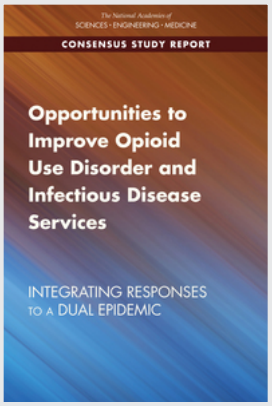

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OPPORTUNITIES TO IMPROVE OPIOID USE DISORDER AND INFECTIOUS DISEASE SERVICES: INTEGRATING RESPONSES TO A DUAL EPIDEMIC

Committee on the Examination of the Integration of Opioid and Infectious Disease Prevention Efforts in Select Programs

Board on Population Health and Public Health Practice

Health and Medicine Division

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COMMITTEE ON THE EXAMINATION OF THE INTEGRATION OF OPIOID AND INFECTIOUS DISEASE PREVENTION EFFORTS IN SELECT PROGRAMS

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This Consensus Study Report was reviewed in draft form by individuals chosen for their diverse perspectives and technical expertise. The purpose of this independent review is to provide candid and critical comments that will assist the National Academies of Sciences, Engineering, and Medicine in making each published report as sound as possible and to ensure that it meets the institutional standards for quality, objectivity, evidence, and responsiveness to the study charge. The review comments and draft manuscript remain confidential to protect the integrity of the deliberative process.

We thank the following individuals for their review of this report:

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Although the reviewers listed above provided many constructive comments and suggestions, they were not asked to endorse the conclusions or recommendations of this report, nor did they see the final draft before its release. The review of this report was overseen by **ANTONIA M. VILLARRUEL,** University of Pennsylvania, and **ELAINE L. LARSON,** Columbia University. They were responsible for making certain that an independent examination of this report was carried out in accordance with the standards of the National Academies and that all review comments were carefully considered. Responsibility for the final content rests entirely with the authoring committee and the National Academies.

Contents

Preface

Opioid use and infectious diseases are intertwined epidemics. Despite the fact that the United States is more than two decades into the opioid crisis—the cause of tens of thousands of deaths every year on its own—the health system has not sufficiently addressed the morbidity and mortality of drug use coupled with infectious diseases. This is at least in part due to traditional models of substance use disorder care wherein substance use disorder treatment is delivered independently of other medical care, thereby inhibiting the delivery of comprehensive care. As a result, the United States is experiencing a drastic increase in infectious diseases that spread with drug use.

This context places the importance of integrating services for opioid use disorder and infectious disease in stark relief. Preventing and treating opioid use disorder can improve outcomes for patients with infectious diseases. At the same time, identifying and treating infectious diseases can minimize harm by decreasing the risk that the diseases will spread.

Yet, as this Consensus Study Report describes, significant barriers remain to integrating services for this dual epidemic. The committee authoring this report gathered evidence from 11 programs throughout the United States seeking to integrate their services for opioid use disorder and infectious diseases, as well as from the broader literature. The resulting evidence pointed toward a set of barriers to integration: policies at the federal and state levels, stigma, workforce needs, and lack of adherence to the best available evidence continue to prevent effective care from being delivered to patients who need it. With the current rates of infectious disease and opioid use, the cost of inaction is high. Fortunately, there are feasible strategies to address these barriers, as outlined in the committee's recommendations.

As chair, I would like to thank my fellow committee members for their dedication to this study, their novel ideas, and their commitment to improving the public's health. The committee would also like to express its great appreciation to the Department of Health and Human Services' Office of Infectious Disease and HIV/AIDS Policy for sponsoring this work, and in particular Corinna Dan and Chinedu Okeke for their consultation.

Sincere gratitude is given to the individuals attempting to solve this dual epidemic every day. Through several hours of interviews, informants from the programs featured in this study shared their experiences and informed the committee's work. Others provided information, presentations, and important perspective to the committee. Their commitment to their patients and to public health is evident throughout this report: Hilary Armstrong, Julie Dombrowski, Brad Finegood, Julia Hood, and Joe Tinsley (King County Department of Public Health); Laura Bamford (Philadelphia FIGHT Community Health Centers); Christopher Bositis (Greater Lawrence Family Health Centers); Jennifer Edelman (Yale School of Medicine); Honora Englander (Oregon Health & Science University); Emma Fabian (Evergreen Health); Judith Feinberg (West Virginia University); Michael Fingerhood (Johns Hopkins University School of Medicine); Aaron Fox (Bronx Transitions Clinic); Jason Halperin and Nick Van Sickels (CrescentCare); Heather Hauck (Health Resources and Services Administration); Sarah Henn (Whitman-Walker Health); Joyce Johnson (Stepworks Recovery Centers); Beth Keeney (LifeSpring Health Systems); Gregory Lucas (Johns Hopkins University School of Medicine); Paula Lum (University of California, San Francisco); Benjamin Oldfield (Yale School of

Medicine); Barbara Schott and James Wilson (Plumas County Public Health Agency); Shira Shavit (Transitions Clinic Network); Andrew Talal (University of Buffalo); Steve Tierney (Southcentral Foundation); and Frank Vega (ARCare).

The committee could not have completed this report without the guidance and dedication of the National Academies staff who shepherded it through to its conclusion. We thank Rose Marie Martinez, Andrew Merluzzi, Anna Martin, and Rebecca Chevat for their efforts.

Carlos del Rio, M.D. (Chair)
Committee on the Examination of the Integration of
Opioid and Infectious Disease Prevention Efforts in Select Programs

Summary

Epidemics of opioid use disorder and other drug disorders have resulted in co-occurring infectious disease epidemics. Diseases that are transmitted among people who use drugs cause suffering and burden the public's health. The relationship between infectious disease and substance use is not new. For example, in the 1980s, it was realized that human immunodeficiency virus (HIV) could be transmitted via injection drug use. Today, infectious diseases related to opioid use disorder include HIV, hepatitis A, B, and C viruses, as well as bacterial, fungal, and other infections (transmitted either via injection drug use or risky sexual behaviors).

Despite the fact that the United States is more than two decades into the opioid crisis, the health system has not sufficiently prevented drug-related infections. This is at least in part due to traditional models of substance use disorder care wherein substance use disorder treatment is delivered independently of other medical care, thereby preventing the delivery of comprehensive care (e.g., prevention, screening, and treatment for HIV, viral hepatitis, and sexually transmitted infections). At the same time, substance use disorder treatment is not commonly integrated into primary medical care, and specifically within infectious disease care. As a result, the United States is experiencing an unprecedented number of HIV and viral hepatitis outbreaks among those who inject drugs and people who use drugs and engage in risky sexual behaviors. Due to overlapping risk factors, injection opioid use and risky sexual behaviors undermine national strategies to end HIV, viral hepatitis, and other infectious diseases.

Even well-intentioned policies have exacerbated the link between opioid use and infectious disease. For instance, prescription drug monitoring programs and other measures to limit access to prescription opioids triggered a transition to heroin and, eventually, injection use among people who had become dependent on prescription pain relievers. At the same time, primary care clinics have not adequately screened, treated, and retained patients in treatment for substance use disorders. The resulting increase in the number of people who inject drugs has also increased the overall risk of infectious disease outbreaks. Other policies have similarly exacerbated the link between opioid use disorder and infectious diseases. For instance, policies that limit access to sterile syringes tend to increase infectious disease risk among people who inject drugs, as do the broad array of "war on drugs" policies that incarcerate individuals rather than connect them to treatment and harm-reduction programs. A number of studies have demonstrated that such programs—especially syringe services—lead to a net reduction in substance use through active referral, engagement, and retention in substance use disorder treatment.

This context places the importance of integrating services (i.e., prevention and treatment) for opioid use disorder and infectious disease in stark relief. There are opportunities to improve the public's health by integrating treatment of opioid use disorder in clinics that treat infectious

disease, focusing on screening and treating infectious diseases in substance use disorder care settings, removing policy barriers to treatment, better integrating care at all points a patient interacts with the health system, and recognizing that preventing and treating opioid use disorder improves prevention and treatment outcomes for infectious disease. This represents a key strategy to ending this dual epidemic.

Integrating medical services—such as by colocating services, sharing a common vision, and aligning processes—is a well-recognized strategy for the delivery of comprehensive health care. The goals of integration are to improve the experience of care, improve the health of populations, and reduce per capita health care costs. When substance use disorder treatment is moved from a stand-alone clinic to a general medical setting, the emphasis may expand to encompass harm reduction tactics and principles, including strategies for safer drug use, minimizing risk of overdose, and preventing transmission of infectious disease. The same is true when primary care services—including infectious disease services—are integrated with substance use disorder prevention and treatment. As this study makes clear, integration will improve both substance use disorder and infectious disease outcomes, as it allows for a more seamless delivery of services between overlapping illnesses. For instance, a growing body of literature demonstrates that treatment for substance use disorder improves infectious diseases outcomes. Patients are more likely to comply with HIV medication regimens, for example, when their treatment plan includes medications for opioid use disorder. In this way, removing barriers for opioid use disorder treatment is, in itself, a process to improve prevention and treatment for infectious disease. Furthermore, when substance use disorder and infectious disease services are integrated—regardless of the setting—health care can become simpler, more accessible, and patient centered. By reducing the number of providers, clinics, and appointments needed, integrated care is better for patients.

To identify the barriers to greater integration of opioid use disorder and infectious disease services, the Department of Health and Human Services' Office of Infectious Disease and HIV/AIDS Policy (OIDP) requested that the Health and Medicine Division of the National Academies of Sciences, Engineering, and Medicine conduct a study on the topic. The study, commenced in October 2018, draws information from 11 programs throughout the United States seeking to integrate services, and provides strategies to reduce the barriers to service integration. The committee's full Statement of Task is presented in Box S-1.

BOX S-1
Committee's Statement of Task

The Department of Health and Human Services (HHS), Office of Infectious Disease and HIV/AIDS Policy (OIDP)[a] requests that the National Academies of Sciences, Engineering, and Medicine convene an ad hoc committee to conduct a review of select programs to assess the extent to which opioid and infectious disease prevention programs are integrating the services they provide.

The committee will identify and highlight programs that are achieving integration as well as barriers to integration. The committee may suggest strategies to address these barriers. Conclusions and recommendations from the committee will inform OIDP's existing and future projects that promote patient-centered, integrated programs to address the opioid and infectious disease epidemics.

[a] Formerly the Office of HIV/AIDS and Infectious Disease Policy (OHAIDP).

STUDY PROCESS

The National Academies convened an ad hoc, 10-member interdisciplinary committee that included academicians and medical professionals with expertise in the social determinants of health, health equity, family medicine, epidemiology, addiction medicine, infectious disease, implementation science, nursing, correctional systems, and public health policy. The report's scope addresses both opioid use disorder and infectious disease, primarily through the routes of transmission of injection drug use and high-risk sexual behaviors that are common among people who use drugs.

The foundation for the report's conclusions and recommendations came from several lines of research. A principal source of information was evidence drawn from semi-structured interviews with 11 programs seeking to integrate opioid use disorder and infectious disease services. The interview questions focused on the program's characteristics and history of integration; services provided and model of care; barriers to integration; and clinical outcomes, when available.

A supplemental literature review was conducted to further explore barriers identified in these interviews. The committee held three open sessions to gather additional information and hear from experts, such as program informants, academicians, and practitioners in the field.

RECOMMENDATIONS

The committee found that many of the barriers programs face when integrating opioid use disorder and infectious disease prevention and treatment services relate to factors in the external environment that directly impact service delivery (e.g., federal, state, and local policies). These specific barriers are described in Box S-2 and addressed in more detail in Chapter 3 of the report.

BOX S-2
Barriers to Integration of Opioid Use Disorder and Infectious Disease Services

Prior Authorization Policies: State-level policies often require providers to obtain permission from insurers to prescribe buprenorphine (a Food and Drug Administration [FDA]-approved medication for opioid use disorder). Prior authorization prevents the timely, effective delivery of evidence-based care for opioid use disorder, thereby increasing the risk of infectious disease through continued drug use.

Drug Addiction Treatment Act (DATA) Waiver Requirement: Providers are required to apply for the ability to prescribe buprenorphine under the Drug Addiction Treatment Act (DATA) of 2000 (which amended the Controlled Substances Act) and also undergo mandatory training on prescribing practices. Once the DATA waiver is received, providers are limited to a certain number of patients they can treat with buprenorphine. This requirement decreases access to effective medications for opioid use disorder and increases the risk for infectious disease.

Lack of Data Integration and Sharing: Due to infrastructural difficulties and federal policies, medical care providers—including infectious disease providers—may not be able to access

patients' information surrounding substance use and treatment, thereby inhibiting comprehensive care plans.

Inadequate Workforce and Training: There are several barriers to integration from a workforce perspective, including the geographic distribution and inadequate training of providers who can treat patients with opioid use disorder and infectious disease and restrictions about which providers can deliver certain kinds of care in certain settings.

Stigma: Self-stigma and societal stigma surrounding both opioid use disorder and infectious disease may prevent patients from seeking or accessing care, and provider stigma may inhibit a productive patient–provider relationship.

Payment and Financing Limitations: Services that are helpful to patients seeking integrated care for opioid use disorder and infectious disease (e.g., harm-reduction services, case management, telemedicine, and peer-recovery counselors) are difficult to obtain or sustain financially.

Same-Day Billing Restrictions: Some states do not allow providers to bill for a physical and a behavioral health visit in the same day, thereby requiring patients to return for care another day or forcing programs to provide care without the opportunity for reimbursement.

Limits on Harm-Reduction Services: Harm-reduction services serve as an entry point for further medical care, reduce the risk of infectious disease outbreaks, and allow for a culture of patient-centered care. Limiting these services, on the other hand, is a barrier to integrating opioid use disorder and infectious disease prevention and treatment.

Disconnect Between the Health and Criminal Justice Systems: Care for infectious diseases and opioid use disorder in criminal justice settings is fragmented and inconsistent; the process of maintaining coordinated care while patients enter and exit the criminal justice system is inadequate.

The committee developed a number of recommendations aimed at various actors, all with the intent of reducing the barriers to greater integration of opioid use disorder and infectious disease prevention and treatment. Specifically, for each of the aforementioned barriers, the committee recommends taking specific actions at the congressional, federal, and/or state levels; addressing gaps in training and workforce development; or improving practices around care delivery, including in correctional facilities.

Prior Authorization Policies

The committee recognized the importance of policy adjustments at the state and federal levels to better integrate services (particularly because states have jurisdiction over many issues related to care in the absence of federal action). With regard to state Medicaid programs, the committee found evidence from the interviewed programs and from the literature that policies intended to contain costs could often come at the expense of timely, evidence-based care. Prior authorization policies—and other associated requirements such as step therapy, lifetime limits, or the requirement for concurrent psychosocial therapy—imposed by state Medicaid programs and private insurers are one such measure. The committee found that prior authorization policies to

prescribe medications for opioid use disorder are an administrative burden for providers and prevent medications from reaching patients, thereby both preventing the delivery of holistic, patient-centered care in a timely fashion for patients with concurrent opioid use disorder and infectious disease, as well as increasing the population risk of infectious disease.

Recommendation 3-1: The Centers for Medicaid & Medicare Services (CMS) should withhold approval of a Medicaid state plan amendment from states that require prior authorization for medications to treat opioid use disorder. Independent of CMS action, states should remove prior authorization requirements for all Food and Drug Administration-approved medications to treat opioid use disorder in state Medicaid programs and state-regulated private insurers, allowing providers to prescribe whichever formulation and dose is best for an individual patient and without restrictions such as concurrent psychosocial therapy, step therapy, or lifetime limits.

DATA Waiver Requirement

Despite the urgency of the opioid crisis, there is a shortage and misdistribution of providers who can prescribe buprenorphine and other medications to treat opioid use disorder, thereby increasing the population at risk of contracting infectious diseases and reducing access to care for patients with concurrent infectious diseases and opioid use disorder. One contributing factor is the Drug Addiction Treatment Act (DATA) waiver requirement to complete training (8 or 24 hours), which poses a barrier for some providers. Opportunities for training providers independently of the DATA waiver could be made available. Another restriction is the limitation on the number of patients a provider can treat with medications for opioid use disorder. In the past, providers have been limited to 30 and 100 patients. In 2016, the allowable limit for certain eligible physicians was increased to 275 patients, though the lower limit remains in place for the first year that a provider is eligible to prescribe.

Recommendation 3-2: Congress should amend section 303 of the Controlled Substances Act to allow buprenorphine and other medications for opioid use disorder to be prescribed by physicians, physician assistants, nurse practitioners, clinical nurse specialists, certified registered nurse anesthetists, or certified nurse midwives without undergoing the mandatory training currently required by law, requiring a Drug Addiction Treatment Act waiver, or limiting the number of patients that can be treated.[1]

Pursuant to the DATA of 2000, training already exists for providers seeking to prescribe medications for opioid use disorder (and is in fact a required training by law for such providers). Though the committee finds that DATA of 2000 is out of step with the

[1] The committee notes that clinically relevant training should nonetheless be widely available to trainees and providers, as outlined in the remaining recommendations of this report.

current opioid crisis and therefore recommends removing it as a requirement (see Recommendation 3-2), it is nonetheless important that providers are well trained in prescribing medications for opioid use disorder and feel comfortable doing so (both to treat the disorder and to reduce the population risk of infectious disease as well as to treat patients with co-occurring diseases more holistically). As is described in this report, many providers feel that the training they have received through the DATA of 2000 waiver is inadequate and clinically irrelevant or that they do not have access to experienced providers for advice. In light of this, the committee recommends that organizations currently offering training should take steps to update their training, ensure trainings are useful and comprehensive, and provide newly trained providers with greater access to experienced peers.

Recommendation 3-3: To improve and expand education and training on medications for opioid use disorder and infectious diseases:

- **The Providers Clinical Support System—as the primary federal grantee for training clinicians on evidence-based training, mentoring, and educational resources on medications for opioid use disorder—should consult further with practicing providers and amend their training programs to ensure they are clinically relevant and commensurate with the practitioner's intended role and needs (including for prescribing of medications for opioid use disorder), and should prioritize growth of its mentorship system.**
- **The Substance Abuse and Mental Health Services Administration should provide additional funding in future grant announcements specifically to expand mentorship networks for providers.**

Lack of Data Integration and Sharing

In the course of the committee's study, data integration and sharing surfaced as an issue that requires additional research. In particular, a greater understanding is needed regarding the balance between loosening and restricting regulations regarding sharing of patient information related to substance use. While 42 CFR Part 2 has undergone revision in recent years, the committee determined there is still confusion surrounding the regulation (e.g., when it does and does not apply and how it interacts with the Health Insurance Portability and Accountability Act of 1996). Furthermore, there is significant debate about whether and how changing this regulation would jeopardize patient privacy or allow providers to deliver more coordinated, effective care (particularly for infectious diseases that may be co-occurring with opioid use disorder). Engagement with stakeholders and additional research may be required to resolve these issues.

Recommendation 3-4: The Substance Abuse and Mental Health Services Administration (SAMHSA) should either further align 42 CFR Part 2 with the Health Insurance Portability and Accountability Act of 1996 or alter the definition of which specific service delivery programs fall under 42 CFR Part 2. To inform this decision, SAMHSA should formally engage with patients, advocacy groups, the general public, and legal experts to better understand the benefits

(e.g., greater data access for providers) and costs (e.g., loss of privacy for patients, danger of uncoordinated care) of changing regulations around sharing of substance use information. This engagement should focus on the effects of allowing disclosures of substance use disorder information for treatment rather than solely for payment, health care operations, audits, and evaluations; on the strengths and weaknesses of informed consent as a method for sharing information; and on clinics' current data-sharing practices.

Inadequate Workforce and Training

A key theme across programs and the literature on integrated services was the need for more robust training systems and a better-equipped workforce. Because the opioid use disorder and infectious disease epidemics are intertwined, it is crucial to have a constellation of workers well-versed in how to prevent, manage, and treat both diseases. At a broad level, it is the committee's view that providers should have educational exposure to opioid use disorder and infectious disease prevention and treatment across their careers, from their training in school through their clinical experience and continuing education. This training should be evidence-based, comprehensive, and flexible enough to meet the needs of a diverse population of patients. As programs from this study mentioned, the current silos between opioid use disorder and infectious disease clinicians and organizations comes at the expense of comprehensive, quality care. To this end, the committee recommends that the Health Resources and Services Administration direct additional resources toward workforce development that breaks down such silos and does so for all providers who would interact with patients struggling with opioid use disorder, infectious diseases, or both.

Recommendation 3-5: In addition to the Opioid Workforce Expansion Program for behavioral health trainees, the Health Resources and Services Administration should fund high-quality, clinically relevant training on the care and management of co-occurring opioid use disorder and infectious disease for clinicians working in a wide variety of settings (e.g., primary care clinics, infectious disease care settings, and other settings that treat people with opioid use disorder and related infectious diseases).

Rural areas of the country have experienced some of the highest rates of opioid use disorder mortality and morbidity, as well as outbreaks of infectious diseases, and yet access to substance use disorder and infectious disease providers is limited. A number of Health Resources and Services Administration programs could incentivize more providers to work in rural and underserved areas.

Recommendation 3-6: The Health Resources and Services Administration should devote additional resources toward—and more widely promote—programs that incentivize providers—including psychiatrists, health service psychologists, licensed clinical social workers, psychiatric nurse specialists, marriage and family

therapists, and licensed professional counselors—to work in rural areas where opioid and infectious disease outbreaks are most likely to occur (one such program is the National Health Service Corps Rural Community Loan repayment program, in coordination with the Rural Communities Opioid Response Program within the Federal Office of Rural Health Policy).

Recommendation 3-7: The Health Resources and Services Administration should widen the scope of its Substance Abuse Treatment Telehealth Network Grant Program to support telemedicine approaches for integrating both opioid use disorder and infectious disease services, particularly in rural areas.

The committee notes that there were more than 1,600 opioid treatment programs nationwide in 2018, serving more than 380,000 patients annually. Despite treating thousands of patients with opioid use disorder and concurrent infectious disease, these programs and providers do not frequently provide testing or treatment for a range of infectious diseases. The committee determined that this is a missed opportunity and recommends that efforts should be made to integrate services further by leveraging opioid treatment programs as testing and treatment sites for infectious diseases. Moreover, given that methadone is a proven therapy for treating opioid use disorder—and that it has been historically divorced from primary care settings for this purpose—the committee seeks to further integrate methadone into primary care settings, thereby allowing patients and providers more options for treating opioid use disorder and so reducing the risk of infectious disease transmission. The Controlled Substances Act currently allows methadone to be prescribed for the treatment of opioid use disorder only within specially licensed and regulated facilities (opioid treatment programs), but not in office-based medical practices.

Recommendation 3-8: The Department of Health and Human Services should explore policy incentives for providers and clinics to provide a wider array of evidence-based medications for opioid use disorder and to institute universal, opt-out testing and connection to treatment for infectious diseases, especially at methadone-based opioid treatment programs.

Recommendation 3-9: Congress should amend section 303 of the Controlled Substances Act to permit providers to deliver methadone treatment for opioid use disorder in primary care settings.

The Drug Enforcement Administration (DEA) requires that providers register to prescribe buprenorphine. A $731 fee must be paid to obtain a registration number for a 3-year cycle. Removing financial barriers to obtain a DEA registration number would serve as an incentive for health professionals to independently treat individuals for opioid use disorder instead of relying on the registration number of their supervisor or the training hospital. In turn, a greater number of providers able to treat opioid use disorder can

diminish the overall burden on the population's health by reducing the risk of infectious disease (as it has been shown that adherence to treatment for opioid use disorder promotes adherence to medication for infectious diseases).

Recommendation 3-10: The Diversion Control Division of the Drug Enforcement Agency should waive the fee associated with gaining a registration number for health professionals (i.e., medical residents, physician assistants, and qualified nurses) in their residencies or soon after their training is finished to incentivize them to gain buprenorphine prescribing authority early in their careers.

The committee concluded that training the next generation of providers with evidence-based practices is also essential to ending the concurring epidemics of opioid use disorder and infectious disease. Training on treatment and case management for co-occurring opioid use disorder and infectious diseases was found to be lacking in medical schools, residency programs, physician's assistant programs, and nursing programs. The Association of American Medical Colleges and the American Medical Association are both represented on the Liaison Committee on Medical Education, which is the accrediting body for medical schools and sets standards for accreditation, including for curricular content. The American Council on Graduate Medical Education—for residency and fellowship programs—and accrediting bodies for nursing and physician assistant programs perform similar functions and can incentivize training programs to improve and expand education on opioid use disorder and infectious disease services. While clinician training programs have typically adopted a focus on patient-centered care, the committee concluded that it is important to ensure that trainees are educated on evidence-based harm-reduction practices. This includes providing low-threshold treatment, recognizing that relapse is common, providing nonjudgmental and noncoercive care, and empowering patients to reduce their use of drugs and use drugs in the safest ways possible. It is the committee's view that these practices are essential for maintaining patients in care and therefore for treating opioid use disorder and reducing risk of infectious disease.

Recommendation 3-11: To better integrate training on opioid use disorder and infectious disease in health professions training:

- **The Liaison Committee on Medical Education (LCME) should assure that medical students receive practical, clinically relevant, harm-reduction focused, case-management-based training on opioid use disorder and infectious diseases assessment, management, and treatment in response to LCME's curricular content standard 7.5 (societal problems).**
- **The Accreditation Council for Graduate Medical Education should, among its common program requirements, require that residents and fellows receive practical, clinically relevant, harm-reduction focused, case-management-based training on opioid use disorder and infectious diseases.**
- **The accreditation bodies for nursing education should assure that students receive practical, clinically relevant, harm-reduction**

focused, case-management based training on opioid use disorder and infectious diseases assessment, management, and treatment through their curricular, programmatic, or competency criteria.

- **The Accreditation Review Commission on Education for the Physician Assistant, Inc. (ARC-PA) should assure that students receive practical, clinically relevant, harm-reduction focused, case-management-based training on opioid use disorder and infectious diseases assessment, management, and treatment in response to ARC-PA's program curriculum standard number B2.08 (social and behavioral sciences).**

Once trainees become part of the workforce, and as new evidence on best care practices is developed, the committee concluded that it is essential that providers maintain an up-to-date knowledge base on best practices to prevent and treat opioid use disorder and infectious disease. Given the severity of the opioid epidemic and the potential for harm reduction practices to reduce the population's overall risk of infectious disease, the committee recommends that professional licensure bodies encourage and support continued education on these topics.

Recommendation 3-12: State Medical Boards (and equivalent licensing bodies for other health professionals) should encourage providers to take continuing education focused on harm reduction in fulfilling their continuing education requirements.

Stigma

Stigma remains difficult to overcome and was raised by programs as a perennial problem, as was the potential for additional stigma among people who use drugs and have also been diagnosed with an infectious disease. There are several forms of stigma. Self-stigma occurs when a person internalizes negative stereotypes, and social stigma or public stigma refers to negative stereotypes held among the public. Stigma can cause low self-esteem, shame, and hopelessness, which may keep someone from seeking care. The committee identified a need for specific interventions to reduce the stigma surrounding substance use disorders and infectious diseases, both generally and especially in clinical settings. Provider stigma occurs when providers attribute negative stereotypes to patients with substance use disorders or infectious diseases, and it can result in different treatment for certain patients. The Substance Abuse and Mental Health Services Administration (SAMHSA) provides a broad range of information, training, and technical assistance to programs and providers related to stigma. As described in this report, some research exists on interventions to reduce stigma, and these interventions should be scaled across systems of care.

Recommendation 3-13: The Substance Abuse and Mental Health Services Administration should support implementation of multi-level, sustainable, evidence-based, and measurable intervention strategies aimed at reducing stigma in clinical settings against people who use drugs, people who inject drugs, and people undergoing

treatment with medications for opioid use disorder or who have infectious diseases. Such efforts should be targeted toward a range of health professionals (e.g., counselors, prescribing health professionals, front-desk staff, and others) across geographic regions of the United States, and the evaluations and results from these interventions should be made publicly available.

Payment and Financing Limitations

Syringe service programs are an essential piece of a harm reduction strategy toward integrating responses to opioid use disorder and infectious disease. Currently, syringe service programs face a barrier in that federal funds cannot be used to purchase syringes. This restriction stems from the Consolidated Appropriations Act of 2019 and previous appropriations bills. In addition, a lack of overall funding and barriers at the state level have resulted in too few syringe service programs relative to the national need.

Recommendation 3-14: Congress should ensure that federal funds can be used to purchase injection equipment at syringe service programs.

SAMHSA has provided technical advice to programs on the concepts of integration of primary and behavioral health services. This work could be further expanded via greater technical support to assist programs that are moving to integrate opioid use disorder and infectious disease services.

Recommendation 3-15: The Substance Abuse and Mental Health Services Administration should support programs attempting to implement quality care through integrated services (e.g., from colocated services to fully integrated) through grants that provide technical assistance on implementation of integration strategies, while also collecting data to form an evidence base about the best strategies for future integration.

Monitoring and improving services to address the opioid epidemic and co-occurring infectious disease epidemics will require data collection on the opioid use disorder care cascade. Similar data collected as part of the HIV care continuum allowed providers and policy makers to monitor progress in addressing the HIV epidemic. Data related to the opioid use disorder care cascade would include the number of individuals who are engaged in care, initiate medications for substance use disorder treatment and infectious disease treatment if needed, and remain in treatment 6 months later**.**

Recommendation 3-16: The Substance Abuse and Mental Health Services Administration and the Health Resources and Services Administration and other government funders should require that organizations receiving funding for opioid use disorder and infectious disease services submit information on a regular basis with data related to the opioid care cascade model, and their plans for using the

care cascade model to prevent, identify, treat, and promote recovery for patients with opioid use disorder.

The mortality rate associated with the opioid epidemic is now higher than that of HIV at its peak, although effective medications exist to treat opioid use disorder. Given that infectious diseases are contracted from injection drug use and other risky behaviors associated with drug use, the committee recommends that Congress take action to end the opioid epidemic through a significant increase in prevention, treatment, and recovery services available to people who use drugs. Congressional action to address the HIV epidemic through a comprehensive program—the Ryan White Comprehensive AIDS Resources Emergency (CARE) Act—has demonstrated that comprehensive programs can be effective in reducing the overall mortality and morbidity of a nationwide epidemic. Any new services to address the opioid epidemic must therefore be similarly comprehensive, providing wraparound services to support treatment plans and recognizing that opioid use disorder and infectious diseases cannot be approached as separate epidemics.

Recommendation 3-17: Congress should authorize and appropriate funding for the Health Resources and Services Administration to comprehensively address the needs of low-income uninsured or under-insured individuals with co-occurring opioid use disorder and infectious diseases. Such an effort should encompass a full range of services—including integration of prevention and treatment services—as well as services that address the social determinants of health (e.g., housing and transportation). Furthermore, the effort should develop clear metrics of success and require participating organizations to report these metrics as a condition for participation. The committee recognizes that policy makers will need to wrestle with program specifics such as the specific services to be covered, coordination with other federal programs, program standards, and eligibility levels.

Any newly implemented services should be premised on the idea that preventing and treating opioid use disorder is fundamental to preventing and treating infectious disease, as the patient populations overlap. This could be done by leveraging existing programs and resources or expanding into new programmatic capabilities where needed.

Same-Day Billing Restrictions

One issue that programs reported as undermining service integration was the state restrictions on billing for both behavioral and physical health care visits on the same day, referred to as "same-day billing." Such restrictions, intended to contain costs, often force patients to come back to medical centers on a different day or require that the medical center takes a financial loss on providing same-day care. Many state Medicaid programs (and private insurers) have already taken steps to remove same-day billing restrictions, and it is the committee's recommendation that the remaining states should amend their policies to allow greater access to treatment for those who need it. While federal guidance does not prohibit same-day billing, the Centers for Medicare & Medicaid Services could use its communication tools, such as an

Information Bulletin to state Medicaid programs, to communicate the importance of removing such restrictions in the interest of better integrating opioid use disorder and infectious disease services.

Recommendation 3-18: State Medicaid administrators should revise their billing policies to allow for more than one service in a given day (e.g., allow for one physical and one behavioral visit per day; allow multiple providers to bill on the same day for the same patient; or allow the same provider to bill on the same day for different diagnoses, such as opioid use disorder and infectious disease).

Recommendation 3-19: The Centers for Medicare & Medicaid Services should issue an Information Bulletin to state Medicaid programs, sharing information about how states have removed same-day billing restrictions as well as highlighting the importance of removing these restrictions for providing integrated care.

Limits on Harm-Reduction Services

As the findings of this study demonstrate, harm-reduction strategies are essential to decrease the risk of infectious disease and serve as an entry point for treatment for opioid use disorder. Health care delivery programs that seek to provide patient-centered care would more effectively achieve this goal by adopting harm-reduction practices and/or connecting patients with harm reduction practices in their communities.

Recommendation 3-20: Individual clinics, health care programs, and providers should incorporate harm reduction strategies into both infectious disease and opioid use disorder care, such as by linking patients to syringe service programs, distributing naloxone, adopting a harm-reduction philosophy focused on patient-centered care, prescribing pre-exposure prophylaxis, and providing safe drug-use and safe-sex education.

The committee recognizes that harm reduction practices are not as widespread as is necessary to address the dual epidemics of opioid use disorder and infectious diseases. The committee concluded that individuals in need should have access to a full suite of evidence-based, harm-reduction services that decrease the risk of infectious disease transmission and serve as an entry point for other medical care and that SAMHSA can spur research on how best to integrate services using harm reduction as a focal point.

Recommendation 3-21: States should lift remaining bans on evidence-based syringe services, offering syringe services at publicly funded health departments, and allowing for independently operated syringe service programs.

Recommendation 3-22: The Substance Abuse and Mental Health Services Administration should make available grants for researchers

from a broad set of disciplines (medicine, nursing, epidemiology, behavioral science, health policy, and implementation science) to conduct research on the integration of opioid use disorder and infectious disease care under a harm reduction lens.

Disconnect Between the Health and Criminal Justice Systems

The committee's findings make clear the opportunities to improve care for patients with opioid use disorder and/or infectious disease, both while incarcerated and following release from criminal justice settings. Formerly incarcerated individuals are especially prone to overdose and may lack connections to infectious disease treatment in the weeks after release. Hence, it is the committee's conclusion that there is a need for communication and collaboration between correctional systems and medical care organizations to better connect patients with services. In addition, it is the committee's conclusion that the public's health would be improved if evidence-based treatment were offered at the time a patient enters a correctional facility.

Recommendation 3-23: Through federal grant funding, state block grants or direct appropriations, states should fund—and correctional facilities should offer—evidence-based screening and treatments for opioid use disorder and co-occurring infectious disease.

Recommendation 3-24: Clinics and organizations that treat opioid use disorder and infectious diseases should coordinate with law enforcement and correctional facilities to better track and maintain records of patients entering and exiting the criminal justice system.

The committee also recommends that states place greater focus on individuals recently released from correctional facilities, as opportunities for health are often missed at this stage (including linkage to infectious disease treatment) and the risk of overdose is particularly high in the weeks following release. The committee concluded that correctional facilities have a duty to provide care to individuals who are incarcerated and that the ultimate goal should be to increase the health of currently incarcerated and recently released individuals through reentry programs and connection to harm reduction systems. In light of this, the committee concluded that states should both eliminate policies counter to this overall goal and institute policies aligned with it. Specifically, states should ensure that individuals exiting the criminal justice system are insured and have access to reentry services that promote health.

Recommendation 3-25: Through federal grant funding, state block grants or direct appropriations, states should fund high-quality, evidence-based reentry services for prisons and jails, including medications for opioid use disorder and infectious disease, as well as linkage to care in the community and harm reduction services following release (e.g., naloxone to reduce the risk of fatal overdose).

Recommendation 3-26: State Medicaid administrators should adjust policies to ensure that individuals previously enrolled in Medicaid

before entering the criminal justice system are automatically re-enrolled at the time they are released.

As these recommendations make clear, there is a great deal to be accomplished at the intersection of opioid use disorder and infectious diseases at many points in the health care system, as well as across society more broadly. It is essential to dismantle the barriers impeding prevention and treatment. Patients, families, and society writ large cannot afford delay, and it is the committee's hope that the strategies outlined here may alleviate the burden of these dual epidemics.

1

Introduction

Opioid use disorder (OUD) and other illicit drug epidemics in the United States (Ronan and Herzig, 2016; Rudd et al., 2014, 2016; Ruhm, 2019) have led to concurrent infectious disease epidemics among persons who use drugs, resulting in a burden on the population's health as a whole (Conrad et al., 2015; Cranston et al., 2019; Fleischauer et al., 2017; Golden et al., 2019; Jackson et al., 2018; Ronan and Herzig, 2016).

The relationship between infectious disease and substance use is not new. For example, early in the HIV epidemic, it was realized that injection drug use was associated with HIV infection (Des Jarlais et al., 1989). Infectious diseases related to OUD and co-occurring stimulant use disorders include HIV, hepatitis A virus (HAV), hepatitis B virus (HBV), hepatitis C virus (HCV), invasive bacterial and fungal infections, such as Staphylococcus aureus bacteremia, endocarditis, skin and soft tissue infections, and bone and joint infections (Conrad et al., 2015; Ronan and Herzig, 2016; Schranz et al., 2018; Wurcel et al., 2016b; Zibbell et al., 2018).

In 2018, the Centers for Disease Control and Prevention (CDC) identified 220 counties at highest risk of HIV and HCV outbreaks among persons who inject drugs (CDC, 2018b). The counties at greatest risk were mostly rural and a disproportionate number were within Tennessee, Kentucky, Ohio, and West Virginia. In 2019, HIV clusters were reported in Washington and West Virginia. Likewise, HCV has experienced a resurgence: data from four Appalachian states demonstrated a 364 percent increase in acute HCV infection from 2006 to 2012 among persons less than 30 years old. The incidence of acute HCV in rural areas was more than twice that of urban areas (Zibbell et al., 2015). Finally, the unprecedented increase in primary and secondary syphilis reported from 2013–2017 has been attributed, at least in part, to increasing methamphetamine and heroin use, along with sexual transmission (Kidd et al., 2019).

Although OUD itself is not communicable, infectious diseases that are easily transmitted among persons who use drugs create suffering and burden the public's health. Though the United States is nearly three decades into the opioid crisis, there has been a lack of attention to preventing drug-related infections. Substance use has long been stigmatized. Viewed as a marker of poor behavioral choices and impulsivity, it has been segregated from traditional medical care (McLellan and Woodworth, 2014). Historical policies are key drivers of the connection between OUD and infectious disease. For instance, several states still limit access to sterile syringes without a prescription (Abdul-Quader et al., 2013; amfAR, 2019). "War on drugs" policies incarcerate many people living with substance use disorder (SUD) who need treatment (Moore and Elkavich, 2008). Intensive drug-related surveillance (Cooper et al., 2005), high drug-related

arrest rates (Mitchell and Caudy, 2017), and long sentences (Canadian, 2006) may dissuade people who inject drugs from engaging in harm-reduction practices and services (Jensen et al., 2004; Mosher and Yanagisako, 1991). In addition, traditional models of SUD treatment are delivered without comprehensive prevention, screening, and treatment for infectious disease (D'Aunno et al., 2014; Frimpong, 2013). As a result, the nation is experiencing an unprecedented number of HIV (Conrad et al., 2015) and viral hepatitis clusters and outbreaks (NIDA, 2018b) among persons who inject drugs. These outbreaks are occurring in both urban and rural locations across the country (CDC, 2018b). Experts believe that opioid injection is a significant obstacle to ending the HIV epidemic (Lerner and Fauci, 2019). Because of similar risk factors and behaviors, opioid injection also undermines national strategies to end viral hepatitis and sexually transmitted infections. A rise in injection drug use that resulted from the opioid epidemic has created a new generation of individuals susceptible to exposure to infectious diseases.

In response to new outbreaks of HIV and viral hepatitis and increasing rates of bacterial infections among persons who use drugs across the country, the president of the United States has called to end the HIV/AIDS (HHS, 2019c) and opioid epidemics (White House Office, 2018). The United States has also signed the United Nations Sustainable Development Goals, which include combating the epidemic of viral hepatitis. To achieve these goals, it is important to recognize that OUD and infectious diseases are inextricably linked.

Integrating medical services in primary care settings, behavioral health settings, health homes, or any other medical setting (e.g., emergency departments) is a well-recognized strategy for the delivery of comprehensive health care (SAMHSA, 2019h), the goal of which is to treat patients in a holistic manner. When SUD treatment is moved from a stand-alone clinic to a general medical setting, the emphasis can expand to encompass harm reduction more broadly (a concept explained in more depth later in the introduction) including vaccinations, sexual health care, and preventing and treating infectious diseases. Furthermore, when SUD and infectious disease services are integrated, health care can be simplified, more accessible, and patient-centered. By reducing the number of providers, clinics, and appointments needed, integrated care promotes the delivery of comprehensive services.

There is a growing body of literature demonstrating the value of integrated services for OUD and infectious disease and that SUD treatment improves infectious diseases outcomes (Marks et al., 2018). In particular, there is evidence that medications for OUD (MOUD) approved by the Food and Drug Administration (FDA) co-administered with antiretroviral therapy (ART) in persons living with HIV and OUD improves HIV viral suppression (Springer et al., 2012, 2018) and reduces the risk of HCV infection (Tsui et al., 2014).[1] Patients are also more likely to comply with treatment, including ART for HIV, when their treatment plan includes MOUD (Lucas et al., 2010). Importantly, persons living with HIV who have an undetectable HIV load do not transmit HIV (Fauci and Marston, 2015). Therefore, it is critical that OUD is treated in persons living with HIV to prevent new infections and similarly critical that OUD is treated in people without HIV to prevent them from contracting the virus (NIDA, 2018c). The same logic applies to patients with HCV, for instance; if medications are taken and a sustained virologic response is achieved, the patient cannot pass on the virus.

At the request of the Department of Health and Human Services's (HHS's) Office of Infectious Disease and HIV/AIDS Policy (OIDP), this National Academies study draws information from 11 programs throughout the United States seeking to integrate OUD and

[1] See NASEM (2019) describing the three approved medications for OUD (MOUD).

infectious disease services and provides information about related barriers. Furthermore, this study provides OIDP with recommendations to further promote integrated care in an effort to quell the dual epidemics of OUD and infectious disease.

CHARGE TO THE COMMITTEE AND STUDY PROCESS

Box 1-1 shows the committee's Statement of Task. The National Academies convened an ad hoc, 10-member interdisciplinary committee that included academicians and medical professionals with expertise in the social determinants of health, health equity, family medicine, epidemiology, addiction medicine, infectious disease, implementation science, nursing, correctional systems, and public health policy. The report's scope addresses both OUD and infectious disease, primarily through the routes of transmission of injection drug use and high-risk sexual behaviors that are common among people who use drugs.[2]

BOX 1-1
Committee's Statement of Task

The Department of Health and Human Services (HHS), Office of Infectious Disease and HIV/AIDS Policy (OIDP)[a] requests that the National Academies of Sciences, Engineering, and Medicine convene an ad hoc committee to conduct a review of select programs to assess the extent to which opioid and infectious disease prevention programs are integrating the services they provide.

The committee will identify and highlight programs that are achieving integration as well as barriers to integration. The committee may suggest strategies to address these barriers. Conclusions and recommendations from the committee will inform OIDP's existing and future projects that promote patient-centered, integrated programs to address the opioid and infectious disease epidemics.

[a] Formerly the Office of HIV/AIDS and Infectious Disease Policy (OHAIDP).

[2] Acronyms and abbreviations used throughout this report are explained in Box-1-2.

BOX 1-2
Acronyms and Abbreviations

ACA	Patient Protection and Affordable Care Act
AIDS	acquired immunodeficiency syndrome
ART	antiretroviral therapy
DATA	Drug Addiction Treatment Act of 2000
CIHS	Center for Integrated Health Solutions
EMR	electronic medical records
HAV	hepatitis A virus
HBV	hepatitis B virus
HCV	hepatitis C virus
HHS	Department of Health and Human Services
HIV	human immunodeficiency virus
HRSA	Health Resources and Services Administration
MOUD	medications for opioid use disorder
NP	nurse practitioner
OIDP	Office of Infectious Disease and HIV/AIDS Policy
OUD	opioid use disorder
PrEP	pre-exposure prophylaxis
SAMHSA	Substance Abuse and Mental Health Services Administration
SUD	substance use disorder

The committee met in February, May, and June 2019 and also held a number of conference calls to continue deliberations. The committee identified programs working to integrate opioid and infectious disease services to include in its review, and National Academies staff conducted semi-structured interviews with program informants. The committee held two data-gathering sessions (May and June 2019) to obtain additional information from program informants and hear from other experts and practitioners in the field. The agendas of the data-gathering sessions can be found in Appendix B. The information provided by presenters and discussions at the data-gathering sessions informed the committee's deliberations.

To identify programs for inclusion in the committee's review, suggestions were gathered from OIDP, the Health Resources and Services Administration (HRSA), committee members, and other experts working in OUD or infectious disease services, or both. Twenty-seven programs were considered for inclusion. Per the statement of task and preliminary discussions with OIDP, the committee sought to include programs based on the following criteria: diversity in the degree of integration between OUD and infectious disease services (programs that had colocated services but had no concerted integration efforts were excluded, as the statement of task called for programs that were achieving integration), geographic diversity (programs from across the United States, including rural and urban settings), and diversity in programs (e.g., community health center programs, public health department programs, programs focused on serving criminal-justice-involved patients). Programs that were associated with committee members' professional activities were excluded to avoid real or perceived conflict of interest.

The committee notes a number of difficulties in identifying programs that met the inclusion criteria. A database of integrated programs does not exists, so the committee took purposeful steps to identify candidates through existing literature and networks of experts; suggestions were gathered from OIDP, committee members, and other experts working in OUD or infectious disease services or both.

Attempts to identify programs in high-risk areas, such as Kentucky, Tennessee, and West Virginia, were not successful because these were developing integrated programs as part of research activities but the integrated programs were not yet functioning. The committee requested assistance from HRSA in identifying rural programs that received Ryan White HIV/AIDS Programs funds for mental health and SUD treatment services and found ten such programs. National Academies staff reached out to these programs to further explore their eligibility for inclusion; two were included in the committee's review.

The final programs selected, in consultation with OIDP, were the following:

- ARCare—Little Rock, AR
- King County Department of Public Health—Seattle, WA
- Southcentral Foundation—Anchorage, AK
- Greater Lawrence Family Health Centers—Lawrence, MA
- Plumas County Public Health Agency—Quincy, CA
- LifeSpring Health Systems—Jeffersonville, IN
- CrescentCare—New Orleans, LA
- Evergreen Health—Buffalo, NY
- Bronx Transitions Clinic—Bronx, NY
- Whitman-Walker Health—Washington, DC
- Philadelphia FIGHT Community Health Centers—Philadelphia, PA

The foundation for the report's conclusions and recommendations came from several sources. A principal source was the semi-structured interviews with the 11 selected programs. Appendix A presents qualitative summaries of these interviews. An additional source of evidence was the literature. National Academies staff and the committee gathered relevant peer-reviewed literature, government documents, testimony, legislation, previous National Academies reports and proceedings, and transcripts from other professional meetings and educational events related to substance use and infectious disease. This literature is cited throughout this report. In addition, National Academies staff interviewed other experts in the field, including research scientists, public health practitioners, and medical professionals working in or researching OUD and infectious disease services. Where relevant, information collected from these interviews is cited in the report.

COMMITTEE'S APPROACH

The following section outlines the committee's strategy for gathering information from program informants, including the semi-structured interview, focus on the process of integrating services, and emphasis on harm reduction as a guiding principal in this study. In discussions with the committee and staff, OIDP emphasized that barriers to integrated services, rather than clinical outcomes, should be a central component of the report. Therefore, the committee focused

on the procedural and structural barriers to integration. Although the committee sought out a diversity of programs to include in this study, and while common barriers were found across many of the programs, it is possible that—on average—programs at the earlier stages of integration may experience these barriers differently compared to fully integrated programs.[3] While not an explicit focus of this study, elucidating how various barriers impact programs at each level of integration should be addressed in future work.

Semi-Structured Interview and Integration Framework

In designing the methodology of this study, the committee determined that two principles should be central. The first was to incorporate a standard and generalizable framework of integration when reviewing the selected programs; this would allow the committee to ask key questions about integration and assess common barriers across programs at various levels of integration. The second was that that the committee should focus on how integration is implemented. Such integration is a nascent innovation, so the committee opted to focus on the processes and barriers to greater integration. This should, ideally, assist future programs in adopting and implementing best practices for service integration, including in cities, states, and regions not represented in the list of programs interviewed for this study.

The committee used the SAMHSA-HRSA Center for Integrated Health Solutions (CIHS) framework for guiding its review of the selected programs (Heath et al., 2013). This framework was intended for primary and behavioral health care organizations to improve patient outcomes by providing objective descriptions of integration along a continuum: the "six-level framework can be used for planning; creating a common language to discuss integration, progress, and financing; supporting assessment and benchmarking efforts; explaining integration efforts to stakeholders; and clarifying differences in vision" between otherwise disparate organizations. The framework makes distinctions between "coordinated," "colocated," and "integrated" models of care, with examples of how different units within an organization (or across multiple organizations) might be organized when providing care. For instance, at the "coordinated" level, two health care delivery units might have separate electronic medical records (EMRs), communicate about shared patients, and meet as part of a larger community. A fully integrated system will have the same facility, consistent communication, a shared vision, formal and informal meetings supporting integration, and roles and cultures that blur or blend. These examples of coordination, co-location, and integration guided the committee's questions of each of the programs and its assessment of where programs fall along the continuum of integrated services. Brief descriptions of the programs and the committee's judgment on their process of integration are shown in Box 1-3.

[3] It is also possible that programs that operate in different settings will experience barriers in different ways. For instance, emergency departments attempting to integrate services may not experience certain barriers in the same way that a medical home does. It is the committee's view that greater integration can and should occur throughout the health care system, wherein any contact between a patient, provider, or health care organization is an opportunity for holistic, integrated care.

BOX 1-3[a]
Assessment of Integrated Services

ARCare—Early, Coordinated
Service integration has occurred only recently at ARCare. The several sites that have integrated OUD and infectious disease services are built around providers who can treat both diseases; an HIV provider sees HIV patients 2 days per week and prescribes MOUD another 2 days. The other clinics that offer MOUD do not have infectious disease specialists on site, but have rotating specialists that may visit once per week or several times per month. At these sites, coordination becomes more difficult given the infrequency that providers are able to address patients with complex needs. Except the few providers who have taken initiative to become DATA waivered and treat infectious disease, there is minimal face-to-face communication between providers treating different diseases. A primary reason for this is that providers "speak different languages," and finding common ground can be difficult.

King County—Developing, Colocated
Three primary programs operate out of the King County Department of Public Health: a buprenorphine program, an HCV treatment program, and a syringe service program. Several patients have begun HCV treatment through this program, which is telemedicine based. HIV care is more well established. At the syringe service locations, other services include testing for HIV, viral hepatitis, tuberculosis, and other infections to which people who use drugs are prone; treatment readiness counseling and case management services; education about harms associated with drug use and how to minimize them; and safe disposal of contaminated equipment. The syringe service is a primary referral source for other services. The department has long held the credo that it is best to "serve patients where they are at" in a low-barrier manner. The staff running various public health programs have sought collaboration and communication across divisions and departments, and they feel supported by the county leadership in doing so. In general, patients have expressed that co-location, assistance with transportation, and continuity of care between providers has made them feel included and assisted in their care needs. There has been a strong push among the staff to ensure that the culture is focused around compassionate, nonjudgmental care.

Southcentral Foundation—Mature, Integrated
Southcentral Foundation's care model is a medical home in which patients can be treated for a wide variety of needs in one clinic. Moving toward a medical home model was—in general—a process of shifting specialty, high-end care into a primary care setting. The goal is to prevent the segregation of one particular disease or condition to a location, but rather to think about an entire patient's life course and how to treat the multitude of medical issues that arise over time. Services have become almost completely colocated in the same clinic, and as patients become more or less stable medically or from a mental health perspective, their care plans are transferred back and forth between core treatment groups. While the workflows may be different depending on what a patient is treated for, the providers and core groups are in constant, daily communication. Medications for OUD have been diffused into the medical home using this same philosophy. Mental health providers are also colocated and within the workflow of the medical home, and there are dedicated rooms in the primary care clinic for more intensive therapy interventions. Importantly, each team is judged as a unit rather than as individual providers. Hence, there is mutual incentive to help team members improve their practice. In terms of staff training, 100 percent of the Southcentral Foundation workforce undergoes a communications and work-style training to instill best practices for working in teams.

Greater Lawrence Family Health Centers (GLFHC)—Developing, Colocated
Care delivery at GLFHC is built around family physicians and a family medicine residency model, although each site integrates care slightly differently and the level of integration varies between sites. In general, core OUD and infectious disease services are performed by the primary care team, with referrals out to specialty care for patients with complex mental health histories. In 2017, GLFHC began to restructure programs such that HIV, hepatitis, and SUD treatment programs would fall under the same leadership. The behavioral health team is currently undergoing integration with the OUD and infectious disease services to more effectively share staff and use grant funds. There was very little cultural friction in convincing providers that integration could help. Now, all physicians specializing in HIV have DATA waivers and are comfortable prescribing buprenorphine. GLFHC's Mobile Health Unit provides OUD treatment (primarily buprenorphine) for approximately 20 people each week and treatment and care for HIV. The Mobile Health Unit also offers pre-exposure prophylaxis (PrEP) (a medication that, if used regularly, can prevent the acquisition of HIV) and vaccinations and is attempting to develop a sustainable treatment program for viral hepatitis. An additional program funded by the Massachusetts Department of Public Health is a linkage for testing of HIV, viral hepatitis, and sexually transmitted infections in the county's correctional system. This program links patients back to infectious disease care after release from the corrections facility, and it is expanding to include linkage to MOUD after release. GLFHC's hope is that all providers feel comfortable prescribing PrEP and conducting baseline screenings, and it has held several clinic-wide trainings on PrEP prescribing and viral hepatitis screening and treatment.

Plumas County Public Health Agency—Early, Coordinated
The Plumas County Public Health Agency includes a rural clinic that has built a coalition of partners throughout Plumas county and neighboring counties, and this coalition has been the greatest step toward integration. The clinic provides basic services, testing for infectious disease, MOUD, harm-reduction techniques, and educational materials. The clinic collaborates with staff at the local hospital to follow up with treatment regimens but does not explicitly share EMR systems, staff, or providers. Leadership and staff felt that providing integrated services for infectious disease and OUD was a natural way to meet the needs of patients in the area. Prior to 2016, no providers at the agency, or in the county, had a DATA waiver, so this was a first step toward greater integration of services. The director has been interested and involved with integration, and there has been significant buy-in throughout the organization. In many cases, patients will visit the agency for the syringe service program or for other basic services but also be offered MOUD, naloxone (the opioid overdose reversal drug), overdose prevention education, rapid testing for HIV/HCV, and a referral for HIV/HCV treatment and for PrEP when necessary (via an online prescription service). However, the clinic does not currently treat HIV/HCV. Instead, it refers patients to the local hospital. The clinic also has a mobile van, which targets outreach to people who inject drugs throughout the community. Mobile services include syringe access and disposal, HIV and viral hepatitis rapid testing, naloxone distribution, and harm-reduction counseling.

LifeSpring Health Systems—Mature, Integrated
LifeSpring Health Systems has its roots in community mental health, serving as a resource for people living with HIV (or at-risk populations) who have concurrent behavioral health needs. Because LifeSpring has been operating since the 1960s with a focus on the social determinants of health, it was relatively easy to gain buy-in from staff and leadership as to the necessity of integrating care services. Overall, the leadership championed integration between OUD and infectious disease—it was important to the board, CEO, and management team. When integrating behavioral health with primary care, there was occasional staff conflict over processes, logistics, and language, but the common understanding that patients would be the

first priority allowed staff and providers to work through this. LifeSpring operates on a medical home model, where patient's needs are addressed in one visit and one location whenever possible. LifeSpring treats HIV, viral hepatitis, and OUD in primary care, as well as promoting harm reduction through PrEP, condom distribution, and a colocated syringe service (run by the local health department). Even though integrating care has been time consuming from a recordkeeping and billing perspective, LifeSpring has been accustomed to such integration because it has always treated complex medical needs as a community mental health care provider. LifeSpring believes in the philosophy "nothing about us, without us."

CrescentCare—Mature, Integrated

CrescentCare began as an AIDS service organization, transitioning to a full-service health care organization and community health center in 2014. The arc of OUD and infectious disease services integration at CrescentCare has been folding OUD treatment into primary care, where HIV testing and treatment have already been a primary focus and HCV treatment has been initiated. Its origin meant that providers and leadership felt it was necessary to successfully treat OUD to prevent further HIV infection. While OUD treatment initially was primarily focused on sobriety, CrescentCare has transitioned to a harm-reduction approach since implementing its syringe service program. The choice to integrate OUD services into primary care—along with HIV/viral hepatitis services—was driven by the syringe service program already located in the clinic and the harm-reduction outlook of the staff. Throughout various leadership changes, several key players have remained champions of integrated services. The clinic is well equipped and comfortable providing same-day PrEP, HIV/viral hepatitis testing and treatment, and MOUD. CrescentCare has had several peer-to-peer education sessions follow DATA waiver training to make providers more comfortable prescribing MOUD. Even with HIV (which CrescentCare has focused on for many years), it took a long time to evolve toward an embracing rather than a punitive culture (e.g., for patients that miss appointments). The peer-to-peer education has helped reduce this stigma.

Evergreen Health—Mature, Integrated

Evergreen started as an AIDS service organization, providing navigation and treatment for people living with HIV/AIDS. Today, Evergreen provides SUD treatment, primary/specialty care, and pharmacy services. In both Buffalo and Jamestown, Evergreen has several buildings in close proximity (walking distance). Evergreen has active communication, collaboration, and integration of OUD and infectious disease services. It has a long history of providing care to underserved populations in the community, and that history drives the mission today (now including people with other chronic illnesses). This ethos remains in the organization's culture, and was the main driver for integrating as many services as possible: to meet the needs of patients with complex needs in a way that makes life easier for them. In line with this, both patients and leadership have stated that access to SUD treatment is important, including MOUD. At the Buffalo location, the infectious disease prevention and treatment, harm reduction, and OUD treatment occur in one building. In Jamestown, the syringe service program is the only service not offered in the same location. At new-hire orientation, staff are trained explicitly on the culture of harm reduction, MOUD, and sexual health and PrEP.

Bronx Transitions Clinic (BTC)—Mature, Integrated

BTC provides comprehensive treatment including primary care, HIV, viral hepatitis, SUD, mental health, and PrEP, overdose education, and naloxone distribution. BTC is fully integrated into the community health center's normal work flow (Montefiore Comprehensive Health Care Center) and sees about 150–200 patients per year, the majority of whom have chronic health conditions. In the beginning, much of the medical care was delivered by volunteer physicians and other medical staff, and it was clear that this was not a sustainable long-term strategy. Since then,

medical residents have taken the helm in providing much of the care, and they often conduct research or quality improvement projects in BTC. Because of Montefiore's history of serving otherwise underserved populations, most of the providers and trainees are committed to this mission—integrated HIV/HCV/OUD care is a part of the Montefiore Comprehensive Health Care Center. Staff training is centered on culturally competent care.

Whitman-Walker Health—Developing, Colocated
Beginning as an AIDS service organization, Whitman-Walker Health developed an integrated approach from the start, providing wraparound services for people living with HIV/AIDS. MOUD were folded into the primary care setting because of high demand from patients—who needed combined services in an accessible and convenient way—and the providers' initiative to meet this demand. This multidisciplinary approach was key to Whitman-Walker Health's success at integrating, and it was significantly easier to integrate at the smaller of its two sites because the providers there were in close contact; they knew each other and their patients well. Still, historically, not all staff, providers, and executives have bought in to increased integration. In the 2000s, there was a provider-led push to bring SUD treatment into primary care, but this effort was halted because there was a concern among some administrative leaders that having SUD patients in waiting rooms would deter other patients from visiting the clinic. Providers needed to be convinced by the evidence that incorporating SUD into primary care could produce better outcomes for patients, executives needed their financial concerns allayed. Whitman-Walker Health's success over time is a function of repeated discussions about the patients' needs, with genuine listening, validation, and understanding of different stakeholders' concerns. Still, providers typically must rotate back and forth between the two sites to ensure that full coverage for all medical needs is available at both sites. Primary care is the entry point for other services; patients who have HIV, viral hepatitis, OUD, or any other medical need are seen and managed through primary care. The ongoing goal is to create a seamless visit for patients without unnecessary referrals.

Philadelphia FIGHT—Developing, Colocated
Philadelphia FIGHT is a comprehensive health services organization providing primary care, consumer education, research, and advocacy for people living with HIV/AIDS and those at high risk. Two sites—the Jonathan Lax Treatment Center and the Clinica Bienestar center—provide buprenorphine and long-acting naltrexone integrated into the clinics. A third, the John Bell Center, is a more general internal medicine clinic and offers long-acting naltrexone. FIGHT's goal is to provide culturally competent, integrated, patient-centered care, and to treat patients in a "one stop shop" model. Because of its history, FIGHT has always "met patients where they are at." Recently, FIGHT saw a need in the community and responded to increased deaths in Philadelphia due to fentanyl overdose. Overall, there was broad support for integrating OUD and infectious disease services, including from the medical/clinical staff and from leadership. Since FIGHT is a mission-driven nonprofit, many of the staff are likeminded in their approach to patient-centered care. Even those who are not DATA waivered understand the importance of integrating OUD and infectious disease treatment. FIGHT has built lines of communication between sites and between referring providers, and medical case managers help ensure that patients make it to their appointments (FIGHT frequently refers patients to methadone maintenance and daily buprenorphine programs when patients require more structure and support than FIGHT provides).

[a] The committee notes that interviews with programs were conducted in the Spring and Summer of 2019. Programs may have changed their services, received additional funding, or otherwise integrated further since that time.

With respect to how programs integrate infectious disease and opioid use disorder services, the committee was guided by work on how innovations diffuse through organizations (Greenhalgh et al., 2004). The committee used this work to identify aspects of the organizational and external environments that could facilitate progress moving through the stages of integration in the CIHS framework. Specifically, through a semi-structured interview (see Appendix A for an interview guide and case study profiles), information was gathered on each program's history of integrated services and the services delivered and model of care (see Figure 1-1). For both categories, programs were also asked about barriers, including external factors impacting integration. Finally, programs were asked about clinical outcomes, though this was not the focus of the committee's review.

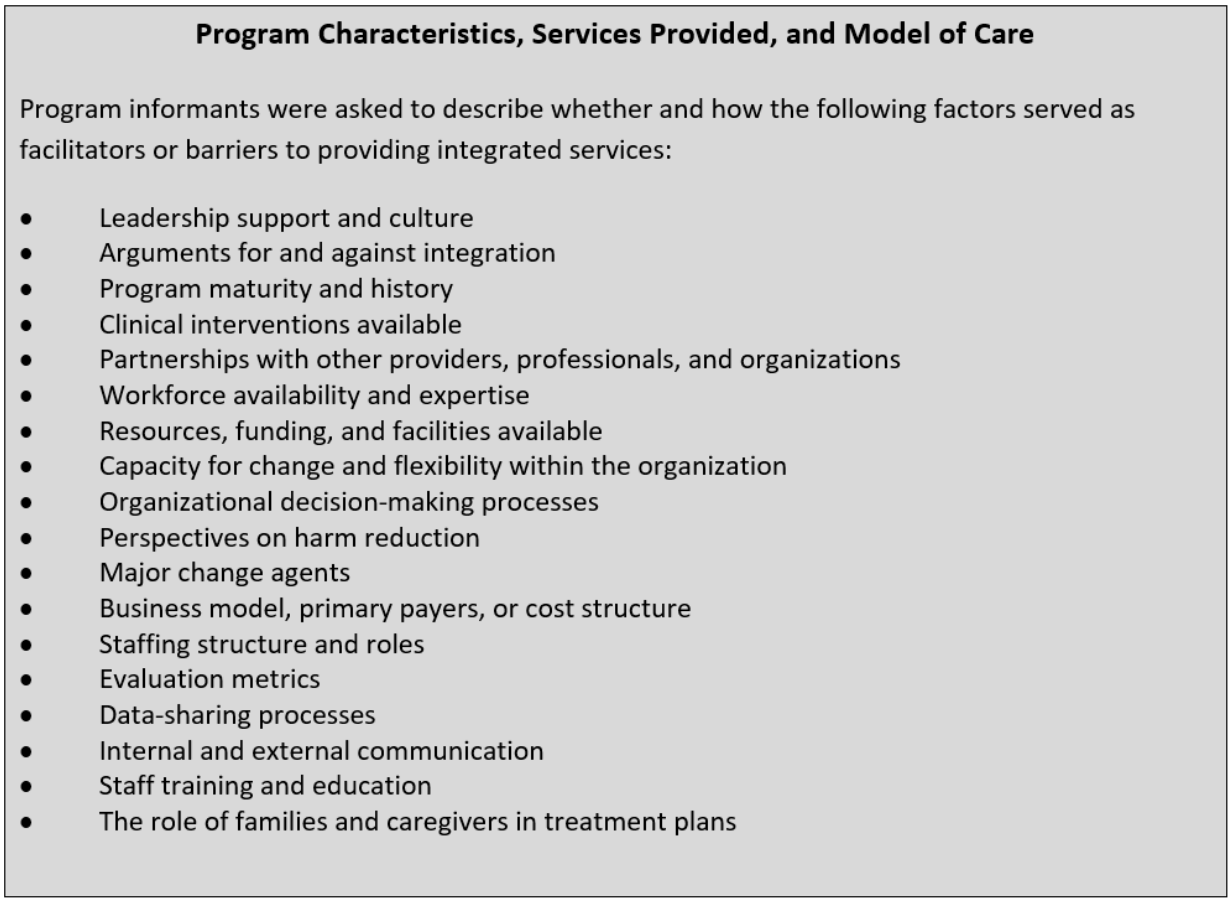


FIGURE 1-1 Visual representation of topics addressed in the semi-structured interviews, including the barriers to integrated care for OUD and infectious disease services. Informants were asked about barriers and facilitators related to the characteristics of their program, services provided, and model of care and about factors in the external environment that impacted the organization or posed barriers to integration.

National Academies staff conducted semi-structured interviews with each program's informant for approximately 2 hours each. The interviews and programs' presentations at data-gathering meetings were used to create the case study profiles found in Appendix A and are the basis of the review of the barriers to integrated services described in Chapter 3. Each program was provided an opportunity to review its case study profile for accuracy and submit any needed

changes. The committee members used a grounded theory approach (Sbaraini et al., 2011) and their expert judgment as practitioners in the field to determine the primary barriers to integrated services. Using the semi-structured interviews as the data from which to draw out common elements brought up frequently across programs, the committee distilled these elements into the final set of barriers, many of which are similar to previous efforts to study the integration of services, particularly with respect to behavioral health and primary care services (SAMHSA, 2013). For instance, if a number of the programs independently mentioned one particular policy as a barrier to providing integrated services, it was presented as a primary barrier.

Harm-Reduction Approach

Harm reduction refers to a set of principles developed to address substance use and its consequences; it has since been applied to other health behaviors including tobacco use and sexual behavior (Bellis et al., 2002; Ritter and Cameron, 2006; Roche et al., 1997). Lessening the negative effects of substance use is the primary objective of harm reduction, in contrast to other approaches that prioritize or insist on abstinence. Harm reduction practices include syringe service programs, PrEP,[4] condom distribution, supervised consumption sites, and safe injection, safe drug use, and safe sex education. Harm-reduction practices are evidence based and have been shown to be effective in reducing HIV, HCV, and HBV infections; increasing safe drug use practices; increasing engagement in care, including HIV and HCV care; and treating SUD (Aspinall et al., 2014; Dutta et al., 2012; Hagan et al., 2011; Platt et al., 2016; Strathdee et al., 2006). In fact, a number of studies have demonstrated that harm-reduction programs lead to a net reduction in substance use through active referral to, engagement in, and retention in SUD treatment (Hagan et al., 2000).

Little research has been carried out to explore the role of harm reduction in improving the patient–provider relationship or clinical outcomes. Hawk and colleagues sought to conceptualize harm reduction as a "philosophy of care" and characterize how it is operationalized in clinical settings (Hawk et al., 2017). Qualitative interviews with patients and providers were guided by the principles of harm reduction as set forth by Harm Reduction International (HRI), a nongovernmental advocacy organization that promotes the "rights of people who use drugs and their communities through research and advocacy." HRI's website lists these principles (HRI, 2019), similar to the principles outlined by the U.S.-based Harm Reduction Coalition (HRC, 2019). Hawk and co-authors identified six broad themes of harm reduction and examples of how they can be applied to health care settings (Hawk et al., 2017):

- **Humanism:** Providers have respect for patients and the decisions they make, providing care without moral judgments.
- **Pragmatism:** Providers have realistic expectations and support a range of options for reducing harm.
- **Individualism:** Support is tailored to individual patients' needs.
- **Autonomy:** Patients and providers negotiate the best plan of care.
- **Incrementalism:** Any positive change acknowledged and reinforced.
- **Accountability:** Patients are responsible for (and experience) the consequences of their behavior but are given additional chances to improve.

[4] PrEP: A medication that, when taken consistently, can prevent HIV infection.

Harm reduction's emphasis on being nonjudgmental and patient centered ("meeting patients where they're at") was taken as a starting point for the committee's work, and the committee inquired of program informants and other experts whether and how a harm reduction-approach to providing care was relevant to integrating OUD and infectious disease services.

ORGANIZATION OF THE REPORT

The remainder of this report addresses the committee's charge. Chapter 2 provides an overview of the relationship between OUD and infectious disease, with a particular focus on the historical dissociation between these two types of care and the need for greater integration. Chapter 3 outlines nine barriers to effective integration of OUD and infectious disease services and provides findings from the literature and interviews conducted with 11 programs seeking to provide integrated services, as well as the committee's recommendations. The list of references is included after Chapter 3. Case studies drawn from interviews are presented in Appendix A, and the public workshop agendas are in Appendix B. Appendix C contains the committee's biographical sketches.

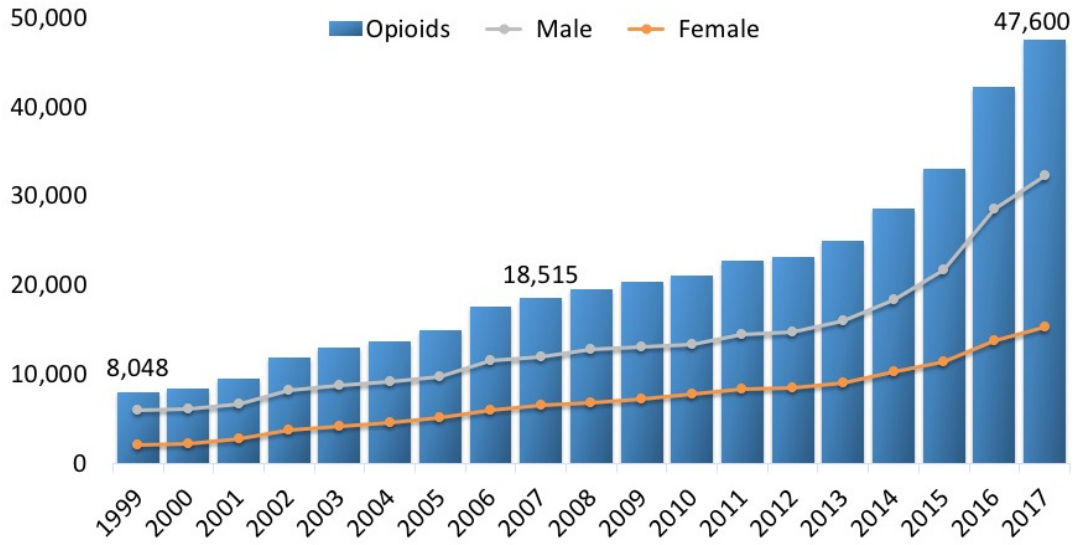
2

Scope of the Problem

This chapter provides an overview of the relationship between infectious disease and opioid use disorder (OUD). It also summarizes current policies at the national level to end these concurrent epidemics and describes the history of the dissociation between substance use disorder (SUD) treatment, primary care, and infectious disease care.

THE INTERPLAY BETWEEN OUD AND INFECTIOUS DISEASE

More than two decades into the opioid epidemic, the United States continues to battle this critical public health challenge (Kolodny et al., 2015). According to the National Institute on Drug Abuse (NIDA), 2.1 million people in the United States have OUD (NIDA, 2018a). In 2016, it was estimated that only 20 percent of them received treatment (SAMHSA, 2016). Furthermore, opioid-related deaths remain high: 47,600 deaths in 2017 (see Figure 2-1) and more than 700,000 since 1999 (CDC, 2018a). These data confirm that there is an urgent need to link and engage persons with OUD to evidence-based treatment. In particular, this means medications for opioid use disorder (MOUD), which are highly effective at treating OUD and preventing complications, including overdose death and highly morbid drug-related infections (NASEM, 2019).



Source: : Centers for Disease Control and Prevention, National Center for Health Statistics. Multiple Cause of Death 1999-2017 on CDC WONDER Online Database, released December, 2018

FIGURE 2-1 National drug overdose deaths involving any opioid, number among all ages, by gender, 1999–2017.
SOURCE: CDC Wonder, via NIDA: National Institute on Drug Abuse; National Institutes of Health; U.S. Department of Health and Human Services, 2019.

Recent reports from the Centers for Disease Control and Prevention (CDC) describe an increasingly complex epidemic in the United States (CDC, 2018a). OUD and the related complications of overdose and infectious disease have long ravaged inner cities and continue to do so. More recently, rural and southern states have also been devastated by the opioid epidemic (Dowell et al., 2016; Joudrey et al., 2019). On average, rural populations are older, poorer, and sicker compared to urban populations (though significant disparities in some cities remain) (NACRHHS, 2015). Many rural regions also have higher opioid prescribing rates. In 2017, residents of Alabama, Tennessee, Kentucky, Mississippi, Louisiana, Arkansas, and Oklahoma received more than 80 opioid prescriptions per 100 residents (CDC, 2017); the national average was 58.7 per 100 residents. Appalachian states continue to have the highest rate of opioid-related emergency department and hospital admission rates (AHRQ, 2016). From 1999 to 2015, opioid-related deaths in young rural people (18–25 years) quadrupled; deaths among women tripled (Noonan, 2017). Yet, new data show that overdose deaths are highest in urban areas, at least in part due to an influx of highly lethal, illicitly manufactured fentanyl. In recent years, surprisingly high rates of overdose deaths have migrated west of the Mississippi: Arizona, California, Colorado, Minnesota, Missouri, Oregon, Texas, and Washington are experiencing a sharp increase (CDC, 2018a). In sum, no part of the country has been spared from the devastating health consequences of opioid use, and it will take specific, tailored interventions to treat OUD in these varied demographic regions.

In addition to the suffering OUD causes, increased drug use has brought about a resurgence of infectious diseases. Some infections are directly attributed to drug injection. For example, the incidence of hepatitis C virus (HCV) infection is approximately 1.8 percent for

needle-stick exposures (CDC, 2003). Human immunodeficiency virus (HIV) incidence is significantly lower: an estimated 23 infections for every 10,000 needle-stick exposures and 63 for every 10,000 needle-sharing exposures (CDC, 2019c). Importantly, the risk of transmitting the virus is highest when an individual is acutely infected but before developing antibodies (CDC, 2015b; Conry-Cantilena et al., 1996; Gerberding, 1994). Despite hepatitis B virus (HBV) being even more transmissible by needle-stick exposure, the population risk of HBV is lower than for HCV because fewer persons are chronically infected with HBV. The roll-out of childhood vaccination for HBV in the 1990s also contributed to this decline in prevalence (Meireles et al., 2015). Unsafe injections also increase the risk of bacterial infections such as staphylococcal skin infections or endocarditis (Wurcel et al., 2016). In addition, OUD increases the risks of other infectious diseases, such as sexually transmitted infections spread through high-risk sexual behaviors in exchange for drugs and/or money and HAV linked to poor sanitary conditions (Hartard et al., 2019; Villano et al., 1997). Infectious disease clusters and outbreaks in recent years include blood-borne diseases, such as HIV and viral hepatitis, and sexually transmitted infections, such as gonorrhea, chlamydia, and syphilis (Brookmeyer et al., 2019). In addition, bacterial and fungal blood stream infections, heart infections, and skin, bone, and joint infections are increasingly recognized as a common cause of health care use and mortality in persons who inject opioids (Wurcel et al., 2016). As an example of the connection between OUD and infectious disease, Figure 2-2 provides a snapshot of the increases in HIV attributed to injection drug use across the United States.

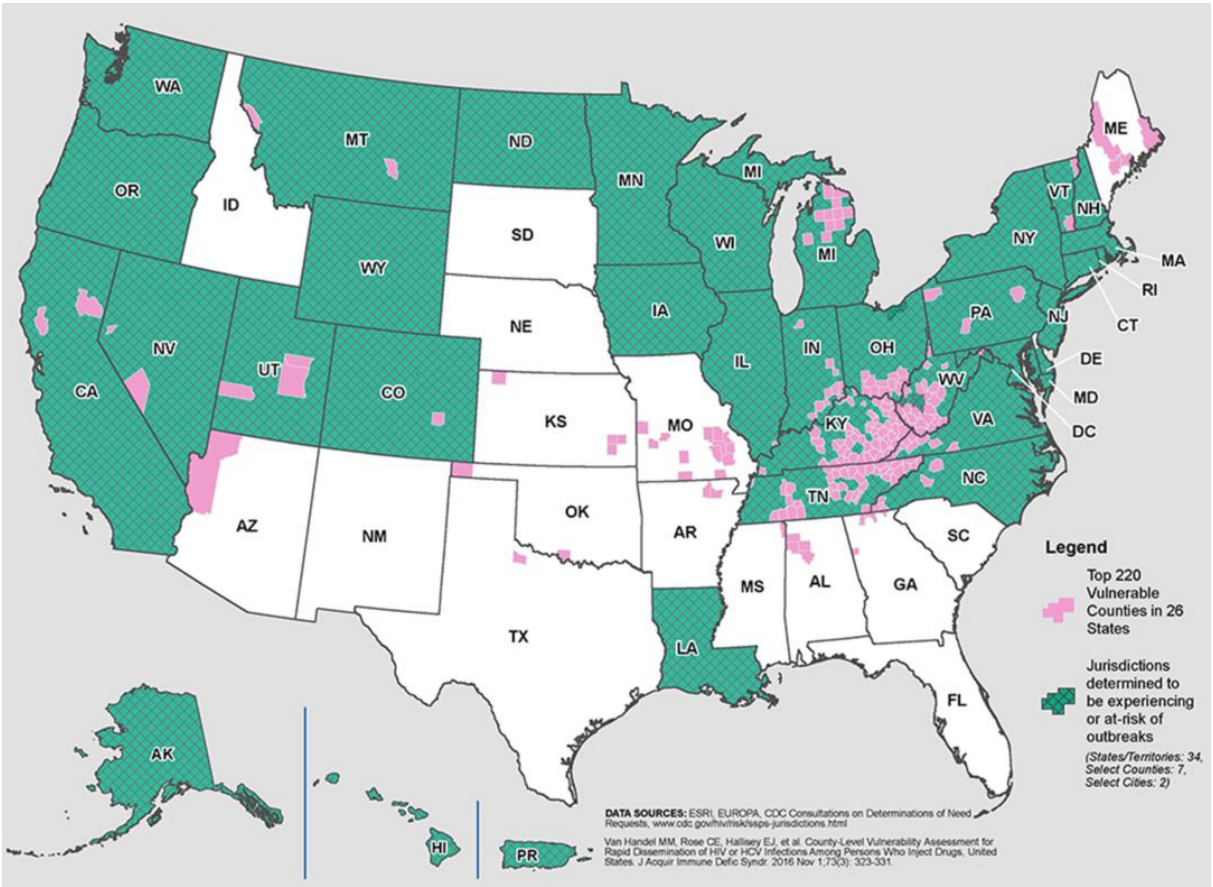


FIGURE 2-2 Vulnerable counties and jurisdictions experiencing or at-risk of outbreaks.
SOURCE: CDC, 2018. The National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention.

Although great strides have been made in recognizing and treating OUD, several notable inequities remain when it comes to access to SUD treatment. Service availability, including residential, rehabilitation programs, intensive inpatient care, and OUD services in primary care or through local health departments is limited in rural areas and for vulnerable populations (Browne et al., 2016; Cole et al., 2019; McLuckie et al., 2019; Priester et al., 2016). Services are also limited for homeless, criminal-justice-involved, and uninsured patients. Barriers to SUD treatment are most obvious in states without Medicaid expansion, as poverty precludes linkage to and retention in SUD treatment (Priester et al., 2016).[1] These same barriers apply to access to infectious disease treatment and prevention (McLuckie et al., 2019). Thus, patients who are poor, homeless, or rural and those with a history of incarceration may receive little to no care for SUD and/or infection-related complications (Dean et al., 2018).

NATIONAL RESPONSE TO HIV AND THE RYAN WHITE CARE ACT

More than 30 years ago, the country confronted the beginnings of the HIV epidemic. As cases grew and care was deemed fragmented, specific funding was needed. In response, Congress passed the Ryan White Comprehensive AIDS Resources Act (CARE Act) on August 18, 1990 to provide funding to cities, counties, states, and local community-based organizations to offer a comprehensive system of HIV primary medical care, support services, and antiretroviral medication. The CARE Act has been the payer of last resort to provide care for un- and under-insured persons living with HIV, especially in Medicaid non-expansion states. It also supported other behavioral support services, such as mental health care, SUD treatment, and housing assistance, all of which greatly improved HIV care (Cheever, 2016).

To monitor HIV care outcomes at a population level, in 2011, the HIV care continuum was proposed (see Figure 2-3). It includes essential, easy-to-measure/-estimate outcomes for persons living with HIV. These include the percent of persons living with HIV in a given population that are diagnosed, linked to HIV care, starting antiretroviral therapy (ART), and achieving HIV viral suppression. The ultimate goal of the HIV care continuum is sustained viral suppression, as it is linked with reduced individual morbidity and mortality and reduced transmission. Thus, the HIV care continuum shows the proportion of persons living with HIV who are engaged at each stage and allows public health officials and policy makers to measure progress and direct HIV resources most effectively. Several randomized controlled trials (e.g., HIV Prevention Trials Network and PARTNER studies) showed no linked transmission in both same- and opposite-sex serodiscordant couples when the person living with HIV is virally suppressed (Bavinton et al., 2018; Cohen, 2019; Cohen et al., 2016; Rodger et al., 2016, 2019; Safren et al., 2015). Thus, sustaining and maintaining viral suppression means improved length of life for persons living with HIV and decreased transmission to others. These findings underscore the importance of supporting effective interventions for people living with HIV to admit them into care, retain them in care, and help them adhere to ART in order to achieve viral suppression.

[1] Between 2011 and 2018, prescribing of buprenorphine in Medicaid expansion states has steadily increased, from 1.3 million annual prescriptions in 2011 to 6.2 million in 2018. In contrast, annual prescriptions in states that have not expanded Medicaid have remained at 0.5 million or lower over the same time (Clemans-Cope et al., 2019).

FIGURE 2-3 HIV care continuum.
SOURCE: HHS, 2016. Used with permission from HIV.gov.

Since the introduction of the CARE Act, the United States has made great progress toward ending HIV/AIDS (Cheever, 2016). This includes expanding HIV testing and treatment through the Patient Protection and Affordable Care Act (ACA) and the AIDS Drug Assistance Program, ground-breaking research by National Institutes of Health (NIH) and CDC, and the introduction of HIV PrEP. From 2010 to 2017, viral suppression increased from 69.5 percent to 85.9 percent, and racial/ethnic and regional disparities have decreased (HRSA, 2018). In 2010, the annual number of Americans diagnosed with HIV was more than 41,000. In 2018, this number had dropped to 37,832 (CDC, 2019b).

Still, the annual incidence of HIV infection has increased in some regions and groups. The highest rates of incident HIV are concentrated in the South, where there are 15.7 cases per 100,000 people, compared to the Northeast at 10.0, the West at 9.3, and the Midwest at 7.2. African American and Hispanic/Latino men who have sex with men and African American women bear a disproportionate number of incident HIV cases (CDC, 2015a). Although African Americans account for only 13 percent of the U.S. population, they made up 43 percent of HIV cases in 2017. Subsequent revisions to the national HIV/AIDS strategy over the last decade have emphasized strategies to end transmission in racial/ethnic and gender minorities along with efforts to reduce stigma. For example, PrEP campaigns are targeting young African American men who have sex with men in HIV high-incidence areas, such as the South, and the Department of Justice and CDC have worked together to reform HIV-specific criminal laws (CDC, 2019f). Importantly, substance use exacerbates HIV risk and is correlated with lower overall engagement in the HIV care continuum among both Latinx and African American men who have sex with men in many regions of the country (Jin et al., 2018; Nerlander et al., 2017). While progress has clearly been made to reduce the incidence of HIV and its associated harms, there is still significant work to be done. In 2019, the Trump administration proposed a strategy titled "Ending the HIV Epidemic: A Plan for America," which has the goal of reducing incidence by 75 percent in 5 years and 90 percent in 10 years (HHS, 2019c).

NATIONAL OPIOID POLICY AND STRATEGY

The committee anticipates similar challenges to ending the opioid epidemic. Like HIV, OUD is a chronic disease that is not curable but can be effectively managed with daily medication (NASEM, 2019). Evidence-based treatment of OUD also requires treatment adherence, engagement in medical care, and support of comorbidities including mental health conditions and infectious diseases. OUD is associated with stigma. This may lead to shame and a disincentive for patients to seek medical attention, or limit the number of providers who are willing and trained to provide OUD treatment (Kepple et al., 2019). As a result, high-risk behaviors, such as unsafe syringe sharing and sexual practices, that are amenable to harm reduction continue to contribute to the morbidity and mortality of the opioid epidemic (Jones, 2019). The criminalization of OUD may represent an additional barrier to treatment and harm reduction, reminiscent of the criminalization of HIV. The infectious disease consequences of OUD-related stigma are most evident in rural and southern states, such as in Appalachia (CDC, 2018b). With limited health care infrastructure and resources, OUD has concentrated in these poor areas of the country, much like HIV high-incidence areas in the Deep South (CDC, 2019g).

Faced with rising numbers of overdose deaths and recent outbreaks of HIV and viral hepatitis, President Trump declared the opioid epidemic a public health emergency in 2017 (Haffajee and Frank, 2018; White House Office, 2019). Since that time, clinicians, researchers, and policy makers have begun to disseminate evidence-based strategies. In 2017, HHS outlined a five-step action plan, including improved access to OUD treatment and prevention, better surveillance data related to OUD and overdose, improved pain management strategies, optimized delivery of naloxone to high-risk populations and those who could administer it, and cutting-edge research on pain and substance use (Azar and Giroir, 2018). To advance initiatives around treatment, prevention, and recovery services and expand access to Medicaid beneficiaries, the agency issued over $800 million in grants. In fiscal years 2016 to 2018, Congress approved Department of Health and Human Services (HHS) funds to support syringe service programs under certain circumstances (CDC, 2019a). Among the stipulations are restrictions on the use of funds to purchase syringes and a requirement that CDC determine the regional need for syringe service programs. CDC's needs assessment includes local patterns of HIV and HCV transmission and public health concerns in people who inject drugs. In 2018, the president signed into law the SUPPORT for Patients and Communities Act (Congress, 2018b), which includes $40 million per year in funding to enhance monitoring of infectious diseases related to opioid use and increase testing and treatment for HIV, HCV, and other infectious diseases (Canzater and Crowley, 2019).

In 2019, CDC released "Evidence-based Strategies for Preventing Opioid Overdose: What's Working in the United States," which outlines several strategies, including expanding access to harm reduction (CDC, 2019d; Haffajee and Frank, 2018). Specifically, CDC identifies increasing access to naloxone, MOUD, and sterile syringes. In particular, syringe service programs for community-based provision of sterile syringes and injection equipment, vaccination, and testing are noted as important linkages to OUD treatment (Carroll et al., 2018a). An additional strategy is the recognition and response to missed opportunities for MOUD in

criminal justice settings, recent release, and emergency departments.[2] CDC also highlights opportunities to prevent OUD, including safer opioid prescribing practices (Carroll et al., 2018a).

A crucial prong in reducing the harm associated with opioid use is MOUD. The evidence in support of MOUD is strong (NASEM, 2019). The World Health Organization (WHO) added methadone and buprenorphine to its list of essential medicines (WHO, 2004). WHO cited several systematic reviews as evidence of methadone's effectiveness in increasing retention in treatment, reduction in opioid use and criminality, reduction in injection drug use and infectious disease incidence, and increase in adherence to treatment for HIV. Buprenorphine has not been studied as extensively as methadone, but WHO's review of the evidence showed that it is as effective as methadone in reducing opioid use and retaining patients in treatment. MOUD's effectiveness is contingent upon adequate dosing, and, in the case of methadone, staff attitudes that stigmatize and degrade participants result in poorer outcomes (Uchtenhagen, 2013).

As part of the national response to the opioid crisis, the U.S. Preventive Services Task Force (USPSTF) has developed recommendations based on the prevalence and public health impact of OUD and infectious disease, specifically HCV. First, in 2019, USPSTF created a draft statement that all adults 18 years and older should be screened for illicit drug use (USPSTF, 2019b). Furthermore, based on rising rates of HCV—especially in young adults—and the existing guideline to screen persons born between 1945–1965, HCV testing is now recommended for all adults ages 18–79 (USPSTF, 2019a).

The above strategies all promote harm reduction, which is effective for not just opioid use but also substance use more broadly. Notably, the United States is facing a syndemic of methamphetamine and cocaine use, which are often combined with opioids (Ellis et al., 2018). However, there is no effective pharmacotherapy for reducing methamphetamine use. Thus, harm reduction—such as sterile syringe provision and HIV and viral hepatitis prevention and treatment—is one of the few ways to minimize the public health consequences of methamphetamine use. Methamphetamine also affects rural regions already lacking in access to medical care (Ellis et al., 2018). Pursuant to the committee's statement of task, this report focuses in particular on OUD, yet the link between methamphetamine (or poly-drug use) and infectious disease is another important area of consideration.

Because of the chronicity of OUD and the many parallels with HIV, including complex barriers to care, researchers are beginning to report OUD outcomes in a cascade (Perlman and Jordan, 2017; Williams et al., 2017, 2019). Although a range of outcomes have been included in recently reported cascade models, most include identification of OUD, linkage to MOUD, and retention in treatment over time. Modeled after the original HIV care continuum frameworks (Gardner et al., 2011), the OUD care cascade provides a set of outcomes that are easily measurable and it allows providers, policy makers, and researchers to examine how various policy initiatives impact treatment, retention, and recovery. Figure 2-4 shows an example of this care cascade, illustrating the significant gaps in care at each level of the process. This model is linked to the Screening, Brief Intervention, and Referral to Treatment (SBIRT) program, developed by the Substance Abuse and Mental Health Services Administration (SAMHSA) with the goal of identifying individuals with SUD and immediately engaging them in care across health care settings (Babor et al., 2007). SBIRT has been shown to be effective in reducing illicit

[2] While this report primarily focuses on outpatient care settings, care for opioid use disorder and infectious disease can be improved at many points along the health care system, including emergency departments, health care clinics, opioid treatment programs, and other settings.

drug use and criminal behaviors, as well as improving patients' general health, mental health, employment, and housing status (Madras et al, 2009).

Much like HIV, a range of support services are needed to manage OUD along with comorbid psychiatric and SUD (e.g., methamphetamine use disorder), as well as the social determinants of health (e.g., housing instability, criminal justice involvement). With proper funding and support, ancillary services can be provided alongside medical services in primary care and subspecialty clinics. For example, for persons living with HIV, opioid use disorder treatment can be integrated into routine HIV care (TARGET, 2019), and linkages to housing or legal service can be provided. In this way, the OUD care cascade and the HIV care continuum can be used in tandem, given the comorbidity of these two illnesses. The same can be true for those with comorbid OUD and viral hepatitis or other chronic infectious diseases.

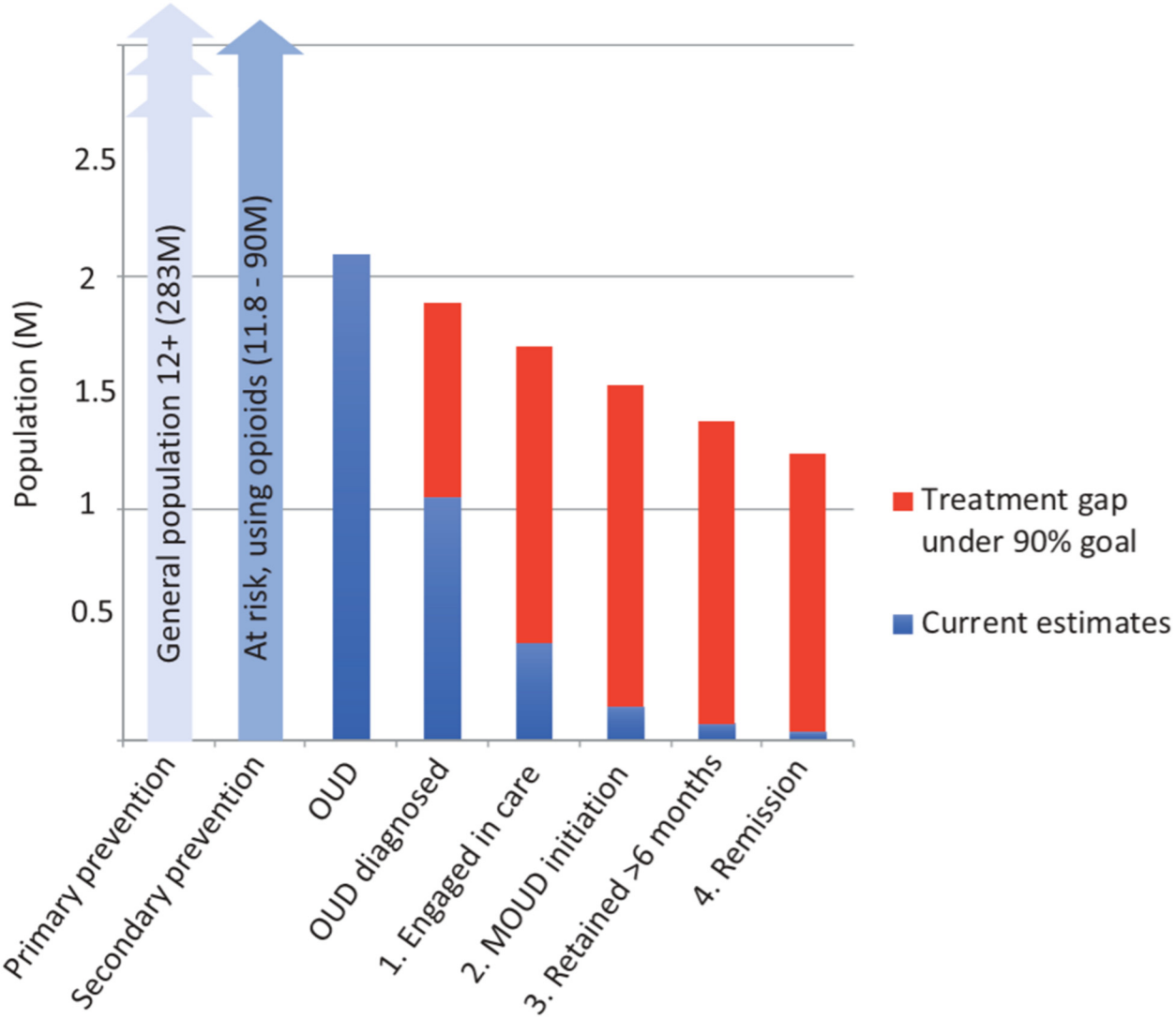


FIGURE 2-4 OUD Care Cascade: A proposed OUD Care Cascade, wherein each stage along the x-axis represents a point of intervention to reduce OUD prevalence and increase care.
SOURCE: Williams et al., 2019. Reprinted by permission of the publisher (Taylor & Francis Ltd., http://www.tandfonline.com).

DISSOCIATION OF SUBSTANCE USE TREATMENT FROM PRIMARY CARE AND INFECTIOUS DISEASE TREATMENT

Along with the criminalization of substance use, there has historically been a dissociation of SUD treatment from primary care, including care for some infectious diseases. For much of the twentieth century, policy related to drug use was divorced from the realm of public health, instead existing in the criminal justice sphere (Mosher and Yanagisako, 1991); between 1980 and 2001, the number of individuals in state and federal prisons for drug-related offenses increased about 13-fold (Jensen et al., 2004). Dating to the Harrison Narcotics Tax Act of 1914 and before, antidrug policies and stigmatization have shaped the policy and legal landscape surrounding drug use up until today (Redford and Powell, 2016).

In the modern era, a majority of SUD treatment services are provided in specialized, free-standing clinics, many of which are operated by nonprofits or government-owned programs (Buck, 2011). As of 2015, it was common that SUD treatment programs could not bill any type of insurance, public or private (Andrews et al., 2015). SUD treatment services have relied heavily on state and local government sources. Because of these unique stipulations, public SUD treatment services have historically developed and functioned independently of the overall health care system. As a result, there are a number of programs in operation that lack a significant evidence base. Therapeutic communities (such as Alcoholics Anonymous or Narcotics Anonymous) are a mainstay of abstinence-based treatment but are characterized by high drop-out rates (between 44 and 91 percent), and relapse after treatment is common (Malivert et al., 2012; Uchtenhagen, 2013). Detoxification is the standard at many SUD treatment centers, despite the fact that treatment after detoxification is typically a medical imperative (NCASA, 2012). In addition, SUD treatment providers in nonmedical settings are not subject to the same regulatory oversight as other health care providers, and often are under less scrutiny to abide by evidence-based practices (NCASA, 2017).

Yet, because the ACA requires parity for mental health services and SUD treatment, policies regarding funding and delivery of care are changing (Maclean and Saloner, 2019; Saloner et al., 2018). For example, mental health and SUD treatment are now essential benefits, and copayments are now similar to other medical benefits (Buck, 2011). These provisions apply to adults and children and could significantly change how SUD care is delivered. Namely, as SUD is viewed and funded in a manner analogous to other chronic diseases, there is greater potential to integrate treatment into routine care in general medical settings (Wang et al., 2006).

Still, there is currently a significant shortage of clinicians pursuing training in addiction medicine relative to the national need (Rasyidi et al., 2012). Those who desire to provide SUD treatment services must receive specialized training and certification to prescribe SUD medications, such as methadone and buprenorphine, which may further deter providers. In another example of the historical dissociation of medical care and SUD care, methadone may only be prescribed for OUD at an opioid treatment program authorized by SAMHSA (2019d). As of 2018, eight state Medicaid programs did not reimburse for methadone for OUD, and it cannot be prescribed in a primary care setting for OUD (Samet et al., 2018). This is despite the fact that 4 decades of research supports methadone as an effective treatment for OUD (SAMHSA, 2018a). Similarly, fewer than 70 percent of state Medicaid programs reimbursed for implantable or extended-release buprenorphine, illustrating the disconnect between SUD care and medical care (SAMHSA, 2018a). Before the implementation of the ACA, many health insurers offered little to no benefits for SUD treatment. As a result, even in areas with adequate

primary care services, there remained an SUD treatment gap (O'Connor et al., 2014). More recently, evidence demonstrates that increased access to insurance via Medicaid expansion has resulted in increased uptake of SUD treatment services paid for by Medicaid (Mojtabai et al., 2018). Private insurers vary widely in their coverage of SUD treatment (Tran Smith et al., 2018). To shed light on integrating OUD care and medical care for infectious diseases, the following chapters outline current barriers to integration and strategies for overcoming these barriers.

3

Barriers to Integration

The following sections outline nine barriers brought up in the committee's search of the literature and during interviews with 11 programs seeking to integrate opioid use disorder (OUD) and infectious disease services. As discussed in Chapter 1, interviews were conducted to obtain information about the program's history of integrated services, their current services provided and model of care, major barriers to integration, and the clinical consequences of integration, when available. As the following sections make clear, the primary barriers to integration for many programs were typically at the federal, state, or local policy levels.

PRIOR AUTHORIZATION POLICIES

Medicaid funds a significant proportion of buprenorphine prescriptions for treating OUD (Ducharme and Abraham, 2008; Stein et al., 2012). Before generic formulations of buprenorphine were available, it was relatively costly. To avoid diversion at high doses (Clark and Baxter, 2013; Lofwall and Havens, 2012) and contain costs, Medicaid administrators at the state level introduced measures to limit prescriptions (SAMHSA, 2018a). While states have increasingly adopted coverage for medications for opioid use disorder (MOUD), there has been a concurrent increase in policy measures to limit their use (Burns et al., 2016). This is typically accomplished through several mechanisms, such as not including buprenorphine on a preferred drug list, requiring concurrent psychosocial treatment in order to prescribe MOUD, instituting quantity-level limits, or requiring step therapy (SAMHSA, 2018a). State and private insurers vary in their use of these mechanisms (Clark et al., 2014; Rinaldo and Rinaldo, 2013). One such measure—which encompasses many of the benefit design requirements mentioned above and is used by both public and private insurers—is prior authorization (Mark et al., 2014).

Prior authorization varies by state (Andrews et al., 2018) but requires obtaining approval from the insurer to prescribe buprenorphine to a patient. A provider may be required to prescribe doses on the lower end of the therapeutic range (Accurso and Rastegar, 2016; DHCF, 2016), demonstrate that a patient has not met a lifetime or annual limit on their prescriptions (Rinaldo and Rinaldo, 2013) or prescribe a particular formulation or route of administration (e.g., sublingual versus implantable) (Weber and Gupta, 2019). Gaining prior authorization is an impediment by definition, as it raises the administrative burden and delays providing the medication. As is described below, prior authorization exacerbates the challenge of sustaining

patient willingness for OUD treatment. Notably, as coverage for buprenorphine has increased over time, prior authorization requirements have also increased (Hartung et al., 2019).

In 2018, the Centers for Medicare & Medicaid Services (CMS) reported that it would not approve Medicare Part D formularies that require prior authorization more than once per year for at least one formulation of buprenorphine, which decreased the number of programs with prior authorization policies (Mark et al., 2019). Still, as of 2019, a majority of state Medicaid programs require some prior authorization procedures for buprenorphine (or the commonly used mixture of buprenorphine and naloxone) (SAMHSA, 2018a; Weber and Gupta, 2019a).

Seven of the 11 programs interviewed for this study mentioned prior authorization as a current or past barrier to providing quality, timely care to patients with OUD. Prior authorization represents a significant barrier to creating integration between OUD and infectious disease care, as continued injection of opioids—as well as co-occurring risky sexual behaviors—maintains a high risk of infectious disease (MHAF, 2018).

There were several themes across the programs mentioning prior authorization as a barrier. The first was that it is a time-consuming or burdensome process. That is, providers or staff spend significant time to obtain prior authorization from payers, and this limits staff time spent engaging in patient-centered care. To overcome this barrier, programs (such as the Greater Lawrence Family Health Center) rely on skilled staff to obtain prior authorizations.

Another theme was that prior authorization requirements are not legitimate from a medical perspective. Health professionals would prefer to have choice and control over how to treat individual patients, and if a payer only allows one particular formulation to be prescribed without prior authorization, this limits their ability to deliver individualized or patient-centered care. As an example, while the District of Columbia Medicaid program has recently loosened prior authorization requirements, it still requires that providers obtain special approval if they provide more than 24 mg/day of buprenorphine (DHCF, 2016). This is despite the fact that evidence suggests treatment retention is improved at 32 mg/day (Hser et al., 2014).

Some programs suggested that having at least one medication formulation available without prior authorization eases the time-consuming process. Several of the programs interviewed are located in states where prior authorization requirements were recently lifted or eased (Indiana, New York, DC, and Louisiana), and these programs commented on how this has improved their practice and ability to prescribe necessary medications to their patients.

As revealed in the case studies, providers believe that prior authorization requirements produce unnecessary administrative burden that hinders timely care and prevents the delivery of evidence-based treatment to patients with OUD. There is evidence that prior authorization is correlated with a reduced overall availability of MOUD among treatment programs. In a 2019 study, Andrews and colleagues found that only 17 percent of drug treatment programs in states with prior authorization requirements were prescribing buprenorphine for OUD (Andrews et al., 2019). This is relative to 43 percent of programs in states where no prior authorization was required to prescribe (Andrews et al., 2019). Fewer medications available to treat OUD translates into increased drug use and therefore increased risk of infectious disease at the population level.

States that have already lifted prior authorization rules on MOUD have done so for this reason. For instance, Governor Phil Murphy of New Jersey removed the state Medicaid's prior authorization requirements because they were viewed as an administrative barrier to treatment (New Jersey also announced plans to increase accessibility to MOUD through several other mechanisms) (Kultys, 2019). In Pennsylvania, an agreement was reached between the state and the seven largest health insurers to loosen prior authorization requirements; at least one

formulation of buprenorphine-naloxone, methadone[1], oral naltrexone, and nasal naloxone would be covered under insurance without prior authorization. The stated goal of this agreement was to remove barriers to MOUD (Rementer, 2018). For similar reasons, then Attorney General Eric Schneiderman of New York announced a settlement with Anthem (and Cigna prior to that) to end prior authorization requirements for MOUD (Parks, 2017). These examples provide precedence for how these medications, paid for by either state Medicaid programs or private insurers, can be made more widely available by removing prior authorization restrictions.

One reason prior authorization and associated requirements (e.g., lifetime limits, step therapy, or restrictions on high doses) have been instituted was to reduce the risk of diversion of MOUD or the chance of accidental poisoning (Clark and Baxter, 2013; Gaither et al., 2018). Prescribers have cited diversion as a barrier to treating individuals with OUD. A national survey found that one-third of providers thought that diversion of MOUD was a significant concern, and half stated they would no longer see a patient who was diverting medications (Lin et al., 2018; NASEM, 2019). While some studies show high rates of diversion of buprenorphine (Sansone and Sansone, 2015), others demonstrate that diversion may stem from a lack of patient access (Lavonas et al., 2014; Lofwall and Havens, 2012). Some providers have concerns about diversion, though increased awareness about the positive effects of MOUD may change these perceptions: a 2017 survey found that 26 percent of non-waivered physicians had concerns about diversion, whereas only 10 percent of waivered physicians shared those concerns, suggesting that education may change perceptions about the relative risks and benefits of this medication (Huhn and Dunn, 2017; NASEM, 2019). Importantly, adherence to buprenorphine treatment is associated with fewer hospital admissions (Sittambalam et al., 2014), and buprenorphine is associated with fewer admissions for life-threatening situations compared to the more frequently used heroin or oxycodone (SAMHSA, 2018a). In addition, lower doses and fewer initial days of buprenorphine supply are associated with treatment discontinuation and higher risk of adverse opioid-related events (Meinhofer et al., 2019). Still, there are some risks of increased buprenorphine prescribing: studies have shown that buprenorphine can be the cause of poisoning, particularly among children (Kim et al., 2012), and that individuals may sell their prescriptions.

One 2018 study showed that, among 303 individuals with OUD, 58 percent reported using diverted buprenorphine (Cicero et al., 2018). Yet, the self-reported motivations for using diverted medication reveal that the most common reasons were therapeutic: 79 percent claimed they used buprenorphine to prevent withdrawal, 67 percent to maintain abstinence, and 53 percent to self-wean off other opioid drugs. In this same sample, while half of patients reported they used buprenorphine for euphoria, only 4 percent said it was their drug of choice (Cicero et al., 2018). Furthermore, 33 percent of those who had used diverted buprenorphine reported difficulty finding a prescriber to obtain the medication themselves, and 81 percent would have preferred to have their own prescription. Similarly, a 2016 study of individuals with OUD in New York City using MOUD without a prescription found that the primary motivations were to reduce withdrawal, control their ongoing drug use, or self-manage a treatment plan. Only several participants reported using buprenorphine for euphoric effects, and none reported using it as their

[1] Unlike buprenorphine and naltrexone, methadone can only be dispensed through a SAMHSA-certified opioid treatment program and federal law requires that patients undergoing treatment in this setting must receive "medical, counseling, vocational, educational, and other assessment and treatment services, in addition to prescribed medication" (SAMHSA, 2019c).

drug of choice (Allen and Harocopos, 2016). A 2018 study in Rhode Island found similar results, for data collected in 2009 and 2016 (Carroll et al., 2018b). In a 2012 study, Lofwall and Havens showed that—among 471 individuals in an Appalachian community sample of people using prescription drugs—up to 70 percent had used buprenorphine for euphoric effects at some point in their lives. Nonetheless, the strongest risk factor for using diverted buprenorphine was an inability to access buprenorphine treatment directly, and only 4.5 percent of this population engaged in daily use of diverted buprenorphine (Lofwall and Havens, 2012). At the same time, the motivations of those who divert drugs may be to help others struggling with OUD. In a 2015 study, Johnson and Richert conducted interviews with more than 400 patients in opioid treatment programs. More than 80 percent of patients perceived that diversion was mostly positive, and more than 75 percent considered it morally right to do so (Johnson and Richert, 2015). Another motivation to divert medications may be to fund ongoing drug use. Allen and Harocopos showed that, among those who diverted buprenorphine, some did so primarily as a means of funding the purchase of their preferred opioid following a resumption of street opioid use (though it is possible that the buyers did not have access to the medication themselves for managing withdrawal symptoms). In this study, none reported diverting buprenorphine as a chief source of income (Allen and Harocopos, 2016).

Some formulations of buprenorphine contain naloxone (e.g., Suboxone) to reduce the euphoric effects of the medication. Rates of misuse for the combined formulation are lower than buprenorphine alone. According to the Researched Abuse, Diversion, and Addiction-Related Surveillance System, past-month injection use of buprenorphine/naloxone in the United States among people with OUD was less than half as common as buprenorphine alone (16 percent versus 45 percent), mirroring data in other countries (Lofwall and Walsh, 2014). Formulations and routes of administration continue to be developed that aim to reduce illicit use potential while mitigating the effects of withdrawal and cravings (Dunn et al., 2017; Rosenthal and Goradia, 2017; Soper et al., 2018), and developing and deploying such medications should be a high priority.

Overall, this evidence suggests that limiting the availability of MOUD via mechanisms such as prior authorization may not be effective in reducing illicit use or diversion. Instead, diversion may increase, since supply is limited because patients are not able to access their own prescriptions for therapeutic purposes. This, in turn, would increase the number of people using diverted buprenorphine without the supervision of a health professional. Moreover, while not medically optimal, obtaining buprenorphine by diversion is far safer (and life-saving) (NASEM, 2019) than using other illicit opioids (e.g., untested heroin that is obtained illegally). It remains important to understand why and how medications are diverted, although it is clear that increased access to buprenorphine and other MOUD is essential for quelling the opioid epidemic (NASEM, 2019) and reducing the spread of infectious disease. Similarly, it is crucial to package medications safely and take steps to reduce accidental poisonings, which have increased in frequency in recent years (Budnitz, 2016; Gaither et al., 2018).

Another reason to limit the supply of MOUD via prior authorization would be to reduce costs for unnecessary prescriptions. Yet, as demonstrated in peer-reviewed studies, prior authorization may produce only minimal savings (Park et al., 2017) and instead increase costs by creating administrative burden to providers and limiting access to medication that improves OUD outcomes (Abouzaid et al., 2010; Clark et al., 2011, 2014; Law et al., 2008; Lu et al., 2011). Because buprenorphine is now manufactured in generic form and can be purchased at a

significantly reduced cost, prior authorization may not prove useful in containing costs (Clark et al., 2014).

If prior authorization policies increase administrative burden on health professionals—as demonstrated in the case studies—it is plausible that a smaller number of patients will receive cost-effective, beneficial, and safe treatments for OUD (Andrews et al., 2019; CMS, 2019c; NASEM, 2019). It is unclear that unsafe diversion or cost-control metrics are substantially improved with prior authorization requirements. In line with this evidence, in 2018 SAMHSA noted that prior authorization requirements limit access to MOUD and increase burdens on providers (SAMHSA, 2018a).

The federal government and some states have begun to take steps toward removing prior authorization requirements for MOUD. In 2017, the Food and Drug Administration (FDA) issued a relabeling of buprenorphine products to emphasize that it may be necessary for patients to remain on the medications indefinitely. In response to this, CMS issued a new policy that prevents Medicare Part D programs from requiring that a beneficiary needs to obtain prior authorization more than once a year for buprenorphine products (CMS, 2018). Following this change, the number of Medicare Part D plans retaining prior authorization was drastically reduced (Mark et al., 2019). Some have suggested that CMS institute similar policy changes to Medicaid, and that states that have not removed or reduced prior authorization requirements should do so (Mark et al., 2019; Weber and Gupta, 2019b), whereas others have called for the abolishing prior authorization for buprenorphine (AMA, 2019; Beetham, 2019). At the federal level, CMS creates agreements between state Medicaid programs and the federal government outlining how the states can administer their Medicaid programs (CMS, 2019b). Currently, states are not required to remove prior authorizations for MOUD in order to reach receive federal matching funds for their program activities. Still, some states have done so regardless (Lambrew, 2019), demonstrating that it would be possible for CMS to include this as a contingency in future agreements with other states.

Findings

- Programs interviewed mentioned that gaining prior authorization to prescribe various formulations of buprenorphine (i.e., dosages) was a barrier to providing quality care to patients with opioid use disorder.
- Programs in states that have removed prior authorization requirements (for either the state Medicaid program or private health insurers) mentioned that this policy change has facilitated timely treatment.

Conclusion

- *Prior authorization policies represent a barrier to prescribing efficiently that reduces the number of patients offered medications for opioid use disorder, is inconsistent with the urgency of the epidemic, and increases the risk of infectious disease.*

Recommendation 3-1: The Centers for Medicaid & Medicare Services (CMS) should withhold approval of a Medicaid state plan amendment from states that require prior authorization for medications to treat opioid use disorder. Independent of CMS action, states should remove

prior authorization requirements for all Food and Drug Administration-approved medications to treat opioid use disorder in state Medicaid programs and state-regulated private insurers, allowing providers to prescribe whichever formulation and dose is best for an individual patient and without restrictions such as concurrent psychosocial therapy, step therapy, or lifetime limits.

BOX 3-1
Program Informant Comments on Prior Authorization Policies

Evergreen Health
"Gaining prior authorization to dispense medications can be time consuming for staff." (Emma Fabian, M.S.W., Senior Director of Harm Reduction, personal communication).

Greater Lawrence Family Health Centers
"There is prior authorization requirement in Massachusetts for anybody who gets more than 16 [milligrams of buprenorphine]. Any time we prescribe more than 16 [milligrams], we have to go through the prior authorization process. Having said that, our nurses are really good. They almost always get that prior authorization the same day for patients. They work really well." (Christopher Bositis, M.D., Clinical Director, HIV and Viral Hepatitis Programs, pers. comm.)

Philadelphia FIGHT
"Philadelphia convened a task force to combat the opioid crisis between the department of health and mayor's office. Through the public education and prevention subcommittee, Philadelphia FIGHT has discussed changes to prior authorization process, changes to medical licensure, [and] public health campaigns to expand access to naloxone. If Philadelphia FIGHT orders the formulation of buprenorphine that's accepted by Medicaid, they don't need prior authorization and do not have to devote staff time to the process. However, it would be useful from a medical perspective to be able to offer all formulations and dosages that a patient might need, rather than what the insurance dictates." (Laura Bamford, M.D., Medical Director, Clinica Bienestar, personal communication).

LifeSpring Health Systems
"Gaining prior authorizations for [MOUD] was previously time consuming for case managers, or patients needed to fail with first-line treatments in order for LifeSpring Health Systems to be reimbursed for Suboxone treatment. Now, under the leadership of a new Secretary of Family and Social Services, many of the prior authorization barriers have been eliminated. This allows for care to be delivered to patients sooner and more consistently." (Beth Keeney, M.B.A., Senior Vice President for Community Health and Primary Care Services, personal communication).

Bronx Transitions Clinic
"New York now requires that each Medicaid managed care organization must cover one of the formulations of buprenorphine without prior authorization. This has reduced the amount of time Bronx Transitions Clinic employees spend receiving prior authorization for medications to treat OUD" (Aaron Fox, M.D., Director, personal communication).

Whitman-Walker Health
"In January 2019, Washington, DC, eliminated the prior authorization requirement for [MOUD], allowing Whitman-Walker Health to more easily prescribe and dispense this medication. Before

this change, staff spent significant time attempting to receive prior authorizations." (Sarah Henn, M.D., Chief Health Officer, personal communication).

CrescentCare
"We have benefited so much from the changes in Medicaid, especially the lifting of the prior authorization. That was huge for us as a barrier to providing buprenorphine." (Nick Van Sickels, M.D., Chief Medical Officer; and Jason Halperin, M.D., Infectious Disease Physician, personal communication).

DATA WAIVER REQUIREMENT

In 2000, Congress passed the Drug Addiction Treatment Act (DATA) as part of the Children's Health Act of 2000, later amended in 2006. DATA 2000—which amended Section 303 of the Controlled Substances Act—intended to increase buprenorphine treatment by allowing office-based providers to prescribe it. According to the law, physicians could obtain approval from the federal government to prescribe by either obtaining a certification in addiction medicine or completing an 8-hour training (SAMHSA, 2019j). Such physicians are said to be "DATA waivered" or "X waivered," as they are waived from the requirements for annual registration with the Drug Enforcement Administration (DEA) and to practice in a regulated opioid treatment program (Davis and Carr, 2019). While many of the required online and in-person trainings can be found for free through the Providers Clinical Support System (PCSS, 2019a), DEA registration has a first-time application fee of $731 for providers and a 3-year renewal fee of $551 to become eligible to prescribe controlled substances (including buprenorphine) (DEA, 2019).

The 2006 DATA amendment increased the allowable patient limit of a waivered physician from 30 to 100 patients. In 2016, recognizing an increased need to OUD, the Department of Health and Human Services (HHS) ruled that this 100-patient limit could be increased to 275 (SAMHSA, 2017) with appropriate reporting requirements, as outlined in 42 CFR Part 8 (this increase may have only a marginal effect on overall prescribing rates, as described below) (CFR, 2018). In addition, the Comprehensive Addiction and Recovery Act of 2016 included a provision that further extended DATA waiver prescribing privileges to nurse practitioners (NPs) and physician assistants (PAs) (SAMHSA, 2019e), which is projected to considerably increase the number of medications available to patients with OUD (Andrilla et al., 2018b). The SUPPORT Act in 2018 further extended prescribing privileges to qualifying clinical nurse specialists, certified registered nurse anesthetists, and certified nurse midwives (Congress, 2018). However, non-physicians must take a 24-hour training (Davis and Carr, 2019). Not all states have adjusted policies to allow these other qualifying providers to prescribe with full autonomy (AANP, 2018); as of April 2017, for instance, 28 states had certain "scope of practice" laws that prevent PAs or NPs from prescribing buprenorphine without physician oversight (SAMHSA, 2018a).

Eight of the 11 programs interviewed mentioned some part of the waiver process as being a barrier to providing quality, integrated care. Recognizing that intravenous drug use is a major risk factor for contracting an infectious disease, many of the programs acknowledged that

treating OUD effectively and taking a harm-reduction approach is the most effective way to provide integrated care between OUD and infectious disease.

Programs often cited the time-consuming nature of the waiver training. Several programs mentioned that very little training (if any) is required to prescribe other medications, including those like oxycodone with more potential for harm than buprenorphine. In addition, programs mentioned that the waiver training itself is clinically irrelevant to their day-to-day practice. Recognizing that the required training was inadequate and that providers were still hesitant to prescribe, several programs instituted their own in-house training for DATA-waivered providers so they could tailor the training to their specific clinical practice and ensure that providers take into account the risk of infectious disease that comes with intravenous drug use.

Several programs adopted strategies to work around the difficult aspects of the DATA waiver process. One program trained its medical residents to work with an attending physician so that they have the necessary training to understand how to prescribe MOUD. Another program uses a medical home model[2] in which specialists initiate medication for patients, and primary care physicians (PCPs) are in charge of maintenance for stable patients. In this way, all providers are able to stay below the waiver's annual patient limit requirements.

These strategies to provide quality care, even in the face of perceived bureaucratic hurdles, are emblematic of the overall push from providers to increase patient access to MOUD. A study published in 2019 revealed that the number of PCP and non-psychiatry specialist office visits resulting in a buprenorphine prescriptions increased significantly between 2006 to 2014 (Wen et al., 2019). This suggests that a broader group of clinicians has recognized the importance of obtaining a DATA waiver and are beginning to prescribe MOUD, especially in counties with high rates of opioid overdose (Knudsen, 2015). In general, overall rates of prescribing and the number of DATA-waivered providers have increased (Dick et al., 2015). Still, studies have demonstrated a significant shortage of waivered providers: just prior to 2018, less than 4 percent, 2 percent, and 1 percent of eligible physicians, nurses, and PAs, respectively, had received a waiver (Andrilla et al., 2019a). In 2016, 60 percent of rural counties had zero authorized physicians (Andrilla et al., 2017a). In 2017, almost 20 million residents lived in a county without any waivered provider (Andrilla et al., 2019b).

Yet, the low number of waivered providers is only one component of the problem; providers' comfort with and actual prescribing practices for MOUD is another. According to a 2018 survey of 4,225 DATA waivered clinicians, only about 13 percent were prescribing at or near their buprenorphine limit. All had received their waiver at least several months before (up to 16 months before), yet 24.5 percent had not yet prescribed. According to these clinicians, a lack of demand from patients, time constraints, difficulty with insurance reimbursement, or prior authorization requirements were the top reasons for not prescribing more (Jones and McCance-Katz, 2019). This suggests that obtaining the DATA waiver itself is not a guaranteed mechanism for providers to prescribe (Stein et al., 2016; Thomas et al., 2017) and that patient demand and access—and time constraints, difficulty with insurance, and concerns about diversion—may also play an important role (Andrilla et al., 2017b, 2018a; Cicero et al., 2018; Gordon et al., 2008; Li et al., 2016).

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[2] The National Institute on Drug Abuse (NIDA), SAMHSA, and the National Council for Community Behavioral Health care have described various models for integrating behavioral and primary health care, including a set of best practices for treating SUD in a medical home model (e.g., concurrent screening and treatment of infectious diseases) (Mauer, 2010; Volkow, 2011; Steinberg, 2014)

There is evidence that effective education about MOUD and mentorship would increase the number of providers comfortable treating OUD (and infectious diseases) in an integrated manner. A 2006 study conducted in New York State implemented an 8-hour course about OUD for 257 physicians and then conducted a survey. About 44 percent of the physicians were trained in HIV care, and afterward, 66 percent of this group planned to pursue a DATA waiver to prescribe buprenorphine. In general, the physicians felt they would be more comfortable prescribing in the future if they had telephone contact with an expert mentor and could visit the mentor periodically to discuss prescribing practices (Sullivan et al., 2006). A survey conducted the same year of 375 HIV physicians suggested that a primary concern among those not currently prescribing buprenorphine was the lack of access to SUD experts (Cunningham et al., 2007). The PCSS does offer mentorship networks through its SAMHSA grant funding (PCSS, 2019b). Still, some have argued that the continued training for health professionals on opioid-related issues in general—even opioid prescribing—is too low to meet the needs of patient populations with SUD (Davis and Carr, 2016).

As mentioned, a 2016 policy change at the federal level allowed physicians to treat up to 275 patients with buprenorphine at any given time (SAMHSA, 2017). A 2019 longitudinal study examined the characteristics of physicians who elected to increase their prescribing limit from 2016 to 2018. The number of physicians with a 275-patient waiver increased from 253 to 4,009 nationally, exceeding HHS's predictions for waiver uptake (Knudsen et al., 2019). Yet, this distribution of 275-patient physicians was not uniform: states with medium and high levels of uninsured residents experienced lower growth, consistent with another study demonstrating that Medicaid expansion states saw the greatest increase in waivered providers (Knudsen et al., 2015, 2019). States with high overdose rates, high rates of other drug treatment programs, high unmet SUD treatment need also saw the greatest increases in the number of physicians electing to prescribe at the 275-patient limit (Knudsen et al., 2019). There was a significant correlation between previous prescribing and an increase in physicians electing to increase their patient limit to 275. That is, those who were already prescribing were likely to prescribe more (Knudsen et al., 2019). This may be, at least in part, a function of the rule itself: only those prescribing at the 100-patient limit for at least 1 year were eligible to increase (SAMHSA, 2017). These data suggest that physicians in high-need areas recognize the importance of increasing their prescribing limit to 275, though it is unknown whether they will indeed prescribe at that level (due to either insufficient demand from patients or other factors). Nonetheless, program informants who had recently become waivered stated that the initial 30 patient limit was too low to meet the demand of their patients.

A number of solutions have been proposed with respect to the DATA waiver. Some have called for additional curricula for medical students in order to make them eligible to prescribe MOUD by the time they graduate (McCance-Katz et al., 2017; Weems, 2019). This may be especially needed, as there is evidence that students do not feel adequately prepared to treat OUD (Bäck et al., 2018), let alone concurrent OUD and infectious disease. Others have called for removing the waiver entirely, freeing providers to prescribe buprenorphine without the burden of training and reporting requirements (Fiscella et al., 2019; Frank et al., 2018; Knopf, 2019). In line with this, the Mainstreaming Addiction Treatment Act of 2019, sponsored by Representative Paul Tonko of New York, was introduced in the House of Representatives in May 2019. This bill seeks to remove the DATA waiver and would require that HHS conduct outreach and encourage providers to become educated about SUD treatment (Davis and Carr, 2019; Stein et al., 2019; Tonko, 2019). Just as with other areas of medicine, training to treat OUD (and concurrent

infectious disease) is crucial for providing effective care to patients. Removing the current DATA 2000 requirements from the Controlled Substances Act—including the mandatory training—may therefore only prove beneficial if providers have easy access to high-quality training otherwise, either in their training programs or continuing medical education.

Findings

- The training to obtain a Drug Addicition Treatment Act waiver to prescribe buprenorphine was mentioned by several programs as a time-consuming, clinically irrelevant process for providers, and they stated that it therefore prevents the timely delivery of care to patients.
- The limit on the number of patients a provider can treat, particularly the 30 patients allowed in the first year of prescribing buprenorphine, was mentioned as being too low to meet the demand of patients.
- There is evidence that, to feel comfortable prescribing medications for opioid use disorder, some providers need mentorship from a more senior provider or someone with expertise in substance use disorder treatment.

Conclusions

- *The Drug Addicition Treatment Act waiver training represents a barrier to maximizing the number of health care providers who can prescribe buprenorphine to patients with opioid use disorder.*
- *The patient limit in the first year of prescribing is too low to meet the number of patients who would benefit from buprenorphine.*
- *Providers could benefit from increased opportunities for mentorship from those already comfortable prescribing medications for opioid use disorder.*

Recommendation 3-2: Congress should amend section 303 of the Controlled Substances Act to allow buprenorphine and other medications for opioid use disorder to be prescribed by physicians, physician assistants, nurse practitioners, clinical nurse specialists, certified registered nurse anesthetists, or certified nurse midwives without undergoing the mandatory training currently required by law, requiring a Drug Addiction Treatment Act waiver, or limiting the number of patients that can be treated.[3]

Recommendation 3-3: To improve and expand education and training on medications for opioid use disorder and infectious diseases:

- **The Providers Clinical Support System—as the primary federal grantee for training clinicians on evidence-based training, mentoring, and educational resources on medications for opioid use disorder—should consult further with practicing providers**

[3] The committee notes that clinically relevant training should nonetheless be widely available to trainees and providers, as outlined in the remaining recommendations of this report.

and amend their training programs to ensure they are clinically relevant and commensurate with the practitioner's intended role and needs (including for prescribing of medications for opioid use disorder), and should prioritize growth of its mentorship system.

- **The Substance Abuse and Mental Health Services Administration should provide additional funding in future grant announcements specifically to expand mentorship networks for providers.**

BOX 3-2
Program Informant Comments on DATA Waiver Requirement

ARCare
The DATA waiver training is lengthy (especially for non-physician prescribers). Some providers have found the training to be redundant and clinically irrelevant. (Frank Vega, L.M.F.T., Director of Behavioral Health, personal communication).

King County Department of Public Health
Obtaining the DATA waiver through training is arduous and is a barrier for providers. (Brad Finegood, M.C.P., Strategic Advisor at Public Health; Hilary Armstrong, M.P.H., Project/Program Manager III; Julia Hood, Ph.D., M.P.H., Epidemiologist II; Julie Dombrowski, M.D., M.P.H., Deputy Director of the HIV/STD Program; and Joe Tinsley, Needle Exchange Coordinator/PPM II, personal communication).

Southcentral Foundation
MOUD have been diffused into the medical home, and there are roughly 40 providers with DATA waivers (with a mix of PCP and specialty care providers). PCPs do not initiate MOUD at Southcentral Foundation, but collaborate with addiction medicine providers to continue to prescribe MOUD to stabilized patients. This rationale stems from a limit on the number of prescriptions that a provider can write: if addiction specialists begin patients on MOUD, and then PCPs take over that prescribing once a patient is stable, all providers are able to stay under the prescribing limit. (Steve Tierney, M.D., Senior Medical Director of Quality Improvement, personal communication).

Greater Lawrence Family Health Centers
Providers have become more aware, however, that they must treat infectious disease and OUD simultaneously for maximum efficacy. While GLFHC has had a Suboxone clinic pre-dating the recent increase in overdose deaths, there was no major impetus historically to move this care into the primary care setting. Now, all physicians specializing in HIV have DATA waivers and are comfortable prescribing Suboxone. It is difficult for mid-level providers to obtain a DATA waiver to prescribe MOUD. The 24-hour training is a disincentive.
"The way it works is that all of our residents do the buprenorphine training, and then they work in collaboration with a DATA waivered faculty member. And so, they pair up, so to speak." (Christopher Bositis, M.D., Clinical Director, HIV and Viral Hepatitis Programs, personal communication).

Plumas County Health Agency
"The 8-hour training for doctors and 24-hour training to become DATA waivered is a barrier for many providers. We finally convinced this doctor right here who is our public health officer to get DATA waived and he was the only one in the entire region. So he had clients from all the

different areas, all the different communities coming to him. And it was really just in the last year that we were able to get more doctors on board and now we have 10 doctors in the region that are DATA waived. And so we tried to look at, on an individual basis, what is going to motivate this physician into making a change? For some of them it required incentives, being able to not only pay them for their DATA waiver training but to also pay for their time to get DATA waived. I think that the DATA waiver requirement is a major policy [barrier]. I know there is a big fear of diversion of buprenorphine, but for someone that is not tolerant to opioids it will just make them sick. And to people that are tolerant to opioids and are using heroin instead, buprenorphine is a way safer drug." (James Wilson, Health Education Coordinator; and Barbara Schott, M.S.W., Health Education and HIV/AIDS Program Manager, personal communication).

CrescentCare
"The waiver creates an unnecessary barrier in my opinion. I prescribe so many other medications, schedule 2 medications, without a waiver. I mean, I think training is important because it helps us. I appreciate the training because it is a learning experience. But the waiver isn't a necessary barrier. And so, that is the biggest thing I would suggest. My biggest ask would be for the waiver. I am limited to 30 [patients]. I tried to write SAMHSA and get my waiver extended early, but I have to wait until October to treat 100 patients." (Nick Van Sickels, M.D., Chief Medical Officer; and Jason Halperin, M.D., Infectious Disease Physician, personal communication).

Evergreen Health
"The training to receive an X-waiver is time consuming, and acts as a disincentive to prescribe. I get requests from doctors and NPs and PAs all the time who want to learn more and want to learn how they can be of service. So I'd like to be able to fit some of them into working even just a few hours a week for us, and that's where that X waiver sometimes becomes an issue." (Emma Fabian, M.S.W., Senior Director of Harm Reduction, personal communication).

Whitman-Walker Health
"The DATA waiver training has been a barrier. And then the experience of our providers is that the training has not been practical or clinically based as they needed to be really comfortable to initiate prescribing. I think we really ran into a problem where we had a bunch of providers get waivers, but then no one was ready to use them. It was not until we had a real medical advocate within medical who was ready to stand up conference regularly, get the psychiatrist available to curbside that people really developed the comfort and the support that they needed to start managing on their own. While each provider must go through a federally mandated training to provide MOUD, WWH felt that this training was inadequate for making providers comfortable enough to prescribe. As a result, they instituted a residency model internally to train recently X-waivered providers. Our brown bag lunches have been very important for new providers learning how to do an induction, manage withdrawal symptoms, [and] titrate medications. Those kinds of things are not really covered in the DATA waiver to the degree that they need to be." (Sarah Henn, M.D., Chief Health Officer, personal communication).

LACK OF DATA INTEGRATION AND SHARING

Barriers to efficient data integration and sharing are numerous, including lack of interoperability and infrastructural, financial, deployment, and regulatory challenges (Ghitza et

al., 2011). Regulatory challenges are especially relevant in the context of integrating OUD and infectious disease services, and interviewed programs mentioned them as barriers.

In the 1970s—well before the Health Insurance Portability and Accountability Act of 1996 (HIPAA)—a federal confidentiality law (42 CFR Part 2) was passed aimed at protecting the privacy of those with SUD. Specifically, the law was intended to encourage individuals with SUD to seek treatment without the fear of their SUD becoming known outside of the treatment context, so that they need not risk arrest, loss of guardianship/parental rights, or discrimination in employment or insurance contexts. The law placed protections around information relevant to SUD, such that diagnoses and treatment could only be shared with other entities in narrow situations (such as in a medical emergency, court order, or child abuse case), and then only the minimum amount of information necessary (Schaper et al., 2016; Tai et al., 2011). In the majority of cases, however, patient records pertaining to SUD can only be shared with the patient's consent, even including situations when it would be for the purposes of that patient's treatment (Pating et al., 2012).

HIPAA, adopted much later, is a looser restriction on protected health information, stipulating that individuals' records could be shared without consent if that information was needed for treatment, payment, or health care operations (OCR, 2013).

42 CFR Part 2 applies to "federally assisted programs," meaning they are operated, certified, or authorized by the federal government, receive federal funding, are tax-exempt, or dispense methadone and other controlled substances under DEA certification. Any entity that "holds itself out" as a SUD treatment entity is also subject to 42 CFR Part 2. In practice, this means that any entity advertising treatment for SUD, has received state licensure to provide SUD, or has health care teams devoted to treating SUD will fall under these regulations (Schaper et al., 2016). As a result, any entity providing integrated care for SUD and infectious diseases—wherein generalist health care providers may offer both types of care—is very likely to be subject to 42 CFR Part 2 (Antonini et al., 2012; Tai et al., 2011), although states have interpreted the federal regulations differently (SAMHSA, 2018a).

Though 42 CFR Part 2 was updated in 2017 (APA, 2017) and 2018 (SAMHSA, 2018b) to allow for greater flexibility and data sharing, it is still viewed by some providers as burdensome, confusing, and contrary to the delivery of effective, patient-centered health care (MACPAC, 2018b). Six of the 11 programs interviewed reported data sharing (or lack thereof) as a barrier to providing integrated care. One program's staff suggested that "holding themselves out" as a drug treatment program is not in their patients' best interest, as it would prevent the organization from sharing patient information between primary care and drug treatment providers. Additionally, several programs mentioned that integrated case managers and near-peer advisors were unable to see relevant medical information about patients, preventing them from having the necessary knowledge to guide patients through their care. Several programs also mentioned the general difficulty in creating integrated data systems from an information technology (IT) infrastructure and deployment perspective (e.g., various branches of care are unable to coordinate because they do not share the same electronic medical record systems).

The interviewed programs found ways to manage data integration and sharing barriers. First, programs had become diligent about asking patients for consent to share information about OUD with other health professionals. With that consent, behavioral health information could be shared with PCPs and better care could be delivered. Second, several programs mentioned a concerted effort and investment in electronic medical record (EMR) systems that could serve a

wide range of health care needs. Indeed, the importance of investing in data collection up front was a primary lesson learned from several of the programs interviewed.[4]

These issues and solutions are similar to those found among other programs documented in the literature. The authors of a 2015 study interviewed eight primary care clinics and three community mental health centers about implementing integrated care (Cifuentes et al., 2015). Common challenges with respect to data sharing and integration were (1) documenting and tracking both behavioral and physical health information, (2) coordinating between different care teams on the EMRs, and (3) exchanging information between devices and across EMRs. These challenges resulted in duplicated efforts, reliance on outdated methods of tracking information, missed opportunities for care coordination, and inconsistent verbal information exchange between providers about patients (Cifuentes et al., 2015).

A 2016 study found similar results stemming from interviews with 76 health care providers and administrators. Those interviewed generally found that information exchange was significantly limited due to 42 CFR Part 2 restrictions. These restrictions caused confusion between providers and prevented communication between SUD treatment and medical care providers. Respondents were unsure when and in what ways confidentiality regulations applied, and while they were aware of the importance of gaining patient consent, they found it difficult to do so (McCarty et al., 2016). For these reasons, some have called for the removal of 42 CFR Part 2 entirely, instead replacing it with the more modern rules in HIPAA (Stein et al., 2019).

With respect to data integration and sharing more generally, there is ongoing debate about the balance between protecting patient confidentiality and promoting data openness for quality care (Lopez and Reid, 2017; Wakeman and Friedmann, 2017). HIPAA and 42 CFR Part 2 are often at the center of this debate. In August 2019, HHS released several proposed changes to 42 CFR Part 2 to maintain patient privacy but also enhance care for patients with OUD through care coordination (HHS, 2019a).

A primary argument in favor of stringent confidentiality regulations is the public's genuine concern about maintaining privacy. A 2010 survey of a representative sample of 1,849 general health care consumers found that 68 percent of respondents were concerned with the privacy of their personal health records, and 75 percent of those not using an online patient health record system listed concerns about privacy as their top barrier (Undem, 2010). Moreover, 42 percent stated they would not feel comfortable if their health information was shared with insurance plans, researchers, companies, and others (relative to 31 percent answering that they would feel comfortable, and 25 percent answering "not sure"). Nevertheless, 66 percent agreed with the idea that privacy concerns should not detract from learning about how technology can improve health care, suggesting that the public is open to the idea of greater data sharing if it brings about better health (Undem, 2010).

Individuals' interest in maintaining confidentiality about a SUD may speak to concerns about feeling stigmatized. However, some argue that maintaining stringent privacy practices only serves to reinforce that stigma by continuing to segregate SUD from other medical care (Schaper et al., 2016). While the treatment of SUD as a medical condiction has gained significant traction in the last several decades, it has not fully translated into medical practice. In 2000, McLellan and colleagues argued that SUD should be viewed as similar to other chronic diseases, including

[4] Germane to this point, SAMHSA has developed several toolkits for organizations to ensure that they are ready for integration from an administrative perspective, including with respect to data collection and sharing (SAMHSA, 2015a,b).

type 2 diabetes. Both illnesses are a function of heritability, have environmental contexts that influence their onset and disease course, and can be managed with medication or appropriate lifestyle changes (McLellan et al., 2000). The automatic segregation of medical information related to SUD may therefore perpetuate stigmatization of SUD as a different kind of illness, one that is important to keep confidential even from other health professionals (Schaper et al., 2016).

Some have argued that this bias toward SUD confidentiality has material consequences for medical care. For instance, privacy regulations may prohibit coordinated, integrated care because health professionals will be unaware of a patient's SUD. Additionally, a mere lack of shared information and coordination between SUD providers and PCPs may prohibit the exchange of information necessary for a holistic treatment plan (Schaper et al., 2016). This could include knowledge about drug interactions, including those used to treat OUD (McCance-Katz et al., 2003). In support of this, a 2009 study reviewed EMRs of 84 patients in an opioid treatment program (where methadone is prescribed) in Boston, and primary care records from an affiliated medical center; 69 percent were receiving at least one medication from the medical center that had a known negative interaction with methadone (e.g., oversedation, withdrawal, overdose, cardiac dysrhythmia), and 19 percent had three or more potentially interacting medications. This study showed that while OUD was documented in most primary care medical records, it was omitted from 30 percent of them, suggesting a lack of robust information exchange between providers and a failure to diagnose OUD among PCPs (Walley et al., 2009). Notably, the SUPPORT for Patients and Communities Act appropriated $7 million over 5 years to promote communication between SUD providers and other health care providers (Walden, 2018), though it is unclear whether such efforts will be successful.

Findings

- 42 CFR Part 2, intended to protect the privacy of patients with substance use disorder, is seen by some providers and programs interviewed as burdensome and a hindrance to delivering effective, patient-centered, high-quality care.
- There are legitimate privacy concerns surrounding the sharing of substance use disorder information.
- The regulation can limit how providers speak about their services. 42 CFR Part 2 applies to any program that "holds itself out as providing, and provides, substance use disorder diagnosis, treatment, or referral to treatment." This "holding itself out" is not specifically defined in the regulation, but could mean public outreach to patients about specific treatments the program offers.

Conclusions

- *Further data sharing between providers promotes better care. Though enacted to protect the privacy of patients with substance use disorder and to encourage treatment retention, 42 CFR Part 2 limits important information exchange and represents a barrier to delivering patient-centered, high-quality care.*
- *In part due to high levels of stigma for patients with substance use disorder (SUD), and the material consequences of information being shared, it is important to respect patients' desire to maintain confidentiality of SUD information.*

- *42 CFR Part 2 inhibits integration of primary care services (including infectious disease prevention) with treatment for opioid use disorder, and prevents providers from advertising an important service that they offer.*

Recommendation 3-4: The Substance Abuse and Mental Health Services Administration (SAMHSA) should either further align 42 CFR Part 2 with the Health Insurance Portability and Accountability Act of 1996, or alter the definition of which specific service delivery programs fall under 42 CFR Part 2. To inform this decision, SAMHSA should formally engage with patients, advocacy groups, the general public, and legal experts to better understand the benefits (e.g., greater data access for providers) and costs (e.g., loss of privacy for patients, danger of uncoordinated care) of changing regulations around sharing of substance use information. This engagement should focus on the effects of allowing disclosures of substance use disorder information for treatment rather than solely for payment, health care operations, audits, and evaluations; on the strengths and weaknesses of informed consent as a method for sharing information; and on clinics' current data-sharing practices.

BOX 3-3
Program Informant Comments on Lack of Data Integration and Sharing

***E*vergreen Health**
Gaining patients' consent at the first visit to share medical and behavioral health information with a range of providers makes it easier to provide integrated services over time. While many services at Evergreen Health use the same EMR, this has required coaching for providers on how to enter information so that it is usable by other providers. Providing in-depth coaching for providers on how to use an integrated EMR is crucial for providing truly integrated services. (Emma Fabian, M.S.W., Senior Director of Harm Reduction, personal communication).

Greater Lawrence Family Health Centers
"They [medical records and behavioral health records] are not necessarily kept separate. Actually, they are all there in the same EMR. Whether or not they are visible to the primary care provider depends on whether the patient asks the behavioral health provider to lock the visit. If the visit is locked, then we can't see it." (Christopher Bositis, M.D., Clinical Director, HIV and Viral Hepatitis Programs, personal communication).

LifeSpring Health Systems
LifeSpring Health Systems was intent on maintaining the same EMR for its patients across behavioral health and primary care. This proved difficult, as it needed to adjust the EMR to suit the needs of both sets of providers. What was acceptable for behavioral health care providers was onerous for PCPs, and vice versa. Upon an initial visit, provide a consent form to patients that allows behavioral and physical health information to be shared across providers. If patients provide consent for this, it allows for better communication between providers about patients' needs. (Beth Keeney, M.B.A., Senior Vice President for Community Health and Primary Care Services, personal communication).

Bronx Transitions Clinic
HIPAA restrictions have made it difficult for community health workers (CHWs) to access complete information and referral notes for patients.
"We've had these debates about whether integration of an electronic medical record that could be accessed by correctional and community providers would be a positive in facilitating access to information; whether that would outweigh the risks of disclosure of people's criminal justice involvement without their explicit consent." (Aaron Fox, M.D., Director, personal communication).

Whitman-Walker Health
CFR Part 2 requires that Whitman-Walker Health takes extra care in describing its services, and therefore patients may be unsure what services are available (e.g., it cannot advertise that it has a MOUD team in primary care, even though PCPs are legally certified to prescribe these medications). (Sarah Henn, M.D., Chief Health Officer, personal communication).

Plumas County Public Health Agency
The agency does not have access to the EMRs in the hospital, which prevents case managers from truly understanding the full care plan and providing continuity of care. (James Wilson, Health Education Coordinator; and Barbara Schott, M.S.W., Health Education and HIV/AIDS Program Manager, personal communication).

Southcentral Foundation
Services have become entirely colocated in the same clinic, and as patients become more or less stable (medically or from a mental health perspective), their care plans are transferred back and forth between the core groups. While the workflows may be different depending on what a patient is treated for, the providers and core groups are in constant, daily communication. Southcentral Foundation prioritized up-front investment in data collection and a focus on quality improvement. As Southcentral Foundation was attempting to integrate services, it needed know whether that integration was working.
"From a safety standpoint, if you hide meds and problems from one practitioner who may alter the trajectory of care or type of care, that is when harm gets introduced. We had to make a tactical decision to say what is more important: the safety of the people or the privacy of the people? We said we need to exercise judicious use of the medical record." (Steve Tierney, M.D., Senior Medical Director of Quality Improvement, personal communication).

King County Department of Public Health
To maintain compliance with billing and reporting requirements, the department has had to invest substantial resources in IT to keep communication firewalls between EMR systems.
"We have done data linkages in real time between the Harborview Emergency Department and then the King County Jail to identify persons with an unsuppressed viral load who we want to get re-engaged in services. Many of the issues that we encountered [are] related to our IT infrastructure and how our electronic medical record is set up and the different firewalls that we have to have between FQHC patients and non-FQHC patients." (Brad Finegood, M.C.P., Strategic Advisor at Public Health; Hilary Armstrong, M.P.H., Project/Program Manager III; Julia Hood, Ph.D., M.P.H., Epidemiologist II; Julie Dombrowski, M.D., M.P.H., Deputy Director of the HIV/STD Program; and Joe Tinsley, Needle Exchange Coordinator/PPM II, personal communication)..

ARCare
Integrating medical records for infectious disease and OUD patients has been difficult (from both technological and patient privacy standpoints). This makes it difficult to providers to

communicate effectively about patients, reduces continuity of care, and increases the chances that services are duplicated.
"Part of the issue that we face here is that the case management services and the case management record are not part of our electronic health record. That does present some issues as far as integrated care or the integrated care approach for that particular population, which presents issues on the substance use treatment side as well. I am sure many programs struggle with is the lack of an integrated record. And, hopefully, we are transitioning to a new EHR sometime this year. It is my understanding that the case management records will potentially become a part of that electronic health record. That would make some of the integration that is necessary flow a little bit easier or smoother." (Frank Vega, L.M.F.T., Director of Behavioral Health, personal communication).

INADEQUATE WORKFORCE AND TRAINING

The number of people with OUD is far greater than those who access treatment (Haffajee et al., 2018), leading to continued drug use and an increased risk of infectious disease. One of the reasons posited for this gap in care is the lack of a medical workforce to provide the care. The workforce deficit is more than a number; additional barriers include training and education deficits, poor support from institutions, a lack of care coordination for providers delivering treatment (Haffajee et al., 2018), and the segregation of SUD treatment from primary care. This hinders the medical workforce's ability to provide integrated care for OUD and infectious disease.

There are several components to the workforce shortage. The first is related to the paucity of providers willing or able to provide evidence-based treatment for OUD (Kepple et al., 2019). As mentioned previously, in 2016, 47 percent of all U.S. counties were without a DATA-waivered physician (Christie, 2017). Under 4 percent of physicians are authorized to provide buprenorphine treatment (Haffajee et al., 2018). Even among some of those who are authorized are less likely to prescribe if they lack institutional and peer-clinician support, adequate reimbursement mechanisms, coordination of OUD care, or a favorable regulatory environment (Haffajee et al., 2018; Hutchinson et al., 2014).

A second component of the workforce shortage relates to geographic distribution. There is a dearth of providers in rural areas who are equipped for integrated treatment. In 2016, 72 percent of rural counties did not have a DATA-waivered physician (Christie, 2017). In general, rural communities have greater barriers to care (Joudrey et al., 2019) and opioid overdose rates similar to those in urban areas (Hedegaard et al., 2019). The problem is magnified if providers in rural areas either do not have the ability to prescribe MOUD, or elect not to (Andrilla et al., 2019b). A 2018 study found that only 56 percent of rural DATA-waivered physicians were accepting new patients for buprenorphine treatment (Andrilla et al., 2018a).

Third, as mentioned in the DATA waiver section, there is a tendency for providers to treat fewer patients than allowed by the limits. In a large study of more than 3,000 buprenorphine prescribers nationwide, Stein and colleagues found that the median number of patients per month was 13—well below even the lowest DATA-waiver limit (Stein et al., 2016). Moreover, the median treatment duration was 53 days, which is below the clinically recommended length. There is reason to think this lack of prescribing is due to workforce barriers: those who had recently become waivered reported lack of access to experienced providers and to OUD counseling to be used in tandem with medications (Stein et al., 2016). In rural areas, those who

were treating patients were prescribing well below their limit: physicians waivered for 30 patients were treating only 8.8 on average, and those waivered for 100 patients were treating only 56.9 (Andrilla et al., 2018a). Though program informants stated that the 30-patient limit was too low to meet patient demands, there is clearly a high degree of geographic variability in prescribing rates.

Fourth, infectious disease and OUD are complex and co-occurring conditions that require an interprofessional constellation of workers—adequately trained throughout their careers—to promote health, from prevention to recovery and support services across multiple settings (SAMHSA, 2019i). The health care team includes but is not limited to health professionals, psychologists, advanced practice registered nurses, PAs, clinical addiction counselors, social workers, marriage and family therapists, mental health counselors, community health workers, and peer-support specialists (SAMHSA, 2019i). Education and training are needed to build the knowledge, skills, and attitudes of this diverse interprofessional workforce. Some programs exist to promote training opportunities around OUD, such as HRSA's Opioid Workforce Expansion Programs (HRSA, 2019b), which provides grants to train behavioral health professionals and paraprofessionals to address behavioral health needs—including OUD and SUD—in high-need, underserved, and rural populations. In addition, the Health Resources and Services Administration posted an announcement for an addiction medicine fellowship program grant, aiming to establish new and innovative programs to expand addiction medicine programs in underserved areas (ACAAM, 2019). Nevertheless, government-sponsored training specific to the integration of OUD and infectious disease services for a wide constellation of providers is not readily available.

A final issue related to the workforce landscape is the historical dissociation of methadone treatment for OUD from primary care. As of 2018 there were more than 1,600 opioid treatment programs delivering methadone throughout the United States, serving more than 380,000 patients annually (Vestal, 2018). Methadone treatment is often quite different from other medical care, and opioid treatment programs must be registered under the DEA and must receive certification from SAMHSA (2015c). Opioid treatment programs also do not frequently provide other medical care—including testing or treatment for infectious disease—even though evidence suggests HIV outcomes can be improved when HIV care is delivered in such a setting (Lucas et al., 2004; Simeone et al., 2017) and that referrals out result in less care delivered (Umbricht-Schneiter et al., 1994). In interviews with experts on this topic, the committee was informed that opioid treatment programs have few financial incentives to provide medical care, including testing and treatment for infectious disease. The clinics are often small, with little space for examination rooms and storage of medical supplies, and providing such care would require more staffing.[56] In addition, as opioid treatment programs have been historically divorced from medical care, a shift to including it would likely require a cultural change.[7] Because opioid treatment programs have a large number of patients with OUD in both urban and rural settings, they represent an opportunity to provide greater integration of infectious disease and OUD care, if a professional workforce were trained and able to offer such services. In at least one way, this integration of OUD care and medical care has begun already: in a majority of states, Medicaid

[5] Lucas, G. 2019. Integrated OUD/infectious disease services, personal communication, August 5, 2019.
[6] Talal, A. 2019. Integration of OUD/infectious disease services. Washington DC, personal communication, May 6, 2019.
[7] Lucas, G. 2019. Integrated OUD/infectious disease services, personal communication, August 5, 2019.

funding can be used for OUD treatment in opioid treatment programs (Vestal, 2018). Furthermore, some screening for infectious diseases already exists in these programs (for tuberculosis and intermittent, opt-in HIV testing), though this is not widespread (CDC, 2014).

Methadone cannot be prescribed in primary care settings to treat OUD (though it can be prescribed for pain), despite several decades of research demonstrating its effectiveness for OUD (SAMHSA, 2019d). Federal regulations stem from two congressional actions that gave authority to HHS to regulate methadone and DEA to require registration for providers to dispense it: the Controlled Substances Act—Title II of the Comprehensive Drug Abuse Prevention and Control Act of 1970—as well as Section 3 of the Narcotic Addiction Treatment Act of 1974. Following from this legislation, methadone for OUD is allowed only for providers who have a separate DEA registration to dispense it for maintenance or detoxification (DEA, 2006).

Some have argued that this segregation of methadone treatment for OUD from primary care is out of step with the current crisis and leads to poorer outcomes for patients (Samet et al., 2018). In 1995, the Institute of Medicine noted in a consensus study that regulations surrounding methadone treatment for OUD

> Foster situations where addicts cannot obtain a treatment program tailored to their individual circumstances, physicians are unable to exercise professional judgment in treating individual patients, programs are isolated from mainstream medical care (thus depriving patients of important ancillary services), and significant economic costs are incurred in assuring compliance with regulatory requirements—costs that are shared by programs, insurers, patients, and taxpayers. (IOM, 1995)

The 1995 study further suggested that regulations surrounding methadone should be altered to "shift responsibility for treatment decisions from regulators to clinicians" (IOM, 1995). While diversion of methadone—and buprenorphine—has been posed as a negative consequence of increased access, NIDA has noted that the majority of diversion is for self-medication and to reduce cravings from other opioids, not for euphoric purposes (NIDA, 2018d). As former reports (IOM, 1995) and articles (Samet et al., 2018) have suggested, training providers on the use of methadone for OUD is paramount to ensuring that patient care is maximized and negative consequences are minimized. As mentioned, the Controlled Substances Act currently allows methadone to be prescribed for the treatment of opioid use disorder only within specially licensed and regulated facilities (opioid treatment programs), but not in office-based medical practices (FSMB, 2013). This is despite the fact that evidence suggests methadone can be effectively provided in office-based settings with high treatment retention (Fiellin et al., 2001), and that methadone is prescribed in office-based settings in several other countries. Access to methadone in primary care may be especially useful in rural areas, where opioid treatment programs may be limited (Samet et al., 2018).

Seven of the 11 programs interviewed reported some concern with the professional workforce for providing integrated OUD and infectious disease treatment. This included, most commonly, an issue with education. Several program informants believed there were simply not enough high-quality mechanisms for providers to be trained on integrated OUD and infectious disease care to meet the needs of patient populations. Programs also expressed a concern about the lack of billing and reimbursement mechanisms for training and their inability to bill for the hours of the non-physician workforce crucial to providing integrated care (e.g., case managers or peer support specialists). In addition, programs stated that there are few incentives for providers to move to and practice in rural areas where the need is the greatest. Finally, several informants

mentioned that state licensure rules prevented their programs from billing and obtaining revenue for certain kinds of care, such as a rule that prohibits billing behavioral health services unless they are provided by an LCSW, as opposed to other professional licenses. Data from SAMHSA in 2018 support these kinds of licensure requirements as a barrier to integrated care (SAMHSA, 2018a).

Regarding training, some have argued for additional OUD education in medical schools or residency programs, which could be coupled with infectious disease training that already exists (Dwarakanath, 2019; Haffajee et al., 2018; Ram and Chisolm, 2016; Ratycz et al., 2018; Wakeman and Barnett, 2018). This could include training on prescribing MOUD and or the SBIRT program (Madras et al., 2009) as a prerequisite for medical, residency, nursing, or PA training program accreditation, thereby increasing provider confidence. Typically, accrediting bodies (such as the Liaison Committee on Medical Education for medical schools or the Accreditation Council for Graduate Medical Education for residency programs) list a general set of competencies or standards that training programs must meet; for medical schools, increased education toward pressing societal problems, such as the dual epidemics of OUD and infectious disease, could be put forth as a curricular criterion for training programs across the country. Currently, medical schools do not devote a significant portion of training to SUD in general, with respect to evidence-based treatment, harm reduction, and stigma reduction (Finkelstein et al., 2011). Yet, inserting new curricula into an already filled medical education may be difficult. This has led others to argue for embedding SUD treatment into the regular curricula via case studies where substance use is a component of the overall patient profile, including patients with infectious diseases (Lembke and Humphreys, 2018). Regarding graduate medical education, HRSA has begun to provide funding for addiction medicine fellowship programs (ACAAM, 2019), though such programs are not available at all academic medical centers. Nonetheless, training alone may not be a sufficient incentive for newer health professionals to begin prescribing MOUD. As an example, when not using the DEA number of their supervising physician or hospital, a resident must pay a first-time application fee of $731 and a 3-year renewal fee of $551 to the DEA to obtain their own prescribing number (DEA, 2019). This may pose a financial barrier.

Finally, MOUD training coupled with infectious disease care could be encouraged and supported for continuing medical education once providers are practicing (Haffajee et al., 2018), offering opportunities for continual exposure to best care practices across a clinician's career. Training on these topics is currently available, including on harm reduction practices in primary care (ASAM, 2019), MOUD (PCSS, 2019c), and integrated care for patients with OUD and infectious disease (Sax, 2019).

With respect to the lack of a trained workforce specifically in rural areas, several novel models have been proposed. One is to allow patients the opportunity to take buprenorphine from home (often called "home induction") without immediate provider supervision, thereby reducing the number of necessary visits to a provider's office. Evidence is emerging—though studies are not of exceptional quality—that few adverse outcomes are associated with patients taking buprenorphine from home (Cunningham et al., 2011; Lee et al., 2009, 2014; Martin et al., 2018; Sohler et al., 2010). While more research is needed on the efficacy of home-based treatment, this represents a promising avenue for patients who lack transportation in rural areas or do not have easy access to a waivered-provider. Another is to increase telemedicine access such that providers can interact with a greater number of patients across rural areas, providing MOUD or

infectious disease care via local pharmacies. An expert interviewed for this study[8] provided a proof-of-concept study on HCV treatment for people who take methadone in both rural and urban areas (PCORI, 2019). The results suggest that telemedicine treatment for HCV to patients receiving methadone at an opioid treatment program was successful (UB, 2019). Given the historical dissociation between methadone treatment for OUD and medical care (Merrill, 2003) (including infectious disease care), this model may represent a promising avenue for further integrating these services in the hundreds of opioid treatment programs throughout the United States. Indeed, this may be increasingly relevant, as opioid treatment programs are opening more frequently in rural areas (Vestal, 2018). Nevertheless, stable reimbursement mechanisms for telemedicine services remain elusive (UB, 2019). HRSA has the Substance Abuse Treatment Telehealth Network Grant Program, but it does not include a specific focus on integrating OUD and infectious disease care (HRSA, 2019d). Other training models, such as the National Network of STD Clinical Prevention Training Centers funded by CDC, demonstrate how government-funded training can be distributed throughout rural regions of the country (CDC, 2019e). A similar model could be instituted for training on OUD and infectious disease integration.

An additional proposed solution is to expand hub-and-spoke models, as have been instituted in several states to address opioid use (Williams and Bisaga, 2016): a primary hub for a larger geographic region serves as the intake point for new patients, connecting them with initial MOUD treatment and determining the best placement for further treatment. Then, when patients are stable on MOUD, they are transferred to "spoke" care (primary care staffed by, for instance, nurse–counselor teams and buprenorphine prescribers). The goal is to move from more specialty care (hubs) to less intensive care (spokes) (Brooklyn and Sigmon, 2017) that can treat a wide variety of illnesses, including infectious diseases. Another mechanism to address rural workforce shortage is to institute widely advertised loan forgiveness programs focused specifically on treating OUD and infectious disease in underserved areas. As of 2019, HRSA had such a program to combat the opioid epidemic in rural communities, although it does not explicitly address the need to treat co-occurring infectious diseases (HRSA, 2019c).

Findings

- There is an inadequate number of providers—including health professionals, social workers, peer-support specialists, therapists, and counselors—capable of treating infectious disease and opioid use disorder in an integrated way (including medications and ancillary services for both) relative to the population struggling with these concurrent epidemics.
- The workforce shortage is especially notable in rural areas.
- Despite treating thousands of patients with opioid use disorder and concurrent infectious disease, opioid treatment programs (where methadone is dispensed) do not frequently provide infectious disease care in this setting.
- Though in the early stages, telemedicine is being studied and used in order to provide integrated services for opioid use disorder and infectious disease.

[8] Talal, A. 2019. Integration of OUD/infectious disease services. Washington DC, personal communication, May 6, 2019.

Conclusions

- *A more robust provider workforce must be developed from those already in practice and those currently in training.*
- *Incentives must be made available for providers to treat patients in rural areas, where services are otherwise difficult to access.*
- *Integrating infectious disease testing and treatment in opioid treatment programs throughout the United States represents an opportunity to integrate care for many patients already seeking opioid use disorder treatment.*
- *Telemedicine and other approaches that increase access to care represent promising opportunities to integrate services for opioid use disorder and infectious disease.*

Recommendation 3-5: In addition to the Opioid Workface Expansion Program for behavioral health trainees, the Health Resources and Services Administration should fund high-quality, clinically relevant training on the care and management of co-occurring opioid use disorder and infectious disease for clinicians working in a wide variety of settings (e.g., primary care clinics, infectious disease care settings, and other settings that treat people with opioid use disorder and related infectious diseases).

Recommendation 3-6: The Health Resources and Services Administration should devote additional resources toward—and more widely promote—programs that incentivize providers—including psychiatrists, health service psychologists, licensed clinical social workers, psychiatric nurse specialists, marriage and family therapists, and licensed professional counselors—to work in rural areas where opioid and infectious disease outbreaks are most likely to occur (one such program is the National Health Service Corps Rural Community Loan repayment program, in coordination with the Rural Communities Opioid Response Program within the Federal Office of Rural Health Policy).

Recommendation 3-7: The Health Resources and Services Administration should widen the scope of its Substance Abuse Treatment Telehealth Network Grant Program to support telemedicine approaches for integrating both opioid use disorder and infectious disease services, particularly in rural areas.

Recommendation 3-8: The Department of Health and Human Services should explore policy incentives for providers and clinics to provide a wider array of evidence-based medications for opioid use disorder and to institute universal, opt-out testing and connection to treatment for infectious diseases, especially at methadone-based opioid treatment programs.

Recommendation 3-9: Congress should amend section 303 of the Controlled Substances Act to permit providers to deliver methadone treatment for opioid use disorder in primary care settings.

Recommendation 3-10: The Diversion Control Division of the Drug Enforcement Agency should waive the fee associated with gaining a registration number for health professionals (i.e., medical residents, physician assistants, and qualified nurses) in their residencies or soon after their training is finished to incentivize them to gain buprenorphine prescribing authority early in their careers.

Recommendation 3-11: To better integrate training on opioid use disorder and infectious disease in health professions training:

- **The Liaison Committee on Medical Education (LCME) should assure that medical students receive practical, clinically relevant, harm-reduction-focused, case-management-based training on opioid use disorder and infectious diseases assessment, management, and treatment in response to LCME's curricular content standard 7.5 (societal problems).**
- **The Accreditation Council for Graduate Medical Education should, among its common program requirements, require that residents and fellows receive practical, clinically relevant, harm-reduction-focused, case-management-based training on opioid use disorder and infectious diseases.**
- **The accreditation bodies for nursing education should assure that students receive practical, clinically relevant, harm-reduction-focused, case-management-based training on opioid use disorder and infectious diseases assessment, management, and treatment through their curricular, programmatic, or competency criteria.**
- **The Accreditation Review Commission on Education for the Physician Assistant, Inc. (ARC-PA) should assure that students receive practical, clinically relevant, harm-reduction-focused, case-management-based training on opioid use disorder and infectious diseases assessment, management, and treatment in response to ARC-PA's program curriculum standard number B2.08 (social and behavioral sciences).**

Recommendation 3-12: State Medical Boards (and equivalent licensing bodies for other health professionals) should encourage providers to take continuing education focused on harm reduction in fulfilling their continuing education requirements.

BOX 3-4
Program Informant Comments on the Inadequate Workforce and Training

ARCare
Behavioral health services can only be billed if an LCSW provides the care in Arkansas, whereas in other states anyone with a professional license can bill for services. This interferes with ARCare's ability to provide care with a limited workforce. (Frank Vega, L.M.F.T., Director of Behavioral Health, personal communication).

LifeSpring Health Systems
In rural areas, there is a significant workforce shortage. It is difficult to incentivize providers with niche expertise to work significant hours at certain locations. Some providers cannot be reimbursed for services for integrated care at all. For instance, only LCSWs can bill for frequently needed services under the reimbursement. Employees with a master's degree in counseling, on the other hand, cannot. (Beth Keeney, M.B.A., Senior Vice President for Community Health and Primary Care Services, personal communication).

Philadelphia FIGHT
Philadelphia FIGHT has recognized that education about SUD in medical schools has not historically been adequate, and it aims to correct that inadequacy through its own internal education. This includes implicit bias training, training during AIDS education month, and allowing all who work there to be trained. Early on, Philadelphia FIGHT provided naloxone training (for clinicians and for patients), to reduce fear of using the drug. Philadelphia FIGHT recently provided long-acting injectable naltrexone training for its clinicians and safer injecting practices for clinicians and medical staff (medical case managers). (Laura Bamford, M.D., Medical Director, Clinica Bienestar, personal communication).

Plumas County Public Health Agency
Agency staff are encouraged to take advantage of trainings offered by the state, and they have hosted local harm reduction and MOUD training to educate providers in neighboring counties. Within the organization, there has been no explicit trainings for staff on integrated services; instead, much of the training has been peer to peer. The agency has had to be creative to find ways to train staff on integration. Additionally, it has been difficult to find providers that want to live and work in rural areas, even with tuition reimbursement mechanisms. (James Wilson, Health Education Coordinator; and Barbara Schott, M.S.W., Health Education and HIV/AIDS Program Manager, personal communication).

Bronx Transitions Clinic
Resources and providers are not sufficiently available to provide comprehensive mental health care, which is vitally important for the populations that BTC treats. (Aaron Fox, M.D., Director, personal communication).

Whitman-Walker Health
The work of peer addiction-recovery specialists is not billable, even though these support staff are crucial to providing quality integrated care. Whitman-Walker Health is currently able to pay for a portion of this cost through grant funding, but this will be difficult to sustain long term. (Sarah Henn, M.D., Chief Health Officer, personal communication).

CrescentCare
With respect to staff training, there have been several grand rounds lectures on the integration of infectious disease and OUD services. It has also helped to have an addiction psychiatrist located in the same area as PCPs, who are able to ask for assistance. Finally, CrescentCare has had several peer-to-peer education sessions follow DATA waiver training to make providers more comfortable prescribing MOUD. Stigma has played an important role in preventing further

integration: even with HIV (which CrescentCare has focused on for many years), it took a long time to evolve toward an embracing rather than a punitive culture (e.g., for patients that miss appointments). The peer-to-peer education has helped reduce this stigma. (Nick Van Sickels, M.D., Chief Medical Officer; and Jason Halperin, M.D., Infectious Disease Physician, personal communication).

STIGMA

Behaviors or conditions that are socially discrediting can be stigmatizing such that individuals are "labeled, set apart and linked to undesirable characteristics that leads them to experience status loss and discrimination" (Link and Phelan, 2001). Individuals with OUD and some infectious diseases such as HIV and viral hepatitis, often experience stigma related to their condition(s) (NASEM, 2016a,b, 2019). Stigma can occur at any of the following five levels: (1) intrapersonal, (2) interpersonal, (3) community, (4) organizational/institutional, and (5) governmental/structural (Cook et al., 2014; Heijnders and Van Der Meij, 2006; Rao et al., 2019). Internalized stigma associated with shame, guilt, and fear of negative effects (Kelly and Westerhoff, 2010), and perceived stigma by others that individuals are dangerous, unpredictable, and to be blamed for their own condition (Yang et al., 2017) may deter individuals from seeking health care or providers from delivering care (Van Boekel et al., 2013). Despite the fact that stigma deters access to systems of care for diagnosis, treatment, and successful health outcomes (Katz et al., 2013; Rueda et al., 2016; Van Boekel et al., 2013; Yang et al., 2017), "stigma reduction is not a routine part of the way in which health services are delivered or evaluated" (Nyblade et al., 2019).

Seven informants from the 11 programs interviewed commented on the role that stigma plays as a barrier for individuals seeking care and in shaping care delivery. There were several key aspects about stigma that were repeated across programs. The first was that stigma in general may prevent patients from seeking treatment (especially those who inject drugs) and prevent organizations from delivering treatment. Another was the stigma associated with infectious disease, and the additional stigma that patients may encounter if they are positive for HIV or viral hepatitis while continuing to use drugs.

A third issue cited across several programs was provider stigma, and the need to instill compassionate, patient-centered care in providers. Provider stigma toward individuals with OUD has been noted in the literature as a problem that can hinder care delivery and quality (Kennedy-Hendricks et al., 2016; NASEM, 2019; Olsen and Sharfstein, 2014). Though the issue is complex, there is evidence that stigma against persons who use drugs—or those already seeking treatment through MOUD—may limit the care (Kepple et al., 2019). Four of the interviewed programs mentioned the importance of providing "culturally competent care," or that this type of care was at the core of their mission. It is possible that more widespread use of care protocols—such as SBIRT—may assist providers in treating patients in an unbiased manner (Babor et al., 2007).

Related to provider stigma is the problem of stigmatizing language used by health professionals (e.g., "addicts" rather than person-centered language like "individuals with SUD") (Kelly et al., 2016). Recommendations for improving terminology related to substance use and SUD have been made by the White House Office of National Drug Policy (Botticelli, 2017).

Professional associations have also called for reducing stigma by improving language related to SUD (AMA, 2018; Goldsmith, 2016). The committee heard from one clinician informant that the language used in the treatment field continues to be stigmatizing. In this clinician's view, the term "medication-assisted treatment" (MAT) perpetuates stigma by conveying medication as secondary to other kinds of treatment: "I think we need to eliminate the term 'medication-assisted treatment'; it's treatment or it's medication. The medication is the focus."[9] Another term used in the field, "induction," was also viewed as a stigmatizing term compared to simply "starting treatment." The clinician reported that providers in clinical settings are often concerned about having to "induct individuals" on medication: "As I try to convince more settings to integrate, there's this fear of starting. I think the term induction has been a tremendous negative. We don't induct individuals on … medication; we *start* people on medication."[10] "Opioid substitution therapy" is an additional term that may perpetuate stigma, implying that patients seeking MOUD are simply substituting one addiction or one opioid with another (Samet and Fiellin, 2015).

Stigma has been a perennial issue with respect to OUD (Kennedy-Hendricks et al., 2017; Vigilant, 2004), infectious disease (Alonzo and Reynolds, 1995), and SUD more generally (Link et al., 1997). Interviewed programs proposed a number of solutions for reducing stigma and increasing patient-centered care. A number of informants noted that because many of their clients have stigmatized health needs, they strive to counter the stigma by consistently working to make sure the environment is stigma free and that their policies promote a welcoming, nonjudgmental care environment. Additionally, several programs mentioned structuring their models of care to reduce the stigma associated with OUD and infectious disease. Primary care clinics, in particular, reported that integrating OUD treatment within primary care services resulted in less stigmatization. One reason is that, in an integrated clinic, patients may be visiting for any number of reasons, including SUD or infectious disease or simply a primary care checkup.

Early research suggests that educational interventions to reduce self-stigma (i.e., stigma that patients feel about themselves) (NASEM, 2016), general public stigma, and provider stigma can be effective. These tactics include group-based acceptance and commitment therapy, motivational interviewing/voluntary counseling, communication of positive stories of people with SUD, and contact-based training (Avery et al., 2019; Chidrawi et al., 2016; Feyissa et al., 2019; Livingston et al., 2012). Beyond intrapersonal, interpersonal, and community-level interventions to reduce stigma, interventions that work within systems of care and institutions are crucial to reduce stigma and support health outcomes. Feyissa and colleagues state that targeted training for popular opinion leaders within systems of care can reduce health care workers stigmatization of people living with HIV and improve compliance with universal precautions (Feyissa et al., 2019). As demonstrated at the interpersonal and community levels, showcasing positive stories of those who are successfully recovering from SUD can also help improve health professionals' attitudes toward patients seeking treatment and reinforce the notion that treatment works (Rao et al., 2009). Additionally, education efforts that incorporate critical self-reflection and contact with stigmatized patients has been shown to reduce stigma among psychiatry residents and medical students (Ballon and Skinner, 2008; Bland et al., 2001; Meng et al., 2007;

[9] Fingerhood, M. 2019. Integration of OUD/infectious disease services. Washington, DC, personal communication, June 28, 2019.
[10] Ibid.

Silins et al., 2007). It has been suggested that large-scale, government efforts to eliminate stigma are possible (NASEM, 2016b). Indeed, Bahora and colleagues demonstrated a significant decrease in social distance toward cocaine and alcohol dependence among police officers who received interactive and instructive crisis intervention skills training (Bahora et al., 2008).

Health system structural approaches may also be effective. For example, the Health Policy Project has developed approaches to implement anti-discrimination policies and prevent infectious diseases by distributing injection equipment supplies and supporting other prevention efforts (HPP, 2011). The way in which physical spaces are designed can also increase, or mitigate, the stigma that patients experience (Sullivan, 2012). Physical changes can lower the stigma experience, and the risk of unwanted exposure (Bil, 2016). For instance, a pharmacy in Zambia historically had two separate windows where medications could be picked up—one for people living with HIV, and other for remaining patients—thereby inducing a stigmatizing and "othering" experience. Now all medications are picked up at the same window in this pharmacy (Topp et al., 2012).

During discussions with program informants the committee learned that some programs dealt with the issue of provider stigma during the early stages of integration. A number of informants also commented on the need to educate not just physicians, but also nurses, pharmacists, front-desk staff, and others to counter stigmatizing attitudes among all health professionals. Indeed, the literature supports this point, suggesting that clinical and non-clinical staff would benefit from stigma-reduction interventions (Nyblade et al., 2019). In addition, studies have found that it is important to emphasize that empowerment is key for both patients and health care providers in reducing stigma (Batey et al., 2016), to utilize technology for increased engagement with care (Nyblade et al., 2018), and to target existing policies that inadvertently increase stigma.

Findings

- Stigma surrounding opioid use disorder, substance use disorder, and infectious disease is pervasive in many corners of society, including in medical care and behavioral health systems.
- Stigma and the lack of culturally competent care are likely key reasons that patients do not seek treatment, do not remain in treatment, or do not maintain strong social support systems (such as family or community ties).
- Research exists that can provide insight into scalable, sustainable interventions to reduce stigma broadly, and more specifically, among people who use drugs themselves (i.e., self-stigma), the general public, and health professionals.

Conclusions

- *To effectively treat opioid use disorder and concurrent infectious disease at scale, stigma must be significantly reduced in medical settings among medical professionals at all levels, among people who use drugs, and among the public more generally.*
- *Individuals struggling with opioid use disorder must be made to feel that they can seek nonjudgmental, compassionate, patient-centered, and culturally competent treatment.*

Recommendation 3-13: The Substance Abuse and Mental Health Services Administration should support implementation of multi-level, sustainable, evidence-based, and measurable intervention strategies aimed at reducing stigma in clinical settings against people who use drugs, people who inject drugs, and people undergoing treatment with medications for opioid use disorder or who have infectious diseases. Such efforts should be targeted toward a range of health professionals (e.g., counselors, prescribing health professionals, front-desk staff, and others) across geographic regions of the United States, and the evaluations and results from these interventions should be made publicly available.

BOX 3-5
Program Informant Comments on Stigma

Evergreen Health
"Staff must have a strong understanding of patient-centered, compassionate, and nonjudgmental care techniques, as well as a harm-reduction philosophy." (Emma Fabian, M.S.W., Senior Director of Harm Reduction, personal communication).

LifeSpring Health Systems
"So stigma is still very, very real. I don't know if the public perception has changed, but the way that we hire our staff has changed. And I ask outright, are you comfortable serving a population that has HIV and hepatitis C, and if you're not, that's okay. There's a place in health care for everyone, but it may not be here for you." (Beth Keeney, M.B.A., Senior Vice President for Community Health and Primary Care Services, personal communication).

CrescentCare
"Negative media coverage around people who inject may prevent patients from seeking treatment and can stigmatize patients as well as the providers and organizations that seek to treat OUD." (Nick Van Sickels, M.D., Chief Medical Officer; and Jason Halperin, M.D., Infectious Disease Physician, personal communication).

Greater Lawrence Family Health Centers
"My theory is that there is this really powerful double stigma that goes along with having HIV and comorbid substance use disorder. And so, many of our [SUD] patients, particularly those that were infected through this recent outbreak, once they learn that they are HIV infected, they isolate themselves. And that isolation significantly increases their risk for overdose. That isolation also makes it harder for them to engage in care." (Christopher Bositis, M.D., Clinical Director, HIV and Viral Hepatitis Programs, personal communication).

Southcentral Foundation
"For us, what you are getting care for as you enter the medical home could be anything. It could be dietary—it could be diabetes [treatment]. It could be Suboxone treatment… No one knows, because once you get into the back of the clinic space, it is whatever you need." (Steve Tierney, M.D., Senior Medical Director of Quality Improvement, personal communication).

Whitman-Walker Health
"Changing the culture required perseverance and repeated conversations with the organization's leadership, staff, and providers to get buy-in. Providers need to be convinced by

the evidence that incorporating SUD in primary care could produce better outcomes for patients. … Another reason for integrating services into primary care is that stigma against drug use is easier to address in that setting, as it can be treated alongside any other medical need that requires the primary care provider's guidance and expertise." (Sarah Henn, M.D., Chief Health Officer, personal communication) .

Plumas County Public Health Agency
"So we're adding as many county services as we can on [the mobile unit], so people could be going up to get their dog licensed, but they could also be going up to it to get an HIV test or get syringes. You never know. So if it's known as just public health in general or county services in general, that helps [with] the destigmatization of it." (James Wilson, Health Education Coordinator; and Barbara Schott, M.S.W., Health Education and HIV/AIDS Program Manager, personal communication).

PAYMENT AND FINANCING LIMITATIONS

Eight of the programs interviewed commented on the difficulty in finding sustainable, long-term sources of funding for services they were providing or aimed to provide. This was especially true for harm-reduction services (including syringe service programs), telemedicine, case management, and peer-recovery counselors.

There is a robust literature describing effectiveness and cost-effectiveness of syringe service programs in preventing new cases of infectious disease among people who inject drugs. A systematic review found consistent effects across 15 studies, with decreases in HIV and HCV incidence and prevalence (Abdul-Quader et al., 2013). Other studies have found similar effects (Des Jarlais et al., 2005), and still others have observed that syringe service programs are cost effective, saving dollars in the long run by preventing new cases of infectious disease (Belani and Muennig, 2008; Nguyen et al., 2014). Despite this evidence, federal funding for syringe service services has been minimal or inconsistent (Showalter, 2018). In 2016, Congress passed into law legislation allowing HHS to fund syringe service programs, reversing a decades-long prohibition against using federal funds to support syringe service programs.[11] However, the law came with several caveats. First, the funds could not be used for syringes or syringes themselves or for cookers, only for ancillary costs associated with the service (e.g., staff salaries, quality assurance, other supplies, testing kits for viral hepatitis and HIV, or syringe disposal equipment). While syringes and other paraphernalia are relatively inexpensive, they are the very tools that are directly responsible for reducing the transmission of blood-borne infections and are often the reason patients first visit a syringe service program. Notably, however, costs for equipment that is not allowable with federal funding can range between 11 and 28 percent of the total annual costs to operate a syringe service program. This suggests that allowing federal funding for this equipment may incentivize more syringe service programs to open, or would assist currently operating programs with their ongoing expenses (Teshale et al., 2019). If the ban on federal

[11] Early evidence demonstrated that syringe service programs that received state or local funding were able to offer more services, including HIV testing and counseling, and distribute more syringes than programs not receiving public funds (Des Jarlais et al., 2004). More recent evidence, published in 2015, supports these findings (Bramson et al., 2015).

funding remains, on the other hand, it is expected that syringe service programs will not be able to offer additional services (e.g., testing for infectious disease), as a large percentage of their budget will be devoted to purchasing injection equipment. This is especially so for syringe service programs located in states where no state or local funding is available (Bramson et al., 2015). Second, the programs were required to provide evidence that the surrounding region was "experiencing or at risk for significant increases in hepatitis infections or an HIV outbreak due to injection drug use" (CDC, 2019a). In general, the policy landscape around syringe services has changed somewhat rapidly in recent years, creating legal, policy, and funding confusion for these programs (Jones, 2019). Lifting the prohibition on funding equipment and increasing overall federal and state funding is vital to scaling up a robust network of syringe service programs. It should also be mentioned that states can independently fund syringe service programs (including the provision of injection equipment), and that state funding has been shown to increase the number of services that syringe service programs can offer (e.g., testing for infectious diseases on site) (Bramson et al., 2015). Syringe service programs have the potential to serve as a low-threshold access point for a wide range of health and social services for people who inject drugs, but spatial access to them remains limited: as of 2019, there were fewer than 400 syringe service programs nationwide, and a number of states have none (amfAR, 2019).

Several programs also mentioned that case management services were difficult to fund, despite the great need for effective case management for patients with comorbid OUD and infectious disease. The Ryan White program allows for wraparound services (including case management and transportation reimbursement) for people living with HIV, services that have been shown to be effective in increasing care retention and viral suppression (Kay et al., 2018). Programs interviewed mentioned that similar services for those with OUD or other infectious diseases besides HIV would provide significant benefits to patients (in addition to continuity in insurance coverage, as is described further with respect to Medicaid in the criminal justice section later in this report).

Similarly, programs that incorporated peer addiction recovery counselors or specialists also mentioned difficulties in sustaining funding for these positions. This is in line with published literature: Englander and colleagues created a list of recommendations for sustaining these positions, mentioning that peer services are frequently not billable (Englander et al., 2019). Hence, other funding mechanisms are required.

More generally, programs mentioned that they frequently had to create a patchwork of funding and build the financial case for integration to provide integrated OUD and infectious disease services. Some community health center programs received funding under HRSA's Health Center Program (FQHCs),[12] some programs received Ryan White funding that was used to provide OUD services, and others received a mix of grant funding to provide other ancillary services. A 2019 study showed that lack of resources, staff, or funding were primary reasons why programs elected not to provide MOUD in their clinics (Kepple et al., 2019). Nevertheless, there are government programs available for assistance. SAMHSA, for instance, provides technical assistance and funding opportunities (SAMHSA, 2019a) for programs and communities to address OUD prevention, treatment, and recovery (SAMHSA, 2019f), as well as for the

[12] Federally Qualified Health Centers (FQHC) are designated community health centers that operate as part of the Health Center Program administered by the Bureau of Primary Health Care within the Health Resources and Services Administration. The Health Center Program provides grants to FQHCs under section 330 of the Public Health Service Act (42 U.S.C. § 254b) (GAO, 2018).

integration of primary and behavioral health care (though this funding opportunity does not specifically address the interplay between opioid use disorder and infectious disease) (SAMHSA, 2019k). There may be other government-sponsored mechanisms for programs to sustain their services. In the SUPPORT Act of 2018, Congress called upon CMS and the Center for Medicare & Medicaid Innovation (CMMI) to test new models of funding for programs to deliver MOUD (Congress, 2018); similar efforts could be made to test models of funding for integrated care between OUD and infectious diseases. In addition, there are many published models of funding at the state level—such as bundled payment models that provide comprehensive services for patients with OUD—that could be scaled up and incorporated with infectious disease care or propagated to other states (Gueronniere, 2019; O'Brien et al., 2019). This could be accomplished, for instance, through the use of Section 1115 authority to institute experimental, pilot, or demonstration projects to test and evaluate changes to state Medicaid programs (NCSL, 2017). Each of the aforementioned models may hold promise for restructuring financing systems to better integrate services for OUD and infectious diseases.

Informants for this study—and the committee—drew parallels between the current opioid crisis and the HIV crisis in the late twentieth century. In 1989, the year before the CARE Act was passed, the number of reported cases of HIV had reached 100,000. In its first year, the CARE Act provided $220.5 million in funding for community-based care and treatment services, managed by HRSA (HHS, 2019b). The CARE Act is viewed today as a crucial piece of legislation for reducing the burden of HIV/AIDS on the public's health (HRSA, 2019a; Sood et al., 2014). The program provides easier access to medication, and as of 2017, 85.9 percent of patients receiving its support were virally suppressed, compared to the national average of 59.8 percent (HRSA, 2019a).

In 2018, more than 2.0 million people had OUD, 808,000 people used heroin, and tens of thousands were killed as a result of opioid overdose (HHS, 2019d; NIDA, 2019). The mortality rate from opioids is now higher than that of HIV at its peak, despite the fact that effective medications exist to treat OUD and none existed early in the HIV epidemic (Berger, 2019). Indeed, there is drop-off at every level of the opioid care cascade. Many patients cannot access treatment, many that access treatment are not retained, and many who are retained in treatment undergo relapse or overdose (Williams et al., 2017). This drop-off in effectiveness may be due in large part to the lack of services available at every stage in care. Importantly, the types of services provided by Ryan White funding for people living with HIV—including wraparound services and those that address other social determinants of health—were mentioned by interviewed programs as being difficult to fund for patients with OUD who were not also living with HIV. Programs mentioned that the same level of funding attention is required for OUD as was provided in the early years of the HIV epidemic.

Findings

- Syringe service programs are effective in reducing the transmission of infectious disease and engaging patients in care, yet there are federal restrictions on funding for injection equipment.
- Funding to pay for integrated services is insufficient or difficult for some programs to find and obtain. Often, programs have to use a patchwork of funding to deliver integrated opioid use disorder and infectious disease services.

- The opioid care cascade model, as has been currently proposed in Williams et al. (2019), consists of metrics for assessing and ameliorating opioid use disorder through prevention, identification, treatment, and recovery.
- Substance Abuse and Mental Health Services Administration is a source of technical advice on integration, offering resources about the ways in which programs can be coordinated/integrated, including from a payments and finances perspective.
- When a similar public crisis caused by human immunodeficiency virus was identified, it was necessary and transformative for the Department of Health and Human Services to fund gaps in care through the Ryan White Comprehensive AIDS Resources Emergency Act.

Conclusions

- *Syringe service programs are a crucial element in reducing the spread of infectious disease and increasing connection to care for opioid use disorder.*
- *Stable, easily accessible sources of funding are needed to ensure fully integrated services for opioid use disorder and infectious disease (and primary care and substance use disorder more generally).*
- *Much like the human immunodeficiency virus care cascade model, the opioid care cascade model could be an effective framework for the government in assessing how to reduce the harm associated with opioid use disorder.*
- *Substance Abuse and Mental Health Services Administration is well positioned to provide both the funding and technical assistance needed for programs to integrate services for opioid use disorder and infectious disease.*
- *By harmonizing funds with evidence-based preventative and therapeutic services, the Ryan White Comprehensive AIDS Resources Emergency Act not only funded but also shaped the national response to the human immunodeficiency virus (HIV) epidemic and sharply reduced HIV-related mortality.*

Recommendation 3-14: Congress should ensure that federal funds can be used to purchase injection equipment at syringe service programs.

Recommendation 3-15: The Substance Abuse and Mental Health Services Administration should support programs attempting to implement quality care through integrated services (e.g., from colocated services to fully integrated) through grants that provide technical assistance on implementation of integration strategies, while also collecting data to form an evidence base about the best strategies for future integration.

Recommendation 3-16: The Substance Abuse and Mental Health Services Administration and the Health Resources and Services Administration and other government funders should require that organizations receiving funding for opioid use disorder and infectious disease services submit information on a regular basis with data related to the opioid care cascade model and their plans for using the care cascade model to

prevent, identify, treat, and promote recovery for patients with opioid use disorder.

Recommendation 3-17: Congress should authorize and appropriate funding for the Health Resources and Services Administration to comprehensively address the needs of low-income uninsured or under-insured individuals with co-occurring opioid use disorder and infectious diseases. Such an effort should encompass a full range of services—including integration of prevention and treatment services—as well as services that address the social determinants of health (e.g., housing and transportation). Furthermore, the effort should develop clear metrics of success and require participating organizations to report these metrics as a condition for participation. The committee recognizes that policy makers will need to wrestle with program specifics such as the specific services to be covered, coordination with other federal programs, program standards, and eligibility levels.

BOX 3-6
Program Informant Comments on Payment and Financing Limitations

Evergreen Health
From a financial perspective, most patients are insured through Medicaid, and patient visits and the onsite pharmacy are the major sources of revenue. Although harm reduction services and the walk-in STI testing are more difficult to fund, Evergreen Health has substantial grant assistance from the New York Department of Health and smaller grants from numerous other organizations. Still, because these services act as an entry point for other billable services, they are useful from a revenue perspective even though they do not generate revenue themselves. (Emma Fabian, M.S.W., Senior Director of Harm Reduction, personal communication).

CrescentCare
As the volume of patients accessing MOUD through the primary care program continues to increase, CrescentCare may consider applying for additional grant funding. However, it is cautious about this prospect because it does not want to inadvertently filter out certain patients from the overall pool of patients who need services (i.e., if CrescentCare is awarded a grant that applies specifically to patients living with HIV, this may limit the ability to treat patients with other illnesses). Indeed, this has already been the case with one of their programs: Recovery Works has a peer coordinator component, but based on the terms of the grant, it can only be used for patients living with HIV who also require addiction treatment and cannot be used for uninfected patients. (Nick Van Sickels, M.D., Chief Medical Officer; and Jason Halperin, M.D., Infectious Disease Physician, personal communication).

Greater Lawrence Family Health Centers
Ensuring stability of funding is a perennial issue, but the fact that much of GLFHC's patient population is insured allows grant funding to go toward improving coordination of services. The hope is that by integrating services early, GLFHC will be able to save the health system in the long run despite some up-front investment.

"We have the same program managers overseeing the HIV, viral hepatitis, addiction med, homeless, and prevention programs. And so, because they are the ones who are managing the budgets, they are able to, I think, help us figure out how we can maximize financial flexibility in terms of utilizing funding and cross-training the staff that we have on the ground, and integrating those staff into the different programs." (Christopher Bositis, M.D., Clinical Director, HIV and Viral Hepatitis Programs, personal communication).

Whitman-Walker Health

"Certainly, our addictions peer specialist is something we fund out of the goodness of our own heart to a large degree. It is not a billable position. We have some grant funding for it, but it is certainly here and there…They are [people] that we were very skeptical to hire because we did not have a good way to pay for them. And now that we have them, I cannot imagine the program without them."

Patient visits themselves—regardless of the type of visit—generally do not produce sustainable revenue. The pharmacy produces revenue from privately insured and Medicare patients, but not for Medicaid patients because Medicaid only reimburses Whitman-Walker Health at-cost for dispensed medications. Although 50–60 percent of patients are on Medicaid, the mix of patient payers using the pharmacy generally allows Whitman-Walker Health to recoup costs. As a qualified health center, Whitman-Walker Health is able to offer significantly reduced pricing on drugs from its pharmacy through the 340B Drug Pricing Program. (Sarah Henn, M.D., Chief Health Officer, personal communication).

King County Department of Public Health

Financial sustainability has been a perennial issue for these programs. While the MOUD program receives funds from local sales taxes, and the city and county provide public funding, there are few stable pools of funding to sustain the range of services the department staff would like to offer. The public health nurse for HCV care is funded on the last year of a grant, and the department staff hopes to find more permanent funding. This grant funding is also being used to build up IT infrastructure and improve reimbursement billing efficiency. Billing for the telemedicine visits has posted another program, because the provider is part of a separate system. Additionally, insurance does not always cover the full amount for HCV labs, and the department will have to absorb that cost by some other mechanism.

The syringe service program—which provides a referral source for many other billable services—is not itself a billable service. This requires the department to find external sources of funding for that program.

While grant funding is available for these kinds of programs, they are often focused on screening and linkage to care (rather than treatment). Because of this, it's unclear where the revenue will come from to pay for treatment in these programs long term. The goal is to make each of these programs sustainable through patient-generated revenue, but there is no delineated path forward to make this a reality. (Brad Finegood, M.C.P., Strategic Advisor at Public Health; Hilary Armstrong, M.P.H., Project/Program Manager III; Julia Hood, Ph.D., M.P.H., Epidemiologist II; Julie Dombrowski, M.D., M.P.H., Deputy Director of the HIV/STD Program; and Joe Tinsley, Needle Exchange Coordinator/PPM II, personal communication).

Plumas County Public Health Agency

To remain sustainable over time, the agency has tried to leverage federal grants toward instituting permanent services. One goal of the agency is to prevent and treat infectious disease and OUD, since these diseases are so closely linked. But funding has been difficult to obtain, and there is always a concern that the funding will not be sustainable long term because programs are funded through several different mechanisms. The medication services, for instance, came initially from a state grant to promote rural health, and are now funded by a 2018

HRSA grant and California's hub and spoke model; HIV testing is available from Ryan White funding; syringe service supplies are funded by the state of California through the Office of AIDS; and HCV testing is paid for by the agency's public funding.
Although there is the possibility of grant funding, there are no simple financial mechanisms for covering case management for patients living with HCV (whereas Ryan White funds case management for patients living with HIV). Plumas County Public Health Agency's strategy has been to apply for as much external funding as possible.
"Even in a Ryan White program, you see the case managers in every site. Each of those case managers have about six or seven different programs that they're working on. They are only like 0.1 FTE Ryan White case management because that's what happens in rural populations is you do everything yourself. Everybody takes on multiple roles and with different grant requirements again, it adds to the complexity." (James Wilson, Health Education Coordinator; and Barbara Schott, M.S.W., Health Education and HIV/AIDS Program Manager, personal communication).

ARCare
"With reimbursement through Medicaid, it may be possible to bill visits for comprehensive care and generate enough revenue to sustain integrated care. Case management is another service that ARCare would like to perform with greater frequency, but it is not a billable service. HRSA will make announcements from time to time that say, for instance, encourage community health centers to begin an opioid treatment program. About four years ago, that is exactly what happened with us, and then there have been some other grants that we have obtained to help us develop some of our [MOUD] programs. One grant in particular is a collaboration grant where we had to identify a community partner to assist us with the implementation of a [MOUD] program. Those are the types of grants that we really look at and they are really more specific to the FQHC world … and available generally only to FQHCs. The general public or the general training population would not have access to those grants." (Frank Vega, L.M.F.T., Director of Behavioral Health, personal communication).

Bronx Transitions Clinic
As services have become more comprehensive, it has been harder to secure funds to cover everything that BTC would like to. This is a primary reason BTC has not expanded its mental health treatment capacity—they could write another grant to cover those services, but it would likely be limited in time or scope and would not guarantee sustainability in the future. (Aaron Fox, M.D., Director, personal communication).

SAME-DAY BILLING RESTRICTIONS

Reimbursement regulations at the state level were mentioned as a barrier for five programs interviewed for this study. Some states prohibit an organization from billing for both behavioral and physical health care visits on the same day, referred to as "same-day billing" (SAMHSA, 2018a). For programs seeking to provide integrated care between OUD and infectious disease in the same facility, this restriction poses a difficulty (Bachrach et al., 2014). For some programs, the most viable option may be to provide behavioral health services without seeking reimbursement, or to ask that the patient return on a different day (Miller et al., 2013).

The federal government does not prohibit same-day billing; rather, state Medicaid reimbursement rules dictate whether this practice is allowed. As of 2019, 13 states had same-day billing restrictions (Henderson, 2019). Increasingly, states are modifying these rules to allow for same-day billing (Brown and McGinnis, 2014). For example, Florida's Medicaid reimburses

providers for up to three medical encounters per day (physical, dental, and behavioral health); Washington State allows multiple providers to bill on the same day for the same patient, or the same provider to bill on the same day for unrelated diagnoses (Houy and Bailit, 2015).

Although interdisciplinary treatment may encourage the best patient outcomes, medical visits are often billed at a higher rate and is therefore prioritized in states with same-day billing restrictions (Monson et al., 2012). This poses a financial-sustainability problem for programs seeking to integrate care, as they may only be able to seek reimbursement for a fraction of the care provided.

In addition, same-day billing restrictions may have unequal effects across different populations. Low-income individuals and racial/ethnic minorities are less likely to have secure transportation or the ability to skip work for an additional appointment, and are more likely to be covered by Medicaid (Syed et al., 2013). They may be less likely to make a second appointment on a different day if needed, preventing full continuity of care and integration between behavioral and physical health.

As mentioned, states are revising same-day billing regulations. Still, because state-level changes are happening relatively quickly, it is important that practitioners are made aware of the changes so they may provide the most effective integrated care possible (Roby and Jones, 2016). At the federal level, CMS often provides guidance or information to state Medicaid programs through several mechanisms, including regulations, state Medicaid director letters, state health official letters, FAQs, and informational bulletins. In response to the interrelatedness of the opioid and infectious disease epidemics, CMS could encourage states to remove same-day billing restrictions. It could accomplish this through informational bulletins, as bulletins do not "establish new policy or issue new guidance" but rather "share information, address operational and technical issues, and highlight initiatives or related efforts" (CMS, 2019a).

Finding

- Some state Medicaid administrators prohibit a medical care organization from billing for both behavioral and physical health care visits on the same day.

Conclusion

- *The restriction on same-day billing is a barrier to providers seeking to integrate care, as it means that patients either need to come back on a separate day or the provider must provide services without seeking reimbursement.*

Recommendation 3-18: State Medicaid administrators should revise their billing policies to allow for more than one visit in a given day (e.g., allow for one physical and one behavioral visit per day; allow multiple providers to bill on the same day for the same patient; or allow the same provider to bill on the same day for different diagnoses, such as opioid use disorder and infectious disease).

Recommendation 3-19: The Centers for Medicare & Medicaid Services should issue an Information Bulletin to state Medicaid programs, sharing

information about how states have removed same-day billing restrictions and highlighting the importance of removing these restrictions for providing integrated care.

BOX 3-7
Program Informant Comments on Same-Day Billing Restrictions

Evergreen Health
Because of restrictions on same-day billing, Evergreen Health has had to schedule patients on different days for health care services and mental health services. This interrupts its goal of providing continuous, seamless care. (Emma Fabian, M.S.W., Senior Director of Harm Reduction, personal communication).

LifeSpring Health Systems
There was previously a Medicaid rule that prohibited billing for medical and mental health care services on the same day. Indiana has relinquished this rule, which has facilitated integrated treatment. (Beth Keeney, M.B.A., Senior Vice President for Community Health and Primary Care Services, personal communication.).

CrescentCare
"One other thing that just got changed … in April of this year, is they have removed the one visit per day requirement … so people can see the behavioral health provider, and they can see me, or they can see a primary care provider and have a dedicated buprenorphine visit or HIV visit or whatever on the same day." (Nick Van Sickels, M.D., Chief Medical Officer; and Jason Halperin, M.D., Infectious Disease Physician, personal communication).

Greater Lawrence Family Health Centers
"I think there are clearly [some] administrative logistical issues. Like for example, our clinic cannot get paid for a patient who sees more than one provider on the same day. We only get paid for one of those visits. That is a potential barrier to complete integration. On our HIV team, we do this all the time where the nurse will see the patient the same day that I am seeing the patient. But we basically take that nursing visit as a loss. But we can do that because we get funding through Ryan White to help support that nurse's salary. For some of our other staff who don't have as much of their salary supported by grant funding, when they lose a visit, that really matters financially. That is a challenge" (Christopher Bositis, M.D., Clinical Director, HIV and Viral Hepatitis Programs, personal communication).

Whitman-Walker Health
For patients on Medicare, Whitman-Walker Health is unable to bill for both medical and psychiatric appointments on the same day, and cannot bill for group therapy. These restrictions create obstacles to integrated care (Sarah Henn, M.D., Chief Health Officer, personal communication).

LIMITS ON HARM-REDUCTION SERVICES

As mentioned in the introduction, the committee focused on harm-reduction strategies when interviewing programs and developing recommendations. According to the Harm Reduction Coalition, a not-for-profit organization focused on reducing the stigma surrounding substance use, "harm reduction is a set of practical strategies and ideas aimed at reducing negative consequences associated with drug use. Harm reduction is also a movement for social justice built on a belief in, and respect for, the rights of people who use drugs" (HRC, 2019). Harm reduction is at the center of integration between OUD and infectious disease services, aiming to reduce the danger associated with OUD and new infections. Practices aligned with this include clean syringes rather than used, widespread distribution of naloxone to people who use drugs (and to the family members of individuals with OUD), PrEP, good Samaritan laws, tapered use of substances, low-barrier entry to treatment programs, and maintenance in treatment despite continued used of illicit substances (Ball, 2007; Hawk et al., 2015; Marlatt, 1996; Van Den Berg et al., 2007). Harm-reduction practices related to OUD that have the greatest evidentiary support are syringe service programs, MOUD, overdose prevention efforts, and drug prevention programs for adolescents and young adults (Marlatt and Witkiewitz, 2010). A harm-reduction approach to providing care to persons who use drugs includes respecting patients' decisions; setting realistic expectations and accepting any positive change to improve health; tailoring support and care to patients' needs; and providing services without judging, stigmatizing, or requiring abstinence (Hawk et al., 2015).

The committee asked each of the programs about their practices and experiences with harm reduction, which revealed several themes related to harm reduction and integrated OUD and infectious disease services. The first is the importance of providing avenues for small steps toward health and well-being. As one program mentioned, decreasing heroin use from several times a week to once per week represents a significant reduction in the harm associated with continued use and the risk of contracting an infectious disease.

A second theme was the need for low-threshold entry into treatment and low-threshold maintenance in treatment. Several programs used the phrase "meeting patients where they're at" to specify that treatment programs needed to be flexible to the individual needs of a patient. This could mean an easy access point for patients to begin buprenorphine at home, rather than having to come into a clinic. In addition, programs mentioned that it was essential to maintain patients in treatment programs even if they were continuing to use; viewing continued drug use as a "failure," for instance, would only provide opportunities for further stigmatization and harm (e.g., lack of OUD care leading to contracting HIV or viral hepatitis).

A third theme was the importance of state and regional support for syringe service programs, a strategy that has proved effective in preventing new infectious diseases for several decades (NRC, 1995). The evidence of syringe service programs' effectiveness is well known, and the cost of equipment to syringe service programs can be high (Teshale et al., 2019). Several programs mentioned that state regulations or city ordinances prevented them from supplying clean syringes to patients to reduce the incidence of infectious disease. This point was especially important in light of how syringe service programs can lead to treatment: several programs stated that local syringe services were frequently the entry point for patients to get tested for infectious diseases or to start MOUD. Insofar as syringe service programs can be the avenue for reduced use of injectable drugs and for safer sexual behaviors, they may reduce the risk of contracting infectious disease. These programs have increased in number in the past several decades and

have provided a convenient and accessible avenue for patients to access other kinds of testing and treatment (Des Jarlais et al., 2009, 2015; Eckhardt et al., 2018; Hagan et al., 1995; Islam et al., 2012; Rich et al., 2004). Still, according to 2019 data from the North American Syringe Exchange Network—which tracks syringe service programs who self-report their services—ten states had no programs, and another nine had only one or two (amfAR, 2019). This is despite the fact that modeling studies demonstrate syringe service programs can significantly reduce the incidence of infectious disease (Gonsalves and Crawford, 2018). Notably, congressional appropriations acts have placed a restriction on using federal funds to purchase syringes (Congress, 2019) which can be expensive for individual syringe service programs (Teshale et al., 2019).

A final theme relevant for integrating OUD and infectious disease services was the importance of having a workforce that valued and believed in harm-reduction principles. Several programs stated that a culture shift was required in the workforce to continue to "meet patients where they're at" and provide treatment even if patients continue to use illicit substances.

Findings

- Harm reduction principles are aligned with a nonjudgmental, patient-centered approach that does not require abstinence and builds on small steps toward health and well-being.
- Programs interviewed for this study—as well as a preponderance of findings from the literature—support evidence-based harm reduction as an effective practice in preventing infectious disease and increasing engagement in medical care, especially when such services have a low barrier to entry.
- The goals of harm reduction and medications of opioid use disorder are consistent and complementary with one another: to reduce the overall harm associated with drug use and prevent infectious disease.
- Harm-reduction services are not universally supported at the federal, state, and local levels, including funding and support for syringe service programs.

Conclusions

- *The effectiveness of harm-reduction strategies is well supported by evidence but is not widespread in substance use disorder care. This poses a problem in the effort to mitigate the burden of infectious disease and opioid use disorder on patients and health systems.*
- *Organizations that deliver care for opioid use disorder and infectious disease could improve patient outcomes by offering low-threshold services and treatments and adopting a harm-reduction approach.*

Recommendation 3-20: Individual clinics, health care programs, and providers should incorporate harm-reduction strategies into both infectious disease and opioid use disorder care, such as by linking patients to syringe service programs, distributing naloxone, adopting a harm-reduction philosophy focused on patient-centered care, prescribing

pre-exposure prophylaxis (PrEP), and providing safe drug use and safe sex education.

Recommendation 3-21: States should lift the remaining bans on evidence-based syringe services, offering syringe services at publicly funded health departments and allowing for independently operated syringe service programs.

Recommendation 3-22: The Substance Abuse and Mental Health Services Administration should make available grants for researchers from a broad set of disciplines (medicine, nursing, epidemiology, behavioral science, health policy, and implementation science) to conduct research on the integration of opioid use disorder and infectious disease care under a harm-reduction lens.

BOX 3-8
Program Informant Comments on Limits on Harm-Reduction Services

Evergreen Health
Patients accessing OUD and infectious disease services at Evergreen Health are frequently admitted through the syringe service program or the walk-in STI clinic, where staff will inform them about the range of services available. In general, Evergreen Health provides patients with access and knowledge, but recognizes that they are the ones to make the ultimate choice about which care they want to receive. This includes HIV and viral hepatitis testing and treatment, MOUD, case management and care coordination, or other medical or behavioral health needs. "What harm reduction is about for us is just basically focusing on the strengths of the populations that are either living with HIV or at risk for HIV, folks who are living with hepatitis C or at risk for hepatitis C, members of the LGBTQ population, and, of course, people who use drugs. We want to focus on the strengths of those populations; resiliency is at the core of those strengths. It's also about celebrating any small step toward health and well-being." (Emma Fabian, M.S.W., Senior Director of Harm Reduction, personal communication).

LifeSpring Health Systems
"Harm reduction for some of our IV drug users could mean teaching them how to clean their kits or their syringes. It could mean encouraging them to drink less or to use less if they're not able to be sober. It can mean teaching them how to access services [that] might help them, maybe outside of our health system, that might help them get to a more sustained recovery. In the State of Indiana, only health departments are legally allowed to have syringe service programs." (Beth Keeney, M.B.A., Senior Vice President for Community Health and Primary Care Services, personal communication).

Plumas County Public Health Agency
In many cases, patients will visit the agency for the syringe service program or other basic services but also be offered MOUD, naloxone, overdose prevention education, rapid testing for HIV/HCV, and a referral for HIV/HCV treatment and PrEP when necessary.
The lack of blanket permission to provide syringe service programs has meant that each county must spend time and resources getting permission from the state.

"Because the authorization [for syringe services] in California is only countywide, we can only distribute syringe services within our county lines. But, say, if somebody from Lassen County wanted our services, they have to meet us at the county line. We're not allowed to leave that county line." (James Wilson, Health Education Coordinator; and Barbara Schott, M.S.W., Health Education and HIV/AIDS Program Manager, personal communication).

CrescentCare

A New Orleans city ordinance that strongly supports syringe access has helped create a harm-reduction culture and is one reason that the CrescentCare syringe service program is popular among people who inject drugs. The choice to integrate OUD services into primary care—along with HIV/HCV services—was driven by the syringe service program already located in the clinic and the harm-reduction outlook of the staff. Indeed, CrescentCare specifically hired a coordinator of the IOP who understood harm reduction and patient centeredness, and wanted to expand access to prevention and treatment services.

"If we didn't have the syringe access program embedded in our clinic, I don't know if we would have the trust of the community to come to our clinic. There is no penalty [for continuing to use drugs]. … And really, we want to focus on just meeting patients where they are at. If people are still using heroin, it took us a while to say like, well, they are using once a week now. That is great. Let's just keep going. And we talked to them about a lot more and really try not to punish them at all. That is the goal, and I think it is being realized finally." (Nick Van Sickels, M.D., Chief Medical Officer; and Jason Halperin, M.D., Infectious Disease Physician, personal communication).

Greater Lawrence Family Health Centers

"We got a grant to get have syringe disposal bins placed strategically in public places. But then after we got the grant, unfortunately, the city decided that they did not want those disposal units in public places. So we had to put them on our own clinic property. It kind of did not achieve the purpose for which it was intended. So I think one of the things that all of our community health centers should be doing is making sure that if they don't already have a local syringe service program is that they work with the local health boards to institute in syringe service programs. I think that is really critical."

"We have been providing buprenorphine treatment in our clinic for several years, probably over a decade. But we haven't always operated on the harm reduction model. We have really only recently kind of embraced that model more fully, particularly when we began providing care for opioid use disorder on our mobile health units, so where we are really focused on the homeless population. I think it is really hard for our staff when they see me prescribing buprenorphine for a patient, and then that same patient the next day coming in and getting more syringes through our syringe service program. I think that they struggle with that." (Christopher Bositis, M.D., Clinical Director, HIV and Viral Hepatitis Programs, personal communication).

Philadelphia FIGHT

The overall implementation of integrated services was incremental, and the shared philosophy of harm reduction and OUD as a chronic disease also changed incrementally. As with many organizations, the shift was gradual for health professionals to understanding that relapse is a common occurrence and that treatment programs should reflect the chronic nature of OUD. Syringe service programs are only legal in Philadelphia and Pittsburgh, and Prevention Point is the only legally sanctioned program in Philadelphia; while there are providers who can prescribe syringes to prevent HIV/HCV, it is not a robust enough workaround to the state restriction.

"What I have tried to do as part of this education is reframe opioid use disorder as a chronic disease and putting it in those terms as if we were treating diabetes or hypertension and that people will remit and relapse just like with any chronic disease, and it does not mean that that is

a moral failure or a character defect on the part of an individual. It is going to take a world view change, and it is not just here at Philadelphia FIGHT, but everywhere. Even with the patients themselves, they are often very reluctant to discuss when they used again, because of all of the stigma and shame surrounding opioid use disorder." (Laura Bamford, M.D., Medical Director, Clinica Bienestar, personal communication).

Whitman-Walker Health
With respect to harm reduction, Whitman-Walker Health has explicitly adopted a risk reduction model that is well known and accepted by staff. Operationally, this includes a standing order of naloxone at the onsite pharmacy, care plans that emphasize tapering use, connections to community resources (including syringe services available in DC, though not operated by Whitman-Walker Health), and education about the risks of concurrent substance use. (Sarah Henn, M.D., Chief Health Officer, personal communication).

King County Department of Public Health
Barriers to care take many forms. Even a battery of questions at the first visit can be a deterrent for future visits. Ensuring that providers are meeting patients where they are is crucial. There have been philosophical barriers between those that favor harm reduction and those that favor an abstinence-based treatment program. To make sure that the department is the right fit for staff, employees created an introductory pamphlet on harm reduction and low-threshold care. King County Department of Public Health has also sought to integrate services into programs that patients already trust—this includes, primarily, the syringe service program. The syringe services are a primary referral source for other services—it gets patients in the door to more intensive treatment for OUD and infectious disease. In general, the syringe service program provides a useful entry point for other services (including testing for infectious disease, and MOUD services). Syringe service staff will point patients toward the range of available services. The goal is to provide a "one-stop shop" whenever possible. (Brad Finegood, M.C.P., Strategic Advisor at Public Health; Hilary Armstrong, M.P.H., Project/Program Manager III; Julia Hood, Ph.D., M.P.H., Epidemiologist II; Julie Dombrowski, M.D., M.P.H., Deputy Director of the HIV/STD Program; and Joe Tinsley, Needle Exchange Coordinator/PPM II, personal communication).

ARCare
"We will talk with [patients] about harm reduction and safe using skills if the person is at that place… not sharing [syringes]. Again, all of those harm-reduction techniques that are out there. But we do have some limitations based on our state regulations on what we can point a person toward and what we cannot actually do." (Frank Vega, L.M.F.T., Director of Behavioral Health, personal communication).

DISCONNECT BETWEEN THE HEALTH AND CRIMINAL JUSTICE SYSTEMS

More than 200,000 active heroin users pass through the correctional system annually (McKenzie et al., 2009), and in 2010 nearly 85 percent of incarcerated individuals had a history of (or current) SUD, were arrested while under the influence, committed an offense to obtain drugs, or were incarcerated for a drug-related crime (Califano, 2010). Rates of HIV and viral hepatitis are considerably higher in correctional facilities than among the general public (Baillargeon et al., 2017; Rich et al., 2014). Moreover, those in the criminal justice system with OUD have poorer overall health, greater frequency of sexually transmitted infections, and viral

hepatitis and HIV at higher rates than those without OUD (Winkelman et al., 2018). This evidence suggests that the need to integrate OUD and infectious disease care is especially high in the criminal justice system and that there is a great opportunity to reach a large number of patients with comorbid illness through such integration.

Most persons in the criminal justice system are not offered SUD treatment; for OUD, most patients are not offered buprenorphine, methadone, or naltrexone (Chandler et al., 2009; Springer et al., 2011; Volkow et al., 2014). Upon release, many patients relapse quickly, and overdose is a primary cause of death in the subsequent 2 weeks (Binswanger et al., 2013). Risk of poor health outcomes for infectious disease are also high directly following release: Although individuals living with HIV who are involved in the criminal justice system can achieve viral suppression prior to release, it is often lost within 3 months afterward (Meyer et al., 2014; Springer et al., 2004; Stephenson et al., 2005). This can occur even when discharge planning, case management, and other social services are in place (Teixeira et al., 2015), though some evidence suggests that MOUD in conjunction with HIV medications can produce positive outcomes for recently released patients (Springer et al., 2010).

While testing and treatment of HIV in correctional facilities has increased in the last several decades, it is not altogether common that correctional facilities have adopted universal opt-out screening for infectious diseases (Morris et al., 2017; NASEM, 2017); a lack of political will and the high cost of effective HCV treatment are barriers to screening in these facilities (Spaulding et al., 2017). This is despite the fact that HCV treatment during incarceration has been shown to be feasible and cost effective (Assoumou et al., 2019; He et al., 2016). In addition, while there are effective vaccines for HAV and HBV, they are not universally provided across correctional facilities in the United States (Sequera et al., 2015). Entry into the criminal justice system itself is strongly correlated with increased HIV and HCV acquisition among people who inject drugs (81 percent and 62 percent increased risk, respectively) (Stone et al., 2018).

Eight programs mentioned various aspects of the criminal justice system as barriers to providing high-quality, integrated care for OUD and infectious disease. Specifically, programs mentioned that (1) a lack of open communication between stakeholders (e.g., law enforcement, correctional facilities, public health practitioners, treatment clinics) inhibits patient-centered care and coordination, (2) there is generally inadequate treatment within correctional facilities, and (3) that the transition out of criminal justice settings represents a critical period for reaching patients and providing care.

There has been a movement in the direction of greater coordination between public health and the criminal justice system in recent years, and recommendations for reform (AMA, 2019). Police, courts, and correctional systems can improve access to treatment (Clifasefi et al., 2017) and growing use of naloxone by law enforcement officers and Good Samaritan laws represent steps toward integrating public health with the criminal justice system (Davis et al., 2014; Tanaka, 2019). Treatment as an alternative to arrests has been tried with success in some jurisdictions, such as in Seattle (Clifasefi et al., 2017). Informants from the Plumas County Public Health Agency attributed a cross-county coalition of stakeholders (including law enforcement officials) as a major driver of their success in integrating responses to OUD and infectious disease.

Still, the lack of treatment options within correctional facilities represents a barrier to achieving a sustained response to the correlated incidence of OUD and infectious disease. It is not common practice throughout the United States to provide MOUD in correctional facilities

(Beletsky et al., 2015), though access is increasing with recent legal challenges (Nicholas, 2019). A small study in Rhode Island demonstrated the benefit of MOUD in correctional facilities. Following a state policy change, incarcerated individuals in the state are able continue to receive such medications if they were taking them prior to incarceration. In addition, incarcerated individuals are able to initiate medications when needed. The study tracked the impact of this policy, finding a 60 percent reduction in overdose deaths among formerly incarcerated individuals in the subsequent 6 months and a 12 percent reduction in overdose deaths across the state for the following year (Green et al., 2018). Given the high risk of overdose death following release (Binswanger et al., 2013; Ranapurwala et al., 2018), policies that improve continuity of treatment for incarcerated individuals are likely to reduce overdose mortality. The Pew Charitable Trusts has conducted recent research on health care delivery in criminal justice settings, reviewing data that show a $4.29 return on every dollar spent in jails and prisons to treat SUD (Urahn et al., 2018).

Because viral suppression is critical to reduce HIV transmission, it is important to note that there is evidence for a reduction in relapse and overdose (Lee et al., 2016) and improved HIV viral suppression (Springer et al., 2012, 2018) when persons are offered MOUD before release from prison or jail (Kinlock et al., 2008; Lee et al., 2016).

Other states have taken similar steps to improve the connection between the public health and criminal justice systems. The Denver Health Medical Center, for instance, partnered with city and county jails to both start and maintain patients on MOUD while incarcerated. SAMHSA has developed a toolkit for health care organizations to develop partnerships with the intent of integrating services (SAMHSA, 2015d). In addition, reentry services are available, allowing recently released individuals to maintain their medications and access case management services. This effort is funded by a state tax on marijuana sales, a federal grant (State Targeted Response to the Opioid Crisis), and state general funds (Connolly, 2019). Other states have implemented measures to increase access to naltrexone for recently released individuals or fund prison-based social workers to coordinate care upon release (Connolly, 2019). Following lawsuits brought by inmates in Massachusetts, state prisons and jails will now provide buprenorphine to newly incarcerated individuals who were already taking it and for those going through opioid withdrawal (Westervelt, 2019). Counties and cities typically operate and fund jails, though states may also contribute funding, and some states finance both prisons and jails (Urahn et al., 2018). Because of this, the cost of mandates for treating patients within jails falls upon these local jurisdictions and states, which may not have the funds available (Urahn et al., 2017a, 2018), thereby reducing the incentive to screen individuals entering the system. This is especially true for medications for HCV and HIV, given the high prevalence of these diseases in correctional settings and therefore the high costs associated with treatment (Urahn et al., 2017a). Indeed, spending at the state level for correctional facilities typically ranks third, behind Medicaid and education (NRC, 2014). Because persons in jails or prisons are not eligible for coverage by Medicaid, many correctional facilities fund treatments for individuals in criminal justice settings through state block grants or direct appropriations at the state level (SAMHSA, 2019g). A number of states and jurisdictions have implemented programs to offer MOUD in prisons or jails or for individuals after release (SAMHSA, 2019g). These models are precedents for delivering treatment in these settings. The SUPPORT for Patients and Communities Act of 2018 authorizes HHS to provide grants to state agencies to carry out SUD prevention, treatment, and evidence-based programs (including with MOUD); establish grant funding for comprehensive opioid recovery centers; prevent overdoses; coordinate communities of recovery; and fund surveillance

and education regarding infections associated with opioid use (Walden, 2018b). Eligible grantees could consider using these funds for improved treatment access in correctional facilities, linkage to care following the transition out of correctional facilities, or better integration of care for OUD and infectious disease.

As several programs mentioned, the transition out of incarceration represents a crucial period for intervention to better treat both OUD and infectious disease. Recently released people face issues of housing insecurity, under employment, food insecurity, lack of community or family ties, and chronic illness (Freudenberg et al., 2005). In addition, they are at increased risk for opioid overdose and mortality, especially in the first 2 weeks following release (Binswanger et al., 2013; Ranapurwala et al., 2018). Medications for OUD are effective at increasing the time to relapse and decreasing the chances of relapse following release from correctional facilities (Urahn et al., 2018), and those who have received medications in jail are less likely to return to jail and will spend a longer time in the community before recidivism (Urahn et al., 2018). Many jails contract directly with vendors to provide health care. In this context, it is notable that a recent Pew study documented that a minority of correctional facilities request any MOUD services from the health care providers they contract with, or if they do, tend to offer them only to pregnant women (Urahn et al., 2018). As of 2016, only 13 state departments of correction provided MOUD upon release (Urahn et al., 2017b). In 2017, 30 out of 5,100 U.S. prisons and jails offered methadone or buprenorphine (SAMHSA, 2019g).

The BTC and the Transitions Clinic Network (TCN; an umbrella organization coordinating information between many transition clinics) were both interviewed for this study. Data from these clinics illustrate both the promise and difficulty in coordinating care for recently released individuals. One 2019 Connecticut study found that formerly incarcerated individuals being cared for in a transitions clinic were less likely to return to prison for a parole or probation violation and were incarcerated for less time than a matched control group (Wang et al., 2019).

Still, access to care does not guarantee positive outcomes. In the Bronx, of 135 patients recently released from prison, fewer than half were retained in care at 6 months. This was especially true for those with opioid dependence (Fox et al., 2014). HIV patients had generally positive outcomes and higher retention in care, which the authors attribute to the more robust wraparound services through state and federal programs. Another study from the BTC found that chronic HCV infections were common, but went untreated and uncured, primarily because patients were not retained in care (Hawks et al., 2016). These data suggest that primary care services are necessary but not sufficient to ensure effective reintegration and management of chronic diseases, such as OUD.

One additional barrier to preventing a seamless transition out of correctional settings—and maintaining suppressed viral load for infectious diseases—is continuity of insurance coverage. State policies on the continuation of Medicaid in and out of correctional settings vary, as shown in Figure 3-1. Most states suspend Medicaid while an individual is incarcerated, varying in time from 30 days to the full length of the sentence. Coordination is required between the corrections and state Medicaid systems to ensure that newly incarcerated individuals are suspended from Medicaid and that newly released individuals' coverage can be reinstated (MACPAC, 2018a; Ryan et al., 2016). As one program mentioned, this coordination can be difficult to achieve because incarcerated individuals may be released with little notice. In addition, many state Medicaid programs—and state-regulated private insurers—do not cover all three medications approved for OUD, thereby limiting patients' access to these medications entering and exiting criminal justice settings (SAMHSA, 2019b).

Several states have taken steps to improve continuation of coverage for formerly incarcerated individuals. In Ohio, for instance, peer navigators assist those who are incarcerated with enrolling in Medicaid upon release; Illinois has a similar program. Connecticut, on the other hand, uses a short eligibility form to simplify the process by which formerly incarcerated individuals can access Medicaid coverage, and 60 percent of those who are incarcerated are enrolled in Medicaid before release (MACPAC, 2018a; Ryan et al., 2016).

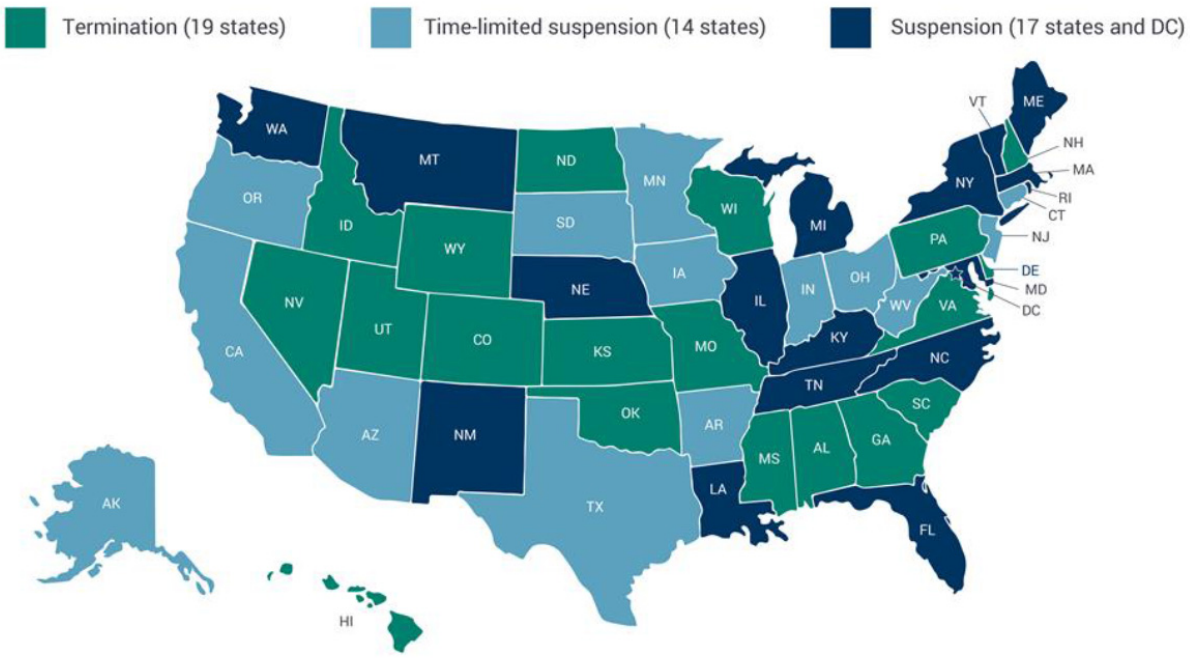

FIGURE 3-1 State policies on Medicaid enrollment during incarceration, 2018.
NOTES: Colorado and Hawaii recently passed laws to suspend rather than terminate Medicaid enrollment, and are in the process of implementing the law. Some states specify that suspension policies apply to specific prisons and jails. (MACPAC, 2018a).
SOURCES: MACPAC, 2018a; adapted from data from Kaiser Family Foundation (2019) and Families USA (2019).

Findings

- A vast majority of incarcerated individuals have some connection with substance use disorder (SUD): they have a history of (or current) SUD, were arrested while under the influence, committed an offense to obtain drugs, or were incarcerated for a drug-related crime.
- Rates of infectious disease (including human immunodeficiency virus and viral hepatitis) are higher in correctional facilities than in the general public and higher still for incarcerated individuals with opioid use disorder.
- There is often a lack of communication between law enforcement, correctional facilities, and treatment programs regarding patients/inmates substance use disorder.
- Evidence-based treatment for substance use disorder in correctional facilities is generally nonexistent or inadequate. The same is often true for some infectious

diseases, particularly hepatitis C virus. There are mechanisms by which states have begun to provide treatment for opioid use disorder and infectious diseases in criminal justice settings.

- The transition out of criminal justice settings is the time when users are most likely to overdose on opioids.
- States vary in their policies for continuation of Medicaid coverage following time spent in a correctional facility.

Conclusions

- *Historically, substance use in the United States has been treated as a criminal justice issue rather than a public health or medical issue, which has inhibited effective, patient-centered care.*
- *The lack of communication between health professionals/systems and the criminal justice system inhibits patient-centered care and coordination.*
- *The lack of treatment within correctional facilities for opioid use disorder increases the chances that patients will continue to use drugs upon release, and therefore increases the risk of infectious disease. Lack of treatment for infectious disease in correctional facilities causes harm to patients and increases the risk of infection for others.*
- *Special attention must be paid to the period just before release from correctional facilities, and care must be lined up at this stage to prevent overdose and promote recovery.*
- *Discontinuity of Medicaid coverage is likely to cause financial hardship among patients who do not realize they have become unenrolled, which may limit their access to treatment for opioid use disorder and infectious diseases.*

Recommendation 3-23: Through federal grant funding, state block grants or direct appropriations, states should fund—and correctional facilities should offer—evidence-based screening and treatments for opioid use disorder and co-occurring infectious disease.

Recommendation 3-24: Clinics and organizations that treat opioid use disorder and infectious diseases should coordinate with law enforcement and correctional facilities to better track and maintain records of patients entering and exiting the criminal justice system.

Recommendation 3-25: Through federal grant funding, state block grants or direct appropriations, states should fund high-quality, evidence-based reentry services for prisons and jails, including medications for opioid use disorder and infectious disease, as well as linkage to care in the community and harm-reduction services following release (e.g., naloxone to reduce the risk of fatal overdose).

Recommendation 3-26: State Medicaid administrators should adjust policies to ensure that individuals previously enrolled in Medicaid before entering the criminal justice system are automatically re-enrolled at the time they are released.

BOX 3-9
Program Informant Comments on the Disconnect Between the Health and Criminal Justice Systems

Evergreen Health
Medications for OUD are not widespread in correctional facilities. Evergreen Health sees patients who have made progress on overcoming OUD, but then are incarcerated and progress is derailed. It is important to have open lines of communication with law enforcement, local health departments, community organizations, and other health care providers. (Emma Fabian, M.S.W., Senior Director of Harm Reduction, personal communication).

LifeSpring Health Systems
"We have staff that go into the jail and do the behavioral health and will connect them to care. We're not able to do their [MOUD] treatment in the jail. They have a different medical provider [in the jail system]. But one of the biggest hurdles that we have with the jail is that we never know when they are released. They don't know when they're getting released. A lot of times it will be 2:00 in the morning on a Wednesday and then by the time we catch up with them, they were released with no medication. They have moved houses four times by the time they get to us a few days later." (Beth Keeney, M.B.A., Senior Vice President for Community Health and Primary Care Services, personal communication).

Plumas County Public Health Agency
The greatest step toward integration was forming a county-level coalition of stakeholders from hospitals, law enforcement, the district attorney's office, the behavioral health system, and public health departments from neighboring counties. Individual champions were identified in each of these stakeholder groups, and maintaining close relationships between these champions has been crucial. Open communication with the criminal justice system is also crucial, as it can allow patients to be lined up for treatment upon release.
"We have a pretty good relationship with our local law enforcement. Our sheriff has been incredibly supportive of all of our efforts. I have a monthly meeting with one of the sergeants where we kind of keep each other appraised on what our different agencies are doing." (James Wilson, Health Education Coordinator; and Barbara Schott, M.S.W., Health Education and HIV/AIDS Program Manager, personal communication).

CrescentCare
The lack of true coalitional support among various human services in the city is a barrier (e.g., patients perceive that police are frequently arresting patients for possession of drug paraphernalia, which makes them hesitant to seek medical services related to substance use).

"If we didn't have the syringe access program embedded in our clinic, I don't know if we would have the trust of the community to come to our clinic. Where our clinic is located is a high-crime area. There is a lot of police presence, which we were very worried about with our patients, that they would fear coming in because they would fear being arrested. And it has been quite a balance to balance safety and feelings of safety with our staff, with also not overwhelming patients by having police presence in or around the health center. It is a very delicate balance." (Nick Van Sickels, M.D., Chief Medical Officer; and Jason Halperin, M.D., Infectious Disease Physician, personal communication).

Greater Lawrence Family Health Centers

The overall push toward decriminalizing substance use has facilitated increased access to treatment. Historically, is has been difficult to provide OUD treatment in state-funded jails, but this is becoming easier with time. In turn, this allows GLFHC to attempt to link patients with care immediately upon release, and begin serving a population that needs access to the health care system.

An additional program funded by the MA Department of Public Health is a linkage for testing of HIV, HCV, and STIs in the county's correctional system. This program links patients back to infectious disease care after release from the corrections facility, and it is expanding to include linkage to MOUD after release. (Christopher Bositis, M.D., Clinical Director, HIV and Viral Hepatitis Programs, personal communication)

Bronx Transitions Clinic

There is one area that BTC would like to see bolstered among its services: mental health care specific to individuals in the criminal justice system. While there are numerous psychiatrists and psychologists in the Montefiore network, there is no robust network with training in the mental health issues that come with individuals in the corrections system.

"What we heard also from our [peer counselors] is that people mistrust the health system in the same way they mistrust the criminal justice system. So if someone is given an appointment at the clinic, but their insurance isn't activated yet, we have to assure that they still receive care. Getting turned away feels very punitive, and people may not want to come back. Especially if they think they're trying to do the right thing when they come home from prison. So [this is] just one very small example of how our programs try to address the system change." (Aaron Fox, M.D., Director, Bronx Transitions Clinic; and Shira Shavit, M.D., Executive Director of Transitions Clinic Network, personal communication).

Southcentral Foundation

"What we have done is reach out to … people who are currently incarcerated. We are going to start working with you while you are still incarcerated. We have actually done a good job at reducing recidivism and have gotten a lot of support from the prison system locally. We have sister carve out nonprofits that are 503s for housing, education, job training, justice, and ours is, of course, health care. We work with them as sister nonprofits to say our game is health care, but your thing is you need to be trained to do a job or you need to reintegrate back into the community from being incarcerated or having something else come into your life." (Steve Tierney, M.D., Senior Medical Director of Quality Improvement, personal communication).

King County Department of Public Health

There is a burgeoning partnership between the buprenorphine program at King County Department of Public Health and the correctional facilities, wherein MOUD will be offered to inmates and will continue after they are released.

"I will say one of the biggest gaps for us or one of the biggest difficulties when there is a disruption in Medicaid is primarily if folks become incarcerated and then their Medicaid becomes

suspended. It does not get withdrawn. But getting that reinstated and turned back on is a gap in care. We have done data linkages in real time between the Harborview Emergency Department and then the King County Jail to identify persons with an unsuppressed viral load who we want to get re-engaged in services." (Brad Finegood, M.C.P., Strategic Advisor at Public Health; Hilary Armstrong, M.P.H., Project/Program Manager III; Julia Hood, Ph.D., M.P.H., Epidemiologist II; Julie Dombrowski, M.D., M.P.H., Deputy Director of the HIV/STD Program; and Joe Tinsley, Needle Exchange Coordinator/PPM II, personal communication).

References

AANP (American Association of Nurse Practitioners). 2018. *State practice environment.* https://www.aanp.org/advocacy/state/state-practice-environment (accessed October 8, 2019).

Abdul-Quader, A. S., J. Feelemyer, S. Modi, E. S. Stein, A. Briceno, S. Semaan, T. Horvath, G. E. Kennedy, and D. C. Des Jarlais. 2013. Effectiveness of structural-level needle/syringe programs to reduce HCV and HIV infection among people who inject drugs: A systematic review. *AIDS and Behavior* 17(9):2878-2892.

Abouzaid, S., E. Jutkowitz, K. A. Foley, L. T. Pizzi, E. Kim, and J. Bates. 2010. Economic impact of prior authorization policies for atypical antipsychotics in the treatment of schizophrenia. *Population Health Management* 13(5):247-254.

ACAAM (American College of Academic Addiction Medicine). 2019. *Major federal grant program for fellowships*. https://www.acaam.org/major-federal-grant-program-for-fellowships (accessed November 25, 2019).

Accurso, A. J., and D. A. Rastegar. 2016. The effect of a payer-mandated decrease in buprenorphine dose on aberrant drug tests and treatment retention among patients with opioid dependence. *Journal of Substance Abuse Treatment* 61:74-79.

AHRQ (Agency for Healthcare Research and Quality). 2016. *Rate of opioid-related inpatient stays per 100,000 population*. https://www.hcup-us.ahrq.gov/faststats/OpioidUseMap?setting=IP (accessed September 17, 2019).

Allen, B., and A. Harocopos. 2016. Non-prescribed buprenorphine in New York City: Motivations for use, practices of diversion, and experiences of stigma. *Journal of Substance Abuse Treatment* 70:81-86.

Alonzo, A. A., and N. R. Reynolds. 1995. Stigma, HIV and AIDS: An exploration and elaboration of a stigma trajectory. *Social Science & Medicine* 41(3):303-315.

AMA (American Medical Association). 2018. *American Medical Association Opioid Task Force 2018 progress report.* American Medical Association. Chicago, IL.

AMA. 2019. *AMA Opioid Task Force issues new recommendations to urge policymakers to protect patients' access to evidence-based treatment, remove barriers to comprehensive pain care.* American Medical Association. Chicago, IL.

amfAR (Foundation for AIDS Research). 2019. *Syringe exchange programs*. https://opioid.amfar.org/indicator/num_SSPs (accessed September 13, 2019).

Andrews, C., A. Abraham, C. M. Grogan, H. A. Pollack, C. Bersamira, K. Humphreys, and P. Friedmann. 2015. Despite resources from the ACA, most states do little to help addiction treatment programs implement health care reform. *Health Affairs* 34(5):828-835.

Andrews, C. M., C. M. Grogan, M. A. Westlake, A. J. Abraham, H. A. Pollack, T. A. D'Aunno, and P. D. Friedmann. 2018. Do benefits restrictions limit Medicaid acceptance in

addiction treatment? Results from a national study. *Journal of Substance Abuse Treatment* 87:50-55.

Andrews, C. M., A. J. Abraham, C. M. Grogan, M. A. Westlake, H. A. Pollack, and P. D. Friedmann. 2019. Impact of Medicaid restrictions on availability of buprenorphine in addiction treatment programs. *American Journal of Public Health* 109(3):434-436.

Andrilla, C., C. Coulthard, and E. Larson. 2017a. Changes in the supply of physicians with a DEA DATA waiver to prescribe buprenorphine for opioid use disorder. *Data Brief* 162.

Andrilla, C. H. A., C. Coulthard, and E. H. Larson. 2017b. Barriers rural physicians face prescribing buprenorphine for opioid use disorder. *The Annals of Family Medicine* 15(4):359-362.

Andrilla, C. H. A., C. Coulthard, and D. G. Patterson. 2018a. Prescribing practices of rural physicians waivered to prescribe buprenorphine. *American Journal of Preventive Medicine* 54(6):S208-S214.

Andrilla, C. H. A., D. G. Patterson, T. E. Moore, C. Coulthard, and E. H. Larson. 2018b. Projected contributions of nurse practitioners and physician's assistants to buprenorphine treatment services for opioid use disorder in rural areas. *Medical Care Research and Review* 107755871879307.

Andrilla, C. H. A., T. E. Moore, and D. G. Patterson. 2019a. Overcoming barriers to prescribing buprenorphine for the treatment of opioid use disorder: Recommendations from rural physicians. *The Journal of Rural Health* 35(1):113-121.

Andrilla, C. H. A., T. E. Moore, D. G. Patterson, and E. H. Larson. 2019b. Geographic distribution of providers with a DEA waiver to prescribe buprenorphine for the treatment of opioid use disorder: A 5-year update. *The Journal of Rural Health* 35(1):108-112.

Antonini, V. P., B. T. Oeser, and D. Urada. 2012. The California integration learning collaborative: A forum to address challenges of SUD-primary care service integration. *Journal of Psychoactive Drugs* 44(4):285-291.

APA (American Psychological Association). 2017. *Final rule: 42 CFR Part 2, confidentiality of substance use disorder patient records*. https://www.psychiatry.org/psychiatrists/practice/practice-management/hipaa/42-cfr-part-2 (accessed October 15, 2019).

ASAM (American Society of Addiction Medicine). 2019. *Harm reduction in the addiction continuum: Not as radical as one thinks (1.5 CME)*. https://elearning.asam.org/products/harm-reduction-in-the-addiction-continuum-not-as-radical-as-one-thinks-15-cme (accessed December 7, 2019).

Aspinall, E. J., D. Nambiar, D. J. Goldberg, M. Hickman, A. Weir, E. Van Velzen, N. Palmateer, J. S. Doyle, M. E. Hellard, and S. J. Hutchinson. 2014. Are needle and syringe programmes associated with a reduction in HIV transmission among people who inject drugs: A systematic review and meta-analysis. *International Journal of Epidemiology* 43(1):235-248.

Assoumou, S. A., A. Tasillo, C. Vellozzi, G. E. Yazdi, J. Wang, S. Nolen, L. Hagan, W. Thompson, L. M. Randall, L. Strick, J. A. Salomon, and B. P. Linas. 2019. Cost-effectiveness and budgetary impact of HCV testing, treatment and linkage to care in U.S. Prisons. *Clinical Infectious Diseases*.

Avery, J., D. Knoepflmacher, E. Mauer, K. A. Kast, M. Greiner, J. Avery, and J. B. Penzner. 2019. Improvement in residents' attitudes toward individuals with substance use disorders following an online training module on stigma. *HSS Journal* 15(1):31-36.

Azar, A., and B. Giroir. 2018. *Strategy to combat opioid abuse, misuse, and overdose: A framework based on the five point strategy*. https://www.hhs.gov/opioids/sites/default/files/2018-09/opioid-fivepoint-strategy-20180917-508compliant.pdf (accessed September 17, 2019).

Babor, T. F., B. G. McRee, P. A. Kassebaum, P. L. Grimaldi, K. Ahmed, and J. Bray. 2007. Screening, brief intervention, and referral to treatment (SBIRT): toward a public health approach to the management of substance abuse. *Substance Abuse* 28(3):7-30.

Bachrach, D., S. Anthony, and A. Detty. 2014. *State strategies for integrating physical and behavioral health services in a changing Medicaid environment.* Manatt, Phelps & Phillips, LLP. Los Angeles, CA.

Bäck, D. K., E. Tammaro, J. K. Lim, and S. E. Wakeman. 2018. Massachusetts medical students feel unprepared to treat patients with substance use disorder. *Journal of General Internal Medicine* 33(3):249-250.

Bahora, M., S. Hanafi, V. H. Chien, and M. T. Compton. 2008. Preliminary evidence of effects of crisis intervention team training on self-efficacy and social distance. *Administration and Policy in Mental Health and Mental Health Services Research* 35(3):159-167.

Baillargeon, J., J. S. Pulvino, J. E. Leonardson, L. C. Linthicum, B. Williams, J. Penn, R. S. Williams, G. Baillargeon, and O. J. Murray. 2017. The changing epidemiology of HIV in the criminal justice system. *International Journal of STD & AIDS* 28(13):1335-1340.

Ball, A. L. 2007. HIV, injecting drug use and harm reduction: A public health response. *Addiction* 102(5):684-690.

Ballon, B. C., and W. Skinner. 2008. "Attitude is a little thing that makes a big difference": Reflection techniques for addiction psychiatry training. *Academic Psychiatry* 32(3):218-224.

Batey, D. S., S. Whitfield, M. Mulla, K. L. Stringer, M. Durojaiye, L. McCormick, B. Turan, L. Nyblade, M.-C. Kempf, and J. M. Turan. 2016. Adaptation and implementation of an intervention to reduce HIV-related stigma among healthcare workers in the United States: Piloting of the fresh workshop. *AIDS Patient Care and STDs* 30(11):519-527.

Bavinton, B. R., A. N. Pinto, N. Phanuphak, B. Grinsztejn, G. P. Prestage, I. B. Zablotska-Manos, F. Jin, C. K. Fairley, R. Moore, N. Roth, M. Bloch, C. Pell, A. M. McNulty, D. Baker, J. Hoy, B. K. Tee, D. J. Templeton, D. A. Cooper, S. Emery, A. Kelleher, A. E. Grulich, I. B. Zablotska-Manos, G. P. Prestage, F. Jin, B. R. Bavinton, B. Grinsztejn, N. Phanuphak, D. A. Cooper, A. Kelleher, S. Emery, C. K. Fairley, D. Wilson, K. K. Koelsch, K. Triffitt, N. Doong, D. Baker, M. Bloch, D. J. Templeton, A. McNulty, C. Pell, J. Hoy, B. K. Tee, R. Moore, N. Roth, D. Orth, and A. N. Pinto. 2018. Viral suppression and HIV transmission in serodiscordant male couples: An international, prospective, observational, cohort study. *The Lancet HIV* 5(8):e438-e447.

Beetham, T. 2019. Buprenorphine prior authorization removal: Low hanging fruit in the opioid epidemic fight. *Harvard Public Health Review* 25, http://harvardpublichealthreview.org/buprenorphine (accessed December 10, 2019).

Belani, H. K., and P. A. Muennig. 2008. Cost-effectiveness of needle and syringe exchange for the prevention of HIV in New York City. *Journal of HIV/AIDS & Social Services* 7(3):229-240.

Beletsky, L., L. LaSalle, M. Newman, J. Paré, J. Tam, and A. Tochka. 2015. Fatal re-entry: Legal and programmatic opportunities to curb opioid overdose among individuals newly released from incarceration. *Northeastern University Law Journal* 7:149.

Bellis, M. A., K. Hughes, and H. Lowey. 2002. Healthy nightclubs and recreational substance use. From a harm minimisation to a healthy settings approach. *Addictive Behaviors* 27(6):1025-1035.

Berger, S. 2019. *The opioid crisis: What we should learn from the AIDS epidemic*. https://www.mailman.columbia.edu/public-health-now/news/opioid-crisis-what-we-should-learn-aids-epidemic (accessed October 16, 2019).

Bil, J. S. 2016. Stigma and architecture of mental health facilities. *The British Journal of Psychiatry* 208(5):499-500.

Binswanger, I. A., P. J. Blatchford, S. R. Mueller, and M. F. Stern. 2013. Mortality after prison release: Opioid overdose and other causes of death, risk factors, and time trends from 1999 to 2009. *Annals of Internal Medicine* 159(9):592-600.

Bland, E., L. W. Oppenheimer, G. Brisson-Carroll, C. Morel, P. Holmes, and A. Gruslin. 2001. Influence of an educational program on medical students' attitudes to substance use disorders in pregnancy. *The American Journal of Drug and Alcohol Abuse* 27(3):483-490.

Botticelli, M. 2017. *Changing federal terminology regarding substance use and substance use disorders*. https://www.whitehouse.gov/sites/whitehouse.gov/files/images/Memo%20-%20Changing%20Federal%20Terminology%20Regrading%20Substance%20Use%20and%20Substance%20Use%20Disorders.pdf (accessed August 26, 2019).

Bramson, H., D. C. Des Jarlais, K. Arasteh, A. Nugent, V. Guardino, J. Feelemyer, and D. Hodel. 2015. State laws, syringe exchange, and HIV among persons who inject drugs in the United States: History and effectiveness. *Journal of Public Health Policy* 36(2):212-230.

Brooklyn, J. R., and S. C. Sigmon. 2017. Vermont hub-and-spoke model of care for opioid use disorder: Development, implementation, and impact. *Journal of Addiction Medicine* 11(4):286.

Brookmeyer, K. A., L. T. Haderxhanaj, M. Hogben, and J. Leichliter. 2019. Sexual risk behaviors and STDs among persons who inject drugs: A national study. *Preventive Medicine* 126:105779.

Brown, D., and T. McGinnis. 2014. *Considerations for integrating behavioral health services within Medicaid accountable care organizations*. Center for Health Care Strategies, Inc. Hamilton, NJ.

Browne, T., M. A. Priester, S. Clone, A. Iachini, D. DeHart, and R. Hock. 2016. Barriers and facilitators to substance use treatment in the rural South: A qualitative study. *Journal of Rural Health* 32(1):92-101.

Buck, J. A. 2011. The looming expansion and transformation of public substance abuse treatment under the Affordable Care Act. *Health Affairs* 30(8):1402-1410.

Budnitz, D. S. 2016. Notes from the field: Pediatric emergency department visits for buprenorphine/naloxone ingestion—United States, 2008–2015. *Morbidity and Mortality Weekly Report* 65.

Burns, R. M., R. L. Pacula, S. Bauhoff, A. J. Gordon, H. Hendrikson, D. L. Leslie, and B. D. Stein. 2016. Policies related to opioid agonist therapy for opioid use disorders: The evolution of state policies from 2004 to 2013. *Substance Abuse* 37(1):63-69.

Califano, J. A. 2010. *Behind bars II: Substance abuse and America's prison population.* The National Center on Addiction and Substance Abuse at Columbia University. New York, NY.

Canadian HIV/AIDS Legal Network. 2006. *Mandatory minimum sentences for drug offenses: Why everyone loses*. Toronto, Ontario. http://www.aidslaw.ca/site/wp-content/uploads/2013/04/MMS_E.pdf (accessed December 4, 2019).

Canzater, S., and J. S. Crowley. 2019. *Eliminating hepatitis C among people living with HIV in the United States: Leveraging the Ryan White HIV/AIDS Program to move us forward.* O'Neill Institute for National & Global Health Law. Washington, DC.

Carroll, J. J., T. C. Green, and R. K. Noonan. 2018a. Evidence-based strategies for preventing opioid overdose: What's working in the United States: An introduction for public health, law enforcement, local organizations, and others striving to serve their community. https://www.cdc.gov/drugoverdose/pdf/pubs/2018-evidence-based-strategies.pdf Published by the Centers for Disease Control and Prevention National Center for Injury Prevention and Control (accessed November 26, 2019).

Carroll, J. J., J. D. Rich, and T. C. Green. 2018b. The more things change: Buprenorphine/naloxone diversion continues while treatment remains inaccessible. *Journal of Addiction Medicine* 12(6):459-465.

CDC (Centers for Disease Control and Prevention). 2003. *Exposure to blood: What healthcare personnel need to know*. Centers for Disease Control and Prevention. https://www.cdc.gov/hai/pdfs/bbp/exp_to_blood.pdf (accessed December 9, 2019).

CDC. 2014. *Integrating infectious disease screening and prevention at substance abuse treatment centers.* Centers for Disease Control and Prevention. https://www.cdc.gov/nchhstp/programintegration/successstories-tx/inf-disease-screening.html (accessed October 29, 2019).

CDC. 2015a. *Diagnoses of HIV infection in the United States and dependent areas, 2014.* Centers for Disease Control and Prevention. https://www.cdc.gov/hiv/pdf/library/reports/surveillance/cdc-hiv-surveillance-report-2014-vol-26.pdf (accessed October 25, 2019).

CDC. 2015b. *Factors increasing the risk of acquiring or transmitting HIV*. Centers for Disease Control and Prevention. https://www.cdc.gov/hiv/pdf/risk/estimates/cdc-hiv-risk-factors.pdf (accessed November 27, 2019).

CDC. 2017. *U.S. state prescribing rates, 2017*. Centers for Disease Control and Prevention. https://www.cdc.gov/drugoverdose/maps/rxstate2017.html (accessed September 27, 2019).

CDC. 2018a. *New data show growing complexity of drug overdose deaths in America*. Centers for Disease Control and Prevention. https://www.cdc.gov/media/releases/2018/p1221-complexity-drug-overdose.html (accessed September 27, 2019).

CDC. 2018b. *Vulnerable counties and jurisdictions experiencing or at-risk of outbreaks.* Centers for Disease Control and Prevention. https://www.cdc.gov/pwid/vulnerable-counties-data.html (accessed September 18, 2019).

CDC. 2019a. *Determination of need for syringe services programs*. Centers for Disease Control and Prevention. https://www.cdc.gov/ssp/determination-of-need-for ssp.html?CDC_AA_refVal=https%3A%2F%2Fwww.cdc.gov%2Fhiv%2Frisk%2Fssps.html (accessed September 10, 2019).

CDC. 2019b. *Diagnoses of HIV infection in the United States and dependent areas, 2018 (preliminary)*. Centers for Disease Control and Prevention. https://www.cdc.gov/hiv/pdf/library/reports/surveillance/cdc-hiv-surveillance-report-2018-vol-30.pdf (accessed December 9, 2019).

CDC. 2019c. *HIV risk behaviors*. Centers for Disease Control and Prevention. https://www.cdc.gov/hiv/risk/estimates/riskbehaviors.html (accessed December 9, 2019).

CDC. 2019d. *Promising state strategies*. Centers for Disease Control and Prevention. https://www.cdc.gov/drugoverdose/policy/index.html (accessed September 17, 2019).

CDC. 2019e. *STD prevention courses*. Centers for Disease Control and Prevention. https://www.cdc.gov/std/training/courses.htm (accessed November 25, 2019).

CDC. 2019f. *HIV and STD Criminal Laws*. Centers for Disease Control and Prevention. https://www.cdc.gov/hiv/policies/law/states/exposure.html (accessed December 2, 2019).

CDC. 2019g. *HIV in the United States by Region*. Centers for Disease Control and Prevention. https://www.cdc.gov/hiv/statistics/overview/geographicdistribution.html (accessed December 2, 2019.

CFR (Code of Federal Regulations). 2018. *Medication assisted treatment for opioid use disorders*. https://www.govinfo.gov/content/pkg/CFR-2018-title42-vol1/xml/CFR-2018-title42-vol1-part8.xml#seqnum8.610 (accessed August 20, 2019).

Chandler, R. K., B. W. Fletcher, and N. D. Volkow. 2009. Treating drug abuse and addiction in the criminal justice system: Improving public health and safety. *Journal of the American Medical Association* 301(2):183-190.

Cheever, L., 2016. The Evolution of Ryan White HIV/Care. HIV/AIDS Bureau, Health Resources and Services Administration, U.S. Department of Health and Human Services. https://www.hiv.gov/blog/the-evolution-of-ryan-white-hivcare (accessed December 2, 2019).

Chidrawi, H. C., M. Greeff, Q. M. Temane, and C. M. Doak. 2016. HIV stigma experiences and stigmatisation before and after an intervention. *Health SA Gesondheid (Online)* 21(1):195-205.

Christie, C. 2017. *The president's commision on combating drug addiction and the opioid crisis*. https://www.whitehouse.gov/sites/whitehouse.gov/files/images/Final_Report_Draft_11-1-2017.pdf (accessed August 23, 2019).

Cicero, T. J., M. S. Ellis, and H. D. Chilcoat. 2018. Understanding the use of diverted buprenorphine. *Drug and Alcohol Dependence* 193:117-123.

Cifuentes, M., M. Davis, D. Fernald, R. Gunn, P. Dickinson, and D. J. Cohen. 2015. Electronic health record challenges, workarounds, and solutions observed in practices integrating behavioral health and primary care. *The Journal of the American Board of Family Medicine* 28(Supplement 1):S63-S72.

Clark, R. E., and J. D. Baxter. 2013. Responses of state Medicaid programs to buprenorphine diversion. *JAMA Internal Medicine* 173(17):1571.

Clark, R. E., M. Samnaliev, J. D. Baxter, and G. Y. Leung. 2011. The evidence doesn't justify steps by state Medicaid programs to restrict opioid addiction treatment with buprenorphine. *Health Affairs* 30(8):1425-1433.

Clark, R. E., J. D. Baxter, B. A. Barton, G. Aweh, E. O'Connell, and W. H. Fisher. 2014. The impact of prior authorization on buprenorphine dose, relapse rates, and cost for Massachusetts Medicaid beneficiaries with opioid dependence. *Health Services Research* 49(6):1964–1979

Clemans-Cope, L., V. Lynch, E. Winiski, and M. Epstein. 2019. State variation in Medicaid prescriptions for opioid use disorder from 2011 to 2018. *The Urban Institute Health Policy Center.*

Clifasefi, S. L., H. S. Lonczak, and S. E. Collins. 2017. Seattle's law enforcement assisted diversion (LEAD) program: Within-subjects changes on housing, employment, and income/benefits outcomes and associations with recidivism. *Crime & Delinquency* 63(4):429-445.

CMS (Centers for Medicare and Medicaid Services). 2018. *Announcement of calendar year (CY) 2019 Medicare Advantage capitation rates and Medicare Advantage and Part D payment policies and final call letter.* Centers for Medicare & Medicaid Services. https://www.cms.gov/Medicare/Health-Plans/MedicareAdvtgSpecRateStats/Downloads/Announcement2019.pdf (accessed October 15, 2019).

CMS. 2019a. *Federal policy guidance.* Centers for Medicare & Medicaid Services. https://www.medicaid.gov/federal-policy-Guidance/index.html (accessed October 8, 2019.

CMS. 2019b. *Medicaid state plan amendments*. https://www.medicaid.gov/state-resource-center/medicaid-state-plan-amendments/index.html (accessed December 9, 2019).

CMS. 2019c. *Substance use disorders*. https://www.medicaid.gov/medicaid/benefits/bhs/substance-use-disorders/index.html (accessed August 19, 2019.

Cohen, M. S. 2019. Successful treatment of HIV eliminates sexual transmission. *The Lancet* 393(10189):2366-2367.

Cohen, M. S., Y. Q. Chen, M. McCauley, T. Gamble, M. C. Hosseinipour, N. Kumarasamy, J. G. Hakim, J. Kumwenda, B. Grinsztejn, J. H. Pilotto, S. V. Godbole, S. Chariyalertsak, B. R. Santos, K. H. Mayer, I. F. Hoffman, S. H. Eshleman, E. Piwowar-Manning, L. Cottle, X. C. Zhang, J. Makhema, L. A. Mills, R. Panchia, S. Faesen, J. Eron, J. Gallant, D. Havlir, S. Swindells, V. Elharrar, D. Burns, T. E. Taha, K. Nielsen-Saines, D. D. Celentano, M. Essex, S. E. Hudelson, A. D. Redd, T. R. Fleming, and H. S. Team. 2016. Antiretroviral therapy for the prevention of HIV-1 transmission. *New England Journal of Medicine* 375(9):830-839.

Cole, E. S., E. DiDomenico, G. Cochran, A. J. Gordon, W. F. Gellad, J. Pringle, J. Warwick, C.-C. H. Chang, J. Y. Kim, and J. Kmiec. 2019. The role of primary care in improving access to medication-assisted treatment for rural Medicaid enrollees with opioid use disorder. Journal of General Internal Medicine 34(6):936-943.

Congress. 1990. *Ryan White Comprehensive AIDS Resources Emergency Act of 1990*. S. 2240. 101.

Congress. 2018. *H.R.6—Support for Patients and Communities Act*. P.L No. 115-271.

Congress. 2019. *Consolidated Appropriations Act, 2019*. P.L. No: 116-6.

Connolly, B. 2019. *How states address opioid use disorder in prisons.* The Pew Charitable Trusts. Philadelphia, PA.

Conrad, C., H. M. Bradley, D. Broz, S. Buddha, E. L. Chapman, R. R. Galang, D. Hillman, J. Hon, K. W. Hoover, M. R. Patel, A. Perez, P. J. Peters, P. Pontones, J. C. Roseberry, M. Sandoval, J. Shields, J. Walthall, D. Waterhouse, P. J. Weidle, H. Wu, J. M. Duwve, and CDC. 2015. Community outbreak of HIV infection linked to injection drug use of oxymorphone—Indiana, 2015. *Morbidity and Mortality Weekly Report* 64(16):443-444.

Conry-Cantilena, C., M. VanRaden, J. Gibble, J. Melpolder, A. O. Shakil, L. Viladomiu, L. Cheung, A. DiBisceglie, J. Hoofnagle, and J. W. Shih. 1996. Routes of infection, viremia,

and liver disease in blood donors found to have Hepatitis C virus infection. *New England Journal of Medicine* 334(26):1691-1696.

Cook, J. E., V. Purdie-Vaughns, I. H. Meyer, and J. T. Busch. 2014. Intervening within and across levels: A multilevel approach to stigma and public health. *Social Science & Medicine* 103:101-109.

Cooper, H., L. Moore, S. Gruskin, and N. Krieger. 2005. The impact of a police drug crackdown on drug injectors' ability to practice harm reduction: A qualitative study. *Social Science & Medicine* 61(3):673-684.

Cranston, K., C. Alpren, B. John, E. Dawson, K. Roosevelt, A. Burrage, J. Bryant, W. M. Switzer, C. Breen, P. J. Peters, T. Stiles, A. Murray, H. D. Fukuda, W. Adih, L. Goldman, N. Panneer, B. Callis, E. M. Campbell, L. Randall, A. M. France, R. M. Klevens, S. Lyss, S. Onofrey, C. Agnew-Brune, M. Goulart, H. Jia, M. Tumpney, P. McClung, S. Dasgupta, D. Bixler, K. Hampton, B. Amy, J. L. Jaeger, K. Buchacz, and A. DeMaria, Jr. 2019. Notes from the field: HIV diagnoses among persons who inject drugs—northeastern Massachusetts, 2015–2018. *Morbidity and Mortality Weekly Report* 68(10):253-254.

Cunningham, C. O., H. V. Kunins, R. J. Roose, R. T. Elam, and N. L. Sohler. 2007. Barriers to obtaining waivers to prescribe buprenorphine for opioid addiction treatment among HIV physicians. *Journal of General Internal Medicine* 22(9):1325-1329.

Cunningham, C. O., A. Giovanniello, X. Li, H. V. Kunins, R. J. Roose, and N. L. Sohler. 2011. A comparison of buprenorphine induction strategies: Patient-centered home-based inductions versus standard-of-care office-based inductions. *Journal of Substance Abuse Treatment* 40(4):349-356.

D'Aunno, T., H. A. Pollack, L. Jiang, L. R. Metsch, and P. D. Friedmann. 2014. HIV testing in the nation's opioid treatment programs, 2005–2011: The role of state regulations. *Health Services Research* 49(1):230-248.

Davis, C. S., and D. Carr. 2016. Physician continuing education to reduce opioid misuse, abuse, and overdose: Many opportunities, few requirements. *Drug and Alcohol Dependence* 163:100-107.

Davis, C. S., and D. H. Carr. 2019. Legal and policy changes urgently needed to increase access to opioid agonist therapy in the United States. *International Journal of Drug Policy* 73:42-48.

Davis, C. S., S. Ruiz, P. Glynn, G. Picariello, and A. Y. Walley. 2014. Expanded access to naloxone among firefighters, police officers, and emergency medical technicians in Massachusetts. *American Journal of Public Health* 104(8):e7-e9.

DEA (Drug Enforcement Administration). 2006. *Dispensing controlled substances for the treatment of pain*. https://www.deadiversion.usdoj.gov/fed_regs/notices/2006/fr09062.htm (accessed December 9, 2019).

DEA. 2019. *Registration categories and fees.* Drug Enforcement Agency Diversion Control Division. https://www.deadiversion.usdoj.gov/drugreg/categories.htm (accessed October 8, 2019).

Dean, L. T., M. C. Montgomery, J. Raifman, A. Nunn, T. Bertrand, A. Almonte, and P. A. Chan. 2018. The affordability of providing sexually transmitted disease services at a safety-net clinic. *American Journal of Preventive Medicine* 54(4):552-558.

Des Jarlais, D. C., S. R. Friedman, D. M. Novick, J. L. Sotheran, P. Thomas, S. R. Yancovitz, D. Mildvan, J. Weber, M. J. Kreek, and R. Maslansky. 1989. HIV-1 infection among intravenous drug users in Manhattan, New York City, from 1977 through 1987. *Journal of the American Medical Association* 261(7):1008-1012.

Des Jarlais, D. C., C. McKnight, and J. Milliken. 2004. Public funding of US syringe exchange programs. *Journal of Urban Health* 81(1):118-121.

Des Jarlais, D. C., T. Perlis, K. Arasteh, L. V. Torian, S. Beatrice, J. Milliken, D. Mildvan, S. Yancovitz, and S. R. Friedman. 2005. HIV incidence among injection drug users in New York City, 1990 to 2002: Use of serologic test algorithm to assess expansion of HIV prevention services. *American Journal of Public Health* 95(8):1439-1444.

Des Jarlais, D. C., C. McKnight, C. Goldblatt, and D. Purchase. 2009. Doing harm reduction better: Syringe exchange in the United States. *Addiction* 104(9):1441-1446.

Des Jarlais, D. C., A. Nugent, A. Solberg, J. Feelemyer, J. Mermin, and D. Holtzman. 2015. Syringe service programs for persons who inject drugs in urban, suburban, and rural areas—United States, 2013. *Morbidity and Mortality Weekly Report* 64(48):1337-1341.

DHCF (Department of Health Care Finance). 2016. *Removal of prior authorization requirements for medication-assisted treatment* Government of the District of Columbia. https://dhcf.dc.gov/sites/default/files/dc/sites/dhcf/publication/attachments/Policy%20%2319-001%20Removal%20of%20Prior%20Auth.%20Req.%20for%20Medication-Assis_0.pdf (accessed October 14, 2019).

Dick, A. W., R. L. Pacula, A. J. Gordon, M. Sorbero, R. M. Burns, D. Leslie, and B. D. Stein. 2015. Growth in buprenorphine waivers for physicians increased potential access to opioid agonist treatment, 2002–11. *Health Affairs* 34(6):1028-1034.

Dombrowski, J. C., M. Ramchandani, S. Dhanireddy, R. D. Harrington, A. Moore, and M. R. Golden. 2018. The Max Clinic: Medical care designed to engage the hardest-to-reach persons living with HIV in Seattle and King County, Washington. *AIDS Patient Care and STDs* 32(4):149-156.

Dowell, D., T. M. Haegerich, and R. Chou. 2016. CDC guideline for prescribing opioids for chronic pain—United States, 2016. *Journal of the American Medical Association* 315(15):1624-1645.

Ducharme, L. J., and A. J. Abraham. 2008. State policy influence on the early diffusion of buprenorphine in community treatment programs. 3(1):17.

Dunn, K. E., D. A. Tompkins, G. E. Bigelow, and E. C. Strain. 2017. Efficacy of tramadol extended-release for opioid withdrawal: A randomized clinical trial. *JAMA Psychiatry* 74(9):885-893.

Dutta, A., A. L. Wirtz, S. Baral, C. Beyrer, and F. R. Cleghorn. 2012. Key harm reduction interventions and their impact on the reduction of risky behavior and HIV incidence among people who inject drugs in low-income and middle-income countries. *Current Opinion in HIV and AIDS* 7(4):362-368.

Dwarakanath, M. 2019. The case for mandating buprenorphine training for pediatric resident physicians. *JAMA Pediatrics* 173(11):1013-1014.

Eckhardt, B. J., M. Scherer, E. Winkelstein, K. Marks, and B. R. Edlin. 2018. Hepatitis C treatment outcomes for people who inject drugs treated in an accessible care program located at a syringe service program. Paper presented at Open Forum Infectious Diseases.

Ellis, M. S., Z. A. Kasper, and T. J. Cicero. 2018. Twin epidemics: The surging rise of methamphetamine use in chronic opioid users. *Drug and Alcohol Dependence* 193:14-20.

Englander, H., J. Gregg, J. Gullickson, O. Cochran-Dumas, C. Colasurdo, J. Alla, D. Collins, and C. Nicolaidis. 2019. Recommendations for integrating peer mentors in hospital-based addiction care. *Substance Abuse* 1-6.

Fauci, A. S., and H. D. Marston. 2015. Ending the HIV–AIDS pandemic—follow the science. *New England Journal of Medicine* 373(23):2197-2199.

Feyissa, G. T., C. Lockwood, M. Woldie, and Z. Munn. 2019. Reducing HIV-related stigma and discrimination in healthcare settings: A systematic review of quantitative evidence. *PloS One* 14(1):e0211298.

Fiellin, D. A., P. G. O'Connor, M. Chawarski, J. P. Pakes, M. V. Pantalon, and R. S. Schottenfeld. 2001. Methadone maintenance in primary care: A randomized controlled trial. *Journal of the American Medical Association* 286(14):1724-1731.

Finkelstein, R., J. Netherland, L. Sylla, M. N. Gourevitch, A. Cajina, L. Cheever, and B. Collaborative. 2011. Policy implications of integrating buprenorphine/naloxone treatment and HIV care. *JAIDS Journal of Acquired Immune Deficiency Syndromes* 56:S98-S104.

Fiscella, K., S. E. Wakeman, and L. Beletsky. 2019. Buprenorphine deregulation and mainstreaming treatment for opioid use disorder. *JAMA Psychiatry* 76(3):229.

Fleischauer, A. T., L. Ruhl, S. Rhea, and E. Barnes. 2017. Hospitalizations for endocarditis and associated health care costs among persons with diagnosed drug dependence—North Carolina, 2010–2015. *Morbidity and Mortality Weekly Report* 66(22):569-573.

Fox, A. D., M. R. Anderson, G. Bartlett, J. Valverde, J. L. Starrels, and C. O. Cunningham. 2014. Health outcomes and retention in care following release from prison for patients of an urban post-incarceration transitions clinic. *Journal of Health Care for the Poor and Underserved* 25(3):1139.

Frank, J. W., S. E. Wakeman, and A. J. Gordon. 2018. No end to the crisis without an end to the waiver. *Substance Abuse* 39(3):263-265.

Freudenberg, N., J. Daniels, M. Crum, T. Perkins, and B. E. Richie. 2005. Coming home from jail: The social and health consequences of community reentry for women, male adolescents, and their families and communities. *American Journal of Public Health* 95(10):1725-1736.

Frimpong, J. A. 2013. Missed opportunities for hepatitis C testing in opioid treatment programs. *American Journal of Public Health* 103(6):1028-1030.

FSMB (Federation of State Medical Boards). 2013. Model policy on DATA 2000 and treatment of opioid addiction in the medical office. Federation of State Medical Boards publication. http://www.fsmb.org/siteassets/advocacy/policies/model-policy-on-data-2000-and-treatment-of-opioid-addiction-in-the-medical-office.pdf (accessed December 1, 2019).

Gaither, J. R., V. Shabanova, and J. M. Leventhal. 2018. U.S. national trends in pediatric deaths from prescription and illicit opioids, 1999–2016. *JAMA Network Open* 1(8):e186558-e186558.

GAO (U.S. Government Accountability Office). 2018. *Health care funding: Federal obligations to and expenditures by selected organizations involved in health-related activities, fiscal years 2013–2015* https://www.gao.gov/assets/700/690490.pdf (accessed December 9, 2019).

Gardner, E. M., M. P. McLees, J. F. Steiner, C. del Rio, and W. J. Burman. 2011. The spectrum of engagement in HIV care and its relevance to test-and-treat strategies for prevention of HIV infection. *Clinical Infectious Diseases* 52(6):793-800.

Gerberding, J. L. 1994. Incidence and prevalence of human immunodeficiency virus, hepatitis B virus, hepatitis C virus, and cytomegalovirus among health care personnel at risk for blood exposure: Final report from a longitudinal study. *Journal of Infectious Diseases* 170(6):1410-1417.

Ghitza, U., S. Sparenborg, and B. Tai. 2011. Improving drug abuse treatment delivery through adoption of harmonized electronic health record systems. *Substance Abuse and Rehabilitation* 125.

Golden, M. R., R. Lechtenberg, S. N. Glick, J. Dombrowski, J. Duchin, J. R. Reuer, S. Dhanireddy, S. Neme, and S. E. Buskin. 2019. Outbreak of human immunodeficiency virus infection among heterosexual persons who are living homeless and inject drugs—Seattle, Washington, 2018. *Morbidity and Mortality Weekly Report* 68(15):344-349.

Goldsmith, R. J. 2016. ASAM public policy statement on the definition of addiction, October 31, 2016. *American Society of Addiction Medicine*. Chevy Chase, MD.

Gonsalves, G. S., and F. W. Crawford. 2018. Dynamics of the HIV outbreak and response in Scott County, USA, 2011–15: A modelling study. *The Lancet HIV* 5(10):e569-e577.

Gordon, A. J., J. Liberto, S. Granda, S. Salmon-Cox, T. Andrée, and L. McNicholas. 2008. Outcomes of DATA 2000 certification trainings for the provision of buprenorphine treatment in the Veterans Health Administration. *American Journal on Addictions* 17(6):459-462.

Green, T. C., J. Clarke, L. Brinkley-Rubinstein, B. D. Marshall, N. Alexander-Scott, R. Boss, and J. D. Rich. 2018. Postincarceration fatal overdoses after implementing medications for addiction treatment in a statewide correctional system. *JAMA Psychiatry* 75(4):405-407.

Greenhalgh, T., G. Robert, F. Macfarlane, P. Bate, and O. Kyriakidou. 2004. Diffusion of innovations in service organizations: Systematic review and recommendations. *The Milbank Quarterly* 82(4):581-629.

Gueronniere, G. D. L. 2019. *State strategies to expand access to medication-assisted treatment (MAT) for opioid use disorder.* Legal Action Center. Washington, DC.

Haffajee, R. L., and R. G. Frank. 2018. Making the opioid public health emergency effective. *JAMA Psychiatry* 75(8):767-768.

Haffajee, R. L., A. S. Bohnert, and P. A. Lagisetty. 2018. Policy pathways to address provider workforce barriers to buprenorphine treatment. *American Journal of Preventive Medicine* 54(6):S230-S242.

Hagan, H., D. Des Jarlais, S. R. Friedman, D. Purchase, and M. J. Alter. 1995. Reduced risk of Hepatitis B and hepatitis C among injection drug users in the Tacoma syringe exchange program. *American Journal of Public Health* 85(11):1531-1537.

Hagan, H., J. P. McGough, H. Thiede, S. Hopkins, J. Duchin, and E. R. Alexander. 2000. Reduced injection frequency and increased entry and retention in drug treatment associated with needle-exchange participation in Seattle drug injectors. *Journal of Substance Abuse Treatment* 19(3):247-252.

Hagan, H., E. R. Pouget, and D. C. Des Jarlais. 2011. A systematic review and meta-analysis of interventions to prevent hepatitis C virus infection in people who inject drugs. *Journal of Infectious Diseases* 204(1):74-83.

Hartard, C., C. Gantzer, J. P. Bronowicki, and E. Schvoerer. 2019. Emerging hepatitis E virus compared with Hepatitis A virus: A new sanitary challenge. *Reviews in Medical Virology* e2078.

Hartung, D. M., K. Johnston, J. Geddes, G. Leichtling, K. C. Priest, and P. T. Korthuis. 2019. Buprenorphine coverage in the Medicare Part D program for 2007 to 2018. *Journal of the American Medical Association* 321(6):607-609.

Hawk, K. F., F. E. Vaca, and G. D'Onofrio. 2015. Focus: Addiction: Reducing fatal opioid overdose: Prevention, treatment and harm reduction strategies. *The Yale Journal of Biology and Medicine* 88(3):235.

Hawk, M., R. W. S. Coulter, J. E. Egan, S. Fisk, M. Reuel Friedman, M. Tula, and S. Kinsky. 2017. Harm reduction principles for healthcare settings. *Harm Reduction Journal* 14(1):70.

Hawks, L., B. L. Norton, C. O. Cunningham, and A. D. Fox. 2016. The hepatitis C virus treatment cascade at an urban postincarceration transitions clinic. *Journal of Viral Hepatitis* 23(6):473-478.

He, T., K. Li, M. S. Roberts, A. C. Spaulding, T. Ayer, J. J. Grefenstette, and J. Chhatwal. 2016. Prevention of hepatitis C by screening and treatment in U.S. Prisons. *Annals of Internal Medicine* 164(2):84-92.

Heath, B., P. Wise Romero, and K. Reynolds. 2013. *A standard framework for levels of integrated healthcare*. Washington, DC: SAMHSA-HRSA Center for Integrated Health Solutions.

Hedegaard, H., A. M. Miniño, and M. Warner. 2019. Urban–rural differences in drug overdose death rates, by sex, age, and type of drugs involved, 2017. Centers for Disease Control and Prevention. https://www.cdc.gov/nchs/products/databriefs/db345.htm (accessed December 10, 2019).

Heijnders, M., and S. Van Der Meij. 2006. The fight against stigma: An overview of stigma-reduction strategies and interventions. *Psychology, Health & Medicine* 11(3):353-363.

Henderson, J. 2019. Community healthcare network calls on state to allow same-day billing. *Crain's New York Business*, June 28, 2019.

HHS (U.S. Department of Health and Human Services). 2016. *What is the HIV care continuum?* https://www.hiv.gov/federal-response/policies-issues/hiv-aids-care-continuum. September 18, 2019.

HHS. 2019a. *HHS 42 CFR Part 2 proposed rule fact sheet*. https://www.hhs.gov/about/news/2019/08/22/hhs-42-cfr-part-2-proposed-rule-fact-sheet.html (accessed October 3, 2019).

HHS. 2019b. *A timeline of HIV and AIDS*. https://www.hiv.gov/hiv-basics/overview/history/hiv-and-aids-timeline (accessed October 16, 2019.

HHS. 2019c. *What is "Ending the HIV Epidemic: A Plan for America"?* https://www.hiv.gov/federal-response/ending-the-hiv-epidemic/overview (accessed December 9, 2019).

HHS. 2019d. *What is the U.S. Opioid epidemic?* https://www.hhs.gov/opioids/about-the-epidemic/index.html (accessed October 16, 2019).

Houy, M., and M. Bailit. 2015. *Barriers to behavioral and physical health integration in Massachusetts.* Massachusetts: Blue Cross Blue Shield Foundation of Massachusetts.

HPP (USAID's Health Policy Project). 2011. *Comprehensive package for reducing stigma and discrimination in health facilities.* Health Policy Project.

HRC (Harm Reduction Coalition). 2019. *Principles of harm reduction*. https://harmreduction.org/about-us/principles-of-harm-reduction (accessed December 9, 2019).

HRI (Harm Reduction International). 2019. *What is harm reduction?* https://www.hri.global/what-is-harm-reduction (accessed September 16, 2019).

HRSA (Health Resources and Services Administration). 2018. *Ryan White HIV/AIDS program annual client-level data report 2017*. Health Resources and Services Administration https://hab.hrsa.gov/sites/default/files/hab/data/datareports/RWHAP-annual-client-level-data-report-2017.pdf (accessed September 17, 2019).

HRSA. 2019a. *About the Ryan White HIV/AIDS program*. https://hab.hrsa.gov/about-ryan-white-hivaids-program/about-ryan-white-hivaids-program (accessed September 17, 2019.

HRSA. 2019b. *Behavioral health*. https://bhw.hrsa.gov/grants/behavioral-health (accessed October 22, 2019).

HRSA. 2019c. *NHSC rural community loan repayment program*. https://nhsc.hrsa.gov/loan-repayment/nhsc-rural-community-loan-repayment-program (accessed August 26, 2019.

HRSA. 2019d. *Telehealth programs*. https://www.hrsa.gov/rural-health/telehealth/index.html (accessed October 22, 2019).

Hser, Y. I., A. J. Saxon, D. Huang, A. Hasson, C. Thomas, M. Hillhouse, P. Jacobs, C. Teruya, P. McLaughlin, and K. Wiest. 2014. Treatment retention among patients randomized to buprenorphine/naloxone compared to methadone in a multi-site trial. *Addiction* 109(1):79-87.

Huhn, A. S., and K. E. Dunn. 2017. Why aren't physicians prescribing more buprenorphine? *Journal of Substance Abuse Treatment* 78:1-7.

Hutchinson, E., M. Catlin, C. H. A. Andrilla, L.-M. Baldwin, and R. A. Rosenblatt. 2014. Barriers to primary care physicians prescribing buprenorphine. *The Annals of Family Medicine* 12(2):128-133.

IOM (Institute of Medicine). 1995. *Federal regulation of methadone treatment*. Washington, DC: National Academy Press.

Islam, M. M., L. Topp, K. M. Conigrave, A. White, S. E. Reid, S. Grummett, P. S. Haber, and C. A. Day. 2012. Linkage into specialist hepatitis C treatment services of injecting drug users attending a needle syringe program-based primary healthcare centre. *Journal of Substance Abuse Treatment* 43(4):440-445.

Jackson, K. A., M. K. Bohm, J. T. Brooks, A. Asher, J. Nadle, W. M. Bamberg, S. Petit, S. M. Ray, L. H. Harrison, R. Lynfield, G. Dumyati, W. Schaffner, J. M. Townes, and I. See. 2018. Invasive methicillin-resistant staphylococcus aureus infections among persons who inject drugs—six sites, 2005–2016. *Morbidity and Mortality Weekly Report* 67(22):625-628.

Jensen, E. L., J. Gerber, and C. Mosher. 2004. Social consequences of the war on drugs: The legacy of failed policy. *Criminal Justice Policy Review* 15(1):100-121.

Jin, H., A. Ogunbajo, M. J. Mimiaga, D. T. Duncan, E. Boyer, P. Chai, S. E. Dilworth, and A. W. Carrico. 2018. Over the influence: The HIV care continuum among methamphetamine-using men who have sex with men. *Drug and Alcohol Dependence* 192:125-128.

Johnson, B., and T. Richert. 2015. Diversion of methadone and buprenorphine from opioid substitution treatment: The importance of patients' attitudes and norms. *Journal of Substance Abuse Treatment* 54:50-55.

Jones, C. M. 2019. Syringe services programs: An examination of legal, policy, and funding barriers in the midst of the evolving opioid crisis in the US. *International Journal of Drug Policy* 70:22-32.

Jones, C. M., and E. F. McCance-Katz. 2019. Characteristics and prescribing practices of clinicians recently waivered to prescribe buprenorphine for the treatment of opioid use disorder. *Addiction* 114(3):471-482.

Joudrey, P. J., J. Edelman, and E. A. Wang. 2019. Drive times to opioid treatment programs in urban and rural counties in 5 US states. *Journal of the American Medical Association* 322(13).

Katz, I. T., A. E. Ryu, A. G. Onuegbu, C. Psaros, S. D. Weiser, D. R. Bangsberg, and A. C. Tsai. 2013. Impact of HIV-related stigma on treatment adherence: Systematic review and meta-synthesis. *Journal of the International AIDS Society* 16:18640.

Kay, E. S., D. S. Batey, and M. J. Mugavero. 2018. The Ryan White HIV/AIDS program: Supplementary service provision post-Affordable Care Act. *AIDS Patient Care and STDs* 32(7):265-271.

Kelly, J. F., and C. M. Westerhoff. 2010. Does it matter how we refer to individuals with substance-related conditions? A randomized study of two commonly used terms. *International Journal of Drug Policy* 21(3):202-207.

Kelly, J. F., R. Saitz, and S. Wakeman. 2016. Language, substance use disorders, and policy: The need to reach consensus on an "addiction-ary." *Alcoholism Treatment Quarterly* 34(1):116-123.

Kennedy-Hendricks, A., S. H. Busch, E. E. McGinty, M. A. Bachhuber, J. Niederdeppe, S. E. Gollust, D. W. Webster, D. A. Fiellin, and C. L. Barry. 2016. Primary care physicians' perspectives on the prescription opioid epidemic. *Drug and Alcohol Dependence* 165:61-70.

Kennedy-Hendricks, A., C. L. Barry, S. E. Gollust, M. E. Ensminger, M. S. Chisolm, and E. E. McGinty. 2017. Social stigma toward persons with prescription opioid use disorder: Associations with public support for punitive and public health–oriented policies. *Psychiatric Services* 68(5):462-469.

Kepple, N. J., A. Parker, S. Whitmore, and M. Comtois. 2019. Nowhere to go? Examining facility acceptance levels for serving individuals using medications for opioid use disorder. *Journal of Substance Abuse Treatment*.

Kidd, S. E., J. A. Grey, E. A. Torrone, and H. S. Weinstock. 2019. Increased methamphetamine, injection drug, and heroin use among women and heterosexual men with primary and secondary syphilis—United States, 2013–2017. *Morbidity and Mortality Weekly Report* 68(6):144-148.

Kim, H. K., M. Smiddy, R. S. Hoffman, and L. S. Nelson. 2012. Buprenorphine may not be as safe as you think: A pediatric fatality from unintentional exposure. *Pediatrics* 130(6):e1700-e1703.

Kinlock, T. W., M. S. Gordon, R. P. Schwartz, and K. E. O'Grady. 2008. A study of methadone maintenance for male prisoners: 3-month postrelease outcomes. *Criminal Justice and Behavior* 35(1):34-47.

Knopf, A. 2019. ASAM supports eliminating the X-waiver for buprenorphine. *Alcoholism & Drug Abuse Weekly* 31(29):6-7.

Knudsen, H. K. 2015. The supply of physicians waivered to prescribe buprenorphine for opioid use disorders in the United States: A state-level analysis. *Journal of Studies on Alcohol and Drugs* 76(4):644-654.

Knudsen, H. K., M. R. Lofwall, J. R. Havens, and S. L. Walsh. 2015. States' implementation of the Affordable Care Act and the supply of physicians waivered to prescribe buprenorphine for opioid dependence. *Drug and Alcohol Dependence* 157:36-43.

Knudsen, H. K., L. Lin, and M. R. Lofwall. 2019. Adoption of the 275-patient buprenorphine treatment waiver for treating opioid use disorder: A state-level longitudinal analysis. *Substance Abuse* 1-10.

Kolodny, A., D. T. Courtwright, C. S. Hwang, P. Kreiner, J. L. Eadie, T. W. Clark, and G. C. Alexander. 2015. The prescription opioid and heroin crisis: A public health approach to an epidemic of addiction. *Annual Review of Public Health* 36:559-574.

Kultys, K. 2019. Gov. Phil Murphy announces new initiatives to combat opioid epidemic. *Burlington County Times*, Jan. 23, 2019.

Lambrew, J. 2019. *Transmittal and notice of approval of state plan material*. https://www.medicaid.gov/State-resource-center/Medicaid-State-Plan-Amendments/Downloads/ME/ME-19-0012.pdf (accessed December 12, 2019).

Lavonas, E. J., S. G. Severtson, E. M. Martinez, B. Bucher-Bartelson, M.-C. Le Lait, J. L. Green, L. E. Murrelle, T. J. Cicero, S. P. Kurtz, and A. Rosenblum. 2014. Abuse and diversion of buprenorphine sublingual tablets and film. *Journal of Substance Abuse Treatment* 47(1):27-34.

Law, M. R., S. B. Soumerai, D. Ross-Degnan, and A. S. Adams. 2008. A longitudinal study of medication nonadherence and hospitalization risk in schizophrenia. *Journal of Clinical Psychiatry* 69(1):47-53.

Lee, J. D., E. Grossman, D. DiRocco, and M. N. Gourevitch. 2009. Home buprenorphine/naloxone induction in primary care. *Journal of General Internal Medicine* 24(2):226.

Lee, J. D., F. Vocci, and D. A. Fiellin. 2014. Unobserved "home" induction onto buprenorphine. *Journal of Addiction Medicine* 8(5):299-308.

Lee, J. D., P. D. Friedmann, T. W. Kinlock, E. V. Nunes, T. Y. Boney, R. A. Hoskinson Jr, D. Wilson, R. McDonald, J. Rotrosen, and M. N. Gourevitch. 2016. Extended-release naltrexone to prevent opioid relapse in criminal justice offenders. *New England Journal of Medicine* 374(13):1232-1242.

Lembke, A., and K. Humphreys. 2018. The opioid epidemic as a watershed moment for physician training in addiction medicine. *Academic Psychiatry* 42(2):269-272.

Lerner, A. M., and A. S. Fauci. 2019. Opioid injection in rural areas of the United States: A potential obstacle to ending the HIV epidemic. *Journal of the American Medical Association* 322(11):1041-1042

Li, X., D. Shorter, and T. R. Kosten. 2016. Buprenorphine prescribing. *Journal of Psychiatric Practice* 22(3):183-192.

Lin, L. A., M. R. Lofwall, S. L. Walsh, A. J. Gordon, and H. K. Knudsen. 2018. Perceptions and practices addressing diversion among U.S. buprenorphine prescribers. *Drug and Alcohol Dependence* 186:147-153.

Link, B. G., and J. C. Phelan. 2001. Conceptualizing stigma. *Annual Review of Sociology* 27(1):363-385.

Link, B. G., E. L. Struening, M. Rahav, J. C. Phelan, and L. Nuttbrock. 1997. On stigma and its consequences: Evidence from a longitudinal study of men with dual diagnoses of mental illness and substance abuse. *Journal of Health and Social Behavior* 38:177-190.

Livingston, J. D., T. Milne, M. L. Fang, and E. Amari. 2012. The effectiveness of interventions for reducing stigma related to substance use disorders: A systematic review. *Addiction* 107(1):39-50.

Lofwall, M. R., and J. R. Havens. 2012. Inability to access buprenorphine treatment as a risk factor for using diverted buprenorphine. *Drug and Alcohol Dependence* 126(3):379-383.

Lofwall, M. R., and S. L. Walsh. 2014. A review of buprenorphine diversion and misuse: The current evidence base and experiences from around the world. *Journal of Addiction Medicine* 8(5):315.

Lopez, K., and D. Reid. 2017. Discrimination against patients with substance use disorders remains prevalent and harmful: The case for 42 CFR Part 2. *Health Affairs* https://www.healthaffairs.org/do/10.1377/hblog20170413.059618/full (accessed August 22, 2019).

Lu, C. Y., M. R. Law, S. B. Soumerai, A. J. Graves, R. F. Lecates, F. Zhang, D. Ross-Degnan, and A. S. Adams. 2011. Impact of prior authorization on the use and costs of lipid-lowering medications among Michigan and Indiana dual enrollees in Medicaid and Medicare: Results of a longitudinal, population-based study. *Clinical Therapeutics* 33(1):135-144.

Lucas, G. M., P. J. Weidle, S. Hader, and R. D. Moore. 2004. Directly administered antiretroviral therapy in an urban methadone maintenance clinic: A nonrandomized comparative study. *Clinical Infectious Diseases* 38(Supplement 5):S409-S413.

Lucas, G. M., A. Chaudhry, J. Hsu, T. Woodson, B. Lau, Y. Olsen, J. C. Keruly, D. A. Fiellin, R. Finkelstein, and P. Barditch-Crovo. 2010. Clinic-based treatment of opioid-dependent HIV-infected patients versus referral to an opioid treatment program: A randomized trial. *Annals of Internal Medicine* 152(11):704-711.Maclean, J. C., and B. Saloner. 2019. The effect of public insurance expansions on substance use disorder treatment: Evidence from the Affordable Care Act. *Journal of Policy Analysis and Management* 38(2):366-393.

MACPAC (Medicaid and CHIP Payment and Access Commission). 2018a. Medicaid and the criminal justice system. *Medicaid and CHIP Payment and Access Commission.* Washington, DC. https://www.macpac.gov/publication/medicaid-and-the-criminal-justice-system (accessed September 16, 2019.

MACPAC. 2018b. *Substance use disorder confidentiality regulations and care integration in Medicaid and CHIP*. https://www.macpac.gov/wp-content/uploads/2018/06/Substance-Use-Disorder-Confidentiality-Regulations-and-Care-Integration-in-Medicaid-and-CHIP.pdf (accessed October 15, 2019).

Madras, B. K., W. M. Compton, D. Avula, T. Stegbauer, J. B. Stein, and H. W. Clark. 2009. Screening, brief interventions, referral to treatment (SBIRT) for illicit drug and alcohol use at multiple healthcare sites: Comparison at intake and 6 months later. *Drug and Alcohol Dependence* 99(1-3):280-295.

Malivert, M., M. Fatséas, C. Denis, E. Langlois, and M. Auriacombe. 2012. Effectiveness of therapeutic communities: A systematic review. *European Addiction Research* 18(1):1-11.

Mark, T., J. Richardson, and H. Lin. 2014. *Medicaid coverage and financing of medications to treat alcohol and opioid use disorders.* Rockville, MD: Truven Health Analytics Inc.

Mark, T. L., W. Parish, and G. A. Zarkin. 2019. Association between Medicare and FDA policies and prior authorization requirements for buprenorphine products in Medicare Part D plans. *Journal of the American Medical Association* 322(2):166-167.

Marks, L. R., S. Munigala, D. K. Warren, S. Y. Liang, E. S. Schwarz, and M. J. Durkin. 2018. Addiction medicine consultations reduce readmission rates for patients with serious infections from opioid use disorder. *Clinical Infectious Diseases* 68(11):1935-1937.

Marlatt, G. A. 1996. Harm reduction: Come as you are. *Addictive Behaviors* 21(6):779-788.

Marlatt, G. A., and K. Witkiewitz. 2010. Update on harm-reduction policy and intervention research. *Annual Review of Clinical Psychology* 6:591-606.

Martin, S. A., L. M. Chiodo, J. D. Bosse, and A. Wilson. 2018. The next stage of buprenorphine care for opioid use disorder. *Annals of Internal Medicine* 169(9):628-635.

Masyukova, M. I., D. B. Hanna, and A. D. Fox. 2018. HIV treatment outcomes among formerly incarcerated transitions clinic patients in a high prevalence setting. *Health & Justice* 6(1):16.

Mauer, B. J. 2010. Substance use disorders and the person-centered healthcare home. National Council for Community Behavioral Healthcare:1-51. https://www.integration.samhsa.gov/integrated-care-models/National_Council_SU_Report.pdf (accessed January 8, 2020).

McCance-Katz, E. F., P. M. Rainey, G. Friedland, and P. Jatlow. 2003. The protease inhibitor lopinavir-ritonavir may produce opiate withdrawal in methadone-maintained patients. *Clinical Infectious Diseases* 37(4):476-482.

McCance-Katz, E. F., P. George, N. A. Scott, R. Dollase, A. R. Tunkel, and J. McDonald. 2017. Access to treatment for opioid use disorders: Medical student preparation. *The American Journal on Addictions* 26(4):316-318.

McCarty, D., T. Rieckmann, R. L. Baker, and K. J. McConnell. 2016. The perceived impact of 42 CFR Part 2 on coordination and integration of care: A qualitative analysis. *Psychiatric Services* 68(3):245-249.

McKenzie, M., A. Nunn, N. D. Zaller, A. R. Bazazi, and J. D. Rich. 2009. Overcoming obstacles to implementing methadone maintenance therapy for prisoners: Implications for policy and practice. *Journal of Opioid Management* 5(4):219.

McLellan, A. T., D. C. Lewis, C. P. O'Brien, and H. D. Kleber. 2000. Drug dependence, a chronic medical illness: Implications for treatment, insurance, and outcomes evaluation. *Journal of the American Medical Association* 284(13):1689-1695.

McLellan, A. T., and A. M. Woodworth. 2014. The Affordable Care Act and treatment for "substance use disorders": implications of ending segregated behavioral healthcare. *Journal of Substance Abuse Treatment* 46(5):541-545.

McLuckie, C., M. T. Pho, K. Ellis, L. Navon, K. Walblay, W. D. Jenkins, C. Rodriguez, M. A. Kolak, Y. T. Chen, J. A. Schneider, and W. E. Zahnd. 2019. Identifying areas with disproportionate local health department services relative to opioid overdose, HIV and hepatitis C diagnosis rates: A study of rural Illinois. *International Journal of Environmental Research and Public Health* 16(6).

Meinhofer, A., A. R. Williams, P. Johnson, B. R. Schackman, and Y. Bao. 2019. Prescribing decisions at buprenorphine treatment initiation: Do they matter for treatment discontinuation and adverse opioid-related events? *Journal of Substance Abuse Treatment* 105:37-43.

Meireles, L. C., R. T. Marinho, and P. Van Damme. 2015. Three decades of Hepatitis B control with vaccination. *World Journal of Hepatology* 7(18):2127.

Meng, C., B. B. Rayburn, W. A. Ramirez-Cacho, and W. F. Rayburn. 2007. Effect of a specialized prenatal clinic on medical student attitudes toward women with drinking problems. *The Journal of Maternal-Fetal & Neonatal Medicine* 20(3):217-220.

Merrill, J. O. 2003. Integrating medical care and addiction treatment. *Journal of General Internal Medicine* 18(1):68.

Meyer, J. P., J. Cepeda, S. A. Springer, J. Wu, R. L. Trestman, and F. L. Altice. 2014. HIV in people reincarcerated in Connecticut prisons and jails: An observational cohort study. *The Lancet HIV* 1(2):e77-e84.

MHAF. 2018. *Substance use and HIV risk*. https://www.hiv.gov/hiv-basics/hiv-prevention/reducing-risk-from-alcohol-and-drug-use/substance-use-and-HIV-risk (accessed November 26, 2019).

Miller, B. F., M. R. Talen, and K. K. Patel. 2013. Advancing integrated behavioral health and primary care: The critical importance of behavioral health in health care policy. *Integrated Behavioral Health in Primary Care*. Springer Science+Business Media, 53-62. New York, NY.

Mitchell, O., and M. S. Caudy. 2017. Race differences in drug offending and drug distribution arrests. *Crime & Delinquency* 63(2):91-112.

Mojtabai, R., K. A. Feder, M. Kealhofer, N. Krawczyk, C. Storr, K. N. Tormohlen, A. S. Young, M. Olfson, and R. M. Crum. 2018. State variations in Medicaid enrollment and utilization of substance use services: Results from a national longitudinal study. *Journal of Substance Abuse Treatment* 89:75-86.

Monson, S. P., J. C. Sheldon, L. C. Ivey, C. R. Kinman, and A. O. Beacham. 2012. Working toward financial sustainability of integrated behavioral health services in a public health care system. *Families, Systems, & Health* 30(2):181.

Moore, L. D., and A. Elkavich. 2008. Who's using and who's doing time: Incarceration, the war on drugs, and public health. *American Journal of Public Health* 98(Supplement 1):S176-S180.

Morris, M. D., B. Brown, and S. A. Allen. 2017. Universal opt-out screening for hepatitis C virus (HCV) within correctional facilities is an effective intervention to improve public health. *International Journal of Prisoner Health* 13(3/4):192-199.

Mosher, J. F., and K. L. Yanagisako. 1991. Public health, not social warfare: A public health approach to illegal drug policy. *Journal of Public Health Policy* 12(3):278-323.

NACRHHS (National Advisory Committee on Rural Health and Human Services). 2015. *Mortality and life expectancy in rural America: Connecting the health and human service safety nets to improve health outcomes over the life course.* National Advisory Committee on Rural Health and Human Services. Rockville, MD.

NASEM (National Academies of Sciences, Engineering, and Medicine). 2016a. *Eliminating the public health problem of hepatitis B and C in the United States: Phase one report*. Washington, DC: The National Academies Press.

NASEM. 2016b. *Ending discrimination against people with mental and substance use disorders: The evidence for stigma change*. Washington, DC: The National Academies Press.

NASEM. 2017. *A national strategy for the elimination of hepatitis B and C: Phase two report*. Washington, DC: The National Academies Press.

NASEM. 2019. *Medications for opioid use disorder save lives*. Washington, DC: The National Academies Press.

NCASA (National Center on Addiction and Substance Abuse). 2012. *Addiction medicine: Closing the gap between science and practice.* New York, NY: The National Center on Addiction and Substance Abuse at Columbia University.

NCASA. 2017. *Ending the opioid crisis: A practical guide for state policymakers.* New York, NY: The National Center on Addiction and Substance Abuse at Columbia University

NCSL (National Conference of State Legislatures). 2017. Understanding Medicaid Section 1115 waivers: A primer for state legislators. Washington, DC.

Nerlander, L. M., K. L. Hess, C. Sionean, C. E. Rose, A. Thorson, D. Broz, and G. Paz-Bailey. 2017. Exchange sex and HIV infection among men who have sex with men: 20 U.S. cities, 2011. *AIDS and Behavior* 21(8):2283-2294.

Nguyen, T. Q., B. W. Weir, D. C. Des Jarlais, S. D. Pinkerton, and D. R. Holtgrave. 2014. Syringe exchange in the United States: A national level economic evaluation of hypothetical increases in investment. *AIDS and Behavior* 18(11):2144-2155.

Nicholas, J. 2019. *Drug treatment is reaching more prisons and jails*. https://theappeal.org/a-shot-over-the-bow-to-all-jails-and-prisons (accessed September 16, 2019).

NIDA (National Institute on Drug Abuse). 2018a. *Medications to treat opioid use disorder*. National Institute on Drug Abuse. https://www.drugabuse.gov/publications/research-reports/medications-to-treat-opioid-addiction/overview (accessed September 17, 2019.

NIDA. 2018b. *Viral hepatitis—a very real consequence of substance use.* National Institute on Drug Abuse. https://www.drugabuse.gov/related-topics/viral-hepatitis-very-real-consequence-substance-use (accessed October 16, 2019).

NIDA. 2018c. *What is the impact of medication for opioid use disorder treatment on HIV/HCV outcomes?* National Institute on Drug Abuse. https://www.drugabuse.gov/publications/medications-to-treat-opioid-addiction/what-impact-medication-opioid-use-disorder-treatment-hivhcv-outcomes (accessed December 3, 2019).

NIDA. 2018d. *What is the treatment need versus the diversion risk for opioid use disorder treatment?* National Institute on Drug Abuse. https://www.drugabuse.gov/publications/medications-to-treat-opioid-addiction/what-treatment-need-versus-diversion-risk-opioid-use-disorder-treatment (accessed November 27, 2019).

NIDA. 2019. *Overdose death rates.* National Institute on Drug Abuse. https://www.drugabuse.gov/related-topics/trends-statistics/overdose-death-rates (accessed October 17, 2019).

Noonan, R. 2017. *Rural America in crisis: The changing opioid overdose epidemic*. https://blogs.cdc.gov/publichealthmatters/2017/11/opioids (accessed January 8, 2020).

NRC (National Research Council). 1995. *Preventing HIV transmission: The role of sterile needles and bleach*. Washington DC: National Academies Press.

NRC. 2014. *The growth of incarceration in the United States: Exploring causes and consequences*. Committee on Causes and Consequences of High Rates of Incarceration, J. Travis, B. Western, and S. Redburn, Editors. Committee on Law and Justice, Division of Behavioral and Social Sciences and Education. Washington, DC: The National Academies Press

Nyblade, L., K. Srinivasan, A. Mazur, T. Raj, D. S. Patil, D. Devadass, K. Radhakrishna, and M. L. Ekstrand. 2018. HIV stigma reduction for health facility staff: Development of a blended-learning intervention. *Frontiers in Public Health* 6.

Nyblade, L., M. A. Stockton, K. Giger, V. Bond, M. L. Ekstrand, R. Mc Lean, E. M. Mitchell, E. N. La Ron, J. C. Sapag, and T. Siraprapasiri. 2019. Stigma in health facilities: Why it matters and how we can change it. *BMC Medicine* 17(1):25.

O'Brien, J., T. Sadwith, C. Croze, and S. Parker. 2019. *Review of state strategies to expand medication-assisted treatment.* Technical Assistance Collaborative. Boston, MA.

O'Connor, P. G., R. J. Sokol, and G. D'Onofrio. 2014. Addiction medicine: The birth of a new discipline. *JAMA Internal Medicine* 174(11):1717-1718.

OCR (Office for Civil Rights). 2013. *Summary of the HIPAA privacy rule*. https://www.hhs.gov/hipaa/for-professionals/privacy/laws-regulations/index.html (accessed August 22, 2019).

Olsen, Y., and J. M. Sharfstein. 2014. Confronting the stigma of opioid use disorder—and its treatment. *Journal of the American Medical Association* 311(14):1393-1394.

Padwa, H., D. Urada, V. P. Antonini, A. Ober, D. A. Crèvecoeur-Macphail, and R. A. Rawson. 2012. Integrating substance use disorder services with primary care: The experience in California. *Journal of Psychoactive Drugs* 44(4):299-306.

Park, Y., S. Raza, A. George, R. Agrawal, and J. Ko. 2017. The effect of formulary restrictions on patient and payer outcomes: A systematic literature review. *Journal of Managed Care & Specialty Pharmacy* 23(8):893-901.

Parks, T. 2017. *AGS called on to help stop prior authorization for MAT*. https://www.ama-assn.org/practice-management/sustainability/ags-called-help-stop-prior-authorization-mat (accessed November 25, 2019).

Pating, D. R., M. M. Miller, E. Goplerud, J. Martin, and D. M. Ziedonis. 2012. New systems of care for substance use disorders: Treatment, finance, and technology under health care reform. *Psychiatric Clinics* 35(2):327-356.

PCORI (Patient-Centered Outcomes Research Institute). 2019. *Comparing ways to provide hepatitis C treatment for people who take methadone*. https://www.pcori.org/research-results/2016/comparing-ways-provide-hepatitis-c-treatment-people-who-take-methadone (accessed October 8, 2019).

PCSS (Providers Clinical Support System). 2019a. *8 hour MAT waiver training*. https://pcssnow.org/calendar-of-events/map/?tribe_eventcategory=181 (accessed October 8, 2019).

PCSS. 2019b. *Mentors*. https://pcssnow.org/mentoring/mentors (accessed December 5, 2019).

PCSS. 2019c. *Training courses*. https://pcssnow.org/education-training/training-courses/?topic=buprenorphine&cme=cme (accessed December 7, 2019).

Perlman, D. C., and A. E. Jordan. 2017. Considerations for the development of a substance-related care and prevention continuum model. *Frontiers in Public Health* 5:180.

Platt, L., J. E. Reed, H. Hagan, A. E. Jordan, P. Vickerman, and M. Hickman. 2016. Effectiveness of needle/syringe programmes and opiate substitution therapy in preventing HCV transmission among people who inject drugs. *Addiction* 113(3):545-563

Priester, M. A., T. Browne, A. Iachini, S. Clone, D. DeHart, and K. D. Seay. 2016. Treatment access barriers and disparities among individuals with co-occurring mental health and substance use disorders: An integrative literature review. *Journal of Substance Abuse Treatment* 61:47-59.

Ram, A., and M. S. Chisolm. 2016. The time is now: Improving substance abuse training in medical schools. *Academic Psychiatry* 40(3):454-460.

Ranapurwala, S. I., M. E. Shanahan, A. A. Alexandridis, S. K. Proescholdbell, R. B. Naumann, D. Edwards Jr, and S. W. Marshall. 2018. Opioid overdose mortality among former North Carolina inmates: 2000–2015. *American Journal of Public Health* 108(9):1207-1213.

Rao, D., A. Elshafei, M. Nguyen, M. L. Hatzenbuehler, S. Frey, and V. F. Go. 2019. A systematic review of multi-level stigma interventions: State of the science and future directions. *BMC Medicine* 17(1):41.

Rao, H., H. Mahadevappa, P. Pillay, M. Sessay, A. Abraham, and J. Luty. 2009. A study of stigmatized attitudes towards people with mental health problems among health professionals. *Journal of Psychiatric and Mental Health Nursing* 16(3):279-284.

Rasyidi, E., J. N. Wilkins, and I. Danovitch. 2012. Training the next generation of providers in addiction medicine. *The Psychiatric Clinics of North America* 35(2):461-480.

Ratycz, M. C., T. J. Papadimos, and A. A. Vanderbilt. 2018. Addressing the growing opioid and heroin abuse epidemic: A call for medical school curricula. *Medical Education Online* 23(1):1466574.

Redford, A., and B. Powell. 2016. Dynamics of intervention in the war on drugs: The buildup to the Harrison act of 1914. *The Independent Review* 20(4):509-530.

Rementer, E. 2018. *Wolf administration announces agreement with insurers to eliminate barriers to medication-assisted treatment*. Pennsylvania Pressroom. https://www.media.pa.gov/Pages/Insurance-Details.aspx?newsid=344 (accessed December 10, 2019).

Rich, J. D., M. McKenzie, G. E. Macalino, L. E. Taylor, S. Sanford-Colby, F. Wolf, S. McNamara, M. Mehrotra, and M. D. Stein. 2004. A syringe prescription program to prevent infectious disease and improve health of injection drug users. *Journal of Urban Health* 81(1):122-134.

Rich, J. D., S. A. Allen, and B. A. Williams. 2014. Responding to hepatitis C through the criminal justice system. *New England Journal of Medicine* 370(20):1871-1874.

Rinaldo, S. G., and D. W. Rinaldo. 2013. *Availability without accessibility? State Medicaid coverage and authorization requirements for opioid dependence medications.* American Society of Addiction Medicine. Chevy Chase, MD.

Ritter, A., and J. Cameron. 2006. A review of the efficacy and effectiveness of harm reduction strategies for alcohol, tobacco and illicit drugs. *Drug and Alcohol Review* 25(6):611-624.

Roby, D. H., and E. E. Jones. 2016. Limits on same-day billing in Medicaid hinders integration of behavioral health into the medical home model. *Psychological Services* 13(1):110.

Roche, A. M., K. R. Evans, and W. R. Stanton. 1997. Harm reduction: Roads less travelled to the holy grail. *Addiction* 92(9):1207-1212.

Rodger, A. J., V. Cambiano, T. Bruun, P. Vernazza, S. Collins, J. van Lunzen, G. M. Corbelli, V. Estrada, A. M. Geretti, A. Beloukas, D. Asboe, P. Viciana, F. Gutierrez, B. Clotet, C. Pradier, J. Gerstoft, R. Weber, K. Westling, G. Wandeler, J. M. Prins, A. Rieger, M. Stoeckle, T. Kümmerle, T. Bini, A. Ammassari, R. Gilson, I. Krznaric, M. Ristola, R. Zangerle, P. Handberg, A. Antela, S. Allan, A. N. Phillips, J. Lundgren, and P. S. Group. 2016. Sexual activity without condoms and risk of HIV transmission in serodifferent couples when the HIV-positive partner is using suppressive antiretroviral therapy. *Journal of the American Medical Association* 316(2):171-181.

Rodger, A. J., V. Cambiano, T. Bruun, P. Vernazza, S. Collins, O. Degen, G. M. Corbelli, V. Estrada, A. M. Geretti, A. Beloukas, D. Raben, P. Coll, A. Antinori, N. Nwokolo, A.

Rieger, J. M. Prins, A. Blaxhult, R. Weber, A. Van Eeden, N. H. Brockmeyer, A. Clarke, J. del Romero Guerrero, F. Raffi, J. R. Bogner, G. Wandeler, J. Gerstoft, F. Gutiérrez, K. Brinkman, M. Kitchen, L. Ostergaard, A. Leon, M. Ristola, H. Jessen, H.-J. Stellbrink, A. N. Phillips, J. Lundgren, P. Coll, P. Cobarsi, A. Nieto, M. Meulbroek, A. Carrillo, J. Saz, J. D. R. Guerrero, M. V. García, F. Gutiérrez, M. Masiá, C. Robledano, A. Leon, L. Leal, E. G. Redondo, V. P. Estrada, R. Marquez, R. Sandoval, P. Viciana, N. Espinosa, L. Lopez-Cortes, D. Podzamczer, J. Tiraboschi, S. Morenilla, A. Antela, E. Losada, N. Nwokolo, J. Sewell, A. Clarke, S. Kirk, A. Knott, A. J. Rodger, T. Fernandez, M. Gompels, L. Jennings, L. Ward, J. Fox, J. Lwanga, M. Lee, R. Gilson, C. Leen, S. Morris, D. Clutterbuck, M. Brady, D. Asboe, S. Fedele, S. Fidler, N. Brockmeyer, A. Potthoff, A. Skaletz-Rorowski, J. Bogner, U. Seybold, J. Roider, H. Jessen, A. Jessen, S. Ruzicic, H.-J. Stellbrink, T. Kümmerle, C. Lehmann, O. Degen, S. Bartel, A. Hüfner, J. Rockstroh, K. Mohrmann, C. Boesecke, I. Krznaric, P. Ingiliz, R. Weber, C. Grube, D. Braun, H. Günthard, G. Wandeler, H. Furrer, A. Rauch, P. Vernazza, P. Schmid, M. Rasi, D. Borso, M. Stratmann, O. Caviezel, M. Stoeckle, M. Battegay, P. Tarr, V. Christinet, F. Jouinot, C. Isambert, E. Bernasconi, B. Bernasconi, J. Gerstoft, L. P. Jensen, A. A. Bayer, L. Ostergaard, Y. Yehdego, A. Bach, P. Handberg, G. Kronborg, S. S. Pedersen, N. Bülow, B. Ramskover, M. Ristola, O. Debnam, J. Sutinen, A. Blaxhult, R. Ask, B. Hildingsson-Lundh, K. Westling, E.-M. Frisen, G. Cortney, S. O'Dea, S. De Wit, C. Necsoi, L. Vandekerckhove, J.-C. Goffard, S. Henrard, J. Prins, H.-H. Nobel, A. Weijsenfeld, A. Van Eeden, L. Elsenburg, K. Brinkman, D. Vos, I. Hoijenga, E. Gisolf, P. Van Bentum, D. Verhagen, F. Raffi, E. Billaud, M. Ohayon, D. Gosset, A. Fior, G. Pialoux, P. Thibaut, J. Chas, V. Leclercq, V. Pechenot, V. Coquelin, C. Pradier, S. Breaud, V. Touzeau-Romer, A. Rieger, M. Kitchen, M. Geit, M. Sarcletti, M. Gisinger, A. Oellinger, A. Antinori, S. Menichetti, T. Bini, C. Mussini, M. Meschiari, A. Di Biagio, L. Taramasso, B. M. Celesia, M. Gussio, and N. Janeiro. 2019. Risk of HIV transmission through condomless sex in serodifferent gay couples with the HIV-positive partner taking suppressive antiretroviral therapy (partner): Final results of a multicentre, prospective, observational study. *The Lancet* 393(10189):2428-2438.

Ronan, M. V., and S. J. Herzig. 2016. Hospitalizations related to opioid abuse/dependence and associated serious infections increased sharply, 2002–12. *Health Affairs* 35(5):832-837.

Rosenthal, R. N., and V. V. Goradia. 2017. Advances in the delivery of buprenorphine for opioid dependence. *Drug Design, Development and Therapy* 11:2493.

Rudd, R. A., L. J. Paulozzi, M. J. Bauer, R. W. Burleson, R. E. Carlson, D. Dao, J. W. Davis, J. Dudek, B. A. Eichler, J. C. Fernandes, A. Fondario, B. Gabella, B. Hume, T. Huntamer, M. Kariisa, T. W. Largo, J. Miles, A. Newmyer, D. Nitcheva, B. E. Perez, S. K. Proescholdbell, J. C. Sabel, J. Skiba, S. Slavova, K. Stone, J. M. Tharp, T. Wendling, D. Wright, A. M. Zehner, and CDC. 2014. Increases in heroin overdose deaths—28 states, 2010 to 2012. *Morbidity and Mortality Weekly Report* 63(39):849-854.

Rudd, R. A., P. Seth, F. David, and L. Scholl. 2016. Increases in drug and opioid-involved overdose deaths—United States, 2010–2015. *Morbidity and Mortality Weekly Report* 65(5051):1445-1452.

Rueda, S., S. Mitra, S. Chen, D. Gogolishvili, J. Globerman, L. Chambers, M. Wilson, C. H. Logie, Q. Shi, and S. Morassaei. 2016. Examining the associations between HIV-related stigma and health outcomes in people living with HIV/AIDS: A series of meta-analyses. *BMJ Open* 6(7):e011453.

Ruhm, C. 2019. Nonopioid overdose death rates rose almost as fast as those involving opioids, 1999–2016. *Health Affairs* 38(7).

Ryan, J., L. Pagel, K. Smali, S. Artiga, R. Rudowitz, and A. Gates. 2016. Connecting the justice-involved population to Medicaid coverage and care: Findings from three states. Menlo Park, CA: Henry J. Kaiser Family Foundation. http://files. kff. org/attachment/Issue-Brief-Connecting-the-Justice-Involved-Population-to-Medicaid-Coverage-and-Care (accessed December 9, 2019).

Safren, S. A., K. H. Mayer, S. S. Ou, M. McCauley, B. Grinsztejn, M. C. Hosseinipour, N. Kumarasamy, T. Gamble, I. Hoffman, D. Celentano, Y. Q. Chen, and M. S. Cohen. 2015. Adherence to early antiretroviral therapy: Results from HPTN 052, a Phase III, multinational randomized trial of ART to prevent HIV-1 sexual transmission in serodiscordant couples. *Journal of Acquired Immune Deficiency Syndromes* 69(2):234-240.

Saloner, B., Y. Akosa Antwi, J. C. Maclean, and B. Cook. 2018. Access to health insurance and utilization of substance use disorder treatment: Evidence from the Affordable Care Act dependent coverage provision. *Health Economics* 27(1):50-75.

Samet, J. H., and D. A. Fiellin. 2015. Opioid substitution therapy—time to replace the term. *The Lancet* 385(9977):1508-1509.

Samet, J. H., M. Botticelli, and M. Bharel. 2018. Methadone in primary care—one small step for Congress, one giant leap for addiction treatment. *New England Journal of Medicine* 379(1):7-8.

SAMHSA (Substance Abuse and Mental Health Services Administration). 2013. *Innovations in Addictions Treatment: Addiction Treatment Providers Working with Integrated Primary Care Services.* https://www.integration.samhsa.gov/clinical-practice/13_May_CIHS_Innovations.pdf (accessed December 2, 2019).

SAMHSA. 2015a. *Tool 3: The Administrative Readiness Tool (ART).* https://www.integration.samhsa.gov/operations-administration/OATI_Tool3_ART.pdf (accessed December 2, 2019).

SAMHSA. 2015b. Tool 4: COMPASS Primary Health and Behavioral Health. https://www.integration.samhsa.gov/operations-administration/OATI_Tool4_COMPASS.pdf (accessed December 2, 2019.

SAMHSA. 2015c. *Federal guidelines for opioid treatment programs*. https://store.samhsa.gov/system/files/pep15-fedguideotp.pdf (accessed December 1, 2019).

SAMHSA. 2015d. *Tool 1: Partnership Checklist*. https://www.integration.samhsa.gov/operations-administration/OATI_Tool1_Partnership_checklist.pdf (accessed December 2, 2019).

SAMHSA. 2016. *Medication-assisted treatment of opioid use disorder pocket guide*. https://store.samhsa.gov/product/Medication-Assisted-Treatment-of-Opioid-Use-Disorder-Pocket-Guide/SMA16-4892PG (accessed January 8, 2020).

SAMHSA. 2017. *Apply to increase patient limits*. https://www.samhsa.gov/medication-assisted-treatment/buprenorphine-waiver-management/increase-patient-limits (accessed August 20, 2019).

SAMHSA. 2018a. *Medicaid coverage of medication-assisted treatment for alcohol and opioid use disorders and of medication for the reversal of opioid overdose*.

https://store.samhsa.gov/system/files/medicaidfinancingmatreport_0.pdf (accessed October 7, 2019).

SAMHSA. 2018b. *ONC and SAMHSA release fact sheets on 42 CFR Part 2: Confidentiality of substance use disorder records.* https://www.samhsa.gov/newsroom/press-announcements/201805020200 (accessed October 15, 2019).

SAMHSA. 2019a. *Fiscal year 2020 grant announcements and awards*. https://www.samhsa.gov/grants/grant-announcements-2020 (accessed October 17, 2019).

SAMHSA. 2019b. *Medication-assisted treatment (MAT) in the criminal justice system: Brief guidance to the states*. https://store.samhsa.gov/product/Medication-Assisted-Treatment-MAT-in-the-Criminal-Justice-System-Brief-Guidance-to-the-States/PEP19-MATBRIEFCJS (accessed December 5, 2019).

SAMHSA. 2019c. *Medication and counseling treatment*. https://www.samhsa.gov/medication-assisted-treatment/treatment#otps (accessed December 9, 2019).

SAMHSA. 2019d. *Methadone*. https://www.samhsa.gov/medication-assisted-treatment/treatment/methadone (accessed September 18, 2019).

SAMHSA. 2019e. *Qualify for nurse practitioners (NPs) and physician assistants (PAs) waiver*. https://www.samhsa.gov/medication-assisted-treatment/training-materials-resources/qualify-np-pa-waivers (accessed August 20, 2019).

SAMHSA. 2019f. *State targeted response technical assistance (STR-TA)*. https://www.samhsa.gov/state-targeted-response-technical-assistance (accessed October 17, 2019).

SAMHSA. 2019g. *Use of medication-assisted treatment for opioid use disorder in criminal justice settings*. HHS Publication No. PEP19-MATUSECJS. https://store.samhsa.gov/system/files/guide_4-0712_final_-_section_508_compliant.pdf (accessed December 5, 2019).

SAMHSA. 2019h. *What is integrated care?* https://www.integration.samhsa.gov/about-us/what-is-integrated-care (accessed November 26, 2019).

SAMHSA. 2019i. *Workforce*. https://www.samhsa.gov/workforce (accessed October 14, 2019).

SAMHSA. 2019j. *Apply for a Practitioner Waiver*. https://www.samhsa.gov/medication-assisted-treatment/training-materials-resources/apply-for-practitioner-waiver (accessed December 2, 2019).

SAMHSA. 2019k. Promoting integration of primary and behavioral health care. https://www.samhsa.gov/grants/grant-announcements/sm-20-003 (accessed December 4, 2019).

Sansone, R. A., and L. A. Sansone. 2015. Buprenorphine treatment for narcotic addiction: Not without risks. *Innovations in Clinical Neuroscience* 12(3-4):32.

Sax, P. 2019. *The comprehensive infectious disease update: Prevention, diagnosis, treatment*. https://idprimarycare.hmscme.com (accessed December 7, 2019).

Sbaraini, A., S. M. Carter, R. W. Evans, and A. Blinkhorn. 2011. How to do a grounded theory study: A worked example of a study of dental practices. *BMC Medical Research Methodology* 11(1):128.

Schaper, E., H. Padwa, D. Urada, and S. Shoptaw. 2016. Substance use disorder patient privacy and comprehensive care in integrated health care settings. *Psychological Services* 13(1):105.

Schranz, A. J., A. Fleischauer, V. H. Chu, L. T. Wu, and D. L. Rosen. 2018. Trends in drug use-associated infective endocarditis and heart valve surgery, 2007 to 2017: A study of statewide discharge data. *Annals of Internal Medicine* 170(1):31-40.

Sequera, V.-G., S. Valencia, A. L. García-Basteiro, A. Marco, and J. M. Bayas. 2015. Vaccinations in prisons: A shot in the arm for community health. *Human Vaccines & Immunotherapeutics* 11(11):2615-2626.

Showalter, D. 2018. Federal funding for syringe exchange in the US: Explaining a long-term policy failure. *International Journal of Drug Policy* 55:95-104.

Silins, E., E. Silins, K. M. Conigrave, E. Silins, K. M. Conigrave, C. Rakvin, E. Silins, K. M. Conigrave, C. Rakvin, and T. Dobbins. 2007. The influence of structured education and clinical experience on the attitudes of medical students towards substance misusers. *Drug and Alcohol Review* 26(2):191-200.

Simeone, C., B. Shapiro, and P. J. Lum. 2017. Integrated HIV care is associated with improved engagement in treatment in an urban methadone clinic. *Addiction Science & Clinical Practice* 12(1):19.

Sittambalam, C. D., R. Vij, and R. P. Ferguson. 2014. Buprenorphine outpatient outcomes project: Can Suboxone be a viable outpatient option for heroin addiction? *Journal of Community Hospital Internal Medicine Perspectives* 4(2):22902.

Sohler, N. L., X. Li, H. V. Kunins, G. Sacajiu, A. Giovanniello, S. Whitley, and C. O. Cunningham. 2010. Home- versus office-based buprenorphine inductions for opioid-dependent patients. *Journal of Substance Abuse Treatment* 38(2):153-159.

Sood, N., T. Juday, J. Vanderpuye-Orgle, L. Rosenblatt, J. A. Romley, D. Peneva, and D. P. Goldman. 2014. HIV care providers emphasize the importance of the Ryan White program for access to and quality of care. *Health Affairs* 33(3):394-400.

Soper, R., S. Appajosyula, and C. Deximo. 2018. Decline in buprenorphine/naloxone prescriptions in a state Medicaid population following formulary conversion from Suboxone to Bunavail. *Advances in Therapy* 35(4):457-466.

Spaulding, A. C., E. J. Anderson, M. A. Khan, C. A. Taborda-Vidarte, and J. A. Phillips. 2017. HIV and HCV in U.S. prisons and jails: The correctional facility as a bellwether over time for the community's infections. *AIDS Review* 19(3):134-147.

Springer, S. A., E. Pesanti, J. Hodges, T. Macura, G. Doros, and F. L. Altice. 2004. Effectiveness of antiretroviral therapy among HIV-infected prisoners: Reincarceration and the lack of sustained benefit after release to the community. *Clinical Infectious Diseases* 38(12):1754-1760.

Springer, S. A., S. Chen, and F. L. Altice. 2010. Improved HIV and substance abuse treatment outcomes for released HIV-infected prisoners: The impact of buprenorphine treatment. *Journal of Urban Health* 87(4):592-602.

Springer, S. A., A. C. Spaulding, J. P. Meyer, and F. L. Altice. 2011. Public health implications for adequate transitional care for HIV-infected prisoners: Five essential components. *Clinical Infectious Diseases* 53(5):469-479.

Springer, S. A., J. Qiu, A. S. Saber-Tehrani, and F. L. Altice. 2012. Retention on buprenorphine is associated with high levels of maximal viral suppression among HIV-infected opioid-dependent released prisoners. *PloS One* 7(5):e38335.

Springer, S. A., A. P. Di, M. M. Azar, R. Barbour, B. E. Biondi, M. Desabrais, T. Lincoln, D. J. Skiest, and F. L. Altice. 2018. Extended-release naltrexone improves viral suppression among incarcerated persons living with HIV with opioid use disorders transitioning to the

community: Results of a double-blind, placebo-controlled randomized trial. *Journal of Acquired Immune Deficiency Syndromes (1999)* 78(1):43-53.

Stein, B. D., A. J. Gordon, M. Sorbero, A. W. Dick, J. Schuster, and C. Farmer. 2012. The impact of buprenorphine on treatment of opioid dependence in a Medicaid population: Recent service utilization trends in the use of buprenorphine and methadone. *Drug and Alcohol Dependence* 123(1-3):72-78.

Stein, B. D., M. Sorbero, A. W. Dick, R. L. Pacula, R. M. Burns, and A. J. Gordon. 2016. Physician capacity to treat opioid use disorder with buprenorphine-assisted treatment. *Journal of the American Medical Association* 316(11):1211.

Stein, J., M. Hunter, K. Clarkson, L. Rutledge, X. Becerra, P. Weiser, W. Tong, K. Jennings, K. Racine, and A. Moody. 2019. Letter from National Association of Attorneys General. Washington DC, August 5, 2019.

Steinberg, J. 2014. Advancing behavioral health integration within NCQA recognized patient-centered medical homes. https://www.integration.samhsa.gov/integrated-care-models/Behavioral_Health_Integration_and_the_Patient_Centered_Medical_Home_FINAL.pdf (accessed December 2, 2019).

Stephenson, B. L., D. A. Wohl, C. E. Golin, H. C. Tien, P. Stewart, and A. H. Kaplan. 2005. Effect of release from prison and re-incarceration on the viral loads of HIV-infected individuals. *Public Health Reports* 120(1):84-88.

Stone, J., H. Fraser, A. G. Lim, J. G. Walker, Z. Ward, L. MacGregor, A. Trickey, S. Abbott, S. A. Strathdee, and D. Abramovitz. 2018. Incarceration history and risk of HIV and hepatitis C virus acquisition among people who inject drugs: A systematic review and meta-analysis. *Lancet Infectious Diseases* 18(12):1397-1409.

Strathdee, S. A., E. P. Ricketts, S. Huettner, L. Cornelius, D. Bishai, J. R. Havens, P. Beilenson, C. Rapp, J. J. Lloyd, and C. A. Latkin. 2006. Facilitating entry into drug treatment among injection drug users referred from a needle exchange program: Results from a community-based behavioral intervention trial. *Drug and Alcohol Dependence* 83(3):225-232.

Sullivan, L. E., J. Tetrault, D. Bangalore, and D. A. Fiellin. 2006. Training HIV physicians to prescribe buprenorphine for opioid dependence. *Substance Abuse* 27(3):13-18.

Sullivan, N. 2012. Enacting spaces of inequality: Placing global/state governance within a Tanzanian hospital. *Space and Culture* 15(1):57-67.

Syed, S. T., B. S. Gerber, and L. K. Sharp. 2013. Traveling towards disease: Transportation barriers to health care access. *Journal of Community Health* 38(5):976-993.

Tai, B., Hu, and S. Sparenborg. 2011. Privacy protection for patients with substance use problems. *Substance Abuse and Rehabilitation* 227.

Tanaka, S. 2019. Criminal justice interventions: Plumas County naloxone distribution program. Online multimedia created by Stephanie Tanaka, Plumas County District Attorney Alternative Sentencing Program.

TARGET (Technical Assistance Resources, Guidance, Education, & Training Center for the Ryan White community). 2019. *Integrating buprenorphine treatment for opioid use disorder in HIV primary care.* TARGET Center. https://hab.hrsa.gov/sites/default/files/hab/About/RyanWhite/hab_spns_buprenorphine_monograph.pdf (accessed January 9, 2020).

Teixeira, P. A., A. O. Jordan, N. Zaller, D. Shah, and H. Venters. 2015. Health outcomes for HIV-infected persons released from the New York City jail system with a transitional care-coordination plan. *American Journal of Public Health* 105(2):351-357.

Teshale, E. H., A. Asher, M. V. Aslam, R. Augustine, E. Duncan, A. Rose-Wood, J. Ward, J. Mermin, K. Owusu-Edusei, and P. M. Dietz. 2019. Estimated cost of comprehensive syringe service program in the United States. *PloS One* 14(4):e0216205.

Thomas, C. P., E. Doyle, P. W. Kreiner, C. M. Jones, J. Dubenitz, A. Horan, and B. D. Stein. 2017. Prescribing patterns of buprenorphine waivered physicians. *Drug and Alcohol Dependence* 181:213-218.

Tonko. 2019. *Mainstreaming Addiction Treatment Act of 2019*. H.R.2482. 116 (2019).

Topp, S. M., J. M. Chipukuma, M. M. Chiko, E. Matongo, C. Bolton-Moore, and S. E. Reid. 2012. Integrating HIV treatment with primary care outpatient services: Opportunities and challenges from a scaled-up model in Zambia. *Health Policy and Planning* 28(4):347-357.

Tran Smith, B., K. Seaton, C. Andrews, C. M. Grogan, A. Abraham, H. Pollack, P. Friedmann, and K. Humphreys. 2018. Benefit requirements for substance use disorder treatment in state health insurance exchanges. *The American Journal of Drug and Alcohol Abuse* 44(4):426-430.

Tsui, J. I., J. L. Evans, P. J. Lum, J. A. Hahn, and K. Page. 2014. Association of opioid agonist therapy with lower incidence of hepatitis C virus infection in young adult injection drug users. *JAMA Internal Medicine* 174(12):1974-1981.

UB (University at Buffalo). 2019. *Sharing telemedicine success for HCV, opioid use disorder*. http://medicine.buffalo.edu/alumni/classnotes/news.host.html/content/shared/smbs/news/2019/06/talal-telemedicine-program-10085.detail.html (accessed October 16, 2019).

Uchtenhagen, A. 2013. Abstinence versus agonist maintenance treatment: An outdated debate? *European Addiction Research* 19(6):283-286.

Umbricht-Schneiter, A., D. H. Ginn, K. M. Pabst, and G. E. Bigelow. 1994. Providing medical care to methadone clinic patients: Referral vs. on-site care. *American Journal of Public Health* 84(2):207-210.

Undem, T. 2010. *Consumers and health information technology: A national survey*. https://www.chcf.org/wp-content/uploads/2017/12/PDF-ConsumersHealthInfoTechnologyNationalSurvey.pdf (accessed August 23, 2019).

Urahn, S., M. Thompson, K. Huh, A. Boucher, F. McGaffey, M. McKillop, and M. Schif. 2017a. *Pharmaceuticals in state prisons: How departments of corrections purchase, use, and monitor prescription drugs.* The Pew Charitable Trusts. Philadelphia, PA.

Urahn, S., M. Thompson, K. Huh, A. Boucher, F. McGaffey, M. McKillop, and M. Schif. 2017b. *Prison health care: Costs and quality: How and why states strive for high-performing systems.* The Pew Charitable Trusts. Philadelphia, PA.

Urahn, S., M. Thompson, K. Huh, A. Boucher, F. McGaffey, M. McKillop, and M. Schiff. 2018. *Jails: Inadvertent health care providers: How county correctional facilities are playing a role in the safety net.* The Pew Charitable Trusts. Philadelphia, PA.

USPSTF (U.S. Preventive Services Task Force). 2019a. *Draft recommendation statement: Hepatitis C virus infection in adolescents and adults: Screening*. https://www.uspreventiveservicestaskforce.org/Page/Document/draft-recommendation-statement/hepatitis-c-screening1 (accessed September 23, 2019).

USPSTF. 2019b. *Draft recommendation statement: Illicit drug use, including nonmedical use of prescription drugs: Screening*. https://www.uspreventiveservicestaskforce.org/Page/Document/RecommendationStatementDraft/drug-use-in-adolescents-and-adults-including-pregnant-women-screening (accessed September 17, 2019).

Van Boekel, L. C., E. P. Brouwers, J. Van Weeghel, and H. F. Garretsen. 2013. Stigma among health professionals towards patients with substance use disorders and its consequences for healthcare delivery: Systematic review. *Drug and Alcohol Dependence* 131(1-2):23-35.

Van Den Berg, C., C. Smit, G. Van Brussel, R. Coutinho, and M. Prins. 2007. Full participation in harm reduction programmes is associated with decreased risk for human immunodeficiency virus and hepatitis C virus: Evidence from the Amsterdam cohort studies among drug users. *Addiction* 102(9):1454-1462.

Vestal, C. 2018. *Long stigmatized, methadone clinics multiply in some states*. https://www.pewtrusts.org/en/research-and-analysis/blogs/stateline/2018/10/31/long-stigmatized-methadone-clinics-multiply-in-some-states (accessed October 16, 2019).

Vigilant, L. G. 2004. The stigma paradox in methadone maintenance: Naïve and positive consequences of a "treatment punishment" approach to opiate addiction. *Humanity & Society* 28(4):403-418.

Villano, S. A., K. E. Nelson, D. Vlahov, R. H. Purcell, A. J. Saah, and D. L. Thomas. 1997. Hepatitis A among homosexual men and injection drug users: More evidence for vaccination. *Clinical Infectious Diseases* 25(3):726-728.

Volkow, N. D. 2011. Principles of drug addiction treatment: A research-based guide. Second Edition.

Volkow, N. D., T. R. Frieden, P. S. Hyde, and S. S. Cha. 2014. Medication-assisted therapies—tackling the opioid-overdose epidemic. *New England Journal of Medicine* 370(22):2063-2066.

Wakeman, S. E., and M. L. Barnett. 2018. Primary care and the opioid-overdose crisis—buprenorphine myths and realities. *New England Journal of Medicine* 379(1):1-4.

Wakeman, S. E., and P. Friedmann. 2017. Outdated privacy law limits effective substance use disorder treatment: The case against 42 CFR Part 2. *Health Affairs*, https://www.healthaffairs.org/do/10.1377/hblog20170301.058969/full (accessed August 22, 2019).

Walley, A. Y., D. Farrar, D. M. Cheng, D. P. Alford, and J. H. Samet. 2009. Are opioid dependence and methadone maintenance treatment (MMT) documented in the medical record? A patient safety issue. *Journal of General Internal Medicine* 24(9):1007-1011.

Wang, P. S., O. Demler, M. Olfson, H. A. Pincus, K. B. Wells, and R. C. Kessler. 2006. Changing profiles of service sectors used for mental health care in the United States. *American Journal of Psychiatry* 163(7):1187-1198.

Wang, E. A., H.-j. Lin, J. A. Aminawung, S. H. Busch, C. Gallagher, K. Maurer, L. Puglisi, S. Shavit, and L. Frisman. 2019. Propensity-matched study of enhanced primary care on contact with the criminal justice system among individuals recently released from prison to New Haven. *BMJ Open* 9(5):e028097.

Weber, E., and A. Gupta. 2019. *State Medicaid programs should follow the "Medicare model" remove prior authorization requirements for buprenorphine and other medications to treat opioid use disorders.* Legal Action Center. Washington, DC.

Weems, J. A. 2019. Feasibility and evaluation of a pilot buprenorphine training for medical students. Doctoral Dissertation, Harvard Medical School. Boston, MA. https://dash.harvard.edu/handle/1/40620216 (accessed January 9, 2020).

Wen, H., T. F. Borders, and J. R. Cummings. 2019. Trends in buprenorphine prescribing by physician specialty. *Health Affairs* 38(1):24-28.

Westervelt, E. 2019. *County jails struggle with a new role as America's prime centers for opioid detox*. https://www.npr.org/2019/04/24/716398909/county-jails-struggle-with-a-new-role-as-americas-prime-centers-for-opioid-detox (accessed September 16, 2019).

White House Office. 2018. *Ending America's opioid crisis*. https://www.whitehouse.gov/opioids. Washington, DC.

WHO (World Health Organization). 2004. *Proposal for the inclusion of buprenorphine in the WHO model list of essential medicines.* Department of Mental Health and Substance Abuse, HIV/AIDS Department, World Health Organization. Geneva, Switzerland.

Williams, A. R., and A. Bisaga. 2016. From AIDS to opioids—how to combat an epidemic. *New England Journal of Medicine* 375(9):813-815.

Williams, A., E. Nunes, and M. Olfson. 2017. To battle the opioid overdose epidemic, deploy the "cascade of care" model. *Health Affairs* 10.1377/hblog20170313.059163. https://www.healthaffairs.org/do/10.1377/hblog20170313.059163/full/ (accessed January 9, 2020).

Williams, A. R., E. V. Nunes, A. Bisaga, F. R. Levin, and M. Olfson. 2019. Development of a cascade of care for responding to the opioid epidemic. *The American Journal of Drug and Alcohol Abuse* 45(1):1-10.

Winkelman, T. N., V. W. Chang, and I. A. Binswanger. 2018. Health, polysubstance use, and criminal justice involvement among adults with varying levels of opioid use. *JAMA Network Open* 1(3):e180558-e180558.

Wurcel, A. G., J. E. Anderson, K. K. Chui, S. Skinner, T. A. Knox, D. R. Snydman, and T. J. Stopka. 2016. Increasing infectious endocarditis admissions among young people who inject drugs. *Open Forum Infect Diseases* 3(3):ofw157.

Yang, L. H., L. Y. Wong, M. M. Grivel, and D. S. Hasin. 2017. Stigma and substance use disorders: An international phenomenon. *Current Opinion in Psychiatry* 30(5):378-388.

Zibbell, J. E., K. Iqbal, R. C. Patel, A. Suryaprasad, K. J. Sanders, L. Moore-Moravian, J. Serrecchia, S. Blankenship, J. W. Ward, D. Holtzman, and CDC. 2015. Increases in hepatitis C virus infection related to injection drug use among persons aged ≤30 years—Kentucky, Tennessee, Virginia, and West Virginia, 2006–2012. *Morbidity and Mortality Weekly Report* 64(17):453-458.

Zibbell, J. E., A. K. Asher, R. C. Patel, B. Kupronis, K. Iqbal, J. W. Ward, and D. Holtzman. 2018. Increases in acute hepatitis C virus infection related to a growing opioid epidemic and associated injection drug use, United States, 2004 to 2014. *American Journal of Public Health* 108(2):175-181.

Appendix A

Case Studies of Select Programs

SEMI-STRUCTURED INTERVIEW

The semi-structured interview was created by National Academies staff and the committee, drawing information from the Substance Abuse and Mental Health Services Administration- Health Resources and Services Administration Center for Integrated Health Solutions Framework and the Greenhalgh et al. (2004) framework for Diffusion of Innovations in Service Organizations. The goal was to assess whether and how programs were integrating the services they provide for opioid use disorder (OID) and infectious disease and determine the most significant barriers to integration. The questions focused on the program characteristics, services delivered, and model of care (when data were available, programs submitted information about clinical outcomes related to integration, though outcomes were not the focus of the committee's review). Broad questions were asked initially, followed by questions about more specific topics the committee deemed important to understand about each program (e.g., any barriers the program faced, including external factors impacting integration; the programs' views toward harm reduction and patient-centeredness; organizational structure and culture; staffing and training available; major organizational change agents; business model viability; and resources available for integration). The set of topics discussed for each interview are outlined in Figure A-1.

Program Characteristics, Services Provided, and Model of Care

Program informants were asked to describe whether and how the following factors served as facilitators or barriers to providing integrated services:

- Leadership support and culture
- Arguments for and against integration
- Program maturity and history
- Clinical interventions available
- Partnerships with other providers, professionals, and organizations
- Workforce availability and expertise
- Resources, funding, and facilities available
- Capacity for change and flexibility within the organization
- Organizational decision-making processes
- Perspectives on harm reduction
- Major change agents
- Business model, primary payers, or cost structure
- Staffing structure and roles
- Evaluation metrics
- Data-sharing processes
- Internal and external communication
- Staff training and education
- The role of families and caregivers in treatment plans

FIGURE A-1 Program interview topics**.**

The committee organized information about each of the programs in Table A-1.

TABLE A-1 Program Information

Program	Location	Rural/ Urban	Infectious Disease Treatment	OUD Treatment	Harm Reduction	Designation	FQHC[a]	Type of Care
ARCare	Various locations, AR	Mixed	Yes	Yes	PrEP and condom distribution (no syringe service)	501(c)(3)	Yes	Outpatient
King County Department of Public Health	Seattle, WA	Urban	Yes	Yes	Yes	County health department	No	Outpatient
Southcentral Foundation	Anchorage, AK	Mixed	Yes	Yes	Yes	501(c)(3)	Yes	Outpatient and inpatient
Greater Lawrence Family Health Centers	Lawrence, MA	Urban	Yes	Yes	Yes	501(c)(3)	Yes	Outpatient
Plumas County Public Health Agency	Plumas County, CA	Rural	In coordination with local hospital	Yes	Yes	County health agency	No	Outpatient
LifeSpring Health Systems	Jeffersonville, IN	Mixed	Yes	Yes	Yes, with syringe services offered at local health department	501(c)(3)	Yes	Outpatient
CrescentCare	New Orleans, LA	Urban	Yes	Yes	Yes	501(c)(3)	Yes	Outpatient
Evergreen Health	Buffalo, NY	Mixed	Yes	Yes	Yes	501(c)(3)	Yes	Outpatient

Program	Location	Rural/ Urban	Infectious Disease Treatment	OUD Treatment	Harm Reduction	Designation	FQHC[a]	Type of Care
Bronx Transitions Clinic	Bronx, NY	Urban	Yes	Yes	BTC is registered with New York State to provide overdose prevention programs and naloxone	Program under 501(c)(3)	Affiliated	Outpatient
Whitman-Walker Health	Washington, DC	Urban	Yes	Yes	Yes	501(c)(3)	Yes	Outpatient
Philadelphia FIGHT	Philadelphia, PA	Urban	Yes	Yes	Yes, with syringe services offered at the local health department	501(c)(3)	Yes	Outpatient

[a] Federally Qualified Health Centers (FQHCs) are designated community health centers that operate as part of the Health Center Program administered by the Bureau of Primary Health Care within the Health Resources and Services Administration. The Health Center Program provides grants to FQHCs under section 330 of the Public Health Service Act (42 U.S.C. § 254b). See https://www.gao.gov/assets/700/690490.pdf (accessed December 5, 2019).

ARCARE

Program Description

Founded in 1986, ARCare is a network of 47 community health center-funded primary care clinics across 3 states, beginning as primary care clinics and incorporating HIV care in 1999. ARCare has 500 employees in the clinics, 5 pharmacies, and 3 wellness centers. In 2015, ARCare began to incorporate behavioral health services in its larger clinics, and it now operates such services in 5 sites; 3 of these in Arkansas provide HIV/HCV/OUD services and began providing medications for opioid use disorder (MOUD) in 2017.

History of Program's Integrated Services

ARCare has 17 federal and state grants to fund chronic disease management, human immunodeficiency virus (HIV)/acquired immunodeficiency syndrome (AIDS), behavioral health, substance use services, and several other specialized programs. However, this integration has occurred only recently. The behavioral health program in the Little Rock location has been in place only for 3 years, and the MOUD program for even less time than that.

The primary motivation for integrating services was to provide better care for patients and produce better outcomes. ARCare leaders seeking integration were aware of the literature that care integration can increase medication compliance, patient satisfaction, and patient wellness, which justified moving forward with it. Another motivation was to provide services in an immediate fashion, rather than through referral-based care (which can produce high no-show rates). The last reason was that integrating care could provide more information for providers, who would then be able to treat a patient more holistically.

ARCare hired a consultant to assist with integrating behavioral health into primary care services, but this has been difficult (and it is not as integrated as it would like). With the exception of a few providers who have taken initiative to become DATA waivered and treat infectious disease, there is minimal face-to-face communication between providers treating different diseases. A primary reason for this is that providers "speak different languages," and finding common ground can be difficult. Moreover, directives from leadership must be given with a soft touch; because providers are difficult to find and retain, any mandate (e.g., to integrate services) that brings about increased administrative burden is likely to receive pushback from providers and increase the risk of workforce turnover.

The model of care must be changed to accommodate integration between behavioral health and primary care, especially with the complex histories that come with patient populations who have comorbid OUD and infectious disease. For instance, the scheduling for behavioral health is different than primary care. A health professional may be able to see 30 patients in a day; a behavioral health provider may only be able to see 7 or 8. Therefore, providers from both perspectives have to adjust. ARCare leaders have tried to communicate the value of integration and to prove that it is in the best interest of patients.

Services Provided and Model of Care

The several sites that have integrated OUD and infectious disease services are built around providers who can treat both diseases. For instance, an HIV provider in Little Rock sees HIV patients 2 days per week, and prescribes MOUD another 2 days per week. She is able to see patients from both perspectives, and provide services for the range of needs.

The other clinics that offer MOUD do not have infectious disease specialists on site but have rotating infectious disease specialists that may visit once per week or several times per month. At these sites, the coordination becomes more difficult given the infrequency that providers are able to address patients with complex needs. Having additional dedicated providers for integrated care is a goal, but finding providers can be difficult.

At the larger clinics, a care visit typically entails a patient who comes in for primary care and is screened for OUD or infectious disease, which can be treated in this setting. If a patient needs behavioral health services or MOUD, a handoff is made with a behavioral health provider during the initial visit. Then, the behavioral health provider offers a brief intervention, schedules a follow-up appointment, and provides educational materials about MOUD. At the next visit, the provider will conduct a consent process to share behavioral health data with the medical team, conduct a urine drug screen, and begin MOUD if necessary. In general, ARCare providers want to be sure that a patient is ready for medication, as providers are limited in how many prescriptions they can dispense (additional info on this barrier is outlined below).

Across the several integrated care sites, three physicians and three nurse practitioners (NPs) have X waivers and routinely prescribe MOUD. Only one of these providers is an infectious disease specialist; the others are family practice providers. Buprenorphine is the primary medication, although a few patients have been prescribed naltrexone if they are no longer taking opioids. With respect to harm reduction, the integrated clinics prescribe PrEP (pre-exposure prophylaxis) and distribute condoms. ARCare does not have syringe services. Providers at ARCare are trained using the Hazelden Betty Ford COR-12 Model, and perform some training on site and some training with a COR-12 instructor offsite.

Because Arkansas is not a Medicaid expansion state, most individuals have private insurance purchased on the marketplace. A small portion of patients are insured through

Medicaid. In terms of financial sustainability, ARCare's Federally Qualified Health Centers (FQHC) status has been crucial for providing services in general (including integrated services). Health Resources and Services Administration (HRSA) funding was used to develop the MOUD program, and a number of grants are used to pay for behavioral health services. Still, the program's sustainability is an open question, and convincing providers to engage in and bill for comprehensive visits has been a difficult task (e.g., billing a "99215" visit code for a comprehensive evaluation versus a standard primary care visit billing code). With reimbursement through Medicaid, it may be possible to bill visits for comprehensive care and generate enough revenue to sustain integrated care. Case management is another service that ARCare would like to perform with greater frequency, but it is not billable.

With respect to patient feedback, ARCare provides patient surveys on a regular basis and administers a questionnaire at each visit assessing patient satisfaction.

ARCare has seen a small number of patients with infectious diseases who access the MOUD program, though these numbers continue to increase. More individuals in ARCare's care have viral hepatitis than HIV, and this is also true for those on MOUD.

Patient Characteristics and Outcomes

ARCare's overall measures of success include uptake and eventual downward titration of buprenorphine and effective re-engagement with individuals following relapse. For infectious disease services, reduced viral load is the primary outcome. In general, ARCare wants to provide services that make patients feel accepted and welcome.

No data were available on patient characteristics or outcomes of integrated OUD and infectious disease treatment.

Facilitators and Barriers

Facilitators

- ARCare's status as a community health center has been useful for integrating services in general and gaining funding opportunities to begin offering MOUD.

Barriers

- Integrating medical records for infectious disease and OUD patients has been difficult (from both the technological and patient privacy standpoints). This makes it difficult to providers to communicate effectively about patients, reduces continuity of care, and increases the chances that services are duplicated.
- Because certain HIV patients have a clinical need for opioid medications for pain, individuals living with HIV who also have an opioid dependence must be more carefully managed (including the care plans and medications).
- Some medical staff have been resistant to integration because they feel it will slow their patient workflow (both spending more time with patients and taking more time to enter information into the record).
- Behavioral health services can only be billed if a licensed clinical social worker (LCSW) provides the care in Arkansas, whereas in other states anyone with a professional license can bill. This interferes with ARCare's ability to provide care with a limited workforce.

- The DATA waiver training is lengthy (especially for non-physician prescribers). Some providers have found the training to be redundant and clinically irrelevant.
- In their first year of prescribing MOUD, providers can only have 30 active prescriptions. This limited number is one reason why ARCare screens patients thoroughly before prescribing MOUD: it wants to ensure that the prescription will be used for someone who is ready for treatment.

Advice for Other Programs

- Make a clear action plan for institutional change, gain buy-in from various stakeholders, and follow through with the decisions. There is a general culture among leadership at ARCare for changing programs to fit the needs of patients, and that it is acceptable to make mistakes if the intention is positive (as long as no harm is done to patients). In one scenario, ARCare was incorrectly reporting its MOUD prescribing, and the Drug Enforcement Agency (DEA) audited the organization. With assistance from the DEA, ARCare wrote an action plan to change its practices, and was better off for it.

Information About Informant

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KING COUNTY DEPARTMENT OF PUBLIC HEALTH

Program Description

The King County Department of Public Health began operating a syringe service in 1989 and now has several locations. Other services at these locations include testing for HIV, viral hepatitis, tuberculosis and other infections to which people who use drugs are prone; treatment readiness counseling and case management services; education about harms associated with drug use and how to minimize them; and safe disposal of contaminated equipment.

History of Program's Integrated Services

Modeled after several other programs (including in New York City and San Francisco), this program began integrating services to provide patients with low-barrier treatment in one visit, and in one location. This was especially important given that the target population does not always make appointments on time, is chronically homeless, and faces significant stigma in the community. King County Department of Public Health has also sought to integrate services into programs that patients already trust—this includes, primarily, the syringe service program, which is a primary referral source for other services. It gets patients in the door to more intensive treatment for OUD and infectious disease.

Three primary programs operate out of the King County Department of Public Health. The most established is the Max Clinic, which is designed to provide high-intensity, walk-in, low-threshold care to patients living with HIV. The clinic also offers wraparound services, such as food assistance, transportation assistance, cell phones, and cash incentives. The second is Bupe Pathways, a low-barrier buprenorphine program operated by the Downtown Primary Care Public Health Clinic, which is colocated with the syringe services program and pharmacy. The third and newest is an HCV program, which operates from the syringe service and provides testing and telemedicine treatment for hepatitis C virus.

In 2017, following the creation of a multistakeholder task force to address opioid use in King County, the city elected to expand access to buprenorphine. In tandem, a survey given to syringe service users found that 80 percent were interested stopping or reducing opioid use. As a consequence, low-barrier buprenorphine treatment was piloted at the downtown Seattle syringe services program. Bupe Pathways has been successful, enrolling 456 predominantly unstably housed people to date. The department has made a commitment to expand capacity to meet the demand. This will entail expanding to six exam rooms in the next year and hiring an addiction medicine physician.

The department has long held the credo that it is best to "serve patients where they are at" in a low-barrier manner. Operationally, this means providing as many services as possible under one roof and viewing behavioral health and medical health as connected.

Leadership in the city and state has encouraged further integration (department and division heads, county leadership, and state legislators). In practice, the staff running various public health programs have sought collaboration and communication across divisions and departments and feel supported by the county leadership in doing so. One example of this is a burgeoning partnership between the buprenorphine program and the correctional facilities, wherein MOUD will be offered to inmates and will continue after they are released. Staff are vocal about the needs of their patients, and leadership is responsive to bottom-up communication.

Patients have expressed that co-location, assistance with transportation, and continuity of care between providers has made them feel included and assisted in their care needs.

Services Provided and Model of Care

In general, the syringe service provides a useful entry point for other services (including testing for infectious disease and MOUD). Staff will point patients toward the range of available services. The goal is to provide a "one-stop shop" whenever possible.

The HCV treatment program is based on a nurse-driven care model, where a public health nurse provides onsite, in-person care to syringe service program clients in partnership with an offsite infectious disease physician who supervises clinical visits through a secure teleconferencing platform. In this model, patients with low disease complexity (e.g., early-stage HCV infections) meet with the nurse to complete initial assessment labs, ensure appropriate insurance coverage, and schedule a telemedicine visit with an infectious disease physician who specializes in HCV. During that visit, the physician assists the nurse in performing physical exams, eliciting the patient's complete medical history and medication list, and describing the treatment plan. Patients who initiate treatment can securely store medication at the syringe services program for the entire course of treatment. Referrals are made to additional onsite support services (e.g., SUD treatment, primary care, social work) to facilitate successful completion of treatment and ongoing engagement with harm-reduction services. Complex cases requiring additional monitoring are referred out to a local HCV specialist. So far, this program has served several patients, but it is too soon to determine whether it will be successful long term. The goal is to provide low-barrier HCV treatment in an environment where patients are comfortable and able to access additional support services.

With respect to training, the public health nurse conducting the HCV work was already familiar with this population, having worked in the Bupe Pathways program. The department has developed a mission and vision document for new practitioners and team members at the time of onboarding. Because many of the department's clients have complex and stigmatized health needs, there has been a strong push among the staff to ensure that the culture is focused around compassionate, nonjudgmental care. Still, much of the learning among staff and providers with each program is more informal and has a "learn-as-you-go" style.

Financial sustainability has been a perennial issue for these programs. While the MOUD program receives funds from local sales taxes, and the city and county provide public funding, there are few stable pools of funding to sustain the range of services the department staff would like to offer. The public health nurse for HCV care is funded on the last year of a grant, and the department staff hopes to find more permanent funding. Treatment for HCV at the syringe service program is now in its fifth and final year of a CDC grant, which the department is using to build up its IT infrastructure and improve reimbursement billing efficiency. Billing for the telemedicine visits has posed another problem, because the provider is part of a separate system. Additionally, insurance does not always cover the full amount for HCV labs, and the department will have to absorb that cost by some other mechanism.

For HCV, grant funding is available but is often focused on screening and linkage to care (rather than treatment). Because of this, it is unclear where the revenue will come from to pay for treatment for HCV long term. In general, the goal is to make each of these programs sustainable through patient-generated revenue, but there is no delineated path forward to make this a reality.

Staff at the department are confronted with the difficulty of having to react to the quickly changing needs of King County residents: there has been a large rise in methamphetamine use (both injection and non-injection), which the department is not equipped to treat.

The Max Clinic and Bupe Pathways programs have systems in place to routinely monitor patient outcomes. In addition, a survey is conducted every 2 years at the syringe services program to evaluate risk behaviors and factors affecting service uptake among its clients.

Patient Characteristics and Outcomes

At the downtown syringe service, there is 60 percent positivity among those tested for HCV antibodies. Although there has been a small uptick recently, HIV prevalence is relatively low among people who inject drugs in King County.

Because the HCV telemedicine program is in its early stages, there are no outcome data available. Several patients have begun HCV treatment through this program.

According to researchers in the King County Health Department, HIV care is more well established, and for the Max Clinic,

> the primary evaluation outcome was the percentage of patients who achieved viral suppression (HIV RNA <200 copies/mL) at least once after enrollment. Secondary outcomes were continuous viral suppression (≥2 suppressed results in a row ≥60 days apart) and engagement in care (≥2 completed medical visits ≥60 days apart). During January 2015–December 2016, 263 patients were referred; 170 (65%) were eligible, and 95 (56% of eligible) were enrolled. Most patients used illicit drugs or hazardous levels of alcohol (86%) and had diagnosed psychiatric illness (72%) and unstable housing (65%). During the year after enrollment, 90 (95%) patients engaged in care. As of the end of 2016, 76 (80%) had achieved viral suppression, and 54% had continuous viral suppression. (Dombrowski et al., 2018)

Facilitators and Barriers

Facilitators

- The restriction on HCV treatment that required patients to abstain from all drug use was recently lifted, allowing department to refer patients to treatment with more confidence (and now to treat patients that are still using drugs via telemedicine).
- There was previously a state restriction on the amount of time someone could receive MOUD, but the state lifted this restriction.

Barriers

- The department has had to invest substantial resources into IT to keep communication firewalls between EMR systems when necessary.
- Because the department does not have an onsite physician to bill for the telemedicine visit for HCV care, they are billing the current physician to grant funding under a no-cost extension from CDC. This is ultimately not a sustainable way to fund the program, but billing is difficult for the out-of-network physician.

- The syringe service program—which provides a referral source for many other billable services—is not itself billable. This requires the department to find external sources of funding for the syringe service program.
- Obtaining the DATA waiver through training is arduous, and is a barrier for providers.
- There have been philosophical barriers between those that favor harm reduction and those that favor an abstinence-based treatment program. To make sure that the department is the right fit for staff, employees created an introductory pamphlet on harm reduction and low-threshold care.

Advice for Other Programs

- Barriers to care take many forms. Even a battery of questions at the first visit can be a deterrent for future visits. Ensuring that providers are meeting patients where they are is crucial.
- A traditional medical workflow is unlikely to be successful for patients who are chronically homeless, frequently use drugs, or are stigmatized by society. Much more attention is needed for this population to remain engaged in care.
- Invite as many stakeholders to provide input as is possible. Connect with other treatment centers, homeless services, and community-based services.
- Use high-quality data-collection methods, and be aware that the best predictors for success in certain programs may be different than expected. For instance, the only significant predictor of retention in the Buprenorphine Pathways program was whether a client was already taking buprenorphine beforehand.
- Individuals who have stable housing are much more likely to remain engaged in medical services, which indicates that partnering with community-based organizations that can provide housing may be an effective way to increase treatment compliance and retention.

Information About Informants

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SOUTHCENTRAL FOUNDATION

Program Description

As an Alaska Native–owned, nonprofit health care organization, Southcentral Foundation serves 65,000 Alaska Native and American Indian people more than 500,000 visits in Anchorage, the Matanuska-Susitna Valley, as well as 55 rural villages in the surrounding area. Southcentral Foundation is also a large employer in the area, with more than 2,700 employees across its more than 80 programs. Southcentral has nearly 2 million virtual encounters per year, and operates under a colocated and integrated medical home model.

History of Program's Integrated Services

According to the senior medical director of quality improvement, moving toward a medical home model was—in general—a process of shifting specialty, high-end care into a primary care setting. This approach holds true for SUD services and HCV treatment, heart failure, rheumatologic diseases, and others. The goal is to prevent segregating one particular disease or condition to a location but rather to think about an entire patient's life course and how to treat the multitude of medical issues that arise over time. There was an explicit focus to avoid over-designing the medical system to treat certain illnesses over others; rather, the goal was to build a system that could adapt to a changing consumer base segmented by people rather than disease state. The core competency that Southcentral Foundation aimed for was to connect patients with all the information they need and to create a medical home that is personalized and relationship based as much as possible. Segmentation by condition of specialist still occurs in settings where special architectural design or work prevents integration or colocation (e.g., audiology or physical therapy). Yet, even for those exceptions, accepting people back to the medical home as quickly as possible is still the design goal.

Each core medical service has its own business group and an executive sponsor for that group. The Primary Care Core Business Group developed a strong relationship with the Mental Health Core Business Group, which is how any problems are resolved regarding continuity of care between the services. These services have become almost completely colocated in the same clinic, and as patients become more or less stable, medically or from a mental health perspective, their care plans are transferred back and forth between the core groups. While the workflows may be different depending on what a patient is treated for, the providers and core groups are in constant, daily communication. While there still exists some specialization at separate locations for high-end medical needs, such as complicated obstetrics and perinatology or medically managed detox, integrated or colocated care has been achieved as much as is possible. The driving principles have been to bring services as close together as possible and to remove barriers that result in waste, delay, or loss of transfer efficiency (e.g., no-shows).

A major intervention has been to take the capacity burden (such as refilling medications, monitoring known repeat labs, vaccinations, or scheduled injections) off of specialty care and allow specialists to spend more time with patients. In the medical home, on the other hand, patients can be managed in a much higher capacity system with greater continuity. Medications can be refilled, labs can be monitored, injections can occur once the plan and diagnosis are clear, and stability can be established.

Southcentral Foundation has also learned that even this integrated care model clinic does not meet the needs of all patients. For instance, it was not meeting the needs of homeless

populations in Anchorage, so it located an integrated care team in the largest homeless center in the city. Because people could walk to receive care, they were much likelier to use the medical home instead of the 911 or emergency rooms (ERs) in the area. This reduced the number of ER visits and 911 calls involving homeless individuals. Southcentral Foundation built a similar program at a homeless teen shelter.

Services Provided and Model of Care

Each patient that Southcentral Foundation interacts with is assigned a case manager and a medical home PCP, supported by clerical support staff and a medical assistant, respectively. Each of these teams of four staff members may have as many as 1,400 patients under their purview (~150 of whom are actively managed, with the rest monitored or supported with ongoing refills, vaccinations, or lab monitoring). While these teams are generalists—and work to establish relationships and continuity by person, not disease—there are times when unique skill or knowledge is required. In such cases (as with HIV or HCV care) there is a coordinating specialized case manager who can support newly diagnosed people on any of the 64 medical home generalist teams while leaving the patient in place. Unique labs, medications, studies, or additional services are facilitated from the primary care medical home team with "coaching" by these specialized roles. This prevents care fragmentation, waste, and loss of continuity and preserves the capacity to attend to all the other health needs a patient may have that are not typically well met by more specialized services (e.g., vaccinations and cancer screens).

Medications for OUD have been diffused into the medical home using this same philosophy, and there are 45 providers with DATA waivers (with a mix of PCPs and specialty care providers). PCPs do not initiate MOUD at Southcentral Foundation but collaborate with addiction medicine providers to continue to prescribe to stabilized patients. The rationale for this protocol is the limit on the number of prescriptions that a provider can write: if addiction specialists begin patients on medications and PCPs take over once a patient is stable, all providers are able to stay under the limit. Buprenorphine products are the most commonly used at Southcentral Foundation, but some naltrexone products are also used.

Mental health providers are also colocated and within the workflow of the medical home, and there are dedicated rooms in the primary care clinic for more intensive therapy interventions. This is true for many services in the medical home model: if Southcentral Foundation is able to provide care that does not require highly specialized equipment or a building footprint, the organization has brought that care into the medical home. According to Southcentral Foundation, this also has the advantage of reducing stigma because patients with mental health disorders, SUDs, or infectious diseases are all seen at the same front desk and treated by the same providers (no other patients know why they are visiting the clinic).

Southcentral Foundation has implemented robust data-collection techniques and analyses for quality improvement: labs are frequently ordered by the primary care teams' case manager, then scheduled in a blood draw and vaccination clinic staffed by a medical assistant who works independently. This allows specialty providers more time with patients.

Surveys are rarely mailed out; instead, patients provide feedback on iPads after visits, with more than 300 live surveys per day. Twitter and Facebook are monitored for mentions to assess how patients feel about the services. Southcentral Foundation writes in its newsletter when it has changed a particular practice in response to patient feedback.

In addition, providers and their care teams are provided daily and weekly feedback on patient satisfaction, the number of prescriptions written, patient visit numbers, and a host of other

metrics. Southcentral Foundation has found that—even with no explicit directive to improve on certain metrics—these feedback tools generally improve each provider team's outcomes through increased awareness. And, importantly, each team is judged as a unit rather than as individual providers. Hence, there is mutual incentive to help team members improve their practice.

In terms of staff training, 100 percent of the Southcentral Foundation workforce undergoes a communications and work-style training to instill best practices for working in teams. Clinical staff also receive a training on having difficult conversations, mentoring, and conflict. More specialized staff receive as much as 5 days of training on their topic areas (e.g., integrated care team training). The goal of this training is to ensure that providers are aware of the culture Southcentral Foundation wants to create but also to make sure that providers are providing care at the top of their license. So, while physicians may have to sign off on vaccines, they are not the ones delivering vaccines.

The primary payers for Southcentral Foundation's services are Medicaid and Medicare (~40 percent) and private insurance (~30 percent); the remainder have no insurance (which is effectively reimbursed by the Indian Health Service block grant). Most of the organization's revenue comes from patient visits, but it also applies to relevant grants (though, typically, it will only apply to grants to create services that it would have already added otherwise).

Patient Characteristics and Outcomes

Patients seen in Anchorage are all Native, whereas smaller clinics in neighboring villages will have all populations. Southcentral Foundation has 133 HIV-positive patients in the clinic (115 are on ART with an undetectable viral load), and a specific case manager supports the medical home primary care teams to ensure all necessary medications and monitoring are in place. Based on risk screening criteria, 52 patients are on PrEP and have been for more than 6 months.

About 1,000 people are on MOUD (although some take them for alcohol use disorder rather than OUD; some have both). Of those on MOUD, about 40 percent are considered stable (and are being prescribed by a PCP rather than an addiction specialist). These patients undergo a toxicology screen periodically and then receive a refill of their current dose.

Because Southcentral Foundation was a test site for HCV treatment, it has more than 100 patients who received treatment and demonstrated remission. However, it has just moved that process from the viral hepatitis program into primary care and is now only monitoring a dozen with complete primary care–initiated and –monitored treatment. The vast majority will be solely managed from the medical home. Based on the initial recommendations, Southcentral Foundation has screened 8,371 of the 14,419 total relevant patient population for HIV.

Facilitators and Barriers

Facilitators

- Up-front investment in data collection and a focus on quality improvement. As Southcentral Foundation was attempting to integrate services, it needed to know whether that integration was working.
- A culture of long-term thinking has allowed Southcentral Foundation to remain focused on a primary goal, and absorb mistakes.

Barrier

- Overdesigned national systems that do not encourage innovation and quality improvement for providers and health care administrators at the local level.

Advice for Other Programs

- Look for partnerships within and outside the health care system to build coalitions.
- Do not focus on quarterly profits; instead focus on providing the best possible care to patients to build a reputation.
- Build an infrastructure and medical model that promotes patient continuity and minimizes attrition. This model should have clear accountability and tasks for staff members.
- Develop a systematic way of tracking and collating data. Problems cannot be managed if an organization is unaware that they exists, and they cannot be fixed if no one is accountable.
- There needs to be professional workforce layer focused on quality improvement (above about beyond the providers themselves). This workforce needs to offer continuous, immediate feedback to providers on their performance.
- While it is good to be ambitious, overreaching can stretch organizations too thin. Building slowly, piloting programs, and scaling up successful programs is a recipe for success. Organizational change is slow, so this should not be a deterrent to following through on good ideas.

Information About Informant

Steve Tierney, M.D.
Senior Medical Director of Quality Improvement

GREATER LAWRENCE FAMILY HEALTH CENTERS

Program Description

GLFHC is a collection of community-based health care clinics. Established in 1980, GLFHC sees approximately 60,000 patients annually across 6 sites primary care sites and also operates a mobile health van and 14 sites delivering health care for the homeless. The care delivery is built around family physicians and a family medicine residency model, although each site integrates care slightly differently and the level of integration varies between sites. In general, core OUD and infectious disease services are performed by the primary care team, with referrals out to specialty care for patients with complex mental health histories.

History of Program's Integrated Services

Lawrence, Massachusetts has a population of about 80,000 and the lowest per capita income of any city in the state. Lawrence is nearly 75 percent Latinx, with a significant portion of the population speaking only Spanish. In 2016, there was sharp rise in newly diagnosed HIV cases, many of which were attributable to injection drug use. In 2018, Lawrence saw a 20 percent increase in overdose deaths, placing it among counties with the highest overdose rates in the state. In response to these concurrent OUD and infectious disease outbreaks and the great need in the community, GLFHC began integrating services to both prevent new cases and provide effective treatment. In 2017, GLFHC began to restructure programs such that HIV, viral hepatitis, and SUD would fall under the same leadership. In addition, GLFHC's Health Care for the Homeless program was more tightly integrated with the primary sites by sharing resources and knowledge between staff. The behavioral health team is currently undergoing integration with the OUD and infectious services in order to more effectively share staff and use grant funds.

Because GLFHC has been a family medicine institution and operating in a patient-first model for many years, there was very little cultural friction in convincing providers that integration could help. Providers have become more aware, however, that they must treat infectious diseases and OUD simultaneously for maximum efficacy. While GLFHC has had a buprenorphine clinic predating the recent increase in overdose deaths, there was no major impetus historically to move this care into the primary care setting. Now, all physicians specializing in HIV have DATA waivers and are comfortable prescribing buprenorphine.

GLFHC has expanded its services through grant funding and coalitions in the community. Recently, for instance, it was awarded an Evidence-to-Intervention (E2I) grant to begin a mobile buprenorphine program intended for people who inject drugs and also living with HIV. GLFHC has also started a program called Bridge, wherein patients admitted to the emergency department can be inducted on OUD treatment and linked back to outpatient services to continue receiving MOUD.

Services Provided and Model of Care

The family physicians at GLFHC have different areas of expertise (e.g., HIV, viral hepatitis, SUD, behavioral health), and they attempt to provide as much care as possible without referring patients elsewhere. In addition to the programs already running, GLFHC is seeking to expand its internal mental health care capacity.

On the harm-reduction front, GLFHC has a syringe service program funded by the Massachusetts (MA) Department of Public Health. It distributes 20,000 syringes per month, naloxone, and education materials. GLFHC has received funds to create three syringe kiosks throughout the community and better advertise syringe services and disposal services. Patients who enter the clinic are also provided naloxone via a standing order at the pharmacy and prescribed PrEP as necessary.

The MOUD program consists primarily of buprenorphine, with several dozen patients on naltrexone. All HIV specialist clinicians (three physicians; one PA) are DATA waivered and have been trained to treat viral hepatitis. In addition, there are several NPs (including one who works on the Mobile Health Unit) who can prescribe MOUD. Across the system, NPs have been trained to treat HIV, viral hepatitis, and OUD.

Following a Bureau of Substance Addiction Services State Opioid Response grant, GLFHC is beginning a Bridge Clinic, which intends to initiate emergency department patients on buprenorphine before they are released. Then, these patients are connected with primary care through GLFHC, and additional medical needs can be addressed (including screening for HIV, viral hepatitis, or initiation on PrEP). There is a similar program funded by the state to screen patients in the hospital for OUD and connect them with OUD treatment and testing/care for infectious diseases.

GLFHC's Mobile Health Unit provides MOUD (primarily buprenorphine) for approximately 20 people each week and treatment and care for HIV. The Mobile Health Unit also offers PrEP and vaccinations and is attempting to develop a sustainable treatment program for viral hepatitis.

An additional program funded by the MA Department of Public Health is a linkage for testing of HIV, viral hepatitis, and STIs in the county's correctional system. This program links patients back to infectious disease care after release and is expanding to include MOUD linkage after release.

HIV care is funded by Ryan White and has grown from 320 patients to 370 in the last 3 years. Many of these patients were recently infected with HIV, so GLFHC was very interested in engaging and retaining them early in the process.

GLFHC's hope is that all providers feel comfortable prescribing PrEP and conducting baseline screenings, and it has held several clinic-wide trainings on PrEP and hepatitis screening/treatment. The addiction medicine team has also hosted trainings on harm reduction and the principles of addiction medicine. Several of GLFHC's clinics have at least one nurse manager who covers HIV, buprenorphine, and viral hepatitis; they were trained on how to manage those services.

The majority of patients accessing services through GLFHC are insured by Medicaid or Medicare, and about 20 percent are insured privately. GLFHC's funding sources are diverse and include the MA Department of Health (for overdose education, naloxone training, and addiction medicine programs), grants (for the Mobile Health Unit and a behavioral health counselor), and HRSA for HIV services (primarily case management and further integration of services, since 98 percent of patient visits at GLFHC are reimbursed through insurance). Ensuring stability of funding is a perennial issue, but that much of GLFHC's patient population is insured allows grant funding to go toward improving coordination of services. The hope is that by integrating services early, GLFHC will be able to save the health system in the long run despite some up-front investment.

While GLFHC has not instituted formal feedback mechanisms for patients to provide input on integrated services, this is another investment the organization is interested in pursuing. For instance, GLFHC's providers have discussed including patients in the interviewing process for CHWs to ensure that new employees are screened by the patients whom they will be serving.

Patient Characteristics and Outcomes

GLFHC's patients seeking integrated treatment for OUD and infectious diseases (particularly through the Mobile Health Unit) tend to be homeless with some documented psychiatric diagnosis. Approximately 500 individuals are on MOUD through GLFHC, and about 40 percent of that group is living with HIV or viral hepatitis (or both).

Among all HIV patients (362, as of May 2019), 92 percent have been prescribed ART, and 82 percent have viral load <200 copies/mL. Eight percent of those on ART have viral load >200 copies/mL. Since 2014, 309 patients have been treated for HCV, 28 of whom still remain on treatment; 276 patients completed at least 12 weeks of treatment, and 91 percent had a sustained virologic response (although this number includes those who were lost to follow-up, did not complete treatment, or died for unrelated reasons).

While a majority of the Mobile Health Unit's clients are experiencing homelessness, GLFHC is still concerned that it is not reaching a large enough portion of the homeless population. It is difficult to know where to find patients, who may move back and forth between neighboring towns or outside of city limits. In addition, the Mobile Health Unit has heard anecdotally that there may be an extra level of stigma for people who inject drugs and also have HIV or viral hepatitis. It could be, for instance, that an infectious disease diagnosis pushes an individual further into isolation from other people who use drugs because of the stigma associated with a diagnosis.

Facilitators and Barriers

Facilitator

- The overall push toward decriminalizing SUD has facilitated increased access to treatment. Historically, is has been difficult to provide OUD treatment in state-funded jails, but this is becoming easier with time. In turn, this allows GLFHC to attempt to link patients with care immediately upon release, and begin serving a population that needs access to the health care system.

Barriers

- It is difficult for mid-level providers to obtain a DATA waiver to prescribe MOUD. The 24-hour training is a disincentive.
- Recruiting and retaining Spanish-speaking providers (particularly mental health providers) prevents GLFHC from delivering culturally competent care.
- Even with perfectly integrated services, GLFHC may still be underused because of ongoing stigma toward infectious diseases and OUD.
- Structural barriers within the community health center protocol can be onerous to overcome. For instance, GLFHC did not include behavioral health services in its

initial community health center proposal and then needed to update its profile to include these services (a time-consuming process).

- Syringe service programs need to be approved by local municipalities. Simplifying this process would provide an easier avenue for patients to access care, as the syringe service program has been a main referral source to GLFHC's buprenorphine program.

Advice for Other Programs

- Develop strong lines of communication with providers outside of organization. When GLFHC has to refer patients to outside behavioral health providers or the local opioid treatment program for methadone, the communication between GLFHC and that outside provider could stand to be improved. GLFHC does not always know which prescriptions patients have been given or whether they have been seen by that provider. Developing stronger communication will ensure greater continuity of care.
- Set up several entry points for further care. GLFHC has the regular clinic, the Mobile Health Unit, and the Bridge Clinic, all of which are designed to further engage patients in treatment at different touch points.

Information About Informant

Christopher Bositis, M.D.
Clinical Director, HIV and Viral Hepatitis Programs

PLUMAS COUNTY PUBLIC HEALTH AGENCY

Program Description

The Plumas County Public Health Agency includes a rural clinic that has built a coalition of partners throughout Plumas County and neighboring counties. The clinic provides basic services, testing for infectious disease, MOUD, harm-reduction techniques, and educational materials. Since the early 1990s, the clinic has been building upon its core services. In 1994, the clinic started offering reproductive health services through a MediCal waiver, Family Pact. With the the Ryan White Part B program in 1996, the clinic expanded its services to include comprehensive treatment and case management for people in Plumas County living with HIV. In the late 1990s, the clinic expanded to offer outreach clinics with limited hours and services in three neighboring communities. The clinic has close collaboration with staff at the local hospital (frequent, in-person conversations) to follow up with treatment regimens but does not explicitly share EMR systems, staff, or providers.

History of Program's Integrated Services

In 2018, CDC named Plumas County as "at risk" for an HIV outbreak due to injection drug use (CDC, 2018b). Given this, leadership and staff at the agency felt that integrated services for infectious diseases and OUD was a natural way to meet patients' needs. The original plan for reducing the prevalence of infectious diseases and OUD was focused on harm reduction and increased access to treatment. Specifically, the agency's plan was threefold: reduce the number of prescriptions of opioid medications, increase prescriptions for and access to MOUD, and increase naloxone access.

Prior to 2016, no providers at the agency, or in the county, had received a DATA waiver to prescribe MOUD, so this was a first step toward greater integration of services. The director has been interested and involved with integration, and there has been significant buy-in throughout the organization. This was the case because most people know or have heard of someone who is struggling with OUD. Under the current director's leadership, the agency has adopted an approach that focuses on the "spectrum of harm." This entails focusing on an individual patient's needs, ranging from harm reduction and testing to treatment. Plumas County recently received a $200,000 grant from the HRSA Rural Communities Opioid Response Program, allowing the agency to support staff working toward holistic treatment for SUD.

From a staffing perspective, integration within the agency has been relatively seamless. Because the department is small, it is easy to learn about other staff members' work, programs, and ideas. Still, the greatest step toward integration was forming a county-level coalition of stakeholders from hospitals, law enforcement, the district attorney's office, the behavioral health system, and public health departments from neighboring counties. Individual champions were identified in each of these stakeholder groups, and maintaining close relationships between these champions has been crucial.

Services Provided and Model of Care

In many cases, patients will visit the agency for the syringe service program or for other basic services but also be offered MOUD, naloxone, overdose prevention education, rapid testing for HIV/HCV, and a referral for HIV/HCV treatment and PrEP when necessary (via an online

prescription service). However, the clinic does not currently treat HIV/HCV. Instead, it refers patients to the local hospital (HIV treatment is paid for by Ryan White funds and includes case management; HCV treatment does not). The agency does not provide treatment for HIV/HCV because it does not want to duplicate services already on offer in the local hospitals; instead, it has helped the hospitals to build capacity for treating these infections. Program integration with the local hospitals has helped to sustain access to treatment.

For patients with HIV, the case management includes transportation to the hospital with the case manager and follow-up reviews with the agency and hospital staff.

The clinic also has a mobile van, which targets outreach to people who inject drugs throughout the community. Mobile services include syringe access and disposal, HIV and viral hepatitis rapid testing, naloxone distribution, and harm-reduction counseling.

The agency has nine staff members in the health education division and 12 staff in the clinic, including 1 physician and 1 PA; the remainder are nursing staff. The DATA waivered physician who provides buprenorphine treatment is also the county's public health officer. In one specific circumstance, this physician prescribed naltrexone rather than buprenorphine.

The staff are encouraged to take advantage of trainings offered by the state, and locally, they have hosted harm reduction and MOUD training to educate providers in other counties. Within the organization, there have been no explicit trainings for staff on integrated services; instead, much of the training has been peer to peer. The agency has had to be creative to find ways to train staff on integration. When the department started a syringe service program, it used federal HIV funds to train the syringe service staff on HIV testing. Without this mechanism, there would not have been a way to pay for this kind of training.

Patients have had some opportunities to provide input on services, with limited success. The clinic has received useful patient feedback through surveys, and the syringe service program held focus groups with the broader community; this also provided valuable input. On the other hand, while the coalition meetings that take place between different community stakeholders are public, they are not typically well attended by people who use drugs. There are no explicit programs for families, except that they may be incorporated into treatment or provided naloxone at the patient's discretion.

The vast majority of patients that come into the clinic (about 75 percent) are on Medicaid. Twenty percent have private insurance, and 5 percent are uninsured.

To remain sustainable over time, the agency has tried to leverage federal grants toward instituting permanent services. One of its goals is to prevent and treat infectious disease and OUD, because these diseases are so closely linked. But funding has been difficult to obtain, and there is always a concern that the funding will not be sustainable long term because programs are funded through several different mechanisms. The MOUD program, for instance, was funded initially from a state grant to promote rural health and now relies on a 2018 HRSA grant and California's hub-and-spoke model; HIV testing is available from Ryan White funding; California funds syringe service supplies through the Office of AIDS; and public funding pays for HCV testing.

Patient Characteristics and Outcomes

Overall metrics of success for the health agency include the number of people served; the number of clients engaging in MOUD and showing up to appointments; the number of syringes distributed; tests completed for HIV/HCV; and the rates of undetectable viral load.

The agency sees 3,000 per year. In the 5-county region in which the agency operates, there are approximately 80 HIV clients, and about 10–15 that are coinfected with HCV. HIV is still a relatively low prevalence compared to many other regions with substantial intravenous drug use, which is why CDC designated Plumas County as at risk for an outbreak. However, HCV positivity results have remained steadily high for the population over the last several years, with nearly 30 new cases of HCV reported annually in a county of less than 20,000 people.

In the last year, 45 individuals have been initiated on an MOUD, about half of whom remained on it for longer than 6 months. The agency has heard from patients that there is a stigma for seeking treatment for OUD. While opening a syringe service has broken down barriers for accessing treatment, there may be many in the community who could use treatment services but have yet to do so.

Facilitators and Barriers

Facilitators

- Close partnerships with the community hospital, behavioral health clinics, and the criminal justice system has allowed for much greater integration of care than would be possible if these stakeholders were operating alone.
- In 2018, the state lifted the previous HCV treatment restrictions (e.g., requiring a fibrosis score of 2 or higher). Treatment is now more widely available to a greater number of patients.

Barriers

- Neighboring counties have different Medicaid managed care systems, and the regulations are different for providing treatment and payment. Patients must then try to navigate different systems for the same treatments.
- The agency does not have access to the EMRs in the hospital, which prevents case managers from truly understanding the full care plan and providing continuity of care.
- The lack of blanket permission to provide syringe service programs has meant that each county must spend time and resources getting permission from the state.
- Finding transportation to the clinic and syringe service can be difficult for many of the people who need the services the most. For patients who need methadone, the closest clinic is 1.5 hours away.
- The agency has been awarded Ryan White funds (Parts B and C) for HIV care, treatment, and prevention. Because Plumas County does not currently have a high prevalence of HIV (but has been labeled at risk for an outbreak), most of the funds are used to maintain the treatment and case management programs, and less is available for the prevention necessary to avoid an outbreak.
- The 8- or 24-hour DATA waiver training is an issue for many providers.
- The lack of broadband Internet access in rural areas prevents the agency from attempting telemedicine visits with patients. Because transportation can be a barrier, telemedicine would be a useful alternative.
- Although there is the possibility of grant funding, there are no simple financial mechanisms for covering case management for patients living with HCV (whereas Ryan White funds case management for patients living with HIV).

- There is currently no availability of methadone for SUD treatment in Plumas County. Though a physician could register with the DEA, the issue lies in the county clinics' capacity to provide daily care and maintenance for patients.

Advice to Other Programs

- Start small, and grow slowly. The agency would not have been as successful had it tried to implement many new services at all once. Instead, it has incrementally added services and plans to continue this trend.
- Apply for as much external funding as possible. Grant funding can be difficult to receive, but without external funding, it will be hard to expand services or demonstrate that additional services are worth funding through more sustainable mechanisms.
- Ask the people using the services what their opinions are, and base services around the needs of the community.
- Engage and develop a trusted relationship with law enforcement. If patients are concerned they will be apprehended by law enforcement when visiting a mobile van for clean syringes, they will stop using that service.
- Open communication with the criminal justice system is also crucial, as it can allow patients to be lined up for treatment upon release from the corrections system.
- Do not underestimate the role of stigma. The Plumas County Public Health Agency has found that HIV clients who inject drugs are hesitant to use the syringe services, because they may not have developed a close relationship with the providers delivering those services.

Information About Informants

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LIFESPRING HEALTH SYSTEMS

Program Description

LifeSpring Health Systems has its roots in community mental health, beginning as a mental health care center in 1963. It has since transitioned to a comprehensive behavioral health care center, and it adopted primary care services in 2008. In 2015, LifeSpring was awarded community health center status amidst a rural HIV outbreak in Indiana. In tandem with this arc toward further integration, LifeSpring served as a resource for people living with HIV (or at-risk populations) who had concurrent behavioral health needs. LifeSpring has strong integration between OUD and infectious disease services.

History of Program's Integrated Services

After primary care services were added, integrated care evolved quickly due to the complex needs of patients. Because LifeSpring has been operating since the 1960s with a focus on the social determinants of health, it was relatively easy to gain buy-in from staff and leadership as to the necessity of integrating care services. Overall, the leadership championed integration between OUD and infectious disease services—it was important to the board, CEO, and management team. However, the process of integrating did pose some challenges. When integrating behavioral health with primary care, there was occasional staff conflict over processes, logistics, and language, but the common understanding that patients would be the first priority allowed staff and providers to work through this. Leadership at the organization thought integration was important and had a clear, patient-centered strategy. They also granted lower-level staff and providers flexibility in how to actually implement the integration protocols. This created strong morale among the staff and promoted positive flow of information upward to leadership.

Services Provided and Model of Care

LifeSpring operates on a medical home model, where patient's needs are addressed in one visit and one location whenever possible. Case managers will schedule appointments for patients, follow up with them to make sure they know when to come to the clinic, and ensure that they have transportation back and forth. If a patient needs to visit an external provider, a case manager will make sure to call that provider for any necessary information after the visit. LifeSpring treats HIV, viral hepatitis, and OUD in primary care, as well as promoting harm reduction through PrEP prescribing, condom distribution, and a colocated syringe service (run by the local health department).

Since incorporating auxiliary treatments (including OUD treatment) into primary care, LifeSpring has increased its flexibility to respond to a diverse set of patient needs. Now, providers in behavioral health feel more comfortable treating physical health needs, and vice versa. This has become especially important for patients with behavioral health needs, as they may not want to express these needs over the phone. Coming to the clinic for primary care, on the other hand, feels like a more natural process and allows patients to talk about their behavioral health needs in a nonjudgmental context. According to LifeSpring, this allows for continuity of care: the patient can be scheduled immediately with a therapist and can learn about or be prescribed MOUD as necessary.

LifeSpring does not have a certified infectious disease doctor on staff, but does have a visiting infectious disease doctor once a month, and patients with complex care needs can be seen at that time. Spread across several sites in Indiana, LifeSpring has several full-time and several part-time psychiatrists; 2 family medicine physicians;9 NPs who specialize in either psychiatry, HIV care, or family medicine; 20 therapists; and a range of case managers and medical assistants.

LifeSpring's MOUD program includes naltrexone and buprenorphine, both of which can be prescribed on a patient's first visit. LifeSpring can provide referrals and transportation to an opioid treatment program for methadone. There are nine providers (physicians and NPs) with DATA waivers.

New staff at LifeSpring go through an orientation to adjust them to the integrated model of care. This training includes specific instruction on harm reduction and nonjudgmental, compassionate care. This orientation is intended for staff at every level; it is LifeSpring's goal to have staff facilitate care rather than act as a barrier. LifeSpring providers have also taken part in Project ECHO to prescribe HCV treatment.

Most patients are on Medicaid (~60 percent), 20 percent are on Medicare, and the remainder are on are on private insurance or Indiana's insurance for low- or moderate-income people living with HIV. The community health center model has helped sustain LifeSpring in providing integrated care and offers the confidence that it can continue to meet its patients' needs. Even though integrating care has been time consuming from an EMR and billing perspective, LifeSpring has been accustomed to integration in this way because it has always treated complex medical needs as a community mental health care provider.

LifeSpring believes in the philosophy "nothing about us, without us," which has been the driver for administering patient feedback surveys in person and on its website. While there have been no formal focus groups to assess patient feedback, it is common for providers to talk to patients in waiting rooms and ask how they feel about LifeSpring's services. Additionally, annual surveys provide feedback about services and the ability to access care. LifeSpring is also governed by a board of directors made up of individuals, a majority of whom are patients of the health center. With respect to families, LifeSpring has hosted a "lunch and learn" about naloxone, where it distributes naloxone and provides training on how to use it. Lifespring also has an educational program for families and friends of people with SUDs.

Patient Characteristics and Outcomes

LifeSpring's main measures of success are retention in care for OUD and infectious disease and the speed of care delivery. In line with its patient-centered philosophy, LifeSpring also believes that success for one patient may not be success for another. Sometimes, stability or patient empowerment is the best measure of success, even if that patient is still using drugs.

LifeSpring's Jeffersonville site (the largest clinic) serves about 2,500 patients a year, 1500 of which have SUD. The two smaller locations see approximately 1,500 and 450 patients per year, respectively. System-wide, it has about 50 patients living with HIV and undergoing treatment. All three locations have MOUD and infectious disease treatment. There are several patient populations that LifeSpring believes it has not fully reached: individuals experiencing homelessness, individuals in the criminal justice system, people who use intravenous drugs, and undocumented immigrants.

- 91 percent on MOUD after 6 months

- 67 percent on PrEP after 6 months
- 79 percent with undetectable viral load (HIV) after ART initiation
- 48 percent with a sustained virologic response (HCV) after treatment initiation (though HCV treatment is relatively new at LifeSpring)

Facilitators and Barriers

Facilitators

- There was previously a Medicaid rule that prohibited billing for medical and mental health care services on the same day. Indiana has relinquished this rule, which has facilitated integrated treatment.
- Indiana previously had a rule that community mental health centers could not provide primary care. Therefore, LifeSpring initially formed a separate legal entity to deliver primary care. However, the state has since removed that restriction, and LifeSpring now provides both types of care under one system.
- Gaining prior authorizations for MOUD was previously time-consuming for case managers, or patients needed to fail with first-line treatments in order for LifeSpring to be reimbursed for buprenorphine. Now, under the leadership of a new Secretary of Family and Social Services, many prior authorization barriers have been eliminated. This allows for delivering care to patients sooner and more consistently.

Barriers

- LifeSpring was intent on maintaining the same EMR for its patients across behavioral health and primary care. This proved difficult, as it needed to adjust the EMR to suit the needs of both sets of providers. What was acceptable for behavioral health care providers was onerous for PCPs, and vice versa.
- Case management for primary care patients is not easily reimbursed, unless they also have a concurrent behavioral health issue. This makes it more difficult to reimburse for integrated services in the primary care setting.
- Some providers cannot be reimbursed for services for integrated care at all. For instance, only LSCWs can bill for frequently needed services under the community health center model. Employees with a Master's degree in counseling, on the other hand, cannot.
- In rural areas, there is a significant workforce shortage. It is difficult to incentivize providers with niche expertise to work significant hours at certain locations.
- For the past several years, Medicaid has restricted treatment for HCV patients with F1 and F2 liver fibrosis levels. As of July 2019, this rule was relinquished and these patients can be admitted for treatment at LifeSpring.
- Even though providers were all committed to providing the best possible care for patients, differing personalities and strategies for achieving that goal have caused conflict over time. Moving from a behavioral health model to a primary care model was difficult for the organization, given that it had been operating with institutional inertia under the behavioral health model for several decades.

Advice for Other Programs

- Adopting an integrated EMR between behavioral health and primary care is crucial for maintaining continuity of care.
- Maintaining open lines of communication between different stakeholders and providers is crucial. LifeSpring has created a multidisciplinary work group that meets frequently and includes administrators, providers, executives, and finance staff.
- Upon an initial visit, provide a consent form to patients that allows behavioral and physical health information to be shared across providers. If patients provide consent for this, it allows for better communication between providers about patients' needs.

Information About Informant

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CRESCENTCARE

Program Description

CrescentCare[1] began as an AIDS service organization, transitioning to a full-service health care organization and receiving FQHC status in 2014. CrescentCare has played a large role in New Orleans as a provider of HIV testing and harm-reduction services; this includes the city's first syringe service program, which opened in 2009 (the New Orleans Syringe Access Program). In December 2018, CrescentCare opened a new 40,000 square foot health center easily accessed by public transportation. The organization has 250 staff members and 24 providers and serves 18,000 patients annually, the majority of which are seen in primary care. The arc of OUD and infectious disease services integration at CrescentCare has been folding OUD treatment into primary care, where HIV testing and treatment have already been a primary focus. Integration with viral hepatitis care is ongoing, as explained in further detail below.

History of Program's Integrated Services

Historically, CrescentCare conducted HIV testing and referred patients to other clinics for OUD treatment (including psychiatric services and MOUD). Yet, the recent integration of infectious disease services with OUD prevention/treatment felt like a natural fit: because CrescentCare started as an HIV services organization, the providers and leadership felt it was necessary to successfully treat OUD to prevent further HIV infection. Ultimately, CrescentCare's history of integrating these services stems from the needs of patients. While OUD treatment initially was primarily focused on sobriety, CrescentCare has transitioned to a harm-reduction approach since implementing its syringe service program.

In early 2018, CrescentCare was awarded a SAMHSA grant to support an intensive outpatient program (IOP), which included behavioral therapy 9 hours per week run by addiction specialists and MOUD. Yet this method of integration proved too difficult for some patients, who were not able to complete the IOP or were not ready for that level of treatment. CrescentCare created a dedicated buprenorphine clinic 2 days a week, run by a nurse manager. In December 2018, it also integrated MOUD into its primary care program in an effort to increase access for a larger number of patients and minimize the number of internal referrals for different types of treatment.

The choice to integrate OUD services into primary care—along with HIV/viral hepatitis services—was driven by the syringe service program already located in the clinic and the harm-reduction outlook of the staff. CrescentCare specifically hired a coordinator of the IOP who understood harm reduction and patient centeredness and wanted to expand access to prevention and treatment services. CrescentCare has also hired peer navigators who are in recovery themselves through a program called Recovery Works.

Throughout various leadership changes, several key players have remained champions of integrated services. Allison Dejan (Prevention Programs Manager) and Sharon Isolde (IOP Coordinator) have continued to push for more integrated services, and other providers have remained engaged through peer-to-peer education.

[1] Program informants from CrescentCare did not provide direct edits to this case study.

Services Provided and Model of Care

The clinic is well equipped and comfortable, providing same-day PrEP, HIV/viral hepatitis testing and treatment, and MOUD. The colocated syringe service program is the primary entry point for additional care, as it also conducts HIV/viral hepatitis/syphilis testing and same-day start for HIV ART. Key to the success of the program have been peer coordinators (who act like patient navigators) and two nurse managers for the MOUD program who have been doing SUD recovery for many years and helped newly hired clinicians.

A number of wraparound services are available for HIV patients through Ryan White funding. This includes referrals to other harm-reduction services and assistance with transportation, bus tokens, SNAP tokens and applications, housing, and navigating the health system.

For the combined OUD and infectious disease services, CrescentCare has one addiction specialist who oversees the IOP, one psychiatrist who sees more complicated dual-diagnosis patients, three PCPs and two NPs with DATA waivers who see patients with viral hepatitis or HIV and OUD, and an additional NP and a physician's assistant working on DATA waiver training. CrescentCare prescribes buprenorphine and naloxone in its MOUD program.

CrescentCare can treat HCV in its primary care clinic concurrently with MOUD but was historically unable to treat most patients with HCV medication because Medicaid only reimbursed treatment for liver fibrosis stage 3 or higher. Following several lawsuits challenging this restriction, the state of Louisiana relinquished this barrier to care on July 1, 2019. Since that time, CrescentCare can treat patients with F1 and F2.

With respect to staff training, there have been several grand rounds lectures on the integration of infectious disease and OUD services. It has also helped to have an addiction psychiatrist located in the same area as PCPs, who are able to ask for assistance. Finally, CrescentCare has had several peer-to-peer education sessions follow DATA waiver training to make providers more comfortable prescribing MOUD. Stigma has played an important role in preventing further integration: even with HIV (which CrescentCare has focused on for many years), it took a long time to evolve toward an embracing rather than a punitive culture (e.g., for patients that miss appointments). The peer-to-peer education has helped reduce this stigma.

Financially, CrescentCare was able to begin the IOP program through a SAMHSA grant from SAMHSA and funding from HRSA through the Substance Abuse Service Expansion Technical Assistance program. Most patients using primary care services at CrescentCare are insured by Medicaid, as are about 80 percent of patients on MOUD. As the volume of patients accessing MOUD through the primary care program continues to increase, CrescentCare may consider applying for additional grant funding. However, it is cautious about this prospect because it does not want to inadvertently filter out certain patients from the overall pool of patients who need services (i.e., if CrescentCare is awarded a grant that applies specifically to patients living with HIV, this may limit its ability to treat patients with other illnesses). Indeed, this has already been the case with one of their programs: Recovery Works has a peer coordinator component, but based on the terms of the grant, it can only be used for patients living with HIV who also require SUD treatment and cannot be used for uninfected patients. Instead, CrescentCare hopes that the services it provides, and payments from insurers, can provide enough value to make the programs sustainable. For now, since the integration of OUD treatment with HIV/HCV in primary care is in its early stages, it is difficult to predict whether this will remain financially viable long term. One concern is that patients with OUD and infectious diseases tend to have many barriers to care (e.g., difficulty accessing or remaining in

treatment programs, unstable housing, lack of transportation, stigma, or a distrust of the medical system).

Patient Characteristics and Outcomes

While more than 200 clients are served at any given time in the SUD program (not integrated with primary care), CrescentCare's integrated program is substantially smaller (i.e., 20 patients in May 2019). Overall, 62 percent of patients on MOUD at CrescentCare are HCV positive, and a handful are HIV positive. These statistics are similar to the syringe service program; more than 1,000 individuals per week use the program, and more than 50 percent are living with HCV and 2–3 percent with HIV.

Facilitators and Barriers

Facilitators

- Patient and peer navigators are important for integrated services to operate effectively because they assist patients in getting the full range of service that they need, or the range of services that they feel they can take on at any given time.
- A New Orleans city ordinance that strongly supports syringe access has helped create a harm reduction culture, and is one reason that the CrescentCare syringe service program is popular among people who inject drugs.
- A state Medicaid reimbursement restriction for HCV treatment was lifted on July 1, 2019, expanding the number of patients that CrescentCare can treat.

Barriers

- DATA waiver training is time consuming (particularly for NPs and PAs, who must spend 24 hours on it). The lack of financial support for this training creates an incentive not to follow through.
- Negative media coverage around people who inject drugs may prevent patients from seeking treatment and can stigmatize patients and providers/organizations.
- Lack of true coalitional support among various human services in the city is an issue (e.g., patients have the perception that police are frequently arresting patients for possession of drug paraphernalia, which makes patients hesitant to seek medical services related to substance use).
- Even when services are available, it can be difficult for patients to access (e.g., lack of stable housing, transportation, or ability to navigate available Medicaid services).

Advice for Other Programs

- More dedicated trainings and time to learn would facilitate a fully patient-centered culture that is nonjudgmental.
- Starting integrated services slowly, ensuring that providers have enough time and flexibility to see patients for longer and to treat patients who cannot make appointments on time, every time.

- Do not assume that the most intensive treatments will always be the best—a light touch treatment plan can sometimes be better for patients who struggle to access the clinic on a regular basis.

Information about Informants

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EVERGREEN HEALTH

Program Description

Operating for more than 30 years, Evergreen Health is a comprehensive health care system with 450 employees located in Buffalo, New York (with a satellite operation in Jamestown, New York). Evergreen started as an AIDS service organization, providing navigation and treatment for people living with HIV/AIDS. Today, it provides SUD treatment, primary/specialty care, and pharmacy services. In both Buffalo and Jamestown, Evergreen has several buildings in close proximity (walking distance). Evergreen has active communication, collaboration, and integration of OUD and infectious disease services.

History of Program's Integrated Services

Evergreen has a long history of providing care to underserved populations in the community, and that history drives the mission today (now including people with other chronic illnesses). This ethos remains in the organization's culture and was the main driver for integrating as many services as possible: to serve the needs of patients with complex needs in a way that makes life easier for them. In line with this, both patients and leadership have stated that access to SUD treatment is important, including MOUD. Evergreen has had strong support from leadership for integrating services, and developed a strategy for moving toward integration up front. However, Evergreen remained flexible about the needs of patients and various staff members, adjusting its integration strategy over time. Because of its long history in western New York, Evergreen has built a reputation for being a welcoming and nonjudgmental organization with a strong harm-reduction philosophy. The goal of integrating services was to seamlessly bring patients from testing, to treatment, to cure.

Services Provided and Model of Care

Patients accessing OUD and infectious disease services at Evergreen are frequently admitted through the syringe service program or the walk-in sexually transmitted infections clinic, where staff will inform them about the range of services available. In general, Evergreen provides patients with access and knowledge but recognizes that they are the ones to make the ultimate choice about which care they want to receive. This includes HIV/viral hepatitis testing and treatment, MOUD, case management and care coordination, or other medical or behavioral health needs.

At the Buffalo location, the infectious disease prevention and treatment, harm reduction, and SUD treatment occurs in one building. In Jamestown, the syringe service program is the only service not offered in the same location.

Evergreen's medical staff for OUD and infectious disease services consists of mostly PAs and NPs, along with mental health counselors and social workers. Physicians primarily conduct HIV/HCV treatment. Buprenorphine services were previously housed only in the medical clinic but are now offered at the harm-reduction center and outpatient counseling clinic. Two PAs have full-time caseloads for MOUD (200–300 patients), and there is 1 NP with 80 patients. Most prescriptions are for buprenorphine, and a handful are naltrexone.

Internal staff training for these services includes attendance at other departments' staff meetings to learn more about prescribing or patient care for specific populations, as well as

frequent in-services. Evergreen produces well-curated, user-friendly informational memos on various topics related to OUD and infectious disease services, including PrEP prescribing and infectious disease testing. At new-hire orientation, staff are trained explicitly on the culture of harm reduction, MOUD, and sexual health and PrEP.

From a financial perspective, most patients are insured through Medicaid, and patient visits and the onsite pharmacy can be sources of revenue. Although harm-reduction services and the walk-in infectious disease testing are more difficult to fund, Evergreen has substantial grant assistance from the New York Department of Health and smaller grants from numerous other organizations. Still, because these services act as an entry point for other billable services, they are useful from a revenue perspective. Evergreen has determined that the average patient uses three services, which provides a diversified source of income.

In terms of input on services, Evergreen has hosted support groups for patients' families to solicit feedback. This was met with limited success because of low turnout. Evergreen also has a variety of survey mechanisms (from basic comment cards to longer, comprehensive surveys), and weekly consumer feedback among people who use drugs and are seeking treatment. Finally, the organization has long-standing, monthly meetings for people living with HIV, an effort that has been very successful in soliciting feedback. There is a similar consumer feedback group among people who are currently or formerly using drugs.

Patient Characteristics and Outcomes

Evergreen has attempted to focus more on care for pregnant women, women with small children, and patients in the criminal justice system (especially after incarceration). The organization is also seeking to incorporate patients' own measures of success as organizational metrics. Outcome data were otherwise not available.

Facilitators and Barriers

Facilitators

- New York does not have fibrosis restrictions on treatment for HCV, allowing Evergreen to treat a larger number of patients.
- Gaining patients' consent at the first visit to share medical and behavioral health information with a range of providers makes it easier to provide integrated services over time.

Barriers

- The cultural split between abstinence-based treatment and a harm-reduction framework has prevented seamless communication between providers and staff. Rather than focus on one or the other, Evergreen has made an effort to provide options for patients depending on their specific needs.
- MOUD is not widespread in correctional facilities. Evergreen sees patients who have made progress on overcoming OUD but then are incarcerated and progress is derailed.
- The training to receive an X waiver is time consuming and acts as a disincentive to prescribe.
- Gaining prior authorization to dispense medications can be time consuming for staff.

- Because of restrictions on same-day billing, Evergreen has had to schedule patients on different days for health care services and mental health services. This interrupts their goal of providing continuous, seamless care.
- While many services at Evergreen use the same EMR, this has required coaching for providers on how to enter information so that it is usable by other providers.
- Mental health and SUD services are not reimbursed at the same rates as other medical care, making sustainability for these services more difficult.

Advice for Other Programs

- Providing in-depth coaching for providers on how to use an integrated EMR is crucial to truly integrated services.
- Staff must have a strong understanding of patient-centered, compassionate, and nonjudgmental care techniques, as well as a harm-reduction philosophy.
- It is important to have open lines of communication with law enforcement, local health departments, community organizations, and other health care providers. Integrated care requires organizations to be partnership oriented.
- Just as patients need to be provided compassionate care, the organization must facilitate compassionate outreach to its staff.
- Collection and curation of quality data is the main driver of process improvement.

Information About Informant

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BRONX TRANSITIONS CLINIC

Program Description

BTC is one site among 29 in the TCN. TCN clinics offer primary care, drug treatment, treatment for ID, and connections to social service support for previously incarcerated individuals. The TCN offers an implementation strategy, needs assessment, guidance, relationship building, and training for new clinics seeking to become a transition clinic.

Montefiore's Comprehensive Health Care Center and the Osborne Association (OA) collaborated to develop BTC. Both organizations serve predominately working-class minority communities in the Bronx, New York. The OA provides grant-funded discharge planning at New York State prisons. Medical services are paid for by health insurance. BTC provides comprehensive treatment, including primary care, HIV, SUD, and mental health treatment. Because of its focus specifically on formerly incarcerated individuals, other health care organizations have consulted BTC for advice on how to care for this population.

BTC is fully integrated into the community health center's normal workflow (Montefiore) and sees about 150–200 patients per year, the majority of whom have chronic health conditions. BTC provides care 2 half-days per week with a voluntary physician, including one open access session. Following initial visits, patients are integrated into the physicians' primary care panel and may schedule follow-up visits. Because of their full inclusion within the community health center, BTC's services are highly integrated—with the one exception of a full mental health care team.

History of Program's Integrated Services

In 2009, a group of physicians in Montefiore learned about the Transitions Clinic in San Francisco and sought to replicate these services in the Bronx. The primary goal was to provide medical care to patients coming from the corrections system. With guidance from Dr. Shira Shavit and colleagues, these physicians championed the idea of a transitions clinic in the Bronx, where OUD treatment was needed. In the beginning, much of the medical care was delivered by volunteer physicians and other medical staff, and it was clear that this was not a sustainable long-term strategy. Several grants to BTC—and a grant from CMMI to TCN—allowed BTC to continue operating with paid staff. Since then, medical residents have taken the helm in providing much of the care and often conduct research or quality improvement projects in BTC.

BTC is based in a community health center that has been at the forefront of providing HIV, HCV, and OUD treatment in a community setting. That center developed a buprenorphine program in the mid-2000s as part of the BHIVES project, driven by Dr. Chinazo Cunningham of Montefiore. Because of Montefiore's history with otherwise underserved populations, most of the providers and trainees are committed to this mission—integrated HIV/HCV/OUD care is a part of Montefiore as a whole. The community health center's administration, providers, and other staff members embraced a program dedicated to serving formerly incarcerated individuals.

Services Provided and Model of Care

BTC provides team-based care, the most important component of which is CHWs. These individuals have lived experience with criminal justice and have training in motivational interviewing and patient navigation. The CHW performs outreach to community agencies and

serves as a patient liaison between the criminal justice and health care systems. TCN has a curriculum for CHWs and a certification process for post-corrections training.

BTC provides HIV and viral hepatitis testing and treatment, MOUD, PrEP, overdose education, naloxone distribution, and other primary care services. Today, the care model is built around medical residents, who provide the clinical care under the supervision of Dr. Fox and other experienced physicians. Because BTC is part of the Montefiore system, it is able to use social worker staff and medical staff at the community health center as well.

There is one area that BTC would like to see bolstered among its services: mental health care that is specific to individuals in the criminal justice system. While there are numerous psychiatrists and psychologists in the Montefiore network, BTC has not been able to connect and collaborate on clinical care for the mental health issues that accompany corrections system experience. Instead, BTC refers out patients with complex mental health histories (~25 per year).

Buprenorphine-naloxone is the primary medication used for OUD, although a handful of patients have been prescribed extended-release naltrexone (XR-NTX). In addition to BTC, there are two opioid treatment programs (that prescribe methadone) within walking distance, one of which is integrated into the Montefiore system. To complement MOUD, BTC also hosts a patient support group for those taking buprenorphine.

Training for staff is centered around providing culturally competent care. Providers are trained through a six-session program of case-based modules with background readings. Modules focus on patient-centered OUD/HIV/HCV care, trauma-informed care, barriers to medical care for formerly incarcerated individuals, and other critical topics. Training for the front-desk staff and nursing staff has been more informal, with presentations at staff meetings approximately yearly. This includes anticipating of stigma and destigmatization, trauma education, physical exam training, and protecting confidentiality of care.

With respect to feedback, BTC has distributed patient satisfaction surveys and performed focus groups with patients in the past, but with mixed success. Patients have provided feedback over time in more informal ways, and BTC draws information about how to improve the clinic through the larger TCN network.

From a financial perspective, almost all patients are insured by Medicaid, and the small percentage of uninsured patients is seen on a sliding scale basis. Because BTC is integrated into Montefiore, treatment for OUD/HIV/HCV has not been a limitation financially. The infectious disease providers and staff in the community health center have helped BTC with patients, and being part of the academic program allows the clinic to focus on training medical residents who also provide services (even a high level of care to a small number of patients). As services have become more comprehensive, it has been harder to secure funds to cover everything. This is the primary reason BTC has not expanded its mental health treatment capacity—another grant to cover those services might be limited in time or scope and would not guarantee sustainability.

Patient Characteristics and Outcomes

BTC's primary measures of success are demonstrated reductions in emergency department visits, report arrests, and recidivism. From a medical perspective, BTC aims to achieve similar clinical outcomes to patients who do not have criminal justice involvement.

In a 2014 publication, BTC conducted a retrospective cross-sectional study reviewing all 266 patients' EMRs from July 2009 to January 2013 (Fox et al., 2014). Patients were 41 years old on average, mostly male, mostly racial/ethnic minorities, and insured through Medicaid.

About three out of every four had at least one chronic health condition (e.g., HIV, OUD, or viral hepatitis), and of this group, the average number of chronic conditions was three.

The median number of days between release from prison and the first medical visit was 10 days, and 54 percent were seen within 2 weeks. Of the 102 participants with chronic diseases, 72 percent had returned to the clinic at least once for follow-up care within 6 months of their initial visit. Overall, 38 percent of participants were retained in care at 6 months, including 45 percent of those with at least one chronic disease. Factors associated with retention in care at 6 months included HIV infection and depression (Fox et al., 2014).

For infectious disease treatment, a 2018 study from BTC showed that HIV VL suppression was similar between BTC patients and a matched comparison group of community-based patients, suggesting that the BTC intervention was able to achieve typical outcomes (Masyukova et al., 2018) despite the numerous challenges facing formerly incarcerated individuals during community reentry. PrEP uptake has been low among BTC patients, but it is offered routinely. In 2014, of the 28 patients with HIV infection, 86 percent were retained in care at 6 months, 82 percent received ART, and 54 percent had a suppressed VL.

From 2009 to 2013, of the 27 patients receiving buprenorphine treatment for OUD, 33 percent were retained in care at six months, and 19 percent had reduced opioid use confirmed by urine drug testing (Fox et al., 2014). Improving retention has been a target for quality improvement and led to the development of a support group for buprenorphine-treated patients.

As of 2016 (Hawks et al., 2016), of the 451 patients accessing care through BTC, 317 (70 percent) were screened for HCV, and 106 (33 percent) tested positive. Of those 106 patients, 93 (88 percent) were evaluated for HCV viremia and 84 (79 percent) were confirmed to have chronic HCV infection; 19 percent of the total sample had chronic HCV infection. Of these 84 with chronic HCV, 48 (57 percent) received specialist referral, 30 (36 percent) were evaluated, 8 (10 percent) initiated treatment, and 5 (6 percent) completed treatment and achieved SVR. Some treatment lapses occurred because patients were deemed unstable for treatment (12 percent) or reincarcerated (5 percent). Chronic HCV infection was common among clinic patients. Few were treated and cured. Patients lost contact with providers before consideration for antiviral therapy. Referral to specialty providers was a gap in care. Since 2016, BTC has implemented a new HCV care program, including direct-acting antiviral treatment. Though no outcome data are available yet, providers have noticed an increase in treatment uptake and retention.

Facilitators and Barriers

Facilitators

- Collaborating with a community-based organization that provides services to people with criminal justice involvement and their families aided in building trust with potential patients and correctional partners. Staff make contact with future patients before they are released from incarceration. Patients are rapidly and consistently linked to medical care post-release.
- New York State prisons assist patients in applying for Medicaid prior to release. The majority of patients have Medicaid activated within 3 days of release.
- A new law in New York requires that each Medicaid managed care organization must cover one of the formulations of buprenorphine without prior authorization. This has reduced the amount of time BTC employees spend acquiring prior authorization.

- HIV specialty care plans within Medicaid cover comprehensive services and MOUD, which allows BTC to provide wraparound services more easily.
- New York Medicaid allows for HCV treatment at any level of fibrosis and even if patient continue to use drugs. This facilitates HCV care.

Barriers

- Data privacy restrictions have made it difficult for CHWs to access complete information and referral notes for patients when they have been referred out for mental health services. Having full colocation of services would likely aid in communication.
- Stigma against people who use drug or individuals living with infectious disease may prevent patients from engaging with the medical system, and overturning this stigma requires concerted effort (even among medical providers).
- There is no sustainable reimbursement mechanism for the high level of care that BTC provides to patients. BTC providers (the medical residents) up to an hour at a time with patients, provide strong continuity of care, and help patients access basic services like cell phones and pharmacies (which, for some patients, are entirely new experiences given long bouts of time in correctional facilities).
- Resources and providers are not readily available to provide comprehensive mental health care, which is vitally important for the populations that BTC treats. The sustainability of grants for mental health care services is questionable.
- Individuals who have HCV but who do not qualify for Medicaid—of which there are several at BTC—are eligible for a state insurance program that reimburses for HCV care but not HCV medications. In these cases, BTC has had to ask pharmaceutical companies for charitable donations.

Advice for Other Programs

- Clinics must cultivate a patient base, rather than expecting that patients will show up. This requires establishing a referral source for patients to access the clinic. Some TCN sites, for instance, work directly with parole or with discharge planners at correctional facilities. Community-based organizations can serve as good referral sources as well, since they have a wide-ranging connection with individuals who may need medical care.
- Caring for justice-involved patients is similar to caring for other marginalized groups, but there are some unique issues that deserve attention. Chronic conditions, such as HIV, HCV, and OUD, are highly prevalent. Histories of trauma are common, and trauma-informed practices are essential. Exposure to incarceration itself, and especially solitary confinement, can have a lasting impact on mental and physical health. The collateral consequences of incarceration, such as employment discrimination or housing restrictions, can affect access to medical care. There is a growing body of literature on care for criminal-justice-involved patients.
- When integrating buprenorphine treatment, adopting a nurse-care manager model (also known as the “Massachusetts model”) is more effective and efficient.
- Clinics must not underestimate how important it is to provide compassionate, nonjudgmental care to individuals living with infectious disease or using drugs.

Information About Informants

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WHITMAN-WALKER HEALTH

Program Description

Whitman-Walker Health was created in the 1973 as an evolution from a volunteer-led telephone helpline for gay people struggling with alcoholism. Continuing as an AIDS service organization with Ryan White funding in the 1990s, Whitman-Walker Health has historically provided housing assistance and a food bank to people living with HIV and AIDS. In 2000, it merged with the Washington Free Clinic to provide primary care, behavioral health, SUD treatment, and dental care. Whitman-Walker Health now operates in two locations and is well known for providing care to lesbian, gay, bisexual, transgender, and questioning (or queer) (LGBTQ) communities: about 50 percent of patients are LGBTQ overall (the Main Site ranges 60–70 percent LGBTQ, and the Max Robinson site from 30–40 percent). Today, there is full integration between OUD and infectious disease services at the smaller site (Max Robinson) and nearly full integration at the main site.

History of Program's Integrated Services

Beginning as an AIDS service organization, Whitman-Walker Health developed an integrated approach from the start, providing wraparound services. To remain viable, Whitman-Walker Health expanded its services in 2000. Integration between infectious disease and OUD did not occur until more recently. In the late 2000s, a Whitman-Walker Health psychiatrist received an X waiver for MOUD, so these medications remain only in the behavioral health program. Medications were folded into the primary care setting because of high demand from patients—who needed combined services in an accessible and convenient way—and providers' initiative to meet this demand. This multidisciplinary approach was key to Whitman-Walker Health's success at integrating, and it was significantly easier to integrate at the smaller of the two sites because the providers there were in close contact; they knew each other and their patients well.

Whitman-Walker Health's expansion was a function of programs growing out from other programs and staff remaining open to the new needs of patients. Still, historically, not all staff, providers, and executives have bought in to increased integration. In the 2000s there was a provider-led push to bring SUD treatment into primary care, but this effort was halted because there was a concern among some administrative leaders that having SUD patients in waiting rooms would deter other patients from visiting the clinic. In short, there was a significant stigma (or perceived stigma) against SUD patients. As this example illustrates, change happened slowly. Changing the culture required perseverance and repeated conversations with the organization's leadership, staff, and providers to get buy-in. Providers needed to be convinced by the evidence that incorporating SUD into primary care could produce better outcomes for patients, and executives needed their financial concerns allayed. Whitman-Walker Health's success over time is a function of repeated discussions about patients' needs, with genuine listening, validation, and understanding of different stakeholders' concerns. In general, the primary champions of organizational change toward integrated services have remained the same over time.

Today, Whitman-Walker Health remains an attractive option to patients with OUD because they know they will not be turned away if they begin using drugs again. Its approach is to "meet the patients where they are," providing but not mandating treatment, and to keep lines of communication open. According to Dr. Henn, this approach was different even 5 years ago.

Services Provided and Model of Care

Primary care is the entry point for other services at Whitman-Walker Health. Patients who have HIV, viral hepatitis, OUD, or any other medical need are seen and managed through primary care. The ongoing goal is to create a seamless visit for patients without unnecessary referrals. Providers typically rotate back and forth between the two sites to ensure that full coverage for all medical needs is available at both sites. Another reason for integrating services into primary care is that stigma against drug use is easier to address in that setting, as it can be treated alongside any other medical need that requires the primary care physician's (PCP's) guidance and expertise.

The specific SUD services staff are all licensed psychotherapists and psychologists, and Whitman-Walker Health is therefore able to more easily integrate treatment of mental health disorders with SUD. It provides more specialized programming for methamphetamine, heroin, or prescription opioid users and individual SUD-focused psychotherapy or in a group setting.

Whitman-Walker Health's MOUD program uses buprenorphine and naltrexone, along with weekly therapy groups, individual counseling, or additional psychiatry if the patient needs and wants this level of care. Whitman-Walker Health recently developed a rapid entry to MOUD, called "Welcome MAT" (MAT refers to "medication-assisted treatment," a term the committee has elected not to use, as it provides a false impression that medications are only useful in the context of other kinds of treatment for OUD). Through this program, patients can schedule an appointment, or simply walk in to the clinic, see a PCP with an X waiver, and begin MOUD that day. Whitman-Walker Health also offers peer SUD counselors. These individuals, who have overcome SUDs themselves, are invaluable to providers and patients; they create a "link" between patients and the medical system.

While staff will rotate between sites to ensure full coverage, the Max Robinson site includes two infectious disease physicians, one double-boarded medicine pediatric physician, and three PAs. At the main site, staff includes eight infectious disease physicians (two are volunteer), three family practitioners, one double-boarded medicine pediatric physician, one internist, three NPs, and nine PAs. Most PCPs and psychiatrists have X waivers to prescribe buprenorphine, long-acting injectable naltrexone, and oral naltrexone. As of this writing, Whitman-Walker Health providers are not currently performing home inductions, but they do aim to provide same-day or next-day inductions at the clinic.

With respect to harm reduction, Whitman-Walker Health has explicitly adopted a risk reduction model that is well known and accepted by staff. Operationally, this includes a standing order of naloxone at the onsite pharmacy, care plans that emphasize tapering use, connections to community resources (including syringe services available in DC, though not operated by Whitman-Walker Health), and education about the risks of concurrent substance use.

Whitman-Walker Health has a mix of payers. Washington DC implemented Medicaid expansion following the Patient Protection and Affordable Care Act, and 50–60 percent of patients are on Medicaid. Another 30 percent are privately insured, and the remainder is on Medicare. DC also has an additional insurance benefit called Health care Alliance for residents who do not qualify for Medicaid but are not fully financially stable; a small percentage of patients receive care paid for by this program. Whitman-Walker Health depends on its FQHC reimbursement status and pharmacy as its primary sources of revenue. Patient visits—regardless of the type of visit—generally do not produce sustainable revenue. The pharmacy produces revenue from privately insured and Medicare patients but not for Medicaid patients because Medicaid only reimburses Whitman-Walker Health at cost for dispensed medications. Although

most patients are on Medicaid, the mix of patient payers using the pharmacy generally allows Whitman-Walker Health to recoup costs. As an FQHC, Whitman-Walker Health is able to offer significantly reduced pricing on drugs from its pharmacy through the 340B Drug Pricing Program.

Integration of SUD and infectious disease services into primary care has altered the day-to-day routine of providers and required some additional, informal training. Because some of the care is more time intensive, the number of patients that providers can see has been reduced. Additionally, it has become clear to staff that greater flexibility is required: working with patients that have complex behavioral and physical health needs—in addition to difficult lives outside the clinic—has meant that providers have had to be more accommodating of missed or late appointments. Whitman-Walker Health has therefore implemented a number of provider-led education strategies, including trainings on SUD by psychiatrists and brown bags and case conferences on OUD and infectious disease treatment. While each provider must go through the federally mandated MOUD training, staff felt that this training was inadequate for making providers comfortable enough to prescribe. As a result, the program instituted a residency model internally to train recently X-waivered providers.

Patient Characteristics and Outcomes

Whitman-Walker Health's general measures of success are the length of time that patients stay engaged in treatment programs and remain on lower dosages of drugs or abstinent from drugs, reduced VL for HIV, and virologic suppression for HCV. For patients in the MOUD program, outcome data are available in Table A-2.

Whitman-Walker Health serves 20,000 patients annually, 2,000 of which are transgender or gender nonconforming. About 3,000–4,000 of the total patient population is living with HIV (1,500 are on PrEP), and about 500 are living with HCV (roughly the same prevalence of HCV in DC as a whole). About 40 percent of patients are African American, 60 percent are 21–40 years old, and 70 percent are residents of DC. Several hundred are on buprenorphine, and a small percentage is on XR-NTX. Whitman-Walker Health does have some concern that it is failing to reach certain populations, including pregnant women, additional opioid users who could take advantage of buprenorphine management, and populations outside of the 21-to 40-year range.

Patients are able to provide input to Whitman-Walker Health on services via general surveys, though there have been no specific focus groups on integrating OUD and infectious disease services.

TABLE A-2 Clinical Outcomes for Whitman-Walker Health Patients

Whitman-Walker Health MOUD Program: January 2018–April 2019			
		%	**Notes**
OUD	**Opioid use disorder diagnosis**	100.0%	
	Prescribed buprenorphine at least once	46.4%	
	At least 1 subsequent buprenorphine Rx ≥6 months from first Rx	28.0%	
PreP	**Patients without HIV Infection**	58.0%	
	Prescribed PrEP	8.3%	
	PrEP Rx ≥6 months from first Rx	3.3%	
HIV	**Patients with HIV**	42.0%	
	Prescribed ART	88.5%	
	Undetectable VL	78.2%	
HCV	**Patients with HCV**	34.3%	
	Prescribed HCV Medication	16.9%	
	Virologic Suppression	32.4%	This likely does not reflect a low sustained virologic response rate but more likely a low treatment completion rate.

Facilitators and Barriers

Barriers

- The federally required MOUD training is time consuming and could be more clinically relevant. The training should instead focus on withdrawal management, induction and titration practices, and navigating the prior authorization process (in states where that is necessary). Because training is a barrier, there are too few providers to treat the number of patients in need.
- The inability to bill for group therapy through Medicare is a lost opportunity for revenue.
- For patients on Medicare, Whitman-Walker Health is unable to bill for both medical and psychiatric appointments on the same day.
- CFR Part 2 requires that Whitman-Walker Health takes extra care in describing its services, and therefore patients may be unsure what services are offered (e.g., it cannot advertise that it has an MOUD team in primary care, even though PCPs are legally certified to prescribe MOUD).
- The work of peer SUD-recovery specialists is not billable, even though these support staff are crucial to providing quality integrated care. Whitman-Walker Health is

currently able to pay for a portion of this cost through grant funding, but this will be difficult to sustain long term.

Facilitators

- In January 2019, Washington, DC loosened the prior authorization requirement for MOUD, allowing Whitman-Walker Health to more easily prescribe and dispense. Before this change, staff spent significant time seeking prior authorizations.

Advice for Other Programs

- The main driver for integrated services was that all staff members agree that their job is to serve the needs of the community. Constant reminders of that fact may create the cultural change required to integrated services.
- Seeking opportunities to introduce flexibility into service delivery is important (e.g., finding windows of opportunity to create walk-in clinics for OUD treatment, and then managing other care needs at that time).
- Do not assume that providers with an X waiver will be comfortable prescribing. Instead, seek other opportunities for MOUD training internally.
- Seek opportunities to break down silos through provider networking, and take advantage of new collaborations to treat new problems. At Whitman-Walker Health, initial collaboration between psychiatry and primary care has now allowed PCPs to treat more complex psychiatric conditions than in previous years, removing the need to refer patients out.
- Embrace a harm-reduction philosophy, rather than an abstinence-only approach.

Information About Informant

Sarah Henn, M.D.
Chief Health Officer

PHILADELPHIA FIGHT

Program Description

Philadelphia FIGHT is a comprehensive health services organization providing primary care, consumer education, research, and advocacy for people living with HIV/AIDS and those at high risk. Across several locations, FIGHT provides primary care and SUD services regardless of a patient's insurance or ability to pay. Two sites—the Jonathan Lax Treatment Center and the Clinica Bienestar center—provide buprenorphine and long-acting naltrexone integrated into the clinics. A third, the John Bell Center, is a more general internal medicine clinic and offers long-acting naltrexone. FIGHT's goal is to provide culturally competent, integrated, patient-centered care and to treat patients in a "one-stop shop" model (e.g., same-day appointments, medical case management, nutrition services, general services assistance, SUD treatment, onsite pharmacy).

History of Program's Integrated Services

Philadelphia FIGHT was founded as an AIDS service organization 25 years ago and now operates as a community health center with FQHC status. Because of its history, FIGHT has always met patients where they are at. Recently, FIGHT saw a need in the community and responded to increased deaths in Philadelphia due to overdose with fentanyl.

Overall, there was broad support for integrating OUD and infectious disease services, including from the medical/clinical staff and from leadership. The executive director is an innovative leader with a vision and a belief that innovative ideas should be supported—including an application for an SPNS grant to engage individuals of Puerto Rican descent with a history of injection drug use in HIV care, which FIGHT was awarded. FIGHT has spent years establishing trust in the community and collaborating with other centers in the area (e.g., harm-reduction centers, housing-first organizations, and syringe service programs).

The overall implementation of integrated services was incremental, and the shared philosophy of harm reduction and OUD as a chronic disease also changed incrementally. As with many organizations, the shift was gradual for medical providers to understand that relapse is a common occurrence and that treatment programs should reflect the chronic nature of OUD. Since FIGHT is a mission-driven nonprofit, many of the staff are likeminded in their approach to patient-centered care. Even those who are not X waivered understand the importance of integrating OUD and infectious disease treatment. Every day, the staff works through a list of patients to make sure treatment plans and follow-up plans are in order. This process is not always seamless, and adding additional services into a PCP's workflow is challenging, but the staff has agreed that active SUD treatment is needed in Philadelphia.

Services Provided and Model of Care

FIGHT's overall aim is to offer colocated services under one roof. On the harm-reduction front, FIGHT was one of the first clinics to offer PrEP. FIGHT is not currently offering PrEP to people who use drugs on a large scale, but that is a primary goal. In addition, FIGHT is working to provide PrEP in the city's syringe service programs and to use those programs as a gateway for other care (HIV or viral hepatitis care, MOUD, or general primary care).

The Jonathan Lax and Clinica Bienestar centers offer both HIV primary care and coinfection treatment with viral hepatitis, as well as MOUD. In addition, FIGHT offers HIV/viral

hepatitis prevention education at patient visits and conducts a prevention education summit in June every year. For OUD, prevention is a key component of FIGHT's workflow. It adheres to chronic pain guidelines for prescribing and engages patients about OUD often.

FIGHT hires near-peer educators (many with a shared experience of SUD) in order to provide patient-centered care. There are services that FIGHT does not provide in house but aims to in the future: (1) individual, specialized mental health therapy and SUD therapy and (2) a stronger harm-reduction program, with support groups. FIGHT has an IOP for SUD treatment program called TREE that follows a 12-step philosophy to SUD treatment and a mental health clinic called the Diana Baldwin Center for individual therapy. FIGHT also has a behavioral health consultant imbedded in most clinics to see patients for a limited number of visits when they are in crisis or have a specific, finite support need (e.g., smoking cessation, medication adherence, bereavement).

FIGHT can provide buprenorphine and long-acting naltrexone, and 75 percent of patients start buprenorphine at home (except those coming from the criminal justice system, who are more often started on long-acting injectable naltrexone at the clinic). FIGHT has eight providers at the Jonathan Lax Center, five with X waivers. When someone presents at the front desk, there is someone there who can check rapid urine drug screens and a pharmacy tech to run prescription drug monitoring programs. FIGHT also has medical case managers, which is crucially important given patients' high incidence of psychosocial needs. FIGHT has built lines of communication between sites and between referring providers and medical case managers to help ensure that patients make it to their appointments (FIGHT frequently refers patients to methadone maintenance and daily buprenorphine programs when they require more structure and support than FIGHT provides).

FIGHT has recognized that education about SUD in medical schools has not historically been adequate and aims to correct that inadequacy through its own internal education. This includes implicit bias training, training during AIDS education month, and allowing all who work there to be trained. Early on, FIGHT provided naloxone training (for clinicians and patients), to raise awareness about the opioid crisis and empower staff to recognize opioid overdoses and use naloxone. FIGHT recently provided long-acting injectable naltrexone training for clinicians and safer injecting practices for clinicians and medical staff (medical case managers).

From a financial perspective, the center operates on Ryan White and community health center funding, and the 340B pricing allows for MOUD and helps the overall program operate smoothly. Moving forward, it may make sense to expand services rather than referring out patients with complex medical histories. In addition, because psychiatric services are billable sessions, the more FIGHT can maintain adherence to mental health and SUD treatment, the more financially stable it will be.

FIGHT aims to treat patients in families or as couples when appropriate, and Clinica Bienestar is a more fluid clinic that allows patients' families to come in as well. In the beginning of a patient visit, patients will sign a (non-binding) agreement with the provider to ask for help if needed, stay committed to treatment, and attempt to stay off drugs. Near-peer employees are key to ensuring that patients feel in control of their treatment plan.

Patient Characteristics and Outcomes

FIGHT's measures of success include viral suppression loads (of those on ART treatment this past year, 83 percent had viral suppression). FIGHT also records other important metrics of

SUD stability, including weight gain, housing stability, healthy relationships, return to work/school, and better engagement in the rest of patients' health care (initiating HCV treatment, taking other necessary medication). The most important metric of success is whether patients remain on OUD treatment. When FIGHT offers OUD treatment and stabilizes patients on MOUD, the work load diminishes because the patients' needs are reduced.

FIGHT has 220 total patients on buprenorphine or naltrexone, with about half the naltrexone patients being treated for OUD and the rest for alcohol use disorder. Of those on MOUD, about half are HCV positive and 75 percent are HIV positive. Of those newly diagnosed with HIV, a vast majority are also positive for HCV.

Many of FIGHT's patients are homeless, and many have not previously engaged in HIV care. Philadelphia has seen a 115 percent increase in HIV incidence since 2016, and those with OUD are increasingly Caucasian and younger than in previous eras.

Facilitators and Barriers

Facilitators

- Philadelphia has a task force to combat the opioid crisis, including a subcommittee on public education and prevention between the department of health and the mayor's office. Through this, FIGHT has discussed changes to prior authorization process, changes to medical licensure, public health campaigns to expand access to naloxone.
- In Pennsylvania, PAs and nurses are able to prescribe buprenorphine, which increases the overall pool of prescribers.

Barriers

- FIGHT has not had much difficulty with prior authorization. If it orders the formulation of buprenorphine that is accepted by Medicaid, it does not need prior authorization and has not wasted much staff time through this process. However, it would be useful from a medical perspective to be able to offer all formulations and dosages that a patient might need, rather than what the insurance dictates.
- State restrictions on syringe services. Syringe service programs are only legal in Philadelphia and Pittsburgh, and Prevention Point in Philadelphia is the only legally sanctioned one; while there are providers who can prescribe syringes to prevent HIV and viral hepatitis, it is not a robust enough workaround to the state restriction.

Advice for Other Programs

- Treating OUD patients effectively will help manage other chronic illnesses, including the treatment and prevention of HIV, HCV, and serious bacterial infections.
- Provide peer-to-peer training opportunities for clinicians.
- Do not expand too quickly. Start with a small number of patients, and scale upward.
- Hire and train near peers. Listen to individual patients.
- Be comfortable accommodating randomness and patients who do not make appointments on time.
- Allow patients to begin buprenorphine treatment at home.

- Use several metrics to evaluate OUD treatment success other than just decreased substance use, including weight gain, housing stabilization, return to work/school, repaired relationships, and improved engagement in other medical care.

Information About Informant

Laura Bamford, M.D.
Medical Director, Clinica Bienestar

Appendix B

Public Meeting Agendas

MEETING ONE

Thursday, February 13, 2019
Zoom Conferencing

12:00 pm ET	**Welcome and Introductions**
12:05 pm	**Discuss statement of task with Department of Health and Human Services (HHS), Office of Infectious Disease and HIV/AIDS Policy (OIDP)**
12:30 pm	**Open Session Adjourns**

MEETING TWO

Monday, May 6, 2019
Room 125, National Academy of Sciences Building
2101 Constitution Avenue, NW, Washington, DC 20418

11:00 am ET	**Welcome and Opening Remarks** **Carlos del Rio, M.D.** (*Committee Chair*) *Hubert Professor and Chair* *Hubert Department of Global Health* *Rollins School of Public Health* *Professor of Medicine* *Emory University School of Medicine*
11:10	**Multi-Site HIV Program with Integrated Opioid Treatment** Laura P. Bamford, M.D., M.S.C.E. (*via Zoom*) *Medical Director Clinica Bienestar*

	Staff Physician, Jonathan Lax Treatment Center *Clinical Assistant Professor of Medicine, University of Pennsylvania Perelman School of Medicine* **Discussion** (30 minutes)
12:10 pm	**LUNCH** Available for purchase on ground level
1:00	**Comprehensive Treatment of Substance Abuse and Infectious Disease** Sarah Henn, M.D. *Chief Medical Officer, Whitman-Walker Health* **Discussion** (30 minutes)
2:00	**Integration of Hepatitis C Virus Treatment and Substance Abuse Treatment via Telemedicine** Andrew H. Talal, M.D. *Professor, Department of Medicine, University at Buffalo (SUNY)* **Discussion** (30 minutes)
2:45	**BREAK**
3:00	**Integrated Substance Use Treatment and Infectious Disease Treatment Programs (Inpatient / Outpatient)** Joyce Johnson, M.S.N., APRN, AGNP-C *Clinical Director of Outpatient Services and Nurse Practitioner, Stepworks Recovery Centers (Elizabethtown, KY)* Melissa Koncar, M.A., CAADC, LCADC (*via Zoom*) *Vice President of Residential Operations, Stepworks Recovery Centers (Elizabethtown, KY)* **Discussion** (30 minutes)
4:00	**Discussion/Wrap-Up/Public Comment*** *If time allows
5:00 pm	**ADJOURN**

MEETING THREE

Thursday, June 27, 2019
Zoom Conferencing

1:00 pm ET	**Welcome and Opening Remarks** Carlos del Rio, M.D. *(Committee Chair)* *Hubert Professor and Chair* *Hubert Department of Global Health* *Rollins School of Public Health* *Professor of Medicine* *Emory University School of Medicine*
1:10	**ARCare, Augusta, AR** Frank Vega, L.M.F.T. (*via Zoom*) *Director of Behavioral Health*
2:10	**Seattle & King County Department of Public Health, Seattle, WA** Brad Finegood, M.C.P. (*via Zoom*) *Strategic Advisor at Public Health*
3:10	**BREAK** Coffee and tea available outside meeting room
3:20	**Southcentral Foundation, Anchorage, AK** Steve Tierney, M.D. (*via Zoom*) *Medical Director of Quality Improvement* *Chief Medical Informatics Officer*
4:20 pm	**ADJOURN**

Friday, June 28, 2019

Room 120, National Academy of Sciences Building
2101 Constitution Avenue NW, Washington, DC 20418

Objective: The committee will hear from programs that integrate opioid and infectious disease treatment and prevention into their practice. The experiences of the panelists and their respective organizations will help to inform the committee's deliberations, based on the Statement of Task.

8:30 am ET	**Welcome and Opening Remarks** Carlos del Rio, M.D. (*Committee Chair*)

	Hubert Professor and Chair *Hubert Department of Global Health* *Rollins School of Public Health* *Professor of Medicine* *Emory University School of Medicine*
8:40	**Greater Lawrence Family Health Center, Lawrence, MA** Christopher Bositis, M.D. *Clinical Director, HIV and Hepatitis C Programs*
9:30	**CrescentCare, New Orleans, LA** Nick Van Sickels, M.D. (*via Zoom*) *Chief Medical Officer* Jason Halperin, M.D. (*via Zoom*) *Infectious Disease Physician*
10:15	**BREAK** Coffee and tea available in Room 114
10:30	**LifeSpring Health Systems, Jefferson, IN** Beth Keeney, M.B.A. *Senior Vice President for Community Health and Primary Care Services*
11:20	**Plumas County Health Department, Quincy, CA** James Wilson *Health Education Coordinator* Barbara Schott *Health Education and HIV/AIDS Program Manager*
12:10 pm	**LUNCH** Available for purchase on the ground level
1:10	**Bronx Transitions Clinic, Bronx, NY** **Transitions Clinic Network, San Francisco, CA** Aaron D. Fox, M.D. *Associate Professor of Medicine* *Division of General Internal Medicine* *Albert Einstein College of Medicine/Montefiore Medical Center* *Director, Bronx Transitions Clinic*

	Shira Shavit, M.D. *Associate Clinical Professor of Family and Community Medicine* *University of California, San Francisco* *Executive Director, Transitions Clinic Network (San Francisco, CA)*
2:00	**Evergreen Health, Buffalo, NY** Emma Fabian, M.S.W. *Senior Director of Harm Reduction*
2:50	**BREAK** Coffee and tea available in Room 114
3:05	**Panel Discussion and Wrap-Up** Benjamin Oldfield, M.D., M.H.S. *Medical Director of Population Health* *Fair Haven Community Health Care* *Yale School of Medicine* E. Jennifer Edelman, M.D., M.H.S. *Associate Professor of Medicine and Public Health* *Yale School of Medicine* Michael I. Fingerhood, M.D. *Associate Professor of Medicine and Public Health* *Johns Hopkins Medicine* Judith Feinberg, M.D. *Professor, Behavioral Medicine and Psychiatry* *West Virginia University School of Medicine* Honora L. Englander, M.D., FACP (*via Zoom*) *Associate Professor of Medicine* *Division of Hospital Medicine* *Oregon Health & Science University School of Medicine*
4:00	**Public Comment** Time permitting
4:15 pm	**ADJOURN**

Appendix C

Committee Biographical Sketches

CARLOS DEL RIO, M.D. (*Chair*), is the Hubert Professor and Chair of the Hubert Department of Global Health Rollins School of Public Health of Emory University, and a Professor of Medicine at the Emory University School of Medicine. He is also principal investigator and co-director of the Emory Center for AIDS Research. Dr. del Rio is a native of Mexico, where he attended medical school at Universidad La Salle, graduating in 1983. He did his internal medicine and IDs residencies at Emory University. In 1989, he returned to Mexico, where he was executive director of the National AIDS Council of Mexico (the federal agency of the Mexican government responsible for AIDS policy throughout Mexico), from 1992 through 1996. In November 1996, he returned to Emory, where he has been involved in patient care, teaching, and research. Dr. del Rio was chief of the Emory Medical Service at Grady Memorial Hospital (2001–2009) and, since 2017, is the interim executive associate dean for Emory at Grady. Dr. del Rio's research focuses on the early diagnosis, access to care, engagement in care, compliance with antiretrovirals, and prevention of HIV infection. He has worked for more than a decade with hard-to-reach populations, including persons who use drugs, to improve outcomes of those infected with HIV and to prevent infection with those at risk. He is also interested in translating research findings into practice and policy. Dr. del Rio is conducting a study funded by the National Institute on Drug Abuse titled "Improving Physician Opioid Prescribing for HIV-Infected Patients with Chronic Pain." He is co-PI of the National Institutes of Health-funded Emory–Centers for Disease Control and Prevention HIV Clinical Trials Unit, clinical site leader for the Adult AIDS Clinical Trials Group, and site PI for the HIV Prevention Trials Network of the National Institute of Allergy and Infectious Diseases. His international work includes collaborations in the countries of Georgia, Ethiopia, Kenya, Thailand, Vietnam, and Mexico. He has also worked on emerging infections, such as pandemic influenza, and was a member of the World Health Organization Influenza A (H1N1) Clinical Advisory Group and CDC Influenza A (H1N1) task force during the 2009 pandemic.

JULIE A. BALDWIN, Ph.D., is director of a new center on health equity research and a professor in the department of Health Sciences in the College of Health and Human Services at Northern Arizona University. Prior to that, she was on the faculty at the University of South Florida (USF) College of Public Health in the Department of Community and Family Health. Before joining USF, she served as a tenured faculty member at Northern Arizona University, with a joint appointment in the Mel and Enid Zuckerman Arizona College of Public Health. She has worked for more than 28 years with tribal communities in northern Arizona to design culturally relevant health promotion programs for youth and their families.

Dr. Baldwin's research over the years has focused on both infectious and chronic disease prevention targeting children, adolescents, and families. Cross-cutting themes that have characterized her work include using community-based participatory research approaches, working with underserved and/or marginalized populations, and addressing health disparities by developing and implementing culturally competent public health interventions. She has been PI or co-principal investigator of several federally funded projects from such agencies as the Centers for Disease Control and Prevention, National Institute of Mental Health, National Institute on Alcohol Abuse and Alcoholism, National Institute on Drug Abuse, National Institute on Minority Health and Health Disparities, the Robert Wood Johnson Foundation, and the Health Resources and Services Administration/ Association for Multidisciplinary Education and Research in Substance use and Addiction–Substance Abuse and Mental Health Services Administration/ Center for Substance Abuse Treatment. For more than 28 years, Dr. Baldwin has had a consistent program of applied research addressing HIV/AIDS and SUD prevention in youth, with a special emphasis on American Indian adolescents and their families. She continues to contribute significantly to this field of research today, as the codirector of the NIDA Research Education grants "Institute for Translational Research in Adolescent Behavioral Health" and "Intertribal Talking Circle for the Prevention of Substance Abuse in Native Youth."

She earned her doctorate in behavioral sciences and health education in 1991 from the Johns Hopkins University School of Hygiene and Public Health. As an enrolled member of the Cherokee Nation of Oklahoma, she made a lifelong commitment to serving diverse communities and advocating for health promotion programs for children, adolescents, and families.

EDWIN CHAPMAN, M.D., is the chief medical officer of Medical Home Development Group, a multi-specialty, physician-led, physician-owned medical service organization headquartered in Washington, DC. Dr. Chapman has delivered high-quality care in DC for 40 years, specializing in internal medicine and addiction medicine. He currently collaborates with the Howard University Urban Health Initiative as an adjunct assistant professor in the department of Behavioral Health and Psychiatry, investigating the complex mix of substance use, undertreated mental illness, infectious diseases (AIDS and hepatitis C), criminal behavior, and chronic diseases. Using an innovative "virtual office telemedicine design," that initiative brought together the departments of Behavioral Health and Psychiatry, Family and Community Medicine, Internal Medicine, and Pediatrics in a successful collaboration with the DC Department of Community Health addressing the needs of opioid-addicted index patients and their entire families.

HANNAH COOPER, Sc.D., is the Rollins Chair in Substance Use Disorders. Dr. Cooper is a professor and vice chair in the department of Behavioral Sciences and Health Education at Rollins, codirector of the Prevention Science Core at the Emory Center for AIDS Research, and director of Rollins' Socio-Contextual Determinants of Health certificate program. Dr. Cooper's research primarily focuses on social determinants of HIV-related outcomes, particularly among people who use drugs. She currently leads five NIH-funded studies on these topics—including the CARE2HOPE project, which studies substance misuse and related harms among people who inject opioids in rural Kentucky. Her work has been cited in the National HIV/AIDS Strategy for the United States and published in numerous preeminent journals, including *American Journal of Public Health*, *Journal of Urban Health*, and *Social Science & Medicine*. Dr. Cooper received her bachelor's from Yale, followed by her Sc.D. in health and social behavior from Harvard; she

completed her postdoctoral fellowship in drug use and HIV at the National Development and Research Institutes. Since joining Rollins in 2008, Dr. Cooper has gained the respect of colleagues and collaborators across the university. She was recognized for her outstanding leadership qualities with the Emory Williams Teaching Award in 2015.

DAVID GUSTAFSON, Ph.D., directs the University of Wisconsin−Madison's Center for Health Enhancement Systems Studies. His research interests focus on developing systems engineering tools to support sustainable individual and organizational improvement in substance use, cancer and aging. NIATx grew to a network of more 3,000 substance use treatment agencies and has conducted nationwide experiments to test the effectiveness of quality improvement models to enhance access to and retention in substance use treatment. His other implementation research interests focus on developing systems engineering tools to encourage individual and organizational change. His individual change research develops and tests computer systems (CHESS) to help people deal with serious illness. The substance use program–ACHESS–has been used by more than 6,000 patients. Randomized trials found that ACHESS reduced risky drinking and improved retention in treatment and abstinence. Other versions of CHESS have also improved outcomes in areas such as HIV, asthma, and breast, lung, and colon cancer. Dr. Gustafson and his colleagues have produced models to predict and explain implementation, sustainability, and diffusion of innovations and to measure quality of care and understand customer needs. He is an author on more than 300 reviewed publications, including seven books. He is a member of the National Academy of Engineering and fellow of the Association for Health Services Research, the American Medical Informatics Association, the W.K. Kellogg Foundation, and the Institute for Healthcare Improvement, which he cofounded and for which he served as board vice chair. He co-chaired the federal Science Panel on Interactive Communications in Health, was on several National Institutes of Health Study Sections, and is a member of the National Advisory Council of Substance Abuse and Mental Health Services Administration. He serves on two National Academies committees.

HOLLY HAGAN, Ph.D., is a professor at New York University College of Global Public Health and codirector of the National Institute on Drug Abuse P30 Center for Drug Use and HIV/HCV Research. She is trained as an infectious disease epidemiologist, with an emphasis on methods to study disease causation and control. Her research has addressed the etiology, epidemiology, natural history, prevention, and treatment of blood-borne and sexually transmitted infections among people who use drugs. Currently, she studies the epidemiology and response to the opioid and overdose epidemics, and she is the chair of the executive steering committee for the Rural Opioid Initiative funded by National Institutes of Health, Centers for Disease Control and Prevention (CDC), Substance Abuse and Mental Health Services Administration, and the Appalachian Regional Commission. Dr. Hagan is a member of the World Health Organization Global Burden of Disease Study Diseases and Injuries Group, she served on the National Academies committee on the Prevention and Control of Viral Hepatitis in the United States, and she has been an advisor to Department of Health and Human Services, CDC, and the Canadian Institutes of Health on national programs to detect, diagnose, and treat hepatitis C virus infections.

ROBIN P. NEWHOUSE, Ph.D., R.N., FAAN, is the dean of the Indiana University (IU) School of Nursing and an IU distinguished professor. Her research focuses on health system

interventions to improve care processes and patient outcomes. She has published extensively on health services improvement interventions, acute care quality issues, and evidence-based practice. Dr. Newhouse was appointed to the Methodology Committee of Patient-Centered Outcomes Research Institute and currently is serving as the committee's chair. She has been on multiple National Academies committees and is the immediate past chair of the AcademyHealth Board. Dr. Newhouse was inducted into the Sigma Theta Tau International Honor Society of Nursing Nurse Researcher Hall of Fame in 2014 and received the American Nurses Credentialing Center President's Award in 2015. In 2017, Dr. Newhouse was elected as a member of the National Academy of Medicine. Dr. Newhouse currently is serving as the lead investigator for IU's Grand Challenge: Responding to the Addictions Crisis, which is a $50 million initiative in partnership with the state and major health care systems in Indiana to reduce substance use disorders, the number of people who die because of an opioid overdose, and the number of babies born exposed to substances that result in neonatal abstinence syndrome. Dr. Newhouse is also principal investigator of two current studies. The first study tests the effectiveness and implementation of a Screening Brief Intervention Referral to Treatment toolkit to identify people who use substances and get them the help that they need across settings that range from critical access hospitals to academic health centers. The second study assesses the workforce available to address the substance use crisis across the state and will create a Web-based resource for clinicians to use to refer people who use substances to treatment when indicated.

JOSIAH "JODY" D. RICH, M.D., M.P.H., is professor of medicine and epidemiology at Brown University and a practicing infectious disease and addiction specialist providing care to patients at the Miriam Hospital and the Rhode Island Department of Corrections since 1994. He has published close to 200 peer-reviewed publications, predominantly in the overlap between infectious diseases, substance use, and incarceration. He is the director and co-founder of The Center for Prisoner Health and Human Rights at the Miriam Hospital (www.prisonerhealth.org) and cofounder of the nationwide Centers for AIDS Research Collaboration on HIV in Corrections initiative. Dr. Rich has advocated for public health policy changes to improve the health of people with substance use disorders, including improving legal access to sterile syringes and increasing drug treatment for incarcerated and formerly incarcerated populations. He has had continuous National Institutes of Health research funding for over two decades. His primary areas of interest and expertise are in the overlap between IDs and illicit substance use, the treatment and prevention of HIV infection, and the care and prevention of disease in addicted and incarcerated individuals. More recently, he has focused on addressing the opioid overdose epidemic. He has testified in Congress multiple times and served as an expert advisor to Rhode Island Governor Gina Raimondo's Overdose Prevention and Intervention Task Force since its inception in 2015.

SANDRA SPRINGER, M.D., is an associate professor of medicine in the department of Internal Medicine, Section of Infectious Diseases at the Yale School of Medicine. She is also the director of the Infectious Disease Clinic at the Newington site and an attending infectious disease physician at the West Haven site of the VA Connecticut Healthcare System. She is board certified in internal medicine, infectious diseases, and addiction medicine. She has significant clinical and research experience with use of medications for the treatment of opioid and alcohol use disorders among persons living with HIV, in the criminal justice system, persons in the

community in both inpatient and outpatient settings. She developed the first protocol to use buprenorphine to improve HIV treatment outcomes as relapse prevention for released prisoners with opioid use disorder (OUD) and HIV. She has conducted randomized controlled trials and evaluated the impact of XR-NTX, approved for treatment of both alcohol and OUD, as a principal investigator (PI) for a National Institute on Alcohol Abuse and Alcoholism-funded study among prisoners with HIV and alcohol use disorders and a PI for a National Institute on Drug Abuse (NIDA)-funded study among prisoners and jail detainees with OUD and HIV. Both studies found that extended-release naltrexone **(**XR-NTX) improved HIV viral suppression 6 months after release to the community. She currently is co-leading two NIDA-funded studies evaluating the impact of medications for opioid use disorder (methadone and buprenorphine) on immunobiological outcomes among persons with OUD with and without HIV and of buprenorphine, methadone, and XR-NTX on HIV latency and persistence among persons with OUD and HIV. She was a working group member of the National Academies historic meeting calling for action to integrate OUD and infectious disease treatment and is a current member of the American Society of Addiction Medicine's National Practice Guideline Expert Panel for Medication Treatment for OUD and the Infectious Diseases Society of America and HIV Medical Association Working Group on Infectious Disease Issues in the Opioid Epidemic. She has presented her work at numerous national and international conferences and published more than 100 manuscripts, book chapters, and abstracts regarding the subject of HIV, the criminal justice system, and substance use disorders.

DAVID L. THOMAS, M.D., is the Stanhope Bayne-Jones Professor of Medicine and Director of Infectious Diseases at the Johns Hopkins University School of Medicine. His nearly 30-year career has been based in East Baltimore, where, through his research, clinical care, and administrative roles, he has accumulated knowledge of the intersection of the opioid epidemic and IDs. His particular area of focus has been viral hepatitis and HIV. His lab has produced some of the seminal findings regarding hepatitis viruses among persons who inject drugs and the influence of HIV on those outcomes. He also has clinical expertise caring for IDs complications of opioid use through his role as an IDs consultant at the Johns Hopkins Hospital. He has served on multiple panels, including for the National Academy of Medicine, National Institutes of Health, Centers for Disease Control and Prevention, and the related professional societies (American Association for the Study of Liver Diseases [AASLD] and Infectious Diseases Society of America [IDSA]), as an associate editor for leading journals such as *Clinical Infectious Diseases* and *Journal of Clinical Investigation*, and was recognized by the Infectious Diseases Society of America with its Citation Award for his work pioneering the AASLD/IDSA hepatitis C guidance.