

Identifying Safety-Net Resources at Health Centers to Prevent Infectious Disease Transmission Resulting from the Opioid Epidemic

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Preface

The Assistant Secretary for Planning and Evaluation for the U.S. Department of Health and Human Services asked the RAND Corporation to conduct an exploratory study examining the factors that affect the ability of Community Health Centers (CHCs) to reduce transmission of infectious diseases related to the opioid epidemic. The emphasis is on rural areas, which have suffered disproportionately from the opioid epidemic and lack resources to address the complex social and medical issues related to opioid use, opioid use disorder, and risk for infectious diseases. Discussions were held with staff from eight CHCs, selected from the 102 CHCs in counties that prior research has identified as being at high risk for opioid-use–related transmission of infectious diseases. The content of these discussions was summarized to identify the major challenges that CHCs face in preventing and treating infectious diseases and the strategies that they employ to overcome these challenges.

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Summary

The impact of the opioid epidemic on infectious disease transmission is an increasingly pressing public health issue. The problem came dramatically to light in 2015 when an outbreak of new human immunodeficiency virus (HIV) infections occurred in rural Scott County, Indiana; the county, which had reported only a handful of cases in the previous decade, identified nearly 200 cases in a single year. The new infections were almost entirely found among injection drug users. Co-infection with hepatitis C was found in over 90 percent of new cases of HIV.

To identify potential strategies for addressing the connections between the opioid epidemic and infectious disease transmission, the U.S. Department of Health and Human Services' Office of the Assistant Secretary for Planning and Evaluation (ASPE) asked the RAND Corporation to conduct this study, which examines the role of Community Health Centers (CHCs). ASPE is focusing on CHCs because they are federally supported to provide care to underserved populations and areas with high need in the United States. To focus the efforts of this exploratory project, ASPE drew on research that identified counties across the country that are at high risk for opioid-related infectious disease outbreaks, such as the one that occurred in Scott County.

Research Questions

ASPE asked our team to address the following four research questions related to connections between the opioid epidemic and infectious disease transmission:

1. What are enabling and challenging factors that affect health centers in effectively caring for people with opioid use disorder (OUD)? For preventing HIV and hepatitis C (HCV) transmission among people who inject drugs?
2. How have health centers overcome challenges and what strategies and innovations are health centers using to care for people with OUD? What strategies are being used for containing HIV and HCV transmission among people who inject drugs?
3. What are CHCs doing to integrate substance use disorder services with mental health services and primary care? What challenges have they faced in these efforts and how have they addressed these challenges?
4. What information do health centers and Ryan White Part C providers have about HCV and HIV treatment uptake? How is this information used?

Study Methods

This qualitative study is based on semistructured discussions held with staff in eight CHCs. The CHCs were selected from the 56 CHCs in counties identified as being at high risk for infectious disease outbreaks. Of the eight CHCs included in the study, four are located in the Appalachian region, where the opioid epidemic has been particularly severe. Three of the participating CHCs are in the West, and one is in the Northeast. Each discussion included several

CHC staff and lasted between 60 and 90 minutes. Major themes from the discussions were identified through qualitative analyses of the discussions.

Results

The opioid crisis is a major focus of concern for all of the CHCs in this study, best captured by one program director who told us simply: “We deal with the opioid crisis every day.”

Services and Challenges

Efforts at CHCs in this study are targeted to prevention and treatment of OUD and to reduction in risk. However, CHC staff report a variety of administrative, social, and financial challenges they face in providing these services. The administrative challenges include gaps in state and county systems for monitoring prescriptions of opioid medications; these systems are needed to reduce unnecessary exposure of patients to these potentially harmful medications. Staffing, particularly for behavioral health providers, remains a major administrative challenge for CHCs, including large CHCs with relatively sophisticated treatment programs. The social challenges, which are remarkably similar across CHCs, derive from the stigma that attaches to drug use, drug use treatment, and infectious diseases. The most significant financial challenge is sustainably providing screening and treatment for HCV.

Strategies

CHCs have been creative in addressing the challenges of the opioid crisis and its connection to infectious disease transmission. All of the CHCs are very active in pursuing collaborations with community-based organizations and local governments to provide prevention and treatment services. Many of the CHCs use telehealth technologies to collaborate with specialists in behavioral health and other opioid use and infectious disease issues.

Integration

Integration of care within CHCs and between CHCs and other services, including medical and social services provided in their communities, is essential, given the complex multiprovider care needed to address opioid-use–related infectious disease. While all of the CHCs in this study integrate their efforts with external providers to some extent, integration remains a constant challenge. Integrating primary care, where medication for OUD is provided, with behavioral health care, which is also required for quality treatment, is the most commonly cited integration challenge. Community resistance to some service modalities, such as syringe service programs, and providing services to currently and recently incarcerated individuals pose additional challenges.

Information

CHCs are engaged in a wide range of activities that aim to provide information to the public about OUD and its connection to infectious diseases. Most of the CHCs have been involved in public events, such as health fairs, that focus on public education. CHC staff are also actively involved in training local providers and writing opinion pieces in local newspapers.

Conclusions: CHC Concerns

Based on the discussions with CHCs, we identified seven areas that have the potential to positively impact the ability of CHCs to address the connection between the opioid crisis and infectious diseases:

1. cost of HCV treatment
2. HCV treatment guidelines
3. workforce limitations and access to telehealth
4. health information exchanges in rural areas
5. local strategic planning
6. access to sterile syringes
7. engagement with justice-involved populations.

CHCs in rural areas across the United States are actively responding to the opioid epidemic, but face a wide range of challenges, particularly in addressing the complex factors that connect opioid use with infectious disease. This exploratory study has helped to identify a number of policy areas in which federal, state, and local governments could support CHCs' efforts to address the opioid epidemic and reduce the level of infectious disease transmission among opioid users.

Abbreviations

AIMS	Access Increases in Mental Health and Substance Abuse Services
ASPE	U.S. Department of Health and Human Services Office of the Assistant Secretary for Planning and Evaluation
CAM	complementary alternative medicine
CDC	Centers for Disease Control
CHC	Community Health Center
CMS	Centers for Medicare and Medicaid Services
ECHO	Extension for Community Healthcare Outcomes
EHR	electronic health record
FQHC	federally qualified health center
HCV	hepatitis C
HIE	health information exchange
HIV	human immunodeficiency virus
HRSA	U.S. Health Resources and Services Administration
MAT	medication-assisted treatment
OD	opioid use disorder
PT	physical therapy
SASE	Substance Abuse Service Expansion
SSP	syringe services program
SUD	substance use disorder

1. Background

In 2015, the connection between the opioid epidemic and secondary epidemics of infectious diseases came dramatically to national attention through an outbreak of human immunodeficiency virus (HIV) infections in Scott County, Indiana. Between 2004 and 2014, Scott County, with a population of around 25,000, averaged fewer than five new cases of HIV per year. From November 2014 through November 2015, 181 new cases of HIV infection were diagnosed (Conrad et al., 2015; Peters et al., 2016). Ninety-two percent of the people with newly identified cases of HIV were also infected with hepatitis C (HCV). In response to the outbreak, the governor declared a state of emergency, allowing public health officials to implement previously prohibited harm reduction efforts, such as syringe service programs, to prevent further transmission.

The outbreak in Scott County should be seen not as an isolated incident but rather as a harbinger of broad shifts in the infectious disease landscape. In retrospect, the outbreak of HIV in Scott County reflected countrywide changes in the risk profile for injection drug–related transmission of infectious diseases. Analyses of data by the CDC have shown that, since the early 2000s, risk for new HIV and HCV infections has shifted from middle-aged, minority males in urban areas toward younger, nonminority opioid users in rural areas, mirroring the epidemiology of the epidemic in opioid use disorder (OUD) (Suryaprasad et al., 2014; Wejnert et al., 2016; Zibbell et al., 2018). The progressive escalation of such infectious disease outbreaks, deeply intertwined with injection drug use (Lansky et al., 2014), is compounded by the isolation of many of the rural communities confronting this issue (Havens et al., 2018). Collectively, these trends beg the attention of public health officials and motivate a call to action.

To help orient policy efforts to this new landscape of infectious disease risk, Van Handel and colleagues compared Scott County with counties across the country to identify those with similar risk factors for infectious disease outbreaks (Van Handel et al., 2016). Their analysis identified 220 counties across the United States with risk factor profiles similar to that of Scott County. Unsurprisingly, many of the high-risk counties are clustered in rural areas and in states known to have high levels of OUD—areas in Appalachia, the Northeast, the Southwest, and the Midwest. By focusing policy efforts on these counties, policymakers can be strategic in targeting efforts at addressing the connection between the opioid epidemic and infectious disease transmission.

Drawing on the work of Van Handel and colleagues, the U.S. Department of Health and Human Services' Office of the Assistant Secretary for Planning and Evaluation (ASPE) asked the RAND Corporation to conduct an exploratory study of how Community Health Centers (CHCs) in counties identified as being at high risk for opioid-related transmission of infectious disease are responding to the emerging secondary epidemic. As the primary providers of health care in many of the areas hardest hit by the opioid epidemic, CHCs are on the front lines of addressing the transmission of infectious diseases (Zur et al., 2018). With the most direct

experience of providing care in these settings, CHC administrators and practitioners have valuable knowledge about the nature of the problem, the challenges that prevent more-effective prevention and treatment efforts, and strategies that may overcome those challenges. The aim of this study is to build on the experience of CHC staff in addressing opioid-related infectious disease transmission so that future research and policy efforts can better support CHCs in their critical public health mission.

Targeting Connections Between the Opioid Epidemic and Infectious Disease Transmission

Opioid use is thought to increase risk for infectious disease (especially HIV and HCV) through a series of causal links. This increase in risk can be divided into two phases. The first phase involves increased risk for opioid misuse or dependence, resulting from an increase in the availability of both prescription and illicit opioids. This phase has a large iatrogenic component: Patients who are prescribed opioids for chronic pain are at risk of dependency and may turn to illicit opioids when opioids are no longer prescribed (Compton, Jones, and Baldwin, 2016; Al-Tayyib, Koester, and Riggs, 2017). Increased opioid availability, through diversion of prescription medications and increased illicit availability, also increases risk among drug users who initiated opiate use with illicit drugs rather than through medical treatment (Cicero, Ellis, and Kasper, 2017). The second phase involves the raised risk of HIV and HCV exposure due to the direct effects of injection drug use, particularly needle sharing, and risky sexual behavior, including sex in exchange for drugs. Recent increases in these risk behaviors are thought to be driven in large part, though not entirely, by progression from opioid misuse to dependence and then to injection, the mode of administration that produces the most intense physiological effects (Strathdee and Beyrer, 2015).

The options that CHCs have for addressing the connection between the opioid epidemic and infectious disease transmission can also be separated into two broad groups, based on whether CHCs aim to reduce exposure to opioids or to reduce the impact of use-related risk behaviors that result in disease transmission. The first group of strategies, such as prescription protocols that limit new prescriptions for opioids and monitoring existing prescriptions, aims to reduce legal and illicit exposure to opioids. Limits on prescriptions, including assessment of a patient's risk for development of misuse or dependence, can reduce exposure and diversion of medication onto the black market (Bao et al., 2016). High-risk prescribing has been found to be more common in rural than urban areas (Heins et al., 2018).

The second group of strategies aims to target the specific behaviors that lead to transmission—specifically, sharing needles used to inject prescription or illicit opioids (e.g., heroin) and risky sexual behavior among people exposed to infection. The two major strategies in this group are treatment of opioid dependence with medication-assisted treatment (MAT) and syringe services programs (SSPs) for active injection drug users. MAT uses a combination of counseling and medications (buprenorphine, methadone, and/or naltrexone) that block the effect

of opioids on the nervous system. MAT with buprenorphine or naltrexone is of particular interest because it can be provided in an office-based setting by an appropriately credentialed doctor or nurse (Substance Abuse and Mental Health Services Administration, 2018). MAT has been shown to reduce injection drug use and risky sexual behaviors, contributing to reduction in exposure to infectious diseases (Volkow et al., 2014; Connery, 2015). To date, evidence suggests that MAT remains uncommon in rural areas of the United States (Jones, 2018). SSPs, such as that implemented in Scott County following the outbreak there, aim to reduce needle sharing and associated exposure to infected blood. SSPs increase the availability of sterile needles by providing them free of charge to users.

CHC Opportunities and Challenges

This project focuses on CHCs for two reasons: They are located in high-risk areas for opioid-related transmission of infectious disease where they are often the sole source of comprehensive primary care medical services, and they are already closely connected with federal health agencies, including the U.S. Health Resources and Services Administration (HRSA) and Centers for Medicare and Medicaid Services (CMS), which makes them appropriate targets for federal policy. The CHC program was established in 1975 under Section 330 of the federal Public Health Services Act, which provides grants to public or private nonprofit community organizations that provide primary health care services in medically underserved areas or to medically underserved populations, including people experiencing homelessness, agricultural workers, and residents of public housing (Ziller, 2014). As a consequence, some CHCs are also located in rural areas at high risk for opioid-related infectious disease transmission, and they are often the only local source of comprehensive primary care services in the areas in which they operate. The operation of CHCs in these areas is supported by federal grants; many CHCs also qualify as Federally Qualified Health Centers, which makes them eligible for an enhanced, cost-based reimbursement for services through Medicaid. The two largest sources of revenue for CHCs are Medicaid, which accounts for 43 percent of CHC revenues, and federal grants, which account for 19 percent (Rosenbaum et al., 2018).

CHCs have a wealth of experience in providing health care in the settings in which the opioid crisis is occurring. In 2016, CHCs provided care to 25.9 million patients in over 10,400 locations; about half of these patients were covered by Medicaid, and about a quarter were uninsured (Rosenbaum et al., 2018). Most CHCs provide specialty mental health services (87 percent), and about a quarter (28 percent) have clinical staff who specialize in substance use treatment. Many use telemedicine to provide remote specialty care. Local community partners also are essential allies in addressing injection drug use.

However, CHCs also face some distinct challenges that might limit their ability to address complex public health crises that, like opioid-use-related infectious disease, involve complex social and medical conditions. Issues identified in the literature include

- **stigma.** HIV, HCV, and substance use disorders are among the most heavily stigmatized of medical conditions (McGinty et al., 2018). Stigma can make communities uninterested in investing time and resources into medical treatment for these conditions and create barriers for individuals seeking care. This is, in turn, compounded by insurer-based requirements of sobriety for reimbursement of HCV treatment (Gowda et al., 2018), despite evidence that new direct-acting antivirals are well-tolerated and efficacious among those undergoing MAT (Grebely et al., 2018).
- **integrated care.** The nature of this problem crosses boundaries between medical care, behavioral health care, and social services. The agencies that address each of these issues tend to be separated, with their own information systems, locations, and practices. Integration of care across these systems for patients with complex needs is often a challenge (Lambert and Gale, 2014).
- **workforce shortages.** The opioid crisis is occurring against a background of limited availability of health care providers, including primary care and behavioral health providers, in the areas where care is needed most. CHCs, which are located in underserved areas by design, have limited resources to provide care to the entire patient population. Rural areas especially face shortages in several types of providers whose work is critical to addressing opioid use and infectious disease, including primary care providers, substance use specialists, and behavioral health specialists (Rosenblatt et al., 2006; Hawley, Orr, and St. Romain, 2014).
- **transportation.** The practical challenges of traveling long distances to reach care in rural areas are a barrier to receiving all types of medical care (Douthit et al., 2015). Similar to workforce shortage, rural and often remote locations are part of the nature of CHCs themselves, making this barrier consistent and pervasive.
- **poverty.** Rates of poverty are much higher in rural than in urban areas (Bolin et al., 2015). Poverty is associated with worse overall health, high risk for substance use and comorbid mental health conditions, and multiple barriers to health care access.

Research Questions

This exploratory qualitative study seeks to collect information on CHCs' efforts to address the connection between the opioid crisis and transmission of infectious disease through phone discussions with CHC clinical and administrative staff. To ensure that the CHCs were in high-risk areas, they were selected from among the 102 CHCs in the 220 high-risk counties identified by Van Handel and colleagues. The study aimed to address the following four research questions:

1. What are enabling and limiting factors that affect health centers in effectively caring for people with OUD? For preventing HIV and HCV transmission among people who inject drugs?
2. How have health centers overcome challenges and what strategies and innovations are health centers using to care for people with OUD? What strategies are being used for containing HIV and HCV transmission among people who inject drugs?
3. What are CHCs doing to integrate substance use disorder services with mental health services and primary care? What challenges have they faced in these efforts and how have they addressed these challenges?

4. What information do health centers and Ryan White Part C providers have about HCV and HIV treatment uptake? How is this information used?

Through addressing these questions, the aim of this study is to provide information to ASPE and its federal partners to guide their next steps in the development of policy and future research projects that can assist CHCs in addressing the connection between the opioid epidemic and transmission of infectious diseases.

This report presents the results from these discussions. Chapter 2 presents the methods in detail, including the selection and recruitment of CHCs and the question guides used in the discussions. Chapter 3 presents the results, addressing each of the research questions listed above. Chapter 4 concludes the report by summarizing the major concerns that were voiced by CHC staff in the discussions regarding CHCs' ability to effectively address transmission of infectious diseases in the context of the opioid epidemic.

2. Methods

This is an exploratory qualitative study designed to collect information on how CHCs are addressing the connection between the opioid crisis and the transmission of infectious diseases. The primary method of data collection was semistructured discussions held with staff at CHCs. This approach allows for in-depth analysis of a small number of CHCs and for discovery of issues that researchers would not have anticipated. Other methods, such as clinic surveys, may have produced a larger sample but would not have allowed exploration of issues in depth or identification of new issues. As we describe in this chapter, CHCs were selected so that the sample would include CHCs that are located in areas of high risk for opioid-use–related outbreaks of infectious disease and actively engaged in some components of OUD or infectious disease care as indicated by their receipt of federal grants for those purposes.¹

Site Selection

CHCs were selected for recruitment to the study from a list, provided by ASPE, of 102 CHCs located in the 220 counties identified by Van Handel et al. as being similar in risk profile to Scott County, Indiana (Van Handel et al., 2016). The goal was to obtain a sample that reflects the diversity of CHC programs with respect to geographic location, receipt of federal resources for treating behavioral health conditions, and experience with providing specialty care for substance use disorders. To guide the selection, ASPE provided a list of the 102 CHCs, along with information on receipt of Access Increases for Mental Health and Substance Abuse Services (AIMS) Awards, Substance Abuse Service Expansion (SASE) Awards, number of substance use treatment provider full-time employees, and HIV-related quality measure reporting.

The CHCs were selected using a maximum diversity sampling approach (Palinkas et al., 2015). This is a purposive sampling approach used to capture a breadth of experiences in a population that varies according to known, prespecified factors. This method is appropriate for an exploratory study, such as this one, that aims to capture a diversity of CHC experiences with a small sample of CHCs. Diversity was sought with respect to the three criteria listed above, as well as geography, receipt of federal resources for behavioral health, and experience with HIV and substance use treatment.

CHC Recruitment

The eight CHCs that participated are a geographically and administratively diverse group. The CHCs are located in three of the four U.S. Census regions: three in the West, four in the

¹ This study, including discussion preparation materials and the informed consent procedure, was approved by the RAND Human Subjects Protection Committee.

South, and one in the Northeast. Unfortunately, we were not able to include a CHC from the Midwest, despite extensive recruitment efforts. The four CHCs in the South are all in counties within the Appalachian region, as defined by the Appalachian Regional Council.

Table 2.1 shows selected characteristics of the CHCs included in the study and, for comparison, the characteristics of the 102 CHCs in the 220 Van Handel counties. The CHCs are located in counties with higher than average “risk ranking” according to the study by Van Handel et al. (2016), suggesting that among high-risk counties, the counties in which these eight CHCs are located are relatively low risk. The eight CHCs in the study all receive AIMS funding, as do the vast majority (90 of 102) of the larger group. Among the eight CHCs in the study, the proportions receiving SASE grants, reporting on quality of care for HIV, and employing a substance-use treatment specialist are higher than in the larger group. The differences between the eight CHCs in the study and the larger group of CHCs are due to our intentional sampling to increase diversity with respect to resources and experience.

Table 2.1. Characteristics of the CHCs Included in the Study and of All CHCs in Van Handel Counties

	<i>n</i>	County, Van Handel Rank	# Sites in Van Handel Counties (Average)	AIMS 2017	SASE 2016	HIV Quality Report	Substance Abuse Specialist
CHCs in the study	8	50–209 (Average = 157)	10	8	3	4	5
All CHCs in Van Handel counties	102	1–219 (Average = 112)	5.7	90	24	33	28

Five of the CHCs are part of relatively large, complex organizations with multiple sites located over a large geographic area and tens of thousands of patients per year. Three of the CHCs are much smaller operations. One has a similar level of integration as the larger CHCs but is very small, lacking even one full-time physician on staff. Another of the small CHCs is located in an area with a resident population of about 1,000 people located on a major transportation route through which over 2 million people pass each year. The next closest physician’s office is over 100 miles away, making this CHC the only option for care locally for the small, low-income population. The third of the smaller CHCs in the sample serves a population of migrant, largely immigrant agricultural laborers. This population lives in the area for only part of the year, residing in temporary dormitories close to the fields in which they work. This CHC provides all its care through mobile facilities. Since serving rural underserved and migrant populations is core to the mission of CHCs, inclusion of these nonstandard CHCs provides important information for this study. With the exception of the mobile health clinic, all the CHCs in the study have patient populations with over 50 percent insured through Medicaid and/or Medicare.

A total of 18 individuals participated in the discussions across the eight CHCs. The participants tended to be senior administrative and supervisory clinical staff, such as executive directors, chief executive officers, and chief medical officers. The discussions also included direct care providers, such as physicians, nurse practitioners, physician assistants, as well as care

coordinators. Participants included providers with a range of specialties, including substance use treatment, HIV, and behavioral health.

Procedures

We conducted discussions with CHC staff using a secure conference call line. Once all participants joined, informed consent materials were reviewed and verbal consent for participation in the study, including audio recording of the phone discussion, was given by all individuals. Discussions were recorded for the purposes of analysis. Recordings were stored and accessed by research team members on a password-protected, encrypted server.

The discussions occurred from June to August 2018. Each lasted 60 to 90 minutes. Two members of the research team participated in each discussion, with one individual leading the conversation and the other serving as the principal notetaker. Discussions were semistructured and oriented around the research questions described earlier.

Data Analysis

Detailed notes on the discussions were taken by one of the participating researchers. Using these notes, the researcher completed a structured discussion summary template, which highlighted content related to the research questions. In filling out the template, the researcher conducted an initial interpretation of the discussion content, identifying the major themes. The researcher also referred back to the audio recording of the discussion to find specific quotes from CHC staff to illustrate the main points relevant to the study questions. The completed template was then shared with the other researcher, who led the discussion for further elaboration or correction of any errors and omissions.

The completed templates were then used for the qualitative analysis across CHCs. Each of the research questions was assigned to a researcher. That researcher reviewed all eight templates and abstracted the themes relevant to the question. The themes were then discussed by the entire research team to reach a consensus on the conceptual framing and content. For this study, the themes are generally issues related to the implementation of the diverse set of services that CHCs use to address opioid use and its relationship with infectious disease transmission. These themes are summarized, by research question, in the next chapter.

3. Results

In this chapter, we address each of the four research questions, drawing on the eight discussions with the CHCs. The first research question concerns the major services that CHCs provide related to OUD and infectious diseases care and the challenges that they have faced and continue to face in providing these services to meet needs in their communities. The second question focuses on how the CHCs have met these challenges and how they plan to improve the scope of their services. Strategies that have proven successful for some CHCs may contain valuable lessons for improving care in other CHCs. The third and fourth research questions focus on specific issues: integration of care and information sources.

Research Question 1

What are enabling and challenging factors that affect health centers in effectively caring for people with OUD? For preventing HIV and HCV transmission among people who inject drugs?

This question addresses the major services that CHCs provide to address the opioid crisis and its impact on transmission of infectious disease. The discussion is divided into two sections, one describing CHC activities related to prevention and treatment of OUD and the other describing CHC activities related to prevention of HIV and HCV transmission among people who inject drugs. In both sections, we describe the major types of services and the challenges that CHC staff reported they face in providing these services.

Prevention and Treatment of Opioid Use Disorder

OUD was a clear medical and public health priority for all the health centers in the study. As one CHC director said: “We deal with the opioid crisis every day.” Discussions focused on two modalities that health centers use; one is meant to prevent patients from developing OUD, while the other is used to treat patients who have already developed opioid disorders.

Opioid Prescription Management

The primary method for preventing OUD involved a variety of practices of medication management. These practices have the simple goal of limiting exposure to opioids among the population as a whole and among those at high risk for misuse. While all the health centers described some medication management practices, the practices varied depending on the state and the service setting. These practices included:

- **Assisting with medication disposal.** Patients who are prescribed opioids received a bag they can use to dispose of unused medications.

- **Prescription monitoring.** CHCs had a variety of ways to determine whether patients had been prescribed opioids by other providers, to avoid duplication or “doctor shopping.” Most CHC interviewees mentioned prescription drug monitoring programs, which are state-level systems for tracking prescription of controlled substances, in this regard. Several CHCs went beyond the required reporting to monitor opioid prescribing and related information in their own electronic health records (EHRs).
- **Routine Screening.** Most CHCs routinely screened patients at each new opioid prescription visit for indications of misuse of opioids or other substances, including alcohol. Many also routinely screened for mental health conditions—most commonly for major depression.
- **Patient contracts.** Some CHCs used patient contracts, which specified the conditions that patients must meet in order to receive treatment with opioids. By making the conditions of treatment explicit and obtaining confirmation and consent from patients, these contracts aimed to improve adherence to treatment protocols.
- **Protocol-driven medication management.** Some CHCs had detailed clinical protocols governing the prescribing of opioids. For instance, the protocol might specify that a patient must be evaluated by a behavioral health provider before receiving an opioid prescription.

The most common challenges to effective medication management reported by CHCs were gaps in the prescription monitoring system that made it difficult to ensure that a patient was not already receiving opioid medication from another provider. Specific gaps mentioned were lack of reporting by U.S. Department of Veterans Affairs facilities; lack of reporting by methadone clinics; and spotty reporting by pharmacies, especially small independent pharmacies. At the same time, CHCs were also challenged by the complexity of the reporting requirements. One CHC was required to document all opioid prescriptions extensively in its own EHR and to report in detail to both county- and state-level departments of health. The reporting burden, while not a barrier to prescribing, contributed to uncertainty about the completeness of data in the monitoring program.

Medication-Assisted Treatment

With respect to OUD treatment, all of the CHCs in the study either provided MAT or were planning to provide MAT, with the exception of the migrant worker CHC, which referred its few OUD patients to local MAT providers. The programs varied greatly in terms of size and maturity. Some of the CHCs had multiple providers certified to provide MAT and were treating patients at capacity. One of these CHCs served as a regional hub for training clinicians in MAT provision. Other CHCs had only recently begun providing MAT and were cautiously expanding the service, wary of expanding too quickly or limited by availability of staffing. One of the CHCs recently had two physicians certified to provide MAT but had not yet begun treating patients. Even the CHCs with established MAT programs only provided MAT at a subset of their primary care sites.

For CHCs, MAT provision was complicated by a number of factors, including resistance from providers, concerns about community stigma, staffing limitations, and costs of care. A recurrent theme of the discussions of MAT was that implementation was a drawn-out process,

often limited initially by skepticism from the providers themselves, who had strong preferences for abstinence-based treatment. For many of these providers, the urgency of the epidemic of opioid overdoses and overdose deaths led them to reconsider these preferences. Ultimately, positive experiences treating patients with MAT overcame their initial skepticism. This process was described in detail by a physician at one of the CHCs.

A year ago, if you'd asked me if I'd be writing [prescriptions for] suboxone I'd say "no way I'm gonna deal with that. I just don't have the resources or the time to fool with it." I've become a believer through working with people in recovery . . . seeing how people were transforming their lives and how medication and [MAT], if done the right way, and not in a pill mill sense. I got on board, Dr. [name] got on board, the company got on board. But when we first started talking about it, we almost had a mutiny.

Community stigma related to MAT remained a major concern for all of the CHCs. Staff described the perception in their communities that CHCs that prescribe MAT were just the same as the "pill mills" that got people addicted to opioids in the first place. Such CHCs were perceived as money-making ventures, taking advantage of people by keeping them addicted to a legal medication. For instance, staff at one CHC described how they were slowly and cautiously building their MAT practice, despite the fact that they had not reached capacity. Part of the concern was that they did not want the CHC to be perceived in the community as specializing in MAT. As a result, they did not advertise that they were providing MAT, offering it only to primary care patients identified as appropriate for treatment. (This CHC was located in an area where the bulk of MAT is provided by specialty behavioral health providers.) In all CHCs, community sentiments related to MAT were a factor in decisionmaking about provision of these services. These considerations went beyond the clinical protocols for determining eligibility for MAT, which are designed to ensure that the treatment is provided to patients who pose the least risk of drug diversion and are most likely to benefit.

Staffing for MAT remained a challenge, even for the CHCs that had established MAT programs. While there were challenges in acquiring certification for staff to provide MAT, none of the CHCs indicated that they were limited in MAT provision by the number of certified prescribers. Rather, the larger challenge was maintaining the behavioral health components of MAT over the long term because of behavioral health workforce shortages and high staff turnover. As a certified prescriber told us,

My problem is I could go up to 100 patients, but I don't have enough partners to cover me for that full 100 allotment. We probably have 1,000 patients who need more treatment right now, but we can't get them in because of this limitation.

Finally, several CHCs mentioned that the costs of providing MAT were not adequately reimbursed through Medicaid or other insurers. Some CHCs covered these costs through grants, but not all CHCs received grants for this purpose. The lack of grant coverage for MAT was particularly exasperating for the director of one CHC, who said:

We have applied for many grants. We have received zero grants. But we see grants going out every day to people who are not doing [MAT] . . . We're here

treating people every day, seeing patients every day, making a difference in people's lives, getting people restored, their lives and back to work, and we can't get access to the grant money, whereas other people who haven't seen their first patient yet are getting grants.

An important exception to the general emphasis on building capacity to provide MAT among the CHCs in this study was the CHC that focuses on migrant agricultural laborers. Research has found that the prevalence of OUD is quite low among agricultural laborers, many of whom are immigrants to the United States. This CHC confirmed this pattern in its own patient population through a needs assessment study. With the low prevalence of OUD, it decided not to develop the capacity for MAT but rather to refer the occasional patients identified with OUD to local providers.

Other Services

A few of the CHCs mentioned some additional services they provided with the goal of limiting use of prescription opioids or treating OUD:

- **complementary alternative medicine (CAM):** Some CHCs had explored using CAM approaches to treat pain in place of opioid medication or for OUD treatment. Limited reimbursement for CAM treatments was a barrier to increasing provision of these services.
- **physical therapy (PT):** Some chronic pain patients may be treated effectively with PT, avoiding the need for opioid medication. CHCs tended to use outside PT providers but reported challenges in coordinating these services. One CHC was considering direct provision of PT but had not yet developed a sustainable model for doing so. Having in-house PT services would increase the likelihood that patients would use them regularly.
- **screening for substance use disorders:** Some CHCs had implemented systematic screening of all primary care patients for substance use and other behavioral health conditions on an annual basis. We discuss screening practices in more detail in the next section.

Preventing HIV and HCV Transmission Among People Who Inject Drugs

HIV and HCV are also longstanding concerns for CHCs, but these infections have not always been considered in the context of the opioid crisis. The services that are provided for infectious disease have generally been built up around services for injection drug users, and, in particular, identification and treatment of HIV. The CHCs included in the study had focused on four main strategies to prevent disease transmission through injection drug use: (1) systematic screening for HIV and HCV in a variety of targeted clinical and nonclinical settings, (2) treatment of HIV and HCV, (3) coordination of services with SSPs, and (4) educational and support services for the general public. We address each of these strategies.

Screening for Infectious Diseases

The CHCs in this study had conducted a variety of screening programs aimed at identifying new cases of HIV and HCV. However, the screening strategies used by CHCs varied. Some

CHCs reported screening all patients in primary care, while others focused on specific high-risk populations, such as those in MAT treatment or pregnant women. Several CHCs provided screening services to SSPs, and some to specialty behavioral health care providers. All of the CHCs that reported screening for both HIV and HCV stated that rates of positive screens were much higher for HCV than for HIV. For instance, one CHC reported that among 300 patients screened in the prior month, there were 45 positive screens for HCV and two positive screens for HIV.

Infectious Disease Treatment

CHCs had different capacities to treat HIV and HCV. Patients who screened positive for HIV and have that diagnosis confirmed in subsequent testing were generally referred to treatment through local Ryan White providers. Most of the CHCs in the study had established Ryan White programs, particularly the larger centers. HIV treatment for these facilities appears to have become relatively routine. CHC staff did not report major challenges with providing care for patients with HIV.

In contrast, according to CHC staff, treatment of HCV remained challenging for two major reasons—eligibility and cost. First, CHC staff reported that the rules regarding eligibility for reimbursement for HCV treatment were complex and shifting. These rules were designed to minimize the problem of people starting HCV treatment and failing to complete the full course (incomplete treatment can lead to the development of treatment-resistant disease). Historically, HCV treatment has been restricted to people who are not currently using alcohol or illicit drugs, out of concern that individuals using alcohol or illicit drugs were less likely to complete treatment and therefore had a higher risk of reinfection or drug resistance. Several CDCs reported that these restrictions recently had become less strict. For instance, alcohol use might no longer disqualify patients from HCV treatment. However, changing rules regarding the amount of time that an individual must be drug-free—as well as the challenge of screening for drug use in HCV patients, using urine or hair follicle analysis—remained difficult for health centers to manage.

Second, CHC staff reported that HCV treatment is prohibitively expensive. Staff at one CHC reported that a course of HCV treatment costs over \$90,000, putting it out of reach for patients without insurance coverage. The cost to patients can be reduced somewhat through Medicaid or contributions from the CHC endowment which covers uncompensated care, but the burden is too great to keep up with the need.

Syringe Service Programs

Most of the CHCs in the study worked with SSPs run by local community or governmental organizations, and a few were directly involved in operating SSPs in their communities. In addition to providing clean syringes, SSPs also provided opportunities for CHCs to engage with active users, build trust, assess for behavioral health conditions and infectious diseases, and provide a bridge to substance use and/or infectious disease treatment. For instance, one CHC had a care coordinator spend one day per week in an SSP run by a local community-based

organization. Her main responsibility was to conduct HIV and HCV screens. However, she described how she also used the time that patients spend waiting for their screening tests to be read, about 20 minutes, to get to know them individually and talk with them about entering substance use disorder (SUD) treatment.

SSPs also faced a number of serious challenges, similar to MAT. CHC staff recognized that the programs are highly controversial in their communities, because they were seen as acknowledging or promoting injection drug use and causing a public nuisance by attracting drug users. One of the CHCs in the study had been working for several years with an SSP run by a local county department of health, but that program was recently shut down due to public opposition.

Public-Directed Events

The role of health information and awareness campaigns is discussed more fully in the context of Research Question 4. However, it is worth briefly noting that all of the CHCs recognized the importance of engaging with their communities to raise awareness of the opioid crisis and stigmatized health conditions and to advocate for treatment and treatment resources. CHCs reported a variety of activities aimed around these efforts, including patient education at health facilities and through the internet, public rallies and town hall events, provider education on behalf of CHC administrations, naloxone distribution through pharmacies, emergency response and law enforcement agencies, and newspaper op-eds.

Research Question 2

How have health centers overcome challenges and what strategies and innovations are health centers employing to care for people with OUD? What strategies are being used for containing HIV and HCV transmission among people who inject drugs?

We have highlighted the challenges that CHCs face in addressing OUD and OUD's connection to infectious disease transmission. Some are administrative or institutional, such as the reported gaps in prescription monitoring systems that make it difficult for providers to know whether their patients are receiving medication from other sources. Some are social and cultural, such as the stigma related to drug use and drug use disorders that limits the prevention and treatment options available to CHCs. Finally, some are financial, limiting the ability of CHCs to provide care to patients who need it but are unable to pay. In this section, we discuss the strategies that CHCs report using to address these challenges.

Administrative and Institutional Challenges

Gaps in Prescription Monitoring

The CHCs we met with were actively working with local pharmacies to improve sharing of information regarding filled opioid prescriptions. However, some of the gaps in reporting remained, and addressing them was beyond the scope of what CHCs can do. For instance, one

CHC reported that the only methadone clinic in the region did not report any patient-level information on methadone use.

Behavioral Health Workforce

CHCs used a variety of strategies to address limitations of the behavioral health workforce. Some attempted to attract qualified clinicians through hiring incentives, but these efforts did not alleviate their needs. The one CHC that reported no problems with staffing for behavioral health services had grants specifically for this purpose. Behavioral health services were extended using telehealth services in most of the CHCs. Several CHCs are collaborating with university-based programs that provide specialist input on treatment for MAT as well as direct services to patients.

HCV Treatment Management

CHCs worked internally and with local governments to reduce the burden of reporting related to HCV screening and treatment. In addition, several CHCs had partnered with university-based programs, such as Project ECHO, for telehealth support for HCV treatment (Arora et al., 2010). It is also important to note that some of the challenges in providing treatment for HCV may be alleviated in part with the introduction of direct-acting antivirals, which have fewer contraindications than older, interferon-based therapies. Direct-acting antivirals have the potential to improve quality of life, lower likelihood of mortality, and reduce the long-term cost of complications, although they remain expensive to provide (Rosenthal and Graham, 2016). A recent study of patients on direct-acting antiviral therapy who were not actively using illicit opioids found that individuals undergoing concurrent opioid replacement therapy are no more likely to relapse, have an adverse event, or fail to complete treatment than those not receiving opioid replacement therapy (Grebely et al., 2018).

Social and Cultural Challenges

Provider Resistance to MAT

According to CHC staff, providers who were initially resistant to MAT had almost universally become advocates for it over time. The main reason given for this change is providers' growing experience with OUD and associated overdoses. Witnessing the severity of the disorder, along with positive initial experiences providing MAT, had made the difference.

Stigma Related to MAT

Providing MAT in the context of strong community stigma against drug use remained a challenge for all CHCs. Stigma was considered in many aspects of planning MAT services. CHCs were very cautious about expanding MAT services quickly for fear of becoming identified as a place that primarily gives out drugs to "drug addicts." The public-facing events that many CHCs engage in were intended in part to reduce this opposition. One CHC reported success in working with local church groups, which tended to advocate for reducing stigma

against drug users and increasing access to treatment. Another reported working closely with community social service agencies to ensure that mothers with OUD could receive MAT without having to worry about losing custody of their children.

SSP Opposition

CHC staff were generally allied with community organizations that provide SSPs, but these programs remained controversial. CHCs reported a wide range of activities designed to address community concerns and educate the public. In addition to public events, such as health fairs, CHCs also reported private meetings with local government officials to advocate for SSPs and collaborations with local- and national-level organizations.

Financial Challenges

Reimbursement for MAT and Treatment of HIV and HCV

When reimbursement fell short of costs, CHCs had to decide whether to cut care or use limited funds for uncompensated care. Grants are available to cover costs, especially for MAT and HIV treatment, but they are limited; grant funding for HCV screening treatment is much scarcer. CHCs were working together with academic and governmental partners to advocate for better reimbursement. In addition, the introduction of direct-acting antiviral therapy was also reducing the cost of treating HCV, although the full impact remains to be seen.

Research Question 3

What are CHCs doing to integrate substance use disorder services with mental health services and primary care? What challenges have they faced in these efforts and how have they addressed these challenges?

The health centers in this study differed widely in their levels of integration of SUD and primary care for individuals with OUD. Some were fully integrated providers: behavioral specialists and MAT services were co-located in a CHC alongside primary care. In the least integrated settings, all SUD and behavioral care was provided through referrals to external providers. We also encountered varying levels of integration between infectious disease care, OUD care, and primary care. However, no CHC in the study provided the entire spectrum of infectious disease care—from prevention to treatment—without the assistance of outside organizations. In the next section, we discuss these levels of integration as described by CHC staff.

OUD and Primary Care Integration

We begin by discussing the integration of behavioral health and primary care. Every CHC we interviewed had some form of mental health screening within primary care. CHCs often use structured instruments, such as the two-item Patient Health Questionnaire (PHQ-2), to screen for major depression (Löwe, Kroenke, and Gräfe, 2005). However, screening for SUD was less

common. Specific measures mentioned included the Drug and Alcohol Problems screen (Schwartz and Wirtz, 1990) and the CAGE questions (Hinkin et al., 2001).

Five of the CHCs were fully integrated, meaning they provided a full range of care from primary care through SUD care with MAT within the CHC's walls. In these CHCs, referrals often came from the primary care provider, who had screened for OUD during routine visits. Two of these CHCs also had specific programs for expectant mothers, which meant that referrals would also come from an obstetrician/gynecologist within the CHC. When one CHC described the steps involved in enrolling a patient in MAT, it was clear how highly involved both primary and behavioral health care were in treatment and how resource-intensive this type of integration can be:

Patients who want to participate in the program go through an initial interview with a case manager, who then makes a determination to go to the next step, which is an extended interview with a behavioral health provider and then a visit with a primary care physician if they haven't had that. Then there is a final determination that the patient is suitable and that they understand the program.

Once treatment begins, the provision of MAT required integration of medical and behavioral health care over an extended period of time:

The [treatment program] involves a number of elements . . . starts with weekly physician visits which starts with medical group visits—an individual group visit in a group setting—the [primary care] physician conducts relatively short interview with the patient to judge where they're at, like if there is a medication dose issue or anything like that and dealing with the results of a urine drug screen. Urine drug screen, we often do them, not every visit but much of the time and for new patients it is every visit. Following the weekly group medical visit there is a group therapy session with a psychologist or a trained social worker. That happens weekly with the first 90 days people are clean. It usually takes about six months for someone to [be] 90 days continually clean. After that they move to every two weeks. And after a year they can go to every month.

Another highly integrated CHC, which was certified as a Patient-Centered Medical Home, provides a contrast in the details of how different types of providers can work together. In this CHC, primary care physicians did not have weekly contact with MAT patients, even though they were involved in treatment decisions. The EHR played a central role in this setting.

We have the same EHR—there is communication between the [primary care physician] and MAT providers, prescribers and therapists, when needed. We don't have team meetings, so we don't have [primary care] integrated into the MAT teams, but we are integrated in terms of our EHR and our ability to communicate.

In this particular CHC, care was integrated through a behavioral health team, which included a MAT provider who was either a psychiatrist or a family practitioner:

We do have integration in terms of the behavioral health team. We have treatment meetings every 90 days that include the medical provider, therapy provider, case manager, and, in some cases, the peer recovery coach. One of the roles of the case manager is to determine if [patients] have a primary care provider and if they don't, they make a referral to a primary care physician.

While this level of integration had distinct advantages in that the patient is exposed to a high level of treatment across the spectrum of coordinated care, it was resource intensive. This means it was beyond the capacity of some of the CHC staff we interviewed.

Some CHCs reported barriers to providing this broad scope of services. One major barrier to integration was access to behavioral health staff. As noted above, CHCs faced significant challenges in staffing the behavioral health components of their MAT programs. The lack of behavioral health specialists meant that some patients go without care. Another CHC reported limitations in its ability to integrate care because of reliance on temporary behavioral health specialists:

Just starting with staff to do the brief intervention, really in clinic, kinda the warm handoff with behavioral health providers. Had a couple of good experiences with that, but it is in the early stages, and it is a little difficult because they are not here every day.

Staff wanted to be able to connect patients to behavioral health staff—the “warm handoff”—but it was difficult when the staff providing behavioral health care were not easily available, even though the care was being provided within the CHC.

Not surprisingly, given the rural setting, CHC staff emphasized distance as a barrier to effective care integration. At the CHC with limited behavioral health staff availability discussed above, the next closest medical facility was over an hour away, and patients often cited the distance as a reason they did not follow up with recommended medical treatment. Staff in another CHC noted that there was only one methadone clinic in their region, and that, despite efforts to provide regular transportation by bus, the distances that people needed to travel to receive care on a daily basis made it extremely burdensome and undermined adherence.

Staff at another CHC reported that the Medicaid “carve-out” posed a barrier to integration of care in their state. A behavioral health carve-out is a system in which Medicaid manages payment for behavioral health and general medical care through different mechanisms. The carve-out contributes to siloed care, making financial integration between CHCs and partner behavioral health agencies impossible. Despite this barrier, the CHC in question was able to partially integrate care with a behavioral health provider using a care coordinator, who screened active injection drug users for HIV and HCV and facilitated referrals to the behavioral health assessments necessary for entry into treatment.

Infectious Disease and OUD Care Integration

We found that infectious disease and OUD care occurred both between CHCs and community organizations and within CHCs. All of the CHCs were screening for HIV and hepatitis. Some CHCs tested all of their patients annually for infectious diseases, or at least once for HIV, and some tested for those diseases in MAT.

One of the common patterns of integration that CHCs described involved the CHC providing medical services for other organizations, such as behavioral health clinics or community organizations, that provided SUD prevention or harm-reduction services. The partner community

organizations included nonprofit organizations as well as governmental agencies, such as county departments of health. CHCs took different approaches to this type of integration depending on their local circumstances. For instance, the CHC that described the Medicaid behavioral health carve-out as a barrier to integration was partnering with behavioral health providers in the region to conduct HIV and HCV screening. This CHC provided this service in ten different behavioral health clinics. This same CHC is the one described earlier in which a care coordinator spent one day a week in an SSP run by a community organization. While there, she “built trust” with the patients and did motivational interviewing to encourage people to go to care. She described it as “building a bridge” to treatment for OUD.

Similar arrangements, in which CHCs provided complementary medical services to community organizations, were described by other CHCs as well. Several CHCs had arrangements in which community partners administered SSPs, while the CHC provided behavioral health care and MAT. One medical director described how the relationship worked in detail:

We have a needle exchange program through the health department, one of our partners who’s running that along with Narcan distribution. We’re doing the inpatient detox, we’re doing the medication-assisted therapy, we’re doing the counseling; they’re doing those two things . . . bringing together all the community partners that are working and then dividing out the jobs so we don’t have five groups trying to do needle exchange.

One CHC went as far as co-locating a satellite clinic within the county health department on the days that the health department–administered SSP was open:

We have a partnership with [redacted] health department for a little over a year. We started there because they had a really robust harm-reduction program, which included access to clean needles. The health director, or the medical director at the time, reached out to us. We wanted to be able to provide primary care, acute care, family planning, a litany of services to people who access the harm-reduction program on Wednesdays. We provide long-acting contraception, acute care, primary care. We started that in June—it was so busy [that] we added a day in the fall.

There are barriers to this type of collaboration. Most importantly, SSPs are not politically popular. This particular collaboration between the CHC and the county health department described earlier ended when the needle exchange program was shut down due to “politics.” In this respect, the stigma related to substance use treatment also affected the ability of CHCs to integrate care; if they had no partner, there could be no integration. The CHC director described the program closure:

The city, which had been supportive [of] the program at the beginning . . . there was a lot of political backlash. To make a long, drawn-out story short, the needle program came to a close in 2018. Still have Narcan training, which we have been a part of. But the clean needle program went away, and when that went away, so did a lot of the clientele.

Another director, describing the lack of coordinated efforts for a local SSP, remarked, “I have a [relative] who works in the parks and recs department. Picking up used syringes in public restrooms and parks where children are playing is just a daily chore.”

Integration of Care with Justice Involved Individuals

The discussion about coordination of care with community organizations raised an interesting avenue of inquiry that we had not expected: the integration of OUD care with justice-involved populations. Two CHCs were working with justice-involved populations; one CHC serviced the patients in the local drug court, and another shared a physician with the local prison system. In discussions with both of these CHCs, staff were concerned about their inability to use buprenorphine or methadone to treat patients. They were only permitted by the judge overseeing both populations to use naltrexone. There was concern expressed in more than one CHC that the patients only receiving naltrexone did not engage in treatment, particularly behavioral health treatment, to the same degree as MAT patients. Moreover, once individuals were discharged from the criminal justice system, they were at increased risk of sudden overdose and death:

One of the choke points I’m aware of that we’ve never quite been able to solve is that we realize that opiate addicted patients who have been in corrections are at increased risk for sudden overdose and death once they’re released because, of course, we remove them from their opiates when they’re booked in, try to manage them while they’re in, and then soon after they’re released they’ll relapse after leaving jail and overdose and die It makes no sense to me to give the naloxone kit to the addict, it ought to go to a family member or somebody who’s going to be present with them to rescue them and they need the training about using the kit.

Research Question 4

What information do health centers have about opioid misuse and treatment, as well as HCV and HIV prevention and treatment? How is this information used?

This research question is focused on the ways that health centers use information—both specific clinical information about individual patients and general information about prevention and treatment methods. In summarizing the discussions, we break this broad area down into two contexts in which this information is used; information disseminated within the CHC in the course of clinical care and information disseminated to the communities in which the CHCs are located. The CHCs we spoke with were very active on both fronts.

Information Within CHCs

The most frequently referenced information resource for providers was their EHR system, which served as a bridge between primary care providers, MAT providers, and specialists offering behavioral health services. EHRs facilitated providers’ ability to track client recovery (e.g., drug test results) over time, conduct medication management, and issue referrals and add notations through consult notes. The benefits were most dramatic in larger health systems in

which intra- and inter-office communication had greater complexity. For example, an administrator for a large CHC remarked,

Our MAT programs are co-located at health centers that have [Patient-Centered Medical Home] recognition We have the same EHR, so it is integrated in that way. There is communication between the PCP and the MAT providers—both prescribers and therapists.

At some CHCs, EHRs also generated reminders for routine screenings. For instance, the EHR system at one CHC autogenerated annual alerts to screen individuals for hepatitis and HIV. At a majority of CHCs, screening tests for infectious disease and behavioral health concerns—such as the PHQ-9, CAGE-AID (CAGE Questionnaire Adapted to Include Drugs), and DAP (Drug and Alcohol Problem)—were also integrated into EHR systems.

Closely related to EHRs are health information exchanges (HIEs), which are systems that combine patient medical record information across multiple providers within a geographic region. These were mentioned in several interviews, particularly in the context of transitional care. For example, one CHC remarked that—no matter where a client was admitted to an emergency department throughout the state—the client record was available. At another CHC, the HIE was referenced as particularly important as a source of knowledge transfer because of the CHC's remote location.

By contrast, in a handful of other CHCs, electronic information was *less* connected with hospital interfaces. For example, a clinician from a CHC that is part of a large network of 10 CHCs remarked,

Ideally, when it works correctly, we're supposed to be notified through the [EHR]. It's an interface system, so we're supposed to get a notification that the patient has been hospitalized. Now, of course, that doesn't always work, so sometimes we know because we start to get reports into the system, whether it be labs or something that's happened.

A third information resource for CHCs was external supports from community-based organizations and accredited medical institutions, specifically for professional training and collaborative knowledge sharing. In terms of training, a high priority for CHCs was MAT-related certification, including certified medical assistant status and Drug Enforcement Administration X waivers for primary care providers. Providers identified these formal mechanisms as invaluable opportunities for raising their own aptitude in serving client needs. For example, a physician's assistant at a CHC remarked:

There is a lack of education and training as well on my part, I think as most [physician's assistants] in school we didn't get a lot of this. It wasn't as big of an issue when I went to school. And even going to the MAT training just opened my eyes We're screening and then we kinda don't know what to do with them. And that's a lack of community resources, as well as training. It's a question of how can we educate ourselves, as well as staff members, including adding in screenings for infectious disease as well as other comorbidities. So I think we're all learning in that process.

In terms of collaborative knowledge sharing, most CHCs were actively engaged with other community-based organizations to educate one another and strengthen client resources. For example, administrators at one CHC referenced a telehealth initiative, Extension for Community Healthcare Outcomes (ECHO), that had served a range of nearby rural communities. ECHO expanded access to specialty services, such as treatment of HCV, using a hub-spoke model in which remote specialists trained generalists in rural areas how to implement treatment protocols (Arora et al., 2011). The provider remarked, “ECHO providers bring their legitimacy to the battle and that has been very helpful, but there are still significant barriers getting treatment to most of the people who are positive for hepatitis.” Other education and implementation models, such as COAT (Chronic Opiate Analgesic Therapy) and HEAL (Helping to End Addiction Long-term), were also raised. For two CHCs, individuals were still in the formative phase of establishing such frameworks. One CHC remarked, “We’re discussing a telehealth—because we have one central location where behavioral health is at . . . but to outreach to our [other] clinics, we have been discussing some telehealth options.”

At several CHCs, providers were not just seeking knowledge from external supports, but served as knowledge resources for others, including at the state and regional levels. For instance, one CHC MAT administrator remarked, “We’ve had some things . . . Like our providers write articles for our local newspapers about OUD and about medication assisted treatment.”

Lastly, there were a number of CHC-specific approaches to improve the dissemination of knowledge throughout care teams. For example, the case manager at one CHC organized “90-day meetings” with care team members for clients enrolled in opioid-related care, which included discussion of comorbidities, such as HCV. An administrator remarked,

We go through the entire roster, and typically in the past the case manager has brought a 90-day summary for the patient, particularly related to their drug screens. But we’re implementing a new process in which the medical provider is keeping a flow sheet . . . So the hope is we’ll all start being able to utilize that sheet.

By contrast, among smaller CHCs, the opposite scenario played out: There were no full-time specialists to raise collective knowledge around screening and treatment for opioid misuse or related infectious disease. For example, the chief executive officer of a CHC remarked, “One of our biggest problems is we don’t have the behavioral healthcare here full-time . . . If we obtained a grant we’d want to hire a [licensed clinical social worker] full-time.” Likewise, a CHC administrator remarked, “There’s a gap in our own staff in terms of what addiction is, and what treatments are effective and why . . . Our own staff, and we have over 180 people now, can be a powerful influence in our mostly rural communities that we serve.”

Sharing Information with Communities

The quality and diversity of paper-based educational materials for clients varied widely across health centers. Several CHCs made remarks such as, “We don’t have hard materials [e.g., paper handouts] for people in primary care.” Other CHCs had limited information on infectious disease prevention and opioid misuse, acquired passively through community partners who

dropped off their own materials, or else proactively sought paper materials through organizations and foundations, such as the Hazelden Betty Ford Foundation. For example, a CHC primary care provider remarked, “We have posters up in our clinic talking about being screened for [HCV] and HIV, but we don’t have this really great educational library or anything like that. That’s not something we’ve really put any time to at all.” One CHC we spoke with noted that every one of their more than 80 consult rooms has a wall of brochures—including on opioid addiction, HIV screening, and HCV prevention.

Paper-based content was more common within MAT programs. For instance, in one CHC, individuals enrolled in MAT were provided with a card outlining an extensive list of community resources, such as Alcoholics Anonymous and Narcotics Anonymous meeting locations and times each week. Another CHC provided a packet of materials to clients upon enrollment in MAT.

Electronic resources, similar to paper resources, varied considerably. Roughly half of CHCs’ websites contained a section on which opioid and infectious disease screening and treatment services were described. However, when available, website content was minimal. One CHC staffer remarked, “We’re probably lacking in our educational materials. That’s probably something we could stand to do better.” A couple of the larger health systems had the ability to connect clients with innovative programs. For example, one CHC provided round-the-clock live chat available to clients with emergent needs.

Community events were seen as an external set of venues for broader client information dissemination, with mixed results. These included large public rallies, such as town halls on harm reduction strategies, and more focused events for users, supported collaboratively with partner organizations. At one CHC, an administrator remarked on the overwhelming success of a recent naloxone education campaign:

We had a naloxone training recently It was the largest in the state. They basically brought a truck around with a lot of naloxone and did about a 15-minute educational course on how to administer it and gave free samples to anyone that came. A lot of our first responders and a lot of people from our clinic and our community came and got those samples, so those are life-saving medications that our floating around in our community now.

Such efforts were complemented by the coordination of partner organizations throughout the county. For instance, expanded access to naloxone and drug testing kits were often supported by CHCs’ work with pharmacies, private clinics, law enforcement agencies, police and fire departments, and patients’ families.

In a few settings, such efforts were undermined by community dynamics that discouraged community engagement. For example, an CHC administrator in a small CHC remarked,

There was a great documentary put together here They took it all over the state to different communities to identify key pieces of the opioid crisis . . . and the nearest event was showing here in [town], and I invited a number of local leaders. And just no one showed It’s “My life is busy enough, we’re isolated enough, it’s hard to get to those things.” Nobody wanted to go.

Putting the pieces together, we found that CHCs were working to expand knowledge for providers and patients but were running up against a number of barriers. These barriers included variable quality EHRs and screening systems, weak paper-based and web-based educational materials, and structural barriers within specific communities that acted as a deterrent to accessing knowledge—including geographic remoteness. That said, there were a number of countervailing influences that supported better education. At several CHCs, expansion of MAT in the past couple years coincided with greater community acknowledgment that resources need to be more available. Community-based organizations and CHCs had also mobilized to collectively educate one another, as well as clients.

Conclusion

For the eight CHCs in this study, prevention and treatment of OUD had been a high priority; all but one had been deeply affected by the opioid epidemic. However, all of the CHCs described the process of developing these services as an uphill battle, fighting against bureaucratic and social barriers. Some emphasized that the barriers to MAT treatment in particular were not entirely external, as providers themselves resisted providing the services until they became convinced to try them out in a limited way and build up a body of personal experience of successful treatments. Though the CHCs were at different stages of implementation of OUD treatment, they all described a similar trajectory of moving from skepticism to increasing support and expertise over time. However, even the CHCs that were leading the way in provision of OUD treatment remained cautious about being too public about their services, always conscious of how they might be seen in their communities alongside concerns related to the financial sustainability and quality of care.

Infectious disease prevention and treatment were also major priorities for the CHCs in this study, though these services have a different history, rooted in the HIV epidemic. Expanding services for HIV and HCV in the context of the opioid epidemic raised many of the same challenges as the services for OUD—challenges related to care integration with diverse medical and nonmedical partners in care, stigma among providers and communities, and the need for specialized expertise in managing complex comorbid medical and behavioral conditions. Treatment of HCV, the deadliest infectious disease in the United States today (Ly et al., 2016), was a larger concern for CHC staff than HIV treatment because of its cost and the complexity of treatment.

All of the CHCs in this study were making enormous efforts to address the connection between OUD and infectious diseases, building on the existing strengths and local community assets. The diversity of arrangements that the CHCs had developed with community organizations to provide these services reflect long-term relationships that enable close, collaborative efforts. Support for CHCs in advancing their capabilities to address these issues should take local conditions into account.

4. Conclusions: CHC Concerns About Opioids and Infectious Disease Transmission

The staff at CHCs who participated in the discussions described above are on the front lines of the opioid epidemic, working to address its increasingly complex public health ramifications. While all the CHCs are actively addressing OUDs and infectious disease transmission, personnel all point to ongoing challenges that limit their ability to protect the communities in which they operate. While this study has some limitations, which we discuss in this chapter, it has identified some common challenges as well as strategies that some CHCs are using to overcome these challenges. This concluding chapter identifies the major areas of concern raised by CHC staff in our discussions.

Study Limitations

Our results should be understood in light of the limitations of this exploratory study. Discussions were held with only eight CHCs. The CHCs were intentionally selected to maximize their geographic diversity, and they do not represent all CHCs in high-risk counties across the United States. Nonetheless, the information collected in these discussions provides a valuable first look into conditions facing these safety-net providers on the front lines of the opioid epidemic. The consistency across CHCs in major topics of concern suggest that the issues they face are likely to be common to many other CHCs. Within each CHC, we were able to talk with only a subset of staff and only for one hour. Some issues affecting CHCs and their activities likely went unreported because the people with knowledge of those activities were not included or there simply was not enough time. While we encouraged CHC contacts to include all the relevant people within their agencies, we were not in a position to directly select respondents or ensure that all points of view were expressed.

Even though the sample of CHCs in this study is not representative, there are good reasons to believe that the concerns raised in these discussions reflect factors affecting most, if not all, CHCs in their efforts to address the opioid epidemic and its impact on infectious disease transmission. The issues that were identified in the discussions reflect a broadly shared institutional, economic, and demographic context. For instance, while there may be variations across states in Medicaid reimbursement for HCV treatment, the need for sustainable financing for these services is universal. Some of the major factors identified as barriers to care, such as behavioral health workforce shortages and stigma related to OUD and its treatment, are known to be widely shared. There is reason, therefore, to be confident that the concerns raised by staff about their ability to address OUD and infectious diseases in these eight CHCs are likely to be broadly shared by other CHCs operating in similar settings across the United States.

CHC Concerns and Strategies

Cost of HCV Treatment: The most compelling and consistent challenge that we heard about from CHCs, which they had few strategies for overcoming, is the cost of treating HCV. CHCs consistently reported that staff identified many more cases of HCV than HIV, consistent with national data showing that HCV has become much more common. HCV is a major contributor to serious liver disease, liver transplantation, and mortality, although effective antiviral treatments are available. Moreover, treatment is prevention; treating people with HCV reduces the likelihood of further HCV transmission. CHCs report the capacity to provide the treatment and the need for treatment in their communities. Increasing HCV treatment also has the positive feedback effect of increasing engagement of injection drug users in treatment for OUD (Midgard et al., 2017). While federal programs have contributed to reducing costs to CHCs of treating HIV, CHCs raised concerns that no similar efforts have supported HCV treatment, despite the HCV's much greater prevalence. Costs of new direct-acting antiviral treatments are lower than the costs of the treatments that CHC staff most mentioned, but even these lower costs may remain a burden (Rosenthal and Graham, 2016).

HCV Treatment Guidelines: Along with reducing the cost of HCV treatment, CHCs are also concerned about staying informed regarding best practices related to HCV treatment. At present, guidelines regarding treatment eligibility, for both private and public payers, are perceived to be shifting and overly restrictive by many CHC staff. While the potential harm of incomplete treatment is well understood, the eligibility guidelines are thought to be overly strict and to reflect projections of risk of treatment non-adherence that have little empirical basis. In particular, treatment using direct-acting antivirals, use of which is less restricted than interferon treatment, offers opportunities to expand access to HCV treatment (Lange and Zeuzem, 2013; Martin et al., 2015) that have yet to be taken up by CHCs.

Workforce Limitations and Access to Telehealth: Workforce limitations are chronic in rural health in general (Hawley, Orr, and St. Romain, 2014) and in rural behavioral health in particular (Lenardson and Gale, 2007). A recent ASPE report highlights workforce limitations specifically related to MAT providers in rural areas (Hinde et al., 2017). Several of the CHCs in this study use telehealth in some capacity to support treatment related to opioids and/or infectious disease. Telehealth has been used in rural health for decades to address provider shortages and enhance specialty care. However, there are challenges in establishing relationships with experienced providers. Development of protocols for telehealth are far beyond the capacity of many CHCs, but once the initial relationships and procedures are in place, experience has shown that telemedicine can become a routine part of care. Programs, such as Project ECHO, show the potential for using telehealth in this area.

HIEs in Rural Areas: CHCs with access to HIEs are able to track their patients with OUD or infectious diseases as they are cared for by external providers, greatly enhancing their ability to provide quality care. However, studies show that HIEs are actually quite limited in most rural areas, and this was reflected in our discussions. Given the large geographic areas that CHCs

cover and the likelihood that patients may receive care elsewhere, HIEs can be particularly valuable for rural CHCs.

Local Strategic Planning: Most of the CHCs in this study described cooperative efforts with local community-based organizations, some governmental and some nongovernmental. These organizations play a critical role in the overall effort to reduce the impact of the opioid epidemic and to prevent the spread of infectious diseases. The services they provide are nonmedical and generally cannot be provided directly by the CHCs, but they are nonetheless essential, enabling CHCs to reach patient populations they would not otherwise be able to reach. However, the relationships that were described by the CHCs with these organizations were generally ad hoc. Moreover, CHCs report investment of large amounts of time and effort on a wide variety of public engagement activities specifically related to OUD and infectious diseases.

Access to Sterile Syringes: CHCs reported working with community organizations who supply clean needles to those actively injecting opioids; however, these efforts were hampered by political pressure. In one location, the county SSP had even closed due to political pressure, despite the success of the program. Literature shows that access to sterile needles can significantly lower transmission of infectious disease (Abdul-Quader et al., 2013). Furthermore, CHCs reported that SSPs provide a vital link to potential patients. SSPs also provide an opportunity to test for infectious diseases and to discuss OUD treatment.

Engagement with Justice-Involved Populations: One unexpected finding was the involvement of CHCs with justice-involved populations. One CHC was treating patients in the local drug court program, and the medical director at another CHC split his time between the CHC and the local jail. In both of these programs, the judge prohibited the use of opioid-based MAT approaches, such as methadone and buprenorphine. Instead, these judges favored naltrexone, which has been shown to be less effective than methadone and buprenorphine in randomized controlled trials (Lee et al., 2018). CHCs that are engaged with criminal justice populations expressed a need for additional information on best practices for use of MAT with justice-involved OUD patients, and support for providing care to incarcerated individuals.

The concerns described above, broadly shared across the CHCs in this study despite their diversity in size and location, indicate the breadth of the public health challenge in reducing transmission of infectious diseases related to the opioid epidemic in the rural United States. The problem is complex, involving an intersection between serious behavioral and medical conditions and often existing in the broader context of poverty and poor access to health care. Responding effectively requires action on multiple fronts, many of which are particularly difficult to address in rural settings. Medical knowledge is rapidly advancing and requires collaboration among diverse provider types and nonmedical social service agencies, populations are highly stigmatized and hard to reach, and financial and human resources are limited. By identifying these challenges, as described by frontline CHC staff, this report contributes to future efforts to support CHCs and other public health institutions in addressing this underappreciated aspect of the opioid epidemic in the United States.

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