic), retrospective study, secondary analysis, systematic review

‘cannabidiol'/exp/mj OR 'cannabinoid'/exp/mj OR 'cannabinol'/exp/mj OR 'Cannabis sativa'/exp/mj OR 'cannabis smoking'/exp OR 'cannabis use'/exp OR 'cannabis'/exp OR 'dronabinol'/exp/mj OR 'medical cannabis'/exp OR 'nabiximols'/exp/mj OR 'tetrahydrocannabinol'/exp/mj OR 'tetrahydrocannabinol':ti,ab,kw OR 'bhang':ti,ab,kw OR 'cannabid*':ti,ab,kw OR 'cannabigerol':ti,ab,kw OR 'cannabin*':ti,ab,kw OR 'cannabin':ti,ab,kw OR 'cannador':ti,ab,kw OR 'delta 9 tetrahydrocannabinol':ti,ab,kw OR 'dronabinol':ti,ab,kw OR 'epidiolox':ti,ab,kw OR 'epidiolux':ti,ab,kw OR 'ganja':ti,ab,kw OR 'ganjah':ti,ab,kw OR 'hashish':ti,ab,kw OR 'hashish oil':ti,ab,kw OR 'hashish smoking':ti,ab,kw OR 'hemp*':ti,ab,kw OR 'herba cannabis':ti,ab,kw OR 'marihuana*':ti,ab,kw OR 'marijuana*':ti,ab,kw OR 'Marinol':ti,ab,kw OR 'medical cannabis':ti,ab,kw OR 'medical marihuana':ti,ab,kw OR 'medical marijuana':ti,ab,kw OR 'medicinal cannabis':ti,ab,kw OR 'medicinal marijuana':ti,ab,kw OR 'mexican marihuana':ti,ab,kw OR 'nabidiolex':ti,ab,kw OR 'nabiximols':ti,ab,kw OR 'sativex':ti,ab,kw OR 'syndros':ti,ab,kw OR 'tetrahydro cannabino*':ti,ab,kw OR 'tetrahydrocannabinol*':ti,ab,kw OR
tetrahydrocannabinol*:ti,ab,kw OR 'tetrahydrocannabiol*:ti,ab,kw OR 'THC':ti,ab,kw OR 'CBC':ti,ab,kw OR 'CBD':ti,ab,kw OR 'CBG':ti,ab,kw

AND

cervical dystonia'/exp/mj 'cervical dystonia':ti,ab,kw OR 'anterocollis':ti,ab,kw OR 'laterocollis':ti,ab,kw OR 'retrocollis':ti,ab,kw OR 'torticollis':ti,ab,kw

AND

'reandomized controlled trial'/exp OR 'controlled clinical trial'/exp OR randomized:ti,ab OR placebo:ti,ab OR 'drug therapy':lnk OR randomly:ti,ab OR trial:ti,ab OR groups:ti,ab OR review/it OR meta-analysis/de OR "systematic review":ti OR "literature review":ti OR "meta analysis":ti OR metaanalysis:ti OR metasynthesis:ti

Results: 2

PsycInfo

Search Run: 25 May 2021
Coverage: 2016-present

Limits: Phrase Searching (Boolean); Clinical Case Study, Clinical Trial, Empirical Study, Literature Review, Meta Analysis, Quantitative Study, Treatment Outcome, Twin Study; English; Human

MM “Cannabis” OR MM “Marijuana” OR MM “Marijuana Usage” OR MM “Cannabinoids” OR MM “Tetrahydrocannabinol”) OR TI ("bhang" OR "cannabid*" OR "cannabigerol" OR "cannabin*" OR "cannabis*" OR "cannador" OR "delta 9 tetrahydrocannabinol" OR "delta tetrahydrocannabinol" OR "Dronabinol" OR "epidiolex" OR "epidyolex" OR "ganja*" OR "ganjah*" OR "hashish*" OR "hemp*" OR "herba cannabis" OR "marihuana*" OR "marijuana*" OR "Marinol" OR "medical cannabis" OR "medical marihuana" OR "medical marijuana" OR "medicinal cannabis" OR "medicinal marijuana" OR "nabidiolex" OR "nabiximols" OR "Sativex" OR "sp 104" OR "syndros" OR "tetrahydrocannabinol*" OR "tetrahydrocannabinal*" OR "Tetrahydrocannabinol*" OR "tetrahydrocannabinol*" OR "tetrahydrocannabinal*" OR "Tetrahydrocannabinol*" OR "tetrahydrocannabiol*" OR "tetranabinex" OR "THC" OR "CBC" OR "CBD" OR "CBG") OR AB ("bhang" OR "cannabid*" OR "cannabigerol" OR "cannbin*" OR "cannador" OR "delta 9 tetrahydrocannabinol" OR "delta tetrahydrocannabinol" OR "Dronabinol" OR "epidiolex" OR "epidyolex" OR "ganja*" OR "ganjah*" OR "hashish*" OR "hemp*" OR "herba cannabis" OR "marihuana*" OR "marijuana*" OR "Marinol" OR "medical cannabis" OR "medical marihuana" OR "medical marijuana" OR "medicinal cannabis" OR "medicinal marijuana" OR "nabidiolex" OR "nabiximols" OR "Sativex" OR "sp 104" OR "syndros" OR "tetrahydrocannabinol*" OR "tetrahydrocannabinal*" OR "Tetrahydrocannabinol*" OR "tetrahydrocannabinol*" OR "tetrahydrocannabiol*" OR "tetranabinex" OR "THC" OR "CBC" OR "CBD" OR "CBG")

AND

(MM “Torticollis”) OR TI ("cervical dystonia" OR “anterocollis” OR “laterocollis” OR “retrocollis” OR “torticollis”) OR AB ("cervical dystonia" OR “anterocollis” OR “laterocollis” OR “retrocollis” OR “torticollis”)

Results: 0

PubMed

Search Run: 29 May 2021
Coverage: 2016 - present
Limits: English language, Humans


AND


AND

“Arnold-Chiari Malformation”[Majr] OR “Chiari*”[tiab] OR “Chiari*”[ot]

Results: 0
Spinal Cord Injury, Spinal Muscular Atrophy, and Spinal stenosis

Cochrane

Search Run: 29 April 2021
Coverage: 2016–present

Limits: Sources- CINAHL, Embase, and PubMed

[mh "Cannabis"] OR [mh "Cannabinol"] OR [mh "Cannabidiol"] OR [mh "Marijuana Smoking"] OR [mh "Marijuana Use"] OR [mh "Medical Marijuana"] OR [mh "Dronabinol"] OR (bhang OR cannabid* OR canabigerol OR cannabin* OR cannabis* OR cannador OR cardiolrx OR charas OR delta 9 tetrahydrocannabinol OR delta 9 trans tetrahydrocannabinol OR Dronabinol OR epidoylex OR epidyolex OR ganja* OR ganjha* OR hashish* OR hemp* OR herba cannabis OR marihuana* OR marijuana* OR Marinol OR medical cannabis OR medical marihuana OR medical marijuana OR medicinal cannabis OR medicinal marijuana OR nabidiolex OR nabiximols OR sativex OR syndros OR tetrahydro cannabinol* OR tetrahydrocannabinol* OR Tetrahydrocannabinol* OR tetrahydrocannabiol*):ti,ab,kw

AND

[mh "Spinal Cord Injuries"] OR (cervical cord injury OR cervical cord lesion OR cervical spinal cord trauma OR cervical spinal stenosis OR cervical spinal cord lesion OR cervical spine stenosis OR Muscular Atrophy OR spinal canal stenosis OR spinal cord injuries OR spinal cord injury OR spinal cord trauma OR spinal stenosis OR stenosis canalis spinalis OR stenosis canalis vertebralis OR vertebral canal stenosis OR Williams Syndrome):ti,ab,kw

Results: 1 Reviews, 4 Trials

Embase

Search Run: 13 May 2021
Coverage: 2016 – present

Limits: Embase; English language; Humans; case control study, clinical article, clinical study, clinical trial, cohort analysis, comparative effectiveness, control group, controlled clinical trial, controlled study, correlative study, cross sectional study, crossover procedure, disease model, double blind procedure, evidence based medicine, human experiment, intention to treat analysis, longitudinal study, major clinical study, medical record review, meta analysis, model, multicenter study (topic), normal human, observational study, open study, phase 2 clinical trial (topic), phase 3 clinical trial (topic), pilot study, population based case control study, prospective study, randomized controlled trial (topic), retrospective study, secondary analysis, systematic review

‘cannabidiol'/exp/mj OR ‘cannabinoid'/exp/mj OR ‘cannabinol'/exp/mj OR ‘Cannabis sativa'/exp/mj OR ‘cannabis smoking'/exp OR ‘cannabis use'/exp/mj OR ‘cannabis'/exp/mj OR ‘dronabinol'/exp/mj OR ‘medical cannabis'/exp OR ‘nabiximols'/exp/mj OR ‘tetrahydrocannabinol'/exp/mj OR ‘tetrahydrocannabinol':ti,ab,kw OR ‘bhang’:ti,ab,kw OR ‘cannabidiol*:ti,ab,kw OR ‘cannabigerol*:ti,ab,kw OR ‘cannabin*:ti,ab,kw OR ‘cannabis*:ti,ab,kw OR ‘cannador*:ti,ab,kw OR ‘delta 9 tetrahydrocannabinol*:ti,ab,kw OR ‘dronabinol*:ti,ab,kw OR ‘epidoylex*:ti,ab,kw OR ‘epidyolex*:ti,ab,kw OR ‘ganja*:ti,ab,kw OR ‘ganjha*:ti,ab,kw OR ‘hashish*:ti,ab,kw OR ‘hashish oil*:ti,ab,kw OR ‘hashish smoking*:ti,ab,kw OR ‘hemp*:ti,ab,kw OR ‘herba cannabis*:ti,ab,kw OR ‘marihuana*:ti,ab,kw OR ‘marijuana*:ti,ab,kw OR ‘Marinol*:ti,ab,kw OR ‘medical cannabis*:ti,ab,kw OR ‘medical marihuana*:ti,ab,kw OR ‘medical marijuana*:ti,ab,kw OR
Results: 37
lesion” OR “cervical spine stenosis” OR “Muscular Atrophy” OR “spinal cord injuries” OR “spinal cord injury” OR “spinal cord trauma” OR “spinal stenosis” OR “stenosis canalis spinalis” OR “stenosis canalis vertebralis” OR “vertebral canal stenosis” OR “Williams Syndrome”) OR AB (“cervical cord injury” OR “cervical cord lesion” OR “cervical spinal cord trauma” OR “cervical spinal stenosis” OR “cervical spine stenosis” OR “Muscular Atrophy” OR “spinal canal stenosis” OR “spinal cord injuries” OR “spinal cord injury” OR “spinal cord trauma” OR “spinal stenosis” OR “stenosis canalis spinalis” OR “stenosis canalis vertebralis” OR “vertebral canal stenosis” OR “Williams Syndrome”)

Results: 8

PubMed

Search Run: 29 May 2021

Coverage: 2016 - present

Limits: English language, Humans


AND


AND

“Arnold-Chiari Malformation”[Majr] OR “Chiari*”[tiab] OR “Chiari*”[ot]

Results: 19
Superior Canal Dehiscence Syndrome

Cochrane

**Search Run:** 29 April 2021  
**Coverage:** 2016–present  
**Limits:** Sources- CINAHL, Embase, and PubMed

[mh "Cannabis"] OR [mh "Cannabidiol"] OR [mh "Marijuana Smoking"] OR [mh "Marijuana Use"] OR [mh "Medical Marijuana"] OR [mh "Dronabinol"] OR (bhang OR cannabid* OR cannabigerol OR cannabin* OR cannabina* OR cannador OR cardiolrx OR charas OR delta 9 tetrahydrocannabinol OR delta 9 trans tetrahydrocannabinol OR Dronabinol OR epidiolox OR epidiylex OR ganja* OR ganjah* OR hashish* OR hemp* OR herba cannabis OR marihuana* OR Marinol OR medical cannabis OR medical marihuana OR medical marijuana OR medicinal cannabis OR medicinal marijuana OR nabidiolex OR nabiximols OR sativex OR syndros OR tetrahydro cannabino* OR tetrahydrocannabal* OR Tetrahydrocannabinol* OR tetrahydrocannabiol*):ti,ab,kw

AND

[mh "Semicircular Canal Dehiscence"] OR (superior canal dehiscence* OR Semicircular Canal Dehiscence*):ti,ab,kw

**Results:** 0 Reviews, 0 Trials

Embase

**Search Run:** 13 May 2021  
**Coverage:** 2016 – present  
**Limits:** Embase; English language; Humans; case control study, clinical article, clinical study, clinical trial, cohort analysis, comparative effectiveness, control group, controlled clinical trial, controlled study, correlative analysis, cross sectional study, crossover procedure, disease model, double blind procedure, evidence based medicine, human experiment, intention to treat analysis, longitudinal study, major clinical study, medical record review, meta analysis, model, multicenter study (topic), normal human, observational study, open study, phase 2 clinical trial (topic), phase 3 clinical trial (topic), pilot study, population based case control study, prospective study, randomized controlled trial (topic), retrospective study, secondary analysis, systematic review

‘cannabidiol’/exp/mj OR ‘cannabinoid’/exp/mj OR ‘cannabinol’/exp/mj OR ‘Cannabis sativa’/exp/mj OR ‘cannabis smoking’/exp OR ‘cannabis use’/exp/mj OR ‘cannabis’/exp/mj OR ‘dronabinol’/exp/mj OR ‘medical cannabis’/exp OR ‘nabiximols’/exp/mj OR ‘tetrahydrocannabinol’/exp/mj OR ‘tetrahydrocannabinol’:ti,ab,kw OR ‘bhang’:ti,ab,kw OR ‘cannabid*’:ti,ab,kw OR ‘cannabigerol’:ti,ab,kw OR ‘cannabin*’:ti,ab,kw OR ‘cannador’:ti,ab,kw OR ‘delta 9 tetrahydrocannabinol’:ti,ab,kw OR ‘dronabinol’:ti,ab,kw OR ‘epidiolox’:ti,ab,kw OR ‘epidyolex’:ti,ab,kw OR ‘ganja’:ti,ab,kw OR ‘ganjah’:ti,ab,kw OR ‘hashish’:ti,ab,kw OR ‘hashish oil’:ti,ab,kw OR ‘hashish smoking’:ti,ab,kw OR ‘hemp*’:ti,ab,kw OR ‘herba cannabis’:ti,ab,kw OR ‘marihuana*’:ti,ab,kw OR ‘marijuana*’:ti,ab,kw OR ‘Marinol’:ti,ab,kw OR ‘medical cannabis’:ti,ab,kw OR ‘medical marihuana’:ti,ab,kw OR ‘medical marijuana’:ti,ab,kw OR ‘medicinal cannabis’:ti,ab,kw OR ‘medicinal marijuana’:ti,ab,kw OR ‘mexican marihuana’:ti,ab,kw OR ‘nabidiolex’:ti,ab,kw OR ‘nabiximols’:ti,ab,kw OR ‘sativex’:ti,ab,kw OR ‘syndros’:ti,ab,kw OR ‘tetrahydro cannabino*’:ti,ab,kw OR ‘tetrahydrocannabial*’:ti,ab,kw OR
'tetrahydrocannabinol*':ti,ab,kw OR 'tetrahydrocannabinol*':ti,ab,kw OR 'THC':ti,ab,kw OR 'CBC':ti,ab,kw OR 'CBD':ti,ab,kw OR 'CBG':ti,ab,kw
AND
'superior canal dehiscence syndrome'/exp/mj OR 'superior canal dehiscence*':ti,ab,kw OR 'Semicircular Canal Dehiscence*':ti,ab,kw OR '{semicircular canal AND dehiscence}':ti,ab,kw
AND
'randomized controlled trial'/exp OR 'controlled clinical trial'/exp OR randomized:ti,ab OR placebo:ti,ab OR 'drug therapy':lnk OR randomly:ti,ab OR trial:ti,ab OR groups:ti,ab OR review/it OR meta-analysis/de OR "systematic review":ti OR "literature review":ti OR "meta analysis":ti OR metaanalysis:ti OR metasynthesis:ti

Results: 0

PsycInfo

Search Run: 25 May 2021
Coverage: 2016-present

Limits: Phrase Searching (Boolean); Clinical Case Study, Clinical Trial, Empirical Study, Literature Review, Meta Analysis, Quantitative Study, Treatment Outcome, Twin Study; English; Human

MM "Cannabis" OR MM "Marijuana" OR MM "Marijuana Usage" OR MM "Cannabinoids" OR MM "Tetrahydrocannabinol") OR TI ("bhang" OR "cannabid*" OR "cannabigerol" OR "cannabin*" OR "cannabis*" OR "cannador" OR "delta 9 tetrahydrocannabinol" OR "delta tetrahydrocannabinol" OR "Dronabinol" OR "epidiolex" OR "epidyolex" OR "ganja*" OR "ganja*" OR "hashish*" OR "hemp*" OR "herba cannabis" OR "marihuana*" OR "marijuana*" OR "Marinol" OR "medical cannabis" OR "medical marihuana" OR "medical marijuana" OR "medicinal cannabis" OR "medicinal marijuana" OR "nabidiolex" OR "nabiximols" OR "Sativex" OR "sp 104" OR "syndros" OR "tetrahydrocannabinol*" OR "tetrahydrocannabinol*" OR "Tetrahydrocannabinol*" OR "tetrahydrocannabinol" OR "tetranabinex" OR "THC" OR "CBC" OR "CBD" OR "CBG") OR AB ("bhang" OR "cannabid*" OR "cannabigerol" OR "cannabin*" OR "cannador" OR "delta 9 tetrahydrocannabinol" OR "delta tetrahydrocannabinol" OR "Dronabinol" OR "epidiolex" OR "epidyolex" OR "ganja*" OR "ganja*" OR "hashish*" OR "hemp*" OR "herba cannabis" OR "marihuana*" OR "marijuana*" OR "Marinol" OR "medical cannabis" OR "medical marihuana" OR "medical marijuana" OR "medicinal cannabis" OR "medicinal marijuana" OR "nabidiolex" OR "nabiximols" OR "Sativex" OR "sp 104" OR "syndros" OR "tetrahydrocannabinol*" OR "tetrahydrocannabinol*" OR "Tetrahydrocannabinol*" OR "tetrahydrocannabinol" OR "tetranabinex" OR "THC" OR "CBC" OR "CBD" OR "CBG")
AND
TI ("superior canal dehiscence*" OR "Semicircular Canal Dehiscence*") OR AB ("superior canal dehiscence*" OR "Semicircular Canal Dehiscence*")

Results: 0

PubMed

Search Run: 29 May 2021
Coverage: 2016 - present
Limits: English language, Humans

AND


AND

“Arnold-Chiari Malformation”[Majr] OR “Chiari*”[tiab] OR “Chiari*”[ot]

Results: 0
Syringomyelia

Cochrane

**Search Run:** 29 April 2021  
**Coverage:** 2016–present

**Limits:** Sources- CINAHL, Embase, and PubMed

[mh "Cannabis"] OR [mh "Cannabino"] OR [mh "Cannabidiol"] OR [mh "Marijuana Smoking"] OR [mh “Marijuana Use"] OR [mh “Medical Marijuana"] OR [mh “Dronabinol"] OR (bhang OR cannabid* OR cannabigerol OR cannabin* OR cannabis* OR cannador OR cardiolrx OR charas OR delta 9 tetrahydrocannabinol OR delta 9 trans tetrahydrocannabinol OR Dronabinol OR epidiolex OR epidoylex OR ganja* OR ganjah* OR hashish* OR hemp* OR herba cannabis OR marihuana* OR marijuana* OR Marinol OR medical cannabis OR medical marihuana OR medical marijuana OR medicinal cannabis OR medicinal marihuana OR nabidiolex OR nabiximols OR sativex OR syndros OR tetrahydro cannabino* OR tetrahydrocannabinol* OR Tetrahydrocannabinol* OR tetrahydrocannabinol*:ti,ab,kw

AND

[mh “Syringomyelia”] OR [Chiari* OR Isolated Syringomyel* OR myelosyringosis OR syringohydromyel* OR syringomyel* OR Morvan Disease* OR Morvan's Disease* OR Morvans Disease*:ti,ab,kw

**Results:** 0 Reviews, 0 Trials

Embase

**Search Run:** 13 May 2021  
**Coverage:** 2016 – present

**Limits:** Embase; English language; Humans; case control study, clinical article, clinical study, clinical trial, cohort analysis, comparative effectiveness, control group, controlled clinical trial, controlled study, correlative study, cross sectional study, crossover procedure, disease model, double blind procedure, evidence based medicine, human experiment, intention to treat analysis, longitudinal study, major clinical study, medical record review, meta analysis, model, multicenter study (topic), normal human, observational study, open study, phase 2 clinical trial (topic), phase 3 clinical trial (topic), pilot study, population based case control study, prospective study, randomized controlled trial (topic), retrospective study, secondary analysis, systematic review

‘cannabidiol’/exp/mj OR ‘cannabinoid’/exp/mj OR ‘Cannabis sativa’/exp/mj OR ‘cannabis smoking’/exp OR ‘cannabis use’/exp/mj OR ‘cannabis’/exp/mj OR ‘dronabinol’/exp/mj OR ‘medical cannabino’/exp OR ‘nabiximols’/exp/mj OR ‘tetrahydrocannabinol’/exp/mj OR ‘tetrahydrocannabinol’:ti,ab,kw OR ‘bhang’:ti,ab,kw OR ‘cannabid’*:ti,ab,kw OR ‘cannabigerol’:ti,ab,kw OR ‘cannabin’*:ti,ab,kw OR ‘cannador’:ti,ab,kw OR ‘delta 9 tetrahydrocannabinol’:ti,ab,kw OR ‘dronabinol’:ti,ab,kw OR ‘epidiolex’:ti,ab,kw OR ‘epidoylex’:ti,ab,kw OR ‘ganja’:ti,ab,kw OR ‘ganjah’:ti,ab,kw OR ‘hashish’:ti,ab,kw OR ‘hashish oil’:ti,ab,kw OR ‘hashish smoking’:ti,ab,kw OR ‘hemp’*:ti,ab,kw OR ‘herba cannabis’:ti,ab,kw OR ‘marihuana’*:ti,ab,kw OR ‘marijuana’*:ti,ab,kw OR ‘Marinol’:ti,ab,kw OR ‘medical cannabis’:ti,ab,kw OR ‘medical marihuana’:ti,ab,kw OR ‘medical marijuana’:ti,ab,kw OR ‘medicinal cannabis’:ti,ab,kw OR ‘medicinal marihuana’:ti,ab,kw OR ‘mexican marihuana’:ti,ab,kw OR ‘nabidiolex’:ti,ab,kw OR ‘nabiximols’:ti,ab,kw OR ‘sativex’:ti,ab,kw OR ‘syndros’:ti,ab,kw OR
PsycInfo

Search Run: 25 May 2021
Coverage: 2016-present

Limits: Phrase Searching (Boolean); Clinical Case Study, Clinical Trial, Empirical Study, Literature Review, Meta Analysis, Quantitative Study, Treatment Outcome, Twin Study; English; Human

MM "Cannabis" OR MM "Marijuana" OR MM "Marijuana Usage" OR MM "Cannabinoids" OR MM "Tetrahydrocannabinol" OR TI ("bhang" OR "cannabidiol" OR "cannabigerol" OR "cannabinol" OR "cannabis" OR "cannador" OR "delta 9 tetrahydrocannabinol" OR "delta tetrahydrocannabinol" OR "Dronabinol" OR "epidiolex" OR "epidyolex" OR "ganja" OR "ganjah" OR "hashish" OR "hemp" OR "herba cannabis" OR "marihuana" OR "marijuana" OR "Marinol" OR "medical cannabis" OR "medical marihuana" OR "medical marijuana" OR "marihuana" OR "marijuana" OR "Marinol" OR "medical cannabis" OR "medical marihuana" OR "medical marijuana" OR "marihuana" OR "marijuana" OR "Marinol" OR "medical cannabis" OR "medical marihuana" OR "medical marijuana" OR "marihuana" OR "marijuana" OR "Marinol" OR "medical cannabis" OR "medical marihuana" OR "medical marijuana" OR "marihuana" OR "marijuana"

AND

TI ("Chiari" OR "Isolated Syringomyel" OR "myelosyringosis" OR "syringohydromyel" OR "syringomyle" OR "Morvan Disease" OR "Morvan's Disease") OR AB ("Chiari" OR "Isolated Syringomyel" OR "myelosyringosis" OR "syringohydromyel" OR "syringomyel" OR "Morvan Disease" OR "Morvan's Disease")

Results: 0
Search Run: 29 May 2021

Coverage: 2016 - present

Limits: English language, Humans


"Arnold-Chiari Malformation"[Majr] OR "Chiari*[tiab] OR "Chiari*[ot] Results: 1
Tarlov Cysts

Cochrane

Search Run: 29 April 2021
Coverage: 2016-present

Limits: Sources- CINAHL, Embase, and PubMed

[mh "Cannabis"] OR [mh "Cannabinol"] OR [mh "Cannabinoid"] OR [mh "Marijuana Smoking"] OR [mh "Marijuana Use"] OR [mh "Medical Marijuana"] OR [mh "Dronabinol"] OR (bhang OR cannabid* OR cannabigerol OR cannabin* OR cannabins* OR cannador OR cardiolrx OR charas OR delta 9 tetrahydrocannabinol OR delta 9 trans tetrahydrocannabinol OR Dronabinol OR epidiolex OR epidiyolex OR ganja* OR ganjah* OR hashish* OR hemp* OR herba cannabis OR marihuana* OR marijuana* OR Marinol OR medical cannabis OR medical marihuana OR medical marijuana OR medicinal cannabis OR medicinal marihuana OR nabidiolex OR nabiximols OR sativex OR syndros OR tetrahydro cannabino* OR tetrahydrocannabinol* OR Tetrahydrocannabinol*:ti,ab,kw

AND

[mh “Tarlov cysts"] OR (Tarlov Cyst* OR nerve root cyst* OR perineural cyst* OR perineurial cyst* OR Tarlov's cyst*):ti,ab,kw

Results: 0 Reviews, 0 Trials

Embase

Search Run: 13 May 2021
Coverage: 2016 – present

Limits: Embase; English language; Humans; case control study, clinical article, clinical study, clinical trial, cohort analysis, comparative effectiveness, control group, controlled clinical trial, controlled study, correlational study, cross sectional study, crossover procedure, disease model, double blind procedure, evidence based medicine, human experiment, intention to treat analysis, longitudinal study, major clinical study, medical record review, meta analysis, model, multicenter study (topic), normal human, observational study, open study, phase 2 clinical trial (topic), phase 3 clinical trial (topic), pilot study, population based case control study, prospective study, randomized controlled trial (topic), retrospective study, secondary analysis, systematic review

‘cannabidiol'/exp/mj OR 'cannabinoid'/exp/mj OR 'cannabinol'/exp/mj OR 'Cannabis sativa'/exp/mj OR 'cannabis smoking'/exp OR 'cannabis use'/exp OR 'cannabis'/exp OR 'dronabinol'/exp/mj OR 'medical cannabis'/exp OR 'nabiximols'/exp/mj OR 'tetrahydrocannabinol'/exp/mj OR 'delta 9 tetrahydrocannabinol':ti,ab,kw OR 'bhang':ti,ab,kw OR 'cannabidiol':ti,ab,kw OR 'cannabinoid':ti,ab,kw OR 'cannabinol':ti,ab,kw OR 'cannabis sativa':ti,ab,kw OR 'cannabis smoking':ti,ab,kw OR 'cannabis use':ti,ab,kw OR 'cannabis':ti,ab,kw OR 'dronabinol':ti,ab,kw OR 'medical cannabis':ti,ab,kw OR 'nabiximols':ti,ab,kw OR 'tetrahydrocannabinol':ti,ab,kw OR 'delta 9 tetrahydrocannabinol':ti,ab,kw OR 'bhang':ti,ab,kw OR 'cannabidiol':ti,ab,kw OR 'cannabinoid':ti,ab,kw OR 'cannabinol':ti,ab,kw OR 'cannabis sativa':ti,ab,kw OR 'cannabis smoking':ti,ab,kw OR 'cannabis use':ti,ab,kw OR 'cannabis':ti,ab,kw OR 'dronabinol':ti,ab,kw OR 'medical cannabis':ti,ab,kw OR 'nabiximols':ti,ab,kw OR 'tetrahydrocannabinol':ti,ab,kw OR 'delta 9 tetrahydrocannabinol':ti,ab,kw OR 'bhang':ti,ab,kw
'tetrahydrocannabinol*':ti,ab,kw OR 'tetrahydrocannabiol*':ti,ab,kw OR 'THC':ti,ab,kw OR 'CBC':ti,ab,kw OR 'CBD':ti,ab,kw OR 'CBG':ti,ab,kw

AND

'Tarlov cyst/exp/mj' OR 'Tarlov Cyst*':ti,ab,kw OR 'nerve root cyst*':ti,ab,kw OR 'perineural cyst*':ti,ab,kw OR 'perineurial cyst*':ti,ab,kw OR 'Tarlov's cyst*':ti,ab,kw

AND

'randomized controlled trial'/exp OR 'controlled clinical trial'/exp OR randomized:ti,ab OR placebo:ti,ab OR 'drug therapy':lnk OR randomly:ti,ab OR trial:ti,ab OR groups:ti,ab OR review:it OR meta-analysis/de OR "systematic review":ti OR "literature review":ti OR "meta analysis":ti OR metaanalysis:ti OR "literature review":ti

Results: 0

PsycInfo

Search Run: 25 May 2021
Coverage: 2016-present

Limits: Phrase Searching (Boolean); Clinical Case Study, Clinical Trial, Empirical Study, Literature Review, Meta Analysis, Quantitative Study, Treatment Outcome, Twin Study; English; Human

MM "Cannabis" OR MM "Marijuana" OR MM "Marijuana Usage" OR MM "Cannabinoids" OR MM "Tetrahydrocannabinol") OR TI ("bhang" OR "cannabin*" OR "cannabigerol" OR "cannabin*" OR "cannabis"* OR "cannador" OR "delta 9 tetrahydrocannabinol" OR "delta tetrahydrocannabinol" OR "Dronabinol" OR "epidiolex" OR "epidyolex" OR "ganja"* OR "ganjah"* OR "hashish"* OR "hemp"* OR "herba cannabis" OR "marihuana"* OR "marijuana"* OR "Marinol" OR "medical cannabis" OR "medical marihuana" OR "medical marijuana" OR "medicinal cannabis" OR "medical marijuana" OR "nabidiolex" OR "nabiximols" OR "Sativex" OR “sp 104” OR "syndros" OR "tetrahydro cannabino*l"* OR "tetrahydrocannabinal"* OR "Tetrahydrocannabinol"* OR "tetrahydrocannabinol*" OR "tetranabinex" OR "THC" OR "CBC" OR "CBD" OR "CBG") OR AB ("bhang" OR "cannabinid"* OR "cannabin*" OR "cannal*" OR "cannador" OR "delta 9 tetrahydrocannabinol" OR "delta tetrahydrocannabinol" OR "Dronabinol" OR "epidiolex" OR "epidyolex" OR "ganja"* OR "ganjah"* OR "hashish"* OR "hemp"* OR "herba cannabis" OR "marihuana"* OR "marijuana"* OR "Marinol" OR "medical cannabis" OR "medical marihuana" OR "medical marijuana" OR "medicinal cannabis" OR "medicinal marihuana" OR "nabidiolex" OR "nabiximols" OR "Sativex" OR "sp 104" OR "syndros" OR "tetrahydro cannabino*l"* OR "tetrahydrocannabinal"* OR "Tetrahydrocannabinol"* OR "tetrahydrocannabinol*" OR "tetranabinex" OR "THC" OR "CBC" OR "CBD" OR "CBG"

AND

TI ("Tarlov Cyst*" OR "nerve root cyst*" OR "perineural cyst*" OR "perineurial cyst*" OR "Tarlov's cyst*") OR AB ("Tarlov Cyst*" OR "nerve root cyst*" OR "perineural cyst*" OR "perineurial cyst*" OR "Tarlov's cyst*")

Results: 0

PubMed

Search Run: 29 May 2021
Coverage: 2016 - present
**Limits:** English language, Humans


AND


AND

"Arnold-Chiari Malformation"[Majr] OR "Chiari*"[tiab] OR "Chiari*"[ot]

**Results:** 0
**Tourette's Syndrome**

Cochrane

**Search Run:** 29 April 2021  
**Coverage:** 2016-present  
**Limits:** Sources- CINAHL, Embase, and PubMed

[mh "Cannabis"] OR [mh "Cannabinol"] OR [mh "Cannabinol"] OR [mh "Marijuana Smoking"] OR [mh "Marijuana Use"] OR [mh "Medical Marijuana"] OR [mh "Dronabinol"] OR (bhang OR cannabid* OR cannabigerol OR cannabin* OR cannabis* OR cannador OR cardiolrx OR charas OR delta 9 tetrahydrocannabinol OR delta 9 trans tetrahydrocannabinol OR Dronabinol OR epidiolex OR epityolex OR ganja* OR ganjah* OR hashish* OR hemp* OR herba cannabis OR marihuana* OR marujuana* OR Marinol OR medical cannabis OR medical marihuana OR medical marijuana OR medicinal cannabis OR medicinal marijuana OR nabidiolex OR nabiximols OR sativex OR syndros OR tetrahydro cannabino* OR tetrahydrocannabinol* OR Tetrahydrocannabinol*:ti,ab,kw

AND

[mh “Tourette Syndrome”] OR (Echolalia OR Tourette disease OR tourettes disease OR Tourette’s disease OR Tourette Syndrome OR Tourettes syndrome OR Tourette’s syndrome OR Tourette Disorder OR Tourettes Disorder OR Tourette’s Disorder OR Chronic Motor and Vocal Tic Disorder):ti,ab,kw

**Results:** 0 Reviews, 0 Trials

Embase

**Search Run:** 13 May 2021  
**Coverage:** 2016 – present  
**Limits:** Embase; English language; Humans; case control study, clinical article, clinical study, clinical trial, cohort analysis, comparative effectiveness, control group, controlled clinical trial, controlled study, correlative study, cross sectional study, crossover procedure, disease model, double blind procedure, evidence based medicine, human experiment, intension to treat analysis, longitudinal study, major clinical study, medical record review, meta analysis, model, multicernter study (topic), normal human, observational study, open study, phase 2 clinical trial (topic), phase 3 clinical trial (topic), pilot study, population based case control study, prospective study, randomized controlled trial (topic), retrospective study, secondary analysis, systematic review

‘cannabidiol’/exp/mj OR ‘cannabinoid’/exp/mj OR ‘cannabinol’/exp/mj OR ‘Cannabis sativa’/exp/mj OR ‘cannabis smoking’/exp OR ‘cannabis use’/exp/mj OR ‘cannabis’/exp/mj OR ‘dronabinol’/exp/mj OR ‘medical cannabis’/exp/mj OR ‘nabiximols’/exp/mj OR ‘tetrahydrocannabinol’/exp OR ‘tetrahydrocannabinol’:ti,ab,kw OR ‘bhang’:ti,ab,kw OR ‘cannabid*’:ti,ab,kw OR ‘cannabigerol’:ti,ab,kw OR ‘cannabin*’:ti,ab,kw OR ‘cannador’:ti,ab,kw OR ‘delta 9 tetrahydrocannabinol’:ti,ab,kw OR ‘dronabinol’:ti,ab,kw OR ‘epidioplex’:ti,ab,kw OR ‘epidiolex’:ti,ab,kw OR ‘ganja’:ti,ab,kw OR ‘ganjah’:ti,ab,kw OR ‘hashish’:ti,ab,kw OR ‘hashish oil’:ti,ab,kw OR ‘hashish smoking’:ti,ab,kw OR ‘hemp*’:ti,ab,kw OR ‘herba cannabis’:ti,ab,kw OR ‘marihuana*’:ti,ab,kw OR ‘marijuana*’:ti,ab,kw OR ‘Marinol’:ti,ab,kw OR ‘medical cannabis’:ti,ab,kw OR ‘medical marihuana’:ti,ab,kw OR ‘medical marijuana’:ti,ab,kw OR ‘medicinal cannabis’:ti,ab,kw OR ‘medicinal marijuana’:ti,ab,kw OR ‘mexican marihuana’:ti,ab,kw OR
Results: 33
Results: 6

PubMed

Search Run: 29 May 2021

Coverage: 2016 - present

Limits: English language, Humans


AND


AND

“Arnold-Chiari Malformation”[Majr] OR “Chiari*”[tiab] OR “Chiari*”[ot]

Results: 18
Traumatic Brain Injury (TBI) or Intracranial Hemorrhage

Cochrane

Search Run: 29 April 2021
Coverage: 2016-present

Limits: Sources- CINAHL, Embase, and PubMed

[mh "Cannabis"] OR [mh "Cannabinol"] OR [mh "Cannabidiol"] OR [mh "Marijuana Smoking"] OR [mh "Marijuana Use"] OR [mh "Medical Marijuana"] OR [mh "Dronabinol"] OR (bhang OR cannabid* OR cannabigerol OR cannabin* OR cannabidiol* OR cannador OR charas OR delta 9 tetrahydrocannabinol OR delta 9 trans tetrahydrocannabinol OR Dronabinol OR epidiol OR epidolex OR ganja* OR ganjah* OR hashish* OR hemp* OR herba cannabis OR marihuana* OR marijuana* OR Marinol OR medical cannabis OR medical marihuana OR medical marijuana OR medicinal cannabis OR medicinal marijuana OR nabidiolex OR nabiximols OR sativex OR syndros OR tetrahydro cannabino* OR tetrahydrocannabinol* OR Tetrahydrocannabinol*)ti,ab,kw

AND

[mh "Brain Injuries, Traumatic"] OR [mh "Brain Concussion"] OR [mh "Intracranial Hemorrhages"] OR [mh "Intracranial Hemorrhage, Hypertensive"] OR [mh "Intracranial Hemorrhage, Traumatic"] OR [mh "Subarachnoid Hemorrhage"] OR [mh "Hematoma, Epidural, Cranial"] OR (brain bleed* OR Brain Concussion OR Brain Damage OR brain haemorrhage OR brain hemorrhage OR brain microhaemorrhage OR brain microhemorrhage OR brain system trauma OR brain trauma OR cerebral haemorrhage OR cerebral hemorrhage OR cerebral microbleed OR cerebral trauma OR Cerebrovascular Accidents OR cerebrovascular trauma OR Cognitive Remediation OR corpus callosum bleeding OR corpus callosum haemorrhage OR corpus callosum hemorrhage OR Cranial Hematoma OR Electroencephalography OR encephalorrhagia OR Epidural Hematoma OR haemorrhagic apoplexy OR haemorrhagic stroke OR hematencephalon OR hemorrhagic apoplexy OR hemorrhagic stroke OR intracerebral bleed* OR intracerebral haemorrhage OR intracerebral hemorrhage OR intracortical haemorrhage OR intracortical hemorrhage OR Intracranial Abscesses OR intracranial bleeding OR intracranial haemorrhage OR intracranial haemorrhages OR Intracranial hemorrhage OR intracranial hemorrhages OR intraventricular hemorrhage OR intraventricular hemorrhage OR mild traumatic brain injury OR organic cerebral trauma OR periventricular haemorrhage OR periventricular hemorrhage OR posterior fossa haemorrhage OR posterior fossa hemorrhage OR posttraumatic encephalopathy OR Subarachnoid Hemorrhage OR traumatic brain haemorrhage OR traumatic brain hemorrhage OR traumatic brain injuries OR Traumatic Brain Injury OR traumatic brain lesion OR traumatic brain stem haemorrhage OR traumatic brain stem hemorrhage OR traumatic cerebral lesion OR traumatic encephalopathy OR Traumatic Neurosis)*ti,ab,kw

Results: 0 Reviews, 0 Trials

Embase

Search Run: 13 May 2021
Coverage: 2016 – present

Limits: Embase; English language; Humans; case control study, clinical article, clinical study, clinical trial, cohort analysis, comparative effectiveness, control group, controlled clinical trial,
controlled study, correlational study, cross sectional study, crossover procedure, disease model, double blind procedure, evidence based medicine, human experiment, intention to treat analysis, longitudinal study, major clinical study, medical record review, meta analysis, model, multicenter study (topic), normal human, observational study, open study, phase 2 clinical trial (topic), phase 3 clinical trial (topic), pilot study, population based case control study, prospective study, randomized controlled trial (topic), retrospective study, secondary analysis, systematic review

‘cannabidiol’/exp/mj OR ‘cannabinoid’/exp/mj OR ‘cannabinol’/exp/mj OR ‘Cannabis sativa’/exp/mj OR ‘cannabis smoking’/exp OR ‘cannabis use’/exp/mj OR ‘dronabinol’/exp/mj OR ‘medical cannabis’/exp OR ‘nabiximols’/exp/mj OR ‘tetrahydrocannabinol’/exp/mj OR ‘tetrahydrocannabinol’:ti,ab,kw OR ‘hashish’:ti,ab,kw OR ‘herba cannabis’:ti,ab,kw OR ‘marihuana’:ti,ab,kw OR ‘marijuana’:ti,ab,kw OR ‘Marinol’:ti,ab,kw OR ‘nabidiolex’:ti,ab,kw OR ‘nabiximols’:ti,ab,kw OR ‘sativex’:ti,ab,kw OR ‘syndros’:ti,ab,kw OR ‘tetrahydro cannabiol’:ti,ab,kw OR ‘tetrahydrocannabinol’/exp OR ‘tetrahydrocannabinols’:ti,ab,kw OR ‘CBD’:ti,ab,kw OR ‘CBG’:ti,ab,kw

AND

‘traumatic brain injury’/exp/mj OR ‘brain hemorrhage’/exp/mj OR ‘brain bleed’/exp/mj OR ‘Brain Concussion’:ti,ab,kw OR ‘Brain Damage’:ti,ab,kw OR ‘brain haemorrhage’:ti,ab,kw OR ‘brain hemorrhage’:ti,ab,kw OR ‘brain microhemorrhage’:ti,ab,kw OR ‘brain microhemorrhage’:ti,ab,kw OR ‘brain system trauma’:ti,ab,kw OR ‘brain trauma’:ti,ab,kw OR ‘cerebral haemorrhage’:ti,ab,kw OR ‘cerebral hemorrhage’:ti,ab,kw OR ‘cerebral microbleed’:ti,ab,kw OR ‘cerebral trauma’:ti,ab,kw OR ‘Cerebrovascular Accidents’:ti,ab,kw OR ‘cerebrovascular trauma’:ti,ab,kw OR ‘Cognitive Remediation’:ti,ab,kw OR ‘corpus callosum bleeding’:ti,ab,kw OR ‘corpus callosum haemorrhage’:ti,ab,kw OR ‘Cranial Hematoma’:ti,ab,kw OR ‘Electroencephalography’:ti,ab,kw OR ‘encephalorrhagia’:ti,ab,kw OR ‘Epidural Hematoma’:ti,ab,kw OR ‘haemorrhagic apoplexy’:ti,ab,kw OR ‘haemorrhagic stroke’:ti,ab,kw OR ‘hematencephalon’:ti,ab,kw OR ‘hemorrhagic apoplexy’:ti,ab,kw OR ‘hemorrhagic stroke’:ti,ab,kw OR ‘intracerebral bleed’/exp/mj OR ‘intracerebral haemorrhage’:ti,ab,kw OR ‘intracerebral hemorrhage’:ti,ab,kw OR ‘intracortical haemorrhage’:ti,ab,kw OR ‘intracortical hemorrhage’:ti,ab,kw OR ‘Intracranial Abscesses’:ti,ab,kw OR ‘intracranial bleeding’:ti,ab,kw OR ‘intracranial haemorrhage’:ti,ab,kw OR ‘intracranial hemorrhage’:ti,ab,kw OR ‘intracranial hemmorhages’:ti,ab,kw OR ‘intracranial hemorrhage’:ti,ab,kw OR ‘intracranial hemorrhages’:ti,ab,kw OR ‘intracerebrovascular hemorrhage’:ti,ab,kw OR ‘intraventricular hemorrhage’:ti,ab,kw OR ‘mild traumatic brain injury’:ti,ab,kw OR ‘organic cerebral trauma’:ti,ab,kw OR ‘periventricular haemorrhage’:ti,ab,kw OR ‘periventricular hemorrhage’:ti,ab,kw OR ‘posterior fossa haemorrhage’:ti,ab,kw OR ‘posterior fossa hemorrhage’:ti,ab,kw OR ‘posttraumatic encephalopathy’:ti,ab,kw OR ‘Subarachnoid Hemorrhage’:ti,ab,kw OR ‘traumatic brain haemorrhage’:ti,ab,kw OR ‘traumatic brain hemorrhage’:ti,ab,kw OR ‘traumatic brain injuries’:ti,ab,kw OR ‘Traumatic Brain Injury’:ti,ab,kw OR ‘traumatic brain lesion’:ti,ab,kw OR ‘traumatic brain stem haemorrhage’:ti,ab,kw OR ‘traumatic brain stem hemorrhage’:ti,ab,kw OR ‘traumatic cerebral lesion’:ti,ab,kw OR ‘traumatic encephalopathy’:ti,ab,kw OR ‘Traumatic Neurosis’:ti,ab,kw

AND
Results: 87

PsycInfo

Search Run: 25 May 2021
Coverage: 2016-present

Limits: Phrase Searching (Boolean); Clinical Case Study, Clinical Trial, Empirical Study, Literature Review, Meta Analysis, Quantitative Study, Treatment Outcome, Twin Study; English; Human

MM “Cannabis” OR MM “Marijuana” OR MM “Marijuana Usage” OR MM “Cannabinoids” OR MM “Tetrahydrocannabinol”) OR TI (“bhang” OR “cannabidiol” OR “cannabinol” OR “cannabinoids” OR “cannabinoid” OR “cannaconoid” OR “cannador” OR “delta 9 tetrahydrocannabinol” OR “delta tetrahydrocannabinol” OR “Dronabinol” OR “epidiolex” OR “epidyolex” OR “ganja” OR “ganja” OR “hashish” OR “hemp” OR “herba cannabis” OR “marihuana” OR “marijuana” OR “Mariol” OR “medical cannabis” OR “medical marihuana” OR “medical marijuana” OR “medicinal cannabis” OR “medicinal marijuana” OR “nabidiolex” OR “nabiximols” OR “Sativex” OR “sp 104” OR “syndros” OR “tetrahydrocannabinol” OR “tetrahydrocannabinol” OR “Tetrahydrocannabinol” OR “tetrabidiol” OR “Tetrahydrocannabinol” OR “tetrabidiol” OR “THC” OR “CBD” OR “CBG”) OR AB (“bhang” OR “cannabidiol” OR “cannabigerol” OR “cannabidiol” OR “cannabigerol” OR “cannabinol” OR “cannabinol” OR “cannador” OR “delta 9 tetrahydrocannabinol” OR “delta tetrahydrocannabinol” OR “Dronabinol” OR “epidiolex” OR “epidyolex” OR “ganja” OR “ganja” OR “hashish” OR “hemp” OR “herba cannabis” OR “marihuana” OR “marijuana” OR “Mariol” OR “medical cannabis” OR “medical marihuana” OR “medical marijuana” OR “medicinal cannabis” OR “medicinal marijuana” OR “nabidiolex” OR “nabiximols” OR “Sativex” OR “sp 104” OR “syndros” OR “tetrahydrocannabinol” OR “tetrahydrocannabinol” OR “tetrahydrocannabinol” OR “tetrahydrocannabinol” OR “tetrahydrocannabinol” OR “tetrahydrocannabinol” OR “Tetrahydrocannabinol” OR “tetrabidiol” OR “Tetrahydrocannabinol” OR “tetrabidiol” OR “THC” OR “CBD” OR “CBG” AND

(MM “Intracranial Abscesses” OR MM “Brain Self Stimulation” OR MM “Subarachnoid Hemorrhage” OR MM “Electroencephalography” OR MM “Cerebrovascular Accidents” OR MM “Brain Neoplasms” OR MM “Brain Disorders” OR MM “Traumatic Brain Injury” OR MM “Brain Concussion” OR MM “Cognitive Remediation” OR MM “Traumatic Neurosis” OR MM “Brain Damage”) OR TI (“brain bleed” OR “Brain Concussion” OR “Brain Damage” OR “brain haemorrhage” OR “brain hemorrhage” OR “brain microhaemorrhage” OR “brain microhemorrhage” OR “brain system trauma” OR “brain trauma” OR “cerebral haemorrhage” OR “cerebral hemorrhage” OR “cerebral microbleed” OR “cerebral trauma” OR “Cerebrovascular Accidents” OR “cerebrovascular trauma” OR “Cognitive Remediation” OR “corpus callosum bleeding” OR “corpus callosum haemorrhage” OR “corpus callosum hemorrhage” OR “Cranial Hematoma” OR “Electroencephalography” OR “encephalorrhagia” OR “Epidural Hematoma” OR “haemorrhagic apoplyx” OR “haemorrhagic stroke” OR “haemorrhagic stroke intracerebral bleeding” OR “hematencephalon” OR “hemorrhagic apoplexy” OR “hemorrhagic stroke” OR “hemorrhagic stroke intracerebral bleeding” OR “intracerebral bleed” OR “intracerebral haemorrhage” OR “intracerebral hemorrhage” OR “intracortical haemorrhage” OR “intracortical hemorrhage” OR “Intracranial Abscesses” OR “intracranial bleeding” OR “intracranial haemorrhage” OR “intracranial hemorrhages” OR “Intracranial hemorrhage” OR “intracranial hemorrhages” OR “intraventricular haemorrhage” OR “intraventricular hemorrhage” OR “mild traumatic brain injury” OR “organic cerebral trauma” OR
“periventricular haemorrhage” OR “periventricular hemorrhage” OR “posterior fossa haemorrhage” OR “posterior fossa hemorrhage” OR “posttraumatic encephalopathy” OR “Subarachnoid Hemorrhage” OR “traumatic brain haemorrhage” OR “traumatic brain hemorrhage” OR “traumatic brain injuries” OR “Traumatic Brain Injury” OR “traumatic brain lesion” OR “traumatic brain stem haemorrhage” OR “traumatic brain stem hemorrhage” OR “traumatic cerebral lesion” OR “traumatic encephalopathy” OR “Traumatic Neurosis”) OR AB (“brain bleed*” OR “Brain Concussion” OR “Brain Damage” OR “brain haemorrhage” OR “brain hemorrhage” OR “brain microhaemorrhage” OR “brain microhemorrhage” OR “brain system trauma” OR “brain trauma” OR “cerebral haemorrhage” OR “cerebral hemorrhage” OR “cerebral microbleed” OR “cerebral trauma” OR “Cerebrovascular Accidents” OR “cerebrovascular trauma” OR “Cognitive Remediation” OR “corpus callosum bleeding” OR “corpus callosum hemorrhage” OR “corpus callosum hemorrhage” OR “Cranial Hematoma” OR “Electroencephalography” OR “encephalorrhagia” OR “Epidural Hematoma” OR “haemorrhagic apoplexy” OR “haemorrhagic stroke” OR “haemorrhagic stroke intracerebral bleeding” OR “hematencephalon” OR “hemorrhagic apoplexy” OR “hemorrhagic stroke” OR “hemorrhagic stroke intracerebral bleeding” OR “intracerebral bleed*” OR “intracerebral haemorrhage” OR “intracerebral hemorrhage” OR “intracortical haemorrhage” OR “intracortical hemorrhage” OR “Intracranial Abscesses” OR “intracranial bleeding” OR “intracranial haemorrhage” OR “intracranial haemorrhages” OR “Intracranial hemorrhage” OR “intracranial hemorrhages” OR “intraventricular haemorrhage” OR “intraventricular hemorrhage” OR “mild traumatic brain injury” OR “organic cerebral trauma” OR “periventricular haemorrhage” OR “periventricular hemorrhage” OR “posterior fossa haemorrhage” OR “posterior fossa hemorrhage” OR “posttraumatic encephalopathy” OR “Subarachnoid Hemorrhage” OR “traumatic brain haemorrhage” OR “traumatic brain hemorrhage” OR “traumatic brain injuries” OR “Traumatic Brain Injury” OR “traumatic brain lesion” OR “traumatic brain stem haemorrhage” OR “traumatic brain stem hemorrhage” OR “traumatic cerebral lesion” OR “traumatic encephalopathy” OR “Traumatic Neurosis”)

Results: 41

PubMed

Search Run: 29 May 2021

Coverage: 2016 - present

Limits: English language, Humans


AND


AND

“Arnold-Chiari Malformation”[Majr] OR “Chiari*”[tiab] OR “Chiari*”[ot]

Results: 37
Vulvodynia and Vulvar Burning

Cochrane

**Search Run:** 29 April 2021  
**Coverage:** 2016-present

**Limits:** Sources- CINAHL, Embase, and PubMed

[mh "Cannabis"] OR [mh "Cannabinoil"] OR [mh "Cannabidiol"] OR [mh "Marijuana Smoking"] OR [mh "Marijuana Use"] OR [mh "Medical Marijuana"] OR [mh "Dronabinol"] OR (bhang OR cannabid* OR cannabigerol OR cannabin* OR cannab* OR cannador OR cardiolRx OR charas OR delta 9 tetrahydrocannabinol OR delta 9 trans tetrahydrocannabinol OR Dronabinol OR epidiolex OR epidiolux OR ganja* OR ganjah* OR hashish* OR hemp* OR herba cannabis OR marihuana* OR marijuana* OR Marinol OR medical cannabis OR medical marihuana OR medical marijuana OR medicinal cannabis OR medicinal marihuana OR nabilone OR nabiximols OR sativex OR syndros OR tetrahydro cannabinoil* OR tetrahydrocannabinol* OR Tetrahydrocannabinol* OR tetrahydrocanabiol*):ti,ab,kw

AND

[mh “Tarlov cysts”] OR (Tarlov Cyst* OR nerve root cyst* OR perineural cyst* OR perineural cyst* OR Tarlov's cyst*):ti,ab,kw

**Results:** 0 Reviews, 0 Trials

Embase

**Search Run:** 13 May 2021  
**Coverage:** 2016 – present

**Limits:** Embase; English language; Humans; case control study, clinical article, clinical study, clinical trial, cohort analysis, comparative effectiveness, control group, controlled clinical trial, controlled study, correlational study, cross sectional study, crossover procedure, disease model, double blind procedure, evidence based medicine, human experiment, intention to treat analysis, longitudinal study, major clinical study, medical record review, meta analysis, model, multicenter study (topic), normal human, observational study, open study, phase 2 clinical trial (topic), phase 3 clinical trial (topic), pilot study, population based case control study, prospective study, randomized controlled trial (topic), retrospective study, secondary analysis, systematic review

‘cannabidiol’/exp/mj OR ‘cannabinoid’/exp/mj OR ‘cannabinoil’/exp/mj OR ‘Cannabis sativa’/exp/mj OR ‘cannabis smoking’/exp OR ‘cannabis use’/exp/mj OR ‘cannabis’/exp/mj OR ‘dronabinol’/exp/mj OR ‘medical cannabis’/exp OR ‘nabiximols’/exp/mj OR ‘tetrahydrocannabinol’/exp/mj OR ‘tetrahydrocannabinol’:ti,ab,kw OR ‘bhang’:ti,ab,kw OR ‘cannabid*’:ti,ab,kw OR ‘cannabigerol’:ti,ab,kw OR ‘cannabin*’:ti,ab,kw OR ‘cannabin*’:ti,ab,kw OR ‘cannador’:ti,ab,kw OR ‘delta 9 tetrahydrocannabinol’:ti,ab,kw OR ‘dronabinol’:ti,ab,kw OR ‘epidiolux’:ti,ab,kw OR ‘epidiolux’:ti,ab,kw OR ‘ganja*’:ti,ab,kw OR ‘ganjah*’:ti,ab,kw, kw OR ‘hashish’:ti,ab,kw OR ‘hashish oil’:ti,ab,kw OR ‘hashish smoking’:ti,ab,kw OR ‘hemp*’:ti,ab,kw OR ‘herba cannabis’:ti,ab,kw OR ‘marihuana*’:ti,ab,kw OR ‘marijuana*’:ti,ab,kw OR ‘Marinol’:ti,ab,kw OR ‘medical cannabis’:ti,ab,kw OR ‘medical marihuana’:ti,ab,kw OR ‘medical marijuana’:ti,ab,kw OR ‘medicinal cannabis’:ti,ab,kw OR ‘medicinal marihuana’:ti,ab,kw OR ‘mexican marihuana’:ti,ab,kw OR ‘nabiximols’:ti,ab,kw OR ‘nabiximols’:ti,ab,kw OR ‘sativex’:ti,ab,kw OR ‘syndros’:ti,ab,kw OR ‘tetrahydro cannabinoil*:ti,ab,kw OR ‘tetrahydrocannabinol*:ti,ab,kw OR
Results: 1

PsycInfo

Search Run: 25 May 2021
Coverage: 2016-present

Limits: Phrase Searching (Boolean); Clinical Case Study, Clinical Trial, Empirical Study, Literature Review, Meta Analysis, Quantitative Study, Treatment Outcome, Twin Study; English; Human

MM “Cannabis” OR MM “Marijuana” OR MM “Marijuana Usage” OR MM “Cannabinoids” OR MM “Tetrahydrocannabinol”) OR TI (“bhang” OR “cannabid*” OR “cannabigerol” OR “cannabin*” OR “cannabis*” OR “cannabinoid” OR “delta 9 tetrahydrocannabinol” OR “delta tetrahydrocannabinol” OR “Dronabinol” OR “epidiolex” OR “epidiolex” OR “ganja*” OR “ganjah*” OR “hashish*” OR “hemp*” OR “herba cannabis” OR “marihuana*” OR “marijuana*” OR “Marinol” OR “medical cannabis” OR “medical marihuana” OR “medical marijuana” OR “medicinal cannabis” OR “medicinal marihuana” OR “nabidiolex” OR “nabiximols” OR “Sativex” OR “sp 104” OR “syndros” OR “tetrahydro cannabino”* OR “tetrahydrocannabina”* OR “Tetrahydrocannabinol”* OR “tetrahydrocannabinol”* OR “tetranabinex” OR “tetranabinex” OR “THC” OR “CBC” OR “CBD” OR “CBG”) OR AB (“bhang” OR “cannabid*” OR “cannabigerol” OR “cannabin*” OR “cannabis*” OR “cannabinoid” OR “delta 9 tetrahydrocannabinol” OR “delta tetrahydrocannabinol” OR “Dronabinol” OR “epidiolex” OR “epidiolex” OR “ganja*” OR “ganjah*” OR “hashish*” OR “hemp*” OR “herba cannabis” OR “marihuana*” OR “marijuana*” OR “Marinol” OR “medical cannabis” OR “medical marihuana” OR “medical marijuana” OR “medicinal cannabis” OR “medicinal marihuana” OR “nabidiolex” OR “nabiximols” OR “Sativex” OR “sp 104” OR “syndros” OR “tetrahydro cannabino”* OR “tetrahydrocannabina”* OR “Tetrahydrocannabinol”* OR “tetrahydrocannabinol”* OR “tetranabinex” OR “THC” OR “CBC” OR “CBD” OR “CBG”

AND

TI (“vulva disease” OR “vulvodynia” OR “vulval pain” OR “vulvar disease” OR “vulva tumor” OR “vulvar disease” OR “vulva tumour” OR “vulvar neoplasm” OR “Vestibulodynia” OR “vulvar burning”) OR AB (“vulva disease” OR “vulvodynia” OR “vulval pain” OR “vulvar disease” OR “vulva tumor” OR “vulva tumour” OR “vulvar neoplasm” OR “Vestibulodynia” OR “vulvar burning”)

Results: 0
PubMed

**Search Run:** 29 May 2021

**Coverage:** 2016 - present

**Limits:** English language, Humans


AND


AND

“Arnold-Chiari Malformation”[Majr] OR “Chiari*”[tiab] OR “Chiari*”[ot]

**Results:** 1
Wilson's Disease

Cochrane

**Search Run:** 29 April 2021  
**Coverage:** 2016–present  
**Limits:** Sources - CINAHL, Embase, and PubMed

[mh "Cannabis"] OR [mh "Cannabinol"] OR [mh "Cannabidiol"] OR [mh "Marijuana Smoking"] OR [mh "Marijuana Use"] OR [mh "Medical Marijuana"] OR [mh "Dronabinol"] OR (bhang OR cannabid* OR cannabigerol OR cannabin* OR cannabis* OR cannador OR cardiolrx OR charas OR delta 9 tetrahydrocannabinol OR delta 9 trans tetrahydrocannabinol OR Dronabinol OR epidioplex OR epidoylex OR ganja* OR ganjah* OR hashish* OR hemp* OR herba cannabis OR marihuana* OR marijuana* OR Marinol OR medical cannabis OR medical marihuana OR medical marijuana OR medicinal cannabis OR medicinal marijuana OR nabilodex OR nabiximols OR sativex OR syndros OR tetrahydrocannabinol* OR tetrahydrocannabinol*):ti,ab,kw

AND

[mh "Hepatolenticular Degeneration"] OR (Wilson's disease OR Wilson disease OR Wilsons Disease OR Westphal Strumpell Syndrome OR Copper Storage Disease* OR hepatolenticularis* OR hepatolenticular* OR progressive lenticular* OR hepatocerebral degeneration OR morbus wilson OR wilson degeneration OR wilson syndrome OR wilson's syndrome):ti,ab,kw

**Results:** 0 Reviews, 0 Trials

Embase

**Search Run:** 13 May 2021  
**Coverage:** 2016 – present  
**Limits:** Embase; English language; Humans; case control study, clinical article, clinical study, clinical trial, cohort analysis, comparative effectiveness, control group, controlled clinical trial, controlled study, correlational study, cross sectional study, crossover procedure, disease model, double blind procedure, evidence based medicine, human experiment, intention to treat analysis, longitudinal study, major clinical study, medical record review, meta analysis, model, multicenter study (topic), normal human, observational study, open study, phase 2 clinical trial (topic), phase 3 clinical trial (topic), pilot study, population based case control study, prospective study, randomized controlled trial (topic), retrospective study, secondary analysis, systematic review

‘cannabidiol’/exp/mj OR ‘cannabinoid’/exp/mj OR ‘cannabinol’/exp/mj OR ‘Cannabis sativa’/exp/mj OR ‘cannabis smoking’/exp OR ‘cannabis use’/exp/mj OR ‘cannabis’/exp/mj OR ‘dronabinol’/exp/mj OR ‘medical cannabis’/exp OR ‘nabiximols’/exp/mj OR ‘tetrahydrocannabinol’/exp/mj OR ‘tetrahydrocannabinol’:ti,ab,kw OR ‘bhang’:ti,ab,kw OR ‘cannabinid*’:ti,ab,kw OR ‘cannabigerol’:ti,ab,kw OR ‘cannabin*’:ti,ab,kw OR ‘cannador’:ti,ab,kw OR ‘delta 9 tetrahydrocannabinol’:ti,ab,kw OR ‘dronabinol’:ti,ab,kw OR ‘epidioplex’:ti,ab,kw OR ‘epidoylex’:ti,ab,kw OR ‘ganja’:ti,ab,kw OR ‘ganjah’:ti,ab,kw OR ‘hashish’:ti,ab,kw OR ‘hashish oil’:ti,ab,kw OR ‘hashish smoking’:ti,ab,kw OR ‘hemp*’:ti,ab,kw OR ‘herba cannabis’:ti,ab,kw OR ‘marihuana*’:ti,ab,kw OR ‘marijuana*’:ti,ab,kw OR ‘Marinol’:ti,ab,kw OR ‘medical cannabis’:ti,ab,kw OR ‘medical marihuana’:ti,ab,kw OR ‘medical marijuana’:ti,ab,kw OR ‘medicinal cannabis’:ti,ab,kw OR ‘medicinal marihuana’:ti,ab,kw OR ‘mexican marihuana’:ti,ab,kw OR
Results: 0
Strumpell Syndrome" OR "Copper Storage Disease" OR "hepatocerebral degeneration" OR "morbus wilson" OR "wilson degeneration" OR "wilson syndrome")

**Results:** 0

**PubMed**

**Search Run:** 29 May 2021

**Coverage:** 2016 - present

**Limits:** English language, Humans


AND


AND

“Arnold-Chiari Malformation”[Majr] OR “Chiari*”[tiab] OR “Chiari*”[ot]

**Results:** 0
Appendix B. Randomized Controlled Trials (January 2016 to May 2021)
Examining the Therapeutic Effects of Cannabis or Cannabinoids for Conditions not Listed in U.S. Medical Cannabis (MC) Laws

This section lists randomized controlled trials (RCT) that examine the therapeutic effects of cannabis or cannabinoids but are excluded from Part II of my scoping review for not meeting inclusion criterion #3 (article must specifically address cannabis AND the qualifying condition specified, excluding studies on health conditions that are not explicitly listed as qualifying conditions in U.S. MC laws).

**Blood Pressure, Blood Flow**


**Chronic Obstructive Pulmonary Disease (COPD)**


Complex Motor Disorder


https://journals.sagepub.com/doi/pdf/10.1177/0883073818773028

Fragile X Syndrome


Ocular Blood Flow


Schizophrenia

Sleep

https://www.embase.com/search/results?subaction=viewrecord&id=L2010862545&from=export ; http://dx.doi.org/10.1002/mds.28577;
Appendix C. Articles that Report on the Same Clinical Study, by Qualifying Condition

This section groups together citations that reference the same study. Note that I use the same citation numbers as those used in the References section of Chapter 2. Throughout Chapter 2, prioritize and mostly provide citations for peer-reviewed journal articles rather than conference abstracts, clinical trial pages, or other non-published sources that report on the same clinical study. In cases of multiple journal articles, I prioritize the article with the earliest publication date.

Addiction, Dependence, Substance Use Disorders


Amyotrophic Lateral Sclerosis (ALS, Lou Gehrig’s disease)


Anxiety


Attention Deficit Disorder (ADD), Attention Deficit Hyperactivity Disorder (ADHD)


Autism, Autism Spectrum Disorder (ASD)


Cancer


Frytak, S, CG Moertel, and JR Ofallon, “Comparison of delta-9-tetrahydrocannabinol (THC), prochlorperazine (PCP) and placebo as anti-emetics for cancer-chemotherapy,” *Proceedings off The American Association for Cancer Research*, 1979, p. 391


Depression


223. Robson, P, D Wade, P Makela, H House, and C Bateman, “Cannabis-based medicinal extract (Sativex) produced significant improvements in a subjective measure of spasticity which were maintained on long-term treatment with no evidence of tolerance,” *IACM 3rd Conference on Cannabinoids in Medicine*, 2005

244. GW Pharmaceuticals Ltd., “An investigation of delta-9-tetrahydrocannabinol (THC) and cannabidiol (CBD) in multiple sclerosis patients,” *ClinicalTrials.gov*, http://ClinicalTrials.gov/show/NCT01610700

**Epilepsy**


https://link.springer.com/content/pdf/10.1007/s13311-017-0543-x.pdf

https://www.embase.com/search/results?subaction=viewrecord&id=L622761275&from=export; http://dx.doi.org/10.1136/archdischild-2017-313700

https://www.embase.com/search/results?subaction=viewrecord&id=L631605473&from=export; http://dx.doi.org/10.1111/dmcn.14411;

https://www.embase.com/search/results?subaction=viewrecord&id=L622193660&from=export; http://dx.doi.org/10.1056/NEJMoa1714631


352. Wu, Joyce, Hannah Cock, Orrin Devinsky, Charuta Joshi, Ian Miller, Colin Roberts, Rocio Sanchez-Carpintero, Daniel Checketts, and Farhad Sahebkar, “Time to onset of cannabidiol (CBD) treatment effect and resolution of adverse events (AEs) in the tuberous sclerosis complex (TSC) phase 3 randomized controlled trial (GWPCARE6)(674),” AAN Enterprises, 2020


**Multiple Sclerosis (MS)**

van Amerongen, G, T Beumer, J Killestein, and GJ Groeneveld, “Individualized dosing of a novel oral DELTA9-THC formulation improves subjective spasticity and pain in patients with progressive multiple sclerosis,” Joint Americas Committee for Treatment and Research in Multiple Sclerosis ACTRIMS—European Committee for Treatment and Research in Multiple Sclerosis ECTRIMS Meeting, 2014, pp. 478-479


Medical Research Center (MRC), “A multiple randomised controlled trial of cannabinoids on spasticity in multiple sclerosis (MS),” ISRCTN registry, https://www.isrctn.com/ISRCTN39371386


Robson, P, D Wade, P Makela, H House, and C Bateman, “Cannabis-based medicinal extract (Sativex) produced significant improvements in a subjective measure of spasticity which were maintained on long-term treatment with no evidence of tolerance,” IACM 3rd Conference on Cannabinoids in Medicine, 2005


Leocani, Letizia, Arturo Nuara, Elise Houdayer, Ubaldo Del Carro, Laura Straffi, Vittorio Martinelli, Paolo Rossi, Irene Schiavetti, Stefano Amadio, and Maria Pia Sormani, “Effect of THC-CBD oromucosal spray (Sativex) on measures of spasticity in multiple sclerosis: a double-blind, placebo-controlled, crossover study,” Joint Americas Committee for Treatment and Research in Multiple Sclerosis ACTRIMS—European Committee for Treatment and Research in Multiple Sclerosis ECTRIMS Meeting, 2014


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Spinal Cord Injury, Spinal Muscular Atrophy, and Spinal stenosis


Tourette’s Syndrome


Chapter 3. The Wild West of Medical Cannabis

Abstract

As of December 2021, few health conditions that legally allow patients to use cannabis medically have sufficient evidence from clinical research to suggest that certain cannabis products are therapeutically effective. Moreover, without proper guidance, there is considerable potential for medical cannabis patients to use dispensary products in a manner that is inconsistent with clinical research, possibly resulting in treatment regimens that are not beneficial or even harmful to patients. In this study, I examine sales invoices (January 2016 to November 2020) from a single medical cannabis company in New York State to see what percent of medical cannabis patients buy dispensary products inconsistently with what clinical research (as of May 2021) suggests is effective for their qualifying conditions, and whether patients make fewer “clinically inconsistent” purchases over time. I also conduct logit and negative binomial regression analyses on patients’ first and last invoices to assess which patient characteristics are associated with making clinically inconsistent purchases. Descriptive analyses suggest that approximately half of medical cannabis patients who purchase from this company make clinically inconsistent purchases. Regression analyses suggest that clinically inconsistent purchases are more likely among female patients than male patients, and among older adults (ages 40 and up) than younger patients (age under 40), controlling for total number of items per invoice, patients’ total number of invoices, quarter and year of each invoice, and dispensary location. However, significantly fewer patients make clinically inconsistent purchases at their last invoice, including female patients and older adults. With medical cannabis use now being legal in nearly 40 U.S. states, federal and state policymakers must work to help clinicians and other professionals in the medical cannabis market ensure that dispensary purchases are both informed by clinical evidence and personalized to meet each patient’s needs.
Introduction

As of December 2021, a handful of approximately 80 health conditions in the U.S. that legally allow patients to use cannabis medically on a state-by-state basis, or qualifying conditions, have sufficient clinical evidence to suggest that certain cannabis products are therapeutically effective.\(^1\)\(^-\)\(^6\) Given that nearly 40 U.S. states have legalized medical cannabis use despite our nascent understanding on the therapeutic effects of cannabis, there is considerable potential for medical cannabis (MC) patients to use dispensary products inconsistently with clinical research.\(^i\) In this study, I analyze sales data from a single MC company in New York State (NY) to observe to what degree MC patients make “clinically inconsistent” purchases and whether MC patients make fewer clinically inconsistent purchases over time. I also examine which patient characteristics (e.g., age, gender) are associated with a greater likelihood of making a clinically inconsistent purchase.

I consider certain cannabis products to be clinically inconsistent depending on the ratio of two cannabinoids—ingredients that are unique to cannabis—that have been studied for their medical properties: tetrahydrocannabinol (THC), the primary intoxicating agent in cannabis, and cannabidiol (CBD), a non-intoxicating ingredient.\(^7\) For the purposes of this study, a purchased cannabis product is clinically inconsistent if its categorical THC to CBD ratio (e.g., high THC, equal THC to CBD) does not match either 1) the ratio(s) that clinical research suggests is therapeutically effective for the patient’s qualifying condition or 2) the ratio that is most frequently recommended by the company’s on-site, licensed pharmacists for the patient’s qualifying condition at the patient’s first visit.\(^ii\) Respectively, I refer to these as my less and more restrictive definitions of clinically inconsistent purchases. The less restrictive definition only applies to patients with cancer, epilepsy, or multiple sclerosis, as these are qualifying conditions that currently have the most clinical evidence (as of May 2021) to suggest that certain ratios are more therapeutically effective than others. The more restrictive definition applies to all patients and restricts each qualifying condition to a single categorical THC to CBD ratio; note that this stricter definition is also consistent with clinical research thus far (as of May 2021). These different definitions not only ensure my findings are robust to looser and stricter criteria but also help approximate to what degree clinically inconsistent purchases occur.

Using these definitions, I examine the frequency and factors associated with making clinically inconsistent purchases. First, I calculate the percent of patients who make clinically inconsistent purchases and whether significantly fewer patients make clinically inconsistent.

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\(^i\) As of December 2021, 18 U.S. states, C.N.M.I., Guam, and Washington D.C. have legalized recreational/adult-use cannabis; 18 U.S. states, Puerto Rico, and U.S.V.I. have only legalized medical cannabis use; 11 U.S. states have only legalized CBD use; Nebraska has only decriminalized cannabis use (excluding “CBD-only” U.S. states); and Idaho and Kentucky have zero-tolerance cannabis laws (i.e., cannabis is illegal, excluding CBD-only U.S. states).

\(^ii\) For simplicity, categorical ratios of THC to CBD (e.g., high THC, moderate THC) are used throughout the analysis rather than numerical ratios (e.g., 20mg THC to 1mg CBD, or 20:1 THC to CBD).
purchases at their last invoice compared to their first invoice. Next, I conduct cross-sectional logit and, for additional sensitivity analyses, negative binomial regressions on patients’ first and last invoices to observe which demographic characteristics (age, gender, pain or non-pain symptoms) are associated with making clinically inconsistent purchases. I initially examine first and last invoices separately to observe whether there are significant differences between certain demographic groups (e.g., male vs. female patients) in the likelihood of making a clinically inconsistent purchase, controlling for total number of items per invoice, patients’ total number of invoices, temporal variables (quarter, year), and dispensary location. I then combine first and last invoices together and conduct pooled regressions to observe whether, for every demographic group (e.g., female patients alone), there is a significant decrease in the likelihood of making a clinically inconsistent purchase between the first and last invoice, holding other variables constant.

I find that approximately half of this company’s patients make clinically inconsistent purchases, but patients also make fewer clinically inconsistent purchases over time. Regression analyses (including sensitivity analyses) suggest that clinically inconsistent purchases are more likely among female patients than male patients and among older adults (ages 40 and up) than younger patients (age under 40). However, pooled regression analyses show that female patients and older patients are each significantly less likely to make clinically inconsistent purchases over time. These findings are robust to sensitivity analyses with negative binomial regressions and different definitions of clinically inconsistent purchases.

**Background**

As of December 2021, U.S. state laws collectively allow patients to use cannabis medically for more health conditions than have been justified by clinical research. On a state-by-state basis, approximately 80 health conditions listed in U.S. state or other jurisdiction laws legally allow patients to purchase cannabis products for medical use. A dozen qualifying conditions are covered in medical cannabis (MC) laws of 20 or more U.S. states—amyotrophic lateral sclerosis (ALS), cachexia or wasting syndrome, cancer, chronic pain, Crohn’s disease, epilepsy, glaucoma, human immunodeficiency virus and acquired immunodeficiency syndrome (HIV/AIDS), multiple sclerosis (MS), nausea, post-traumatic stress disorder (PTSD), and spasticity. However, according to the review presented in Chapter 2, only a handful of qualifying conditions have sufficient evidence to substantiate that certain cannabis products are therapeutically effective for specific symptoms (although these conditions are estimated to cover over 85 percent of U.S. MC patients): cancer (reducing chemotherapy-induced nausea and vomiting), chronic pain, epilepsy (reducing seizure frequency in Dravet syndrome, Lennox-Gastaut syndrome, and tuberous sclerosis complex), and multiple sclerosis (alleviating spasticity). For nearly all other qualifying conditions, as of May 2021, clinical research
suggests there is limited to no evidence to support or refute that cannabis products are therapeutically effective.iii, 1-2

The current research gaps on the therapeutic effects of cannabis products can be attributed to U.S. federal regulations, which have arguably hindered research. Because cannabis is a Schedule I drug under the U.S. Controlled Substances Act (CSA),iv, 8-9 to conduct a clinical study on cannabis or cannabis ingredients, researchers may only use FDA-approved drugsv or obtain cannabis from federally approved sources, which had been restricted to a single supplier for over 50 years—the National Institute of Drug Abuse (NIDA) via the University of Mississippi.vi, 10-15 Furthermore, given cannabis’ Schedule I status, researchers examining human subjects (including studies to examine potentially new medications) must undergo a lengthy approval process with an institutional review board (IRB), state government or board of medical examiners, the U.S. Food and Drug Administration (FDA), and the U.S. Drug Enforcement Administration (DEA), a process which can take years.16-18

Likely due to these restrictions, as of May 2021, most studies evaluating the treatment effects of cannabis or cannabinoids use drugs that legally cannot be sold in U.S. cannabis dispensaries. As shown in Chapter 2, most clinical studies that form the current evidence base for cannabis research use either 1) FDA-approved prescription medications that may only be dispensed by licensed pharmacies (Cesamet®, Epidiolex®, Marinol® or Syndros®) or 2) other non-FDA approved, cannabis-based medicinal products that (as of December 2021) cannot be imported for distribution in the U.S. (Cannador®, Sativex®, Namisol®).vii, 19-20 Thus, if patients find over-the-counter drugs or prescription medications to be ineffective and/or intolerable due to side effects and want to try cannabis dispensary products instead, doctors cannot rely on their usual sources of information (clinical studies, pharmacists, and pharmaceutical companies) and, consequently, may have limited resources with which to recommend dispensary products that can mimic the therapeutic effects of the medications used in clinical studies.21-24

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iii Sleep disturbance (for which one example is sleep apnea, a qualifying condition covered in two U.S. states) is the only health condition for which NASEM (2017) concludes there is “moderate” evidence that cannabinoids are therapeutically effective.

iv The CSA grades different classifications of drugs (narcotics, depressants, stimulants, hallucinogens, and anabolic steroids) on a five-point scale, from Schedule I (most regulated) to Schedule V (least-regulated), depending on factors such as potential for abuse, evidence of pharmacological effects, and risks to public health (DEA 2020a; DEA 2020b).

v So far (circa September 2021), the FDA has only approved Marinol®, Syndros®, and Cesamet® (synthetic THC), as well as Epidiolex® (cannabis-derived CBD).

vi As of November 2021, several additional manufacturers have been granted federal licenses to produce research-grade cannabis (DEA, 2016; DEA, 2019; Gillice and Norwinski, 2020; DEA, 2021; Sederberg, 2021; Jaeger, 2022).

vii The FDA, however, approved and began recruiting for a Phase III clinical study on Sativex® in 2020 and, as of December 2021, is awaiting results (Parsons, 2020).
While some qualifying conditions have sufficient research to suggest which dispensary products to recommend, other qualifying conditions have mixed or insufficient evidence. For example, currently, several clinical studies and systematic reviews find that oral, plant-based extracts of THC or THC plus CBD are effective for treating spasticity induced by multiple sclerosis; therefore, doctors might infer from the available clinical evidence that either THC-dominant or equal THC to CBD dispensary products should be recommended. Conversely, as of May 2021, randomized controlled trials (RCT) find synthetic THC, CBD, and cannabis-derived THC plus CBD to be ineffective for treating neuropsychiatric symptoms of Huntington’s disease. Similarly, whereas two RCTs find synthetic THC to treat specific symptoms of PTSD, another RCT finds smoked cannabis at high THC to CBD, high CBD to THC, and equal THC to CBD ratios each to be ineffective for reducing PTSD symptom severity, and several observational studies suggest that cannabis use (for which THC is the primary active ingredient) is associated with increased PTSD severity. For these latter two qualifying conditions, it may be more difficult for clinicians to recommend a specific dispensary product based on the available clinical evidence. Without guidance from clinicians, MC patients risk using dispensary products in a manner that is not beneficial or possibly harmful to their conditions, due to certain products and/or dosing regimens failing to provide relief, aggravating symptoms, interacting poorly with other medications, or other adverse effects. Given the current gaps in cannabis research, misconceptions about the benefits of cannabis conveyed by non-medical sources, widespread access to cannabis for medical use in the U.S., and the variety of non-FDA approved dispensary products, it is important for patients to engage with physicians, pharmacists, and other trained clinicians who can critically review the literature and patients’ medical histories to ensure patients’ individual needs are met.

NY’s well-regulated MC program is designed for patients to regularly interact with clinicians. The system map in Figure 1 illustrates the process of obtaining cannabis for medical use in NY up to December 2021. Several changes to NY’s MC program that take effect in 2022—due to NY legalizing recreational cannabis (RC) use in March 2021—are also noted below. When patients approach their doctor for a MC certification, doctors must review their patients’ history with controlled substances within the state’s prescription drug monitoring program (PDMP) before issuing a certification. The state’s PDMP is regularly reviewed afterwards to ensure patients are not given more than a 30-day supply of cannabis. Patients’ MC certifications include their qualifying condition(s) and associated symptom(s). Prior to RC legalization in NY—in which, as of January 24, 2022, patients may now register to the state’s MC program under any health condition—state law had required patients to register with at least one qualifying condition—ALS, cancer, chronic pain, epilepsy, HIV/AIDS, Huntington’s disease, inflammatory bowel disease (IBD), MS, neuropathy, opioid reduction, Parkinson’s disease, PTSD, or spinal cord injury—and at least one associated symptom—cachexia or wasting syndrome, seizures, severe nausea, severe or persistent muscle spasms, or severe or chronic pain. (Note, for the purposes of this study, patients who exclusively treat symptoms of
cachexia, nausea, and/or seizures are called “non-pain” patients, while patients whose symptoms include severe muscle spasms or severe pain are called “pain” patients.) Patients who receive their certification then apply for a registry identification (ID) card with New York State to enroll in its MC program. Within the certification, doctors also have the option of restricting their patient to a specific dispensary product(s), depending on factors such as the patient’s medical history and evidence from the literature. Otherwise, doctors make a non-specific recommendation (“per pharmacist consultation”) so that patients may consult with dispensary staff to select a dispensary product they prefer. (Note that, according to a pharmacist staffed at the MC company whose data is analyzed in this study, the majority of patients who purchase from this MC company are not restricted to certain dispensary products.) Until RC legalization brought about proposed changes to NY’s MC laws, the state had required dispensaries to staff at least one on-site pharmacist at all times, and that patients may only receive medical advice about dispensary products from either clinicians (doctors, nurse practitioners, physician assistants, or pharmacists who have completed a four-hour course on cannabis) or dispensary technicians (“bud tenders”) under the supervision of a clinician. If patients restricted to a product(s) wish to make a change, they make a verbal agreement with their doctor, and their doctor then provides them with a standing order that allows them to purchase a different product(s) after consulting with dispensary staff; the change is documented in patients’ electronic profiles, and the doctor is subsequently notified by dispensary staff. Despite these regulations, there is still potential for MC patients to purchase dispensary products inconsistently with clinical research; for example, doctors or pharmacists could make clinically inconsistent recommendations, or patients may purchase cannabis products for one qualifying condition that is clinically inconsistent for another condition.

To date, no study has examined the degree to which MC patients make clinically inconsistent purchases. This study is the first to do so and accounts for methodological issues that affected previous studies. Haug et al. (2016), for example, had surveyed dispensary staff in Arizona, California, Colorado, Connecticut, Maine, Massachusetts, Oregon, Rhode Island, and Washington D.C. to observe which types of cannabis products (e.g., high THC, indica, sativa) they recommend to patients for specific health conditions, but the study does not examine which products MC patients purchase themselves. Various studies surveying the general MC patient population also do not examine which cannabis products patients purchase to treat specific qualifying conditions. A recent cross-sectional study of sales data from a MC company in NY provides descriptive statistics of patient demographics, qualifying conditions, and products purchased by patients but does not describe which cannabis products are purchased by different qualifying conditions. Surveys of MC patients with specific conditions such as chronic pain or MS examine the cannabis products these patients consume but do not evaluate the degree to which these products are consistent with clinical research. Finally, although survey data have been found to be reliable for examining drug use patterns, sales data more precisely catalogue which products were purchased, reducing the risk of human error (whether in recalling
one’s purchases or in patients’ unwillingness to report) and enabling me to objectively assess patients’ purchase history and the degree to which clinically inconsistent purchases occur.

Methods

Data

A single medical cannabis (MC) company that currently operates four dispensaries in NY provided a de-identified, unbalanced panel dataset (January 1, 2016 to November 30, 2020) that contains sales invoices from its registered patients.\textsuperscript{viii, 88} I gained access to this data following a Data Use Agreement with this company and approval from the RAND Corporation’s Human Subjects Protection Committee. Each invoice contains the patient’s age, gender, registered qualifying condition(s), and details on the product(s) purchased. For privacy, the dataset defines age as “age at the first invoice” and omits the patients’ date of birth. Multiple invoices made by a patient on the same day are treated as the same invoice; no same-day purchases are at multiple dispensary locations. The dataset does not include sales of cannabis-related accessories (e.g., pipes, rolling paper), only consumable cannabis products. \textbf{Table 1} lists all products available to this company’s patients in NY as of December 2021; each cell contains the first recorded date when a product formulation was purchased—mode of delivery (e.g., capsule, tincture) and ratio of THC per unit of CBD (“THC to CBD ratio”—in order to reflect approximately when each product formulation was available to patients.\textsuperscript{ix, 89-90} Note that, although several modes of delivery (e.g., lotion, oral solution) were only available after 2018, all categorical THC to CBD ratios (high THC, equal THC to CBD, high CBD) have been available to patients in capsule/tablet, vapor (“vape”), and tincture form since 2016.

The dataset contains 153,545 invoices from 30,811 patients, but I restrict my analysis to certain patients. First, I remove outliers for \textit{total quantity of items} in an invoice, starting at the 99\textsuperscript{th} percentile; any patient with one invoice containing over 13 items is excluded (-617 patients), so that I can observe more typical purchase behaviors. Next, I restrict the dataset to patients with only one qualifying condition, so that I can reasonably assume patients are only purchasing cannabis products for that single qualifying condition and its associated symptoms (-2,377 patients). Additionally, because I want to examine patients’ first and last invoices, I restrict the dataset to patients with at least two invoices (-9,949 patients). After applying my exclusion

\textsuperscript{viii} As of December 2021, NY has 10 MC companies, which operate 38 total dispensaries (OCM, 2022).

\textsuperscript{ix} Before NY legalized recreational cannabis use in 2021 (in which sales of cannabis flower began on October 26, 2021), the state had prohibited smokable cannabis products (e.g., flower, dab) and cannabis-infused food products without state approval (NYDOH 2020, Section 1004.11(d, g)).
criteria, the dataset contains 17,872 patients, for whom I only examine their first and last invoices; all invoices that occur between patients’ first and last are dropped.

As discussed below, I apply different definitions of clinically inconsistent purchases, and for each definition, I assess a different set of patients. The initial set of patients who meet my inclusion criteria above (N = 17,872 patients) form my secondary dataset, for which I apply my more restrictive definition of clinically inconsistent purchases. My primary dataset is further restricted to patients with cancer, epilepsy, or multiple sclerosis (MS) because my less restrictive definition of clinically inconsistent purchases only applies to these patients (N = 3,031 patients).

Table 2 displays patient demographics for the original dataset (N = 30,811 patients; 153,545 invoices), secondary dataset (N = 17,872 patients; 35,744 invoices), and primary dataset (N = 3,031 patients; 6,062 invoices). Restricting my analysis to cancer, epilepsy, or MS patients disproportionately affects male patients and younger patients (age under 40); compared to both the original and secondary datasets, the primary dataset has a significantly higher proportion of female patients (p < 0.001), older patients (ages 40 and up) (p < 0.001), and patients who are exclusively treating non-pain symptoms (or “non-pain” patients) (p < 0.001). The secondary dataset is more similar to the original dataset; although the secondary dataset has a significantly higher proportion of older patients than the original dataset (p < 0.001), differences in the proportions of female patients and non-pain patients are not statistically significant. Across all three datasets, the majority of patients are female (original dataset, 51 percent; secondary dataset, 52 percent; primary dataset, 57 percent), ages 40 and up (original dataset, 74 percent; secondary dataset, 76 percent; primary dataset, 81 percent), and treating pain-related symptoms (original dataset, 92 percent; secondary dataset, 92 percent; primary dataset, 67 percent).

Measures

The dependent variable for my analysis is the incidence of clinically inconsistent purchases. For each invoice, certain products are “flagged” as clinically inconsistent if their THC to CBD ratio is inconsistent with either 1) the ratio(s) that clinical research as of May 2021 suggests is effective for the patient’s qualifying condition or, for a sensitivity analysis, 2) the ratio that is most frequently recommended by this MC company’s on-site pharmacists for the patient’s qualifying condition at the patient’s first visit. Respectively, I refer to these as my less and more restrictive definitions of clinically inconsistent purchases. As noted above, I apply the less restrictive definition to the primary dataset and the more restrictive definition to the secondary dataset.

Dependent variables for both the less and more restrictive definitions are count variables—variables with non-negative integer values—that total the number of clinically inconsistent items per invoice. For each invoice, the total quantity of each product is flagged if that product’s THC to CBD ratio is clinically inconsistent, and the sum total of flagged items is obtained per invoice. For example, if an invoice contains two quantities of one product and eight quantities of another
product, and only the latter product is flagged, then 8 of 10 items in this invoice are flagged as clinically inconsistent. THC to CBD ratios that are clinically consistent for each qualifying condition are summarized in Table 3. Different ratios are considered clinically consistent depending on whether I use my less restrictive definition (for which I only examine cancer, epilepsy, and MS patients) or more restrictive definition. Below, I describe both definitions of clinically consistent and how I construct dependent variables for each definition.

Less Restrictive Dependent Variable (“Conservative” and “Liberal” Versions)

My less restrictive dependent variable, which I construct to examine patients included in the primary dataset (cancer, epilepsy, or MS patients only), is largely based on the report from Chapter 2 by the National Academies of Sciences, Engineering, and Medicine (NASEM, 2017), which reviews human clinical studies on the therapeutic effects of cannabis or cannabinoids for qualifying conditions listed in U.S. MC laws. Based on the findings and quality of studies included in their review, NASEM forms conclusions about the level of evidence there is that cannabis products are therapeutically effective or ineffective (from “Conclusive Evidence” to “Insufficient or No Evidence”). Additionally, to supplement findings from the NASEM report and to construct my less restrictive dependent variable, I use findings from my literature review in Chapter 2, which identifies RCTs published between January 2016 and May 2021 on the therapeutic effects of cannabis or cannabinoids for qualifying conditions.

For qualifying conditions listed in NY’s MC laws, Table 4 lists cannabis products that have been examined in randomized controlled trials (RCT) that are either included in the NASEM report or identified in my literature review from Chapter 2. As in Chapter 2, I focus on RCTs because NASEM chiefly relies on these types of studies to draw conclusions about the therapeutic effects of cannabis or cannabinoids. The Qualifying Condition column lists the qualifying condition of interest, and the Cannabinoid(s) and Mode(s) of Delivery columns, respectively, list the cannabinoids (e.g., THC, CBD, THC plus CBD) and modes of delivery (e.g., capsule, oromucosal spray) that have been examined. The last column, NASEM’s Assessment of the Clinical Effect(s) Studied, lists the clinical conclusion NASEM has drawn about the level of evidence there is (e.g., “Conclusive Evidence,” “Moderate Evidence”) that cannabis or cannabinoids are effective or ineffective for producing a therapeutic effect (e.g., treating MS-induced spasticity). The last column also includes notes on key methodological choices I make for this analysis (e.g., why I include epilepsy patients but exclude chronic pain patients from the primary dataset). Finally, Table 4 is divided into subsections according to qualifying conditions included in the primary dataset and all other qualifying conditions I also include in the secondary dataset.

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X Because RCTs assign study subjects to treatment and control conditions (i.e., cannabis products vs. placebo and/or other medications) and evaluate any significant differences in treatment effects between both groups, these types of studies can better infer causality than single-arm or observational studies (Hariton and Locascio, 2018).
For the less restrictive dependent variable, I only examine purchases from patients whose qualifying conditions have “substantial” or “conclusive” evidence that cannabis or cannabinoids are therapeutically effective (Table 4a). These qualifying conditions include cancer, for which the literature suggests THC-dominant products (not CBD-dominant products) are therapeutically effective, and MS, for which the literature suggests THC-dominant or equal THC to CBD products (not CBD-dominant products) are therapeutically effective. Additionally, although NASEM (2017) concludes there is “insufficient” evidence to support or refute that cannabinoids are effective for treating epilepsy, several RCTs published after their review find that oral, cannabis-derived CBD (Epidiolex®) is effective for reducing seizures in certain forms of epilepsy—Dravet syndrome, Lennox-Gastaut syndrome, and tuberous sclerosis complex. Based on these findings, between 2018 and 2021, Epidiolex® was approved in Australia, the E.U., the U.K., and the U.S. for treating these conditions. Because of these developments, I include epilepsy patients in the primary dataset, for which the literature suggests CBD-dominant products are therapeutically effective (not THC-dominant products). Otherwise, except for epilepsy, purchases from patients whose qualifying conditions have “moderate” to “insufficient or no evidence”—ALS, HIV/AIDS, Huntington’s disease, IBD, opioid reduction, Parkinson’s disease, PTSD, and spinal cord injury—are only included in the secondary dataset (Table 4b). Purchases from chronic pain and neuropathy patients are also excluded from the primary dataset because, as of May 2021, the literature suggests that cannabis-derived THC, cannabis-derived THC plus CBD, and inhaled cannabis (for which the primary active ingredient is THC) are all effective for treating pain, as well as some evidence that CBD (which has anti-inflammatory properties) is also therapeutically effective. Thus, for the purposes of this study, products with any THC to CBD ratio can be considered clinically consistent for treating chronic pain.

To summarize, for my less restrictive dependent variable, I only examine patients with cancer,

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xi A clinical study included in NASEM (2017) (Duran et al., 2010) and another more recent study (Grimison et al., 2020) find oral, cannabis-derived, equal THC to CBD products to be significantly more effective than placebo in reducing chemotherapy-induced nausea and vomiting. Although NASEM (2017) concludes that oral cannabinoids are effective antiemetics for treating chemotherapy-induced nausea and vomiting (p. 94), they do not specify whether the evidence suggests one cannabinoid formulation is more therapeutically effective than the other. However, there are substantially more RCTs included in NASEM (2017) that examine THC-dominant products (THC extract, synthetic THC [Marinol®, Cesamet®, levonantradol]) than there are that examine equal THC to CBD products. Thus, for the less restrictive dependent variable, I create a “conservative” version that considers equal THC to CBD products to be clinically inconsistent for cancer patients and a “liberal” version that does not. Note also that NASEM (2017) does not report identifying any good-quality RCTs that examine CBD or CBD-enriched cannabis products for treating chemotherapy-induced nausea and vomiting or MS-induced spasticity (pp. 101-103). Nor does NASEM (2017) report finding any RCTs that examine THC or THC-enriched cannabis products for treating epilepsy (pp. 99-101).

xii The only study to examine CBD in either NASEM (2017) or in RCTs published since then (as of May 2021) does not find CBD to significantly reduce spasticity frequency compared to placebo (Vaney et al., 2004). Thus, for the purposes of this study, CBD-dominant items are not considered clinically consistent for MS patients.
epilepsy, or MS (N = 3,031). For cancer and MS patients, I flag purchases of CBD-dominant products; for epilepsy patients, I flag purchases of THC-dominant products.

Finally, for a sensitivity analysis, I use two versions of my less restrictive dependent variable for what purchases are considered clinically inconsistent. The “liberal” version (or least restrictive definition) does not flag purchases of equal THC to CBD products for cancer and epilepsy patients. Conversely, the “conservative” version (or moderately restrictive definition) does flag purchases of equal THC to CBD products for these patients (recall, based on findings from NASEM’s review, that equal THC to CBD products can be considered clinically consistent for MS patients). For example, with the moderately restrictive definition, I flag purchases of equal THC to CBD and THC-dominant products for epilepsy patients because, as of May 2021, the literature suggests that only CBD (not THC) is effective for treating epilepsy; conversely, with the least restrictive definition, I consider purchases of equal THC to CBD products to be clinically consistent for epilepsy patients, and I only flag purchases of THC-dominant products.

**More Restrictive Dependent Variable**

For additional sensitivity analyses, I construct the more restrictive dependent variable to examine patients included in the secondary dataset (N = 17,872 patients), which includes all qualifying conditions, not just patients with cancer, epilepsy, or MS. For this dependent variable, I define clinically consistent purchases based on the categorical THC to CBD ratio (e.g., high THC, high CBD) that is most frequently recommended by this MC company’s licensed, on-site pharmacists for the patient’s qualifying condition at their first visit (note that this information was provided separately by the company and not included with the sales dataset). Specifically, I flag purchased products as clinically inconsistent if their categorical THC to CBD ratios are not the most frequently recommended for the patient’s qualifying condition. **Table 5** lists the categorical THC to CBD ratios that are most frequently recommended by this company’s pharmacists, as well as the ratios most frequently recommended by dispensary staff surveyed in Haug et al. (2016) across eight U.S. states and Washington D.C.45 Note that, as of December 2021, the products recommended most frequently by this MC company are almost completely consistent with NASEM (2017), more so than recommendations by dispensary staff surveyed in Haug et al. (2016). This finding is important because it suggests that pharmacists at this company are making clinically consistent recommendations, and it allows my more restrictive dependent variable to act as an additional, supplementary measure of clinically consistent purchases.

Note also that this dependent variable applies the most restrictive definition of clinically inconsistent purchases, compared to both the liberal (least restrictive definition) and conservative (moderately restrictive definition) versions of my less restrictive dependent variable. First, note again that, with my more restrictive dependent variable, purchases from all patients are eligible to be flagged (not just patients with cancer, epilepsy, and MS). Second, unlike with my less restrictive dependent variables, patients’ purchases may only match a single categorical THC to
CBD ratio to be considered clinically consistent. For example, according to the moderately restrictive definition, purchases of all THC-dominant ratios (high THC, moderate THC) are clinically consistent for cancer patients. Conversely, according to the most restrictive definition, only high THC products are clinically consistent for cancer patients; purchases of any other THC to CBD ratio are flagged (e.g., moderate THC).

Thus, my secondary dependent variable helps create a spectrum of least to most restrictive definitions for which products are considered clinically consistent. The liberal version of my less restrictive dependent variable is the least restrictive, given that I only examine patients with cancer, epilepsy, and MS and allow for equal THC to CBD products to be considered clinically consistent for cancer and epilepsy patients; by design, this version flags the least number of purchases as clinically inconsistent. The conservative version of my less restrictive dependent variable is moderately restrictive because, for this variable, I now flag equal THC to CBD products for cancer and epilepsy patients. Finally, my most restrictive dependent variable examines all qualifying conditions (not just cancer, epilepsy, or MS patients), and only one THC to CBD ratio is considered clinically consistent for each qualifying condition; by design, this dependent variable flags the most purchases. This spectrum enables me to approximate what percent of patients make clinically inconsistent purchases, depending on which definition of clinically inconsistent I use. It also enables me to see whether findings from my analyses are qualitatively similar, regardless of which definition I use. For the purposes of this study, I primarily report results for the conservative version of my less restrictive dependent variable (viz., the moderately restrictive dependent variable) and use the other two dependent variables for sensitivity analyses.

**Independent Variables**

For all regression analyses, I control for gender (male, female), age (“age at first invoice”; age under 40, ages 40 and up), and symptom (pain, non-pain); these variables assess whether certain patient characteristics are significantly associated with making “clinically inconsistent” purchases. Recall that, during the study period (i.e., prior to legal changes from recreational cannabis legalization), MC patients in NY had to register with at least one qualifying condition (ALS, cancer, chronic pain, epilepsy, HIV/AIDS, Huntington’s disease, IBD, MS, neuropathy, opioid reduction, Parkinson’s disease, PTSD) and at least one associated symptom (cachexia or wasting syndrome, seizures, severe nausea, severe or persistent muscle spasms, severe or chronic pain).\(^{50, 55-56}\) Note that, although I restrict my analyses to patients treating only one qualifying condition, patients may be treating multiple symptoms. For the purposes of this study, “pain” patients are those who, regardless of their qualifying condition, are registered as treating at least one pain-related symptom (severe or chronic pain, severe or persistent muscle spasticity), while “non-pain” patients are those who are registered as exclusively treating “non-pain” symptoms (cachexia or wasting syndrome, seizures, and/or severe nausea).\(^{142}\) For example, a patient whose registered qualifying condition is cancer and registered associated symptoms are severe nausea
and severe pain would be considered a pain patient, while a patient whose qualifying condition is
epilepsy and whose only associated symptom is seizures would be considered a non-pain patient.
I categorize patients this way to evaluate whether pain patients make significantly more
clinically inconsistent purchases than non-pain patients, given that pain is more difficult to verify
than other symptoms (e.g., seizures, cachexia, chemotherapy-induced nausea) and theoretically
could be used to obtain THC-dominant products for non-medical use.\textsuperscript{143-144}

Additionally, I control for several invoice-related characteristics. Total quantity of items is
included as a control because it is directly related to the “total number of flagged items” in an
invoice and there is substantial variation in the total quantity of items purchased among patients’
invoices (primary dataset: range 1 to 13, mean 3.0, SD: 2.2; secondary dataset: range 1 to 13,
mean 2.8, SD 1.9). I also control for total number of invoices because the total number of
invoices each patient has with this MC company substantially varies (primary dataset: range 2 to
181 invoices, mean 7 invoices, SD 8.9; secondary dataset: range 2 to 196 invoices, mean 7
invoices, and SD 9.4) and I want to account for any differences between patients who visit more
frequently and less frequently. Additionally, to account for quarterly and yearly trends (e.g.,
seasonal changes, holidays), I control for quarter (Q1: January to March, Q2: April to June, Q3:
July to September, Q4: October to December) and year of invoices (2016 to 2020). Finally, I
control for dispensary location to account for any key differences between all five of the
company’s dispensaries that have ever operated in NY (e.g., surrounding shops, population
density, quality of recommendations provided). Note that one of the company’s locations closed
in April 2018 and another opened in April 2019, and that during the study period of this analysis,
MC companies in NY could only operate up to four dispensaries.\textsuperscript{145}

\textbf{Analysis}

I conduct all analyses using Stata MP 17.0.\textsuperscript{146} First, for both primary and secondary
dependent variables, I conduct descriptive analyses by obtaining the percent of patients who
make clinically inconsistent purchases at the first invoice and last invoice, as well as the average
percent of clinically inconsistent items per invoice. To assess whether patients make fewer
clinically inconsistent purchases over time, I observe whether there is a significant decrease in
clinically inconsistent purchases between first and last invoices. I also obtain these descriptive
statistics for each demographic group (age, gender, pain or non-pain symptoms). Next, I conduct
logit regression analyses to observe which demographic groups are more likely to make
clinically inconsistent purchases compared to their respective counterparts (age under 40 vs. ages
40 and up; male vs. female; pain vs. non-pain symptom). Logit regressions use a binary form of
my dependent variables (0, “invoice has zero flags”; 1, “invoice has at least one flagged item”)

examine which factors significantly raise or lower the likelihood of making a clinically inconsistent purchase.\textsuperscript{xiii, 147}

For a sensitivity analysis, I also conduct negative binomial (NB) regression analyses, which unlike logit regressions utilize the “count” version of my dependent variables to estimate the relationship between control variables and the expected number of clinically inconsistent items per invoice.\textsuperscript{xiv} NB models are a variation of Poisson models that are applicable when the dependent variable is a count variable, is not normally distributed, has a substantial number of observations with low values (e.g., 0, 1, 2), and is overdispersed (i.e., its estimated variance exceeds its estimated mean), which is the case for both my less and more restrictive dependent variables (see Figure 2).\textsuperscript{xv, 148-153}

Note that for regression analyses, I initially analyze patients’ first and last invoices separately and then conduct pooled regressions, in which I analyze first and last invoices together.\textsuperscript{154} I use pooled regressions to individually examine whether, for each demographic group (e.g., female patients alone), from first invoice to last invoice, there is a significant decrease in the likelihood of making a clinically inconsistent purchase (estimated by pooled logit regressions) or in the average quantity of flagged items per invoice (estimated by pooled NB regressions), holding other variables constant. To conduct pooled regressions, I add a variable to my pooled models (last invoice) that indicates whether an invoice is a patient’s last (0, “first invoice”; 1, “last

\textsuperscript{xiii} I code the following model in Stata MP 17.0, where “i.” denotes a categorical variable, “flagged” means the invoice has at least one clinically inconsistent item for the patient’s qualifying condition (vs. no clinically inconsistent items), “age40” means the patient is at least 40 years old (vs. age under 40), “male” means the patient is male (vs. female), “nonpain” means the patient is exclusively treating a non-pain symptom(s) (vs. having at least one pain-related symptom(s)), “last” indicates whether an invoice is a patient’s last invoice (vs. first invoice), “##” denotes an interaction is included in the model (in which the interaction term and each of the interacted variables are included as controls), “location” means the dispensary location in which an invoice took place, and “quarter” and “year” respectively mean the quarter and year in which an invoice took place:

\begin{verbatim}
  logit flagged i.older##i.last i.male##i.last i.nonpain##i.last total_items total_invoices i.quarter i.year i.location
\end{verbatim}

\textsuperscript{xiv} I code the following model in Stata MP 17.0, where “flags” means the total quantity of flagged items in an invoice. Note that, unlike in my logit models, the variable total\textunderscore items is coded as an offset or rate of exposure variable—In(total quantity)—to capture the average quantity of flagged items per invoice:

\begin{verbatim}
  nbreg flags i.older##i.last i.male##i.last i.nonpain##i.last total_invoices i.quarter i.year i.location, offset(total\textunderscore items)
\end{verbatim}

\textsuperscript{xv} Note that the dispersion parameter (\(\alpha\)), which tests for overdispersion of the dependent variable, is statistically significant for nearly all of my NB regressions (p < 0.01), suggesting that the dependent variables are overdispersed and that NB regressions produce better estimates than Poisson regressions (Sturm, 2017). The dispersion parameter is only non-significant for the NB regression on my most restrictive dependent variable at the first invoice, and the model does not achieve convergence suggesting that a Poisson regressions would produce better estimates in this instance. After conducting Poisson regressions instead on the most restrictive dependent variable for first invoices—one regression with and one without robust standard errors (Cameron and Trivedi, 2013)—I obtain qualitatively similar results as my NB regression (not shown in tables).
invoice”) during the study period (January 2016 to November 2020). I also interact the last invoice variable with all demographic variables to control for specific demographic groups at their last invoice (last invoice*age 40 plus, last invoice*male, last invoice*non-pain symptom). Interaction terms can take a specific values to observe certain demographic groups at the first or last invoice (e.g., if age 40 plus is 0, “age under 40”; if last invoice is 0, “first invoice”). Using these interaction terms, for each demographic group, I obtain the predicted probability of making a clinically inconsistent purchase (logit regressions) or the predicted rate of clinically inconsistent purchases (NB regressions) at the first invoice and at the last invoice (e.g., female patients’ first invoice vs. female patients’ last invoice), holding other variables constant.

To summarize, my analysis examines 1) the percent of patients that makes clinically inconsistent purchases and the average percent of flagged items per invoice, 2) whether patients make significantly fewer clinically inconsistent purchases from first to last invoice, 3) which patient characteristics are associated with a greater likelihood of making a clinically inconsistent purchase, and 4) whether individual demographic groups (e.g., female patients, patients over 40 years old) have a significantly lower likelihood between their first and last invoices. For sensitivity analyses, to ensure my findings are robust to modeling errors and other sources of bias, I use different definitions of clinically inconsistent: 1) a less restrictive definition that has a liberal (least restrictive) and a conservative version (moderately restrictive) and that only applies to cancer, epilepsy, and MS patients; 2) a more restrictive definition that applies to all patients and is the strictest of all three definitions. I also conduct NB regressions in addition to logit regressions to see if I obtain qualitatively similar findings. All regression models use the same control variables, except that pooled regressions (first and last invoices examined together) include a control variable for last invoice and interaction terms; pooled regressions help me observe whether there is a significant decrease between first and last invoices in the predicted probability (logit regressions) or rate (NB regressions) of clinically inconsistent purchases for each demographic group (e.g., female patients only, older patients only), holding other variables constant.

Results

Descriptive statistics and regression outputs for sensitivity analyses, as well as all pooled regression outputs, are provided in the Appendix. For the purposes of this study, I primarily report results for the moderately restrictive dependent variable and use the other two dependent variables (least and most restrictive) for sensitivity analyses.

Descriptive Analyses

Table 6 shows descriptive statistics for clinically inconsistent purchases by demographic characteristics. Recall that, for my main analysis, I only examine purchases from patients with

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cancer, epilepsy, or multiple sclerosis (MS) because, as of May 2021, there is substantially more evidence from clinical research for these qualifying conditions than others (e.g., Huntington’s disease) to suggest that certain THC to CBD ratios are therapeutically effective. Although, at the first invoice, 56 percent of patients with cancer, epilepsy, or MS make purchases that are inconsistent with clinical research, this number significantly shrinks to 45 percent at the last invoice (p < 0.001) (Column 1). Similarly, among patients with cancer, epilepsy, or MS, from first invoice to last invoice, there is a significant decrease in the average percent of clinically inconsistent items per invoice (p < 0.001) (Column 2). Additionally, for all demographic groups (e.g., male patients, female patients) except younger patients (age under 40), there is a significant decrease in the percent of patients making clinically inconsistent purchases (p < 0.001) and in the average percent of clinically inconsistent items per invoice (p < 0.001).

For sensitivity analyses, I use alternative definitions of which products can be considered to be clinically inconsistent; depending on which definition I use, the amount of clinically inconsistent purchases I capture varies greatly. First, when I use the least restrictive definition—in which I allow products with an equal THC to CBD ratio to be considered clinically consistent for cancer and epilepsy patients—27 percent of patients with cancer, epilepsy, or MS make clinically inconsistent purchases at the first invoice, and 25 percent of patients make clinically inconsistent purchases at the last invoice (see Appendix Table 1); the decrease in clinically inconsistent purchases, however, is not statistically significant. Additionally, unlike in my main analysis, the decreases in clinically inconsistent purchases from first to last invoice are not statistically significant for female patients, male patients, and non-pain patients. Next, when I use the strictest definition of clinically inconsistent purchases—in which I now assess all qualifying conditions (not just cancer, epilepsy, and MS), and patients’ purchases must match the categorical THC to CBD ratio that is most frequently recommended for their qualifying condition at the first visit—69 percent of patients make clinically inconsistent purchases at the first invoice, and 48 percent of patients make clinically inconsistent purchases at the last invoice; the decrease is statistically significant for all patients (p<0.001) as well as each demographic group (e.g., female patients, male patients) (p < 0.001). To summarize, regardless of which definition I use, fewer patients make clinically inconsistent purchases over time; decreases in clinically inconsistent purchases are only not statistically significant for the least restrictive definition.

Regression Analysis

Table 8 displays logit regression results estimating the likelihood of making a clinically inconsistent purchase at the first invoice and, separately, at the last invoice (again, specifically for the moderately restrictive dependent variable; see Appendix Table 2 for regression outputs from sensitivity analyses using the least or most restrictive dependent variable). Chi-square (χ²) goodness-of-fit tests (shown at the bottom of regression outputs) are statistically significant.
suggesting that all variables included in the model collectively influence the likelihood of clinically inconsistent purchases. I report odds ratios (OR) generated from logit regressions, with 95 percent confidence intervals (CI) in parentheses (confidence intervals are not shown in tables). Odds ratios describe how a one-unit change in a variable (e.g., being a male patient vs. a female patient, having one more item in an invoice) affects the expected odds of making a clinically inconsistent purchase relative to the odds without the one-unit change, holding other variables in the model constant. At the first invoice (Column 1), older patients (ages 40 and up) have twice as high odds of making “clinically inconsistent” purchases as younger patients (age under 40), and the difference is statistically significant (OR: 1.99; 95% CI: 1.61 to 2.38). However, at the last invoice (Column 2), the magnitude decreases and is no longer significant (OR: 1.07; 95% CI: 0.88 to 1.30). Male patients at the first invoice have an estimated 16% lower odds of making a clinically inconsistent purchase than female patients, controlling for other variables, and the difference is statistically significant (OR: 0.84; 95% CI: 0.72 to 0.97). At the last invoice, male patients have 26% lower odds, and the difference is statistically significant (OR: 0.74; 95% CI: 0.64 to 0.86). Non-pain patients at the first invoice, compared to pain patients, have nearly equal odds of making a clinically inconsistent purchase, and the difference is not significant (OR: 0.97; 95% CI: 0.83 to 1.14), suggesting no difference between pain and non-pain patients in the likelihood of making a clinically inconsistent purchase. At the last invoice, non-pain patients have 7% higher odds of making a clinically inconsistent purchase than pain patients, but the difference is again not significant (OR: 1.07; 95% CI: 0.91 to 1.25).

Interestingly, when I apply the least restrictive definition of clinically inconsistent, non-pain patients have significantly lower odds of making a clinically inconsistent purchase than pain patients.

Chi-square ($\chi^2$) goodness-of-fit tests are statistically significant for nearly all regression models (p<0.01), including pooled regressions and sensitivity analyses using the least or most restrictive dependent variable as well as NB regressions. Only for the NB regression on last invoices with the least restrictive dependent variable is the chi-square goodness-of-fit test not statistically significant. For this particular regression model, when I conduct Poisson regressions instead, with or without robust standard errors (Cameron and Trivedi, 2013), goodness-of-fit tests are statistically significant (p < 0.01), and regression outputs are qualitatively similar to the NB regression.

Odds ratios are constructed using the binary version of my dependent variables, which equals 1 if an invoice is flagged (i.e., there is at least one clinically inconsistent item in an invoice) and 0 otherwise (non-flagged invoice, or no purchased items in the invoice are clinically inconsistent). As an example, let us use the gender variable, which identifies a patient as either male or female (0, “female”; 1 “male”). The probability (range 0 to 1) of a male patient having a flagged invoice is $p_1$, while the probability of the opposite (male patient does not have a flagged invoice) is $1-p_1$, or $q_1$. Similarly, the probability of a female patient having a flagged invoice is $p_2$, and the probability of the opposite is $q_2$. The odds (range 0 to infinity) of a male patient having a flagged invoice is defined as a ratio of $p_1$ to $q_1$ ($p_1/q_1$); male patients having a 0.25 or 1/4 odds of a flagged invoice ($p = 0.2, q = 0.8, p/q = 0.25$), means a male patient will have one flagged invoice for every four non-flagged invoices. The odds ratio for the gender variable compares male and female patients by dividing the odds of a flagged invoice for male patients by the odds of a flagged invoice for female patients ($p_1/q_1 \div q_2/p_2 = p_1/q_1 * p_2/q_2$). In this case, from the logit regression on first invoices with the moderately restrictive dependent variable, the odds ratio for being a male patient is 0.84 at the first invoice, meaning that male patients have a 16 percent lower odds of having a flagged invoice compared to female patients.
patients, at both the first invoice (OR: 0.61; 95% CI: 0.50 to 0.73) and last invoice (OR: 0.82; 95% CI: 0.68 to 0.99). Similarly, when I apply the strictest definition of clinically inconsistent, non-pain patients again have significantly lower odds of making a clinically inconsistent purchase than pain patients, at both the first invoice (OR: 0.54; 95% CI: 0.48 to 0.60) and last invoice (OR: 0.88 lower odds; 95% CI: 0.79 to 0.99). Additionally, when I apply the least restrictive definition, the difference in the odds of making a clinically inconsistent purchase between older and younger patients is no longer significant. Otherwise, regressions using the least restrictive and most restrictive dependent variables do not produce qualitatively different findings from regressions using the moderately restrictive dependent variable. NB regressions also do not produce findings that are qualitatively different from logit regressions (see Appendix Table 2 for details).

Finally, I conduct pooled regression analyses to obtain the predicted probability of making a clinically inconsistent purchase for each demographic group (e.g., female patients alone, without comparing to male patients). For all pooled models (including sensitivity analyses applying different definitions of clinically inconsistent purchases, as well as NB regressions), all interaction terms and the individual interacted variables are jointly significant (p < 0.001), suggesting the likelihood or rate of clinically inconsistent purchases significantly varies between patients’ first and last invoices (see Appendix Table 2 for details). Figure 3 displays 95 percent confidence intervals from pooled logit regressions for predicted probabilities at the first invoice and last invoice for each demographic group. According to these results, for nearly every demographic group, confidence intervals are lower for last invoices than first invoices and do not overlap, suggesting there is a significantly lower predicted probability of making a clinically inconsistent purchase at the last invoice than the first invoice. This is only not true for younger patients, for whom confidence intervals do overlap, suggesting that for this group alone (not compared to older patients), there is no significant difference between the first and last invoice in the predicted probability of making a clinically inconsistent purchase.

From sensitivity analyses, 95 percent confidence intervals from pooled regressions vary depending on which dependent variable and regression model I use (see Appendix Figures 1 and 2 for details). From pooled logit regressions, with the least restrictive dependent variable, predicted probabilities between first and last invoices are again significantly lower for older patients and pain patients but not younger patients, female patients, male patients, and non-pain patients. Similarly, from pooled NB regressions using the least restrictive dependent variable, no demographic groups show a significant decrease in the predicted rate of clinically inconsistent purchases. Conversely, with the most restrictive dependent variable, confidence intervals for last invoices are significantly lower than first invoices for nearly every demographic group (except non-pain patients in pooled NB regressions).
Discussion

According to the moderately restrictive definition of clinically inconsistent, which I mainly report for this analysis, approximately one half of medical cannabis (MC) patients make purchases in a manner that is inconsistent with clinical cannabis research as of May 2021. If we take sensitivity analyses into account (in which we observe estimates after applying the least or most restrictive definition), between one quarter and two-thirds of patients make clinically inconsistent purchases. Regression analyses suggest that clinically inconsistent purchases are more frequent among female patients than male patients and among older patients (ages 40 and up) than younger patients (age under 40); these findings are robust to multiple regression model specifications and ways of operationalizing the dependent variables.

Conversely, regression results for pain patients (whose symptoms include severe or chronic pain and/or severe or persistent muscle spasms) versus non-pain patients (who exclusively treat cachexia or wasting syndrome, severe nausea, and/or seizures) are sensitive to how I define purchases to be clinically inconsistent. In my main regression analysis, I find no difference in clinically inconsistent purchases between pain and non-pain patients, but when I use the least or most restrictive dependent variable, regression models suggest that pain patients make clinically inconsistent purchases more frequently than non-pain patients. Upon further investigating, this occurs because significantly more cancer or multiple sclerosis (MS) patients with pain symptoms than non-pain symptoms are purchasing high CBD products (p < 0.01, not shown in tables), for both first invoices and last invoices. Recall that, for the least restrictive dependent variable, equal THC to CBD products are considered clinically consistent for both cancer and MS patients, whereas these products are clinically inconsistent for cancer patients according to the moderately restrictive dependent variable. Thus, when I use the least restrictive dependent variable, significantly more purchases from cancer or MS patients with pain symptoms than non-pain symptoms are flagged as clinically inconsistent, due to pain patients purchasing significantly more products with low THC to high CBD ratios than non-pain patients.

A similar phenomenon occurs with the most restrictive dependent variable. Recall that, for this dependent variable, purchases must match the categorical THC to CBD ratio that is most frequently recommended for patients’ qualifying condition by on-site pharmacists at patients’ first visit. Additionally, for this dependent variable (unlike the moderate and least restrictive dependent variables), I examine all patients, not just cancer, epilepsy, and MS patients. According to the most restrictive dependent variable, 95 percent of the patients I examine have qualifying conditions for which high THC products are considered clinically consistent (e.g., chronic pain, cancer). Of these patients, 71 percent of clinically inconsistent purchases by patients treating pain symptoms are from purchases of high CBD or equal THC to CBD products, compared to 67 percent of non-pain patients; the difference in purchases of these products between pain and non-pain patients is statistically significant for both first invoices and last invoices (p < 0.05). To summarize, according to the most restrictive dependent variable,
pain patients make significantly more clinically inconsistent purchases than non-pain patients, primarily due to purchases of high CBD or equal THC to CBD products.

It is difficult to deduce from sales data why clinically inconsistent purchases occur, given that we cannot observe patients’ motivations for their purchases. For example, patients who are not restricted by their doctor to a specific cannabis product may simply be experimenting with different products to see which is most effective. It is worth noting, though, that pain patients purchase significantly more products with low THC to high CBD or equal THC to CBD ratios than non-pain patients. Not only have clinical studies suggested CBD and THC plus CBD to be effective for pain relief (as shown in Chapter 2), but CBD’s non-intoxicating properties and ability to counteract THC’s intoxicating effects could be desirable to many patients.\(^7, 155-159\) Thus, I can reasonably infer that pain patients in this dataset who make clinically inconsistent purchases of high CBD or equal THC to CBD products are not necessarily making these purchases for non-medical or recreational use. Whereas one might interpret previous research to suggest that many MC patients use pain symptoms to obtain high THC products for recreational use,\(^144, 160-167\) my findings cast some doubt as to whether MC patients treating pain symptoms are necessarily more likely to use cannabis recreationally than MC patients treating non-pain symptoms.

Finally, despite there being a substantial share of patients who make clinically inconsistent purchases, these purchases decrease over time, and pooled regression analyses suggest this is even true for older patients and, to some extent, female patients. We cannot deduce from sales data why this occurs, whether it is due to doctors changing their recommendations after learning more from clinical research, the influence of on-sight pharmacists at dispensaries, patients doing their own research, or patients figuring out which products are most effective after experimenting with different products.

**Limitations**

Although this study contributes unique findings to the literature, its findings may not necessarily apply to other U.S. states or jurisdictions. The dataset underrepresents younger patients (age under 40), which have been better represented in previous studies of medical cannabis (MC) patients.\(^64-65, 67-68, 72-73, 75, 80\) However, the age range (cancer, epilepsy, and MS patients: 1 to 100; full dataset: 1 to 103) is much wider than in other studies on MC patients, which typically only include adults aged 18 and up.\(^62-63, 65, 67-69, 71, 73-74, 76-77, 80-81\) The dataset also reflects only one MC company and five dispensaries out of 10 total MC companies and nearly 40 total dispensaries in NY, and the secondary dataset (N = 17,872 patients) covers less than half of
registered MC patients in NY throughout the study period. Furthermore, over half of patients (in both primary and secondary datasets) and three of four dispensaries from this MC company are located in NY’s two southernmost regions (not shown in tables or figures). Thus, it is possible for patients who purchase from this company to not be representative of MC patients in NY overall, let alone the U.S., especially given that NY had a uniquely well-regulated MC program during the study period of this analysis (e.g., prohibiting smoked cannabis products, requiring pharmacists to be staffed at its MC dispensaries). These findings, therefore, may not necessarily apply to U.S. states and jurisdictions, especially those with less regulated MC programs.

Finally, this study bases its definitions of clinically consistent purchases on clinical cannabis research as of May 2021. Definitions of what products could be considered clinically consistent may change over time as further research is conducted, as cannabis products that are currently considered to be therapeutically ineffective could be found to be effective in future clinical research. For example, within four years after NASEM (2017) published its report—in which the authors had found insufficient evidence at the time to support that CBD is effective for treating seizures in epilepsy—several studies found an oral solution containing cannabis-derived CBD to be therapeutically effective for treating certain forms of epilepsy, which led to international approval of Epidiolex®. Additionally, some patients may make clinically inconsistent purchases due to personal preferences that are unique to their own needs, such as using equal THC to CBD products to help avert the psychoactive effects of THC. In short, definitions of clinical consistency change over time and are only one measure of which cannabis products may be suitable for patients’ needs.

Conclusion

This paper examines medical cannabis purchases from registered patients in New York State between January 2016 and November 2020. I find that approximately half of medical cannabis patients make purchases in a manner that is inconsistent with clinical research as of May 2021, although clinically inconsistent purchases do decrease over time. It is unclear why clinically inconsistent purchases occur and why many patients make fewer clinically inconsistent purchases over time. However, the fact that a substantial share of patients make clinically inconsistent purchases suggests that what is known about the therapeutic effects of cannabis from clinical research is not being sufficiently incorporated into the medical cannabis market.

There are several options state, federal, and other policymakers should consider to ensure that MC patients make clinically informed purchases, especially for conditions for which there is

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xviii NY had approximately 52,000 registered MC patients in 2018 and has approximately 124,000 patients as of December 2021 (ProCon.org, 2018; OCM, 2022).
not yet sufficient cannabis research, so that patients can derive the most clinical benefits from cannabis products (including the use or avoidance of certain products, depending one’s own needs). U.S. states that have legalized medical cannabis use could implement regulations to hold cannabis dispensary products more accountable to similar standards as pharmaceutical medications, such as mandating additional or more detailed warning labels explaining the risks of certain cannabis products for certain health conditions (e.g., the use of high THC products for patients with anxiety)\textsuperscript{45, 155} or the extent to which clinical research has found cannabis products to be therapeutically effective. The contents of these labels would need to be determined and regulated by a medical board or other governmental institution. U.S. states or other jurisdictions with legalized medical cannabis (especially those considering legalization) can also limit their qualifying conditions to those that are deemed to have sufficient clinical evidence from the literature; the threshold for “sufficient” evidence would again need to be determined by state government or clinical professionals (e.g., the quality of existing research, at least one cannabis product has been found to be therapeutically effective). Additionally, state governments or medical boards can work to improve recommendation practices and guidelines within the medical cannabis market, such as requiring dispensary staff to have clinical training or ensuring that dispensary staff training is up-to-date with clinical research—especially given evidence from the literature that dispensary staff are often not clinically or scientifically trained and sometimes recommend cannabis products incongruently with cannabis research.\textsuperscript{45} Another option U.S. states and other jurisdictions might consider is requiring dispensaries to hire pharmacists, although this may be expensive for medical cannabis companies to implement. As of December 2021, only a few states with legalized medical cannabis use such as Connecticut, New York, and Pennsylvania require dispensaries to have on-site pharmacists.\textsuperscript{173-175} However, it is not guaranteed that such policies would result in more clinically consistent purchases; in fact, despite New York having a well-regulated medical cannabis program and requiring pharmacists to be on-site at dispensaries, half of the patients examined in this study make purchases contrary to clinical research, and between half to two-thirds of patients make purchases contrary to pharmacists’ recommendations. Thus, the effectiveness of such a policy first needs to be examined in future empirical work by comparing the share of clinically inconsistent purchases between U.S. states that do and do not require on-site pharmacists at dispensaries. Whichever intervention state or federal policymakers consider, they will need to act quickly as the U.S. cannabis market continues to rapidly evolve.
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Sturm, Roland, “Count Data,” Lecture, Pardee RAND Graduate School, Santa Monica, CA, October 12, 2017


166 Sexton, Michelle, Carrie Cuttlter, John S Finnell, and Laurie K Mischley, “A cross-sectional survey of medical cannabis users: patterns of use and perceived efficacy,” Cannabis and cannabinoid research, Vol. 1, No. 1, 2016, pp. 131, 133


173 Connecticut General Statutes (CGS), Palliative Use of Marijuana, 2020, Sec. 21a-408h, https://law.justia.com/codes/connecticut/2020/title-21a/chapter-420f/section-21a-408h/

174 Commonwealth of Pennsylvania (CPA), Medical Marijuana Act, 2016, code edition dated April 17, 2016, Section 801(b) https://www.legis.state.pa.us/cfdocs/legis/li/uconsCheck.cfm?yr=2016&sessInd=0&act=16

175 Haug et al., 2016, “Training and practices of cannabis dispensary staff,” p. 245
This diagram illustrates the process of obtaining a MC dispensary product in NY (note that this process excludes patients who use non-dispensary products—either over-the-counter products or prescription medications, whether or not they are cannabis-based; such patients are shown leaving the system).

The **black** boxes depict the first stage. The **blue** boxes and lines depict the second stage, in which patients can now visit MC dispensaries without having to re-apply for certification unless they need to update their certification with a new qualifying condition and/or associated symptom. **Health care provider** means licensed physician, nurse practitioner, or physician assistant under physician supervision that is in good standing, practicing medicine, has completed a two or four hour course regarding MC certifications, and is registered to issue MC certifications (NYS 2020, Section 1004.1). **PDMP** means prescription drug monitoring program.
Table 1. Availability of Cannabis Products to Medical Cannabis (MC) Patients Examined in This Study

<table>
<thead>
<tr>
<th>THC to CBD ratio (mg), Mode of Delivery</th>
<th>High CBD</th>
<th>Moderate CBD</th>
<th>Equal THC:CBD</th>
<th>Moderate THC</th>
<th>High THC</th>
<th>Mixed Bundle</th>
<th>(Mult. Potencies)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capsule / Tablet</td>
<td>1T:50C</td>
<td>1T:20C</td>
<td>1T:19C</td>
<td>1T:6C</td>
<td>1T:2C</td>
<td>1T:1C</td>
<td>6T:1C</td>
</tr>
<tr>
<td></td>
<td>6/13/2019</td>
<td>10/13/2016</td>
<td>2/28/2020</td>
<td>N/A</td>
<td>N/A</td>
<td>10/13/2016</td>
<td>2/28/2020</td>
</tr>
<tr>
<td></td>
<td>N/A</td>
<td>3/04/2019</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>7/19/2019</td>
<td>N/A</td>
</tr>
<tr>
<td>Oral Solution (Mouth Wash or Drink)</td>
<td>N/A</td>
<td>N/A</td>
<td>9/18/2019</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>9/18/2019</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Suppository</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>4/25/2020</td>
<td>N/A</td>
</tr>
<tr>
<td>Tincture</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>1/13/2016</td>
<td>2/17/2016</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Oral Spray</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>10/30/2019</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Powder</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>10/25/2019</td>
<td>N/A</td>
</tr>
<tr>
<td>Lozenge</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

The dates in each cell reflect the first recorded date in which each product formulation (mode of delivery and THC to CBD ratio) was purchased by a patient from the MC company whose sales data is analyzed in this study (according to the original dataset, N = 30,811 patients). The first purchase date helps approximate when each product formulation was available for patients to purchase.

Patients could mix or match THC to CBD ratios for capsule/tablet bundles. Vape bundles came with 19T:1C, 6T:1C, and 1T:1C products.
Table 2. Patient Demographics

<table>
<thead>
<tr>
<th></th>
<th>Original Dataset (N = 30,811)</th>
<th>Secondary Dataset (N = 17,872)</th>
<th>Primary Dataset (N = 3,031)</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Patients with Clinically Inconsistent Purchases</td>
<td>N/A</td>
<td>All QCs: Cancer, epilepsy, or MS: 58%</td>
<td>Liberal: 26%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>58%</td>
<td>Conservative: 50%</td>
</tr>
<tr>
<td>% Clinically Inconsistent Items per Invoice (Mean)</td>
<td>N/A</td>
<td>All QCs: Cancer, epilepsy, or MS: 46%</td>
<td>Liberal: 19%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>46%</td>
<td>Conservative: 41%</td>
</tr>
<tr>
<td># Clinically Inconsistent Items per Invoice (Mean)</td>
<td>N/A</td>
<td>All QCs: Cancer, epilepsy, or MS: 1.4</td>
<td>Liberal: 0.6</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.4</td>
<td>Conservative: 1.3</td>
</tr>
<tr>
<td>Age &lt;40</td>
<td>26%</td>
<td>24%</td>
<td>19%</td>
</tr>
<tr>
<td>Age 40+</td>
<td>74%</td>
<td>76%</td>
<td>81%</td>
</tr>
<tr>
<td>Female</td>
<td>51%</td>
<td>52%</td>
<td>57%</td>
</tr>
<tr>
<td>Male</td>
<td>49%</td>
<td>48%</td>
<td>43%</td>
</tr>
<tr>
<td>Pain Symptom</td>
<td>92%</td>
<td>92%</td>
<td>67%</td>
</tr>
<tr>
<td>Non-Pain Symptom</td>
<td>8%</td>
<td>8%</td>
<td>33%</td>
</tr>
<tr>
<td>Qualifying Conditions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ALS</td>
<td>0.2%</td>
<td>0.2%</td>
<td>-</td>
</tr>
<tr>
<td>Cancer</td>
<td>13%</td>
<td>12%</td>
<td>68%</td>
</tr>
<tr>
<td>Chronic Pain</td>
<td>60%</td>
<td>57%</td>
<td>-</td>
</tr>
<tr>
<td>Epilepsy</td>
<td>2%</td>
<td>2%</td>
<td>13%</td>
</tr>
<tr>
<td>HIV/AIDS</td>
<td>1%</td>
<td>1%</td>
<td>-</td>
</tr>
<tr>
<td>Huntington’s</td>
<td>0.03%</td>
<td>0.03%</td>
<td>-</td>
</tr>
<tr>
<td>IBD</td>
<td>4%</td>
<td>4%</td>
<td>-</td>
</tr>
<tr>
<td>MS</td>
<td>3%</td>
<td>3%</td>
<td>19%</td>
</tr>
<tr>
<td>Neuropathy</td>
<td>17%</td>
<td>15%</td>
<td>-</td>
</tr>
<tr>
<td>Opioid Reduction</td>
<td>1%</td>
<td>1%</td>
<td>-</td>
</tr>
<tr>
<td>Parkinson’s</td>
<td>2%</td>
<td>2%</td>
<td>-</td>
</tr>
<tr>
<td>PTSD</td>
<td>2%</td>
<td>1%</td>
<td>-</td>
</tr>
<tr>
<td>Spinal Cord Injury</td>
<td>3%</td>
<td>2%</td>
<td>-</td>
</tr>
</tbody>
</table>

Chi-square tests for differences in demographics (gender, age, symptom) between each pair of datasets

|                                        | Original vs. Secondary: p = 0.000 *** |
|                                        | Original vs. Primary: p = 0.000 ***   |
|                                        | Primary vs. Secondary: p = 0.000 ***  |

** p < 0.001, *** p < 0.01, * p < 0.05, ns = not significant

Secondary dataset Excludes patients with more than one QC (-1,737 patients), patients with only one invoice (-11,895 patients), and patients who purchase unusually large quantities of items (outliers for total quantity of items) (-99 patients). For patients in the secondary dataset, purchases are considered clinically inconsistent if the products’ categorical THC to CBD ratios (e.g., high THC) do not match the ratio that is most frequently recommended by this company’s on-site pharmacists for the patient’s QC. This is the strictest definition of clinically inconsistent used in this study. Note that statistics for clinically inconsistent purchases according to this definition are shown for both patients in the secondary dataset (i.e., all QCs) and patients in the primary dataset (i.e., cancer, epilepsy, or MS only).

Primary dataset Meets the exclusion criteria for the secondary dataset and is further restricted to patients with cancer, epilepsy, or MS. These QCs have substantial evidence from clinical research (as of May 2021) that certain cannabis products are therapeutically effective (NASEM, 2017; GW Pharmaceuticals, 2018b). Chronic pain and neuropathy patients are not evaluated in the primary dataset because, for these patients, any THC to CBD ratio is consistent with clinical research (as of May 2021) (Andreae et al., 2015; Whiting et al., 2015; Burstein, 2015; Hammell et al., 2016; Hunter et al., 2018; Atalay et al., 2019; glette-Buchta, 2019; Cooper et al., 2020; Papaioannou et al., 2020; Xu et al., 2020).

1 For patients in the primary dataset, purchases are considered “clinically inconsistent” if products’ categorical THC to CBD ratios (e.g., high CBD) do not match those of clinical research (as of May 2021) suggests are therapeutically effective for patients’ QCs. The conservative version of this definition is moderately restrictive in that equal THC to CBD products are not considered clinically consistent for cancer and epilepsy patients. The liberal version of this definition is the least restrictive in that purchases of equal THC to CBD products are no longer flagged as clinically inconsistent for cancer and epilepsy patients.
<table>
<thead>
<tr>
<th>Qualifying Condition</th>
<th>THC to CBD ratio (mg)</th>
<th>1T:50C</th>
<th>1T:20C</th>
<th>1T:19C</th>
<th>1T:6C</th>
<th>1T:2C</th>
<th>1T:1C</th>
<th>6T:1C</th>
<th>19T:1C</th>
<th>20T:1C</th>
<th>50T:1C</th>
<th>Bundle</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cancer</strong></td>
<td>High THC</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>L</td>
<td>L, C</td>
<td>Most Rec’d</td>
<td>Most Rec’d</td>
<td>Most Rec’d</td>
<td>L, C</td>
</tr>
<tr>
<td></td>
<td>Moderate THC</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>L, C</td>
<td>L, C</td>
<td>Most Rec’d</td>
<td>Most Rec’d</td>
<td>Most Rec’d</td>
<td>L, C</td>
</tr>
<tr>
<td></td>
<td>Equal THC:CBD</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>L</td>
<td>L, C</td>
<td>Most Rec’d</td>
<td>Most Rec’d</td>
<td>Most Rec’d</td>
<td>L, C</td>
</tr>
<tr>
<td><strong>Multiple Sclerosis</strong></td>
<td>High THC</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>L</td>
<td>L, C</td>
<td>Most Rec’d</td>
<td>Most Rec’d</td>
<td>Most Rec’d</td>
<td>L, C</td>
</tr>
<tr>
<td></td>
<td>Moderate THC</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>L, C</td>
<td>L, C</td>
<td>Most Rec’d</td>
<td>Most Rec’d</td>
<td>Most Rec’d</td>
<td>L, C</td>
</tr>
<tr>
<td></td>
<td>Equal THC:CBD</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>L</td>
<td>L, C</td>
<td>Most Rec’d</td>
<td>Most Rec’d</td>
<td>Most Rec’d</td>
<td>L, C</td>
</tr>
<tr>
<td><strong>Epilepsy</strong></td>
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<td>Most Rec’d</td>
<td>Most Rec’d</td>
<td>Most Rec’d</td>
<td>L</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>Most Rec’d</td>
<td>Most Rec’d</td>
<td>Most Rec’d</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>Moderate THC</td>
<td>Most Rec’d</td>
<td>Most Rec’d</td>
<td>Most Rec’d</td>
<td>L, C</td>
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<td>N/A</td>
<td>N/A</td>
<td>Most Rec’d</td>
<td>Most Rec’d</td>
<td>Most Rec’d</td>
<td>N/A</td>
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<tr>
<td></td>
<td>Equal THC:CBD</td>
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<td>Most Rec’d</td>
<td>Most Rec’d</td>
<td>L</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>Most Rec’d</td>
<td>Most Rec’d</td>
<td>Most Rec’d</td>
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<tr>
<td><strong>ALS</strong></td>
<td>High THC</td>
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<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>Most Rec’d</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
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<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>Most Rec’d</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>Equal THC:CBD</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>Most Rec’d</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
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<td>N/A</td>
<td>N/A</td>
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<td>Most Rec’d</td>
<td>Most Rec’d</td>
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<tr>
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<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
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<td>Most Rec’d</td>
<td>N/A</td>
</tr>
<tr>
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<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>Most Rec’d</td>
<td>Most Rec’d</td>
<td>Most Rec’d</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>HIV/AIDS</strong></td>
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<tr>
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<tr>
<td><strong>Huntington's Disease</strong></td>
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<td>N/A</td>
</tr>
<tr>
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<td>Equal THC:CBD</td>
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<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
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<td>N/A</td>
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<td>N/A</td>
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<td>N/A</td>
</tr>
<tr>
<td><strong>IBD</strong></td>
<td>High THC</td>
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<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
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</tr>
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<td>N/A</td>
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<td>N/A</td>
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<td>N/A</td>
</tr>
<tr>
<td></td>
<td>Equal THC:CBD</td>
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<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
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<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Neuropathy</strong></td>
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<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
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</tr>
<tr>
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<td>N/A</td>
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<td>N/A</td>
</tr>
<tr>
<td></td>
<td>Equal THC:CBD</td>
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<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
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<td>N/A</td>
</tr>
<tr>
<td><strong>Opioid reduction</strong></td>
<td>High THC</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
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<td>N/A</td>
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<td>N/A</td>
</tr>
<tr>
<td></td>
<td>Moderate THC</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
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<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>Equal THC:CBD</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
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<td>N/A</td>
<td>N/A</td>
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<td>N/A</td>
</tr>
<tr>
<td><strong>Parkinson's Disease</strong></td>
<td>High THC</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
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<td>N/A</td>
<td>N/A</td>
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</tr>
<tr>
<td></td>
<td>Moderate THC</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>Equal THC:CBD</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>PTSD</strong></td>
<td>High THC</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
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</tr>
<tr>
<td></td>
<td>Moderate THC</td>
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<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
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<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>Equal THC:CBD</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Spinal Cord Injury</strong></td>
<td>High THC</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>Moderate THC</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
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<td>N/A</td>
<td>N/A</td>
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</tr>
<tr>
<td></td>
<td>Equal THC:CBD</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
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<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Each cell indicates whether a particular THC to CBD ratio is clinically consistent, depending on the patient’s QC and whether the THC to CBD ratio is evaluated according to the less restrictive ("L", liberal version; "C" conservative version) or more restrictive definition ("Most Rec’d") of clinically consistent.

L THC to CBD ratio is clinically consistent according to the "liberal" version of the less restrictive dependent variable, which is the least restrictive definition used in this study, and for which equal THC to CBD products are considered clinically consistent for cancer and epilepsy patients. I use this definition for sensitivity analyses.

C THC to CBD ratio is clinically consistent according to the "conservative" version of the less restrictive dependent variable, which is moderately restrictive, and for which equal THC to CBD products are no longer considered clinically consistent for cancer and epilepsy patients. I primarily report results for this study using this definition.

Most Rec’d THC to CBD ratio is most frequently recommended by this MC company’s on-site pharmacists at patients’ first visit. This is the most restrictive definition of clinically consistent used in this study for sensitivity analyses.

For my less restrictive definition ("L", "C"), I only evaluate cancer, epilepsy, or multiple sclerosis patients because these are the only QCs for which there is substantial evidence from clinical research (as of May 2021) that certain cannabis products are therapeutically effective (NASEM, 2017; GW Pharmaceuticals, 2018b). Purchases by chronic pain and neuropathy patients are not evaluated according to this definition because, for these patients, any THC to CBD ratio is consistent with clinical research (as of May 2021) (Andreae et al., 2015; Whiting et al., 2015; Burstein, 2015; Hammell et al., 2016; Hunter et al., 2018; Atalay et al., 2019; Nitecka-Buchta, 2019; Cooper et al., 2020; Papaioannou et al., 2020; Xu et al., 2020).
Table 4a. Cannabis Products Examined in Human Randomized Controlled Trials (RCT) from NASEM (2017) and as of May 2021, for Qualifying Conditions Included in the Primary Dataset (N = 3,031 patients)

<table>
<thead>
<tr>
<th>Qualifying Conditions</th>
<th>Cannabinoid(s) that Have Been Assessed</th>
<th>Mode(s) of Delivery that Have Been Assessed</th>
<th>NASEM’s Assessment of the Clinical Effect Studied</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cancer</td>
<td>THC:CBD (nabiximols, other) THC synthetic THC (dronabinol, levonantradol, nabilone)</td>
<td>Unknown (THC, dronabinol, levonantradol, nabilone) capsule (dronabinol, nabilone, THC, THC:CBD) oral (dronabinol, nabilone, THC) smoked THC (1.93% THC)</td>
<td>CONCLUSION 4-3 There is conclusive evidence that oral cannabinoids are effective antiemetics in the treatment of chemotherapy induced nausea and vomiting (CINV). The vast majority of studies NASEM (2017) uses to draw its conclusion involve clinical studies examining THC. Hence, for the purposes of this study, equal THC to CBD products are not considered clinically consistent according to the conservative version of the less restrictive dependent variable.</td>
</tr>
<tr>
<td>Multiple Sclerosis (MS)</td>
<td>CBD THC:CBD (Cannador®, 2:1 ratio; nabiximols; other, 3:1 ratio) synthetic THC (dronabinol) THC (other) flower</td>
<td>capsule (Cannador®, dronabinol, THC:CBD, whole cannabis) oral (nabiximols, THC, THC:CBD) oromucosal spray (CBD, nabiximols, THC, THC:CBD) smoked Flower (4% THC)</td>
<td>CONCLUSION 4-7(a) There is substantial evidence that oral cannabinoids are effective in improving patient-reported multiple sclerosis spasticity. The only study to examine CBD in either NASEM (2017) or in RCTs published since then (as of May 2021) does not find CBD to significantly reduce spasticity frequency compared to placebo. Thus, for the purposes of this study, CBD-dominant items are not considered clinically consistent for MS patients.</td>
</tr>
<tr>
<td>Qualifying Conditions</td>
<td>Cannabinoid(s) that Have Been Assessed</td>
<td>Mode(s) of Delivery that Have Been Assessed</td>
<td>NASEM's Assessment of the Clinical Effect Studied</td>
</tr>
<tr>
<td>-----------------------</td>
<td>----------------------------------------</td>
<td>--------------------------------------------</td>
<td>-----------------------------------------------</td>
</tr>
<tr>
<td>Epilepsy</td>
<td>CBD (Epidiolex®, other)</td>
<td>gastric tube (Epidiolex®)</td>
<td>CONCLUSION 4-6 There is insufficient evidence to support or refute the conclusion that cannabinoids are an effective treatment for epilepsy.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>oral (CBD)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>oral solution (Epidiolex®)</td>
<td></td>
</tr>
</tbody>
</table>

Note: Several RCTs published after NASEM (2017) led Epidiolex® to be approved in Australia, the European Union, the United Kingdom, and the U.S. for treating certain forms of epilepsy, which is why epilepsy patients are included in the primary dataset.

“other” in the Cannabinoid(s) column means the cannabinoid itself (e.g., THC, CBD, THC:CBD) is administered, and that a specific, pharmaceutical-grade drug (e.g., nabiximols) is not indicated. “THC:CBD” means THC plus CBD (1:1 ratio unless otherwise specified).

“oral” in the Mode(s) of Delivery column means the study(s) indicates an oral mode of delivery without specifying the product formulation (e.g., capsule, tablet, sublingual drop).

“Unknown” means not specified in the study.

(Source: NASEM 2017; Abrams 2018)

**Conclusive**  Strong evidence from the literature; risk of bias and other confounders can be ruled out with reasonable confidence

**Substantial**  Several supportive findings from the literature; minor risk of bias and other confounders cannot be ruled out with reasonable confidence

**No or Insufficient**  No or insufficient evidence from the literature; no conclusion can be made due to risk of bias and other confounders
<table>
<thead>
<tr>
<th>Qualifying Conditions</th>
<th>Cannabinoid(s) that Have Been Assessed</th>
<th>Mode(s) of Delivery that Have Been Assessed</th>
<th>NASEM’s Assessment of the Clinical Effect Studied</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amyotrophic Lateral Sclerosis (ALS, Lou Gehrig’s)</td>
<td>THC:CBD (nabiximols) synthetic THC (dronabinol)</td>
<td>oral (dronabinol) oral drop (dronabinol) oromucosal spray (nabiximols)</td>
<td><strong>CONCLUSION 4-9</strong> There is insufficient evidence that cannabinoids are an effective treatment for symptoms associated with amyotrophic lateral sclerosis.</td>
</tr>
<tr>
<td>Cancer</td>
<td>THC:CBD (other) THC (other) synthetic THC (dronabinol, nabilone)</td>
<td>capsule (dronabinol, THC, THC:CBD) oral (nabilone)</td>
<td><strong>CONCLUSION 4-4(b)</strong> There is insufficient evidence to support or refute the conclusion that cannabinoids are an effective treatment for cancer-associated anorexia-cachexia syndrome and anorexia nervosa.</td>
</tr>
<tr>
<td>Chronic Pain</td>
<td>CBDV synthetic CBD (ZYN002) CBD THC:CBD (nabiximols) THC (GW-2000-02, Namisol®, other) synthetic THC (nabilone, dronabinol, nabilone) flower (Bedrocan®, Bediol®, Bedrolite®) whole cannabis</td>
<td>capsule (Ajulemic acid, CBD, dronabinol, nabilone, THC) inhaler (Bedrocan®) intravenous (THC) oral (CBD, dronabinol, Namisol®) oral drop (CBD) oral solution (CBDV) oromucosal spray (GW-2000-02, nabiximols, THC:CBD, THC) tablet (Namisol®) topical (CBD, ZYN002) smoked flower (1% to 9% THC) vaporized Cannabis (Bedrocan®, Bediol®, Bedrolite®) (1% to 7% THC)</td>
<td><strong>CONCLUSION 4-1</strong> There is substantial evidence that cannabis is an effective treatment for chronic pain in adults. Because there evidence from the literature (as of May 2021) that that CBD-dominant products are effective for treating pain, for the purposes of this study, all THC to CBD ratios are considered clinically consistent. Thus, chronic pain patients are excluded from the primary dataset and only examined in the secondary dataset.116-142</td>
</tr>
<tr>
<td>Human Immunodeficiency Virus Infection and Acquired Immune Deficiency Syndrome (HIV/AIDS)</td>
<td>synthetic THC (dronabinol) flower</td>
<td>capsule (dronabinol) oral (dronabinol) smoked flower (1.80% to 3.95% THC)</td>
<td><strong>CONCLUSION 4-4(a)</strong> There is limited evidence that cannabis and oral cannabinoids are effective in increasing appetite and decreasing weight loss associated with HIV/AIDS.</td>
</tr>
<tr>
<td>Huntington’s Disease</td>
<td>CBD THC:CBD (nabiximols) synthetic THC (nabilone)</td>
<td>capsule (CBD, nabilone) oromucosal spray (nabiximols)</td>
<td><strong>CONCLUSION 4-10</strong> There is insufficient evidence to support or refute that oral cannabinoids are an effective treatment for chorea and certain neuropsychiatric symptoms associated with Huntington’s disease.</td>
</tr>
</tbody>
</table>

**419**
<table>
<thead>
<tr>
<th>Qualifying Conditions</th>
<th>Cannabinoid(s) that Have Been Assessed</th>
<th>Mode(s) of Delivery that Have Been Assessed</th>
<th>NASEM’s Assessment of the Clinical Effect Studied</th>
</tr>
</thead>
</table>
| Inflammatory Bowel Disease (IBD) | CBD (other)  
THC:CBD (other, 1:4 ratio) flower | capsule (CBD)  
oil (THC:CBD)  
sublingual (CBD)  
smoked flower (0.02% to 0.16% THC) | NASEM (2017) does not review studies on the therapeutic effects of cannabis or cannabinoids for IBD. |
| Opioid Use Disorder | CBD (Epidiolex®)  
synthetic THC (dronabinol) | capsule (dronabinol)  
oral solution (Epidiolex®) | CONCLUSION 4-16  
There is no evidence to support or refute the conclusion that cannabinoids are an effective treatment for achieving abstinence in the use of addictive substances.  
NASEM (2017) does not review studies on the therapeutic effects of cannabis or cannabinoids that specifically address opioid use disorder. |
| Parkinson’s Disease | CBD (other)  
THC:CBD (Cannador®, 2:1 ratio)  
synthetic THC (nabilone) | capsule (Cannador®, CBD, nabilone)  
oral (CBD) | CONCLUSION 4-11  
There is insufficient evidence that cannabinoids are an effective treatment for the motor system symptoms associated with Parkinson’s disease or levodopa induced dyskinesia. |
| Post-Traumatic Stress Disorder (PTSD) | synthetic THC (nabimol, dronabinol) flower | oral (dronabinol)  
tablet (nabilone)  
smoked flower (12% THC and <0.05% CBD, 7.9% THC and 8.1% CBD, 0.5% THC and 11% CBD) | CONCLUSION 4-20  
There is limited evidence (a single, small fair-quality trial) that nabilone is effective for improving symptoms of post-traumatic stress disorder. |
| Spinal Cord Injury | THC:CBD (nabiximols)  
THC (other)  
synthetic THC (dronabinol, nabilone) | capsule (dronabinol)  
oromucosal spray (nabiximols)  
suppository (THC)  
tablet (nabilone) | CONCLUSION 4-7(b)  
There is insufficient evidence to support or refute the conclusion that cannabinoids are an effective treatment for spasticity in patients with paralysis due to spinal cord injury. |

“other” in the Cannabinoid(s) column means the cannabinoid itself (e.g., THC, CBD, THC:CBD) is administered, and that a specific, pharmaceutical-grade drug (e.g., nabiximols) is not indicated. “THC:CBD” means THC plus CBD (1:1 ratio unless otherwise specified).

“oral” in the Mode(s) of Delivery column means the study(s) indicates an oral mode of delivery without specifying the product formulation (e.g., capsule, tablet, sublingual drop).

“Unknown” means not specified in the study.

(Source: NASEM 2017; Abrams 2018)

**Conclusive** Strong evidence from the literature; risk of bias and other confounders can be ruled out with reasonable confidence

**Substantial** Several supportive findings from the literature; minor risk of bias and other confounders cannot be ruled out with reasonable confidence

**Moderate** Some findings from the literature; minor risk of bias and other confounders cannot be ruled out with reasonable confidence

**Limited** Weak evidence from the literature; significant uncertainty due to risk of bias and other confounders

**No or Insufficient** No or insufficient evidence from the literature; no conclusion can be made due to risk of bias and other confounders
Table 5. Most Frequently Recommended, Categorical THC:CBD Formulations for Qualifying Conditions

<table>
<thead>
<tr>
<th>Qualifying Condition</th>
<th>Company’s On-site Pharmacists</th>
<th>Haug et al. (2016)</th>
<th>Examined in RCTs as of May 2021</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALS</td>
<td>Equal THC:CBD</td>
<td>Equal THC:CBD</td>
<td>THC</td>
</tr>
<tr>
<td></td>
<td></td>
<td>High CBD</td>
<td></td>
</tr>
<tr>
<td>Cancer</td>
<td>High THC</td>
<td>Equal THC:CBD</td>
<td>THC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chronic Pain</td>
<td>High THC</td>
<td>Equal THC:CBD</td>
<td>THC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Epilepsy</td>
<td>High CBD</td>
<td>High CBD</td>
<td>CBD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HIV/AIDS</td>
<td>High THC</td>
<td>Equal THC:CBD</td>
<td>THC</td>
</tr>
<tr>
<td>猎</td>
<td>Equal THC:CBD</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Huntington’s Disease</td>
<td>Equal THC:CBD</td>
<td>N/A</td>
<td>THC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>CBD</td>
</tr>
<tr>
<td>IBD</td>
<td>High THC</td>
<td>Equal THC:CBD</td>
<td>THC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>CBD</td>
</tr>
<tr>
<td>Multiple Sclerosis</td>
<td>High THC</td>
<td>Equal THC:CBD</td>
<td>THC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Equal, 2:1 THC:CBD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neuropathy</td>
<td>High THC</td>
<td>Equal THC:CBD</td>
<td>THC</td>
</tr>
<tr>
<td></td>
<td></td>
<td>High CBD</td>
<td>CBD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Opioid Use Disorder</td>
<td>High THC</td>
<td>N/A</td>
<td>THC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>CBD</td>
</tr>
<tr>
<td>Parkinson’s Disease</td>
<td>Equal THC:CBD</td>
<td>N/A</td>
<td>THC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2:1 THC:CBD</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PTSD</td>
<td>High THC</td>
<td>Equal THC:CBD</td>
<td>THC</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>CBD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spinal Cord Injury</td>
<td>High THC</td>
<td>N/A</td>
<td>THC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Equal THC:CBD</td>
</tr>
</tbody>
</table>

Examined in RCTs as of May 2021: THC or CBD formulations that have been examined for treating the qualifying condition in randomized controlled trials (RCT) (either those included in NASEM [2017] or that have been published as of May 2021).

Haug et al. (2016): THC to CBD ratios most frequently recommended by dispensary staff surveyed in this study. The authors had surveyed staff from medical (59 percent), non-medical (18 percent), and both medical/non-medical (23 percent) cannabis dispensaries in Colorado (41 percent), California (20 percent), Arizona (16 percent), Oregon (2 percent), District of Columbia (5 percent), and the Northeast (10 percent - Connecticut, Rhode Island, Massachusetts, Maine). Qualifying conditions with "not applicable" (N/A) are not addressed in the study.

Company’s On-site Pharmacists: THC to CBD ratios most frequently recommended at this company's dispensaries (whose sales data is analyzed in this study) by on-site pharmacists during patients' first visit.

“Liberal”: THC:CBD ratio is reasonably consistent with the THC to CBD ratios that have been examined in RCTs (as of May 2021).

“Conservative”: THC:CBD ratio is exactly consistent with the THC to CBD ratios that have been examined in RCTs (as of May 2021).
Depending on which definition I apply, a different number of items per invoice will be flagged as inconsistent with clinical research (as of May 2021).

The less restrictive dependent variables require purchases by cancer, epilepsy, or multiple sclerosis patients to be consistent with the categorical THC to CBD ratio (e.g., high THC) that clinical research (as of May 2021) suggests is therapeutically effective. A liberal interpretation of this definition considers equal THC to CBD products to be clinically consistent for cancer and epilepsy patients, while the conservative version does not.

The more restrictive dependent variable requires purchases by patients with any qualifying condition to match the exact categorical THC to CBD ratio that is most frequently recommended for their qualifying condition by on-site pharmacists at patients’ first visit.
Table 6. Descriptive Analyses: “Clinically Inconsistent” Purchases by Patient Demographics, According to the Moderately Restrictive Definition of Clinically Inconsistent (N = 3,031)

<table>
<thead>
<tr>
<th></th>
<th>Column 1 % Patients with a Flagged Invoices</th>
<th>Column 2 % Flagged Items b (Average)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>All Patients</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>First Invoice</td>
<td>56%</td>
<td>46%</td>
</tr>
<tr>
<td>Last Invoice</td>
<td>45%</td>
<td>36%</td>
</tr>
<tr>
<td>(First vs. Last)</td>
<td>p = 0.000</td>
<td>p = 0.000</td>
</tr>
<tr>
<td></td>
<td>***</td>
<td>***</td>
</tr>
<tr>
<td><strong>Age &lt;40</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>First Invoice</td>
<td>45%</td>
<td>36%</td>
</tr>
<tr>
<td>Last Invoice</td>
<td>44%</td>
<td>37%</td>
</tr>
<tr>
<td>(First vs. Last)</td>
<td>p = 0.859</td>
<td>p = 0.726</td>
</tr>
<tr>
<td></td>
<td>ns</td>
<td>ns</td>
</tr>
<tr>
<td><strong>Age 40+</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>First Invoice</td>
<td>59%</td>
<td>49%</td>
</tr>
<tr>
<td>Last Invoice</td>
<td>45%</td>
<td>36%</td>
</tr>
<tr>
<td>(First vs. Last)</td>
<td>p = 0.000</td>
<td>p = 0.000</td>
</tr>
<tr>
<td></td>
<td>***</td>
<td>***</td>
</tr>
<tr>
<td><strong>Female</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>First Invoice</td>
<td>58%</td>
<td>48%</td>
</tr>
<tr>
<td>Last Invoice</td>
<td>47%</td>
<td>39%</td>
</tr>
<tr>
<td>(First vs. Last)</td>
<td>p = 0.000</td>
<td>p = 0.000</td>
</tr>
<tr>
<td></td>
<td>***</td>
<td>***</td>
</tr>
<tr>
<td><strong>Male</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>First Invoice</td>
<td>53%</td>
<td>44%</td>
</tr>
<tr>
<td>Last Invoice</td>
<td>41%</td>
<td>33%</td>
</tr>
<tr>
<td>(First vs. Last)</td>
<td>p = 0.000</td>
<td>p = 0.000</td>
</tr>
<tr>
<td></td>
<td>***</td>
<td>***</td>
</tr>
<tr>
<td><strong>Pain</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>First Invoice</td>
<td>57%</td>
<td>47%</td>
</tr>
<tr>
<td>Last Invoice</td>
<td>44%</td>
<td>35%</td>
</tr>
<tr>
<td>(First vs. Last)</td>
<td>p = 0.000</td>
<td>p = 0.000</td>
</tr>
<tr>
<td></td>
<td>***</td>
<td>***</td>
</tr>
<tr>
<td><strong>Non-Pain</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>First Invoice</td>
<td>53%</td>
<td>45%</td>
</tr>
<tr>
<td>Last Invoice</td>
<td>46%</td>
<td>37%</td>
</tr>
<tr>
<td>(First vs. Last)</td>
<td>p = 0.000</td>
<td>p = 0.000</td>
</tr>
<tr>
<td></td>
<td>***</td>
<td>***</td>
</tr>
</tbody>
</table>

* p < 0.05, ** p < 0.01, *** p < 0.001, ns = not significant.

**Clinically Inconsistent** The categorical THC to CBD ratio of a purchased item is inconsistent with the ratio that clinical research (as of May 2021 suggests) is therapeutically effective for cancer (THC > CBD), epilepsy (CBD > THC), or multiple sclerosis (THC > CBD or THC = CBD)

**Flagged invoice** Sales invoice contains at least one clinically inconsistent item.

**Chi-square ($\chi^2$) test** for a statistically significant difference: percent of patients with a flagged invoice vs. patients without a flagged invoice, at the first invoice vs. at the last invoice

**Wilcoxon-Mann-Whitney test** for a statistically significant difference: percent of flagged items per invoice, at the first invoice vs. at the last invoice
Table 7. Odds Ratios Generated from Logit Regression Outputs Estimating the Likelihood of a Clinically Inconsistent Purchase, According to the Moderately Restrictive Definition of Clinically Inconsistent

<table>
<thead>
<tr>
<th></th>
<th>(1) First Invoice</th>
<th>(2) Last Invoice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age 40+</td>
<td>1.960***</td>
<td>1.070</td>
</tr>
<tr>
<td></td>
<td>(0.195)</td>
<td>(0.106)</td>
</tr>
<tr>
<td>Male</td>
<td>0.835*</td>
<td>0.744***</td>
</tr>
<tr>
<td></td>
<td>(0.064)</td>
<td>(0.057)</td>
</tr>
<tr>
<td>Non-Pain</td>
<td>0.972</td>
<td>1.066</td>
</tr>
<tr>
<td></td>
<td>(0.080)</td>
<td>(0.087)</td>
</tr>
<tr>
<td># of Items</td>
<td>1.107***</td>
<td>1.134***</td>
</tr>
<tr>
<td></td>
<td>(0.023)</td>
<td>(0.019)</td>
</tr>
<tr>
<td># of Invoices</td>
<td>0.990*</td>
<td>0.998</td>
</tr>
<tr>
<td></td>
<td>(0.004)</td>
<td>(0.005)</td>
</tr>
<tr>
<td>1st Quarter</td>
<td>Reference</td>
<td>Reference</td>
</tr>
<tr>
<td>2nd Quarter</td>
<td>1.122</td>
<td>0.936</td>
</tr>
<tr>
<td></td>
<td>(0.121)</td>
<td>(0.106)</td>
</tr>
<tr>
<td>3rd Quarter</td>
<td>1.062</td>
<td>0.995</td>
</tr>
<tr>
<td></td>
<td>(0.114)</td>
<td>(0.110)</td>
</tr>
<tr>
<td>4th Quarter</td>
<td>0.990</td>
<td>1.104</td>
</tr>
<tr>
<td></td>
<td>(0.110)</td>
<td>(0.121)</td>
</tr>
<tr>
<td>Year 2016</td>
<td>Reference</td>
<td>Reference</td>
</tr>
<tr>
<td>Year 2017</td>
<td>0.903</td>
<td>1.055</td>
</tr>
<tr>
<td></td>
<td>(0.093)</td>
<td>(0.150)</td>
</tr>
<tr>
<td>Year 2018</td>
<td>0.813</td>
<td>0.952</td>
</tr>
<tr>
<td></td>
<td>(0.087)</td>
<td>(0.134)</td>
</tr>
<tr>
<td>Year 2019</td>
<td>0.850</td>
<td>1.232</td>
</tr>
<tr>
<td></td>
<td>(0.111)</td>
<td>(0.183)</td>
</tr>
<tr>
<td>Year 2020</td>
<td>0.508**</td>
<td>0.758</td>
</tr>
<tr>
<td></td>
<td>(0.112)</td>
<td>(0.122)</td>
</tr>
<tr>
<td>Location 1</td>
<td>Reference</td>
<td>Reference</td>
</tr>
<tr>
<td>Location 2</td>
<td>0.768</td>
<td>1.335</td>
</tr>
<tr>
<td></td>
<td>(0.220)</td>
<td>(0.246)</td>
</tr>
<tr>
<td>Location 3</td>
<td>0.463*</td>
<td>0.866</td>
</tr>
<tr>
<td></td>
<td>(0.173)</td>
<td>(0.268)</td>
</tr>
<tr>
<td>Location 4</td>
<td>0.470**</td>
<td>0.887</td>
</tr>
<tr>
<td></td>
<td>(0.133)</td>
<td>(0.158)</td>
</tr>
<tr>
<td>Location 5</td>
<td>0.497*</td>
<td>0.866</td>
</tr>
<tr>
<td></td>
<td>(0.145)</td>
<td>(0.167)</td>
</tr>
<tr>
<td>Constant</td>
<td>1.248</td>
<td>0.550*</td>
</tr>
<tr>
<td></td>
<td>(0.411)</td>
<td>(0.143)</td>
</tr>
<tr>
<td>Observations</td>
<td>3,031</td>
<td>3,031</td>
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<td>Pseudo R²</td>
<td>0.034</td>
<td>0.031</td>
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<tr>
<td>Likelihood Ratio Chi-square ($\chi^2$)</td>
<td>142.01***</td>
<td>129.67***</td>
</tr>
<tr>
<td>Goodness of Fit test</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Standard errors are in parentheses. *** p < 0.001, ** p < 0.01, * p < 0.05
Figure 3. 95% Confidence Intervals for Each Demographic Group Estimating the Predicted Probability of Making “Clinically Inconsistent” Purchases, from Pooled Logit Regression Outputs Applying the Moderately Restrictive Definition of Clinically Inconsistent

Pooled regressions (patients’ first and last invoices analyzed together as one dataset) include interactions between an indicator variable for the last invoice (0, “first invoice”; 1 “last invoice”) and demographics (age, gender, symptom). The margins command (Stata 17.0 MP) produces the predicted probabilities of making a clinically inconsistent purchase when indicator variables take certain values (e.g., male, first invoice; male, last invoice). Confidence intervals that do not overlap suggest, when evaluating demographic groups individually (e.g., female patients alone, not compared to male patients), there is a significant difference in the likelihood of a clinically inconsistent purchase between patients’ first and last invoices.
## Appendix

### Appendix Table 1. Descriptive Analysis: Clinically Inconsistent Purchases by Patient Demographics

<table>
<thead>
<tr>
<th></th>
<th>Less Restrictive Definition</th>
<th>More Restrictive Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>&quot;Liberal&quot; Version N = 3,031</td>
<td>&quot;Conservative&quot; Version N = 3,031</td>
</tr>
<tr>
<td></td>
<td>Column 1 *</td>
<td>Column 2 b</td>
</tr>
<tr>
<td>% Patients with Flagged Purchases</td>
<td>% Flagged Items (Average)</td>
<td>% Patients with Flagged Purchases</td>
</tr>
<tr>
<td>All Patients</td>
<td></td>
<td></td>
</tr>
<tr>
<td>First Invoice</td>
<td>27%</td>
<td>19%</td>
</tr>
<tr>
<td>Last Invoice</td>
<td>25%</td>
<td>18%</td>
</tr>
<tr>
<td>(First vs. Last)</td>
<td>ns</td>
<td>ns</td>
</tr>
<tr>
<td>Age &lt;40</td>
<td></td>
<td></td>
</tr>
<tr>
<td>First Invoice</td>
<td>24%</td>
<td>17%</td>
</tr>
<tr>
<td>Last Invoice</td>
<td>27%</td>
<td>21%</td>
</tr>
<tr>
<td>(First vs. Last)</td>
<td>0.180</td>
<td>0.094</td>
</tr>
<tr>
<td></td>
<td>ns</td>
<td>ns</td>
</tr>
<tr>
<td>Age 40+</td>
<td></td>
<td></td>
</tr>
<tr>
<td>First Invoice</td>
<td>28%</td>
<td>20%</td>
</tr>
<tr>
<td>Last Invoice</td>
<td>24%</td>
<td>17%</td>
</tr>
<tr>
<td>(First vs. Last)</td>
<td>0.007</td>
<td>0.010</td>
</tr>
<tr>
<td></td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>Female</td>
<td></td>
<td></td>
</tr>
<tr>
<td>First Invoice</td>
<td>30%</td>
<td>21%</td>
</tr>
<tr>
<td>Last Invoice</td>
<td>27%</td>
<td>19%</td>
</tr>
<tr>
<td>(First vs. Last)</td>
<td>0.053</td>
<td>0.075</td>
</tr>
<tr>
<td></td>
<td>ns</td>
<td>ns</td>
</tr>
<tr>
<td>Male</td>
<td></td>
<td></td>
</tr>
<tr>
<td>First Invoice</td>
<td>23%</td>
<td>16%</td>
</tr>
<tr>
<td>Last Invoice</td>
<td>22%</td>
<td>17%</td>
</tr>
<tr>
<td>(First vs. Last)</td>
<td>0.578</td>
<td>0.749</td>
</tr>
<tr>
<td></td>
<td>ns</td>
<td>ns</td>
</tr>
<tr>
<td>Pain Symptom</td>
<td></td>
<td></td>
</tr>
<tr>
<td>First Invoice</td>
<td>30%</td>
<td>21%</td>
</tr>
<tr>
<td>Last Invoice</td>
<td>26%</td>
<td>19%</td>
</tr>
<tr>
<td>(First vs. Last)</td>
<td>0.002</td>
<td>0.004</td>
</tr>
<tr>
<td></td>
<td>**</td>
<td>**</td>
</tr>
<tr>
<td>Non-Pain Symptom</td>
<td></td>
<td></td>
</tr>
<tr>
<td>First Invoice</td>
<td>21%</td>
<td>14%</td>
</tr>
<tr>
<td>Last Invoice</td>
<td>23%</td>
<td>17%</td>
</tr>
<tr>
<td>(First vs. Last)</td>
<td>0.164</td>
<td>0.1262</td>
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<tr>
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<td>ns</td>
<td>ns</td>
</tr>
</tbody>
</table>

* p < 0.05, ** p < 0.01, *** p < 0.001, ns = not significant

Clinically Inconsistent: The categorical THC to CBD ratio of a purchased item is inconsistent with the ratio that either 1) clinical research (as of May 2021) suggests is therapeutically effective for cancer, epilepsy, or multiple sclerosis (MS) (less restrictive definition), or 2) that is most frequently recommended for any patients' qualifying condition by on-site pharmacists during patients' first visit (more restrictive definition).

Flagged invoice: Sales invoice contains at least one clinically inconsistent item.

a Chi-square (χ²) test for a statistically significant difference: percent of patients with a flagged invoice vs. patients without a flagged invoice, at the first invoice vs. at the last invoice.

b Wilcoxon-Mann-Whitney test for a statistically significant difference: percent of flagged items per invoice, at the first invoice vs. at the last invoice.
<table>
<thead>
<tr>
<th>Appendix Table 2a. Logit and Negative Binomial (NB) Regression Outputs, According to the Least Restrictive Definition of Clinically Inconsistent</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>Age 40+</strong></td>
</tr>
<tr>
<td><strong>Male</strong></td>
</tr>
<tr>
<td><strong>Non-pain</strong></td>
</tr>
<tr>
<td><strong>Age 40+ * Last Invoice</strong></td>
</tr>
<tr>
<td><strong>Male * Last Invoice</strong></td>
</tr>
<tr>
<td><strong>Non-pain * Last Invoice</strong></td>
</tr>
<tr>
<td><strong>Last Invoice</strong></td>
</tr>
<tr>
<td><strong>Number of Invoices</strong></td>
</tr>
<tr>
<td><strong>Number of Items</strong></td>
</tr>
<tr>
<td><strong>1st Quarter</strong></td>
</tr>
<tr>
<td><strong>2nd Quarter</strong></td>
</tr>
<tr>
<td><strong>3rd Quarter</strong></td>
</tr>
<tr>
<td><strong>4th Quarter</strong></td>
</tr>
<tr>
<td><strong>Year 2016</strong></td>
</tr>
<tr>
<td><strong>Year 2017</strong></td>
</tr>
<tr>
<td><strong>Year 2018</strong></td>
</tr>
<tr>
<td><strong>Location 1</strong></td>
</tr>
<tr>
<td><strong>Location 2</strong></td>
</tr>
<tr>
<td><strong>Location 3</strong></td>
</tr>
<tr>
<td><strong>Location 4</strong></td>
</tr>
<tr>
<td><strong>Location 5</strong></td>
</tr>
<tr>
<td><strong>Constant</strong></td>
</tr>
<tr>
<td><strong>Dispersion (α)</strong></td>
</tr>
<tr>
<td><strong>Joint Significance Test of Interacted Variables</strong></td>
</tr>
<tr>
<td><strong>Likelihood Ratio Chi-square (χ² Goodness of Fit test)</strong></td>
</tr>
</tbody>
</table>

Standard errors are in parentheses. *** p < 0.001, ** p < 0.01, * p < 0.05

For logit regression outputs, odds ratios are presented, estimating the likelihood of a clinically inconsistent purchase. For NB regression outputs, incidence rate ratios are presented, estimating the number of clinically inconsistent purchases per invoice.
### Appendix Table 2b. Logit and Negative Binomial (NB) Regression Outputs, According to the Moderately Restrictive Definition of Clinically Inconsistent

<table>
<thead>
<tr>
<th></th>
<th>Logit (Odds Ratios)</th>
<th>NB (Incidence Rate Ratios)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
</tr>
<tr>
<td></td>
<td>First Invoice</td>
<td>Last Invoice</td>
</tr>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
</tr>
<tr>
<td>Age 40+</td>
<td>1.960*** (0.190)</td>
<td>1.070</td>
</tr>
<tr>
<td>Male</td>
<td>0.835* (0.057)</td>
<td>0.744*** (0.067)</td>
</tr>
<tr>
<td>Non-pain</td>
<td>0.972 (0.087)</td>
<td>1.066</td>
</tr>
<tr>
<td>Age 40+ * Last Invoice</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Male * Last Invoice</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Non-pain * Last Invoice</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Last Invoice</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Number of Items</td>
<td>1.107*** (0.023)</td>
<td>1.134*** (0.019)</td>
</tr>
<tr>
<td>Number of Invoices</td>
<td>0.990* (0.004)</td>
<td>0.998</td>
</tr>
<tr>
<td>1st Quarter Reference</td>
<td>1.122 (0.121)</td>
<td>0.936</td>
</tr>
<tr>
<td>2nd Quarter Reference</td>
<td>0.135 (0.106)</td>
<td>0.081</td>
</tr>
<tr>
<td>3rd Quarter Reference</td>
<td>1.062 (0.114)</td>
<td>0.995</td>
</tr>
<tr>
<td>4th Quarter Reference</td>
<td>0.990 (0.110)</td>
<td>1.104</td>
</tr>
<tr>
<td>Year 2016 Reference</td>
<td>0.903 (0.093)</td>
<td>0.055</td>
</tr>
<tr>
<td>Year 2017 Reference</td>
<td>0.935 (0.150)</td>
<td>0.047</td>
</tr>
<tr>
<td>Location 1 Reference</td>
<td>0.768 (0.220)</td>
<td>1.335</td>
</tr>
<tr>
<td>Location 2 Reference</td>
<td>0.768 (0.246)</td>
<td>1.335</td>
</tr>
<tr>
<td>Location 3 Reference</td>
<td>0.463* (0.173)</td>
<td>0.866</td>
</tr>
<tr>
<td>Location 4 Reference</td>
<td>0.470** (0.133)</td>
<td>0.887</td>
</tr>
<tr>
<td>Location 5 Reference</td>
<td>0.497* (0.145)</td>
<td>0.866</td>
</tr>
<tr>
<td>Constant</td>
<td>1.248 (0.411)</td>
<td>0.550*</td>
</tr>
<tr>
<td>Dispersion (r²)</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Pseudo R²</td>
<td>0.034</td>
<td>0.031</td>
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</table>

Joint Significance Test of Interacted Variables: N/A N/A 143.59 *** N/A N/A 81.13 ***

Likelihood Ratio Chi-square (χ²): 142.01 *** 129.67 *** 338.50 *** 157.15 *** 40.68 ** 188.02 ***

Goodness of Fit test: 142.01 *** 129.67 *** 338.50 *** 157.15 *** 40.68 ** 188.02 ***

Standard errors are in parentheses.

*** p < 0.001, ** p < 0.01, * p < 0.05

For logit regression outputs, odds ratios are presented, estimating the likelihood of a clinically inconsistent purchase. For NB regression outputs, incidence rate ratios are presented, estimating the number of clinically inconsistent purchases per invoice.
<table>
<thead>
<tr>
<th>Variable</th>
<th>Logit (Odds Ratios)</th>
<th>NB (Incidence Rate Ratios)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1) First Invoice</td>
<td>(2) Last Invoice</td>
</tr>
<tr>
<td>Age 40+</td>
<td>1.292*** (0.051)</td>
<td>1.128** (0.042)</td>
</tr>
<tr>
<td>Male</td>
<td>0.495*** (0.017)</td>
<td>0.586*** (0.018)</td>
</tr>
<tr>
<td>Non-pain</td>
<td>0.536*** (0.032)</td>
<td>0.882** (0.052)</td>
</tr>
<tr>
<td>Age 40+ * Last Invoice</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Male * Last Invoice</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Non-pain * Last Invoice</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Last Invoice</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Number of Invoices</td>
<td>1.290*** (0.016)</td>
<td>1.191*** (0.010)</td>
</tr>
<tr>
<td>1st Quarter</td>
<td>Reference</td>
<td>Reference</td>
</tr>
<tr>
<td>2nd Quarter</td>
<td>0.978 (0.049)</td>
<td>0.926 (0.045)</td>
</tr>
<tr>
<td>3rd Quarter</td>
<td>0.869** (0.042)</td>
<td>0.934 (0.044)</td>
</tr>
<tr>
<td>4th Quarter</td>
<td>1.009 (0.052)</td>
<td>1.112* (0.051)</td>
</tr>
<tr>
<td>Year 2016</td>
<td>Reference</td>
<td>Reference</td>
</tr>
<tr>
<td>Year 2017</td>
<td>0.640*** (0.040)</td>
<td>0.876 (0.074)</td>
</tr>
<tr>
<td>Location 1</td>
<td>Reference</td>
<td>Reference</td>
</tr>
<tr>
<td>Location 2</td>
<td>0.921 (0.089)</td>
<td>0.935 (0.062)</td>
</tr>
<tr>
<td>Location 3</td>
<td>0.219*** (0.030)</td>
<td>0.367*** (0.046)</td>
</tr>
<tr>
<td>Location 4</td>
<td>0.600*** (0.057)</td>
<td>0.643*** (0.041)</td>
</tr>
<tr>
<td>Location 5</td>
<td>0.767** (0.075)</td>
<td>0.652*** (0.045)</td>
</tr>
<tr>
<td>Constant</td>
<td>3.765*** (0.478)</td>
<td>1.269* (0.145)</td>
</tr>
<tr>
<td>Dispersion (α)</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Observations</td>
<td>17.872</td>
<td>17.872</td>
</tr>
<tr>
<td>Likelihood Ratio Chi-square</td>
<td>1,849.38***</td>
<td>1,436.74***</td>
</tr>
</tbody>
</table>

Standard errors are in parentheses. *** p < 0.001, ** p < 0.01, * p < 0.05

For logit regression outputs, odds ratios are presented, estimating the likelihood of a clinically inconsistent purchase. For NB regression outputs, incidence rate ratios are presented, estimating the number of clinically inconsistent purchases per invoice.
Pooled regressions (patients’ first and last invoices analyzed together as one dataset) include interactions between an indicator variable for the last invoice (0, “first invoice”; 1 “last invoice”) and demographics (age, gender, symptom). The `margins` command (Stata 17.0 MP) produces the predicted probabilities of making a clinically inconsistent purchase when indicator variables take certain values (e.g., male, first invoice; male, last invoice). Confidence intervals that do not overlap suggest, when evaluating demographic groups individually (e.g., female patients alone, not compared to male patients), there is a significant difference in the likelihood of a clinically inconsistent purchase between patients’ first and last invoices.
Appendix Figure 2. 95% Confidence Intervals for Each Demographic Group, from Pooled Negative Binomial Regression Outputs Estimating the Predicted Rate of Making “Clinically Inconsistent” Purchases

Least Restrictive Definition of Clinically Inconsistent

<table>
<thead>
<tr>
<th></th>
<th>Age &lt; 40</th>
<th>Age 40+</th>
<th>Female</th>
<th>Male</th>
<th>Pain Symptom(s)</th>
<th>Non-pain Symptom(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Invoice</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Last Invoice</td>
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</tbody>
</table>

Moderately Restrictive Definition of Clinically Inconsistent

<table>
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<tr>
<th></th>
<th>Age &lt; 40</th>
<th>Age 40+</th>
<th>Female</th>
<th>Male</th>
<th>Pain Symptom(s)</th>
<th>Non-pain Symptom(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Invoice</td>
<td></td>
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<tr>
<td>Last Invoice</td>
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</tbody>
</table>

Most Restrictive Definition of Clinically Inconsistent

<table>
<thead>
<tr>
<th></th>
<th>Age &lt; 40</th>
<th>Age 40+</th>
<th>Female</th>
<th>Male</th>
<th>Pain Symptom(s)</th>
<th>Non-pain Symptom(s)</th>
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<tbody>
<tr>
<td>First Invoice</td>
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<td>Last Invoice</td>
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</tbody>
</table>

Pooled regressions (patients’ first and last invoices analyzed together as one dataset) include interactions between an indicator variable for the last invoice (0, “first invoice”; 1 “last invoice”) and demographics (age, gender, symptom). The margins command (Stata 17.0 MP) produces the predicted probabilities of making a clinically inconsistent purchase when indicator variables take certain values (e.g., male, first invoice; male, last invoice). Confidence intervals that do not overlap suggest, when evaluating demographic groups individually (e.g., female patients alone, not compared to male patients), there is a significant difference in the likelihood of a clinically inconsistent purchase between patients’ first and last invoices.
Chapter 4. Bring the Pain: The Potential Migration of Medical Cannabis Patients after Recreational Cannabis Is Legalized

Abstract

Although a rising number of U.S. states are legalizing adult or recreational cannabis use, few studies have examined the “spillover effects” on medical cannabis markets in bordering states. In this study, I analyze sales data from a single medical cannabis company in New York State to see whether patients registered to this company are less likely to be registered as treating chronic pain after cannabis legalization takes effect in Massachusetts. If that is the case, it could suggest that healthy individuals who use chronic pain as a qualifying health condition to enter the medical cannabis market and obtain cannabis products for recreational use have exited in response to cannabis becoming fully legalized in a neighboring U.S. state. Logit regressions, however, show no significant association between the post-legalization period and the likelihood of being registered as a chronic pain patient, controlling for age, gender, quarter, year, dispensary location, and whether patients reside near the Massachusetts-New York border. Additionally, post-legalization, neither patients who reside near the Massachusetts-New York border nor patients who reside further from the border individually experience a significant decrease in the predicted probability of being registered as a chronic pain patient, holding other variables constant. These results are consistent for patients’ first invoices, which reflect new medical cannabis patients purchasing from this company, and patients’ last invoices, which allow me to observe patients who exit from this company. Finally, supplemental analyses of survey data from a subset of patients suggests chronic pain patients are not significantly more likely than non-chronic pain patients to use cannabis recreationally. Overall, my findings suggest that cannabis legalization in Massachusetts did not significantly affect the composition of medical cannabis patients in New York. Further research is needed on larger and more diverse samples of medical cannabis patients to verify and assess the mechanisms driving these results.
Introduction

Nine years after Colorado and Washington legalized cannabis for adult or recreational use, 16 other U.S. states followed suit. Although various studies have examined the public health impacts of recreational cannabis (RC) legalization, such as the prevalence of cannabis use,\textsuperscript{1,2} traffic fatalities,\textsuperscript{3} and prescription opioid use,\textsuperscript{4} few have examined its impacts on medical cannabis (MC) markets of neighboring U.S. states (i.e., “spillover effects”), which is important to understand given that, as of December 2021, 18 of 36 U.S. states with legalized cannabis use have only legalized MC use.\textsuperscript{i}

In this study, I analyze how the population of MC patients in New York State (NY) changes after RC legalization takes effect in Massachusetts (MA), a neighboring state. Using invoice data from a single MC company in NY (April 2017 to November 2020), I conduct cross-sectional logit regressions to see if MC patients in the post-legalization period (November 20, 2018) are less likely to register chronic pain as their qualifying condition—a condition that can be difficult to verify and potentially used by healthy individuals to enter the MC market to obtain cannabis for non-medical or recreational use.\textsuperscript{5-7} Although it is difficult to deduce patients’ motivations from sales data, a post-legalization decrease in chronic pain patients could suggest that a significant number of these patients have shifted their purchases to MA. We might expect to see this because, prior to RC legalization in MA, both NY’s and MA’s MC programs only accepted patients who showed proof of residence within their respective states,\textsuperscript{8-9} whereas legalization in MA allowed NY’s MC patients to purchase a wider variety of cannabis products from MA (such as smoked flower, dab, and edibles, which were prohibited in NY at the time\textsuperscript{10-11}) without having to show proof of residence (although federal laws still prohibit transporting cannabis between U.S. states).

However, my findings suggest RC legalization in MA had little impact on the percent of MC patients with chronic pain in NY. Although descriptive statistics show a significant increase in chronic pain patients after RC legalization in MA (p < 0.001), logit regressions adjusting for patient, time, and geographic characteristics suggest no significant difference in the likelihood of being a chronic pain patient among patients who live near the MA-NY border in the post-legalization period, compared to patients who live further from the border in the pre-legalization period. These results are consistent among patients’ first invoices, which I use to observe new patients purchasing from this MC company, and among patients’ last invoices, which I use to observe patients who no longer purchase from this MC company and may have exited the MC market. Similarly, in the post-legalization period, neither patients residing near the MA-NY border nor patients residing far from the MA-NY border individually experience a significant

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\textsuperscript{i} As of December 2021, 18 U.S. states, C.N.M.I., Guam, and Washington D.C. have legalized recreational/adult-use cannabis; 18 U.S. states, Puerto Rico, and U.S.V.I. have only legalized medical cannabis use; 11 U.S. states have only legalized CBD use; Nebraska has only decriminalized cannabis use (excluding “CBD-only” U.S. states); and Idaho and Kentucky have zero-tolerance cannabis laws (i.e., cannabis is illegal, excluding CBD-only U.S. states).
decrease in the likelihood of registering as a chronic pain patient, for both first invoices and last invoices, adjusting for the same controls mentioned above. Finally, secondary logit analyses of survey data from a subset of MC patients suggest chronic pain patients are not more likely than non-chronic pain patients to use cannabis recreationally. Further research is needed on a larger and more diverse sample of MC patients to verify and assess the mechanisms driving these results.

Background

Cannabis has gained more mainstream acceptance in the U.S. Between the years 2016 and 2021 alone, four more U.S. states (Alabama, Kansas, South Dakota, West Virginia) legalized medical cannabis (MC) use, and nine U.S. states (Arizona, Illinois, Michigan, Montana, New Mexico, New York, Vermont, Virginia) legalized recreational cannabis (RC) use. As of December 2021, cannabis use is legal for medical or recreational use in 36 U.S. states and 5 other U.S. jurisdictions (Commonwealth of Northern Mariana Islands, District of Columbia, Guam, Puerto Rico, and U.S. Virgin Islands).

Research suggests that over 80 percent of all cannabis use in the U.S. is for non-medical or recreational purposes, and that RC use could be more common among MC patients treating chronic pain than among non-chronic pain MC patients. Several studies find that RC use is common among MC patients, and that most MC patients (over 50 percent) had used cannabis recreationally before enrolling in an MC program. Additionally, the majority of MC patients (typically 50 to 80 percent, depending on the study) report treating chronic pain or pain symptoms, which is more difficult to verify than illnesses such as cancer, HIV/AIDS, and MS, and a recent survey of MC patients across the U.S. finds that treating pain among MC patients is weakly associated with RC use (p < 0.046). Thus, theoretically, chronic pain as a condition could be used by healthy individuals to enter the MC market and obtain cannabis for recreational use, and we would be able to observe this if a significant share of MC patients with chronic pain respond to RC legalization by exiting the MC market.

Prior research also suggests that such migrations of RC users have occurred in the past. For example, within two years after RC sales took effect in both Colorado (CO) and Washington State (WA) (years 2013 to 2014), there was a significant increase (p < 0.05) in cannabis possession arrests among counties of U.S. states that border CO or WA (including counties within 100 miles of CO or WA’s borders). There was also a significant increase (p < 0.05) in cannabis use among U.S. states that border CO or WA (Kansas, Nebraska, New Mexico, Oklahoma, Oregon, Utah, Wyoming) compared to other western U.S. states that do not border CO or WA (Arizona, California, Montana, Nevada, North Dakota, South Dakota, Texas), even though several states among both groups of states had already legalized MC use (non-bordering states: Arizona, California, Montana, Nevada; bordering states: New Mexico, and Oregon).
Conversely, after RC sales began in Oregon (OR) (October 2015), WA experienced a significant decline in cannabis sales among dispensaries near the OR-WA border. In fact, Hansen et al. (2020) find that approximately 10 percent of cannabis sold in WA during the months leading up to OR’s RC legalization were from cross-border purchases. Additionally, Wadsworth and Hammond (2020) find that cannabis users among U.S. states that only allow MC use or prohibit all cannabis use are each significantly more likely (p < 0.001) to make out-of-state cannabis purchases than states that have legalized RC use. Finally, one survey of cannabis users in California finds that, after RC legalization took effect, 53 percent of respondents who previously identified as MC patients became RC users, whereas only 25 percent of respondents who previously identified as RC users became MC users (although no statistical tests results for significant differences are provided for either of these findings). Thus, as of December 2021, the literature suggests that RC users often migrate their purchases to nearby states with the least restrictive cannabis laws.

Additionally, during the time period of this study (April 2017 to November 2020), several aspects of MA’s RC market might have incentivized RC users in NY to migrate their purchases. First, MA’s RC cannabis market allowed individuals to possess up to 10oz of cannabis at home and 1oz or 5 grams in public, whereas NY’s MC program had limited patients to a 30-day supply with a maximum 10mg of THC per dose. Additionally, prior to MA legalizing RC use, whereas both NY’s and MA’s MC programs would only accept patients who showed proof of residence within their respective states, RC legalization in MA allowed adults over the age 21 to purchase a variety of cannabis products from MA (such as smoked flower, dab, and edibles, which were prohibited in NY at the time) without having to be a state resident.

However, NY’s MC patients also faced several key opportunity costs that likely would have disincentivized traveling cross-state to purchase cannabis. First, given cannabis’ Schedule I designation under the U.S. Controlled Substances Act (CSA) (as of December 2021), federal law still prohibits transporting cannabis between two U.S. states, even if both states have legalized RC use. Thus, individuals transporting cannabis across state lines risk incurring the costs of getting arrested. Second, between April 2017 to November 2020, MA imposed greater taxes on cannabis products than NY; whereas NY’s MC regulations imposed a 7 percent excise tax on cannabis sales, MA imposed up to 20 percent in taxes for RC purchases (10.75 percent excise tax, 6.25 percent sales tax, and an optional, 3 percent maximum additional sales tax for local cities). Finally, throughout the study period, there had already been between 20 and 40 dispensing facilities located throughout NY, including three to seven dispensaries located within

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ii The CSA grades different classifications of drugs (narcotics, depressants, stimulants, hallucinogens, and anabolic steroids) on a five-point scale, from Schedule I (most regulated) to Schedule V (least-regulated), depending on factors such as potential for abuse, evidence of pharmacological effects, and risks to public health (DEA 2020a; DEA 2020b).
one hour of the nearest MA border (assuming 65mph). NY dispensaries located near the MA-NY border theoretically could have captured some of the purchases that would have otherwise gone to RC dispensaries in MA.

Thus, although the literature has demonstrated that cannabis use increases along bordering areas in response to RC legalization (even among states that have already legalized MC use) and that RC users are willing to migrate their purchases, it is theoretically unclear whether a significant number of individuals registered to MC programs would leave the MC market simply because cannabis is fully legalized across state lines. A variety of factors influencing one’s personal costs and preferences (e.g., cannabis product variety, costs of traveling, location of cannabis dispensaries) could sufficiently incentivize or disincentivize migrating one’s purchases to a bordering RC state. Other than perhaps Wadsworth and Hammond (2020), no study to my knowledge has examined this question, and with an increasing number of U.S. states legalizing RC use, it is an interesting and important phenomenon to understand.

Methods

Data

I analyze sales data (April 1, 2017 to November 30, 2020) from a medical cannabis (MC) company that, as of December 2021, operates four dispensaries in NY located approximately two hours from the nearest MA border (assuming 65mph). The company’s de-identified, unbalanced panel dataset contains sales invoices from all of its patients in NY, to which I gained access following a Data Use Agreement with the company and approval from the RAND Corporation’s Human Subjects Protection Committee. Each invoice contains the sales date, dispensary location, demographic information (patients’ age, gender, and qualifying conditions), and a three-digit code representing the group of neighboring zip codes in which the patient resides (or “zip code group”). For privacy, the dataset defines age as “age at the first invoice” and omits the patients’ date of birth. Multiple invoices made by a patient on the same day are treated as the same invoice; no same-day purchases are at multiple dispensary locations.

The dataset had originally contained 153,545 invoices between January 1, 2016 and November 30, 2020 from 30,811 patients, but I restrict my analysis to examine particular patients. First, I only examine patients whose first invoices occurred no earlier than April 2017 (28,222 patients, or 92 percent of patients from the original dataset) because NY’s Department of Health did not include chronic pain as a qualifying condition in the state’s MC laws until March

[iii] The number of dispensaries located within an hour of the MA-NY border was obtained using NY Department of Health’s (NY DOH) website—which lists the addresses of all registered dispensaries—and an internet archive database, Wayback Machine, that provides public access to previous editions of NY DOH’s website throughout the study period (April 2017 to November 2020).
22, 2017.\textsuperscript{41-42} Next, I restrict the dataset to examine patients’ first invoices, which helps me observe new patients who purchase from this MC company, and patients’ last invoices, which helps me observe exiting patients who no longer purchase from this company. All patients’ invoices that occur between their first and last are dropped. Note that both “first invoices” and “last invoices” include patients who only had a single invoice during the study period (n = 10,806), as these patients’ invoices can be considered their first or last. I further restrict “last invoices” to exclude patients whose first invoice or last invoice during the study period occurs within approximately 8 months of the last sales date in this dataset (238 days from November 30, 2020) (-6,227 patients). This threshold represents the 95\textsuperscript{th} percentile for each patient’s average number of days between invoices (for patients with multiple invoices only). Patients who fall within this threshold are more likely to have continued purchasing from this MC company, as the data indicate that 95 percent of patients in this dataset revisit this MC company up to 238 days between each visit. Restricting last invoices to this threshold helps ensure I observe patients who no longer purchase from this MC company and, therefore, have theoretically left the MC market. To summarize, the dataset for first invoices contains 28,222 patients, while the dataset for last invoices contains 21,995 patients. Both datasets have slightly more female than male patients (52 percent for both first invoices and last invoices) and the majority of patients are over 39 years old at the time of their first invoice (74 percent for both first invoices and last invoices) and registered as chronic pain patients (between 61 to 65 percent for both first invoices and last invoices). \textbf{Table 1} displays demographics for both first invoices and last invoices.

\textbf{Measures}

\textbf{Dependent Variable}

The dependent variable is a binary indicator for whether an MC patient’s registered qualifying condition with New York State is chronic pain (0, “no”; 1, “yes”). Note, that prior to NY legalizing recreational cannabis (RC) use in 2021, state law had required MC patients to register with at least one qualifying condition—amyotrophic lateral sclerosis (ALS), cancer, chronic pain, epilepsy, human immunodeficiency virus and acquired immunodeficiency syndrome (HIV/AIDS), Huntington’s disease, inflammatory bowel disease (IBD), multiple sclerosis (MS), neuropathy, opioid reduction, Parkinson’s disease, post-traumatic stress disorder (PTSD), and spinal cord injury—and at least one associated symptom (cachexia or wasting syndrome, seizures, severe nausea, severe or persistent muscle spasms, severe or chronic pain).\textsuperscript{43} As of January 24, 2022, patients may register to NY’s MC program with any health condition.\textsuperscript{44}

\textbf{Independent Variables}

\textit{Post-legalization} indicates whether the patient’s invoice occurred after RC legalization took effect in MA. I use November 20, 2018 as the post-legalization date because, although the state
passed RC legislation in November 2016, its first two RC dispensaries opened on that date.\textsuperscript{45} I also control for the patient’s residential region; live near MA takes a value of “1” if the patient resides in either the Capital District or Hudson Valley regions defined by the NY Department of Transportation, as both of these regions border MA (see Figure 1 for reference).\textsuperscript{46-49} Depending on where patients reside, both of these regions are either just minutes or 1.5 hours away (up to 100mi, assuming 65mph) from the nearest MA dispensary.\textsuperscript{50} Live near MA was constructed according to patients’ zip code groups. Note that zip code groups are defined by patients’ most recent address at the time this dataset was provided (March 2021), as patients’ addresses are updated by this MC company’s registry each time a patient moves, erasing patients’ residential history. I also categorize patients as living near or further from the MA based on their regional residence rather than zip code groups because doing so allows me to observe a greater number of patients who live near the MA border (as 2 percent of the patients examined in this study live in the Capital District or Hudson Valley regions—450 of 28,222 patients in the first invoices dataset, and 366 of 21,995 patients in the last invoices dataset). Finally, I interact post legalization with live near MA (post-legalization*live near MA) to observe the added effect of living near the MA border after legalization.

Additionally, I control for patient- and invoice-related characteristics. For patient characteristics, I control for age (age under 40, ages 40 and up) and gender (female, male), as demographic characteristics could influence one’s likelihood of registering as a chronic pain patient. For invoice characteristics, I control for quarter (Q1: January to March, Q2: April to June, Q3: July to September, Q4: October to December) and year (2017 to 2020) to account for seasonal and other temporal trends. I also control for dispensary location to account for any important differences between this company’s five dispensaries that might have influenced patients’ behavior during the study period (e.g., surrounding shops, population density). Note that one of the company’s locations closed in April 2018 and another opened in April 2019, and during the study period of this analysis, MC companies in NY could only operate up to four dispensaries.\textsuperscript{51}

\textbf{Analysis}

I conduct all analyses using Stata MP 17.0. For my primary analysis, using first invoices, I conduct logit regression analyses to assess the likelihood that new patients in NY are registered as chronic pain patients after RC legalization takes effect in MA; this analysis observes patients entering NY’s MC market. I also run logit regressions on last invoices to assess the likelihood that exiting patients in NY are registered as chronic pain patients after legalization takes effect in MA.\textsuperscript{iv} Additionally, from logit regressions, I use the interaction term specified above (post-legalization*live near MA) to observe the added effect of living near the MA border after legalization.

\textsuperscript{iv} I code the following model in Stata MP 17.0, where “i.” denotes a categorical variable, “cpain” means the patient is registered with chronic pain as their qualifying condition (vs. non-chronic pain), “post” means the invoice
to individually obtain the predicted probability of being registered as a chronic pain patient for patients that live in NY regions that border MA as well as patients who do not live in these regions. I do this to individually compare the predicted probabilities of being a chronic pain patient for each of these regional groups in the pre-legalization period and post-legalization period. For all regressions in my primary analysis, I cluster standard errors by zip code group because being assigned to the “treatment region” (living near the MA border) and “control region” (living further from the MA border) depends on whether patients’ zip code group is within Capital District or Hudson Valley’s borders, and clustering at the zip code group level accounts for any underlying, non-random factors that influence being assigned to the “treatment” or “control” region.52

Finally, to reduce factors that could bias my results, for my final model, I exclude patients with PTSD (n = 409), as well as chronic pain patients who are treating more than one qualifying condition (n = 1,206). I exclude PTSD patients because, like chronic pain, PTSD is a more broadly defined condition than other NY qualifying conditions (e.g., epilepsy, HIV/AIDS, MS),53-57 and although analyses of surveys have shown MC users to be significantly more likely to have psychological-related health issues than RC users (including PTSD),58-60 healthy individuals may also theoretically use PTSD as a qualifying condition to enter the MC market and obtain cannabis for recreational use. Additionally, I omit chronic pain patients with multiple qualifying conditions in order to more narrowly observe the behaviors of patients who are only treating chronic pain. Excluding chronic pain patients with multiple qualifying conditions helps ensure I more directly focus on potentially healthy individuals who are only registered with chronic pain to enter the MC market. For sensitivity analyses, I conduct regressions without omitting these patients to see if my findings are robust to these changes.

Supplemental Analysis of Survey Data

For additional insight on patients’ purchase behaviors, I conduct logit regression analyses on survey responses from a subset of this MC company’s patients; the survey was administered between July and August 31, 2018. Using survey data, I examine the likelihood that a patient reports recreationally using cannabis products purchased from this company (“Do you currently use any of the cannabis purchased for medicinal purposes for recreational purposes?”). Approximately 52 percent of patients answered this question, resulting in a low sample (N = 327

logit cpain i.post##i.near i.age40 i.male i.location i.quarter i.year, vce(cluster zip)
As I do with sales data analyses, I exclude PTSD patients as well as chronic pain patients with multiple qualifying conditions, although for a sensitivity analysis I include these patients to see if my findings are robust to these changes. Due to the small sample size (N = 184 patients) and to avoid overfitting my model, I only control for age (as a continuous variable) and gender (0, “female”; 1, “male”; 2, “gender variant/non-conforming; 3, “prefer not to answer”), as I do with the sales dataset.

Results

Descriptive Analysis

Figure 2 displays the locations of this company’s dispensaries in NY, as well as residential locations of chronic pain and non-chronic pain patients before and after legalization takes effect in MA (November 20, 2018), for patients’ first invoices and last invoices. The shaded region of NY represents the Capital District and Hudson Valley regions, both of which are adjacent to MA. Recall that I consider patients who live near MA as those whose residential zip code groups (at the time of their most recent invoice) lie within these regions. Conversely, I consider patients who do not live near MA as those whose residential zip code groups lie outside of these regions. Each blot on the map means that at least one patient resides within the demarcated zip code group. Notice that this company’s MC patients are dispersed throughout NY, with at least one patient residing in each of NY’s 10 regions, indicating that some patients are willing to drive considerable distances to make purchases from this MC company, although patients are also allowed to make home-deliverable, online purchases by using their MC identification number (it is unknown what percent of purchases in the sales dataset are from online sales). Nearly every zip code group also contains both chronic pain and non-chronic pain patients. However, over two-thirds of patients reside in Long Island and New York City (statistics not shown in tables or figures)—the two southernmost regions in NY that are located between 100 and 160 miles (or between 1.5 and 2.7 hours, assuming 65mph) from the nearest MA dispensary during the study period—and three out of four of this company’s dispensaries are located in these two regions, which means the sales dataset is strongly more representative of MC patients from these areas than other NY regions. Figure 2 also shows that, among first invoices, a few zip code groups appear to become more dominated by chronic pain patients in the post-legalization period, indicating more chronic pain than non-chronic pain patients enter the MC market. For last invoices, the opposite is true, in which a few zip code groups become more dominated by non-chronic pain patients in the post-legalization period. However, overall there are not substantial changes among the composition of chronic pain and non-chronic pain patients before and after legalization in MA.
Figure 3 displays the percent of chronic pain patients pre- and post-legalization, for both first invoices and last invoices. At the beginning of the study period (April to June 2017), approximately only one third of patients are registered as chronic pain patients. According to first invoices, after September 2017 and until legalization takes effect in MA (November 20, 2018), the majority of new MC patients are consistently chronic pain patients (minimum 60 percent, maximum 70 percent); after legalization takes effect, the percent of new chronic pain patients slightly increases (minimum 72 percent, maximum 81 percent). According to last invoices, in the pre-legalization period, there does not to be a great number of chronic pain patients exiting this MC company, and after legalization takes effect, the percent of chronic pain patients also slightly increases (minimum 70 percent, maximum 74 percent). Throughout the study period (April 2017 to November 2020), there is a consistent gap of 2 to 10 percentage points between new MC patients registering as chronic pain patients and remaining patients who are registered as chronic pain patients, suggesting that chronic pain patients enter and exit the market at a relatively consistent rate.

These trends are also evident in Table 2, which summarizes the percent of registered chronic pain patients pre- and post-legalization. Overall, for both first invoices and last invoices, there is a significant increase in chronic pain patients in the post-legalization period (Column 1, p < 0.001); more chronic pain patients are entering the MC market than non-chronic pain patients (first invoices), and fewer chronic pain patients exit the MC market than non-chronic pain patients (last invoices). Interestingly, among regions that border MA (Capital District, Hudson Valley), there is an increase of chronic pain patients for both first invoices and last invoices, but neither of these increases is statistically significant. Note that all of these findings for Table 2 remain consistent even if I include patients with post-traumatic stress disorder (PTSD) and chronic pain patients with multiple qualifying conditions.

Regression Analysis

Tables 3a and 3b, respectively, present odds ratios (OR) generated from estimations of logit models on first invoices and last invoices. Odds ratios describe how a one-unit change in a variable (e.g., being a male patient vs. a female patient) affects the expected odds of being registered as a chronic pain patient relative to the odds without the one-unit change, controlling for other variables in the model. I also obtain joint significance tests, odds ratios, and 95

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\(^{\text{v}}\) Odds ratios are constructed using the binary version of my dependent variable, which equals 1 if a patient is registered as a chronic pain patient and 0 otherwise. As an example, let us use the gender variable, which identifies a patient as either male or female (0, “female”; 1 “male”). The probability (range 0 to 1) of male patient being registered as a chronic pain patient is \(p_{1}\), while the probability of the opposite is \(1-p_{1}\), or \(q_{1}\). Similarly, the probability of a female patient being registered as a chronic pain patient is \(p_{2}\), and the probability of the opposite is \(q_{2}\). The odds (range 0 to infinity) of a male patient being registered as chronic pain is defined as a ratio of \(p_{1}\) to \(q_{1}\)
percent confidence intervals from a linear combination of post-legalization, live near MA, and the interaction term (post-legalization*live near MA) generated by logit models, which I present in Table 4.

For first invoices, I find that all three variables (post-legalization, near MA, interaction term) are jointly significant (p<0.05), suggesting that the likelihood of being registered as a chronic pain patient does change depending on the pre- or post-legalization period, as well as whether patients reside near or further from MA. I also find that, controlling for age, gender, dispensary location, quarter, and year, the odds of being registered as a chronic pain patient are lower for patients who live near MA in the post-legalization period than for patients who do not live near MA in the pre-legalization period, but the difference is not statistically significant (Column 2a in Table 4; OR: 0.60; 95% CI: 0.18 to 2.01). For last invoices, post-legalization, live near MA, and the interaction term (post-legalization*live near MA) are not jointly significant, suggesting that the likelihood of being registered as a chronic pain patient is not affected by changes in these variables. Furthermore, for last invoices, the odds of being registered as a chronic pain patient are lower for patients who live near MA in the post-legalization period than for patients who do not live near MA in the pre-legalization period, but again the difference is not statistically significant (Column 2b in Table 4; OR: 0.89; 95% CI: 0.34 to 2.31). The difference in the odds of being a chronic pain patient remain non-significant even if I include PTSD patients and chronic pain patients with multiple qualifying conditions (Columns 1a and 1b in Table 4).

Figure 4 displays 95 percent confidence intervals for the predicted probability of being registered as a chronic pain patient in pre-legalization and post-legalization periods, for patients who live near MA and for patients who live further from MA (note that predicted probabilities are for each of these groups individually; predicted probabilities for patients who live near or further from MA are not compared to each other). For first invoices, controlling for age, gender, dispensary location, quarter, and year, there is no significant difference between the pre- and post-legalization periods in the likelihood of being registered as a chronic pain patient, neither for patients who live near MA nor patients who live further from MA. I obtain the same findings for last invoices. These findings are also robust to sensitivity analyses that include PTSD patients and chronic pain patients with multiple qualifying conditions (not shown in Figure 4).

Finally, to further test the robustness of my findings, I conduct supplementary analyses of survey data, which I had obtained between July and August 2018 from a subset of patients who purchase from this MC company. Of 184 respondents in my analysis, only 12 percent report using cannabis recreationally (not shown in tables), which is much lower than in previous studies (p/q = 1/8); male patients having 0.25 or 1/4 odds of being a chronic pain patient (p = 0.2, q = 0.8, p/q = 0.25), means one male patient will be a chronic pain patient for every four non-chronic pain patients.

The odds ratio for the gender variable compares male and female patients by dividing the odds of a being a chronic pain patient for male patients by the odds of being a chronic pain patient for female patients (p1/q1 ÷ q2/p2 = p1/q1 * p2/q2). For example, from Column 2 of Table 3b, the odds ratio for male patients is 0.95, meaning that male patients have a 5 percent lower odds of being registered as a chronic pain patient than female patients.
Discussion

Analyses of sales data from a single medical cannabis (MC) company in NY suggest that MA’s legalization of recreational cannabis (RC) use is not significantly associated with a differential likelihood of registering as a chronic pain MC patient in NY. The odds of being registered as a chronic pain patient are lower for patients who live near MA in the post-legalization period (i.e., whose residential zip code groups are a part of NY regions that border MA), compared to patients who live further from MA in the pre-legalization period, but the difference is not statistically significant. Additionally, for patients who live near MA, the predicted probability of registering as a chronic pain patient is not significantly lower in the post-legalization period compared to the pre-legalization period. These findings hold true for both new patients who purchase from this MC company (according to analyses of first invoices) and patients who stop purchasing from this company (according to analyses of last invoices). These findings are also true regardless of whether I exclude patients in the analysis who either have post-traumatic stress disorder (another broadly defined and difficult-to-verify health condition) or chronic pain with multiple qualifying conditions. Thus, my findings suggest chronic pain MC patients did not strongly react to RC legalization in MA, including patients who lived near the MA-NY border. Although there are many possible interpretations of these results, survey data analyses provide an important supplement and generally support these findings, as they suggest chronic pain patients are not necessarily more likely than non-chronic pain patients to obtain MC products for recreational use, contrary to survey findings from another study. However, given the small sample size of the survey data, my findings should be interpreted with some caution. Future research should continue to explore demographic characteristics associated with the likelihood of RC use among MC patients.
Limitations

Several limitations in this study should be acknowledged. First, sales data only come from one of 10 registered medical cannabis (MC) companies and four of nearly 40 dispensaries in New York State as of December 2021, and survey data come from an even smaller subset of patients. In addition, although the company’s patients do reside throughout NY, the company’s dispensaries are largely isolated to two NY regions and include only a small sample of patients (only two percent) who are located near the MA border. The data also underrepresents younger patients (age under 40), which have been better represented in previous studies of MC patients, although the age range is much wider in this data (ages 1 to 105 for both first and last invoices) than in other studies on MC patients, which typically only include adults aged 18 and up. Both first invoices (N = 28,222 patients) and last invoices (N = 21,995 patients) also cover less than half of registered MC patients in NY throughout the study period. Not only is it possible for these sampling issues to have affected my results, but they also suggest that my findings might not be sufficiently generalizable to NY as a whole. Furthermore, because NY had a uniquely well-regulated MC program during the study period (e.g., the prohibition of smokable cannabis products), it is also possible that these findings are not generalizable to the general U.S. MC population, especially for U.S. states or other jurisdictions with less regulated MC programs. Additionally, because the sales data only provide patients’ most recent residential zip code groups (not at the time of each purchase), I cannot account for patient mobility, as it is possible for patients to have moved during the study period, particularly as a result of the COVID-19 pandemic. Finally, patients no longer appearing in the dataset simply reflects that there are no additional purchases from these patients at this MC company, not necessarily that they have exited the NY MC market completely. However, it is worth noting that over three-fourths of survey respondents do not report purchasing from multiple dispensaries, suggesting that many patients examined in this study do not migrate their purchases frequently.

Conclusion

In this study, I analyze sales data (April 2017 to November 2020) from a medical cannabis company in New York State to assess whether recreational cannabis legalization in Massachusetts (November 20, 2018), a neighboring state, is associated with a lower likelihood that medical cannabis patients register as treating chronic pain. This could suggest that healthy individuals who register as chronic pain patients to enter the medical cannabis market and obtain cannabis for recreational use have left the market in New York to purchase cannabis in

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vi NY had approximately 52,000 registered MC patients in 2018 and currently has approximately 124,000 patients as of December 2021 (ProCon.org, 2018; OCM, 2022).
Massachusetts. However, both descriptive and regression analyses do not suggest that chronic pain patients migrated their purchases to Massachusetts after recreational cannabis sales began. Rather, the results suggest that recreational cannabis legalization in Massachusetts had little impact on the composition of medical cannabis patients in New York. But because this company’s dispensaries were predominantly located in New York’s two southernmost regions during the study period (over one and half hours away from Massachusetts, assuming 65 mph), which likely affected the sampling of medical cannabis purchases from New York, these findings should be interpreted cautiously. Still, supplemental analyses of survey data further support my findings, as chronic patients are not found to be more likely than non-chronic pain patients to report recreational cannabis use, raising some doubt as to whether chronic pain as a qualifying condition is a reliable and consistent indicator with which to identify potential recreational cannabis users. Overall, further research is needed on larger and more diverse samples of medical cannabis patients to verify and assess the mechanisms driving these results.

In conclusion, policymakers of states that legalize medical cannabis use may have valid concerns that the medical cannabis market is inevitably composed of some individuals who use cannabis recreationally, but the treatment of pain-related conditions alone might not be a reliable identifier of medical cannabis patients who are most likely to use cannabis recreationally. Furthermore, although previous studies suggest that recreational cannabis legalization results in increased out-of-state cannabis purchases and in many individuals leaving the medical cannabis market, my findings suggest that migrations of medical cannabis patients into the recreational cannabis market may not necessarily occur across state lines to a substantial degree.
References


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Tables and Figures

Table 1. *Patient Demographics of First Invoices and Last Invoices Datasets (Column Percentages), April 2017 to November 2020*

<table>
<thead>
<tr>
<th></th>
<th>Final Datasets Used in Analyses</th>
<th>Datasets for Sensitivity Analyses&lt;sup&gt;a&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>First Invoices (N= 26,009)</td>
<td>Last Invoices (N = 20,200)</td>
</tr>
<tr>
<td>Age &lt;40</td>
<td>26%</td>
<td>26%</td>
</tr>
<tr>
<td>Age 40+</td>
<td>74%</td>
<td>74%</td>
</tr>
<tr>
<td>Female</td>
<td>52%</td>
<td>52%</td>
</tr>
<tr>
<td>Male</td>
<td>48%</td>
<td>48%</td>
</tr>
<tr>
<td>Non-Chronic Pain</td>
<td>36%</td>
<td>39%</td>
</tr>
<tr>
<td>Chronic Pain</td>
<td>64%</td>
<td>61%</td>
</tr>
</tbody>
</table>

<sup>a</sup> Chi-square test for difference

<table>
<thead>
<tr>
<th></th>
<th>First Invoices (N= 28,222)</th>
<th>Last Invoices (N = 21,995)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age &lt;40</td>
<td>26%</td>
<td>26%</td>
</tr>
<tr>
<td>Age 40+</td>
<td>74%</td>
<td>74%</td>
</tr>
<tr>
<td>Female</td>
<td>52%</td>
<td>52%</td>
</tr>
<tr>
<td>Male</td>
<td>48%</td>
<td>48%</td>
</tr>
<tr>
<td>Non-Chronic Pain</td>
<td>36%</td>
<td>39%</td>
</tr>
<tr>
<td>Chronic Pain</td>
<td>64%</td>
<td>61%</td>
</tr>
</tbody>
</table>

<sup>***</sup> p < 0.001, <sup>**</sup> p < 0.01, <sup>*</sup> p < 0.05, ns = non-significant

<sup>a</sup> The sensitivity analysis includes all patients who are excluded from the final dataset. The final dataset excludes patients who are with registered post-traumatic stress disorder as their qualifying condition (QC). The final dataset also excludes chronic pain patients with multiple QCs.

**First Invoices**  Patients’ very first invoices (including patients with only one invoice) during the study period

**Last Invoices**  Patients’ very last invoices (including patients with only one invoice). Excludes patients either whose very first or very last invoice occurs within 238 days* before the end of the study period, which helps ensure we observe patients who no longer purchase from this medical cannabis company.

<sup>* 238 days</sup>  95<sup>th</sup> percentile value of patients’ mean number of days between each invoice (for patients with multiple invoices only)
Figure 1. New York State Department of Transportation (NY DOT) Regions and Zip Code Groups That Border Massachusetts (MA)

NY DOT Regions
1. Capital Region
2. Mohawk Valley
3. Central New York
4. Finger Lakes
5. Western New York
6. Southern Tier / Central New York
7. North Country
8. Hudson Valley
9. Southern Tier
10. Long Island
11. New York City

Sources: Case (2006), mapofzipcodes.com (2019), NY DOT (2021), NYESD (2022)
Figure 2. Residential Zip Code Groups, for Chronic Pain and Non-Chronic Pain Patients in New York State

- Zip code groups that are not part of Capital Region and Hudson Valley
- Zip code groups that are part of Capital Region and Hudson Valley (NY DOT* regions that border Massachusetts)
- Only a non-chronic pain patient(s) resides within this zip code group
- Only a chronic pain patient(s) resides within this zip code group
- Both chronic pain and non-chronic patients reside within this zip code group
- Dispensary locations of the medical cannabis company examined in this study

Source: mapofzipcodes.com (2019)
Figure 3. Descriptive Analyses: Percent of MC Patients Registered with Chronic Pain as their Qualifying Condition

First Invoices  Last Invoices

Post-legalization (November 20, 2018)
Table 2. Descriptive Analyses: Medical Cannabis Patients Registered as Chronic Pain in the Pre-legalization Period vs. in the Post-legalization Period (Row Percentages), for First Invoices and Last Invoices

### First Invoices (N = 28,222)

<table>
<thead>
<tr>
<th></th>
<th>All NY Patients</th>
<th>Non-Chronic Pain</th>
<th>Chronic Pain</th>
<th>Patients Who Live Near MA</th>
<th>Non-Chronic Pain</th>
<th>Chronic Pain</th>
<th>Patients Who Do Not Live Near MA</th>
<th>Non-Chronic Pain</th>
<th>Chronic Pain</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-Legalization (N = 17,753)</td>
<td></td>
<td>41%</td>
<td>59%</td>
<td></td>
<td>41%</td>
<td>59%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Post-Legalization (N = 10,469)</td>
<td></td>
<td>25%</td>
<td>75%</td>
<td></td>
<td>25%</td>
<td>75%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chi-square Test for difference</td>
<td></td>
<td>p = 0.000 ***</td>
<td></td>
<td></td>
<td>p = 0.000 ***</td>
<td></td>
<td>p = 0.266 ns</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Last Invoices (N = 21,995)

<table>
<thead>
<tr>
<th></th>
<th>All NY Patients</th>
<th>Non-Chronic Pain</th>
<th>Chronic Pain</th>
<th>Patients Who Live Near MA</th>
<th>Non-Chronic Pain</th>
<th>Chronic Pain</th>
<th>Patients Who Do Not Live Near MA</th>
<th>Non-Chronic Pain</th>
<th>Chronic Pain</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-Legalization (N = 12,301)</td>
<td></td>
<td>42%</td>
<td>58%</td>
<td></td>
<td>42%</td>
<td>58%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Post-Legalization (N = 9,694)</td>
<td></td>
<td>31%</td>
<td>69%</td>
<td></td>
<td>31%</td>
<td>69%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chi-square Test for difference</td>
<td></td>
<td>p = 0.000 ***</td>
<td></td>
<td></td>
<td>p = 0.000 ***</td>
<td></td>
<td>p = 0.096 ns</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*** p < 0.001, ** p < 0.01, * p < 0.05, ns = non-significant

**Zip code groups** Neighboring zip codes that share the same starting three digits

**a** Patients whose residential zip code groups are part of New York State regions (Capital Region, Hudson Valley) that border Massachusetts (NY DOT, 2021)

**b** Patients whose residential zip code groups are not part of New York State regions (Capital Region, Hudson Valley) that border Massachusetts (NY DOT, 2021)
Table 3a. Odds Ratios Generated from Logit Regression Outputs for Patients’ First Invoices, with Sensitivity Analyses, Estimating the Likelihood a Medical Cannabis Patient in New York (NY) is Registered with Chronic Pain as Their Qualifying Condition (QC), April 2017 to November 2020

<table>
<thead>
<tr>
<th>Changes to the dataset or regression model</th>
<th>(1)</th>
<th>(2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Post-legalization</td>
<td>0.834*</td>
<td>0.850</td>
</tr>
<tr>
<td></td>
<td>(0.075)</td>
<td>(0.075)</td>
</tr>
<tr>
<td>Lives near MA border</td>
<td>1.129</td>
<td>1.125</td>
</tr>
<tr>
<td></td>
<td>(0.077)</td>
<td>(0.088)</td>
</tr>
<tr>
<td>Post-legalization /*/</td>
<td>0.577</td>
<td>0.555</td>
</tr>
<tr>
<td>Lives near MA border</td>
<td>(0.286)</td>
<td>(0.291)</td>
</tr>
<tr>
<td>Age 40+</td>
<td>0.765***</td>
<td>0.702***</td>
</tr>
<tr>
<td></td>
<td>(0.051)</td>
<td>(0.038)</td>
</tr>
<tr>
<td>Male</td>
<td>0.941</td>
<td>0.954</td>
</tr>
<tr>
<td></td>
<td>(0.045)</td>
<td>(0.044)</td>
</tr>
<tr>
<td>Location 1</td>
<td>Reference</td>
<td>Reference</td>
</tr>
<tr>
<td>Location 2</td>
<td>0.840*</td>
<td>0.825*</td>
</tr>
<tr>
<td></td>
<td>(0.061)</td>
<td>(0.066)</td>
</tr>
<tr>
<td>Location 3</td>
<td>1.046</td>
<td>1.366*</td>
</tr>
<tr>
<td></td>
<td>(0.133)</td>
<td>(0.181)</td>
</tr>
<tr>
<td>Location 4</td>
<td>0.642***</td>
<td>0.736***</td>
</tr>
<tr>
<td></td>
<td>(0.042)</td>
<td>(0.053)</td>
</tr>
<tr>
<td>Location 5</td>
<td>1.451***</td>
<td>1.356***</td>
</tr>
<tr>
<td></td>
<td>(0.096)</td>
<td>(0.098)</td>
</tr>
<tr>
<td>Quarter 1</td>
<td>Reference</td>
<td>Reference</td>
</tr>
<tr>
<td>Quarter 2</td>
<td>0.882</td>
<td>0.900</td>
</tr>
<tr>
<td></td>
<td>(0.071)</td>
<td>(0.070)</td>
</tr>
<tr>
<td>Quarter 3</td>
<td>1.356***</td>
<td>1.408***</td>
</tr>
<tr>
<td></td>
<td>(0.093)</td>
<td>(0.102)</td>
</tr>
<tr>
<td>Quarter 4</td>
<td>1.492***</td>
<td>1.532***</td>
</tr>
<tr>
<td></td>
<td>(0.069)</td>
<td>(0.073)</td>
</tr>
<tr>
<td>Year 2017</td>
<td>Reference</td>
<td>Reference</td>
</tr>
<tr>
<td>Year 2018</td>
<td>2.230***</td>
<td>2.432***</td>
</tr>
<tr>
<td></td>
<td>(0.161)</td>
<td>(0.201)</td>
</tr>
<tr>
<td>Year 2019</td>
<td>3.407***</td>
<td>3.811***</td>
</tr>
<tr>
<td></td>
<td>(0.499)</td>
<td>(0.601)</td>
</tr>
<tr>
<td>Year 2020</td>
<td>4.138***</td>
<td>4.853***</td>
</tr>
<tr>
<td></td>
<td>(0.548)</td>
<td>(0.708)</td>
</tr>
<tr>
<td>Constant</td>
<td>1.311*</td>
<td>1.133</td>
</tr>
<tr>
<td></td>
<td>(0.164)</td>
<td>(0.153)</td>
</tr>
<tr>
<td>Observations (N)</td>
<td>28,222</td>
<td>26,009</td>
</tr>
<tr>
<td>Pseudo R²</td>
<td>0.061</td>
<td>0.067</td>
</tr>
</tbody>
</table>

Wald Goodness-of-Fit Tests for the Regression Model ($\chi^2$)

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5,020.31***</td>
<td>3,810.78***</td>
</tr>
</tbody>
</table>

Standard errors are in parentheses. *** p < 0.001, ** p < 0.01, * p < 0.05

N Number of patient invoices, one invoice per patient

Post-legalization Invoice occurs after recreational cannabis sales began in Massachusetts (MA) (November 20, 2018)

Lives near MA Border Residing in a zip code group that is part of NY Department of Transportation regions that border MA (Capital Region, Hudson Valley)

A Preferred model; excludes patients who are either registered with post-traumatic stress disorder as their qualifying condition (QC) or who are registered as chronic pain with multiple QCs
Table 3b. Odds Ratios Generated from Logit Regression Outputs for Patients’ Last Invoices, with Sensitivity Analyses, Estimating the Likelihood a Medical Cannabis Patient in New York (NY) is Registered with Chronic Pain as Their Qualifying Condition (QC), April 2017 to November 2020

<table>
<thead>
<tr>
<th>Changes to the dataset or regression model</th>
<th>(1)</th>
<th>(2)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A</td>
<td>B</td>
</tr>
<tr>
<td>Post-legalization</td>
<td>0.842***</td>
<td>0.886*</td>
</tr>
<tr>
<td></td>
<td>(0.043)</td>
<td>(0.046)</td>
</tr>
<tr>
<td>Lives near MA</td>
<td>1.108</td>
<td>1.113</td>
</tr>
<tr>
<td></td>
<td>(0.075)</td>
<td>(0.087)</td>
</tr>
<tr>
<td>Post-legalization *//</td>
<td>0.912</td>
<td>0.862</td>
</tr>
<tr>
<td>Lives near MA border</td>
<td>(0.311)</td>
<td>(0.325)</td>
</tr>
<tr>
<td>Age 40+</td>
<td>0.729***</td>
<td>0.671***</td>
</tr>
<tr>
<td></td>
<td>(0.055)</td>
<td>(0.041)</td>
</tr>
<tr>
<td>Male</td>
<td>0.932</td>
<td>0.95</td>
</tr>
<tr>
<td></td>
<td>(0.040)</td>
<td>(0.039)</td>
</tr>
<tr>
<td>Location 1 Reference</td>
<td>Reference</td>
<td>Reference</td>
</tr>
<tr>
<td>Location 2</td>
<td>0.838</td>
<td>0.848</td>
</tr>
<tr>
<td></td>
<td>(0.086)</td>
<td>(0.103)</td>
</tr>
<tr>
<td>Location 3</td>
<td>0.957</td>
<td>1.270</td>
</tr>
<tr>
<td></td>
<td>(0.127)</td>
<td>(0.183)</td>
</tr>
<tr>
<td>Location 4</td>
<td>0.648***</td>
<td>0.762*</td>
</tr>
<tr>
<td></td>
<td>(0.061)</td>
<td>(0.083)</td>
</tr>
<tr>
<td>Location 5</td>
<td>1.412**</td>
<td>1.300*</td>
</tr>
<tr>
<td></td>
<td>(0.150)</td>
<td>(0.143)</td>
</tr>
<tr>
<td>Quarter 1 Reference</td>
<td>Reference</td>
<td>Reference</td>
</tr>
<tr>
<td>Quarter 2</td>
<td>1.019</td>
<td>1.036</td>
</tr>
<tr>
<td></td>
<td>(0.037)</td>
<td>(0.037)</td>
</tr>
<tr>
<td>Quarter 3</td>
<td>1.179***</td>
<td>1.208***</td>
</tr>
<tr>
<td></td>
<td>(0.036)</td>
<td>(0.037)</td>
</tr>
<tr>
<td>Quarter 4</td>
<td>1.311***</td>
<td>1.322***</td>
</tr>
<tr>
<td></td>
<td>(0.057)</td>
<td>(0.048)</td>
</tr>
<tr>
<td>Year 2017 Reference</td>
<td>Reference</td>
<td>Reference</td>
</tr>
<tr>
<td>Year 2018</td>
<td>2.077***</td>
<td>2.181***</td>
</tr>
<tr>
<td></td>
<td>(0.201)</td>
<td>(0.228)</td>
</tr>
<tr>
<td>Year 2019</td>
<td>3.015***</td>
<td>3.21***</td>
</tr>
<tr>
<td></td>
<td>(0.400)</td>
<td>(0.483)</td>
</tr>
<tr>
<td>Year 2020</td>
<td>3.628***</td>
<td>4.099***</td>
</tr>
<tr>
<td></td>
<td>(0.582)</td>
<td>(0.787)</td>
</tr>
<tr>
<td>Constant</td>
<td>1.242</td>
<td>1.050</td>
</tr>
<tr>
<td></td>
<td>(0.201)</td>
<td>(0.190)</td>
</tr>
<tr>
<td>Observations (N)</td>
<td>21,995</td>
<td>20,200</td>
</tr>
<tr>
<td>Pseudo R²</td>
<td>0.038</td>
<td>0.038</td>
</tr>
</tbody>
</table>

Wald Goodness-of-Fit Tests for the Regression Model ($\chi^2$)

- Standard errors are in parentheses.
- *** p < 0.001, ** p < 0.01, * p < 0.05
- N Number of patient invoices, one invoice per patient
- Post-legalization Invoice occurs after recreational cannabis sales began in Massachusetts (MA) (November 20, 2018)
- Lives near MA Border Residing in a zip code group that is part of NY Department of Transportation regions that border MA (Capital Region, Hudson Valley)
- A Preferred model; excludes patients who are either registered with post-traumatic stress disorder as their qualifying condition (QC) or who are registered as chronic pain with multiple QCs
Table 4. Joint Significance Tests and Odds Ratios Generated by a Linear Combination of Key Variables of Interest in Logit Regression Outputs

### First Invoices

<table>
<thead>
<tr>
<th>Changes to the dataset or regression model</th>
<th>(1a)</th>
<th>(2a) A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Linear combination post-legalization, lives near MA, interaction (post-legalization*lives near MA)</td>
<td>0.713 (0.413)</td>
<td>0.602 (0.370)</td>
</tr>
<tr>
<td>Joint Significance Test (χ²) post-legalization, lives near MA, interaction (post-legalization*lives near MA)</td>
<td>10.80*</td>
<td>8.90*</td>
</tr>
<tr>
<td>Observations (N)</td>
<td>28,222</td>
<td>26,009</td>
</tr>
<tr>
<td>Pseudo R²</td>
<td>0.061</td>
<td>0.067</td>
</tr>
</tbody>
</table>

Standard errors are in parentheses.

*** p < 0.001, ** p < 0.01, * p < 0.05

N Number of patient invoices, one invoice per patient

Post-legalization Invoice occurs after recreational cannabis sales began in Massachusetts (MA) (November 20, 2018)

Lives near MA Border Residing in a zip code group that is part of NY Department of Transportation regions that border MA (Capital Region, Hudson Valley)

A Preferred model; excludes patients who are either registered with post-traumatic stress disorder as their qualifying condition (QC) or who are registered as chronic pain with multiple QCs

### Last Invoices

<table>
<thead>
<tr>
<th>Changes to the dataset or regression model</th>
<th>(1b)</th>
<th>(2b) A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Linear combination post-legalization, lives near MA, interaction (post-legalization*lives near MA)</td>
<td>1.057 (0.464)</td>
<td>0.893 (0.434)</td>
</tr>
<tr>
<td>Joint Significance Test (χ²) post-legalization, lives near MA, interaction (post-legalization*lives near MA)</td>
<td>13.39**</td>
<td>7.86</td>
</tr>
<tr>
<td>Observations (N)</td>
<td>21,995</td>
<td>20,200</td>
</tr>
<tr>
<td>Pseudo R²</td>
<td>0.038</td>
<td>0.038</td>
</tr>
</tbody>
</table>

Standard errors are in parentheses.

*** p < 0.001, ** p < 0.01, * p < 0.05

N Number of patient invoices, one invoice per patient

Post-legalization Invoice occurs after recreational cannabis sales began in Massachusetts (MA) (November 20, 2018)

Lives near MA Border Residing in a zip code group that is part of NY Department of Transportation regions that border MA (Capital Region, Hudson Valley)

A Preferred model; excludes patients who are either registered with post-traumatic stress disorder as their qualifying condition (QC) or who are registered as chronic pain with multiple QCs
Figure 4. 95% Confidence Intervals for Each Regional Group, from Logit Regression Outputs Estimating the Predicted Probability of Registering as a Chronic Pain Patient, Pre- and Post-legalization in Massachusetts (MA)

Confidence Intervals Obtained from First Invoices (N = 26,009)

Not Near MA | Near MA
---|---

Confidence Intervals Obtained from Last Invoices (N = 20,200)

Not Near MA | Near MA
---|---

Predicted probabilities are obtained using the margins command (Stata 17.0 MP), which produces predicted probabilities 95 percent confidence intervals for registering as a chronic pain patient when indicator variables take particular values (e.g., near MA, pre-legalization; near MA, post-legalization).

Confidence intervals reflect estimates from my preferred regression models, in which I drop patients who are either registered with post-traumatic stress disorder as their qualifying condition (QC) or who are registered as chronic pain with multiple QCs.

Confidence intervals that do not overlap suggest, when evaluating regional groups individually (e.g., patients who do live near MA, not compared to patients who do live near MA), there is a significant difference between the pre- and post-legalization periods in the likelihood of being registered as a chronic pain patient.

N Number of patient invoices, one invoice per patient

Near MA Residing in a zip code group that lies within NY Department of Transportation regions that border MA (Capital Region, Hudson Valley)

Not Near MA Not residing in a zip code group that lies within NY Department of Transportation regions that border MA (Capital Region, Hudson Valley)
Table 5. Odds Ratios Generated from Logit Regression Outputs for Supplementary Analysis of Survey Data

<table>
<thead>
<tr>
<th>Changes to dataset</th>
<th>(1)</th>
<th>(2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chronic Pain Patient</td>
<td>0.652</td>
<td>0.636</td>
</tr>
<tr>
<td></td>
<td>(0.256)</td>
<td>(0.301)</td>
</tr>
<tr>
<td>Age 40+</td>
<td>0.462*</td>
<td>0.427</td>
</tr>
<tr>
<td></td>
<td>(0.182)</td>
<td>(0.214)</td>
</tr>
<tr>
<td>Female</td>
<td>Reference</td>
<td>Reference</td>
</tr>
<tr>
<td>Male</td>
<td>1.614</td>
<td>1.768</td>
</tr>
<tr>
<td></td>
<td>(0.603)</td>
<td>(0.86)</td>
</tr>
<tr>
<td>Prefer not to answer</td>
<td>1.524</td>
<td>5.866</td>
</tr>
<tr>
<td></td>
<td>(1.711)</td>
<td>(7.791)</td>
</tr>
<tr>
<td>Constant</td>
<td>0.221***</td>
<td>0.231*</td>
</tr>
<tr>
<td></td>
<td>(0.100)</td>
<td>(0.132)</td>
</tr>
<tr>
<td>Observations (N)</td>
<td>323</td>
<td>184</td>
</tr>
<tr>
<td>Pseudo R²</td>
<td>0.033</td>
<td>0.050</td>
</tr>
<tr>
<td>Likelihood Ratio Chi-square ((\chi^2)) Goodness of Fit test</td>
<td>0.083</td>
<td>0.069</td>
</tr>
</tbody>
</table>

Standard errors are in parentheses.

*** p < 0.001, ** p < 0.01, * p < 0.05

N Survey respondents

A Preferred model; excludes patients whose qualifying condition (QC) is post-traumatic stress disorder or whose QC is chronic pain and the patient is registered with multiple QCs
Chapter 5. Conclusion: Policy Implications, Recommendations

Findings from Chapters 2 through 4 illustrate the limited clinical knowledge on the therapeutic effects of cannabis or cannabinoids, that many medical cannabis (MC) patients purchase cannabis products inconsistently with the literature, and that “clinically inconsistent” purchases do not necessarily occur due to recreational cannabis use. According to a thorough review by the National Academies of Sciences, Engineering, and Medicine (NASEM), as well as randomized controlled trials published after their review (January 2016 to May 2021), the majority of roughly 80 qualifying conditions across the U.S. that allow patients to obtain cannabis for medical use (on a state-by-state basis)\(^1\)\(^-\)\(^2\) have either not been reviewed in human clinical studies (e.g., Hepatitis C) or have mixed to insufficient evidence (e.g., autism, glaucoma) to suggest that cannabis products are therapeutically effective. However, certain cannabis products have been shown to be effective for treating several conditions: chemotherapy-induced nausea in cancer patients, chronic pain in adults, certain forms of epilepsy, and spasticity induced by multiple sclerosis (MS).\(^3\)-\(^4\) Together, these health conditions alone cover over 85 percent of MC patients in the U.S.\(^5\) Despite NASEM’s (2017) findings, U.S. states or jurisdictions that have since legalized MC use have listed qualifying conditions in their laws that lack clinical evidence. Furthermore, when I evaluate MC patients with cancer, epilepsy, or MS, I find that approximately half of these patients purchase cannabis products in a manner that is inconsistently with what clinical research suggests is therapeutically effective. Although it is difficult to deduce from sales data why “clinically inconsistent” purchases occur, I interestingly find that patients who treat pain symptoms and make clinically inconsistent purchases predominantly purchase low-potency or non-intoxicating cannabis products.\(^6\)-\(^11\) Contrary to the existing literature (as of December 2021),\(^12\)-\(^13\) this finding suggests MC patients who treat pain symptoms are not necessarily more likely than non-pain patients to purchase cannabis products for recreational use. Findings from Chapter 4 provide further evidence that chronic pain is not necessarily a reliable indicator of purchasing cannabis for recreational use. Nonetheless, significant gaps in cannabis research remain, and the clinical evidence that is available has not been sufficiently incorporated into U.S. MC laws.

Demanding more cannabis research alone is insufficient to making U.S. MC policy more aligned with clinical evidence. Pharmaceutical companies are less likely than a decade ago to conduct further research to produce cannabis-based pharmaceutical products, due to the lack of clinically significant results for many health conditions thus far (as shown in Chapter 2) and the widespread availability of more cheaply produced dispensary products that currently dominate the U.S. cannabis market. Future clinical research could also take years to uncover significant findings for various health conditions.
Instead, with nearly 40 U.S. states having legalized cannabis in some form (as of December 2021)—which makes cannabis products substantially more accessible than decades ago—policymakers can now consider further interventions to distinguish the U.S. MC market from the recreational cannabis (RC) market. This ensures patients who are enrolled in cannabis therapy are better informed and provided with optimal guidance and care. Williams et al. (2016) have previously described several essential components for state MC programs to be “medicalized,” so that MC policies are more closely aligned with standards of pharmaceutical practice: ensuring a doctor-patient relationship, state manufacturing and dispensing requirements, testing and labeling requirements, non-smoked medications, supply limits, a prescription drug monitoring program, and physician training. Here, I describe additional interventions policymakers might consider to incorporate existing findings from cannabis research into U.S. state MC laws (in order of most to least stringent for MC companies): 1) developing additional limits or protocols for qualifying conditions, 2) providing additional warning labels for patients, 3) requiring a pharmacist or other clinician to be on-site at dispensaries, and 4) developing a cannabis research database. Figure 1 re-introduces the system map of the MC market in New York State (NY) from Chapter 3 (before RC use was legalized in 2021) and illustrates where these interventions may take place.

Develop Additional Criteria or Protocols for Qualifying Conditions

Despite NASEM’s (2017) findings, 14 U.S. states and two non-state jurisdictions that have legalized MC use since 2016 have listed qualifying conditions in their MC laws that have mixed to no clinical evidence from human clinical studies that cannabis products are therapeutically effective, such as post-traumatic stress disorder (PTSD) and glaucoma. For these 16 U.S. states or jurisdictions, Table 1 summarizes all qualifying conditions that are listed in their MC laws as of December 2021. Qualifying conditions in purple have human clinical studies covered in NASEM (2017) that find cannabis products to be therapeutically ineffective, but at least one recent randomized controlled trial (RCT) identified in my literature review in Chapter 2 (January 2016 to May 2021) finds at least one cannabis product to be therapeutically effective. For example, whereas two studies identified by NASEM (2017) find no significant difference between synthetic THC (dronabinol) and placebo in treating cramps and fasciculations in amyotrophic lateral sclerosis (ALS), one newer study from my literature review finds oral spray THC plus CBD extract (nabiximols) to reduce clinician-rated spasticity significantly more

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1 Although NASEM’s report was published in 2017, I use the year 2016 as a benchmark because MC laws can take years to formulate and change over time, including qualifying conditions. For example, although NY legalized MC use in 2014, the state added chronic pain as a qualifying condition in 2017; opioid use disorder as a qualifying condition in 2018; and in 2022, having legalized RC use in 2021, allowed any medical condition to qualify for MC use (NYDOH, 2016; NYDOH, 2017; Knopf, 2019; Amentano, 2022; NuggMD, 2022).
Qualifying conditions in orange have not been examined by either any human clinical study covered in the NASEM report or human RCTs obtained from my literature review in Chapter 2 (January 2016 to May 2021). For example, Oklahoma, Louisiana, Missouri, and Virginia give physicians considerable discretion to provide a cannabis certification for any health condition they deem fit—which could include any number of health conditions for which no human or even pre-clinical studies suggest cannabis products are therapeutically effective. Qualifying conditions in red have been examined in human clinical studies as of May 2021, but studies thus far have found cannabinoids to be therapeutically ineffective. For example, depression is one of Arkansas’ qualifying conditions (as of December 2021) despite clinical research thus far (as of May 2021) suggesting cannabis products are therapeutically ineffective, and nearly every U.S. state or jurisdiction in Table 1 lists glaucoma as a qualifying condition despite clinical research thus far suggesting cannabis products provide insufficient therapeutic relief (see Chapter 2 for details).

Policymakers can consider a range of options to narrow the scope of health conditions for which doctors may grant a cannabis certification. A more stringent option is to restrict qualifying conditions to be more reflective of the existing literature. For example, Alaska’s qualifying conditions are limited to cancer, chronic pain, MS, seizures, and nausea (although the state also lists cachexia and glaucoma). State governments can consult with their state medical boards or similar institutions to develop criteria for which qualifying conditions can be listed in state MC laws. A range of possible criteria include but are not limited to (in order of most to least restrictive):

- Health conditions with “moderate” to “substantial” clinical evidence (as deemed in NASEM, 2017) that certain cannabis products are clinically effective for treating specific symptoms (e.g., cancer, chronic pain, epilepsy)
- Health conditions with at least one human clinical study demonstrating that a cannabis product(s) is therapeutically effective
- Health conditions with pre-clinical evidence of cannabis ingredients being therapeutically effective (i.e., animal or cellular studies)

Alternatively, rather than eliminate or restrict which qualifying conditions may be listed in state MC laws, a less stringent option would be for policymakers to work with healthcare providers to develop protocols for certain qualifying conditions, particularly for those that are already in place for over 20 U.S. states (e.g., glaucoma, PTSD) and may not be politically feasible to remove if large groups of patients advocate to legalize cannabis use for said conditions. For example, MC use in California became legalized in 1996 in large part due to

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ii Note that, as of December 2021, no U.S. state or jurisdiction has limited its qualifying conditions to those that meet this criterion (NORML, 2021; marijuanadoctors, 2022).
advocates of patients with HIV-related pain who voiced their preference for cannabis-based medicine due to standard medications having severe adverse effects, and subsequent clinical studies found that smoked cannabis is effective in relieving HIV-related neuropathic pain (see Chapter 2). Thus, in some cases, there could be utility in allowing patients more discretion in choosing which treatments they prefer, and there may well be cases in which the MC market can help uncover the therapeutic benefits of certain cannabis products. Conversely, implementing stricter protocols for certain conditions could help patients and clinicians take greater precautions when considering different treatment options. For example, as shown in Table 1, Utah stipulates that a patient presenting with pain must also have tried other treatment regimens than cannabis, and Arkansas prohibits cannabis products for specific cases of nausea (pregnancy, cannabis hyperemesis syndrome).

Require On-Site Pharmacists or Clinicians to be Staffed

By December 2021, only a few U.S. states that legalized MC use (e.g., Connecticut, New York, Pennsylvania) required pharmacists or other clinicians to be present at MC dispensaries. Other U.S. states or jurisdictions with legalized MC use might consider implementing a similar policy, as having a licensed, on-site clinician could aid patients in making purchases that are consistent with clinical cannabis research and/or their personal needs. However, this policy first needs to be evaluated in future policy or economics studies that compare the clinical consistency of purchases between U.S. states that do and do not have this requirement, as it is unclear from the available research to what degree this policy would be effective. In fact, preliminary evidence from Chapter 3 shows that between half to two-thirds of MC patients make purchases contrary to what pharmacists most frequently recommend for patients’ qualifying conditions during their first visit. Additional research on the efficacy of this policy is crucial to determining its utility in the MC market.

Require Additional Warning Labels for Different Qualifying Conditions Covered by U.S. States

Given that many U.S. states already mandate manufacturing and dosing labels for cannabis dispensary products, states or jurisdictions with legalized cannabis use can also mandate warning labels, brochures, or instructions printed with receipts (similar to products dispensed at U.S. pharmacies) that detail what the available clinical research says about the effects of cannabis or cannabinoids for a particular qualifying condition, particularly if the current clinical evidence is dubious. For example, MC patients with PTSD can receive instructions and recommendations based on citations to studies that find synthetic THC (nabilone, dronabinol) alleviates certain PTSD symptoms, smoked cannabis is ineffective in reducing PTSD
symptom severity,\textsuperscript{41} and observational studies that find frequent cannabis use is associated with worse PTSD symptoms (see Chapter 2 for details).\textsuperscript{42-45} State governments would need to determine who authors these labels (e.g., clinicians staffed by dispensaries or statewide governmental regulatory bodies).

**Develop a Centralized Cannabis Research Database**

Given the chemical diversity of the cannabis plant\textsuperscript{6} and the abundance of qualifying conditions that allow patients to use cannabis medically, it is imperative for researchers to continue revisiting and summarizing what is known from current research in order to keep clinicians, dispensary staff, MC patients, and federal and state regulators informed. For this reason, a database should be created to house existing observational, pre-clinical, and clinical studies so that there can be a centralized source to find information from existing research on the health effects of cannabis products. Such a database would aid researchers who are conducting systematic reviews and meta analyses on the effectiveness of cannabis or cannabinoids for particular health conditions, and it would help outline which health conditions, dosing regimens, and treatment durations have been examined for future studies to consider. Such a database would also help policymakers in deciding the degree of clinical evidence there is to justify which qualifying conditions (or protocols for certain conditions) to list under their state or jurisdiction MC laws. Studies within this database could also help inform continuing medical education (CME) or certifications courses required for clinicians and provide additional training material for dispensary staff. Finally, such a database would give patients a summary of the information available from clinical cannabis research, given the widespread availability of nonmedical or other unverified sources.\textsuperscript{46-48}
References


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35 Connecticut General Statutes (CGS), Palliative Use of Marijuana, 2020, Sec. 21a-408h https://law.justia.com/codes/connecticut/2020/title-21a/chapter-420f/section-21a-408h/


37 New York State (NYS), Title: Part 1004 - Medical Use of Marihuana, 2020, Section 1004.12, https://regs.health.ny.gov/content/section-100412-requirements-dispensing-facilities

38 Ibid, Section 1004.11, https://regs.health.ny.gov/content/section-100411-manufacturing-requirements-approved-medical-marihuana-products


Tables and Figures

**Figure 1. Flow Chart of Medical Cannabis (MC) Market in New York State (NY) as of December 2021, with Possible Interventions**

This diagram illustrates the process of obtaining a MC dispensary product in NY (note that this process excludes patients who use non-dispensary products—either over-the-counter products or prescription medications, whether or not they are cannabis-based; such patients are shown leaving the system).

The **black** boxes depict the first stage. The **blue** boxes and lines depict the second stage, in which patients can now visit MC dispensaries without having to re-apply for certification unless they need to update their certification with a new qualifying condition and/or associated symptom. Any boxes in **orange** highlight areas in which clinical cannabis research may be better incorporated into the MC market. **Health care provider** means licensed physician, nurse practitioner, or physician assistant under physician supervision that is in good standing, practicing medicine, has completed a two or four hour course regarding MC certifications, and is registered to issue MC certifications (NYS 2020, Section 1004.1). **PDMP** means prescription drug monitoring program.
### Table 1. Qualifying Conditions (as of December 2021) Listed by U.S. States or Other Jurisdictions that Have Legalized Medical Cannabis Use between 2016 and 2021, by Legalization Year

<table>
<thead>
<tr>
<th>U.S. State or Jurisdiction</th>
<th>Qualifying Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>2016</strong></td>
<td></td>
</tr>
<tr>
<td>Arkansas</td>
<td>ALS, autism, cancer, cachexia, chronic pain, Crohn’s disease, depression, epilepsy (or condition that causes seizures), HIV/AIDS, nausea, MS, motor neuron disease, panic disorder, Parkinson’s disease, PTSD, sickle cell anemia, spinal cord injury, terminal illness, Tourette’s syndrome</td>
</tr>
<tr>
<td>Florida</td>
<td>ALS, cancer, Crohn’s disease, chronic pain, epilepsy, glaucoma, HIV/AIDS, MS, Parkinson’s disease, PTSD, seizures, terminal illness, other debilitating medical conditions comparable to those enumerated</td>
</tr>
<tr>
<td>Louisiana</td>
<td>autism, cachexia, cancer, chronic pain, Crohn’s disease, epilepsy, glaucoma, HIV/AIDS, muscular dystrophy, MS, Parkinson’s disease, PTSD, seizure disorders, spasticity; any other condition not otherwise specified</td>
</tr>
<tr>
<td>North Dakota</td>
<td>ALS, Alzheimer’s disease, anorexia nervosa, anxiety, autism, Bulimia nervosa, cachexia, cancer, chronic or debilitating disease, Crohn’s disease, Ehlers-Danlos, endometriosis, epilepsy, fibromyalgia, glaucoma, Hepatitis C, HIV/AIDS, interstitial cystitis, nausea, neuropathy, migraine, MS, PTSD, rheumatoid arthritis, seizures, spasticity, spinal stenosis, spinal cord injury, terminal illness, Tourette’s syndrome, TBI</td>
</tr>
<tr>
<td>Ohio</td>
<td>ALS, Alzheimer’s disease, cachexia, cancer, chronic traumatic encephalopathy, Crohn’s disease, epilepsy or other seizure disorders, fibromyalgia, glaucoma, Hepatitis C, HIV/AIDS, IBD, MS, Parkinson’s disease, PTSD, sickle cell anemia, spinal cord injury, Tourette’s syndrome, TBI, ulcerative colitis</td>
</tr>
<tr>
<td>Pennsylvania</td>
<td>ALS, Alzheimer’s disease, anxiety, autism, cancer, Crohn’s disease, dysskinetic/spastic movement disorders, epilepsy, glaucoma, HIV/AIDS, Huntington’s, IBD, MS, neurodegenerative disorders, neuropathies, opioid use disorder, Parkinson’s disease, PTSD, seizures, sickle cell anemia, spasticity, terminal illness, Tourette’s syndrome, spinal cord injury</td>
</tr>
<tr>
<td><strong>2017</strong></td>
<td></td>
</tr>
<tr>
<td>West Virginia</td>
<td>ALS, cancer, chronic pain, Crohn’s disease, Epilepsy, HIV/AIDS, Huntington’s, MS, neuropathy, Parkinson’s disease, PTSD, seizures, spinal cord injury, sickle cell anemia, terminal illness</td>
</tr>
<tr>
<td><strong>2018</strong></td>
<td></td>
</tr>
<tr>
<td>Commonwealth of Northern Mariana Islands</td>
<td>ADD/ADHD, ALS, Alzheimer’s disease, asthma, cachexia, cancer, cerebral palsy, chronic pain, Crohn’s disease, diabetes, glaucoma, Hepatitis C, hospice care, HIV/AIDS, immune-modulated inflammatory diseases, muscular dystrophy, nausea, neurological disorders, Parkinson’s disease, PTSD, seizures, spasticity, stroke, TBI, ulcerative colitis, Wilson’s disease; any condition for which the qualified patient’s practitioner has determined that the use of medical cannabis may provide relief</td>
</tr>
<tr>
<td>Missouri</td>
<td>ALS, Alzheimer’s disease, autism, cachexia, cancer, chronic condition that is treated with prescription medications that could lead to dependence, chronic pain, Crohn’s disease, debilitating psychiatric disorders, epilepsy, glaucoma, Hepatitis C, HIV/AIDS, Huntington’s, IBD, migraine, MS, neuropathy, other immune-modulated inflammatory diseases, seizures, sickle cell anemia, spasticity, Parkinson’s disease, PTSD, terminal illness, Tourette’s syndrome; other chronic, debilitating or other medical condition that may be alleviated by cannabis in the professional judgement of a physician</td>
</tr>
<tr>
<td>U.S. State or Jurisdiction</td>
<td>Qualifying Conditions</td>
</tr>
<tr>
<td>---------------------------</td>
<td>-----------------------</td>
</tr>
<tr>
<td>Oklahoma</td>
<td>The decision to recommend cannabis therapy is up to the discretion of the treating physician.</td>
</tr>
<tr>
<td><strong>2018</strong></td>
<td></td>
</tr>
<tr>
<td>Utah</td>
<td>ALS, Alzheimer’s disease, autism, cachexia, cancer, Crohn’s disease, chronic pain, epilepsy, hospice care, HIV/AIDS, MS, nausea, PTSD, seizures, spasticity, terminal illness, ulcerative colitis; any rare condition that effects fewer than 200,000 persons in the U.S. as defined by Section 526 of the Federal Food, Drug and Cosmetic Act</td>
</tr>
<tr>
<td><strong>2019</strong></td>
<td></td>
</tr>
<tr>
<td>U.S. Virgin Islands</td>
<td>ALS, Alzheimer’s disease, arthritis, autism, cachexia, cancer, chronic pain, Crohn’s disease, diabetes, epilepsy, glaucoma, Hepatitis C, HIV/AIDS, hospice care, Huntington’s, MS, nausea, neuropathy, opioid use disorder, Parkinson’s disease, PTSD, TBI, seizures, spasticity</td>
</tr>
<tr>
<td><strong>2020</strong></td>
<td></td>
</tr>
<tr>
<td>South Dakota</td>
<td>ALS, cachexia, cancer, chronic pain, Crohn’s disease, epilepsy, glaucoma, HIV/AIDS, MS, nausea, PTSD</td>
</tr>
<tr>
<td>Virginia</td>
<td>Any diagnosed condition or disease determined by the practitioner to benefit from such use.</td>
</tr>
<tr>
<td><strong>2021</strong></td>
<td></td>
</tr>
<tr>
<td>Alabama</td>
<td>ALS, autism, cachexia, cancer, chronic pain, Crohn’s disease, depression, epilepsy, HIV/AIDS, MS, nausea, panic disorder, Parkinson’s disease, PTSD, sickle cell anemia, spasticity, spinal cord injury, terminal illness, Tourette’s syndrome</td>
</tr>
<tr>
<td><strong>2022</strong></td>
<td></td>
</tr>
<tr>
<td>Mississippi</td>
<td>ALS, autism, Alzheimer’s disease, cachexia, cancer, chronic pain, Crohn’s disease, glaucoma, muscular dystrophy, Hepatitis C, HIV/AIDS, Huntington’s, MS, nausea, neuropathy, Parkinson’s disease, PTSD, spasticity, seizures, sickle cell anemia, spastic quadriplegia, spinal cord injury, ulcerative colitis</td>
</tr>
</tbody>
</table>

Qualifying conditions in **orange** have not been examined by any human clinical study covered in either NASEM (2017) or my literature review in Chapter 2 (January 2016 to May 2021) that examines the therapeutic effects of cannabis or cannabinoids.

Qualifying conditions in **red** have human clinical studies (as of May 2021) that find cannabinoids to be ineffective for treating a specific symptom or the condition itself.

Qualifying conditions in **purple** have human clinical studies covered in NASEM (2017) that find cannabinoids to be ineffective for treating a specific symptom or the condition itself, but at least one recent randomized controlled trial (RCT) identified in my literature review in Chapter 2 (January 2016 to May 2021) finds at least one cannabis product to be therapeutically effective.

1. Nausea except that caused by pregnancy, cannabis-induced cyclical vomiting syndrome, or cannabinoid hyperemesis syndrome
2. Chronic nonmalignant pain caused by a qualifying medical condition or that originates from a qualifying medical condition and persists beyond the usual course of that qualifying medical condition
3. Patients diagnosed with no more than 12 months to live
4. Intractable pain (defined as “pain so chronic or severe as to otherwise warrant an opiate prescription”)
5. “that a physician, in his medical opinion, considers debilitating to an individual patient and is qualified through his medical education and training to treat”
6. Pain lasting longer than two weeks that is not adequately managed despite treatment attempts
7. Patients diagnosed with no more than 6 months to live