Assistive Technology users should contact **Jinhee Lee**, Jinhee.lee@samhsa.hhs.gov, 240-276-0545.

CHAPTER 6. HEALTH CARE SYSTEMS AND SUBSTANCE USE DISORDERS

Chapter 6 Preview

Services for the prevention and treatment of substance misuse and substance use disorders have traditionally been delivered separately from other mental health and general health care services. Because substance misuse has traditionally been seen as a social or criminal problem, prevention services were not typically considered a responsibility of health care systems[i]; and people needing care for substance use disorders have had access to only a limited range of treatment options that were generally not covered by insurance. Effective integration of prevention, treatment, and recovery services across health care systems is key to addressing substance misuse and its consequences and it represents the most promising way to improve access to and quality of treatment. Recent health care reform laws, as well as a wide range of other trends in the health care landscape, are facilitating greater integration to better serve individual and public health, reduce health disparities, and reduce costs to society.

KEY TERMS

Integration. The systematic coordination of general and behavioral health care. Integrating services for primary care, mental health, and substance use-related problems together produces the best outcomes and provides the most effective approach for supporting whole-person health and wellness.[3]

This chapter describes the key components of health care systems; historical reasons substance use and its consequences have been addressed separately from other health problems; the key role that health care systems can play in providing prevention, treatment, and recovery support services (RSS) for substance use disorders; and the recent developments that are leading to improved integration of substance use-related care with the rest of medicine. This chapter also describes the challenges to effective integration, as well as promising trends, such as in health information technology (health IT) that will facilitate it. Because these changes are still underway, much

i The World Health Organization defines a health care system as (1) all the activities whose primary purpose is to promote, restore, and/or maintain health, and (2) the people, institutions, and resources, arranged together in accordance with established policies, to improve the health of the population they serve.[1] Health care systems may provide a wide range of clinical services, from primary through subspecialty care and be delivered in offices, clinics, and hospitals. They can be run by private, government, non-profit, or for-profit agencies and organizations.

of the relevant research is still formative and descriptive; information presented in this chapter often derives from reports and descriptive papers.

KEY FINDINGS*

- Well-supported scientific evidence shows that the traditional separation of substance use disorder treatment and mental health services from mainstream health care has created obstacles to successful care coordination. Efforts are needed to support integrating screening, assessments, interventions, use of medications, and care coordination between general health systems and specialty substance use disorder treatment programs or services.
- Supported scientific evidence indicates that closer integration of substance use-related services in mainstream health care systems will have value to both systems. Substance use disorders are medical conditions and their treatment has impacts on and is impacted by other mental and physical health conditions. Integration can help address health disparities, reduce health care costs for both patients and family members, and improve general health outcomes.
- Supported scientific evidence indicates that individuals with substance use disorders often access the health care system for reasons other than their substance use disorder. Many do not seek specialty treatment but they are over-represented in many general health care settings.
- Promising scientific evidence suggests that integrating care for substance use disorders into mainstream health care can increase the quality, effectiveness, and efficiency of health care. Many of the health home and chronic care model practices now used by mainstream health care to manage other diseases could be extended to include the management of substance use disorders.
- Insurance coverage for substance use disorder services is becoming more robust as a result of the Paul Wellstone and Pete Domenici Mental Health Parity and Addiction Equity Act (MHPAEA) and the Affordable Care Act. The Affordable Care Act also requires non-grandfathered individual and small group market plans to cover services to prevent and treat substance use disorders.
- Health care delivery organizations, such as health homes and accountable care organizations (ACOs), are being developed to better integrate care. The roles of existing care delivery organizations, such as community health centers, are also being expanded to meet the demands of integrated care for substance use disorder prevention, treatment, and recovery.
- Use of Health IT is expanding to support greater communication and collaboration among providers, fostering better integrated and collaborative care, while at the same time protecting patient privacy. It also has the potential for expanding access to care, extending the workforce, improving care coordination, reaching individuals who are resistant to engaging in traditional treatment settings, and providing outcomes and recovery monitoring.
- Supported evidence indicates that one fundamental way to address racial and ethnic disparities in health care is to increase the number of people who have health insurance coverage.
- Well-supported evidence shows that the current substance use disorder workforce does not have the capacity to meet the existing need for integrated health care, and the current general health care workforce is undertrained to deal with substance use-related problems. Health care now requires a new, larger, more diverse workforce with the skills to prevent, identify, and treat substance use disorders, providing "personalized care" through integrated care delivery.

*The Centers for Disease Control and Prevention (CDC) summarizes strength of evidence as: "Well-supported": when evidence is derived from multiple controlled trials or large-scale population studies; "Supported": when evidence is derived from rigorous but fewer or smaller trials; and "Promising": when evidence is derived from a practical or clinical sense and is widely practiced.[5]

Key Components of Health Care Systems

In 2015, 20.8 million Americans had a substance use disorder. As discussed in **Chapter 1 - Introduction and Overview**, these disorders vary in intensity and may respond to different intensities of intervention. Diverse health care systems have many roles to play in addressing our nation's substance misuse and substance use disorder problems, including:

- Screening for substance misuse and substance use disorders;
- Delivering prevention interventions to prevent substance misuse and related health consequences;
- Early intervention to prevent escalation of misuse to a substance use disorder;
- Engaging patients with substance use disorders into treatment;
- Treating substance use disorders of all levels of severity;
- Coordinating care across both health care systems and social services systems including criminal justice, housing and employment support, and child welfare;
- Linking patients to RSS; and
- Long-term monitoring and follow-up.

There is a great diversity of health care systems across the United States, with varying levels of integration across health care settings and wide-ranging workforces that incorporate diverse structural and financing models and leverage different levels of technology.

Health Care Settings

Health care systems are made up of diverse health care organizations ranging from primary care, specialty substance use disorder treatment (including residential and outpatient settings), mental health care, infectious disease clinics, school clinics, community health centers, hospitals, emergency departments, and others.

It is known that most people with substance use disorders do not seek treatment on their own, many because they do not believe they need it or they are not ready for it, and others because they are not aware that treatment exists or how to access it. But individuals with substance use disorders often do access the health care system for other reasons, including acute health problems like illness, injury, or overdose, as well as chronic health conditions such as HIV/AIDS, heart disease, or depression. Thus, screening for substance misuse and substance use disorders in diverse health care settings is the first step to identifying substance use problems and engaging patients in the appropriate level of care.

Mild substance use disorders may respond to brief counseling sessions in primary care, while severe substance use disorders are often chronic conditions requiring substance use disorder treatment like specialty residential or intensive outpatient treatment as well as long-term management through primary care. A wide range of health care settings is needed to effectively meet the diverse needs of patients.

Workforce

Just as a diversity of health care settings is needed to meet the needs of patients, a diversity of health care professionals is also critical. Health care services can be delivered by a wide-range of providers including doctors, nurses, nurse practitioners, psychologists, licensed counselors, care managers, social workers, health educators, peer workers, and others. With limited resources for prevention and treatment, matching patients to the appropriate level of care, delivered by the appropriate level of provider, is crucial for extending those resources to reach the most patients possible.

Structural and Financing Models

A range of promising health care structures and financing models are currently being explored for integrating general health care and substance use disorder treatment within health care systems, as well as integrating the substance use disorder treatment system with the overall health care system. As part of ongoing health reform efforts, both federal and state governments are investing in models and innovations ranging from health homes and ACOs, to managed care and Coordinated Care Organizations (CCOs), to pay-for-performance and shared-savings models. These new models are developing and testing strategies for effectively and sustainably financing high-quality care that integrates behavioral health and general health care.

FOR MORE ON THIS TOPIC

See the sections on *"Health Homes"* and *"Accountable Care Organizations"* later in this chapter.

Technology Integration

Technology can play a key role in supporting these integrated care models. Electronic health records (EHRs), telehealth, health information exchanges (HIE), patient registries, mobile applications, Web-based tools, and other innovative technologies have the potential to extend the reach of the workforce; support quality measurement and improvement initiatives to drive a learning health care system; electronically deliver prevention, treatment, and recovery interventions; efficiently monitor patients; identify population health trends and threats; and engage patients who are hesitant to participate in formal care.

KEY TERMS

Learning Health Care System. As described by the Institute of Medicine (IOM), a learning health care system is "designed to generate and apply the best evidence for the collaborative healthcare choices of each patient and provider; to drive the process of discovery as a natural outgrowth of patient care; and to ensure innovation, quality, safety, and value in health care."[4]

The Promise of Integration

When health care is not well integrated and coordinated across systems, too many patients fall through the cracks, leading to missed opportunities for prevention or early intervention, ineffective referrals, incomplete treatment, high rates of hospital and emergency department readmissions, and individual tragedies that could have been prevented. For example, a recent study found that doctors continue to prescribe opioids for 91 percent of patients who suffered a non-fatal overdose, with 63 percent of those patients continuing to receive high doses; 17 percent of these patients overdosed again within 2 years.[6] Effective coordination between emergency departments and primary care providers can help to prevent these tragedies.

Other tragedies occur when patients complete treatment and the health care system fails to provide adequate follow-up and coordination of the wrap-around services or recovery supports necessary to help them maintain their recovery, leading to relapse. The risk for overdose is particularly high after a period of abstinence, due to reduced tolerance—patients no longer know what a safe dose is for them—and this all too often results in overdose deaths. This is a common story when patients are released from prison without a coordinated plan for continuing treatment in the community. One study from the Washington State Department of Corrections found that during the first 2 weeks after release, the risk of death among former inmates was 12.7 times higher than among state residents of the same age, sex, and race. Health care systems play a key role in providing the coordination necessary to avert these tragic outcomes.[7]

KEY TERMS

Wrap-Around Services. Wrap-around services are non-clinical services that facilitate patient engagement and retention in treatment as well as their ongoing recovery. This can include services to address patient needs related to transportation, employment, childcare, housing, and legal and financial problems, among others.

Substance Use Disorder Services Have Traditionally Been Separate From Mental Health and General Health Care

The separation of the treatment systems for substance use disorders, mental illness, and general health care has historical roots.[8-10] For example, Alcoholics Anonymous (AA) was founded in 1935 in part because mainstream psychiatric and general medical providers did not attend to substance use disorders. If treated at all, alcoholism was most often treated in asylums, separate from the rest of health care. The separation of substance use disorder treatment and general health care was further influenced by social and political trends of the 1970s. At that time, substance misuse and addiction were generally viewed as social problems best dealt with through civil and criminal justice interventions such as involuntary commitment to psychiatric hospitals, prison-run "narcotic farms," or other forms of confinement.[11] However, when many college students and returning Vietnam veterans were misusing alcohol, using drugs, and/or becoming addicted to illicit substances, high numbers of arrests and other forms of punishment became politically and economically infeasible. At this time, there was a major push to significantly expand substance misuse prevention and treatment services.

Despite the compelling national need for treatment, the existing health care system was neither trained to care for, nor especially eager to accept, patients with substance use disorders. For these reasons, new substance use disorder treatment programs were created, ultimately expanding to programs in more than 14,000 locations across the United States. This meant that with the exception of withdrawal management in hospitals (detoxification), virtually all substance use disorder treatment was delivered by programs that were geographically, financially, culturally, and organizationally separate from mainstream health care.

FOR MORE ON THIS TOPIC

See Chapter 4 - *Early Intervention, Treatment, and Management of Substance Use Disorders.*

Even though these programs were separate from the rest of health care, these new delivery sites were a critical step toward better addressing the growing problems related to substance misuse and substance use disorders. One positive consequence was the initial development of effective and inexpensive behavioral change strategies rarely used in the treatment of other chronic illnesses. However, the separation of substance use disorder treatment from general health care also created unintended and enduring impediments to the quality and range of care options available to patients in both systems. For example, it tended to reinforce the notion that substance use disorders were different from other medical conditions. Despite numerous research studies documenting high prevalence rates of substance use disorders among patients in emergency departments, hospitals, and general medical care settings, mainstream health care generally failed to recognize or address substance use-related health problems.[8,12-15]

The continued separation of substance use and general health care services has been costly, often harmful, and for some individuals even fatal. A recent study of world health settings showed that the presence of a substance use disorder often doubles the odds that a person will develop another chronic and costly medical illness, such as arthritis, chronic pain, heart disease, stroke, hypertension, diabetes, or asthma.[16] Yet despite the impact of substance use on physical health, few medical, nursing, dental, or pharmacy schools teach their students how to identify, prevent, and treat substance use disorders;[17-19] and, until recently, few insurers offered comparable reimbursement for substance use disorder treatment services.[20-23]

KEY TERMS

Inpatient treatment. Intensive, 24-hour-a-day services delivered in a hospital setting.

Residential treatment. Intensive, 24-hour-a-day services delivered in settings other than a hospital.

Even now, there are health care professionals who continue to be hesitant to provide patients with medication-assisted treatment (MAT), especially maintenance medications (methadone and buprenorphine) for opioid use disorders, because of deeply ingrained but erroneous misconceptions about these treatments, such as the idea that they "substitute one addiction for another."[24] This has hindered the adoption of these effective medications even by substance use disorder treatment facilities; and when they are used by substance use disorder treatment providers, they are often prescribed at insufficient doses, for insufficient durations, contributing to treatment failure and reinforcing a belief that they are not effective.[25,26] In fact, ample research shows that, when used correctly, MAT can reduce or eliminate illicit drug use and associated criminality and infectious disease transmission and restore patients to healthy functioning.[25,27,28]

A Growing Impetus for Integration

An integrated system of prevention, early intervention, treatment, and recovery that can address the full spectrum of substance use-related health problems is a logical and necessary shift that our society must make to prevent substance misuse and its consequences and meet the needs of individuals with substance use disorders. Providing services to people with mild and moderate substance use disorders—by far the largest proportion of all those diagnosed—in general health care settings will likely lessen the need for intensive and costly substance

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use disorder treatment services later, even though specialty care is still essential for people with serious substance use disorders, just as it is for patients with other severe diseases and conditions.

Beginning in the 1990s, a number of events converged to lay the foundation for integrated care. First, a number of IOM reports and other major articles established that substance use disorders are inherently health conditions that require a collaboration between general health care settings and specialty care[29] to improve treatment[30] and reduce gaps in quality for health care broadly[31] and for mental disorders and substance use disorders in particular.[29,32] This was followed, in more recent years, by legislation that aims to transform the way services are provided and to facilitate access to prevention and treatment services through expanded insurance coverage. The Paul Wellstone and Pete Domenici Mental Health Parity and Addiction Equity Act of 2008 (MHPAEA) requires the financial requirements and treatment limitations imposed by most health plans and insurers for substance use disorders be no more restrictive than the financial requirements and treatment limitations they impose for medical and surgical conditions.

Further, the Affordable Care Act, passed in 2010, requires that non-grandfathered health care plans offered in the individual and small group markets both inside and outside insurance exchanges provide coverage for a comprehensive list of 10 categories of items and services, known as "essential health benefits." One of these essential health benefit categories is mental health and substance use disorder services, including behavioral health treatment. This requirement represents a significant change in the way many health insurers respond to these disorders. The Affordable Care Act also reaffirmed MHPAEA by requiring that mental health and substance use disorder benefits covered by plans offered through the exchanges be offered consistent with the parity requirements under MHPAEA.

Medicaid Expansion under the Affordable Care Act

To more broadly cover uninsured individuals, the Affordable Care Act includes a provision that allows states to expand Medicaid coverage. In those states ("Medicaid expansion states"), individuals in households with incomes below 138 percent of the federal poverty level are eligible for Medicaid. Benefits include mental health and substance use disorder treatment services with coverage equivalent to that of general health care services.

Medicaid expansion is a key lever for expanding access to substance use treatment because many of the most vulnerable individuals with substance use disorders have incomes below 138 percent of the federal poverty level. As of fall 2015, an estimated 3 million adults have incomes that make them eligible for Medicaid under the Affordable Care Act but live in a state that has declined to expand Medicaid eligibility as permitted under the new law.[36,37]

A major goal of the Affordable Care Act is to expand insurance coverage and reduce the number of uninsured individuals.[33] As of March 2016, more than 20 million previously uninsured individuals (including children on parents' plans) had new benefits under the Affordable Care Act.[34] These enrollment figures include those who were previously uninsured, as well as 1 million who previously had employer-based coverage and 3 million who previously had non-group and other insurance coverage.[33] Individuals with substance use disorders are overrepresented in the newly insured population (including children now on parents' plans), because they were previously disproportionately uninsured, young adults without dependent children. They now are eligible for coverage under the Affordable Care Act, which will enable them to receive substance use disorder prevention, treatment, and RSS.[35]

Most recently, Congress passed the Protecting Access to Medicare Act, which, in addition to its Medicare provisions, funds pilot programs to increase access to, and Medicaid payment for, community mental health and substance use disorder treatment services. This is an important opportunity for integration.

Other changes, described later in this chapter, are also helping to create momentum for integration. These include new or improved organizational structures, such as medical homes, health homes, and ACOs; improved health IT, such as EHRs; clinical approaches, such as new substance use disorder treatment medications that can be prescribed in primary care settings; and effective approaches to identifying and preventing substance misuse problems. In addition, organizations including the American College of Physicians and the American Society of Addiction Medicine (ASAM) now recommend integration of substance use-related and mental health services with primary care.[38] Of historical note, although the World Health Organization and the American Medical Association have long identified alcohol and drug use disorders as medical conditions, it was only in 2016 that addiction medicine was formally recognized as a new subspecialty by the American Board of Medical Specialties under the American Board of Preventive Medicine.

Figure 6.1 summarizes a few of the key changes that are occurring as substance use disorder treatment services are integrated into mainstream health care.

Figure 6.1: Substance Use Disorders Services: Past and Future

Past	Future
Substance use mainly ignored in primary care	Substance use screened and monitored in primary care
Focus on the most severe problems	Addresses full spectrum of problems
Paper charts: little contact between specialty substance use disorders and health care	EHR, clinical coordination, patient portals, health IT treatment options that focus on coordination of care
Limited use of health IT	Leveraging technologies including patient portals, HIEs, technology delivered treatments
Little focus on physical health issues	Addresses medical problems with focus on whole person wellness
Medications seldom available	Medications readily available
Separate oversight structures and reporting	Performance and outcomes measurement, ongoing quality improvement
12-step programs	12-step and other RSS, social network innovations

Health care professionals are being encouraged to offer prevention advice, screen patients for substance misuse and substance use disorders, and provide early interventions in the form of motivational approaches, when appropriate.[39,40]

Primary care has a central role in this process, because it is the site for most preventive and ongoing clinical care for patients—the patient's anchor in the health care system. For example, primary care settings can serve as a conduit to help patients engage in and maintain recovery. Also, approaches such as screening, brief intervention, and referral to treatment (SBIRT) provide primary care providers with tools for addressing patients' substance misuse. Based upon the strength of the evidence for their effectiveness, the U.S. Preventive Services Task Force (USPSTF) has recommended alcohol screening

and brief behavioral counseling interventions for adults in primary care and given the supporting evidence for these services a "B" grade. This is significant because under the Affordable Care Act, preventive services given a grade of A or B by the USPSTF must be covered by most health plans without cost-sharing.[41-43] The USPSTF recommendation supports the expectation that primary care providers will soon routinely screen adults of all ages for unhealthy alcohol use as they now do for blood pressure and weight. Relatedly, the National Commission on Prevention Priorities of the Partnership for Prevention ranks primary care-based interventions to reduce alcohol misuse among the most valuable clinical preventive services.[44,45]

FOR MORE ON THIS TOPIC

See Chapter 4 - *Early Intervention, Treatment, and Management of Substance Use Disorders.*

The literature on the effectiveness of drug-focused brief intervention in primary care and emergency departments is less clear, with some studies finding no improvements among those receiving brief interventions.[46,47] However, at least one study found significant reductions in subsequent drug use.[48] Trials evaluating different types of screening and brief interventions for drug use in diverse settings with a range of patient groups are lacking. The USPSTF's current rating for illicit drug screening and brief intervention remains "I" for insufficient evidence to support its use as a preventive service. However, assessment for drug use is recommended under numerous circumstances, including treating any condition for which drug use might interfere with the treatment; considering potential interactions with prescribed medications; supporting integration of behavioral health care; and monitoring patient risk when prescribing opioid pain medications or sedatives/tranquilizers.

It is also important to emphasize that brief primary care-based interventions by themselves are likely not sufficient to address severe substance use disorders. However, primary care providers can use other interventions with this population, including providing MAT, providing more robust monitoring and patient education,[49,50] and importantly, referring individuals to specialty substance use disorder treatment. Effective referral arrangements that include motivating patients to accept the referral are critical elements to encourage individuals to engage in treatment for their substance use disorder.

Reasons Why Integrating Substance Use Disorder Services and Mainstream Health Care Is Necessary

A number of strong arguments underpin the growing momentum to integrate substance use disorder services and mainstream health care. The main argument is that substance use disorders are medical conditions like any other—the overarching theme of much of this *Report*. Recognition of that fact means it no longer makes sense to keep substance use disorders segregated from other health issues. A number of other realities support the need for integration:[63]

- Substance use, mental disorders, and other general medical conditions are often interconnected;
- Integration has the potential to reduce health disparities;
- Delivering substance use disorder services in mainstream health care can be cost-effective and may reduce intake/treatment wait times at substance use disorder treatment facilities; and
- Integration can lead to improved health outcomes through better care coordination.

Health Systems and Opioids

Physician prescribing patterns, patient drug diversion (selling, sharing, or using medications prescribed for another person), and doctor shopping behaviors have all contributed to the ongoing opioid overdose epidemic.[51] For example, evidence indicates that chronic pain patients with substance use disorders are prescribed opioids more often than other individuals with chronic pain, with the trend increasing over time.[52] Also, a study in two health systems found opioid prescription rates for older persons, particularly older women,[53] to be higher over time than for other individuals with long-term chronic pain.

In March 2015, the U.S. Department of Health and Human Services (HHS) made addressing the opioid misuse crisis a high priority, announcing a national opioid initiative focused on three priority areas: (1) providing training and educational resources, including updated prescriber guidelines, to assist health professionals in making informed prescribing decisions; (2) increasing use of the opioid overdose reversal drug naloxone; and (3) expanding the use of MAT. Since then, HHS has initiated many efforts to help reduce prescription opioid misuse and use disorders. Improving prescribing practices is one of these important efforts.[54] In March 2016, the CDC released the *Guideline for Prescribing Opioids for Chronic Pain*, which provides recommendations about the appropriate prescribing of opioid pain relievers and other treatment options to improve pain management and patient safety.[55] The guideline is not intended to regulate necessary and appropriate opioid prescribing. Rather, the guideline is meant to inform health care professionals about some of the consequences of treatment with opioids for chronic pain and to consider, when appropriate, tapering and changing prescribing practices, as well as considering alternative pain therapies. The same month, HHS also released the National Pain Strategy, which outlines the federal government's first coordinated plan for addressing chronic pain that affects so many Americans.[56] The goals of the National Pain Strategy will be achieved through a broad effort that includes improved pain care and safer prescribing practices, such as those recommended by the CDC Guideline.

The National Heroin Task Force, which consisted of law enforcement, doctors, public health officials, and education experts, was convened to develop strategies to confront the heroin problem and decrease the escalating overdose epidemic and death rate.[57] In 2015, the Task Force developed a report outlining the steps being taking to address the opioid problem. This included a multifaceted strategy of enforcement and prevention efforts, as well as increased access to substance use disorder treatment and recovery services. Although only about 4 percent of those who misuse prescription opioids transition to using heroin, concern is growing that tightening restrictions on opioid prescribing could potentially have unintended consequences resulting in new populations using heroin.[58] The Task Force states that "evidence shows that some people who misuse opioid medications migrate to heroin because heroin is more accessible and less costly than prescription opioids."[59] In fact, nearly 80 percent of recent heroin initiates reported that they began their opioid use through the nonmedical use of prescription opioid medications."[58]

The concern about opioid overdoses has also triggered efforts by health systems to increase access to naloxone, an opioid antagonist that prevents overdose fatalities by rapidly restoring normal respiration to a person whose breathing has slowed or stopped as a result of opioid use. Since 1996, community-based organizations in many states have implemented overdose education and naloxone distribution programs for people who use heroin or misuse pharmaceutical opioids and efforts are underway to expand access to naloxone to patients who are prescribed opioids for pain. Expanded access to naloxone through large health systems could prevent overdose fatalities in broad populations of patients, including patients who may experience accidental overdose from misusing their medications. The Substance Abuse and Mental Health Services Administration (SAMHSA) has developed an easy-to-use toolkit to be distributed with naloxone.[60] Prior research has suggested the potential to translate overdose education and naloxone distribution into routine primary care practice[61] and examination of the perspectives of primary care providers on this practice revealed knowledge gaps about naloxone but also a willingness to follow standardized naloxone prescribing practices when they emerge.[62]

FOR MORE ON THIS TOPIC

See Chapter 4 - *Early Intervention, Treatment, and Management of Substance Use Disorders.*

Substance Use Disorders, Mental Disorders, and Other Medical Conditions Are Interconnected

Many individuals who come to mainstream health care settings, such as primary care, obstetrics and gynecology, emergency departments, and hospitals, also have a substance use disorder. In a study within one health plan, one third of the most common and costly medical conditions were markedly more prevalent among patients with substance use disorders than they were among similar health system members who did not have a substance use disorder.[64] Similarly, many individuals who present at specialty substance use disorder treatment programs have other medical conditions,[65,66] including hypertension, HIV/AIDS, coronary artery disease, hepatitis, chronic liver disease, and psychiatric disorders.[67]

Because substance use complicates many other medical conditions, early identification and management of substance misuse or use disorders presents an important opportunity to improve health outcomes and reduce health care costs.[68] Research shows that primary care patients with mild or moderate substance use have higher rates of other medical problems, including injury, hypertension, and psychiatric disorders, as well as higher costs.[69] For example, cocaine use is associated with cardiovascular complications[67,70,71] and neurological and psychiatric disorders,[67,71] and long-term marijuana use has been associated with chronic bronchitis and cardiovascular problems.[72-74] Alcohol misuse is associated with liver and pancreatic diseases; hypertension; reproductive system disorders; trauma; stroke;[75] and cancers of the oral cavity, esophagus, larynx, pharynx, liver, colon, and rectum.[76,77] Even one drink per day may increase the risk of breast cancer. [67,76,78]

In addition to the health problems faced by individuals engaged in substance use mentioned above, substance use can adversely affect a developing fetus. In the United States, fetal alcohol spectrum disorders (FASD) remain highly prevalent and problematic, even though they are preventable.[79] A study of children in public and private schools in a Midwestern community calculated rates of FASD to be as high as 6 to 9 per 1,000.[80]

Opioid pain reliever use among pregnant women has also become a major concern due to neonatal abstinence syndrome (NAS), a treatable condition that newborns experience after exposure to drugs while in the mother's womb.[81] NAS may cause neurological excitability, gastrointestinal dysfunction, and autonomic dysfunction. Newborns with NAS are more likely than other babies to also have low birthweight and respiratory complications. The incidence of NAS has increased dramatically in the last decade along with increased opioid misuse.[82] In 2012, an estimated 21,732 infants were born with NAS, a five-fold increase since 2000. Moreover, in 2012, newborns with NAS stayed in the hospital an average of 16.9 days, more than eight times the number of days other newborns stay in the hospital (2.1 days).[83] These newborns with NAS cost hospitals an estimated $1.5 billion, and 81 percent of these costs were paid by state Medicaid programs.[83] These data suggest the need to develop and test measures to reduce newborn exposure to opioids. For women who are considering getting pregnant or are already pregnant, abstaining from all substances is recommended, since NAS is not exclusively caused by opioids.[84]

Adolescents with substance use disorders experience higher rates of other physical and mental illnesses, as well as diminished overall health and well-being.[85-88] Sexually transmitted infections and HIV/AIDS,[89] appetite changes and weight loss, dermatological problems, gastrointestinal problems, headaches,[86] insomnia and chronic fatigue,[90] and heart, lung, and abdominal abnormalities are only some of the

problems that affect the health of young people who misuse alcohol and drugs.[87] A study of adolescents entering specialty substance use disorder treatment—as compared with age-matched adolescent patients without a substance use disorder—found higher rates of clinically diagnosed sinusitis, asthma, abdominal pain, sleep disorders, injuries and overdoses.[91]

In addition to the physical health problems described above, mental health problems are also over-represented among adolescents with substance use disorders,[92,93] particularly attention-deficit hyperactivity disorder,[94-98] conduct disorders,[99] anxiety disorders,[100] and mood disorders.[101-103] In addition, alcohol and drug use are associated with serious personal and social problems for users and for those around them including elevated rates of morbidity and mortality related to traffic crashes, intimate partner violence, risky sex, and unintentional injuries, including death from overdose.[104-110]

FOR MORE ON THIS TOPIC

See Chapter 1 - *Introduction and Overview.*

Integration Can Lead to Improved Health Outcomes through Better Care Coordination

Treatment of substance use disorders has historically been provided episodically, when a person experiences a crisis or a relapse occurs.[32] This is neither good quality nor efficient care, because severe substance use disorders are chronic health problems, similar to other health conditions and with similar outcomes.[12,111] Studies conducted over extended periods of time have found that annual primary care visits were associated with better outcomes and reduced health care costs following substance use disorder treatment,[112-115] but research on models of chronic care management is only beginning and thus far no consensus has emerged on the best approach.[116-119] These types of long-term studies will be more informative as the substance use disorder treatment, health care, and mental health systems become more integrated and as researchers build on disease management models that are effective for other medical conditions.

In addition to chronic care management for severely affected individuals, coordinating services for those with mild or moderate problems is also important. Studies of various methods for integrating substance use services and general medical care have typically shown beneficial outcomes.[66,120,121] The effectiveness of providing alcohol screening and brief counseling in primary care is supported by a robust evidence base,[122] and a growing literature is showing its benefits as a first tool in managing chronic health conditions that may arise from, or be exacerbated by, alcohol use.[123-125] Primary care-based alcohol use disorder case management involving pharmacotherapy and psychosocial support has been found to increase engagement in specialty substance use disorder treatment and to decrease heavy drinking.[126]

Care coordination is an essential part of quality in all health care. The Healthcare Effectiveness Data and Information Set (HEDIS), The Joint Commission, and organizations such as the National Committee for Quality Assurance emphasize coordination and accountability and the use of evidence-based care and performance indicators to establish and monitor quality and value. This approach to care delivery proceeds on the assumption that services for the range of substance use disorders should be fully integrated components of mainstream health care.

Quality and Performance Measurement and Accountability

Publicly available quality measurement information helps consumers, health care purchasers, and other groups make informed decisions when choosing services, providers, and care settings. Performance measurement has the dual purpose of accountability and quality improvement.

A 2015 IOM study on *Psychosocial Interventions for Mental and Substance Use Disorders* recommended that the substance use disorder field develop approaches to measure quality, similar to approaches used for other diseases. This includes the development of performance measures, use of health IT for standardized measurement, and utilization of these measures to support quality improvement.[127]

Measures have been proposed by a variety of organizations, including SAMHSA, as part of its 2013 National Behavioral Health Quality Framework; by the ASAM, as part of its development of standards of care for specialist addiction medicine physicians; by the Behavioral Health Steering Committee of the National Quality Forum; and by accrediting bodies such as The Joint Commission. Many measures are being tested by public and private health plans, though most have not been adopted widely for quality improvement and accountability. The single substance use measure included in HEDIS is "initiation and engagement of alcohol and other drug dependence treatment." Although the HEDIS measure is limited, it does provide health systems a beginning benchmark for tracking substance use disorders. A measure of care continuity after emergency department use for substance use disorders is in process.

Because substance use disorder treatment is currently not well integrated and services are often provided by multiple systems, it can be challenging to effectively measure treatment quality and related outcomes. The ability to track service delivery across these multiple environments will be critical for addressing this challenge. For example, community monitoring systems to assess risk and protection for adolescents are being developed.[128-130]

Pay-for-performance is an approach for improving quality and for incentivizing programs or health care professionals to produce particular outcomes (for example, treatment retention and treatment outcomes). It has been used more in general health care than in substance use disorder treatment. However, Delaware and Maine have experimented with it in their public substance use disorder treatment systems, and several studies have found improvement in retention and outcomes.[131,132] Potential concerns with pay-for-performance are that treatment programs may not accept the most severe patients and that methods of risk adjustment to compensate programs that accept those patients are not well-established. Although pay-for-performance is a promising approach, more research is needed to address these concerns.

A fundamental concept in care coordination between the health care, substance use disorder treatment, and mental health systems is that there should be "no wrong door."[133] This means that no matter where in the health care system the need for substance use disorder treatment is identified the patient will be effectively linked with appropriate services.

Several models of coordination have been described by researchers. In one such model, coordination ranges from referral agreements to co-located substance use disorder, mental health, and other health care services. Onsite programs had the highest rates of treatment engagement.[134] A recent meta-analysis concluded that integrated treatment of adolescent substance use disorders, along with mental disorders and medical care, produced better outcomes than when treatment was provided separately.[135] Other observational research has found that co-location of specialty substance use disorder treatment and mental health care is associated with better outcomes in adolescents.[93] SAMHSA and the Health Resources and Services Administration (HRSA) have also developed a model with six levels of coordination (**Figure 6.2**).

Figure 6.2: A Continuum of Collaboration between Health Care and Specialty Services

Coordinated Key Element: Communication		Co-located Key Element: Physical Proximity		Integrated Key Element: Practice Change	
LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6
Minimal Collaboration	Basic Collaboration at a Distance	Basic Collaboration Onsite	Close Collaboration Onsite with Some System Integration	Close Collaboration Approaching an Integrated Practice	Full Collaboration in a Transformed/ Merged Integrated Practice
Behavioral health, primary care, and other health care professionals work:					
In separate facilities, where they:	In separate facilities, where they:	In same facility not necessarily same offices, where they:	In same space within the same facility, where they:	In same space within the same facility (some shared space), where they:	In same space within the same facility, sharing all practice space, where they:
• Have separate systems • Communicate about cases only rarely and under compelling circumstances • Communicate, driven by provider need • May never meet in person • Have limited understanding of each other's roles	• Have separate systems • Communicate periodically about shared patients • Communicate, driven by specific patient issues • May meet as part of a larger community • Appreciate each other's roles as resources	• Have separate systems • Communicate regularly about shared patients, by phone or e-mail • Collaborate, driven by need for each other's services and more reliable referral • Meet occasionally to discuss cases due to close proximity • Feel part of a larger yet non-formal team	• Share some systems, like scheduling or medical records • Communicate in person as needed • Collaborate, driven by need for consultation and coordinated plans for difficult patients • Have regular face-to-face interactions about some patients • Have a basic understanding of roles and culture	• Actively seek system solutions together or develop work-a-rounds • Communicate frequently in person • Collaborate, driven by desire to be a member of the care team • Have regular team meetings to discuss overall patient care and specific patient issues • Have an in-depth understanding of roles and culture	• Have resolved most or all system issues, functioning as one integrated system • Communicate consistently at the system, team, and individual levels • Collaborate, driven by shared concept of team care • Have formal and informal meetings to support integrated model of care • Have roles and cultures that blur or blend

Source: Heath, et al., (2013).[136]

These models, as well as recovery-oriented systems of care, provide opportunities for substance use disorder services and mainstream health care to engage in various types of collaborative efforts to integrate their services at all stages: prevention, treatment, and recovery. Importantly, the models all emphasize the relationship between person-centered, high-quality care and fully integrated models. Innovative financing mechanisms now being explored also allow for formal arrangements to implement some of the models discussed above, including linking to off-site health professionals in specialty

substance use disorder treatment settings (and vice versa) when locating multiple services at one site is not feasible.

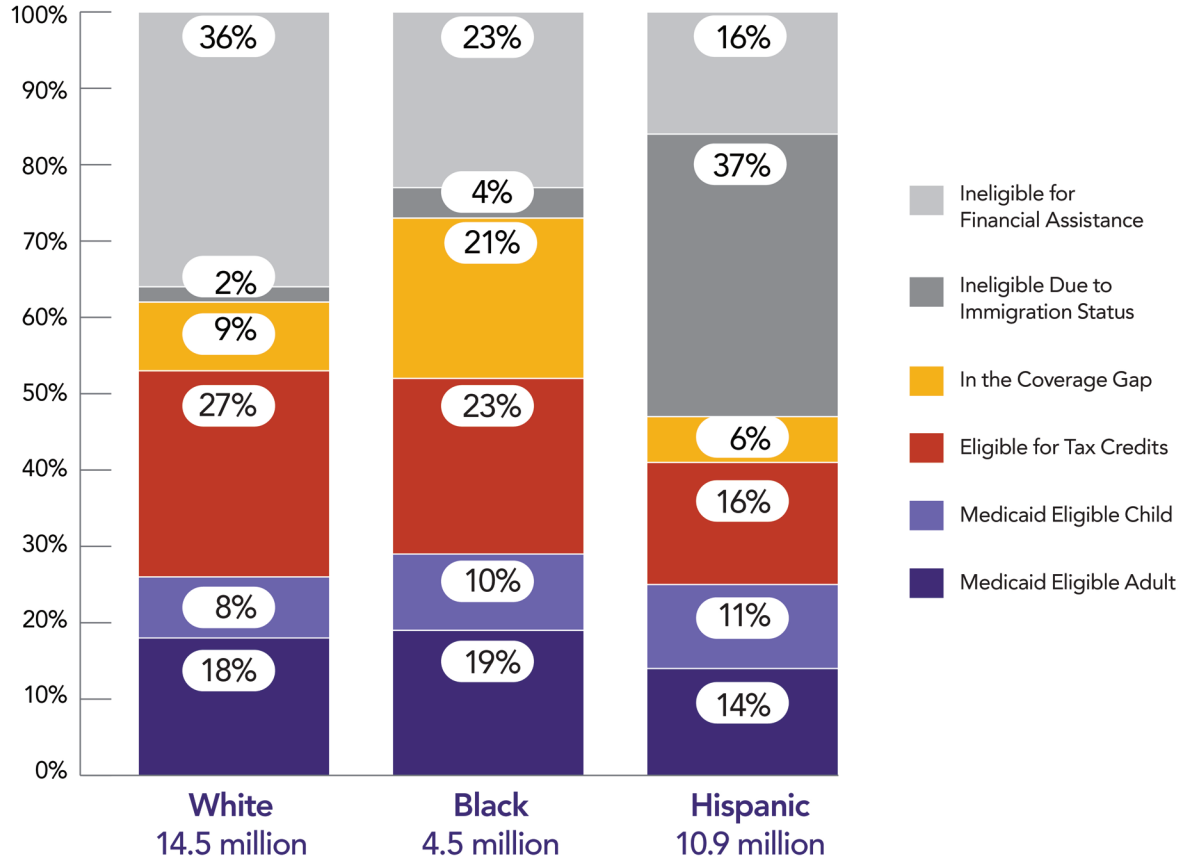
Integration Can Help Address Health Disparities

Integrating substance use services with general health care (e.g., in community health centers) provides opportunities to address longstanding health disparities. Prevalence of substance misuse and substance use disorders differs by race and ethnicity, sex, age, sexual orientation, gender identity, and disability, and these factors are also associated with differing rates of access to both health care and substance use disorder treatment. These differences are often exacerbated by socioeconomic variables.[137,138] Some racial and ethnic groups experience disparities in entering and engaging in treatment. A study of a large health system found that Black or African American women but not Latina or Asian American women were less likely to attend substance use disorder treatment, after controlling for other factors; there were no ethnicity differences for men.[139]

In addition, an analysis of longitudinal data from the *National Epidemiologic Survey on Alcohol and Related Conditions* showed that individuals from most racial and ethnic groups were less likely to receive an alcohol intervention than were White individuals over a 3 year period.[140] Controlling for socioeconomic status and clinical conditions increased the disparity, and Hispanic or Latino individuals were the least likely to receive services. Differences within the various racial and ethnic groups by sex were not studied.

A fundamental way to address disparities is to increase the number of people who have health coverage. The Affordable Care Act provides several mechanisms that broaden access to coverage. As a result, more low-income individuals with substance use disorders have gained health coverage, changed their perceptions about being able to obtain treatment services if needed, and increased their access to treatment.[141] However, in states that have elected not to expand Medicaid, some low-income adults who need substance use disorder treatment, especially single childless adults, are unable to receive these services. Individuals whose incomes are too high to qualify for Medicaid but are not high enough to be eligible for qualified health plan premium tax credits also rarely have coverage for substance use disorder treatment.[142] As **Figure 6.3** shows, more Blacks or African Americans are in the coverage gap than other groups, and more Hispanics or Latinos are ineligible due to immigration status.[142] One study conducted by The Pew Charitable Trusts reported that 14 percent of the low-income adults who are newly eligible for Medicaid under the Affordable Care Act have drug and alcohol addictions, compared to 10 percent in the general population. Because the new Medicaid population includes large numbers of young, single men—a group at much higher risk for alcohol and drug misuse—Medicaid enrollees needing treatment could more than double, from 1.5 million prior to the 2014 Medicaid expansion to about 4 million in the next five years.[8,143,144]

Figure 6.3: Eligibility for Affordable Care Act Coverage Among the Nonelderly Uninsured by Race and Ethnicity, as of 2015



Notes: Totals may not sum to 100 percent due to rounding. Ineligible for Financial Assistance share includes those ineligible due to offer of employer sponsored insurance or income. Tax Credit Eligible share includes adults in MN and NY who are eligible for coverage through the Basic Health Plan.

Source: Kaiser Family Foundation analysis based on 2015 Medicaid eligibility levels and 2015 Current Population Survey.[142]

Another way to address disparities is to ensure that substance misuse prevention, interventions, treatments, and recovery services are tailored and relevant to the populations receiving them. Several interventions have been adapted explicitly to address differences in specific populations; they were either conducted within health care settings or are implementable in those settings. The list below provides examples of such programs that have been shown to be effective in diverse populations:

- An evidence-based prevention intervention focused on women who are at risk for an alcohol-exposed pregnancy because of risky drinking and not using contraception consistently and correctly.[145] The program has been adapted to serve American Indian women of the Oglala Sioux Tribe.[146] Implementation of this intervention in health care settings has high potential for improving outcomes.

FOR MORE ON THIS TOPIC

See Chapter 3 - *Prevention Programs and Policies* and Chapter 4 - *Early Intervention, Treatment, and Management of Substance Use Disorders.*

- A study of a computerized screening and brief intervention in both Spanish and English used in a public health center's obstetrics-gynecology department was shown to be feasible and accepted by patients.[147]
- A small trial of Latino heavy drinkers compared culturally adapted motivational interviewing to motivational interviewing that was not culturally adapted. The trial suggested stronger results for the culturally adapted program.[148]
- A study comparing rural and urban differences in screening for substance use disorders in mental health clinics did not find significant differences in screening outcomes. However, rural clinics did significantly less following up for substance use problems in their patients than their urban counterparts. Larger rural clinics did better than small ones.[149]

Importantly, if health care systems systematically screen to identify individuals with risky use or potential substance use disorders, and respond appropriately to the level of the identified problem (with brief interventions, medications, and/or referral to specialty substance use disorder treatment), disparities in the use of treatment among those populations should lessen dramatically. In other words, it is expected that the number of people who seek treatment across all racial and ethnic groups will increase.

Few studies have directly compared treatment populations by race and ethnicity. However, some studies have examined race and ethnicity as predictors of outcomes in analyses controlling for many other factors (such as age, substance use disorder severity, mental health severity, social supports), and they showed that after accounting for these socioeconomic factors, outcomes did not differ by race and ethnicity. Some examples from an integrated health system include adolescent studies comparing Blacks or African Americans, American Indians or Alaska Natives, Hispanics or Latinos, and Whites.[150-152] The same is true for short-term and long-term treatment outcomes of adults.[112,153-155]

This body of research has some key caveats. For example, studies have found that matching programs and providers by race or ethnicity may produce better results for Hispanics or Latinos than for other racial and ethnic groups.[156] However, this research also suggests that all racial and ethnic groups can benefit equally from substance use disorder treatment. At the same time, offering programs that are tailored to patient characteristics or that incorporate health care professionals who share similarities with their patients in sex, age, or race or ethnicity may improve willingness to enter and engage in treatment.[157-159]

FOR MORE ON THIS TOPIC

See the section on *"Considerations for Specific Populations"* in Chapter 4 - *Early Intervention, Treatment, and Management of Substance Use Disorders.*

It should also be noted that civil rights laws, such as Section 504 of the Rehabilitation Act, the Americans with Disabilities Act (ADA), and Section 1557 of the Affordable Care Act, protect many people with substance use disorders and impose requirements on substance use disorder treatment programs. These laws require individual assessment of a person with a disability, identifying and implementing needed reasonable modifications of policies and practices when necessary to provide an equal opportunity for a person with a disability to participate in and benefit from treatment programs. More generally, these laws prohibit programs from excluding individuals from treatment programs on the basis of a co-occurring disability, if the individual meets the qualifications for the program. Additionally, under Title

VI of the Civil Rights Act and Section 1557 of the Affordable Care Act, providers who receive federal financial assistance must address the needs of people with limited English proficiency. The ADA and Section 504 also apply to discriminatory zoning laws and decisions that operate as a barrier to providers seeking to open or expand substance use disorder treatment programs.[160]

As the section on **Electronic Health Records and Health Information Technology** shows, health IT holds tremendous promise to provide culturally appropriate services in multiple languages and that incorporate health care professionals with characteristics similar to the target patients' population. One example with cultural relevance is a pilot randomized trial of a computer-delivered brief intervention in a prenatal clinic, which matched health care professionals and patients on race/ethnicity; patients found the intervention to be easy to use and helpful.[161] Such services have the potential to be cost-effective and to reach individuals in rural or urban settings and those who have difficulty attending treatment, including those with disabilities.

Integration Can Reduce Costs of Delivering Substance Use Services

With scarce resources and many social programs competing for limited funding, cost-effectiveness is a critical aspect of substance use-related services. Over the past 20 years, several comprehensive literature reviews have examined the economics of substance use disorder treatment.[162-165]

Although the United States spends roughly $35 billion across public and private payors to treat substance use disorders,[166,167] the social and economic costs associated with these disorders are many times higher: Annual costs of substance misuse and substance use disorders in the United States are estimated at more than $400 billion.[168,169] Thus, treating substance use disorders has the potential for positive net economic benefits, not just in regard to treatment services but also general health care.[162,170-172] For example, on average individuals with chronic medical conditions incur health care costs two to three times higher when they have a comorbid substance use disorder compared with individuals without this comorbidity.[173] The net benefits of integrated treatment include improved health care outcomes and reduced health care costs, as well as reduced crime, improved child welfare, and greater employment productivity.[125,174-178] Major individual and societal savings also stem from fewer interpersonal conflicts, greater workplace productivity, reduced infectious disease transmission, and fewer drug-related accidents, including overdoses and deaths.[179]

KEY TERMS

Net economic benefit. The value of total benefits minus total costs.

Evaluations of Medicaid expenditures for substance use disorder treatment show that the costs of treating substance use disorders are more than offset by the accompanying savings to Medicaid in reduced health care costs, such as reductions in future substance use disorder-related hospitalizations and residential treatment costs.[188-190] For example, as discussed below, an analysis of Washington State Medicaid found that providing substance use disorder treatment resulted in aggregate net savings to the Medicaid program, in the millions of dollars.[190] These and other studies point out that investments in engaging people into effective treatment for substance use disorders will reduce costs in many areas.

Costs of Substance Use Disorders in Other Service Systems

Costs associated with substance use disorders are not limited to health care. The accumulated costs to the individual, the family, and the community are staggering and arise as a consequence of many direct and indirect effects, including compromised physical and mental health, loss of productivity, reduced quality of life, increased crime and violence, misuse and neglect of children, and health care costs.

Criminal Justice System

As described elsewhere in this *Report*, a substance use disorder is a substantial risk factor for committing a criminal offense. Reduced crime is thus a key component of the net benefits associated with prevention and treatment interventions. Overall, within the criminal justice system, more than two thirds of jail detainees and half of prison inmates experience substance use disorders.[180,181] Many require treatment interventions, although only approximately 10 percent of prison inmates receive substance use disorder treatment services.[181] Applying inflation-adjusted estimates of the costs of in-prison care, the public sector spends approximately $400 million on such prison-based services, with substantial additional costs for after-care.[182]

Child Welfare and Related Service Systems

Substance use-related costs are also prominent within child welfare and related services. The estimated prevalence of substance use disorders among parents involved in the child welfare system varies across service populations, time, and place. One widely cited estimate is that between one-third and two-thirds of parents involved with the child welfare system experience some form of substance use problem.[183]

The *National Survey of Child and Adolescent Well-Being* found that caseworkers perceived substance misuse problems in 23 percent of cases, which was correlated with significantly higher probabilities of severe harm to children (24 percent), compared with parents with no such indication (5 percent).[184] Consistent with these findings, caseworker-perceived substance misuse problems were associated with more than twice the risk of out-of-home, or foster care, placement (38 percent vs. 16 percent) within this sample. Children of parents with substance use problems were more likely than others to require child protective services at younger ages, to experience repeated neglect and abuse from parents, and to otherwise require more intensive and intrusive services.[183] An estimated 19 percent of adolescents served by the child welfare system have experienced some substance use disorder, highlighting another challenge facing these service systems.[185]

In fiscal year 2016, approximately $5.2 billion was proposed for Federal Title IV-B, IV-E, and child abuse prevention services. Substance use disorders appear to account for a large proportion of child welfare, foster care, and related expenditures in the United States.

Military Health System

The United States military health system includes Department of Defense (DoD), Army, Navy, Air Force, and Marine Corps programs as well as health care outside the direct care system (TRICARE) for military members and their dependents, both in the United States and abroad. It is one of the largest health care systems in the United States. The IOM conducted a comprehensive study of military prevention and treatment services for substance use disorders.[186] As found in other health systems discussed in this *Report*, the prevalence of alcohol problems is high. A study of the economic impact of alcohol misuse among beneficiaries of the DoD's TRICARE insurance program found that the DoD spent approximately $1.2 billion to address problems related to alcohol use in 2006: $425 million in medical costs and $745 million in reduced readiness and misconduct.[187] In addition, opioid use disorders, often initiated when opioids are prescribed following injuries during deployment, are increasing at a high rate and are of high concern. Further, service members and veterans suffer from high rates of co-occurring health problems that pose significant treatment challenges, including traumatic brain injury, post-traumatic stress disorder, depression, and anxiety. Along with other recommendations, the IOM report recommended conducting routine screening, integrating substance use treatment with other health care, and implementing evidence-based treatments.

Costs of Substance Use Disorders in Other Service Systems, continued

These illustrative examples underscore that the costs associated with substance use disorders are incurred across diverse service systems that serve vulnerable populations. These expenditures might be reduced through more aggressive measures to address substance misuse problems and accompanying disorders. Moreover, many substance use-related services provided through criminal justice, child welfare, or other systems seek to ameliorate serious harms that have already occurred, and that might have been prevented with greater impact or cost-effectiveness through the delivery of evidence-based prevention or early treatment interventions.

Economic Analyses can Assess the Value of Substance Use Interventions

Different kinds of economic analyses can be particularly useful in helping health care systems, community leaders, and policymakers identify programs or policies that will bring the greatest value for addressing their needs. Two commonly used types of analyses are cost-effectiveness analysis[199] and cost-benefit analysis. Both types of studies have been used to examine substance use disorder treatment and prevention programs. Studies have found a number of substance use disorder treatments, including outpatient methadone, alcohol use disorder medications, and buprenorphine, to be cost-effective compared with no treatment.[162,200-209] The same is true for outpatient services without MAT and residential levels of treatment.

Cost-effectiveness Analyses

Treatment Settings and Approaches. A 2003 study estimating the cost-effectiveness of four different treatment modalities—inpatient, residential, outpatient methadone, and outpatient without MAT—found that the treatment of substance use disorders is cost-effective compared to other health interventions, with outpatient programs without MAT being the most cost-effective. Estimated cost per abstinent case ranged from $11,411 for outpatient treatment without MAT to $28,256 in the inpatient setting, with an average cost across all modalities of $22,460 per abstinent study participant (adjusted to 2014 dollars).[205]

KEY TERMS

Cost-effectiveness study. A comparative analysis of two or more interventions against their health and economic outcomes. These outcomes could be lives saved, illnesses prevented, or years of life gained.

Cost-benefit study. A study that determines the economic worth of an intervention by quantifying its costs in monetary terms and comparing them with the benefits, also expressed in monetary terms. Total benefits divided by total costs is called a cost-benefit ratio. If the ratio is greater than 1, the benefits outweigh the costs.

Methadone Maintenance versus Methadone Detoxification. A 2004 study evaluating the incremental cost-effectiveness of sustained methadone maintenance relative to a 180-day methadone detoxification enriched with intensive psychosocial services followed by drug-free substance use disorder treatment found that methadone maintenance yielded better outcomes, including reduced opioid use and lower subsequent behavioral health care costs, and had a cost-effectiveness ratio of approximately $20,000 per life year gained.[203]

Methadone Maintenance versus Maintenance with Other Medications. As the use of MAT options has grown, cost-effectiveness studies have compared alternative MAT interventions and MAT compared to medication-free behavioral therapies. For example, a 2015 study examining injectable, extended-release naltrexone compared with methadone maintenance treatment and buprenorphine maintenance treatment

for opioid dependence found that extended release naltrexone was more effective among patients remaining in treatment but also more costly than the other options,[227] totaling an additional $72 per opioid-free day. However, extended-release naltrexone is not off-patent, and therefore these cost findings will likely change when it becomes generic.

Extended Buprenorphine-Naloxone Treatment versus Brief Detoxification. A 2010 study of extended buprenorphine-naloxone treatment for opioid-dependent youth estimated that the cost-effectiveness ratio for buprenorphine compared to detoxification was $29,415 (outpatient treatment program costs for up to 12 weeks) per Quality-Adjusted Life Year (QALY).[228] Results like this indicate that buprenorphine is highly cost-effective by the standard benchmarks often employed to evaluate clinical and population health interventions ($50,000 to $100,000 per QALY).

KEY TERMS

Quality-Adjusted Life Year (QALY). A measure of the burden of disease used in economic evaluations of the value of health care interventions that accounts for both the years of life lived and the quality of life experienced during those years, relative to quality associated with perfect health.

Buprenorphine-Naloxone versus No Treatment. A 2012 study examined individuals with opioid use disorders who had completed 6 months of buprenorphine-naloxone treatment within a primary care setting. It estimated that office-based buprenorphine-naloxone treatment for clinically stable patients has a cost-effectiveness ratio of $38,107 per QALY compared to no treatment after 24 months.[229] The cost-effectiveness ratio was measured by calculating the difference in treatment costs between those receiving buprenorphine-naloxone treatment and those that did not and dividing them by the difference in patients' health outcomes.

SBI. A 2014 review of cost-effectiveness studies for alcohol SBI in a primary care setting found considerable variability in the estimated cost-effectiveness ratios and cost savings across studies.[230] However, almost all the studies found SBI to be cost-effective or to produce cost savings. For example, a 2008 analysis of alcohol SBI in primary care settings found an incremental cost-effectiveness ratio for SBI of $2,413 per QALY gained compared to a do-nothing scenario (in 2014 dollars).[45] The authors compared the cost-effectiveness of alcohol SBI to 24 other preventive services that have been deemed effective by the USPSTF. Using that comparison, alcohol misuse screening achieved a combined score similar to screening for colorectal cancer, hypertension, or vision (for adults older than age 64), and to influenza or pneumococcal immunization. Because current levels of SBI delivery are much lower than desired, this service deserves special attention by health care professionals and care delivery systems.[45] Importantly, all of the interventions that have proved to be cost-effective are appropriate for implementation in primary care.

Cost-Benefit Analyses

Interventions that prevent substance use disorders can yield an even greater economic return than the services that treat them. For example, a recent study of prevention programs estimated that every dollar spent on effective, school-based prevention programs can save an estimated $18 in costs related to problems later in life.[231]

The Washington State Institute for Public Policy has used a standardized model to estimate the cost-benefit of diverse prevention, early intervention, and treatment programs. Benefit-per-dollar invested ratios for evidence-based interventions (EBIs) include $27.48 for every dollar invested in brief intervention in primary

care; $36.71 for brief intervention in a medical hospital; $9.07 for brief intervention in an emergency department; $136.41 for cognitive behavior coping skills therapy; $33.71 for contingency management for substance use; $41.10 for motivational interviewing to enhance treatment engagement; $14.79 for brief marijuana dependence counseling; and $34.90 for brief cognitive behavioral intervention for amphetamine users.[232] Although some of the 30 interventions studied had smaller benefit-to-cost ratios than others (e.g., $2.18 for methadone maintenance treatment and $1.30 for buprenorphine/buprenorphine-naloxone treatment), all had benefits greater than their costs.

i FOR MORE ON THIS TOPIC

See Chapter 3 - *Prevention Programs and Policies.*

How Much Does Alcohol or Drug Screening and Treatment Cost?

In a 2005 literature review of the economics of substance use disorder treatment, one study highlighted the variability in cost estimates for substance use disorder treatment delivered in specialty settings. For example, they reported per-patient weekly costs ranging from $90 to $208 for standard outpatient treatment; $682 to $936 for residential treatment; and $100 to $125 for methadone maintenance treatment.[162] Another study, estimated service costs in 170 methadone maintenance treatment programs and found that methadone dosing was $33 per patient per week, individual counseling was $49 per patient per session (approximately 43 minutes per session), and group counseling was $12 per patient per session (approximately 77 minutes per session).[191] A 2009 study estimated service costs for 70 standard outpatient programs and found that individual counseling was $75 per patient per hour and group counseling was $9 per patient per hour.[192]

A 2012 review of 17 studies on the cost of alcohol screening and brief intervention (SBI), found considerable variability, with costs ranging from $0.56 to $663.74 per screen and $3.76 to $268.16 per brief intervention.[193] Median costs were approximately $4 per screen and $53 per brief intervention. Costs were typically lower when activity-based costing (assigning the cost and amount of each activity that is part of the intervention) was employed and when the SBI occurred in a primary care setting or was performed by a provider who was not a physician. Additionally, variation was attributed to the wage of the person conducting the screening and the amount of time the screening took. A 2015 study examined costs of SBI for illicit drug use in primary care settings; they estimated that per-person costs were $16.43 for screening, $40.98 for a brief negotiated interview, and $265.49 for an adaptation of motivational interviewing.[194]

In recent years, use of MAT has increased. Recent studies have examined extended-release naltrexone, buprenorphine, and methadone for opioid use disorder treatment.[195-197] These studies found that health care costs were generally as low or lower for individuals receiving extended-release naltrexone compared to individuals receiving other treatments for opioid use disorder. Individuals with opioid use disorders who received extended-release naltrexone had $8,170 lower costs compared to those receiving methadone maintenance. Individuals receiving buprenorphine with counseling had significantly lower total health care costs than individuals receiving little or no treatment for their opioid use disorder ($13,578 compared to $31,055). However, those receiving buprenorphine plus counseling did not differ significantly in total health care costs when compared to those receiving only counseling (mean health care costs for those receiving counseling only were $17,017).[196] It is important to note, however, that while some treatments may be less costly, they may also be less effective.

Another study, the Combined Pharmacotherapies and Behavioral Interventions (COMBINE) trial, examined nine treatment alternatives for alcohol treatment, including MAT. They reported mean per-patient cost estimates of $631 for a combined behavioral intervention (CBI) without MAT, $766 for naltrexone with medical management, and $865 for acamprosate with medical management. Combining CBI with a MAT option increased cost estimates to $1,183 for naltrexone plus CBI and $1,285 for acamprosate plus CBI.[198] However, in the COMBINE study, naltrexone combined with medical management was found to be the most cost-effective treatment. While other treatments may be less costly, they are also somewhat less effective.

*All costs in this sidebar are calculated in 2014 dollars.

Financing Systems for Substance Use Disorder Services

In 2013, about three-quarters of all general health care purchased in the United States was paid for by private insurance, Medicare, or Medicaid. The rest was covered by consumers paying out-of-pocket, by other federal health grants, and by programs and other insurance provided by the DoD, Department of Veterans Affairs, and other state and local programs.[211] In the case of treatment for substance use disorders, only about 45 percent of spending was through private insurance, Medicare, or Medicaid. In 2014, the largest share of substance use disorder treatment financing was from state (non-Medicaid) and local governments (29 percent).[211]

Private Insurance

In 2014, 66.0 percent of individuals in the United States had private health insurance, either obtained through employers or individually.[212] Approximately 9 percent of insured individuals met criteria for a diagnosis of substance use disorder, as defined by the Fourth Edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV).[214] However, in 2013, only 7 percent of privately insured individuals aged 12 and older with a substance use disorder received treatment from specialty treatment providers,[214] and total spending on treatment for substance use disorders makes up only 0.6 percent of overall private insurance spending.

Coverage of substance use disorder services under private insurance has waxed and waned over the past 30 years. During the 1980s, insurance benefits and specialty addiction providers expanded,[215,216] and from 1986 to 1992, substance use disorder spending grew by 6.7 percent annually, a substantial increase but still significantly below the 10.3 percent annual growth rate of all health care spending over the same period. This expansion was followed by managed care restrictions on reimbursement for substance use disorder treatment in inpatient settings, such as limitations on length of residential rehabilitation stays (a common treatment regimen).[217,218] As a result, inpatient substance use disorder treatment services declined from accounting for 50 percent of total spending for substance use disorder treatment in 1986 to only 19 percent in 2014 (**Figure 6.4**). Further, the share of substance use disorder financing from private insurance dropped dramatically between 1986 and 2014, from 32 percent in 1986 to 13 percent in 2005; this was followed by an increase to 18 percent in 2014, likely due to MHPAEA and qualified health plan coverage now being available through the Affordable Care Act.[211]

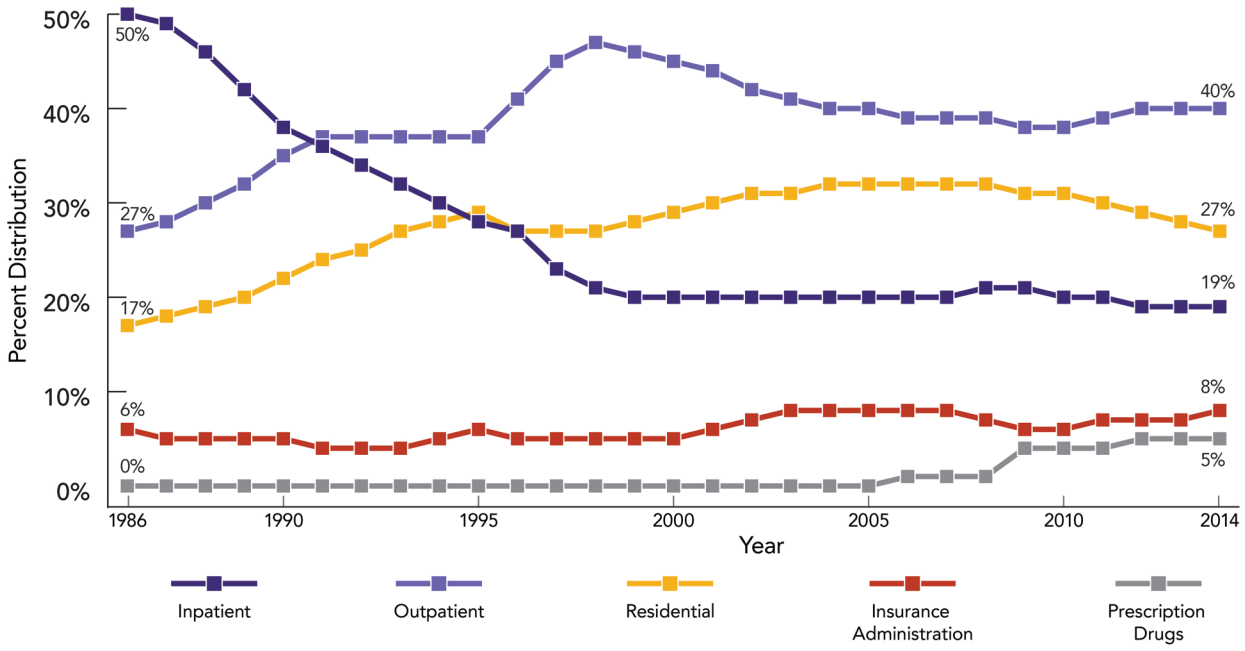
Medicaid

Approximately 20 percent of people in the United States have health coverage through Medicaid, a joint federal and state health coverage program that provides medical assistance for children, families, and individuals with low income and limited resources; an estimated 12 percent of adult Medicaid beneficiaries have a substance use disorder.[212] The federal government finances approximately 60 percent (national average) of Medicaid and the states finance the balance.[220] The federal medical assistance percentages (or "match") vary significantly among states, based on the state's per capita income and other factors.

FOR MORE ON THIS TOPIC

See the section on *"A Growing Impetus for Integration"* earlier in this chapter.

Figure 6.4: Percentage Distribution of Spending on Substance Misuse Treatment by Setting, 1986–2014



Source: Substance Abuse and Mental Health Services Administration, (2016).[167]

The federal government establishes basic requirements that states must follow in designing their Medicaid programs, including some mandated services that must be covered and guidance regarding payment rate-setting and contractual arrangements, eligibility and quality standards, and provision of optional services.[221] However, state implementation decisions can have a significant impact on what services are covered and for whom. States can choose to cover or not cover specific treatments or to place restrictions on covered services. In the past, some states have not included certain critical substance use disorder treatment options in their benefit packages (e.g., methadone), or they have restricted the doses or length of treatment, or added requirements such as prior authorization processes to obtain some treatments (e.g., buprenorphine). In many states, Medicaid also does not cover residential treatment, especially for adults.

For those who are eligible and have substance use disorders, Medicaid is an extremely important program, as it can cover many services that such individuals may need, such as crisis services and many preventive services. In addition, while Medicaid does not provide payments for housing (e.g., rental subsidies) or other room and board costs in the community, states can supplement Medicaid coverage with supportive services to help people maintain housing in collaboration with housing authorities.[222]

In states that did not expand Medicaid, racial and ethnic minorities are disproportionately affected. In addition, in these states, young adult single males—a group with high rates of substance use disorders—are ineligible for Medicaid benefits.[223]

An estimated 14 to 15 percent of uninsured individuals nationwide who could be newly eligible for Medicaid coverage under the Affordable Care Act have a substance use disorder.[35] If they obtain substance use disorder treatment, this will lead to an additional 450,000 previously uninsured individuals having access to affordable substance use disorder treatment.

Medicare

Medicare covers almost all individuals aged 65 or over as well as those eligible because of disabilities. Approximately 56.2 million, or 17 percent of individuals in the United States, have Medicare.[224] Approximately 3 percent of Medicare beneficiaries and 6 percent of those who are eligible for both Medicare and Medicaid have a substance use disorder in any given year.[226] Of these, 19.3 percent received specialty substance use disorder treatment, including individual, group, and/or family therapy.[225] In general, Medicare Parts A and B (or private Medicare Advantage plans under Part C) cover inpatient (but not residential) and outpatient services for substance use disorders, as well as substance use disorder screening and brief intervention. Prescription drug treatment is generally covered for beneficiaries enrolled in Medicare Part D (or a Medicare Advantage plan that includes drug coverage). Medicare does not cover outpatient use of oral methadone for substance use disorders, but Part D can include coverage for medications, such as disulfiram, naltrexone, acamprosate, and buprenorphine.

Other Federal, State, and Local Funding

Although insurance coverage is critical to improving access to and integration of services for individuals with substance use disorders, it is unlikely to cover all the services that such individuals may need, such as crisis services (e.g., emergency treatment intervention), housing, supported employment, and many community prevention programs and services (e.g., school-based prevention programs). These services are often supported by federal, state, and local governments and non-profit organizations, financed through general revenues and the SAMHSA Substance Abuse Prevention and Treatment Block Grant (SABG).

Uninsured Individuals

Research has shown that uninsured individuals have higher unmet medical needs than do insured individuals, and those without insurance also have higher rates of substance use disorders than do individuals with insurance.[226] Among uninsured individuals, 12 percent met DSM-IV criteria for a substance use disorder.[214]

Financing Community Prevention

Federal Funding Streams

Funds from federal block grants to states for substance use disorder treatment services (such as the SABG, which is often used for prevention activities) and for maternal, child, and adolescent health services (Title V of the Maternal and Child Health Services Block Grant) may be used to fill the gaps in treatment services not covered by insurance. These funds also finance treatment for people without insurance and support community prevention activities.[233]

In addition, federal funding for certain community prevention programs encourages public-private partnerships and community collaboration to improve health outcomes. Grants are used to increase screening, counseling, workplace wellness programs, and community prevention. In addition, federal funding for community prevention programs is available through the Drug Free Communities Support Program, which is funded by the White House Office of National Drug Control Policy and administered by SAMHSA.[234]

FOR MORE ON THIS TOPIC

See Chapter 3 - *Prevention Programs and Policies.*

Although investments in prevention have repeatedly demonstrated favorable economic returns,[235] primary prevention for all health conditions still accounts for less than 5 percent of overall health spending in the United States. Prevention should be seen as an appropriate health cost to be covered by insurance. Current funding options for community prevention, described below, include grants from hospital and health system foundations, hospital-based community benefit programs, tax earmarks, and targeted state programs.

Hospital and Health System Foundation Grants

Foundations formed from the conversion of tax-exempt non-profit hospitals and health systems into for-profit entities are required by federal law to invest in health-related activities within the community area served by that hospital.[236] These "health conversion foundations" or "new health foundations" now exist in more than 200 communities in the United States, and they are a potential source of funding for programs relating to the prevention and treatment of substance misuse.[237]

Non-profit Hospital Community Benefits

Beginning in 1994, tax-exempt hospitals have been required to provide benefits to the community in return for not paying taxes.[238] The Affordable Care Act clarified community benefit expectations for all non-profit hospitals. Tax-exempt hospitals must: (1) conduct a community health needs assessment at least once every 3 years; (2) involve public health experts and representatives of the community served by the facility in the needs assessment; (3) make the results of the assessment available to the public; (4) develop an implementation strategy to address each of the community health needs identified through the assessment; and (5) report yearly to the Internal Revenue Service.[239] The Secretary of the Treasury, in collaboration with the Secretary of Health and Human Services, must report annually to Congress on, among other things, hospitals' levels of charity care, related costs, and community benefit activities.

Although hospitals have flexibility in their definition of "community served by the facility," they are expected to define community by the geographic location, not by the demographic or geographic profiles, of patient discharges. Many states also have community benefit programs that must be synchronized with the requirements of the Affordable Care Act.[240] The 1997 IOM report *Improving Health in the Community* outlined how multiple stakeholders can conduct a community health assessment and share accountability for health outcomes of specific populations.[241]

Local or State Substance Use Tax Earmarks

In certain jurisdictions, direct funds from a local or state tax can be earmarked for substance misuse prevention in the same way as tobacco taxes are currently used for public health and health programming in many states.[242] Jackson County, Missouri, is an example of a local jurisdiction with a dedicated funding stream for substance use problem prevention.[243]

Financing Community Prevention, continued

Jackson County, Missouri, first introduced a dedicated sales tax in 1989 to tackle drug use and drug-related crime. This later became known as COMBAT—Community-Backed Anti-Drug Tax—and enabled Jackson County to approach the impact of drugs on individuals and communities as both a legal issue and a public health crisis. It was renewed for seven years in 2009, and the one-quarter of one-cent sales tax generates over $20 million per year. The funds are used for a variety of prevention, treatment, and anti-drug and drug-related crime prevention programs. In addition, Florida and Indiana, among other states, earmark alcohol taxes for child and adolescent substance use-related services.[244]

State Prevention Trust Funds

The Massachusetts Legislature passed the first state-based prevention fund, called the Prevention and Wellness Trust Fund, in 2012 as part of a health cost control bill. Funded through a one-time $57 million assessment, the Trust Fund is used to reduce the prevalence of preventable health conditions and lower health care costs. Grantees have a strong focus on extending care beyond clinical sites into the community.[245]

Challenges Facing the Integration of Substance Use Services and Health Care

It is clear that integrating substance use disorder services with mainstream health care is beneficial for individuals and communities and that health reform is encouraging this trend. However, several key challenges must be addressed if integration is to be fully successful. Specifically:

- The substance use disorder treatment system is underprepared to support care coordination;
- The primary care system has been slow to implement MAT as well as prevention, early identification, and other evidence-based recommendations;
- The existing health care workforce is already understaffed and often lacks the necessary training and education to address substance use disorders; and
- The need to protect patient confidentiality creates hurdles for sharing of information.

The Infrastructure of the Substance Use Disorder Treatment System Is Underdeveloped

The Congressional Budget Office currently estimates that by 2026, 24 million Americans who would otherwise be uninsured will obtain health insurance coverage as a result of the Affordable Care Act.[246] For those insured by insurance plans sold to small employers and in the individual market, substance use disorder services are considered an essential health benefit. As a result, the Affordable Care Act, coupled with MHPAEA is projected to expand access to mental and behavioral health services to more than 60 million Americans.[247]

However, the specialty care substance use disorder treatment system faces challenges along with these new opportunities.[248] That system is changing as health systems respond to new requirements, begin to provide services internally, and develop new contracting mechanisms.[249] Public substance use disorder

systems are also changing as they are presented with new funding options under Medicaid and other funding sources.[248]

Nationally representative data from the 2014 *National Drug Abuse Treatment System Survey* underscore the importance (but also the difficulty) of integrated care efforts.[250] Directors at only 15 percent of responding units reported signed contracts to work with a medical home, meaning that less than 50 percent of patients were receiving treatment in a program that was prepared to integrate general health care.[250] These data showed particularly dramatic differences between Medicaid expansion and non-expansion states,[250] with Medicaid expansion acting as a key driver of integrated care. Fifty-five percent of addiction treatment patients in expansion states are receiving care in organizations that at least have contractual linkages to some medical or health home arrangement.[251]

Substance use disorder treatment organizations currently face significant challenges in engaging in care coordination with other types of providers. Because these organizations have traditionally been organized and financed separately from general health care systems, the two systems have not routinely exchanged clinical information. Efforts to increase HIE are constrained by the relatively low use of EHRs. In a 2012 survey of treatment programs to assess their readiness for health reform, 63 percent described their organizations' adoption of EHRs as having not yet begun, or only in the early stages.[252] A 2015 study reported that substance use disorder treatment organizations across the nation are poorly positioned to work effectively with health homes or other health professionals.[253] Not surprisingly, organizations with annual budgets less than $5 million were less likely than larger ones to report high readiness.[254] Some evidence also suggests that publicly funded substance use disorder treatment centers are less technically proficient and less responsive to making changes than for-profit treatment facilities. For example, private, for-profit treatment facilities were significantly more likely to be early adopters of buprenorphine therapies than were their public or private non-profit peers.[255] Substantial technical assistance and investments in staff and information technology are needed, yet substance use disorder treatment providers receive relatively little assistance or resources from federal or state agencies to make these changes.[253] However, a February 29, 2016 State Medicaid Director Letter outlined that states, subject to prior approval by the Centers for Medicare & Medicaid Services (CMS), may use federal matching funds to connect Meaningful Use Eligible Medicaid Providers to other providers including substance use disorder treatment providers to support HIE and care coordination. This offers promise for increasing adoption and use of health IT by behavioral health providers.[256]

Another challenge for effectively coordinating care relates to the need for specialty substance use disorder treatment programs to comply with substance abuse confidentiality regulations (42 CFR Part 2) and state privacy laws when implementing health IT systems. In addition, substance use disorder treatment organizations face the challenge of communicating with non-health care personnel including those in social service, criminal justice, and educational facilities and even when EHRs are in place these systems lack interoperability (the ability to effectively exchange digital health information from an EHR in a common format) with the information systems used by social service organizations, hindering communication.

Medical homes are most likely to pursue contractual arrangements with large and technologically sophisticated organizations that are best equipped to meet their needs for timely clinical and administrative information. The move toward integrated care is therefore likely to accelerate

consolidation of substance use disorder treatment programs, which may hasten the adoption of new technologies and processes among sophisticated providers. Particularly in combination with expanded insurance coverage, this trend may attract new partnerships, for example between ACOs, which are integrated delivery systems, and more sophisticated specialty addiction providers. Yet, the same patterns may harm smaller providers, some of whom offer the only culturally competent services for particular patient groups, such as services tailored for specific racial and ethnic populations, sexual and gender minorities, or women in need of trauma-related residential services.[257-259]

Slow Implementation of Pharmacotherapies for Use in Treatment

One key challenge for integrating substance use treatment and health care is that implementation of pharmacotherapies (i.e., MAT) in primary care has been slow.[260] In part, this is due to the fact that health insurers individually determine whether they cover substance use medications[261] and treatment providers may not offer medications to patients with substance use disorders. A study of 2009–2010 national treatment center data found that only 25 percent of substance use disorder treatment centers offered medications for alcohol and/or drugs: 24.5 percent offered buprenorphine, 18.7 percent offered acamprosate, 17.3 percent offered tablet naltrexone, 15.9 percent offered disulfiram, 9.1 percent offered injectable naltrexone, and 9.0 percent offered methadone.[262] Studies have found that only 25 percent of private, for-profit treatment centers used buprenorphine, 15.6 percent used acamprosate, and 15.7 percent used disulfram. Research suggests that whether treatment programs offer MAT is influenced by a number of organizational and state-level factors, including differences in organizational size, whether the treatment program is in a hospital setting, whether psychiatric medications are prescribed, whether the program has access to prescribing staff, and whether state Medicaid policies support the use of generic drugs.[263-266]

Another medication, extended-release injectable naltrexone, approved by the FDA for use in treating individuals with opioid use disorders, is underutilized by programs. For example, one study found that only three percent of United States treatment programs used it for opioid use disorders.[267] In contrast, buprenorphine for opioid use disorder is becoming more established, although it too is underused. One study found that between 2005 and 2011, its use for detoxification in specialty opioid treatment programs (OTPs) increased from 36 percent of programs in the sample to 46 percent; its use for maintenance increased from 37 percent of programs in the sample to 53 percent.[268] One deterrent to rapid expansion of access to buprenorphine has been the limit on the number of patients a certified physician can treat with buprenorphine. A recent study found that raising this limit further, rather than increasing the number of specialty addiction programs or waivered physicians, may be the most effective way to increase buprenorphine use.[269] Up until July 2016, qualified practitioners were allowed to treat a maximum of 30 patients at a time the first year and up to 100 patients at a time thereafter. On July 6, 2016, HHS issued a final rule for "Medication Assisted Treatment for Opioid Use Disorders," which increased access to buprenorphine medications in the office-based setting as authorized under the Controlled Substances Act 21 U.S.C. 823(g)(2).[270] The rule allows eligible practitioners to request approval to treat up to 275 patients under section 303(g)(2) of the Controlled Substances Act.

Limited Implementation of Prevention, Early Identification, and Other Evidence-based Recommendations

Another key challenge is that primary care settings have not yet routinely implemented recommended preventive health and intervention services related to substance misuse. Currently, the Affordable Care Act requires that all non-grandfathered health plans must cover, without cost-sharing, certain preventive health services recommended by the USPSTF,[271] and women's preventive services and preventive services for infants, children, and adolescents in guidelines supported by HRSA. As discussed earlier, the USPSTF recommends alcohol screening and counseling for adults. However, none of the 22 women's health guidelines, which are being updated at the time of this *Report*, or 26 children/adolescent guidelines supported by HRSA include a screening requirement related to alcohol use.[42,43]

Studies of SBIRT for alcohol use problems have identified many implementation challenges.[272-277] Some of the most commonly noted challenges include the intense time constraints experienced in modern clinical settings,[276] the multiple competing preventive and clinical priorities faced by providers,[278] inadequate health care professional training on alcohol SBI techniques,[277] and providers' feelings that they are unable to address sensitive health issues adequately.[279] Currently, only about one in six adults in the United States reports being asked about their drinking,[280] and less than 10 percent of health plans verify that screening is performed.[281] In pediatric health care settings, other issues, especially restrictions on disclosure of confidential information to parents (which varies by state), also pose challenges.[282]

The USPSTF currently considers the evidence to be insufficient to support screening or behavioral interventions for substance misuse problems in pediatrics.[43,283] However, a number of studies, funded by the National Institutes of Health (NIH) and foundations such as The Conrad N. Hilton Foundation, are currently underway that could add to the evidence base. Major pediatric medical organizations, including the American Academy of Pediatrics, strongly recommend addressing these issues regularly at each well-adolescent visit and appropriate urgent care visits.[284] *Bright Futures*, a HRSA-funded program, sets Recommendations for Preventive Pediatric Health Care and includes alcohol and drug use screening within its recommended schedule for an annual clinical preventive visit for adolescents and young adults between the ages of 11 and 21. The Affordable Care Act requires health plans to cover, at no out-of-pocket cost to families, the preventive care services outlined in this schedule. *Bright Futures* discusses how to incorporate screening into the preventive services visit for these age groups. In addition, SAMHSA recommends universal screening and brief intervention and referral to treatment at each well-visit,[285] and the National Institute on Alcohol Abuse and Alcoholism (NIAAA) recommends universal screening for alcohol misuse.

Screening and brief intervention for substance misuse is also consistent with the prevention activities recommended in the 2009 IOM report *Preventing Mental, Emotional, and Behavioral Disorders Among Youth: Progress and Possibilities*.[286] Yet screening is seldom addressed according to guidelines or with appropriate evidence-based practices,[287,288] and even when screenings are conducted, appropriate follow-up is often not provided.[289,290] However, SBIRT can be effectively implemented, both for adults and adolescents,[291,292] and it is likely that many more systems will do so to comply with new requirements by

The Joint Commission and in the Affordable Care Act. The Joint Commission Requirements mandate that hospitals offer inpatients brief counseling for alcohol misuse and follow-up, and measure the provision of counseling as one of the core measures for hospital accreditation. Primary care teams that include non-physician providers (e.g., nurses, health educators) are increasingly used for substance use disorder, mental health, and other disease management, and they have proved to be a viable approach for implementing alcohol SBIRT.[291,293-298]

Meeting Challenges in Primary Care

Several large health systems, such as the Veterans Health Administration and Kaiser Permanente, have successfully implemented primary care-based alcohol SBI in a sustainable manner.[299-302] They have used a variety of approaches to accomplish this goal, including:

- Integrating screening, assessment, and clinical decision support tools in the EHR;
- Establishing interdisciplinary (primary care, substance use disorder treatment, and mental health) teams to guide integration and collaboration;
- Ensuring health system leadership support; and
- Using training curricula, targeted communications materials, robust performance feedback reporting for physicians and other staff, and existing financial incentives.[278,291,303-305]

These approaches can also be implemented in emergency departments and in obstetrics and gynecology departments.

The Health Care Workforce Is Limited in Key Ways

Workforce Shortages

Data on the substance use workforce are incomplete.[306] Although HRSA collects data on mental health workforce shortage areas, the agency does not collect similar data on the substance use disorder treatment workforce. Nevertheless, it is clear that the workforce is inadequate, as evidenced by its uneven geographic distribution (with rural areas underserved), access barriers for adolescents and children, and recruitment challenges across the treatment field. Moreover, the workforce is aging. For example, 46 percent of psychiatrists are older than age 65.[307,308] As of June 2016, more than three-quarters of United States counties had severe shortages of psychiatrists and other types of health care professionals needed to treat mental health and substance use disorders.[309] The scarcity of providers who can provide culturally competent services for minority populations and the high turnover rate, both noted in SAMHSA's 2013 Report to Congress[307] and other studies, exacerbate the workforce shortage.[310,311]

Recent reforms may strain the current workforce in an already overstretched health care system working to address treatment and prevention strategies. A recent study documented staffing models in primary care practices and determined that, even among those designated as patient-centered medical homes, fewer than 23 percent employed health educators, pharmacists, social workers, nutritionists, or community service coordinators, and fewer than half employed care coordinators.[312] The opioid epidemic has made the shortage of these types of health care professionals an even larger problem.[310]

Thus, it is crucial that health care professionals are given comprehensive training on the prevention and treatment of substance use disorders when patients present with comorbid conditions.[32]

The IOM's 2006 report *Improving the Quality of Health Care for Mental and Substance Use Conditions,*[32] which adapted *Crossing the Quality Chasm* to address mental and substance use conditions, noted that a critical concern in attracting a skilled workforce is the low salary structure of the substance use disorder treatment workforce. Much of the public treatment system is funded by Medicaid and SAMHSA's SABG. In practice, the Block Grant is used broadly, and Medicaid less and only with a subset of providers. It is not yet clear whether the integration of substance use disorder treatments in general health care will help to address salary structure.

Composition and Education

An integrated health and substance use disorder treatment system requires a diverse workforce that includes substance use disorder specialists, physicians, nurses, mental health treatment providers, care managers, and recovery specialists. This workforce also includes peer recovery coaches (a reimbursable service under some state Medicaid programs), health educators, social workers, and other staff who are trained to deliver timely mental health and substance use-related health interventions, such as SBI.[32] However, Medicare, and in some states Medicaid, restricts "billable" health care professionals to physicians (including psychiatrists), nurse practitioners and clinical nurse specialists, physician's assistants, clinical psychologists, clinical social workers, and certain other specified practitioners, and does not include as billable the multiple other licensed and certified professionals who are trained to provide services for substance use disorders.

As substance use disorder treatment and general health care become more integrated, clinical staff in both systems will need to expand their scope of work, operate in an integrated manner with a variety of populations, and shift their treatment focus as needed.[313-315] Being able to assess substance use disorder severity and co-occurring mental health and physical health problems will be important in each setting. Health care professionals moving from the specialty workforce into integrated settings will require specific training on treatment planning and care coordination and an ability and willingness to work under the leadership of medical staff. This transition to a highly collaborative team approach, offering individually tailored treatment plans, presents challenges to the traditional substance use disorder treatment workforce that is used to administering standard "programs" of services to all patients. Working in teams with the broad mandate of improved health is not currently commonplace and will require collaboration among professional and certification bodies. Incorporating peer workers, who bring specific knowledge of patients' experiences and needs and can encourage informed patient decision making, into teams will also require further adjustment.

Improving the Quality of Health Care for Mental and Substance Use Conditions also discussed the shortage of skills both in specialty substance use disorder programs and in the general health care system.[32] Of special concern was the inadequacy of substance use education as part of medical school training: Only 8 percent of medical schools had a separate required course on addiction medicine and 36 percent had an elective course;[32,316] on average, the residency curriculum for psychiatrists included only 8 hours on substance use disorders.[32,317] Schools of social work and psychology also provided little, and sometimes no, mandatory education on substance use-related problems.[32] The situation does not appear to have

substantially changed since that report was released, although the recent recognition of addiction medicine as a subspecialty by the American Board of Medical Specialties should provide increased focus and perhaps attract more physicians to this field.

Workforce Development and Improvement

The Annapolis Coalition on the Behavioral Health Workforce provided a framework for workforce development in response to the challenges described above,[318] focusing on broadening the definition of "workforce" to address needed changes to the health care system. Currently, 66 organizations license and credential addiction counselors,[319,320] and although a consensus on national core competencies for these counselors exists,[321] they have not been universally adopted. Credentialing for prevention specialists exists through the International Certification & Reciprocity Consortium,[322,323] but core competencies for prevention professionals have not been developed. Without a comprehensive, coordinated, and focused effort, workforce expansion and training will continue to fall short of the challenge of meeting the needs of individuals across the continuum of service settings.

HRSA has taken a number of steps to address these workforce challenges as part of its mission to prepare a diverse workforce and improve the workforce distribution to increase access for underserved communities. Among its many programs, HRSA awards health professional and graduate medical education training grants and operates scholarship and loan repayment programs. Of particular note is the National Health Service Corps, where, as of September 2015, roughly 30 percent of its field strength of 9,683 was composed of behavioral health providers, meeting service obligations by providing care in areas of high need.[324] HRSA is also putting increased emphasis on expanding the delivery of medication-assisted treatment, increasing SBI, and coordinating RSS. The development of the workforce qualified to deliver these services and services to address co-occurring medical and mental disorders will have significant implications for the national workforce's ability to reach the full potential of integration.

Protecting Confidentiality When Exchanging Sensitive Information

Effectively integrating substance use disorder treatment and general health care requires the timely exchange of patient health care information. In the early 1970s, the federal government enacted Confidentiality of Alcohol and Drug Abuse Patient Records (42 U.S.C. § 290dd-2), and released regulations (42 CFR Part 2) to protect the confidentiality of substance use disorder treatment data. These privacy protections were motivated by the understanding that discrimination attached to a substance use disorder might dissuade people from seeking treatment, and were enacted in the context of patient methadone records being used in criminal cases. Due to its targeted population, 42 CFR Part 2 provides more stringent federal protections than most other health privacy laws, including the Health Insurance Portability and Accountability Act (HIPAA – 45 CFR Part 160 and 164). HIPAA does not require patient authorization to share health information for purposes of treatment, payment, or health care operations. With 42 CFR Part 2, patient consent is required to share and use patient identifying information and any information that could be used to identify someone as having, or having had, a substance use disorder, such as payment data.

Given the long and continuing history of discrimination against people with substance use disorders, safeguards against inappropriate or inadvertent disclosures are important. Disclosures to legal

authorities can lead to arrest, loss of child custody, or relinquished parental rights. Disclosures to insurers or to employers can render patients unable to obtain disability or life insurance and can cost patients their jobs. Currently, persons with substance use disorders involving illicit drugs are not protected under anti-discrimination laws, such as the ADA.

However, exchanging treatment records among health care providers has the potential to improve treatment and patient safety. For example, in the case of opioid prescribing, a study in health systems of long-term opioid users found those with a prior substance use disorder diagnosis received higher dosages and were co-prescribed sedative-hypnotic medications—which can increase the risk for overdose—more often. Because of privacy regulations, it is likely that physicians were not aware of their patients' substance use disorders.[52] In most states, these challenges are now partially addressed through prescription drug monitoring programs (PDMPs), which are also helping to support care coordination.

PDMPs are state-run databases that collect prescribed and dispensed controlled prescription drug information and give prescribers and pharmacists access to a person's controlled substance prescription history. Authorized providers can check the database before prescribing or dispensing. However, PDMPs have many limitations. They do not include information about methadone used for opioid use disorders, which is exclusively dispensed at OTPs, or from programs covered by 42 CFR Part 2. While disclosure of patient-identifying information that is subject to 42 CFR Part 2 is allowable, it would require written patient consent, and re-disclosures of this information would not be permitted unless the patient consents. However, any information in the PDMP database could be potentially seen by anyone who has access to the state PDMP data and therefore may be in violation of Part 2. In addition, PDMPs only collect prescription information as allowed by their state laws, in most cases controlled substances Scheduled II through IV or V, and thus health care professionals may not be aware of other prescriptions their patients are receiving.[326] Further, the extent to which the PDMP systems are effectively designed and used is not fully known.[327]

As EHR interoperability and the exchange of health information increases, best practices must be developed for handling substance use disorder treatment data, consistent with state and federal privacy laws. It will be important that EHR technologies develop the functionality to share health information electronically while complying with HIPAA, 42 CFR Part 2, and state privacy statutes. One approach to sharing protected data electronically is called Data Segmentation for Privacy (DS4P), an optional criterion under the Office of the National Coordinator for Health Information Technology's (ONC's) 2015 Edition Health IT Certification Criteria.[325] SAMHSA recently developed an open source tool called Consent2Share (C2S), which is based on DS4P and allows patients to electronically create and manage consent directives specifying which providers can access their data.

Promising Innovations That Improve Access to Substance Use Disorder Treatment

Clearly, integrating health care and substance use disorder treatment within health care systems, as well as integrating the substance use disorder treatment system with the overall health care system, are complex undertakings. The good news, however, is that a range of promising health care structures, technologies,

and innovations are emerging, or are being refined and strengthened, under health reform. These developments are helping to address challenges and facilitate integration. In so doing, they are broadening the focus of interventions beyond just the treatment of severe substance use disorders to encompass the entire spectrum of prevention, treatment, and recovery. These promising developments include:

- Medicaid innovations;
- EHRs and health IT;
- Disease registries; and
- Substance misuse and substance use disorder prevention through a public health approach.

Medicaid Innovations

Medicaid is not only an increasing source of financing for substance use disorder treatment services, it has become an important incubator for innovative substance use disorder financing and delivery models that can help integrate substance use disorder treatment and mainstream health care systems. Within the substance use disorder treatment benefit, and in addition to providing the federally required set of services, states also may offer a wide range of recovery-oriented services under Medicaid's rehabilitative services option. These services include therapy, counseling, training in communication and independent living skills, recovery support and relapse prevention training, skills training to return to employment, and relationship skills. Nearly all states offer some rehabilitative mental health services, and most states offer the rehabilitation option for substance use disorder services.[328]

CMS provides various authorities by which states can structure their Medicaid programs, thus providing mechanisms for states to expand and improve their substance use disorder treatment delivery system: This includes authorities to:[328-330]

- Offer coordinating, locating, and monitoring activities broadly and create incentive payments for providers who demonstrate improved performance on quality and cost measures (section 1905(t));
- Establish Alternative Benefit Plans (ABPs), which require that substance use disorder services are included and comply with mental health parity standards (section 1937);
- Establish voluntary or mandatory managed care plans, which require parity protections for enrolled individuals (sections 1915(a) and 1915(b) authorities, and section 1932 State Option to Use Managed Care);
- Provide home and community-based services and supports (sections 1915(c), 1915(i), 1915(j), and 1915(k));
- Develop health homes (section 1945 Health Home State Plan Option); and
- Conduct demonstrations to test policy innovations (section 1115).

Recently, CMS gave states new opportunities to design service delivery systems for substance use disorders through demonstration projects under section 1115. This initiative is designed to support states to provide coverage for the full continuum of care; ensure that care is delivered consistent with the ASAM Treatment Criteria; design strategies to coordinate and integrate care; and support quality

improvement programs. In 2014, CMS launched the Medicaid Innovation Accelerator Program, which aims to improve "health and health care for Medicaid beneficiaries by supporting states' efforts to accelerate new payment and service delivery reforms."[331] CMS identified substance use disorders as the program's first area of focus. The agency is providing technical and program support to states to introduce policy, program, and payment reforms to identify individuals with substance use disorders, expand coverage for effective treatment, expand access to services, and develop data collection, measurement, and payment mechanisms that promote better outcomes. Medicaid is also encouraging the trend to integration in other ways, including supporting new models for delivering primary care, expanding the role of existing community-based care delivery systems, enacting mental health and substance use disorder parity for Medicaid and Children's Health Insurance Program (CHIP) as included in the final rule that CMS finalized in March 2016. This rule requires that Medicaid enrollees in managed care organizations (MCOs) and in ABPs have access to coverage for mental health and substance use services that is in parity to coverage of medical benefits and will benefit the over 23 million people enrolled in MCOs, Medicaid ABPs, and CHIP.

Health Homes

Health homes are grounded in the principles of the primary care medical home, which focuses on primary care-based coordination of diverse health care services, and patient and provider engagement. The Affordable Care Act created an optional Medicaid State Plan benefit allowing states to establish health homes to coordinate care for participants who have chronic health conditions. Health homes operate under a "whole-person" philosophy that involves integrating and coordinating all primary, acute, behavioral health, and long-term care services to address all the individual's health needs.

Beneficiaries with chronic conditions are eligible to enroll in health homes if they experience (or are at risk for) a second chronic condition, including substance use disorders, or are experiencing serious and persistent mental health conditions.[332] Such care arrangements are particularly pertinent to individuals with substance use disorders who experience severe co-occurring physical and/or mental disorders. These arrangements emphasize integration of care, targeting of health home services to high-risk populations with substance use and mental health concerns, and integration of social and community supports with general health services.

As of January 2016, 19 states and the District of Columbia had established Medicaid health home programs – covering nearly one million individuals – and nearly a dozen additional states had plans for establishing them. States such as Vermont, Maryland, and Rhode Island have implemented health home State Plan Amendments (SPAs) with substance use-related provisions.[333] Seven other states specifically identify individuals with substance use disorders as a target population.[334] Many other SPAs include behavioral health care arrangements that encompass substance use disorders.[334,335]

States that implement Medicaid health homes receive substantial federal subsidies, including 90 percent federal matching rates for health home services during the first eight quarters after the effective date of health home coverage under the Medicaid state plan, covering comprehensive case management, coordinating services and health promotion, comprehensive transitional care from inpatient to other settings, individual and family support services, linkage and referrals to community-based services, and health IT.[336,337]

In some settings, these integrated care models are associated with reduced cost and improved cost-effectiveness,[338] and research is underway to test new models. Recognizing the important role that these kinds of integrated care arrangements can play, the American Academy of Family Physicians and SAMHSA have issued reports promoting the inclusion of substance use and mental health services in patient-centered medical homes and related efforts.[248,339,340] Much remains to be implemented in both public and private systems, but health systems are responding in a variety of ways to address substance use issues and their efforts will be key in improving treatment quality and outcomes.[249,341]

Accountable Care Organizations

Another Affordable Care Act provision created opportunities to encourage the integration of primary and specialty care, as well as community and public health systems, by establishing integrated delivery systems known as ACOs.[238] ACOs include health care professionals and hospitals that are responsible, together, for the total health of their patient populations. The motivation behind ACOs is that by being responsible for the overall health of patients and coordinating the care they provide, the collaborating health systems can achieve the "three part aim" of better quality care for individuals, reduced per capita costs, and improved population health.[342] Because ACOs can include a range of different types of providers across a defined region, they interpret "population health" in two broad ways: as a "panel population," referring to all the patients participating in the health delivery system, and as a "geographic population," referring to all who live in the ACO's defined geographic catchment area.[343]

An ACO that focuses on the larger community is called an accountable care community (ACC). ACCs are an important variation on the ACO model because, by focusing on the larger community, they can address the social determinants of health and health disparities that have such a profound impact on community members' health and well-being, including their risks for substance misuse, substance use disorders, and related health consequences.[344]

Initially developed as a model under Medicare, ACOs have now also been encouraged under Medicaid for its covered populations.[345-348] The CMS State Innovation Models (SIM) Initiative supports the development and testing of state-based models for multi-payor payment and health care delivery system transformation for improving the performance of health systems. An underlying assumption of the new service delivery and payment models funded in the SIM states is that they will be more effective and produce better outcomes when implemented as part of a broad-based, statewide initiative that brings together multiple payors and stakeholders, and when they use the levers of state government to effect change.

The SIM states are leading the implementation of accountable care systems for Medicaid populations that embrace population health (for SIM states, this is defined as health of the community in a geographic area as opposed to the population of patients in the health delivery system). Several states have adopted ACC models that support integration of medical health care services with public health and community-based programs.[238] For example, Akron in Summit County, Ohio, set up one of the first ACCs to implement community-wide public-private partnerships to improve the health of the overall population.[349] Maine's accountable communities, Oregon's CCOs, and Minnesota's accountable communities are partnering with local public health authorities and other community entities to achieve this goal.[350]

Oregon's CCOs are a network of all types of health care professionals (physical health care, addiction and mental health care, and dental care providers) who have agreed to work together to serve people who receive health care coverage under Oregon's Medicaid plan, which is called Oregon Health Plan. The Oregon Health Authority publishes regular reports on quality, access, and progress toward benchmarks in both prevention and treatment.[351] Oregon Medicaid CCOs are currently reporting, and showing progress on, three quality measures specific to substance use: use of SBIRT, initiation of substance use treatment, and engagement in treatment.

Federally Qualified Health Centers

Increased insurance coverage and other provisions of the Affordable Care Act have sparked important changes that are facilitating comprehensive, high-quality care for people with substance use disorders. For example, the Affordable Care Act provided mandatory funding for Federally Qualified Health Centers (FQHCs) receiving grants under section 330 of the public health service act, including community health centers, migrant health centers, health care for the homeless health centers, and public housing primary care centers that is supporting the expansion of their activities and numbers of patients served.

These community health centers emphasize coordinated primary and preventive services that promote reductions in health disparities for low-income individuals, racial and ethnic minorities, rural communities, and other underserved populations. Two-thirds of health centers have been designated as PCMHs.[352] PCMHs emphasize care, coordination, and communication to improve health care quality, lower health care costs, and enhance both the patient and provider experience.

Community health centers provide primary and preventive health services to medically underserved areas and populations and may offer behavioral and mental health and substance use services as appropriate to meet the health needs of the population served by the health center. As such, they are well-equipped to address co-occurring physical, mental, and substance use disorders, and provide substance misuse prevention, treatment, and RSS to patients. Because they provide services regardless of ability to pay and are required to offer services on a sliding scale fee, they are well-positioned to serve low-income and economically vulnerable patients.

An example of the important role FQHCs can play in improving access to treatment for substance use disorders is their efforts in providing buprenorphine maintenance treatment for opioid-dependent patients within primary care. In 2016, $94 million was awarded by HRSA to 271 health centers in 45 states, the District of Columbia, and Puerto Rico with a focus on augmenting capacity to treat opioid use disorders in vulnerable populations. FQHCs have access to 340B drug pricing, making the purchase of substance use disorder medications less costly and thus more accessible than for providers who cannot take advantage of this pricing.[353] Recent services research indicates that such arrangements can achieve comparable outcomes to those achieved within the specialty addiction treatment sector.[354]

Electronic Health Records and Health Information Technology

EHRs and health IT have the potential to support better coordination of services across primary care and specialty substance use disorder treatment, greater safety by reducing harmful drug-drug interactions, and improved monitoring of treatment outcomes and relapse risk in general health care.

Strong health IT systems improve the organization and usability of clinical data, thereby helping patients, health care professionals, and health system leaders coordinate care, promote shared decision-making, and engage in quality improvement efforts. These systems have the capacity to easily provide information in multiple languages and to put patients in touch with culturally appropriate providers through telehealth.

"Meaningful use" rules from CMS now provide incentives for the use of certified health IT to facilitate care coordination. Medicare and Medicaid EHR Incentive Programs have thus far paid more than $34.5 billion in incentive payments for providers who adopt, implement, upgrade, and use certified EHR technology.[355] These incentives have worked: The *National Electronic Health Record Survey* found that as of 2014, more than 80 percent of primary care physicians had adopted an EHR, and more than half were using all basic functions.[356] These were the highest rates of any physician type using certified EHRs.

KEY TERMS

Meaningful Use. Using certified EHR technology to improve quality, safety, efficiency, and reduce health disparities; engage patients and family; improve care coordination and population and public health; and maintain privacy and security of patient health information.[2]

Health IT has shown benefits in improving care for patients with chronic conditions,[357] and use is expected to greatly increase because of the Affordable Care Act and related incentives, such as grants supporting health center networks with the implementation and adoption of health IT.[358-361] To further heighten uptake and implementation, CMS issued new rules to "ease the reporting burden for providers, support interoperability, and improve patient outcomes," including giving states and providers more time to comply with regulations and focusing on health information interoperability between providers and patients.[335,362] Additionally, CMS recently published its proposed rule on the Medicare Access and CHIP Reauthorization Act (MACRA) of 2015, providing incentives for using health IT to report quality measure results.

Health IT also holds great potential for improving services for individuals with substance misuse problems because they can provide up-to-date medical histories of patients to providers, and they can support care coordination by facilitating communications between primary and specialty care providers across health systems.[363] Clinical decision support tools can also help support improvements in care and include clinical guidelines, diagnostic support, condition-specific order sets, computerized alerts and reminders to care providers as well as patients, focused patient data reports and summaries, documentation templates, and contextually relevant reference information, among others. For example, educational and training materials including clinical guidelines for physicians (e.g., *Helping Patients Who Drink Too Much: A Clinician's Guide*[364]), can be made available through EHRs. Many health systems have additional information on wikis for patients and providers. Most have or will have patient portal websites, which can provide patients access to health, mental health, and substance use self-assessments; computerized interventions for reducing alcohol or drug use, anger management, dealing with depression, and other

KEY TERMS

Clinical Decision Support. A system that provides health care professionals, staff, patients, or other individuals with knowledge and person-specific information, intelligently filtered or presented at appropriate times, to enhance health and health care.

problems; referral sources for smoking quit-lines and self-help groups; information on medications for substance use disorders; and general health information.

Although research suggests that patients with substance use disorders are not using patient portals as much as individuals with other conditions,[365] they have great potential for reaching patients.[366-368] In particular, because they can be culturally relevant, these innovations may be helpful in providing substance use disorder services to individuals who do not have access to, or are hesitant to participate in, traditional services, or to augment those services, thereby helping to reduce health disparities.

To foster systems change, efforts are needed to increase adoption of EHR technology in substance use disorder and mental health treatment organizations. These programs currently lag and are likely to continue to lag behind the rest of medicine. It will be critical to facilitate the uptake of EHRs within the specialty substance use disorder treatment system, to implement common data standards to support interoperability across specialty substance use disorder treatment and mainstream health care, and to coordinate care across systems. The federal interagency Behavioral Health Coordinating Council recently created a quality metrics subcommittee tasked with ensuring that substance use and mental health performance and quality measures are consistently and appropriately included across payment systems of HHS, including diverse programs within CMS. The National Institute on Drug Abuse (NIDA) and NIAAA have developed common data elements for inclusion in EHRs, and SAMHSA supports the development of data standards for collecting behavioral health data in EHRs through the international standards development organization, Health Level 7, though none of these standards has been widely implemented to date.[364,369,370]

PDMPs are becoming an increasingly important health IT tool for preventing substance misuse and identifying patients with substance use disorders. As discussed above, PDMPs are state-run databases that collect prescribed and dispensed controlled prescriptions drug information and give providers and pharmacists access to information about a person's controlled substance prescription history. They are designed to help identify patients (as well as providers) who are misusing or diverting (i.e., channeling drugs into illegal use) these medications who would benefit from early interventions. This technology represents a promising state-level intervention for improving opioid prescribing, informing clinical practice, and protecting patients at risk in the midst of the ongoing opioid overdose epidemic. A number of states have passed legislation requiring prescribers to check their PDMP before prescribing controlled substances. Additional research is needed to identify best practices and policies to maximize the efficacy of these programs.

Disease Registries

Databases related to specific diseases or combinations of diseases have long been used by health care professionals to manage chronic conditions such as diabetes or HIV/AIDS. Now these disease registries are being developed for substance use disorders, such as opioid use disorder.[371] Although privacy concerns exist, disease registries can alert providers to the health care needs of those at risk because of substance misuse, including patients receiving opioids for chronic pain. Even low levels of alcohol and drug use are important factors in this population.[372]

Prevention of Substance Misuse and Substance Use Disorders Through Public Health Approaches

Because substance use disorders often first come to light in the context of school, law enforcement, and employment, communities have many opportunities to expand the delivery of prevention and treatment services to include schools and school-based health care clinics, jails and prisons, and places of employment. Services provided in these settings can range from prevention education to SBIRT to treatment for substance use disorders. For example, law enforcement and emergency medical services in many communities are already collaborating in the distribution and administration of naloxone to prevent opioid overdose deaths.

These efforts require a public health approach and the development of a comprehensive community infrastructure, which in turn requires coordination across federal, state, local, and tribal agencies. A number of states are developing promising approaches to address substance use in their communities. One recent example is Minnesota's 2012 State Substance Abuse Strategy, which includes a comprehensive strategy focused on strengthening prevention; creating more opportunities for intervening before problems become severe; integrating the identification and treatment of substance use disorders into health care reform efforts; expanding support for recovery; interrupting the cycle of substance use, crime, and incarceration; reducing trafficking, production, and sale of illegal drugs; and measuring the impact of various interventions.[373]

Comprehensive Addiction and Recovery Act (CARA)

On July 22, 2016, President Obama signed the Comprehensive Addiction and Recovery Act (CARA), into law. CARA aims to address the national epidemic of opioid addiction by creating and expanding federal grant programs to:

- Temporarily expand eligibility to prescribe buprenorphine-based drugs for MAT for substance use disorders to qualifying nurse practitioners and physician assistants, through October 1, 2021;
- Expand access to opioid overdose reversal drugs, by supporting the purchase and distribution of such medications and training for first responders;
- Increase awareness and educate the public regarding the misuse of prescription opioids;
- Reauthorize the National All Schedules Prescription Electronic Reporting (NASPER) Act, which provides grants to states to support and improve interoperability of PDMPs;
- Authorize Medicare prescription drug plans to develop a safe prescribing and dispensing program for beneficiaries that are at risk of misuse or diversion of drugs that are frequently abused or diverted;
- Create a comprehensive program at U.S. Department of Justice to improve efforts by law enforcement and the criminal justice system to address substance use disorders; and
- Establish an HHS-led task force to consolidate federal best practices for pain management.

These measures are important steps for reducing the impact of prescription drug misuse on America's communities by preventing and responding to opioid addiction. However, given the large number of Americans with untreated or inadequately treated opioid use disorders and the current scarcity of treatment resources, there is concern that the lack of funding for the bill will prevent this new law from having a substantial impact on the nation's ongoing opioid epidemic.

The opioid guideline published by the Washington State Agency Medical Directors' Group is another useful example. This group is composed of medical directors from seven state agencies, including the Department of Labor and Industries, the Health Care Authority, the Board of Health, the Health Officer, the Department of Veterans Affairs, the Office of the Insurance Commissioner, and the Department of Corrections. In 2007, the group developed its first opioid prescribing guideline in collaboration with practicing physicians, with the latest update released in 2015.[374] The guideline offers an approach to pain management that includes recommendations for appropriate opioid prescribing and management.

States' and localities' efforts to expand naloxone distribution provide another example of building a comprehensive, multipronged, community infrastructure. Many communities have recognized the need to make this potentially lifesaving medication more widely available. For example, community leaders in Wilkes County, North Carolina, implemented *Project Lazarus*, a model that expands access to naloxone for law enforcement, emergency services, education, and health services, and reduced the county overdose rate by half within a year. North Carolina also passed a law in 2013 that implemented standing orders, allowing naloxone to be dispensed from a pharmacy without a prescription.[375]

States have also expanded training on naloxone use for opioid users and their families and friends, as well as for a wide range of social service agency personnel. Federal partners have been instrumental in expanding access to naloxone training. HRSA established the Rural Opioid Overdose Reversal program in fiscal year 2015, awarding grants of $100,000 to 18 recipients representing 13 states to increase access to naloxone and train health care professionals and other social service personnel to administer the drug. In 2016, SAMHSA also provided $11,000,000 in funding to prevent prescription drug/opioid overdose-related deaths among individuals aged 18 or older by training first responders and other community stakeholders on prevention strategies.

A few states have passed legislation to make naloxone more readily available without a prescription if certain procedures are followed.[376,377] As of July 2015, 30 states have passed laws to provide legal protection to physician prescribers and to bystanders ("Good Samaritans") who administer naloxone when encountering an overdose situation.[378] Additionally, 48 states allow pharmacists to enter into Collaborative Pharmacy Practice Agreements with prescribers, which allow naloxone to be dispensed to those who may be able to use it to save lives.[379] For example, the Rhode Island Board of Pharmacy approved this type of agreement, which began in 2011 as a pilot program in five pharmacies. This program was expanded to all interested pharmacies in 2013 and formalized in regulation in 2014.[380,381]

States have also expanded naloxone coverage under Medicaid. The CDC reported more than 26,000 overdose reversals by lay people between 1996 and 2014, all using naloxone.[382] Health systems are developing protocols to dispense naloxone through primary care providers, pharmacies, and emergency departments. The need to engage individuals in services to address their opioid use is a critical next step following an overdose reversal. This becomes increasingly challenging as naloxone kits are distributed widely, rather than when distribution is limited to health care and substance use disorder treatment providers. In 2013, the State of Vermont implemented an innovative treatment system with the goal of increasing access to opioid treatment throughout the state. This model, called the "Hub and Spoke" approach, met this need by providing physicians throughout the state with training and supports for providing evidence-based buprenorphine treatment.

The result has been:[383,384]

- An increase in the number of physicians providing buprenorphine treatment by over 40 percent;
- The transition of several hundred individuals served in traditional OTP programs to certified physicians in primary care settings;
- Better access throughout the state to opioid treatment due to the expansion of entry points, and physician/OTP coordination; and
- An increased integration of primary care and addiction treatment.

Recommendations for Research

A key finding from this chapter is that the traditional separation of specialty addiction treatment from mainstream health care has created obstacles to successful care coordination. Research is needed in three main areas:

- Models of integration of substance use services within mainstream health care;
- Models of providing ongoing, chronic care within health care systems; and
- Models of care coordination between specialty treatment systems and mainstream health care.

In each of these areas, research is needed on the development of interventions and strategies for successfully implementing them. Outcomes for each model should include feasibility, substance use and other health outcomes, and cost.

Although a great deal of research has shown that integrating health care services has potential value both in terms of outcomes and cost, only a few models of integration have been empirically tested. Mechanisms through the Affordable Care Act make it possible to provide and test innovative structural and financing models for integration within mainstream health care. This research should cover the continuum of care, from prevention and early intervention to treatment and recovery, and will help health systems move forward with integration. This research should explore innovative delivery models including telemedicine and other health IT, as well as health or wellness coaching. Studies should focus on patient-centered approaches and should address appropriate interventions for individuals across race and ethnicity, culture, language, sex, sexual orientation, gender identity, disability, health literacy, and for those living in rural areas. So as not to limit health care systems to services for those with mild or moderate substance misuse problems and to offer support for individuals with severe problems who are not motivated to go to specialty substance use disorder treatment, it is also important to study how to implement medication and other evidence-based treatments across diverse health care systems.

This chapter pointed out that when substance use problems become severe, providing ongoing, chronic care is required, as is the case for many other diseases. Little research has studied chronic care models for the treatment of substance use disorders. Research is needed to develop and test innovative models of care coordination and their implementation. This research should use a more broadly

defined workforce in both health care and substance use disorder treatment, develop models to share information electronically, and support coordination of care between health systems using health IT.

Finally, the chapter pointed out the gap in our understanding of how to implement models of care coordination between specialty addiction treatment organizations and social service systems, which provide important wrap-around services to substance use disorder patients. Many models are in existence, but have not been empirically tested. This area of research should involve institutions that provide services to individuals with serious co-occurring problems (specialty mental health agencies), individuals with legal problems (criminal justice agencies and drug courts), individuals with employment or other social issues, as well as the larger community, determining how to most effectively link each of these subpopulations with a recovery-oriented systems of care.

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