The RAND Corporation is dedicated to transforming the well-being of all people by improving health care systems in the United States and abroad. This book illustrates just some of the many ways that RAND has helped improve policymaking by providing health care decisionmakers, practitioners, and communities with actionable, objective evidence to support their most complex decisions.

The mix of studies, singular accomplishments, and streams of research and analysis profiled here exemplifies the wide range, originality, and influence of RAND’s health research. This collection is intended to reflect the breadth of RAND’s increasingly diversified health care research agenda and RAND’s unparalleled ability to both mount large-scale, multidisciplinary research efforts and create scalable analytics to solve problems.

The research profiles on the COMPARE and the Palestinian projects illustrate the type of policy challenges tackled by RAND that are often beyond the reach of academic and other research institutions. These two projects embody the work of experts across multiple research disciplines and seek to address public policy problems characterized by highly charged partisan concerns for which data, evidence, and facts are in short supply. Both efforts were initiated by members of the RAND Health Advisory Board who are deeply committed to
RAND’s core research values of quality and objectivity, and the two projects drew support from the RAND Corporation as well as the corporate and foundation communities.

The solutions that RAND’s health researchers found to many of the problems described on the following pages benefited from work of RAND colleagues, such as inventing mathematical techniques for industrial, management, and military planning, including creating systems analysis to solve problems involving high degrees of uncertainty; developing the basics of artificial intelligence; and advancing game theory and pioneering multidisciplinary gaming.

But just as important as these analytic and methodological breakthroughs have been to solving numerous health and health care problems confronting the global community, the policy solutions profiled in the following pages have, as their foundation, objective and independent research and analysis that is based on reliable data and sound information.

In an era when citizens seem increasingly unable to agree on a set of objective facts and have grown mistrustful of key institutions such as the government and the media, RAND’s approach to problem-solving is needed more than ever to help restore the role of facts and analysis in political and civil discourse.
Predicting Outcomes of Health Care Reform Proposals

In 2007, anticipating renewed urgency in the national debate over health care reform, RAND launched the COMPARE (Comprehensive Assessment of Reform Efforts) initiative to provide objective, nonpartisan analysis to inform public dialogue on health care reform. With the guidance of a 20-person advisory board comprising academic, community, and industry thought leaders, the COMPARE initiative developed analytic tools to provide an in-depth look at how various health reform policy options could affect a range of outcomes, such as costs, quality of care, and access to care. The centerpiece of COMPARE is a microsimulation model that predicts how individuals and employers will react under different policy scenarios. COMPARE was an important tool in assessing alternative design features of the Patient Protection and Affordable Care Act (ACA), signed into law in 2010. The ACA was intended to reduce the number of uninsured, make coverage more affordable, and expand access to care. Subsequently, COMPARE was used to help policymakers understand the impact of different options for implementing and modifying the ACA, as well as evaluate alternatives. Drawing on its flexible design, COMPARE provides insights about the likely impact of repealing or revising ACA provisions on Medicaid, the individual mandate, employer requirements, tax subsidies, rate regulations, essential health benefits, and more. Analysts have used COMPARE to model state-level effects, including Medicaid expansion, enrollment in the exchanges, the cost of premiums, and employer offerings of insurance. In the run-up to the 2020 presidential election, analysts used COMPARE to predict the effects of several candidate proposals, including allowing older adults to buy into the Medicare program. Because it is both robust and adaptable, COMPARE remains an invaluable tool, bringing empirical evidence to bear on the trade-offs that are an inherent part of public policy.
Managing the Evolution of an Epidemic

In the mid-1980s, the U.S. Centers for Disease Control and Prevention were tracking a mysterious disease that was spreading at an alarming rate. Ninety percent of those infected died, but public officials did not know how to respond. RAND used its own resources to model the disease, later identified as HIV, revealing its dynamics and transmissibility and underscoring the need for more-comprehensive research. The most influential work to emerge was the RAND-led HIV Cost and Services Utilization Study (HCSUS), the first major effort to collect information on a nationally representative sample of people in care for HIV in the contiguous United States. HCSUS provided essential information on the costs of care, barriers to access, and the effects of HIV on quality of life and ability to function. HCSUS engaged the HIV community at every stage of the work, changing the context in which such a study was typically designed and conducted and influencing how the findings were interpreted and communicated. More recent work continues that legacy by exploring challenges that patients face in obtaining care for their life-threatening or seriously debilitating medical conditions, including stigma, medical mistrust, and obstacles to treatment adherence. Today, HIV is considered a chronic disease that can be managed. Connecting HIV-positive individuals to treatment and motivating them to stay connected are public health priorities because treatment reduces the risk of transmitting the disease. Researchers now explore innovative ways to promote treatment adherence, such as behavioral economics and social networks, focusing on at-risk populations both in the United States and abroad, especially in Africa, which bears a disproportionate burden of HIV.
RAND researchers developed some of the early artificial intelligence concepts that are deeply embedded in modern machine learning technologies, and machine learning is proving to be a powerful tool in health care delivery. A recent example is its use in predicting and preventing infant mortality. The rate of infant mortality in the United States is more than twice that of other developed nations. Certain populations are at a much higher risk: The rate of black infant mortality is 2.2 times higher than the rate of white infant mortality, and higher still in some regions, such as Alleghany County, Pennsylvania. Nearly 50 percent of infant deaths in Alleghany County occur within 24 hours of birth, suggesting that the major risk factors are prenatal and maternal, rather than postnatal. Collaborating with researchers from the University of Pittsburgh, the Magee Women’s Research Institute, and a broad coalition of community-based stakeholders, RAND health researchers created a unique database and developed cutting-edge methods to predict infant mortality and assess the causal effects of interventions in order to help providers offer personalized solutions to reduce the risk of infant mortality. The researchers linked data at the mother-infant level: vital statistics, data from their electronic health records and public service records, and data describing participation in services such as home visits. To model the data, the researchers turned to machine learning. The resulting models predict infant mortality using risk factors from electronic health records, medical services, and community-based social services. For each intervention, the models predict how likely the expectant mother is to participate in the intervention and how the intervention affects the risk of infant mortality. This precision care and support puts tools in the hands of medical and community providers to address the long-term sociodemographic, economic, and behavioral risks factors that lead to infant mortality. These cutting-edge methods could be applied to other complex problems, such as cardiovascular disease, obesity, diabetes, and many others, providing precision care and support that integrates the various resources available and creates solutions tailored to the needs of each individual.
Determining Palliative Care Needs and Best Practices

Palliative care programs are intended to address patient needs at the end of life. The gap between how patients wish to spend their final days and how often they instead receive costly and futile care was examined in a groundbreaking study initiated by a RAND Health Advisory Board member. The researchers measured the quality of care delivered, including care planning activities and symptom palliation in the intensive care unit of a major university medical center. They scrutinized the amount of care given, calculated its costs, and surveyed critical care physicians to identify patients whom they perceived to be receiving futile treatment. This seminal study and much subsequent research contributed to the growing public awareness of the need for expanded palliative care services. Less than half of the 7–8 percent of patients admitted to a hospital who need palliative care actually receive it, but the number of hospitals offering palliative programs has grown significantly. As hospital-based and in-home palliative care programs expand, they need to know what works best, for whom, and under what conditions. RAND researchers recently integrated evidence from nearly 150 studies to inform revised national practice guidelines for high-quality palliative care. They found a substantial body of evidence validating some palliative care practices, but found only low-quality and inconsistent evidence for others. For example, the researchers found moderate evidence that a common feature of palliative care programs—interdisciplinary care teams—improves the quality of life for patients with advanced illnesses, and that ethics consultations improve decisionmaking in the intensive care unit, potentially reducing the use of often-futile treatments at the end of life. The researchers also found some evidence that bereavement support provides meaningful relief to caregivers. However, evidence to guide best practices in the very last days of life is limited, as is the evidence for some aspects of home care, social needs assessments, and culturally sensitive care. This review will guide best practices going forward, helping to focus future research efforts and highlight the continuing gaps in the rapidly growing evidence base.
Demonstrating the Return on Health Information Technology Investment

In a groundbreaking 2005 study, RAND health researchers provided the first rigorous empirical estimate of how health information technology (HIT) could save money and improve health care quality if properly implemented and widely adopted. Cognizant of the lower rate of investment in information technology in the health care industry than in other industries, RAND identified the market forces that are barriers to HIT savings and benefits and recommended ways to overcome the obstacles. Initiated by a RAND Health Advisory Board member, a specially formed advisory board of distinguished public policy leaders ensured the study’s objectivity and appropriately broad scope. The annual savings from efficiency alone were estimated to be $77 billion or more. Health and safety benefits could increase total annual savings to more than $150 billion while also reducing illness and prolonging life. These estimates assumed full adoption of HIT by 90 percent of hospitals and physician offices by 2020, as well as connectivity between systems. More than a decade after the initial study, HIT systems have been widely adopted, and many of the study’s insights and recommendations have informed state and federal legislation, such as the Health Information Technology for Economic and Clinical Health (HITECH) Act of 2009. However, health information systems still lack the interoperability and functionality that RAND identified as essential to unlocking potential savings. For example, in a recent survey, only slightly more than 25 percent of ambulatory care practices were maximally using electronic health record functionalities designed to improve patient care and facilitate high-quality performance, and almost 40 percent of practices were making minimal use of HIT functions. Nonetheless, building on its foundational work, RAND continues to explore how the benefits of HIT can be fully realized in such areas as care coordination, reducing costly medical errors, and telehealth.
Combating the Opioid Crisis on Multiple Fronts

The opioid crisis is a rapidly evolving public health menace—so toxic that it has contributed to an unprecedented decline in U.S. life expectancy. RAND is combating the crisis on multiple fronts. The consequences of evolving drug markets are being examined. For example, because fentanyl is cheaper and more potent than heroin, and readily available in the United States, it is both enriching dealers and increasing overdose deaths. Ongoing research is exploring why current policy responses alone are insufficient to stem this tide. The effects of specific legislation are also being assessed. Many states have passed laws to increase access to the life-saving drug naloxone, without knowing which legislative approach is likely to be effective. Analysis suggests that among multiple naloxone policies, naloxone access laws that give direct prescription authority to pharmacists are associated with significant decreases in opioid-related deaths. Intended fixes to the crisis can drive it in unexpected directions. For example, Oxycontin was reformulated to make it harder to abuse, but RAND analysis showed that reformulation instead stimulated a spike in heroin addiction. Research on how Medicaid expansion has affected treatment rates in specific states and regions is highlighting concerns that the poor and people of color, especially in rural areas, are not benefiting as much as their white, urban-dwelling counterparts. Researchers have also assessed the effect of integrating treatment for opioid and alcohol use disorders into primary care, using a collaborative care intervention. The newly formed RAND Opioid Policy Tools and Information Center (OPTIC) is supported by a grant from the National Institute on Drug Abuse. OPTIC is intended to be a national resource, fostering innovative research in opioid policy science and developing and disseminating methods, tools, and information to the research community, policymakers, and other stakeholders. Center researchers are cataloging and assessing policies designed to address the crisis, making methodological advances in approaches used to assess policies, and suggesting approaches that have yet be tried together as comprehensive strategies for improving public health and public safety.
Repurposing RAND Methodologies to Answer Important Health Care Questions

RAND health researchers successfully adapt research tools created by RAND colleagues to answer important research questions. The evolution of the RAND Delphi Method is illustrative. First developed in the 1950s to forecast technology’s effect on warfare, the Delphi Method brings together a group of experts who anonymously answer questions and subsequently revise their responses based on the group’s response until they achieve consensus. In the 1980s, RAND modified the Delphi Method to create the RAND/UCLA Appropriateness Method (RAM). RAM, which combines two rating rounds with an in-person discussion round, has become the industry standard for synthesizing scientific literature and expert opinion to determine the appropriateness and necessity of various treatment options. RAM-developed quality measures were used to create the first national report card on quality of care, and RAM is still being used to create quality measures and clinical practice guidelines. In the late 2000s, researchers developed ExpertLens™, an innovative online system that blends Delphi, RAM, and crowdsourcing to create a convenient and efficient methodology for large-scale expert elicitation and stakeholder engagement. ExpertLens’s iterative structure helps hundreds of non-collocated participants with various levels and areas of expertise answer questions and (partially) anonymously discuss their ideas through online discussion boards. The system integrates quantitative and qualitative input from participants and uses statistical techniques to automatically determine the existence of consensus. In the past ten years, ExpertLens has been used in more than 30 studies. It was used to help develop the national suicide prevention research strategy, performance measures for evaluating models of care for inflammatory arthritis in Canada, and strategies for engaging patients in making outpatient planning and design decisions at the U.S. Department of Veterans Affairs. Outside of health policy, researchers have used ExpertLens to help forecast global societal trends in education, migration, and employment. Most recently, ExpertLens was used to help develop a new approach for engaging patients and caregivers in clinical guideline development called the RAND/PPMD Patient-Centeredness Method.
Pursuing Food Security in Latin America and the Caribbean

A hallmark of RAND’s work is the ability to identify how unexpected dimensions of complex challenges drive desired outcomes. For example, RAND research on the role of faith-based organizations and HIV prevention and care in Latin America identified food insecurity as a barrier to adhering to antiretroviral therapy (ART) for HIV, especially in low-resource settings. Poor adherence to ART is a serious public health problem. Good adherence reduces the amount of HIV in an individual’s blood, such that the virus cannot be transmitted. Treatment essentially becomes prevention, but adherence is key. Because of the consistently high levels of food insecurity among people with HIV across various countries in Latin America, the researchers focused initially (in Honduras and Bolivia) on providing food paired with nutritional counseling. Nutritional counseling alone improved food security and helped people who were underweight gain weight; those who were overweight lost weight and improved their adherence to ART. Food baskets improved food security even more over the short term but were not sustainable, and they increased weight among those already overweight. Transferring the nutritional counseling from professional nutritionists to peer counselors was feasible and improved food security, nutritional knowledge, and dietary diversity. A more sustainable strategy—pairing peer nutritional counseling with urban gardens—became the subsequent focus. Researchers are currently examining how this approach affects viral load, adherence to ART, and other health-related outcomes among people with HIV in the Dominican Republic. Across all phases of these studies, RAND partnered not only with the World Food Program but also with local stakeholders in each country, including governmental agencies, associations of people with HIV, and HIV clinics.
Preparing for the Dementia Tsunami

An estimated 15 percent of Americans older than 70 suffer from dementia, including Alzheimer’s disease. The number of seniors with Alzheimer’s disease is projected to triple by 2050, afflicting as many as 14 million in the United States. U.S. policymakers have made funding for clinical responses to dementia a priority. RAND assessed policy options at the intersection of long-term care and dementia and developed a national blueprint to help decisionmakers improve long-term services and supports that are crucial for those with dementia and their caregivers. The researchers identified 25 high-impact policy options that should be considered immediately for adoption. The recommendations focus on five objectives: Promote high-quality care centered on individuals and families, increase public awareness and improve early detection of dementia, enhance access to long-term services and supports, provide better support for family caregivers, and reduce dementia’s cost burden on individuals and families. To date, clinical trials suggest that Alzheimer’s dementia must be prevented rather than cured, because no therapy has been able to reverse the disease. If focusing on prevention remains the available option, a critical health system challenge will arise: Many existing cases with early-stage disease would have to be screened, diagnosed, and potentially treated as quickly as possible to prevent progression to full-blown Alzheimer’s. RAND assessed the preparedness of the U.S. health care system to handle the potential caseload. The projected capacity is insufficient. The most pressing constraint is limited capacity of dementia specialists to evaluate and diagnose patients. Two possible solutions are to increase productivity of the existing specialist workforce and to qualify more specialists for dementia care. Addressing the capacity constraints will require solving a complex puzzle comprising payment policy, regulatory requirements, workforce considerations, and capacity planning at national and local levels, combined with awareness campaigns. RAND conducted parallel studies in Western Europe, Canada, and Australia. The adjustments that different countries must make to be more ready differ significantly based on their distinctive health care systems.
Inventing Health-Quality Measurement

In a series of studies spanning five decades, RAND health researchers established the scientific basis for defining and measuring the quality of health care delivery. RAND led the development of reliable measures of health status—arguably the most important development in health services research over this period. RAND’s key process and outcome measures for evaluating quality laid the foundation for tools currently used around the world to increase the value of health care dollars spent—the key to performance improvement. RAND’s Quality of Care Assessment Tools, a comprehensive, clinically based quality assessment system for adults and children, was used to produce the first national report card on health care quality. These assessments showed that, on average, individuals of all ages and in all sociodemographic groups in the United States receive recommended care only slightly more than one half of the time. RAND’s Assessing Care of Vulnerable Elders was the first set of quality measures developed specifically for vulnerable older Americans. Corporate sponsorship for this pioneering effort was initiated by a RAND Health Advisory Board member. The measures were used to assess the quality of care given to a group of community-dwelling older adults who were members of a managed care plan. Consistent with the national assessment, researchers found that older adults received only about half of recommended care. RAND’s concept of measuring specific aspects of quality over a broad spectrum of care was influential in development of the UK’s primary care delivery system, which gives physicians financial incentives to provide quality care. Researchers continue to develop and test quality measures for specific groups, conditions, and approaches to care delivery—for example, hospital-based quality measures of pediatric mental health care, measures to assess quality of community-based care for the seriously ill, and ways to measure episode-based care.
Improving the Lives of Service Members, Veterans, and Their Families

RAND researchers have developed a range of tools and resources to help service members, veterans, and their families cope with the effects of deployments, physical and psychological injuries, and other challenges. RAND’s first-of-its-kind longitudinal study of military families examined how deployments affect health and well-being. This effort identified factors, skills, and tools that helped families cope with stressors. RAND’s comprehensive evaluation of mental health and substance use treatment offered by the U.S. Department of Veterans Affairs found that quality fell short of the high standards set in the agency’s guidelines. These findings were used to expand capacity and improve the quality of care. After a disturbing increase in military suicides, a RAND study revealed differences in how the service branches approached suicide prevention, which led the services to adopt a standard prevention approach incorporating RAND-identified best practices. Tools developed to connect the military community with resources and support include an online searchable database of programs addressing psychological health and traumatic brain injury and guides to help service members and families navigate clinical services. And a landmark RAND study on military caregivers is raising awareness of the role played by the spouses, parents, and friends who care for wounded, ill, and injured military personnel and veterans. The findings and recommendations are informing new policies and have led to the launch of a new congressional caucus, a multisector coalition to address caregiver needs, a peer-based social support network, and a national campaign urging employers to implement caregiver-friendly policies.
Assessing the Cost and Health Effects of Consumer Cost-Sharing

The RAND Health Insurance Experiment (HIE) is the only community-based experimental study of how cost-sharing arrangements affect people’s use of health services, the quality of care they receive, and their health status. Performed in the 1970s and early 1980s, the HIE remains the largest health policy study in U.S. history. RAND recruited 2,750 families and randomly assigned them to one of several health insurance plans: a health maintenance organization and fee-for-service plans that varied patient cost-sharing from none (all care is free to patients) to 95 percent. Families participated for three to five years. The HIE demonstrated that the amount patients pay out of pocket for care influences how much care they use. The larger the cost-sharing, the greater the reduction in use; however, cost-sharing reduced highly effective and less effective services in roughly equal amounts. Individuals receiving care for free used about one-third more care than patients with copayments, but they were no healthier. The link between patient payment and service use underlies many current health care arrangements. Drug plans use variable out-of-pocket costs to give patients incentives to use generic rather than brand-name drugs. Consumer-directed health plans combine a high deductible with a tax-advantaged personal health account, and monthly premiums are reduced. The plans save money because patients seek less care and use less-expensive care. The HIE provided an empirical framework for considering how patient cost-sharing affects total health care costs, quality of care, and population health. It also established that cost-sharing is a blunt instrument because it reduces both effective and ineffective care about equally.
Creating an Effective Program for Preventing Teenage Smoking and Drug Use

In the face of dispiriting statistics on teenage smoking and drug use, RAND set out to discover what kind of program would help young people stay away from health-damaging substances. While such a program might have leaned toward enforcement, the data argued in favor of focusing on prevention—a significant and useful distinction. After reviewing all available research on prevention, RAND designed a prevention program for middle school youth called Project ALERT (Adolescent Learning Experiences Resistance Training) and evaluated it in two experimental field trials conducted in schools in the Western and Midwestern United States. Novel ideas bolstered the program’s effectiveness. For example, instead of using lectures on the evils of drugs, Project ALERT helped students discuss who uses and why, identify internal and external pressures to use drugs, and practice ways to resist such pressures. Project ALERT, now used in schools in all 50 states, is the most widely used science-based drug prevention program in the country. There are also educators certified to deliver the program in Canada, India, Mexico, Chile, Australia, and Japan. The program is still regularly revised and updated to reflect new information, and it continues to be tested in multi-year, multi-community studies. Named a model program by multiple governmental and private organizations, Project ALERT is listed in the National Registry of Evidence-Based Programs and Practices.
Refining the Medicare Payment System

Since the inception of Medicare in 1965, RAND has worked to design, evaluate, and monitor the agency’s payment systems. The Medicare Prospective Payment System (PPS) was introduced in 1983 as a way to encourage more cost-effective care. Under the PPS, each patient was classified into a diagnosis-related group on the basis of clinical information, and the hospital was paid a flat rate for patients in each group. RAND health experts were asked to determine whether the new payment system affected the quality of hospital care for Medicare patients. RAND concluded that the new payment system had no negative effects on patient outcomes, but patients were more likely to be discharged in unstable condition.

The prospective payment system did create disparities among different types of patients who were reimbursed at the same rate. Some patients were recovering from complicated surgeries or were very sick from multiple illnesses and required a great deal of care. Researchers analyzed the data to explain these disparities and advised adjusting the payment rate schedule for catastrophically expensive cases, a move that also reduced incentives for hospitals to “dump” or skimp on care for difficult cases. Medicare has continued to turn to RAND for help in evaluating new payment arrangements—for example, bundled payments, which provide a single payment for all services related to a treatment or condition, possibly spanning multiple providers and settings.
Understanding the Causes, Effects, and Magnitude of the Obesity Epidemic

Obesity is epidemic: More than 150 million Americans are either overweight or obese. A series of RAND studies put a price tag on obesity-related disabilities. Obese individuals incur average health care costs one-third higher than persons of normal weight. Costs of the severely obese are twice as high. Cutting the current obesity rate in the United States in half—to the level in 1978—could potentially save Medicare $1.2 trillion by 2030 through the avoidance of health problems such as diabetes, hypertension, and heart disease. RAND’s extensive record of obesity-related research has informed the dialogue on combating this epidemic. The fact that weight gain has been surprisingly similar across all groups suggests that the obesity battle must grapple with a modern food environment that has been transformed by lower food prices, larger portion sizes, and the outsized influence of food advertising. We are eating more healthy foods, but added fruits and vegetables have not eliminated high-calorie foods. Banning fast foods seems like a promising tactic. But a yearlong experiment in Los Angeles banning new fast food restaurants in a low-income neighborhood didn’t have the intended effect. Residents were more likely to be obese than their counterparts in more affluent parts of the city. Even before the ban went into place, there were fewer fast food restaurants in the neighborhood, but residents in those communities consumed more “discretionary calories” from candy and cookies. Changing the choice environment by opening a supermarket in a food desert caused residents to feel they had more food choices and they had a better diet, but those results weren’t associated with how often they used the supermarket. And multiple studies show that eating may be influenced more by environmental factors than by conscious choice. Prominent market displays of calorie-dense snacks present temptations that can be hard to resist. RAND work empirically confirms what many public health experts believe: Obesity is a population-level problem that demands population-focused policies that encourage better eating behaviors, such as by addressing portion sizes and limiting the salience, convenience, and ubiquity of low-nutrient food.
Shaping Medical Institutions and Health Systems Around the World

RAND’s health policy experts advise medical institutions and national health care systems globally. Notable recent examples include work in China, Kurdistan, and Qatar. RAND advised Zhejiang University (ZJU), a nationally ranked comprehensive university in China, on the development of its academic medical center. The center is intended to integrate ZJU’s health related research, teaching, and care activities; conduct cutting-edge research; and educate the country’s future health care workforce. Researchers reviewed the organizational structure of four leading U.S.-based academic medical centers, interviewing key informants to assess what aspects of their models might be appropriate for ZJU. RAND identified four models in which ownership is divided between the university and the center, but the models differ in operational control. Each model brings advantages and challenges. To address these challenges, researchers recommended a process that involves engaging partners and stakeholders; identifying key assumptions, success factors, and possible failure modes; designating the most logical sequence in which to implement the system; and ensuring that all aspects of design and implementation are informed by ongoing monitoring and evaluation. The Kurdistan Regional Government (KRG) and RAND began working together in 2010 to improve the region’s health care system. With an eye on goals and options for improvements that could be operational by 2020, recommendations included moving toward an insurance-based financing system; phasing out physicians’ simultaneous practice in private and public settings to realign physician incentives; instituting a management information system to better oversee staffing, equipment, and services; and a train-the-trainer expansion of quality-improvement efforts to increase patient safety. Beginning in 2004, RAND worked with the State of Qatar to create a world-class health care system. The initial phrase produced a “top-to-bottom” analysis of Qatar’s health system, strategic options for reform, and a recommended organizational structure. RAND’s recommendations were accepted, and a National Health Authority was established to manage implementation of reforms. In a second phase, RAND articulated a national health strategy to reform the health care delivery system, the health care workforce, and public health services and defined choices for a national health care financing strategy.
Quantifying the Value of a Good Night’s Sleep

What is the value of a good night’s sleep? This problem was considered incalculable until RAND researchers developed an innovative approach that put a monetary value on sleep deprivation. RAND found that across five different OECD countries, the United States sustains, by far, the highest economic losses from sleep deprivation—as much as $411 billion a year and 1.2 million lost workdays. The findings underscored the importance of sleep-friendly work policies, such as fewer after-hours interruptions and flexible scheduling. A lack of sleep can also be a problem for youth, negatively affecting academic performance and physical and mental health. RAND also conducted the first state-by-state economic analysis of the effect of delaying school start times, which would allow teens to get more sleep at a time of day when research indicates their bodies need it the most. Researchers found that shifting school start times to at least 8:30 a.m. could boost the U.S. economy by $83 billion within a decade through higher academic performance, reduced car accidents, and other benefits. Extensive media coverage of the RAND studies, along with a TED talk that has received almost 1.5 million views, has helped bring attention to sleep deprivation. School districts in several states have recently changed their start times to allow teens more sleep, and state legislatures have introduced bills to mandate later school times or to study the effects of new policies.
Helping Children Cope with Violence

More than half of U.S. children have suffered adverse experiences, including community and school violence, physical abuse, neglect, and natural disasters. These children face heightened risks of post-traumatic stress disorder, depression, behavioral problems, and school failure. Schools offer a promising site for helping these children because school-based treatment can reduce barriers to mental health care. RAND’s health researchers collaborated with the Los Angeles Unified School District and the University of California, Los Angeles, to develop the Cognitive Behavioral Intervention for Trauma in Schools (CBITS), a program designed for mental health professionals to deliver in a school setting. CBITS is intended to reduce symptoms of post-traumatic stress disorder, depression, and behavioral problems and to improve functioning, grades, and attendance; peer and parent support; and coping skills. Multiple evaluations have showed that CBITS works and is well accepted by students, parents, and teachers. CBITS is recognized as a recommended practice by the Centers for Disease Control and Prevention’s Prevention Research Center, the Substance Abuse and Mental Health Services Administration’s National Registry of Evidence-Based Programs and Practices, and the U.S. Department of Justice’s Office of Juvenile Justice and Delinquency Prevention. CBITS has become an important public health tool, helping to build resilience in communities. For example, it was used extensively after Hurricane Katrina. Now individuals trained in New Orleans are training other school-based clinicians around the country. A free website with more than 35,000 registrants provides support for implementing CBITS and training for mental health professionals unable to attend training in person. A version of CBITS, known as Support for Students Exposed to Trauma, has been adapted for delivery by regular school staff with no mental health training. Bounce Back is a CBITS adaptation for preschool children.
Focusing on the Psychological and Cognitive Health of Returning Veterans

Those who serve in the military and apply for a security clearance to advance in their careers have long been required to disclose whether they have sought psychological counseling. Many service members, knowing this question is on the application, have avoided seeking care for psychological and cognitive difficulties resulting from their service. In mid-2008, the U.S. Secretary of Defense decided to change the wording of the question to encourage care and obviate stigmatization. This came about as the result of a body of research to which RAND contributed and from which its work stands out for its analytical scope and soundness. RAND’s study, Invisible Wounds of War, galvanized attention to the policy debate. In 2007 and 2008, RAND conducted a national survey of veterans who had served in Iraq and Afghanistan and concluded that about one in five suffered from post-traumatic stress disorder or major depression. The study also found that about 20 percent of the service members may have experienced a traumatic brain injury during deployment. The study estimated that service members’ post-traumatic stress disorder and depression alone could cost the United States more than $6 billion (in 2007 dollars) in the two years after deployment. RAND examined the problem not merely as a U.S. Department of Defense or Veterans Health Administration concern but as a broad national issue that called for a major effort to increase the quality and availability of mental health care in military, veteran, and civilian health care systems. In conjunction with other existing research, RAND’s emphasis on reducing barriers to seeking care has already contributed to the change in security clearance questionnaires, and it has also affected the agenda of the U.S. Department of Health and Human Services and its National Institute of Mental Health. This study remains one of the most cited sources of statistics on the mental health of the post-9/11 veteran population, the economic costs of post-traumatic stress disorder and depression, and gaps in the nation’s ability to address the psychological support needs of those who have served.
Helping to Build a Culture of Health

Because health is a function of more than medical care, solutions to U.S. health problems must encompass more than reforms to health care systems. But those working to improve health, well-being, and equity often find themselves traveling on parallel paths that rarely intersect, resulting in little improvement in health outcomes and continued cost escalation. In 2013, the Robert Wood Johnson Foundation (RWJF) embarked on a pioneering effort to advance what it called a Culture of Health. The vision is based on a cultural shift in which individuals, communities, and organizations actively prioritize and promote enhanced well-being and view health as fundamental to the nation’s social and economic future. RAND worked with RWJF to develop an action framework to translate this vision into action. The framework—now used by states, schools, businesses, and other organizations—focuses on making health a shared value, fostering cross-sector collaboration to improve well-being, creating healthier and more equitable communities, and strengthening the integration of health services and systems. Researchers engaged stakeholders and fielded surveys on public attitudes regarding health priorities, the role of community health, and government and private-sector involvement. Twitter and Google data were also used to develop new measures to track sentiment on health care promotion and treatment and to capture federal investments in health that go beyond health care spending. These measures are creating common terms for discussion across sectors and catalyzing social change. RAND’s collaboration with RWJF has emphasized the importance of community engagement and well-being in improving population health into the future. The Culture of Health initiative has also underscored the necessity of including socioeconomic factors in any equation intended to advance population health.
Informing the Gun Policy Debate

Virtually no one believes that the loss and sorrow associated with gun violence are acceptable. But there is passionate disagreement about what should be done, particularly over how different gun policies affect outcomes. To help fill this knowledge gap, RAND launched the Gun Policy in America initiative to identify and improve the science base regarding the likely effects of commonly discussed gun laws and to improve the national debate on designing effective policies. RAND developed tools and research syntheses aimed at clarifying the effects of current and proposed firearms measures. Resources include a new data set of state laws and their variants and an online tool exploring expert views on how different combinations of policies are likely to affect outcomes. Shortly after releasing the Initiative’s first report, Arnold Ventures offered additional research funding and asked RAND to create and manage a new philanthropy, the National Collaborative on Gun Violence Research. The collaborative issued its first request for proposals in early 2019, resulting in an overwhelming response. Subsequently, the Collaborative announced nearly $10 million in awards. Since then, four foundations have provided additional funding to support research at the same level in 2020. In addition, Congress took note of some of the initial report’s findings and passed bipartisan legislation in 2018 to improve the FBI’s background check system and enhance the National Violent Death Reporting System, which could illuminate the circumstances surrounding gun deaths. As part of the 2019 appropriations process, RAND testified at the first hearing on gun violence research funding since 1996 and shared the key findings and recommendations from the report. In its fiscal year 2019 year-end spending package, Congress provided $25 million for the Centers for Disease Control and Prevention and National Institutes of Health to conduct gun violence research, the first congressional funding of this kind in 20 years.
Strengthening the Health System of a New Palestinian State

RAND undertook work to identify the structural issues that would have to be addressed to create a viable Palestinian state—considering everything from governance, internal security, and economics to demography, water, health, housing, transportation, and education. The idea was to set aside the difficulties of borders and diplomacy to derive a model of a state that could begin operating immediately on “the day after peace.” Initiated with the belief that RAND’s analytic approach and objectivity could construct an organizing vision for a successful state, rigorous analysis produced an integrated plan for transportation, water, and power to the main Palestinian towns and cities, allowing them to grow in a sustainable manner. The study’s results were briefed more than 300 times to high-level American, European, and Middle Eastern government officials; to both the president and prime minister of the Palestinian Authority; and to many Palestinian city planners, health and education specialists, and academics. Within this broad analysis, RAND examined strategies for strengthening a potential state’s health system. The team drew on published and unpublished analyses and interviewed many knowledgeable Palestinian, Israeli, and international stakeholders. The RAND team prioritized two of its many recommendations: (1) better integrating health system planning and policy development and (2) improving public and primary health care programs, including immunization, micronutrient fortification and supplementation, prevention and treatment of chronic and noninfectious disease, and treatment of developmental and psychosocial conditions. The Palestinian Authority made health sector reform a top priority, established a Cabinet-level committee to direct reform efforts, and asked RAND to collaborate in moving reform forward. Researchers worked closely with the Ministry of Health, Ministry of Planning, and other key stakeholders to help the new committee shape its agenda. The politics of the Middle East have changed dramatically since release of this work, but the nature of the problems and the solution directions are unchanged. The definition of the issues and analytic approach have not been overtaken by events. Rather, events have highlighted the continued value of RAND’s work on a stage with shifting players but an enduring plot.
If you have questions about the RAND Corporation—for example, about any of the research referred to in this document or ways to get involved with RAND—please send email to correspondence@rand.org.
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