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THE ROLE OF THE WORKFORCE SYSTEM IN ADDRESSING THE OPIOID CRISIS:

A REVIEW OF THE LITERATURE

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INTRODUCTION

Key observations

- Employment has been found to be a motivator for entering and adhering to treatment for opioid and other substance use disorders and can result in better treatment outcomes.
- The workforce system has the potential to play an important role in helping people with opioid use disorders obtain and maintain employment, supporting employers as they respond to the opioid crisis, and helping to fill shortages in behavioral health occupations.
- Effective partnerships will be critical in this response including, but not limited to, partnerships with behavioral health organizations, sector and industry groups, and training providers.

The opioid crisis has reached an unprecedented level in the United States, with more than 130 people dying each day from opioid-related drug overdoses (Centers for Disease Control and Prevention [CDC] 2018a). A recent report by the White House Council of Economic Advisers (2017) found that in 2015, the economic cost of the crisis was \$504 billion, or 2.8 percent of gross domestic product that year. In October 2017, the federal government declared the opioid crisis a national public health emergency, and the U.S. Department of Health and Human Services (HHS, 2019) released a five-point strategy that aims to end the crisis by addressing opioid abuse, misuse, and overdose. In federal fiscal year 2018, the government appropriated \$7.4 billion to federal programs' efforts to curb the opioid crisis, an increase of 124 percent from the previous year (Bipartisan Policy Center 2019).

The opioid crisis has affected employers across the country. Seventy-five percent of employers feel that their workplace has been impacted by opioid-related issues, but only 17 percent reported feeling extremely well prepared to deal with the opioid crisis (National Safety Council 2019). Employer concerns include difficulty finding qualified workers who can pass drug screens, rising health care costs, and increased absenteeism and reduced productivity. There are additional safety concerns because opioid use can contribute to workplace injuries.

Successful employment and recovery from opioid and other substance use disorders are linked in important ways. Employment can be a motivator for entering and adhering to treatment and can result in better treatment outcomes, including completion and duration of treatment, as well as decreases in relapse after treatment (Evans et al. 2010; DeFulio et al. 2012; Everly et al. 2011; Merrick et al. 2012; Petry et al. 2014). Substance use treatment can also help improve work attendance and competency at work (Center for Substance Abuse Treatment 2000).

The workforce system has the potential to address challenges presented by the opioid crisis, whether in serving people in recovery, helping to develop the health care workforce, or reaching out to employers to address opioid crisis in local communities. In the past few years, the U.S. Department of Labor (DOL) has been actively supporting efforts to address the opioid crisis by providing funds to public workforce agencies through National Health Emergency (NHE) Dislocated Worker Grants, both for demonstration projects and disaster recovery, as well through a new grant program under the SUPPORT Act, enacted in October 2018.¹

¹ The SUPPORT Act is the Substance Use-Disorder Prevention that Promotes Opioid Recovery and Treatment for Patients and Communities Act (Pub. Law 115-271).

This literature review was conducted as part of an evaluation of the NHE demonstration grants. DOL awarded grants to states to provide employment services to people affected by the opioid crisis, establish employer supports for people in recovery from opioid use disorder, and develop the health care workforce to help address the opioid crisis. As noted in the grant funding announcement, “a core tenant of the NHE grants is that career and training services are only part of a comprehensive set of solutions that address the health and well-being of individuals who have been struggling with addiction issues” (DOL 2018). DOL required grantees to identify partnerships with other organizations including employer and industry organizations, community health providers or health-related organizations, justice or law enforcement organizations, faith- and community-based organizations, and educational institutions.

Goals of the NHE demonstration grants

- Test innovative approaches to addressing economic- and workforce-related impacts of the opioid crisis
- Provide training and support to dislocated workers, new entrants in the workforce, and incumbent workers directly or indirectly affected by the opioid crisis
- Train workers in professions that could help address the opioid crisis and its causes

In 2018, DOL awarded NHE demonstration grants to six states: Alaska, Maryland, New Hampshire, Pennsylvania, Rhode Island, and Washington. DOL’s Chief Evaluation Office, in collaboration with the Employment and Training Administration, contracted with Mathematica and Social Policy Research Associates (as a subcontractor) to conduct an implementation study of these grants and to provide research-based technical assistance to grantees. This study aims to produce information that will be of practical assistance to the NHE grantees, the broader workforce system, and other practitioner communities.

About this literature review

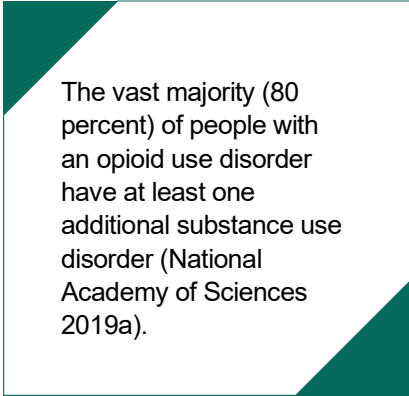
This literature review summarizes evidence on three topics related to the intersection of employment and the opioid crisis: (1) effective and promising practices for providing employment services to people with opioid use disorder; (2) employer best practices for preventing negative effects of opioid use disorder in the workplace and creating recovery-friendly workplaces; and (3) key considerations for developing the health care workforce that is addressing the opioid crisis. The literature review includes key terms to identify descriptive, process/implementation, and impact studies in the following databases: Business Source Corporate Plus, Cochrane Database of Systematic Reviews, SocIndex, MEDLINE, and PsycINFO. The search focused on studies published in the past 10 years (2008 to 2018), but a few earlier studies identified through the review process were also included. The review also included key documents recommended by expert consultants, including experts from DOL, the U.S. Department of Justice, the National Institute of Drug Abuse, the Substance Abuse and Mental Health Services Administration, and the Administration for Children and Families.

The literature review summarizes some of the critical aspects of the opioid crisis and identifies related approaches to opioid use disorder prevention, treatment, and recovery support, then presents evidence and key takeaways and considerations within the three topic areas considered in the literature review. The review closes with a discussion of gaps in the current knowledge base and potential directions for future research in this area.

Background on opioid use disorder prevention, treatment, and recovery

A general understanding of the nature and recent history of opioid use disorder in the United States can provide a firm underpinning for effective service development. Since the 1990s, a dramatic increase in prescriptions for controlled medications—particularly for opioid pain relievers such as oxycodone and hydrocodone—has corresponded with an increase in their misuse and illicit use (Manchikanti 2007). Although opioid medications have valid use for pain control, the likelihood of chronic opioid use (which can lead to dependence and addiction) increases with each additional day of medication supplied; the probability of long-term use increases from 6 percent among people with at least one day of opioid therapy to almost 14 percent among people with at least 8 days of therapy and nearly 30 percent among people with at least 31 days of therapy (CDC 2017). According to the 2017 National Survey on Drug Use and Health, 11.1 million people age 12 and older misused pain relievers in the past year; for 2 million people, that misuse eventually rose to the level of an opioid use disorder (Substance Abuse and Mental Health Services Administration [SAMHSA] 2018a). Diverting people from potential misuse is a major challenge; for people reporting misuse, the most common source for the most recent misused pain reliever was a friend or relative (SAMHSA 2018a).

Heroin use and associated deaths have also increased over the past two decades. From 2002 to 2010, heroin use increased 63 percent, and heroin-related mortality has essentially tripled since 2010 (Jones 2013; Hedegaard et al. 2015). In 2017, some 886,000 people age 12 and older reported past-year use of heroin (SAMHSA 2018a). Increasing evidence points to misuse of opioid pain reliever medications as a risk factor for heroin use (National Institute on Drug Abuse 2019). Also contributing to the opioid crisis is the misuse of synthetic opioids such as illicitly manufactured fentanyl, which is vastly more powerful than morphine and potentially lethal, especially when mixed with heroin. From 2013 to 2017, rates of drug overdose deaths increased in 35 states, with many of those increases driven by deaths involving synthetic opioids (Scholl et al. 2019).



The vast majority (80 percent) of people with an opioid use disorder have at least one additional substance use disorder (National Academy of Sciences 2019a).

One of the largest economic costs of the opioid crisis is lost productivity. In counties where more opioid pain medication is prescribed, fewer prime-age men and women are in the labor force (Krueger 2017). It is difficult to determine whether people are not in the labor force because they are using opioids, or if not being in the labor force led to misuse of opioids (due to feelings of discouragement or an underlying disability). Regardless of the causality, the lost productivity is clear, particularly for employers. Feature journalism regularly highlights employers who report being unable to find workers who can pass drug screens or regularly report to work, although there has not been a formal study of this issue (Schwartz 2017; Grant 2018).

Exhibit 1 provides an overview of approaches to the prevention and treatment of opioid and other substance use disorders that can inform and potentially be integrated with employment interventions provided by the workforce system or other organizations.

Exhibit 1. Prevention, treatment, and recovery approaches

Approach	Background
Prevention approaches	
Pain management	Special considerations are needed to treat chronic pain in adults with serious illness or those with or in recovery from substance use disorders (National Academies of Sciences, Engineering, and Medicine 2019b; SAMHSA 2011). Public and private insurers increasingly cover some form of alternative pain management approaches for the treatment of chronic pain in order to reduce opioid prescriptions; however, barriers remain such as prior authorization requirements, which might limit patients’ ability to access these services (Heyward et al. 2018).
Prescription drug monitoring programs	Prescription drug monitoring programs are databases that track controlled prescriptions across a state, allowing prescribers to view patients’ prescribing histories when making prescribing decisions. As of January 2019, of the 49 states with prescription drug monitoring programs, 33 have mandatory enrollment for prescribers and dispensers, and 19 require prescribers and dispensers to check the state’s prescription drug monitoring program database before prescribing certain controlled substances (Prescription Drug Monitoring Training and Technical Assistance Center 2019).
Opioid education and naloxone distribution	Organizations and health care providers should identify people most at risk for opioid use disorder and overdose and educate them about opioid medications and illicit drugs, their potency, and the risks of misuse. Naloxone (which also goes by the brand name NARCAN), a drug used to reverse opioid overdoses, can be provided by laypeople, including drug users, their friends and family, first responders, and service providers. As of 2017, 46 states have civil liability protections for laypeople and first responders who administer naloxone (SAMHSA 2018b).
Treatment and recovery approaches	
Medication-assisted treatment	Medication-assisted treatment for opioid use disorder combines behavioral therapy with one of three U.S. Food and Drug Administration (FDA)-approved medications: methadone, buprenorphine, or extended-release injectable naltrexone. Each of these medications works by modifying, or in some cases blocking, the opioid receptors in the brain, thereby preventing the “high” from taking opioids and mitigating painful withdrawal symptoms in the absence of opioids. Methadone, which was the first approved medication, may only be dispensed in federally approved opioid treatment programs, meaning that clients must come in person to the facility for each dose. The FDA’s approval of buprenorphine expanded treatment options for opioid use disorders to medical care settings, with physicians, nurse practitioners, and physician assistants eligible to become “waivered” to prescribe this medication. Because a waiver is not required to prescribe naltrexone, and the once-monthly, non-scheduled medication is not associated with diversion, it is frequently used to treat patients in criminal justice settings (SAMHSA 2018c). Behavioral therapies, including cognitive behavioral therapy, structured family therapy, and contingency management-based therapy approaches, are typically provided in conjunction with medication-assisted treatment to target problems and issues not addressed by medication such as comorbid psychiatric symptoms and concurrent use of other drugs, and to address limitations associated with the medications, such as high rates of noncompliance (National Academies of Sciences, Engineering, and Medicine 2019a). The use of medication-assisted treatment as part of a person’s treatment for opioid use disorder has been shown to significantly improve important quality of life measures, including increased ability to gain and maintain stable employment and housing (CDC 2018b).

Approach	Background
Treatment and recovery approaches (continued)	
Medically supervised withdrawal (detoxification)	Formerly known as detoxification, medically supervised withdrawal provides patients with methadone or buprenorphine on a short-term basis to reduce withdrawal symptoms. Studies have found that most patients with opioid use disorder who undergo medically supervised withdrawal without psychosocial treatment will start using opioids again, and patients are at higher risk for overdose if they return to use following medically supervised withdrawal (National Academies of Sciences, Engineering, and Medicine 2019a). Therefore, medically supervised withdrawal should be provided in conjunction with psychosocial treatment, and counseling, monitoring, and other psychosocial supports should continue after discontinuing medication (SAMHSA 2018c). Patients starting naltrexone must undergo medically supervised withdrawal (SAMHSA 2018c).
Residential treatment	Treatment in a residential setting might benefit some people with opioid use disorder, especially those in unstable living situations or who have other concurrent mental health or substance use disorders. The duration of residential treatment varies from a week to several weeks or more and typically includes room and board, recovery support, counseling, and case management (SAMHSA 2018c). Although some residential treatment facilities offer medically supervised opioid withdrawal, most do not offer medication-assisted treatment, and some require residents to discontinue opioid receptor agonist medications before beginning residential treatment (National Academies of Sciences, Engineering, and Medicine 2019a; SAMHSA 2018c).
Peer recovery support	Peer workers, such as peer support specialists and peer recovery coaches, draw on their personal experience with substance use disorder treatment and recovery to help engage people with substance use disorder in the recovery process and reduce their likelihood of relapse (SAMHSA 2018d). Peers must complete a state-approved training and certification plan in order to bill Medicaid, which is an important source of funding for peer support services (Chapman et al. 2018; Gagne et al. 2018).

Findings from the National Academies of Sciences, Engineering, and Medicine 2019 report: Medications for Opioid Use Disorder Save Lives

- Medication-assisted treatment has been shown to be a safe and effective form of treating opioid use disorder across a range of treatment settings. Specifically, medication-assisted treatment is associated with fewer fatal overdose deaths, decreased mortality, better treatment retention, improved social functioning, and decreased engagement in criminal activity. Although the optimal duration of medication-assisted treatment has not been established, research suggests that people who receive treatment for multiple years have a lower risk of mortality, and that longer-term treatment can help these people regain their health, avoid involvement with the criminal justice system, and return to work.
- Although behavioral therapies are typically provided in conjunction with medication, some evidence suggests that medication alone can be effective in treating opioid use disorder for some people. Therefore, the National Academies of Sciences, Engineering, and Medicine recommend that medication-based treatment not be delayed or withheld if behavioral therapy is not available, particularly given the high rate of mortality, including accidental deaths, among people with opioid use disorder.
- Research suggests that 80 percent of people who might benefit from medication-assisted treatment do not receive it. This discrepancy might be due to lack of access to treatment, limited availability of treatment providers, and provider and community stigma regarding opioid use disorder treatment and medication-assisted treatment. Disparities in access to medication-assisted treatment are especially pronounced among people in the criminal justice system, pregnant and parenting women, people with disabilities, rural populations, adolescents, older adults, and people with co-occurring behavioral health or substance use disorders. People within these populations might also face special challenges adhering to and completing treatment for opioid use disorder, and might require tailored treatment services to ensure successful recovery outcomes. Notably, research suggests that 80 percent of people with opioid use disorder have at least one other substance use disorder. This finding makes it imperative to consider needs for simultaneous treatment of co-occurring disorders and special dosing and tolerance requirements throughout medication-assisted treatment.

Key observations

- The evidence on employment interventions specifically for people with opioid use disorder is limited and from interventions implemented within behavioral health organizations.
- The available studies regarding employment interventions for people with diverse substance use disorders also suggest practices that might be effective for people with opioid use disorder.
- Common features of models that have shown signs of promise include:
 - Employment services are integrated or provided concurrently with substance use disorder treatment services.
 - Interventions are delivered by trained staff with specific knowledge and skills.
 - Intensive interventions that are “high touch.”
- “Contingency management,” through which rewards are offered for positive activities, is commonly used in substance use disorder treatment. Engagement in employment-related activities can be used as either a reward for desired behaviors or a positive activity that triggers other rewards.

PROVIDING EMPLOYMENT AND TRAINING-RELATED INTERVENTIONS FOR PEOPLE WITH OPIOID USE DISORDER

People with opioid use disorder and other substance use disorders face a variety of challenges in obtaining and maintaining employment. Difficulties potentially include periodic relapses that affect their ability to work continuously and perform effectively, which in turn might affect employers’ willingness to retain them (Sherba et al. 2018) or hire others who are in recovery. Other challenges might include a drug-related criminal history or felony conviction, loss of their driver’s license after driving under the influence, continuing health concerns such as HIV or hepatitis C infection, or probation or treatment program requirements that make it difficult to adhere to work schedules (National Academies of Sciences, Engineering, and Medicine 2019a; Sherba et al. 2018).



People with substance use disorders might also face stigma and discrimination in the workplace from coworkers or employers (Sherba et al. 2018). Moreover, substance use disorders often involve periodic relapses that employers might find challenging to manage (Sherba et al. 2018). Employer scheduling practices, low-level positions, and lack of employer supports for managing recovery and other personal responsibilities, such as dependent care, are additional challenges to both

employment and successful recovery that might particularly affect women (Sinakhone et al. 2017).

People with opioid use disorder might face challenges receiving the necessary employment supports within the standard public workforce programs. Anyone who walks through the door of an American Job Center (real or virtual) is able to access information and job search tools, attend workshops, and receive some light-touch staff assistance. Customers with more significant needs might be offered individualized services that would include an assessment, employment and career counseling, an individual employment plan, and possibly assistance to obtain occupational training or coordination with other service providers, but access to individualized services depends on eligibility and local area resources (Holcomb et al. 2018). A recent national

evaluation of public workforce services provided under the Workforce Investment Act found that most local areas in the study considered customers ineligible for individualized services if customers had one or more significant challenges to successfully obtaining a job, including a current substance use problem (D’Amico et al. 2015).

One question that the workforce system might struggle with is when people with opioid use disorder are “ready” for employment services. The substance use disorder literature cautions against defining “readiness,” as no evidence-based guidelines exist that specify when a person might be ready for treatment or employment. Research suggests that the workforce system should not consider the receipt of medication-assisted treatment to be a disqualifier for employment. When used appropriately, medication-assisted treatment has no adverse effects on peoples’ intelligence, mental capacity, physical functioning, or employability (National Institute for Occupational Safety and Health 2019). However, accommodations might be necessary for workers using these medications due to side effects that can impair their ability to drive, operate heavy machinery, or perform other duties safely.

This section is separated into two parts. The first reviews evidence on the effectiveness of interventions that provide employment-related services specifically designed for or tested with people with opioid use disorders. Because the literature on employment interventions specifically for people with opioid use disorder is limited, we then present evidence regarding interventions designed for or tested with the broader population of people with substance use disorders, which includes, but is not limited to, opioid use disorder. These interventions are worthy of consideration for using with people with opioid use disorder given that this population often struggles with concurrent addiction to other substances. Nevertheless, the literature suggests that specific medical interventions that have proven successful with people with opioid use disorder, such as medication-assisted treatment and long-term recovery supports, are needed in adapting interventions designed for the general population of people with substance use disorders. More detailed methods and findings from literature reviewed within this topic area are discussed below and presented in Appendix A.

Employment interventions tested with people with opioid use disorder

The evidence base for employment interventions specifically aimed at or tested with people with opioid use disorder is limited. However, the literature review identified several that show potential promise for people in treatment for opioid use disorder. All of these interventions are **manual-based** with detailed implementation guidelines that would facilitate replication and additional evaluation. These interventions include:

- A year-long intervention for people in methadone maintenance based on **individual placement and support (IPS)**. IPS is an evidence-based approach to

Each of the promising opioid-specific employment interventions identified in this review included concurrent medication-assisted treatment, rather than employment interventions alone, suggesting that medication-assisted treatment might be an important and necessary component of any intervention that seeks to help people with opioid use disorder obtain and maintain employment.

supported employment that promotes “recovery through work.” IPS specialists help participants find jobs quickly and maintain employment. The model includes tight integration of clinical and employment services, with specialists providing ongoing support for as long as necessary after the person is placed in a job. In the past, IPS has been used and tested more extensively with people with serious mental illness, but it has recently been applied to people with opioid use disorder. In this randomized controlled trial, an intervention group was assigned to IPS and a control group was placed on a waitlist. The intervention was provided by an IPS specialist at the site’s methadone treatment clinic. Follow-up was conducted at both 6 months and 12 months after the intervention period. Although this intervention resulted in higher rates of employment among participants randomized to IPS at both 6 and 12 months, due to the relatively small sample size for this study, the authors suggested that more rigorous and longer-term research was needed to support the efficacy of the intervention for people receiving methadone maintenance treatment for opioid use disorder (Lones et al. 2017).

- A six-month counseling intervention based on the **interpersonal cognitive problem solving (ICPS)** method for people enrolled in methadone maintenance treatment programs. Trained ICPS counselors used problem-solving techniques to help clients identify and address challenges and achieve goals. This intervention addressed both drug and employment issues concurrently during weekly counseling sessions that assessed participant needs within nine problem areas: medical, employment, drug, methadone dosage, alcohol, legal, family, social, and psychiatric. Participants randomly assigned to the intervention group received integrated ICPS drug and employment counseling, while control group participants received ICPS drug counseling alone. At a six-month follow-up, job acquisition and mean monthly income significantly improved among both control and intervention group members, which the authors suggested was due to the effectiveness of the problem-solving focus of the ICPS counseling (Coviello et al. 2009).
- A 12-month intervention for people in methadone maintenance based on the **customized employment support (CES)** vocational model. CES is a theory-driven approach that addresses both vocational and non-vocational barriers to employment and promotes self-efficacy. CES was designed specifically for people in methadone maintenance but draws on aspects of traditional vocational counseling, supported employment, and case management techniques that have been shown to be effective in other hard-to-serve populations (Blankertz et al. 2004). CES counselors are limited to a small caseload (15 clients), allowing them to work intensively with each client both within and outside of a clinic setting to understand their individual strengths and barriers, form a relationship of trust and openness, and help develop increased self-efficacy. In this randomized controlled trial at two methadone treatment programs in New York City, a test group was assigned to CES and a control group was assigned to standard vocational counseling. The clinical director trained the CES counselors on the CES model using a manual and provided close supervision on practice cases. Participants randomly assigned to CES were significantly more likely than the control group members to obtain both any paid employment and informal employment at 6- and 12-month follow-up (Magura et al. 2007).

The literature review also identified two interventions using “**contingency management**,” a treatment approach that provides privileges or rewards to participants who exhibit desired behaviors:

- An intervention known as the “**therapeutic workplace**,” which requires participants (pregnant and postpartum women in methadone treatment) to submit to urine drug tests and have negative results, in order to continue working and receiving pay. The participants worked as data entry operators at a business associated with Johns Hopkins University; they were also receiving methadone treatment at a specialty treatment program for pregnant and postpartum women associated with the university. At three- and four-year follow-up, participants randomly assigned to the intervention had significantly better employment outcomes than control group members receiving usual care. However, at biennial five- to eight-year follow-ups, the only significant difference between the two groups was total income earned (Aklin et al. 2014).
- An intervention that required unemployed patients in a methadone maintenance program in Baltimore to obtain and maintain employment in order to continue receiving methadone treatment. Participants had to have at least 20 hours per week of paid or volunteer employment in order to avoid being transferred to a more intensive counseling regimen, and those who did not obtain employment while in intensive counseling were required to begin tapering off methadone until their employment was verified. The methadone treatment program did not partner with specific employers but contacted patients’ employers weekly to verify their employment. At six month follow-up, the majority of participants met the employment requirement (Kidorf et al. 1998).

The literature review also identified a promising intervention that is less time- and resource-intensive from the late 1970’s. **The Job Seekers’ Workshop** is a 12-hour training program designed to provide people in treatment for substance use disorders with the skills needed to find and maintain a job, such as identifying potential employment opportunities and preparing for and performing well in a job interview. Hall et al. (1977) conducted a randomized pilot test of the intervention with 49 clients receiving methadone maintenance treatment who were seeking jobs or entrance into competitive training programs. At the time corresponding to the end of the workshop, raters who did not know whether a person was assigned to the intervention or control condition rated the acceptability of each participant as an employee or trainee using blind ratings of interview and written applications. The study found that intervention participants were rated as superior on both, and three months post-treatment, the intervention group was significantly more likely to be placed in employment than the control group.

Finally, one study suggests that **recovery housing**, although not employment focused, might also support positive employment outcomes when offered to people in recovery from opioid use disorder (Tuten et al. 2017).

Employment interventions for people with a broader array of substance use disorders (including, but not limited to, opioid use disorder)

More research has been conducted on employment interventions aimed at people with substance use disorders more generally rather than just opioid addiction. Several of the promising models identified in the literature include **employment-focused case management** approaches that involve both addiction treatment and employment-related interventions as well as links to other social services:

- An experimental study conducted in Germany used a case management approach focused on return to competitive employment for unemployed people receiving substance use disorder treatment at four inpatient rehabilitation facilities. Participants were randomly allocated to either receive this employment-focused case management or standard care. The intervention was initiated with each participant six weeks before they were scheduled to be discharged from the treatment program, and continued for one year post-discharge. A case manager helped intervention participants prepare for and transition from inpatient treatment to competitive employment by coordinating with a multidisciplinary rehabilitation team and local employment agencies. Although the study found no significant differences in employment rates between the intervention and control groups at both the 12- and 24-month follow-up, the intervention members were more likely to be linked with services of the German Federal Employment Agency or Job Centers compared to control group members (Saal et al. 2016). This suggests that employment-focused case management within a residential treatment program can increase linkages to job services after discharge, but that the services available in this setting did not appear to improve employment outcomes.
- An experimental study of a tailored employment intervention offered to drug-involved offenders assigned to drug court. The treatment group received 26 individual and group sessions facilitated by an employment specialist with experience in both drug and employment counseling, and covered topics related to obtaining, maintaining, and upgrading employment. The sessions used techniques such as motivational interviewing, which is an evidence-based counseling approach aimed at promoting behavior change. The control group received standard drug court processing. At the 12-month follow-up post-random assignment, treatment group participants had significantly more days of paid employment than control group members. A secondary analysis that took into account participants' pre-baseline employment history showed significantly higher rates of employment, days of paid employment, and employment income for the treatment group relative to the control group (Webster et al. 2014).

Findings from the available literature underscore the importance of integrating employment services and supports with evidence-based treatment services for substance use disorders. Substance use treatment programs generally focus on stabilizing patients' physical and behavioral health. However, without focused employment services and supports, people in or who have completed treatment might not be well prepared to find and keep a job.

Additional studies of **case management** approaches for addiction treatment that do not specifically include employment-related interventions have found that these models can also improve employment-related outcomes (Morgenstern et al. 2009a, 2009b). For these interventions, case managers met with clients weekly and helped identify barriers to treatment, coordinated with other service providers, and promoted outcomes for individual clients, including engagement in drug treatment and transition to employment. The clients had screened positive for substance use disorders, including opioid use disorder, upon applying for public assistance. Randomized controlled trials of each intervention found positive effects on employment for the intervention group compared to those in the usual care (screening and referral). See Appendix A for additional information.

The review of literature regarding employment interventions for people with a broader array of substance use disorders also identified several studies that used models similar to those described above as potentially promising for people with opioid use disorder. These include:

- Four studies of **IPS** applied to people with co-occurring substance use disorder and severe mental illness (Mueser et al. 2011). In a secondary analysis of the four randomized controlled trials, intervention group members had significantly better employment outcomes at 18-month follow-up than control group members who received conventional vocational rehabilitation services.
- A **contingency management-based intervention** that provided monetary incentives to participants in treatment for cocaine abuse or dependence who had negative drug tests and took steps toward obtaining and maintaining a job (Petry et al. 2014). A secondary analysis of data from this intervention found that participants who completed two or more job-related activities during treatment had significantly greater reductions in employment-related problems than those who completed only one or no job-related activities.
- Two studies of **Job Seekers' Workshops** sought to engage people in outpatient treatment programs, including methadone maintenance programs for people with opioid use disorder (Foley et al. 2010; Svikis et al. 2012), and a third was conducted at a residential drug treatment program (Hamdi et al. 2011). A retrospective analysis of discharge data from the residential intervention found that participants who completed the Job Seekers' Workshop were more likely to be employed at discharge than those who did not complete the Workshop (Hamdi et al. 2011). However, randomized controlled trials of the two outpatient interventions did not find significant differences in employment outcomes between groups (Foley et al. 2010; Svikis et al. 2012).
- One randomized controlled trial suggests that **recovery housing** might also support positive employment outcomes when offered to people discharged from inpatient substance use disorder treatment (Jason et al. 2006).

Two other studies identified for this review included secondary analyses of data on lighter-touch **employment or vocational services** for people receiving substance use disorder treatment. These included:

- A study of drug offenders in California who received community-based substance use treatment rather than criminal justice processing as part of Proposition 36² explored results for those participants who also received employment and vocational training as part of this substance use treatment. Participants were categorized as having received employment services if they reported meeting with an employment specialist, counselor, or social worker regarding employment opportunities, training, or education in the three months following their Proposition 36 assessment for treatment. Of the clients assessed, 13 percent reported receiving employment services. The study found at 12-month follow-up, the increase in the proportion of people who were employed and paid for work was greater among those who received employment services than among those offenders who did not receive employment services while in treatment, and these differences were statistically significant (Evans et al. 2010).
- An analysis of data from the National Treatment Improvement Evaluation Study³ found that vocational services provided in conjunction with substance use treatment were associated with increased rates of employment by 24 months following treatment (though this association was not evident at only 12 months) (Cao et al. 2011).

² Proposition 36 is a voter-initiated program in California that routes drug offenders to community-based substance abuse treatment in lieu of routine criminal justice processing (Evans et al. 2010).

³ The National Treatment Improvement Evaluation Study is a national, longitudinal follow-up study of the impact of drug and alcohol treatment programs receiving funding from the SAMHSA Center for Substance Abuse Treatment.

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THE ROLE OF EMPLOYERS IN PREVENTING OPIOID USE DISORDER AND CREATING A RECOVERY-FRIENDLY WORKPLACE

Key observations

- When implementing workplace-based interventions, employers should consider the nature and types of job-related risks and recognize that opioid misuse varies by industry.
- Employers should be thoughtful about drug testing policies, to ensure that misuse of all classes of opioids are detected and to avoid discriminating against people receiving medication-assisted treatment for opioid use disorder.
- Workplace prevention initiatives have the potential to decrease injury, costs, and new incidences of opioid use disorder, and increase productivity.
- Employee assistance programs are associated with increased employee well-being, morale, and productivity, as well as reductions in absenteeism among employees.
- Several states have models and criteria for designating workplaces as “recovery-friendly.”

The workforce system has a critical role in engaging employers in regard to opioid use disorder and other substance use disorders. Employers can play multiple roles in preventing and helping employees recover from opioid use disorder and other substance use disorders. Employers interact with their employees on an ongoing basis, providing frequent opportunities to offer resources, benefits, and supports for substance use disorders; offer access to work, which provides employees in recovery with structure and motivation; and provide important resources and benefits. However, employers must tailor opioid-related programs and policies to meet the specific needs of their workers. For example, important considerations when selecting and implementing a workplace-based intervention include occupational safety hazards (how risky these jobs are and in what ways); substance use norms and trends among workers, including employee attitudes about substance use and people with substance use problems; and the mechanism and mode for delivering the intervention (for example, online versus in-person, individual versus group setting) (Reynolds and Lehman 2008; Smook et al. 2014).



This section provides information from selected literature on approaches that have been recommended to employers to prevent substance use disorders, including opioid use disorder, and developing workplaces that support recovery. Some of these approaches have been rigorously tested, while others have not yet been evaluated but are seen as potentially promising practices.

Workplace prevention initiatives provide support and resources for employees at risk of substance use disorders, including opioid use disorder. Initiatives identified in this literature review included use of group discussions, communication exercises, role-play, and self-assessments to educate employees about substance use disorders and other health topics such as diet, exercise, and stress, in order to reduce the incidence of substance abuse and other psychosocial problems among employees (Reynolds and Bennett 2015; Probst et al. 2008). Prevention initiatives have the potential to benefit both employers and employees. One study identified through this review found that a peer-based program for preventing substance abuse reduced injury rates by one-third, at a significant savings to the employer (Miller et al. 2007).

Another study of workplace education programs on substance abuse found that senior leadership in a health system responded favorably to these programs when they were presented as means for decreasing costs and increasing productivity (Lapham et al. 2000). Workplace-based prevention initiatives also provide a vehicle for employers to address conditions, protocols, and processes to prevent injuries to employees that might result in opioid use and misuse. These types of interventions might be particularly beneficial in higher-risk occupations such as construction, fishing, farming, and forestry (Massachusetts Department of Public Health 2018; Harduar et al. 2018; Ompad et al. 2019).

Employee assistance programs are another approach that employers have used to support workers. These programs typically provide workers with assessments, short-term counseling, referrals, and follow-up services to address personal or emotional problems that are interfering with job performance, including substance use disorders. Such programs are associated with increased employee well-being, morale, and productivity, as well as reductions in absenteeism among employees (Keay et al. 2010; Richmond et al. 2014). They have been shown to be appealing to employees seeking assistance with a substance use disorder (Strickler et al. 2012) and a potential vehicle for positive life changes, including improved attitudes about work and interpersonal relationships with colleagues (Soeker et al. 2015). Several studies identified in this literature review found that participation in employee assistance programs was associated with decreases in unhealthy behaviors, including binge and heavy drinking (Deitz et al. 2005; Tinghög and Tinghög 2016). The specific effectiveness of employee assistance programs for opioid use disorder is unknown at this time and likely varies depending on the services provided by the program (for example, the delivery of evidence-based counseling and referrals to medication-assisted treatment).

In some states, a **recovery-friendly workplace** designation is given to employers that use approaches such as those described above to prevent substance use disorders and support employees during treatment and recovery. In 2018, the state of New Hampshire (an NHE demonstration grantee) announced its Recovery Friendly Workplace Initiative, which encourages employers to foster a safe and healthy recovery environment, educate their employees on addiction and behavioral health prevention, implement evidence-based health and safety programming, and work with their community to promote prevention and recovery (New Hampshire Recovery Friendly Workplace 2019). To receive the New Hampshire recovery-friendly workplace designation, employers must provide their employees with information and resources promoting recovery, establish connections with local recovery support organizations, educate staff on existing drug and alcohol policies, and ensure that supervisors and employees receive annual training on substance misuse, behavioral health, and addiction (New Hampshire Recovery Friendly Workplace 2019).

Workplace drug testing policies are another consideration for employers in light of the opioid epidemic. Workers experiencing addiction are protected under the federal Americans with Disabilities Act (ADA), unless they are currently using drugs illegally (Marr 2019). Traditional five-panel drug tests will detect several classes of drugs, including opiates such as heroin, but will not detect synthetic opioids, which include prescription drugs such as oxycodone, as well as other synthetic opioids such as fentanyl. Therefore, employers seeking to test for these drugs

might need to add an additional opioid panel to their laboratory request (National Safety Council 2019; Ohio Chamber of Commerce 2019). Although some drug tests detect medications used for medication-assisted treatment, including methadone and buprenorphine, others do not (SAMHSA 2009).

A zero-tolerance approach to employees testing positive for drugs, however, puts employers at risk because firing a worker who is undergoing treatment or refusing to grant them reasonable leave time—such as for workers who need to visit a methadone clinic daily—could be considered disability discrimination under the ADA (Marr 2019). In addition, workers prescribed an opioid painkiller have an underlying medical condition that might also qualify for disability protection (Marr 2019). If a test comes up positive for one of these medications, employers might require employees to provide documentation, such as a letter from their physician, that the medication for treatment is a prescription (SAMHSA 2009).

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DEVELOPING THE HEALTH CARE WORKFORCE TO ADDRESS THE OPIOID CRISIS

Key observations

- There is a critical shortage of behavioral health workers, including rural providers and those able to provide medication-assisted treatment.
- The workforce system can play an important role in directing people into the field, supporting additional training of existing health care workers, and collaborating with partners to increase availability of training.
- Possibly promising approaches include using distance education and nontraditional providers to expand the workforce.

Critical to addressing the opioid crisis is the availability of substance use treatment providers (such as addiction psychiatrists, physicians, and



nurse practitioners who can prescribe medications to treat opioid use disorder); as well as other behavioral health providers who can provide psychosocial services and counseling and perhaps even help those in recovery keep jobs. The health care workforce thus cuts across a wide range of settings, including general medical care, specialty treatment providers, social services, and community-based settings that support substance use disorder prevention efforts (SAMHSA 2019a). A recent national survey of staff working in specialty substance use disorder facilities found that 42 percent of the staff were characterized as counselors, 19 percent were

medical staff, 21 percent were other support staff (such as peer support staff, care managers, and care navigators), and 18 percent were administrative staff (Bouchery 2018).

Across the behavioral health workforce, there is a national shortage of providers. Professions with the greatest shortages include psychiatrists, psychologists, mental health and substance use social workers, and mental health, substance use, and behavioral disorder counselors (Health Resources and Services Administration 2015). In particular, there is a growing need for providers with Drug Addiction Treatment Act waivers to prescribe medication-assisted treatment to people with opioid use disorder, as well as staff supporting these providers (Bouchery 2018). The shortage of providers is particularly pronounced in rural areas, where people must travel long distances to facilities that provide services; for example, rural counties are less likely than urban counties to have at least one outpatient treatment facility for substance use disorders that accepts Medicaid (Cummings et al. 2014; Jackson and Shannon 2012).

The causes of the behavioral health workforce shortage are multifaceted. Training opportunities for positions in the behavioral health workforce are not readily available in all geographic areas (Keeler et al. 2018), and training on substance use disorder treatment (including medication-assisted treatment) is often not adequately covered or required in social work curricula (Krull et al. 2018; Allnock and Hutchinson 2014). Concerns about reimbursement for behavioral health services might also limit the availability of treatment providers. Some providers, such as peer specialists, are unable to bill Medicaid and private insurance for their services unless they receive a state certification, which can be time consuming and costly to obtain (Alagoz et al. 2017). Burnout and high turnover are also pervasive issues among behavioral health providers (Leykin et al. 2011; Roche and Nicholas 2017; Young 2015). Low compensation might contribute to high turnover; hourly wages for professionals who treat substance use disorders are substantially below wages for fields requiring similar years of education, such as therapists and registered nurses (Bouchery 2018). Providers who treat substance use disorders sometimes encounter stigma from other medical professions (Eaton et al. 2015).

Training resources

SAMHSA has developed a Treatment Improvement Protocol series that provides guidance on evidence-based practices, including, for example, motivational interviewing and group therapy for substance abuse treatment (SAMHSA 2019b). Another volume in this series provides guidance and best practices for clinical supervision (Center for Substance Abuse Treatment 2009).

The workforce system can play an important role in addressing the shortages in behavioral health occupations. Workforce boards at a local, state, and regional level can assess occupational shortages and training availability and collaborate with partners, including community colleges, to develop new training programs and expand training slots in existing programs. Frontline staff in the workforce system can help to expand the pipeline of providers by identifying job seekers who might be appropriate for these roles and providing the referrals and financial support for training. The workforce system can also collaborate with employers and industry groups to determine if existing behavioral health professionals need additional training to address the opioid crisis.

This literature review identified a number of studies describing key considerations for developing the health care workforce to better address the opioid crisis. Several reports identify strategies and promising practices that might be useful to the workforce system and partnering organizations. These include the following:

Use of innovative methods to increase the reach and breadth of training. Several innovative training techniques show promise for improving the knowledge and skills of providers in the behavioral health workforce. For example, although social work students learning to assess patients for substance use disorders traditionally practice these techniques with their classmates, research suggests that using simulated clients (that is, trained actors in simulated scenarios) can improve students' learning and confidence in using these skills (Osborne et al. 2016). Other promising approaches include community-service opportunities for social work students that allow students to practice under the guidance of experienced providers in treatment settings (Hogan and Bailey 2010) and the Extension for Community Healthcare Outcomes model, which

provides distance education for community health workers using video teleconferencing to support case-based learning (Komaromy et al. 2018). Virtual mentoring networks can help connect college and high school students in geographically underserved areas with behavioral health practitioners who can provide career guidance and information about behavioral health graduate programs (Keeler et al. 2018). Another strategy for engaging new providers is to provide internship opportunities for college or graduate students interested in learning about careers in behavioral health professions (Alagoz et al. 2017).

Support for and provider training on using medication-assisted treatment for opioid use disorder. Targeted strategies are needed to increase the availability of medication-assisted treatment for people with opioid use disorder. These include supporting new prescribers in becoming waived and providing existing prescribers with ongoing training and support (Andrilla et al. 2017; Huhn and Dunn 2017; Jones and McCance-Katz 2019). State and federal laws and policies also have great potential to influence the opioid use disorder treatment workforce (Kermack et al. 2017). Some states have developed full practice authority legislation and certification programs to allow nurse practitioner and physician assistants to prescribe and bill insurance for medication-assisted treatment, which might increase treatment availability and access. One promising approach that builds on the availability of these waived providers to expand access to medication-assisted treatment, particularly in rural areas where behavioral health services options might be limited, is the hub and spoke model, which was originally developed by the Vermont Department of Health's Division of Alcohol and Drug Abuse Programs and the Department of Vermont Health Access. This model uses coordinated care networks to provide medication-assisted treatment through waived providers, such as primary care providers, nurse practitioners, and physician assistants, at office-based opioid treatment programs in primary care settings or community-based practices (“spokes”) that are associated with regional opioid treatment centers (“hubs”) that coordinate care for patients and offer training and support to spoke providers (Simpatico 2015). It is also critical for social workers to have adequate training on and exposure to the benefits of medication-assisted treatment, as providers in this profession play an important role in referring people to treatment services (Bride et al. 2013).

Use of nontraditional providers to expand the workforce. Nontraditional behavioral health providers, including primary care physicians, nurse practitioners, and advanced practice nurses, are increasingly involved in providing behavioral health services, including addiction treatment services (Hoge et al. 2013). As noted above, some non-physician providers can become certified to prescribe buprenorphine treatment for opioid use disorder; however, restrictions on how and when these providers can prescribe medication-assisted treatment vary by state (Arizona Department of Health Services 2017). Peer workers are another important and rapidly growing part of the behavioral health workforce that can help address provider shortages (Chapman et al. 2018; Gagne et al. 2018; Johansen 2017). To ensure a supportive environment for peer workers, organizations employing them should be aware that peers might require special workplace accommodations to maintain their recovery, such as flexible leave policies, although other human resource workers have reported that peer support staff do not require more accommodation than other staff (Chapman et al. 2018).

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REFLECTIONS AND IMPLICATIONS FOR FUTURE RESEARCH

This literature review examined existing research on employment services for people with opioid use disorder, employer practices for addressing opioid use disorder, and considerations for developing the health care workforce to address the opioid crisis. A key conclusion from this review is that the existing literature is limited in size and scope, and there are critical gaps in the current knowledge base. Most significantly, very few studies examine employment interventions for people with opioid use disorder. Of the relevant evaluations that were found, almost all were small, single site studies, using a service approach with close integration between treatment and employment services with the intensive services delivered by highly trained staff. These interventions could be replicated with fidelity and evaluated in future studies. Another important consideration is that none of the existing studies examined interventions implemented within the workforce system. Additional research is needed to consider the feasibility and effectiveness of operating similar programs within the workforce system.

Areas for further study

- Evidence is needed regarding when people with opioid use disorder are ready to return to work.
- Employers would benefit from additional evidence regarding how to ensure safe and supportive conditions for people in medication-assisted treatment for opioid use disorder.
- Additional evidence is needed regarding outcomes for employment-related interventions for people with opioid use disorder, particularly regarding longer-term employment outcomes.

The current implementation study of the NHE demonstration grants will help to develop knowledge about the potential role of the workforce system in addressing the opioid crisis. Although this implementation study will not examine the effectiveness of the various interventions, it will document service provision and partnership development, as well as challenges and lessons learned from these experiences. There may also be several interventions implemented in partnership with the workforce system that may be suitable for additional evaluation.

There are also several other active evaluation projects that will add to the knowledge base in regarding employment services and opioid use disorder. For example, the Building Evidence on Employment Strategies for Low-Income Families Project (BEES), being conducted by the Administration for Children and Families within the U.S. Department of Health and Human Services, will contribute important evidence about the potential of innovative programs to improve the economic security of people experiencing opioid dependency and other substance use disorders (Office of Planning, Research, and Evaluation 2019).

Overall, this area of research is still in its infancy, and for that reason, opportunities for building evidence should be capitalized upon by any organization providing employment-related interventions for people with opioid use disorder. Communities and states across the country are

piloting new service models and partnerships with funding from DOL and other sources. This is a critical opportunity to purposefully lay the groundwork for building knowledge about what works and for whom. This knowledge building will involve monitoring participant characteristics, services received, and participant outcomes, allowing programs to engage in continuous improvement. In addition, indicators of service receipt and participant outcomes can also suggest program models that may be ready for more rigorous effectiveness studies, which will help to create a rich evidence base to draw from when designing and delivering future services.

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Appendix A.

Employment interventions:
summary of studies reviewed

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Authors (date)	Description of intervention	Target population	Study design	Findings
Interventions for people with opioid use disorder				
Manual-based interventions				
Coviello et al. (2009)	Interpersonal cognitive problem-solving theory	People enrolled in methadone maintenance treatment programs	Randomized controlled trial with intervention group (n = 12) assigned to integrated drug and employment counseling and control group (n = 11) assigned to drug counseling alone	At six-month follow-up, job acquisition and mean monthly income significantly improved among both control and intervention group members, which the authors suggested was due to the effectiveness of the problem-solving focus of the counseling.
Lones et al. (2017)	Individual placement and support	People receiving methadone maintenance treatment	Randomized controlled trial with intervention group (n = 22) assigned to individual placement and support and control group assigned to waitlist for individual placement and support	At 6- and 12-month follow-up, intervention group members were more likely to obtain employment than control group members; due to the relatively small sample size, the authors suggested that more rigorous and longer-term study was needed to support the efficacy of the intervention for people receiving methadone maintenance treatment for opioid use disorder.
Magura et al. (2007)	Customized Employment Support	People at two methadone treatment programs	Randomized controlled trial with test group (n = 78) assigned to customized employment supports and control group (n = 90) assigned to standard vocational counseling	At 6- and 12-month follow-up, intervention group members were more likely than the control group members to obtain both any paid employment and informal paid employment; however, there were no significant differences for competitive employment or total earnings.
Interventions based on contingency management				
Aklin et al. (2014)	Contingency management-based therapeutic workplace	Pregnant and postpartum women enrolled in methadone treatment	Randomized controlled trial with intervention group (n = 20) assigned to therapeutic workplace and control group (n = 20) assigned to usual care	At monthly three- to four-year follow-ups, intervention group members had significantly better employment outcomes (days employed per month, employment income, total income) than control group members. However, at biennial five- to eight-year follow-ups, the only significant difference between the two groups was total income earned.
Kidorf et al. (1998)	Mandatory employment requirement for continued methadone maintenance	People in a community-based methadone treatment program	Prospective observational study of 36 patients who had been in the treatment program for at least one year before the mandatory reporting requirement was enacted	At six-month follow-up, the majority (75 percent) of participants met the employment requirement (attained and maintained employment for at least one month).

Authors (date)	Description of intervention	Target population	Study design	Findings
Job Seekers' Workshops				
Hall et al. (1977)	Job Seekers' Workshop	Methadone maintenance clients who were seeking jobs or entrance into competitive training programs	Randomized controlled trial with intervention group assigned to Job Seekers' Workshop and control group receiving information about vocational resources but not participating in the remainder of the workshop. 49 participants total; breakdown by group not specified	At the time corresponding to the end of the workshop, intervention participants were rated by blind raters as superior to control group participants on acceptability as an employee/trainee. Three months post-treatment, 50% of the intervention group participants were placed, compared to 14% of control group members.
Recovery housing				
Tuten et al., 2017	Abstinence-contingent recovery housing	People with opioid use disorder in medical detoxification facilities	Prospective observational study of samples drawn from a non-randomized, longitudinal study of participants assigned to either an intervention group that received outpatient reinforcement-based treatment (RBT) plus abstinence-contingent recovery housing (n = 80) or a control group that received RBT only (n = 55)	At one-, three-, and six-month follow-up, no employment outcomes (employment rates, days of employment, or amount of employment earnings) differed significantly between the intervention and control groups. However, a sensitivity analysis found significantly better employment outcomes among the 33 percent of intervention group members who accessed self-pay recovery housing compared to the 66 percent who accessed program-supported recovery housing.

Authors (date)	Description of intervention	Target population	Study design	Findings
Interventions for people with substance use disorders (including opioid use disorder)				
Employment-focused case management				
Morgenstern et al. (2009a)	Coordinated care management	<p>Men and women who screened positive for substance use disorder at application for public assistance in an urban county in New York City, including individuals already engaged in substance use disorder treatment programs at baseline and those receiving methadone maintenance treatment.</p> <p>Those who were hospitalized for mental health problems more than once in the past year; experiencing psychotic symptoms or prescribed antipsychotic medication; residing on the streets, in shelters, or in imminent danger of being homeless; or planning to move from the area within 6 months were excluded.</p>	Randomized controlled trial with intervention group (n = 221) assigned to coordinated care management and control group (n = 173) assigned to usual care (that is, screening and referral)	<p>At 12-month follow-up, women in the intervention group were more likely to be employed than women in the control group, and employment increased more over time for women in the intervention group than the control group. However, men in the control group were more likely to be working than men in the intervention group.</p> <p>For women in the intervention condition, greater abstinence and treatment attendance in the first six months predicted more days of employment in the last six months, whereas in the control condition, greater abstinence and treatment attendance predicted fewer days of subsequent employment; abstinence and treatment attendance did not predict employment among men.</p> <p>Clients participating in methadone maintenance were less likely to be working, but treatment effects did not differ between those receiving and not receiving methadone treatment.</p> <p>Very few participants worked 19 or more days per month.</p> <p>Very few participants participated in mandated employment training, and training and job search activities did not differ between groups.</p>

Authors (date)	Description of intervention	Target population	Study design	Findings
Morgenstern et al. (2009b)	Manual-based intensive case management	Female, English-speaking TANF recipients in an urban county in New Jersey who were diagnosed at application with substance dependence. Women with psychosis, receiving or seeking methadone treatment, seeking long-term residential treatment, or currently stably engaged in substance abuse treatment at baseline were excluded from the study.	Randomized controlled trial with intervention group assigned to coordinated care management and control group assigned to usual care (that is, screening and referral). 302 participants total; breakdown by group not specified	At 24-month follow-up, the odds of working at least 19 days per month were greater for those in the intervention group than the control group. In addition, the rate of improvement over time in number of days employed per month, any employment in a month, and working 19 or more days per month was significantly greater for the intervention group than the usual care group. Those working in the intervention group showed a trend of increasing abstinence over time, whereas the trend for those in usual care was relatively flat. By the end of the follow-up period, more than three fifths of the intervention group participants who were working were also abstinent, whereas approximately one third of the working participants in usual care were completely abstinent.
Saal et al. (2016)	Case Management to improve Return to Employment (CMRE)	People with a substance use disorder at four inpatient rehabilitation facilities in Germany	Quasi-randomized controlled trial with intervention group (n = 160) receiving CMRE and control group (n = 160) receiving standard care	At 12- and 24-month follow-up, return-to-work rates did not differ significantly between the intervention and control groups; however, intervention group members were significantly more likely to be linked with services of the Federal Employment Agency or Job Centers than control group members.
Webster et al. (2014)	Tailored employment intervention that included individual and group sessions, motivational interviewing, thought-mapping, and strengths-based case management aimed at addressing employment barriers	Drug-involved offenders assigned to drug court	Randomized controlled trial with intervention group (n = 233) assigned to employment services in addition to drug counseling group and control group (n = 244) assigned to drug court only	At 12-month follow-up, intervention group members had significantly more days of paid employment than control group members; a secondary analysis that took into account participants' pre-baseline employment history showed significantly higher rates of employment, days paid for employment, and employment income among intervention group members compared to control group members.

Authors (date)	Description of intervention	Target population	Study design	Findings
Individual placement and support				
Mueser et al. (2011)	Individual placement and support (IPS)	People with co-occurring substance use disorder and severe mental illness	Secondary data analysis based on four randomized controlled trials of IPS-supported employment interventions (total n = 47) compared to conventional vocational rehabilitation programs (total n = 59)	At 18-month follow-up, intervention group members had significantly better employment outcomes (higher rates of employment, found a job more quickly, and were more likely to work at least 20 hours per week) than control group members.
Contingency management				
Petry et al. (2014)	Reinforcement-based substance abuse intervention that provided monetary incentives to participants who had negative drug tests and took steps toward obtaining and maintaining a job	People with cocaine abuse or dependence at two community-based substance abuse treatment clinics	Secondary analysis of data from two randomized controlled trials with intervention group assigned to reinforcement intervention (control group data were not included in this analysis)	Participants who completed two or more job-related activities during treatment had significantly greater reductions in employment-related problems than those who completed only one or no job-related activities.
Job Seekers' Workshops				
Foley et al. (2010)	Job Seekers' Workshop	American Indians with substance use disorders in a treatment program	Randomized controlled trial with intervention group (n = 53) assigned to Job Seekers' Workshop and control group (n = 49) assigned to view a video on job interviewing	At three-month follow-up, employment outcomes did not differ between the intervention and control groups.
Hamdi et al. (2011)	Job Seekers' Workshop	People with substance use disorders at a residential treatment facility in Massachusetts	Retrospective analysis of discharge data from the residential treatment program comparing people discharged before the Job Seekers' Workshop was offered (n = 95) to people discharged after it was made available (n = 93)	Participants in the intervention group were more likely to be employed at discharge from the residential treatment program than participants in the control group.

Authors (date)	Description of intervention	Target population	Study design	Findings
Svikis et al. (2012)	Job Seekers' Workshop	People with a substance use disorder (cocaine or opioids) at drug treatment programs (six psychosocial counseling programs and five methadone maintenance programs)	Randomized controlled trial with intervention group (n = 299) assigned to Job Seekers' Workshop plus standard care (program-specific services plus brochure with local employment resources) and control group (n = 329) assigned to standard care only	At 12- and 24-month follow-up, employment outcomes (obtaining a new job or enrolling in a training program) did not differ significantly between intervention and control group members.
Recovery housing				
Jason et al. (2006)	Recovery housing (no employment focus)	People discharged from inpatient treatment for substance abuse	Randomized controlled trial with intervention group (n = 75) assigned to recovery housing and control group (n = 75) assigned to usual after-care (outpatient treatment or self-help group)	At 24-month follow-up, intervention group members had significantly higher monthly income than control group members.
Lighter touch employment or vocational services				
Cao et al. (2011)	Vocational services	People in substance use treatment	Secondary analysis of data from the National Treatment Improvement Evaluation Study	At 24-month follow-up, vocational services provided in conjunction with substance abuse treatment were associated with increased employment rates.
Evans et al. (2010)	Employment services	Proposition 36 drug offenders in community-based substance abuse treatment in California	Prospective treatment outcome study of 1,453 offenders across 30 programs	At 12-month follow-up, the increase in the proportion of Proposition 36 drug offenders who were employed and paid for work was greater among those who received employment services than among those offenders who did not receive employment services while in treatment, and these differences were statistically significant

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