Integrating Harm Reduction into Outpatient Opioid Use Disorder Treatment Settings Harm Reduction in Outpatient Addiction Treatment



Jessica L. Taylor, MD^{1,2}, Samantha Johnson, BA^{2,3}, Ricardo Cruz, MD MPH^{1,2}, Jessica R. Gray, MD^{4,5}, Davida Schiff, MD, MSc⁶, and Sarah M. Bagley, MD, MSc^{1,2,7}

¹Section of General Internal Medicine, Boston University School of Medicine & Boston Medical Center, Boston, MA, USA; ²Grayken Center for Addiction, Boston Medical Center, Boston, MA, USA; ³Section of Infectious Diseases, Boston Medical Center, Boston, MA, USA; ⁴Department of Medicine, Massachusetts General Hospital, Boston, MA, USA; ⁵Department of Pediatrics, MassGeneral Hospital for Children, Boston, MA, USA; ⁶Division of General Academic Pediatrics, MassGeneral Hospital for Children, Boston, MA, USA; ⁷Division of General Pediatrics, Boston University School of Medicine, Boston, MA, USA.

Opioid use disorder (OUD) is increasingly recognized as a chronic, relapsing brain disease whose treatment should be integrated into primary care settings alongside other chronic conditions. However, abstinence from all nonprescribed substance use continues to be prioritized as the only desired goal in many outpatient, primary carebased treatment programs. This presents a barrier to engagement for patients who continue to use substances and who may be at high risk for complications of ongoing substance use such as human immunodeficiency virus (HIV), hepatitis C virus (HCV), superficial and deep tissue infections, and overdose. Harm reduction aims to reduce the negative consequences of substance use and offers an alternative to abstinence as a singular goal. Incorporating harm reduction principles into primary care treatment settings can support programs in engaging patients with ongoing substance use and facilitate the delivery of evidence-based screening and prevention services. The objective of this narrative review is to describe strategies for the integration of evidence-based harm reduction principles and interventions into outpatient, primary care-based OUD treatment settings. We will offer specific tools for providers and programs including strategies to support safer injection practices, assess the risks and benefits of continuing medications for opioid use disorder in the setting of ongoing substance use, promote a nonstigmatizing program culture, and address the needs of special populations with ongoing substance use including adolescents, parents, and families.

KEY WORDS: harm reduction; opioid use disorder; substance use disorder; addiction.

J Gen Intern Med DOI: 10.1007/s11606-021-06904-4 © Society of General Internal Medicine 2021

Prior presentations: N/A

Received December 11, 2020 Accepted April 30, 2021

CLINICAL VIGNETTE¹

A 27-year-old woman presents to an office-based addiction treatment program embedded within her primary care practice. She reports that she started using prescription opioids when she was 16 and transitioned to injecting heroin at age 20. She also uses smoked and intravenous cocaine. She has tried going to inpatient medically managed withdrawal (i.e., "detox") and short-term residential treatment programs and has not had sustained abstinence. She has had three opioid overdoses in the past month and wants to stop using heroin. She has tried diverted buprenorphine, which helped manage opioid withdrawal temporarily, and she thinks that it would be easier and safer to have a prescription. However, she wonders if buprenorphine will control her opioid cravings and she is not ready to stop using cocaine.

The patient felt anxious coming to her primary care doctor, having experienced stigma when she has sought medical care in the past. Patients in her situation often face barriers to engagement in outpatient opioid use disorder treatment settings. In the review below, we outline strategies to integrate harm reduction principles and interventions into primary care– based programs in order to optimize the care of patients who continue to use substances.

INTRODUCTION

For many years, opioid use disorder (OUD) and other substance use disorders (SUD) were erroneously viewed as a moral failing and not an illness. Even with the increasingly broad recognition of SUD as a chronic, relapsing brain disease, abstinence from all non-prescribed substance use continues to be prioritized as the only desired goal in many treatment settings, including in outpatient programs offering

This vignette represents a composite of many patients seen in the authors' clinical practices and not an individual patient story.

medications for opioid use disorder (MOUD).¹ MOUD, including buprenorphine and methadone, reduces opioid overdose and all-cause mortality, improves retention in treatment, and reduces infectious complications of injection drug use.^{2–5} With opioid overdose deaths from synthetic opioids like illicitly manufactured fentanyl on the rise nationally, and increasing examples of human immunodeficiency virus (HIV) and viral hepatitis outbreaks impacting people who inject drugs (PWID), it is critical that we leverage strategies to engage patients in care earlier in the treatment care cascade and lower barriers to access for evidence-based OUD treatment.^{6–12}

Harm reduction, which aims to "reduce the negative effects of health behaviors without necessarily extinguishing the problematic health behaviors completely or permanently," offers an alternative to abstinence as a singular goal.¹³ Integrating the principles of harm reduction, which include humanism, pragmatism, individualism, autonomy, incrementalism, and accountability without discharge, into medical settings can facilitate the care of patients who continue to use drugs and is consistent with the standard approach to other chronic illnesses.¹³ For example, patients are not required to quit smoking or control type II diabetes in order to receive care for coronary artery disease. Furthermore, harm reduction interventions have conclusively demonstrated a positive impact on patient and population-level outcomes.^{14–19}

The objective of this review is to describe strategies for the integration of evidence-based harm reduction principles and interventions into OUD treatment settings (Table 1). We offer specific tools that providers and programs can use to support safer injection practices, assess the risks and benefits of continuing MOUD in the setting of ongoing substance use, promote a non-stigmatizing program culture, and address the needs of special populations who continue to use substances including adolescents, parents, and families.

PREVENT OPIOID OVERDOSE

Provide Intranasal Naloxone

Overdose education and naloxone distribution to people with OUD, family, friends, first responders, and other community members is a potent intervention that reduces opioid overdose fatalities.^{14,20–23} Distribution of greater than just 100 kits per 100,000 population, for example, has been associated with a 46% reduction in community opioid overdose death.¹⁴ At the state level, mandating co-prescribing of naloxone to patients at increased risk of overdose significantly increases naloxone prescribing.²⁴ Individual practices can implement electronic medical record changes that support consistent co-prescribing of naloxone with MOUD prescriptions. Additionally, the ability to provide naloxone in clinic is important for patients who experience barriers to picking it up at the pharmacy. Local departments of public health can advise on direct naloxone distribution and any local regulations allowing retroactive billing. The Center for Public Health Research at Temple University Beasley School of Law maintains a website with US state-specific information about naloxone regulations.²⁵

Counsel on Other Overdose Prevention Strategies

In addition to providing intranasal naloxone, providers and team members should counsel patients on strategies to reduce the risk of overdose, including minimizing mixing of substances.²⁶ Using opioids via non-intravenous routes (e.g., smoking), doing "test shots" or "slow shots" to understand the potency of a sample, testing substances for fentanyl in settings where the presence of fentanyl may change use patterns, using with other people who are equipped to administer naloxone and activate emergency services, and engaging with virtual overdose prevention programs may all further reduce risk based on expert opinion, observational, and/or preliminary data.^{27–33}

Develop a Clinic Opioid Overdose Response Protocol

Outpatient practices that care for people with OUD should prepare staff to respond to and reverse opioid overdose by educating staff on the signs of opioid overdose and next steps, which include activating emergency services, administering naloxone, and providing rescue breaths and/or chest compressions (depending on the clinical scenario and staff member training).^{34,35} Public bathrooms are common places where people inject.^{36,37} Programs should survey their spaces for high-risk settings such as single-stall bathrooms and bathrooms that lock from the inside and may be difficult to enter rapidly in an emergency. Reverse motion detectors are a new tool that may help prevent overdose fatalities by alerting staff when someone enters a bathroom and becomes unresponsive. Although efficacy data on fatal overdose prevention are not yet available, reverse motion detectors have been implemented in several types of outpatient settings and are viewed as an acceptable tool by public safety.^{37,38} Structured debriefing with staff after an overdose event is another best practice supported by expert opinion, and sample post-overdose debriefing forms exist that may be adapted to the needs of specific practices.³⁴

OFFER TREATMENT ON DEMAND

A low-barrier approach to MOUD, often referred to as "treatment on demand," is associated with reduced wait times to MOUD initiation and improved retention in care.^{39–43} Flexible scheduling, the ability to accommodate patients who arrive late or walk in without an appointment, flexible check-in workflows for patients who present with sedation or agitation, and rapid re-engagement of patients who have fallen out of care are important principles. A multidisciplinary approach involving both providers and nurse care managers can promote access for patients with high needs.⁴⁴ Additionally, incorporating non-clinical supports such as peer recovery coaching may help support flexible access by engaging patients and minimizing downtime. Teams may also be able to reduce visit burden by offering telemedicine appointments and by non-standard communication strategies (e.g., text messaging) if traditional approaches do not meet patient needs.⁴⁵

TAKE A PATIENT-CENTERED APPROACH TO MOUD PRESCRIBING

Integrating harm reduction principles into treatment involves prioritizing patient perspective and choice around medication selection and dose using a shared decision-making framework. Where possible, OUD treatment programs should offer all FDA-approved MOUD, including sublingual buprenorphine, monthly injectable buprenorphine, monthly injectable naltrexone, and—if licensed as an opioid treatment program—methadone. Programs that are not licensed to dispense methadone should have the capacity to rapidly refer. If a lack of identification is expected to present barriers to prescription access at pharmacies, this should be addressed.

Patients initiating buprenorphine should be offered the option of doing their induction in the office or in the community, depending on their preference.⁴⁶ This eliminates the need for patients to present to the office in opioid withdrawal, acknowledges their experience and expertise in making the transition from full agonists to buprenorphine, and is particularly important in the era of illicitly manufactured fentanyl, which is lipophilic, when patients have often reported the need for longer washout periods before initiating buprenorphine. Handouts that walk patients through the community induction protocol may help facilitate buprenorphine initiation outside the office.^{47,48}

New induction protocols, including microdosing and higher initial buprenorphine doses, may also be effective in mitigating the risk of precipitated withdrawal due to protracted fentanyl washout periods.^{49–51} The Bernese Method, for example, is an increasingly utilized microdosing protocol that involves starting a very low buprenorphine dose that is titrated to the therapeutic range over approximately 7–10 days, during which patients can continue to use full opioid agonists (including heroin/fentanyl), which are discontinued once a therapeutic dose of buprenorphine is reached.⁵² Early data suggest that this protocol is well tolerated and does not result in precipitated withdrawal.⁵³

Addressing Other Drug Use

Central to a harm reduction approach is to not require abstinence from other substances, including benzodiazepines, to continue OUD treatment.⁴⁶ In almost all circumstances, taking prescribed buprenorphine in combination with other substances places patients at lower risk of overdose death than using heroin/fentanyl with other substances.

Table 1 Harm Reduction Checklist for Outpatient OUD Treatment Programs

- √ Prevent overdose
- Prescribe intranasal naloxone
 Distribute naloxone in clinic
- Counsel on naloxone, test shots, using with others
 Provide virtual overdose prevention resources if using alone
- Develop a clinic overdose response plan
- Install reverse motion detectors in high-risk areas
- $\sqrt{\mathbf{Provide treatment on demand}}$
- Provide same-day intakes with MOUD Rx
- Accommodate patients who arrive late or walk-in unscheduled
- Leverage multidisciplinary team to reduce downtime
- Offer telemedicine for new and follow-up visits

$\sqrt{\text{Take a patient-centered approach to MOUD}}$

- Offer in-office and community-based buprenorphine inductions
- Consider microdosing in patients at risk of precipitated withdrawal
- Incorporate patient preference in medication and dose
- Do not require abstinence from other drugs to continue MOUD
- Incorporate UDT only when results will change management
- Ask patients prior to UDT about expected results

$\sqrt{\mathbf{Reduce stigma during medical visits}}$

- Normalize a positive response to questions about stigmatized behavior
- Use inclusive language during sexual history
- Screen for incarceration using language that does not presume guilt

$\sqrt{\mathbf{Prevent}}$ and treat infection

- Offer comprehensive HIV, viral hepatitis, and bacterial STI testing
- Offer rapid HIV tests
- Offer on-site treatment for bacterial STIs
- Co-locate HCV treatment and MOUD care
- Vaccinate against hepatitis A and B
- Provide condoms and safer injection equipment
- Prescribe HIV PrEP and PEP

$\sqrt{\mathbf{Provide harm reduction supplies}}$

- Distribute condoms
- Distribute sterile syringes and injection equipment
- Distribute fentanyl test strips
- Talk to patients about community syringe access
- Consider prescribing syringes, alcohol swabs
- $\sqrt{\text{Discuss safer injection technique}}$
- Ask patients how they inject
- Discuss sterile technique, drug preparation, and safer venous sites
- Teach patients how to inject themselves if others do this for them

Instead of requirements that patients avoid other substances, teams should work with them to address other substance use disorders and risky substance use over time. This includes offering outpatient medically managed withdrawal for alcohol and benzodiazepines for eligible patients with barriers to inpatient treatment.⁵⁴ Patients with physical dependence to medium or long-acting benzodiazepines may require extended tapers.⁵⁵

More intensive follow-up and/or referral to a higher level of care may be required when patients do not meet their own treatment goals or when there are concerns for diversion of prescribed MOUD. In addition to regulatory concerns, when patients divert prescribed buprenorphine, they do not accrue the overdose prevention or OUD stabilization benefits of the medication, thus warranting a change in treatment approach, which may include shorter prescriptions, daily observed dosing, or referral to an opioid treatment program.⁵⁶

Additionally, teams should offer FDA-approved medications for alcohol use disorder including naltrexone (n.b. contraindicated in patients on buprenorphine), acamprosate, and disulfiram, and tobacco use disorder. For patients with severe stimulant use disorder, contingency management is an evidence-based intervention and can be accomplished outside of formal programs by offering small rewards for recoveryfocused behaviors, including attending appointments and providing expected UDT.⁵⁷ Although there are no current FDAapproved medications for stimulant use disorder, providers may choose to discuss the risks and benefits of off-label medications, including topiramate for cocaine use disorder and mirtazapine for methamphetamine use disorder.^{58,59} Setting up office protocols to allow rapid administration of benzodiazepines and other medications may help reduce avoidable emergency department visits for patients with amphetamine-induced agitation.

Approach to Urine Drug Testing

Providers should approach urine drug testing (UDT) as just one tool in their overall clinical assessment of patient stability, recognizing the lack of evidence for frequent UDT and the importance of accurate interpretation, including of false positive/negative results.⁶⁰ During the COVID-19 pandemic, many SUD treatment programs converted largely or entirely to telemedicine and reduced the frequency of UDT. Anecdotally, this has not impacted engagement in care.⁴⁵ Providers should also be sensitive to the punitive nature of UDT in many correctional and child welfare settings and patients' past experiences with this type of monitoring and should consider using UDT—like other diagnostic tests—only when the results will change management (e.g., when confirming the presence of prescribed buprenorphine is necessary due to clinical concerns about lack of stabilization).

When checking a UDT, it is recommended to ask the patient—prior to the test—what substances they expect to appear in the result. This allows patients the opportunity to disclose recent substance use and avoids creating a dynamic of "catching" the patient.⁶¹ Get to know the specific tests available through your local laboratory; if available, testing for synthetic opioids (e.g., fentanyl, methadone, oxycodone, buprenorphine) is helpful in order to confirm the presence of prescribed buprenorphine. Reflex testing for fentanyl and norfentanyl levels can also help with interpretation of a positive screen. Recent data suggest that renal clearance of fentanyl may take longer than 2–4 days, this has implications for provider and patient expectations for when a UDT will revert to negative.⁶²

REDUCE STIGMA DURING MEDICAL VISITS

Taking an accurate, non-judgmental history is integral to incorporating harm reduction principles. "How many times in the past year have you used a [non-prescribed] drug or used a prescription medication for nonmedical reasons?" and "How many times in the past year have you had X or more drinks in a day?" (5 for men, 4 for women) are validated single-question screening test for drug use in primary care settings.^{63,64} We recommend applying this validated phrasing, which normalizes a positive response, to other substance-related behaviors. For example, it may be easier for patients to disclose syringe sharing if asked, "how many times in the past year have you used a syringe after someone else?" instead of "do you share syringes?" or, "you don't share syringes, do you?" When asking about stigmatized behaviors such as sharing injection equipment, it can be helpful to explain why you are asking (e.g., to help patients reduce their HIV risk). Address both injection-related and sexual risk behaviors, asking about sexual practices and partners in a way that does not assume heterosexuality or binary gender identity. For example, asking patients "tell me about your partners" or "what are the genders of your partners?" is more inclusive than "do you have sex with men, women, or both?"⁶⁵

Electronic medical record templates that standardize assessment for overdose and HIV risk may support providers in incorporating these conversations consistently during visits (see Supplement 1 for sample template). Additionally, if prepared to offer resources, we suggest screening patients for intimate partner violence and trafficking.⁶⁶ We also recommend screening for a history of criminal justice involvement in all patients in a non-stigmatizing manner due to the impact of incarceration on health outcomes, including opioid overdose risk in the post-incarceration period, the risk of forced withdrawal from MOUD in some correctional settings, and the opportunity to link patients to community-based reentry and other resources.⁶⁷ For example, once rapport has been established, providers may ask, "Have you ever spent time in a correctional setting such as a jail or prison?" This phrasing does not make any presumptions about guilt or innocence, nor does it inquire about specific charges.⁶⁸

PREVENT AND TREAT TRANSMISSABLE INFECTIONS

Primary care OUD treatment settings can fill significant gaps in infection screening, prevention, and treatment services for PWID and other people who use substance who are at high risk of HIV, viral hepatitis, sexually transmitted infections, and bacterial superficial and deep tissue infections.^{69,70} Providing comprehensive infection screening for HIV, hepatitis B and C, syphilis, chlamydia, and gonorrhea on an opt-out basis supports infection diagnosis, treatment, and delivery of preventive services (Table 2).

PWID, particularly those experiencing homelessness, are impacted by outbreaks of hepatitis A and B.¹⁰ Vaccination against hepatitis A and B should be offered to PWID to address the low rates of immunity in this population alongside other routine vaccinations.^{11,72}

Table 2 Standard Intake Lab Panel

Urine drug test (amphetamine, barbiturate, cocaine, opiate,
benzodiazepine)
Expanded opioid panel (buprenorphine, methadone, oxycodone, fentanyl)
Comprehensive metabolic panel (CMP)
Human chorionic gonadotropin test (pregnancy test)
HIV test (fourth-generation antigen and antibody test preferred)
Hepatitis C virus (HCV) antibody
- Reflex to PCR viral load and genotype if positive
Chlamydia and gonorrhea
- Urine
- Vagina*
- Throat*
- Rectum*
Syphilis IgG/IgM
- Reflex to RPR if positive
Hepatitis B virus (HBV) surface antigen, surface antibody, and core
antibody†
Hepatitis A virus (HAV) IgG antibody†

*Screen at sites of contact for patients at high risk †Vaccinate if non-immune Also consider screening for trichomonas in patients at risk⁷¹

A growing body of evidence supports the success of hepatitis C virus (HCV) treatment in primary care and OUD treatment settings, including among patients with ongoing injection drug use.⁷³ With the advent of new, pangenotypic direct acting antivirals, HCV treatment has been simplified.⁷⁴ Primary care OUD treatment settings should consider offering co-located HCV treatment to reduce community transmission rates.

Evidence-based HIV prevention services among PWID include low-barrier HIV testing and treatment, condom distribution, safer injection equipment, MOUD, and HIV preexposure prophylaxis (PrEP).^{15–17,75,76} When patients are willing and able to undergo phlebotomy, the fourth-generation HIV antigen and antibody test is preferred for screening due to its high sensitivity in detecting early HIV infection. Rapid HIV tests should be made available for patients who cannot or will not undergo phlebotomy, and for those who benefit from receiving results during a visit (e.g., patients who lack a reliable means of contact). Local departments of public health may be able to provide free condoms to treatment settings or direct programs to resources. Primary care providers are wellpositioned to deliver PrEP alongside other preventive health resources.⁷⁷ Because PWID may have experienced recent, high-risk HIV exposures, HIV post-exposure prophylaxis (PEP) should be available alongside PrEP. In patients with frequent exposure events, starting PEP as a bridge to PrEP ("PEP-to-PrEP") may be the most efficient strategy to initiate biomedical HIV prevention.78

Finally, people with ongoing substance use benefit from the availability of basic wound care services, including incision and drainage of simple abscesses, to address superficial bacterial complications of injection and mitigate the high burden of preventable Emergency Department visits as well as more serious systemic infections.^{79,80}

Provide Other Harm Reduction Supplies in the Clinic

An additional strategy that OUD treatment programs can employ to reduce infectious complications of injection is to provide injection equipment.^{81–83} Supplement 2 contains an electronic medical record order template that auto-populates quantities of recommended harm reduction supply items based on the total number of safer injection kits desired. Talk to patients about local regulations related to syringe access (e.g., via syringe service programs and/or commercial pharmacies) and criminalization of harm reduction supplies. Providers living in an area with limited access to syringe service programs and over-the-counter syringes should consider writing prescriptions for syringes, alcohol swabs, and other supplies.⁸⁴

Integrate Harm Reduction Counseling

Integral to supporting a harm reduction framework within primary care OUD treatment programs is offering counseling on ways to reduce the risks of ongoing substance use. Recognizing that people who use drugs have significant expertise in keeping themselves safe, providers should ask about the strategies they currently use to reduce the risk of infection and overdose. Providers should also feel comfortable asking patients to teach them about aspects of substance use that they don't understand. Once providers have an understanding of how patients use substances, they will be more empowered to discuss strategies to make behavior safer, which may include, for example, changing the way skin is cleaned prior to injection. Knowing and collaborating with local harm reduction specialists and syringe service programs can help providers develop their referral networks and provide patient-centered harm reduction resources. For example, the participant guide from the Access, Harm Reduction, Overdose Prevention, and Education (AHOPE) program in Boston, MA offers saferinjection education and resources that providers can print and share with patients.²⁸ The National Harm Reduction Coalition resource center also offers practical tools for programs implementing harm reduction practices.85

CREATING A THERAPEUTIC ENVIRONMENT

Creating a therapeutic treatment environment is critical to engaging patients with ongoing substance use, who have often experienced stigma, discrimination, and mistrust in primary care settings.⁸⁶ Clinic protocols should be grounded in principles of trauma-informed care, and where feasible all patientfacing staff, including non-clinical team members such as security staff and administrators, should be trained in the use of medically accurate, non-stigmatizing language around substance use disorders and de-escalation strategies. Based on local resources, training could span a continuum from incorporating information about non-stigmatizing language and deescalation strategies in the onboarding of new staff to organizing formal skills practice trainings for all team members. Leading with respect and kindness, while maintaining a focus on individual strengths and gratitude for patients' efforts to seek care, is an effective strategy to build trust.⁴³

Programs may also consider offering hygiene kits, coffee, clean socks, a change of clothes, art supplies, or places to charge a cell phone to demonstrate awareness of the needs many people who use drugs face beyond their medical care.⁴³ Likewise, ready access to local food pantry resources and the provision of public transportation, taxi or ride share vouchers, or state transportation program enrollment assistance demonstrate understanding of and a commitment to reducing the structural barriers to care faced by many PWID.^{87–90}

Importantly, patients who are Black, Indigenous, and People of Color (BIPOC) continue to experience significant disparities in OUD treatment access related to structural and interpersonal racism, including the application of criminal versus therapeutic medical approaches to SUD communities of color.^{91,92} Disparities in access coincide with an alarming rise in synthetic opioid-involved overdose deaths in non-Hispanic Black Americans.⁹¹ Primary care OUD treatment programs can take active steps to reduce racism and improve equity by hiring, supporting, and retaining diverse staff (including in leadership roles); ensuring diverse representation and the absence of racist language and images in clinic materials, which should be culturally and linguistically appropriate; using professional interpreters with patients with limited English proficiency; building referral networks to diverse support groups; engaging with community-based and non-clinical partners; and providing outreach outside of traditional clinical settings.⁹¹

Integrate Behavioral Health Care and Community Recovery Supports

Most people with a SUD also have a co-occurring mental health disorder, but fewer than 10% receive treatment for both conditions.⁹³ As an increasing number of patients receive treatment for OUD in primary care, there is an opportunity to expand traditional integrated behavioral health models to explicitly include patients with OUD and co-occurring serious mental illness.^{94–96} However, a lack of behavioral health infrastructure should not prevent clinic from offering MOUD, and behavioral health engagement should not be a requirement to start or continue MOUD.⁹⁷ Although not SUD treatments in the formal sense, providers have the opportunity to offer referral to community recovery supports. Mutual support

Table 3	Incorporating	Harm	Reduction	with	Special	Populations
---------	---------------	------	-----------	------	---------	-------------

Population	Considerations	Approach
People who do not want MOUD	- Many SUD-related harms (e.g., infection, overdose) occur upstream from MOUD engagement	 Welcome patients who are not interested in MOUD into OUD treatment programs Normalize visits for harm reduction services and other health priorities Build trust
People recently incarcerated	 Overdose death risk is 129× the general population in the first 2 weeks after incarceration ¹⁰⁵ In spite of the right to health care, many carceral settings do not provide MOUD¹⁰⁶ Abrupt discontinuation of MOUD in carceral settings reduces reengagement¹⁰⁷ 	 Ensure patients and supports have and know how to use naloxone^{22,108} Outreach to local houses of corrections to facilitate post-release linkage Offer to communicate with probation/parole officers if barriers to MOUD arise
Youth	 MOUD improves outcomes in youth and should be offered^{109,110} SUD programs serving youth are often abstinence-based¹¹¹ Harm reduction and MOUD may be viewed as "condoning" substance use 	 Building, maintaining trust are very important for engagement Offer non-traditional communication (e.g., texting) and flexibility Educate families on benefits of MOUD, naloxone, and harm reduction strategies
Couples	 Patients may present as part of a sexual or non-sexual relationship Residential programs may not allow couples to enroll together 	 Assess patients separately, ideally with different care teams Set expectations around information sharing and screen for intimate partner violence individually before allowing partners into visits Refer to couples/family counseling
Parents	 Parents with SUD experience structural barriers to treatment ¹¹² Parents often fear a punitive response when disclosing ongoing substance use 	 Discuss up front how providers will address ongoing substance use and mandates to assess children's safety, noting that recurrence of substance use alone does not constitute child abuse/neglect When reporting is required, involve the parent in the process for transparency Discuss safe medication storage in a locked location out of reach of children Ensure naloxone readily availability
People who are pregnant	 Time of increased motivation and stressors Buprenorphine and methadone are standard of care and should be continued Growing evidence that buprenorphine/naloxone does not need to be switched to buprenorphine mono product¹¹³ 	 Do not stop MOUD if a patient becomes pregnant¹¹⁴ Expect a need for dose changes due to pregnancy physiology; the need for dose increases in pregnancy is not a marker of disease severity or stability¹¹⁵ Coordinate with Family Medicine or Obstetrics to provide wrap around services for people with OUD during pregnancy

organizations, including Alcoholics Anonymous, Narcotics Anonymous, and SMART Recovery, recovery coaches, sober gyms, running groups, and 12-step yoga may be helpful for some patients.^{98,99}

Integrate Reproductive Health

Women with SUD have unmet contraception needs and experience high rates of unplanned pregnancy.^{100–102} The "One Key Question," "Would you like to become pregnant in the next year?" is a brief, validated approach to assessing family planning goals and can inform individualized, patient-centered counseling.¹⁰³ Programs should offer comprehensive contraception options in clinic or via referral, including long-acting reversible contraception (LARC), to all people who may become pregnant and are not planning a pregnancy. Care should be taken to avoid coercion in contraception acceptance and method selection.¹⁰⁴

SPECIAL POPULATIONS

In addition to the approaches described above, successful incorporation of harm reduction principles in OUD treatment settings requires attention to the specific medical, developmental, and logistical needs of special populations (Table 3).

CONCLUSION

Overall, the increasing integration of OUD treatment in primary care settings has improved access and, in many cases, reduced the stigma associated with SUD treatment. However, many outpatient OUD treatment programs continue to promote abstinence from non-prescribed substances as the only acceptable treatment goal, which risks alienating patients with ongoing substance use, a population with much to gain from primary and preventive services. Incorporating evidencebased harm reduction strategies into primary care–based OUD treatment settings will support programs in engaging patients earlier on the OUD care cascade—such as the patient in our vignette—and improving safety, respect, and autonomy for all patients with OUD.

Acknowledgements: The authors thank Daniel Rodrigues, LICSW, for helping identify the need for this paper and Samantha Schoenberger, BA for editorial support.

Corresponding Author: Jessica L. Taylor, MD; Grayken Center for Addiction, Boston Medical Center, Boston, MA, USA (e-mail: jtaylor3@bu.edu).

Funding The authors' effort was supported in part by K23DA044324-01 (Bagley), K23DA048169 (Schiff), by a grant from the Massachusetts Department of Public Health Bureau of Substance Addiction Services to develop Opioid Urgent Care Centers (163274) (Taylor), and by UM1DA049412 (Bagley, Cruz, Taylor).

Declarations:

Conflict of Interest: The authors declare that they do not have a conflict of interest.

REFERENCES

- Mojtabai R, Mauro C, Wall MM, Barry CL, Olfson M. Medication Treatment For Opioid Use Disorders In Substance Use Treatment Facilities. *Health Affairs*. 2019;38(1):14-23. doi:https://doi.org/10. 1377/hlthaff.2018.05162
- Volkow ND, Collins FS. The Role of Science in Addressing the Opioid Crisis. N Engl J Med. 2017;377(4):391-394. doi:https://doi.org/10. 1056/NEJMsr1706626
- Larochelle MR, Bernson D, Land T, et al. Medication for Opioid Use Disorder After Nonfatal Opioid Overdose and Association With Mortality: A Cohort Study. Ann Intern Med. 2018;169(3):137-145. doi:https://doi. org/10.7326/M17-3107
- Hser Y-I, Saxon AJ, Huang D, et al. Treatment retention among patients randomized to buprenorphine/naloxone compared to methadone in a multi-site trial. *Addiction*. 2014;109(1):79-87. doi:https://doi. org/10.1111/add.12333
- Fiellin DA, Schottenfeld RS, Cutter CJ, Moore BA, Barry DT, O'Connor PG. Primary care-based buprenorphine taper vs maintenance therapy for prescription opioid dependence: a randomized clinical trial. JAMA Intern Med. 2014;174(12):1947-1954. doi:https://doi.org/ 10.1001/jamainternmed.2014.5302
- Wilson N Drug and Opioid-Involved Overdose Deaths United States, 2017–2018. MMWR Morb Mortal Wkly Rep. 2020;69. doi:https://doi. org/10.15585/mmwr.mm6911a4
- Alpren C, Dawson EL, John B, et al. Opioid Use Fueling HIV Transmission in an Urban Setting: An Outbreak of HIV Infection Among People Who Inject Drugs—Massachusetts, 2015–2018. Am J Public Health. Published online November 14, 2019:e1-e8. doi:https://doi. org/10.2105/AJPH.2019.305366
- Peters PJ, Pontones P, Hoover KW, et al. HIV Infection Linked to Injection Use of Oxymorphone in Indiana, 2014-2015. N Engl J Med. 2016;375(3):229-239. doi:https://doi.org/10.1056/NEJMoa1515195
- Golden MR, Lechtenberg R, Glick SN, et al. Outbreak of Human Immunodeficiency Virus Infection Among Heterosexual Persons Who Are Living Homeless and Inject Drugs - Seattle, Washington, 2018. MMWR Morb Mortal Wkly Rep. 2019;68(15):344-349. doi:https://doi. org/10.15585/mmwr.mm6815a2
- Foster MA, Hofmeister MG, Kupronis BA, et al. Increase in Hepatitis A Virus Infections - United States, 2013-2018. MMWR Morb Mortal Wkly Rep. 2019;68(18):413-415. doi:https://doi.org/10.15585/mmwr. mm6818a2
- Collier MG, Drobeniuc J, Cuevas-Mota J, Garfein RS, Kamili S, Teshale EH. Hepatitis A and B among young persons who inject drugsvaccination, past, and present infection. *Vaccine*. 2015;33(24):2808-2812. doi:https://doi.org/10.1016/j.vaccine.2015.04.019
- Centers for Disease Control and Prevention. Viral Hepatitis Surveillance

 United States, 2018.; 2020. Accessed November 5, 2020. https://www.cdc.gov/hepatitis/statistics/SurveillanceRpts.htm
- Hawk M, Coulter RWS, Egan JE, et al. Harm reduction principles for healthcare settings. *Harm Reduct J.* 2017;14(1):70. doi:https://doi.org/ 10.1186/s12954-017-0196-4
- Walley AY, Xuan Z, Hackman HH, et al. Opioid overdose rates and implementation of overdose education and nasal naloxone distribution in Massachusetts: interrupted time series analysis. *BMJ*. 2013;346:f174. doi:https://doi.org/10.1136/bmj.f174
- Aspinall EJ, Nambiar D, Goldberg DJ, et al. Are needle and syringe programmes associated with a reduction in HIV transmission among people who inject drugs: a systematic review and meta-analysis. *Int J Epidemiol.* 2014;43(1):235-248. doi:https://doi.org/10.1093/ije/ dyt243
- MacArthur GJ, van Velzen E, Palmateer N, et al. Interventions to prevent HIV and Hepatitis C in people who inject drugs: a review of reviews to assess evidence of effectiveness. Int J Drug Policy. 2014;25(1):34-52. doi:https://doi.org/10.1016/j.drugpo.2013.07.001
- 17. Ahamad K, Hayashi K, Nguyen P, et al. Low Threshold Methadone Protects against HIV Incidence in a Canadian Setting: An Observational

Cohort Study. Lancet HIV. 2015;2(10):e445-e450. doi:https://doi.org/ 10.1016/S2352-3018(15)00129-0

- Seewald R, Bruce RD, Elam R, et al. Effectiveness and feasibility study of routine HIV rapid testing in an urban methadone maintenance treatment program. *Am J Drug Alcohol Abuse*. 2013;39(4):247-251. doi:https://doi.org/10.3109/00952990.2013.798662
- Charania MR, Crepaz N, Guenther-Gray C, et al. Efficacy of structurallevel condom distribution interventions: a meta-analysis of U.S. and international studies, 1998-2007. *AIDS Behav.* 2011;15(7):1283-1297. doi:https://doi.org/10.1007/s10461-010-9812-y
- Bagley SM, Peterson J, Cheng DM, et al. Overdose Education and Naloxone Rescue Kits for Family Members of Opioid Users: Characteristics, Motivations and Naloxone Use. Subst Abus. 2015;36(2):149-154. doi:https://doi.org/10.1080/08897077.2014.989352
- Townsend T, Blostein F, Doan T, Madson-Olson S, Galecki P, Hutton DW. Cost-effectiveness analysis of alternative naloxone distribution strategies: First responder and lay distribution in the United States. *Int J Drug Policy*. 2020;75:102536. doi:https://doi.org/10.1016/j. drugpo.2019.07.031
- Parmar MKB, Strang J, Choo L, Meade AM, Bird SM. Randomized controlled pilot trial of naloxone-on-release to prevent post-prison opioid overdose deaths. *Addiction*. 2017;112(3):502-515. doi:https://doi.org/ 10.1111/add.13668
- Davis CS, Ruiz S, Glynn P, Picariello G, Walley AY. Expanded Access to Naloxone Among Firefighters, Police Officers, and Emergency Medical Technicians in Massachusetts. *Am J Public Health*. 2014;104(8):e7-e9. doi:https://doi.org/10.2105/AJPH.2014.302062
- Green TC, Davis C, Xuan Z, Walley AY, Bratberg J. Laws Mandating Coprescription of Naloxone and Their Impact on Naloxone Prescription in Five US States, 2014-2018. Am J Public Health. 2020;110(6):881-887. doi:https://doi.org/10.2105/AJPH.2020.305620
- PDAPS Naloxone Overdose Prevention Laws. http://www.pdaps.org/ datasets/laws-regulating-administration-of-naloxone-1501695139
- Tori ME, Larochelle MR, Naimi TS. Alcohol or Benzodiazepine Coinvolvement With Opioid Overdose Deaths in the United States, 1999-2017. JAMA Netw Open. 2020;3(4):e202361. doi:https://doi.org/10. 1001/jamanetworkopen.2020.2361
- Never Use Alone. Meeting people where they are, on the other end of the line, one human connection at a time. Accessed November 16, 2020. http://neverusealone.com/
- Boston Public Health Commission. Access, Harm Reduction, Overdose Prevention, and Education (AHOPE) Program Participant Guide. Accessed September 17, 2020 https://www.bphc.org/whatwedo/Recovery-Services/services-for-active-users/Documents/Client%20Manual%20FINAL.pdf
- Schwartz DG, Ataiants J, Roth A, et al. Layperson reversal of opioid overdose supported by smartphone alert: A prospective observational cohort study. *EClinicalMedicine*. 2020;25:100474. doi:https://doi.org/ 10.1016/j.eclinm.2020.100474
- Victor GA, Strickland JC, Kheibari AZ, Flaherty C. A mixedmethods approach to understanding overdose risk-management strategies among a nationwide convenience sample. *Int J Drug Policy.* 2020;86:102973. doi:https://doi.org/10.1016/j.drugpo. 2020.102973
- Karamouzian M, Dohoo C, Forsting S, McNeil R, Kerr T, Lysyshyn M. Evaluation of a fentanyl drug checking service for clients of a supervised injection facility, Vancouver Canada, *Harm Reduct J*. 2018;15(1):1-8. doi:https://doi.org/10.1186/s12954-018-0252-8
- Goldman JE, Waye KM, Periera KA, Krieger MS, Yedinak JL, Marshall BDL. Perspectives on rapid fentanyl test strips as a harm reduction practice among young adults who use drugs: a qualitative study. *Harm Reduction Journal*. 2019;16(1):3. doi:https://doi.org/10. 1186/s12954-018-0276-0
- Peiper NC, Clarke SD, Vincent LB, Ciccarone D, Kral AH, Zibbell JE. Fentanyl test strips as an opioid overdose prevention strategy: Findings from a syringe services program in the Southeastern United States. International Journal of Drug Policy. 2019;63:122-128. doi:https://doi. org/10.1016/j.drugpo.2018.08.007
- Peterborough Drug Strategy. Developing an Opioid Overdose REsponse Protocol: Information for Workplaces.; 2018.
- Kerensky T, Walley AY. Opioid overdose prevention and naloxone rescue kits: what we know and what we don't know. Addict Sci Clin Pract. 2017;12(1):4. doi:https://doi.org/10.1186/s13722-016-0068-3
- Fozouni L, Buchheit B, Walley AY, Testa M, Chatterjee A. Public restrooms and the opioid epidemic. Subst Abus. 2020;41(4):432-436. doi:https://doi.org/10.1080/08897077.2019.1640834

- Gaeta JM. A Pitiful Sanctuary. JAMA. 2019;321(24):2407-2408. doi:https://doi.org/10.1001/jama.2019.7998
- Buchheit BM, Crable EL, Lipson SK, Drainoni M-L, Walley AY. "Opening the door to somebody who has a chance." - The experiences and perceptions of public safety personnel towards a public restroom overdose prevention alarm system. Int J Drug Policy, 2020;88:103038. doi:https://doi.org/10.1016/j.drugpo.2020.103038
- Sigmon SC, Ochalek TA, Meyer AC, et al. Interim Buprenorphine vs. Waiting List for Opioid Dependence. N Engl J Med. 2016;375(25):2504-2505. doi:https://doi.org/10.1056/NEJMc1610047
- Bhatraju EP, Grossman E, Tofighi B, et al. Public sector low threshold office-based buprenorphine treatment: outcomes at year 7. Addiction Science & Clinical Practice. 2017;12(1):7. doi:https://doi.org/10.1186/ s13722-017-0072-2
- 41. DiPietro B, Zur J, Tolbert J. Addressing the Opioid Crisis: Medication-Assisted Treatment at Health Care for the Homeless Programs - Issue Brief. The Henry Kaiser Family Foundation; 2019. https://www.kff.org/ report-section/addressing-the-opioid-crisis-medication-assisted-treatment-at-health-care-for-the-homeless-programs-issue-brief/
- Jakubowski A, Fox A. Defining Low-threshold Buprenorphine Treatment: Journal of Addiction Medicine. Published online September 2019:1. doi:https://doi.org/10.1097/ADM.00000000000555
- Snow RL, Simon RE, Jack HE, Oller D, Kehoe L, Wakeman SE. Patient experiences with a transitional, low-threshold clinic for the treatment of substance use disorder: A qualitative study of a bridge clinic. J Subst Abuse Treat. 2019;107:1-7. doi:https://doi.org/10.1016/ j.jsat.2019.09.003
- Alford DP, LaBelle CT, Richardson JM, et al. Treating homeless opioid dependent patients with buprenorphine in an office-based setting. J Gen Intern Med. 2007;22(2):171-176. doi:https://doi.org/10.1007/ s11606-006-0023-1
- Harris M, Johnson S, Mackin S, Saitz R, Walley AY, Taylor JL. Low Barrier Tele-Buprenorphine in the Time of COVID-19: A Case Report. *Journal of Addiction Medicine*. 2020;Publish Ahead of Print. doi:https:// doi.org/10.1097/ADM.00000000000682
- Martin SA, Chiodo LM, Bosse JD, Wilson A. The Next Stage of Buprenorphine Care for Opioid Use Disorder. Ann Intern Med. 2018;169(9):628-635. doi:https://doi.org/10.7326/M18-1652
- OBAT Clinical Tools and Forms. Boston Medical Center Office-Based Addiction Treatment Program (OBAT). https://www.bmcobat.org/ resources/?category=4
- GetWaivered. Buprenorphine Home Induction Instructions for Patients: MGH. Get Waivered. Published July 7, 2019. Accessed December 4, 2020. https://getwaivered.com/buprenorphine-home-inductioninstructions-for-patients-mgh/
- Randhawa PA, Brar R, Nolan S. Buprenorphine-naloxone "microdosing": an alternative induction approach for the treatment of opioid use disorder in the wake of North America's increasingly potent illicit drug market. CMAJ. 2020;192(3):E73. doi:https://doi.org/10.1503/ cmaj.74018
- Strayer RJ, Hawk K, Hayes BD, et al. Management of Opioid Use Disorder in the Emergency Department: A White Paper Prepared for the American Academy of Emergency Medicine. *The Journal of Emergency Medicine*. 2020;58(3):522-546. doi:https://doi.org/10.1016/j. jemermed.2019.12.034
- 51. Ghosh SM, Klaire S, Tanguay R, Manek M, Azar P. A Review of Novel Methods To Support The Transition From Methadone and Other Full Agonist Opioids To Buprenorphine/Naloxone Sublingual In Both Community and Acute Care Settings. Canadian Journal of Addiction. 2019;10(4). https://journals.lww.com/cja/Fulltext/2019/12000/A_ Review_of Novel Methods To Support The.7.aspx
- Hämmig R, Kemter A, Strasser J, et al. Use of microdoses for induction of buprenorphine treatment with overlapping full opioid agonist use: the Bernese method. Subst Abuse Rehabil. 2016;7:99-105. doi:https://doi.org/10.2147/SAR.S109919
- Klaire S, Zivanovic R, Barbic SP, Sandhu R, Mathew N, Azar P. Rapid micro-induction of buprenorphine/naloxone for opioid use disorder in an inpatient setting: A case series. *Am J Addict.* 2019;28(4):262-265. doi:https://doi.org/10.1111/ajad.12869
- Muncie HL, Yasinian Y, Oge' L. Outpatient management of alcohol withdrawal syndrome. Am Fam Physician. 2013;88(9):589-595.
- Nardi AE, Freire RC, Valença AM, et al. Tapering clonazepam in patients with panic disorder after at least 3 years of treatment. J Clin Psychopharmacol. 2010;30(3):290-293. doi:https://doi.org/10.1097/ JCP.0b013e3181dcb2f3

- Sherrick R. Diversion of Buprenorphine in Low-threshold Treatment. Journal of Addiction Medicine. 2021;15(1):88. doi:https://doi.org/10. 1097/ADM.00000000000691
- De Crescenzo F, Ciabattini M, D'Alò GL, et al. Comparative efficacy and acceptability of psychosocial interventions for individuals with cocaine and amphetamine addiction: A systematic review and network meta-analysis. *PLoS Med.* 2018;15(12):e1002715. doi:https://doi.org/ 10.1371/journal.pmed.1002715
- Coffin PO, Santos G-M, Hern J, et al. Effects of Mirtazapine for Methamphetamine Use Disorder Among Cisgender Men and Transgender Women Who Have Sex With Men: A Placebo-Controlled Randomized Clinical Trial. JAMA Psychiatry. 2020;77(3):246-255. doi:https://doi. org/10.1001/jamapsychiatry.2019.3655
- Blevins D, Wang X-Q, Sharma S, Ait-Daoud N. Impulsiveness as a predictor of topiramate response for cocaine use disorder. *Am J Addict.* 2019;28(2):71-76. doi:https://doi.org/10.1111/ajad.12858
- Liebschutz JM, Lasser KE, Shanahan CW. Performing Urine Drug Tests. MyTOPCARE. Accessed December 3, 2020. http://mytopcare. org/prescribers/about-urine-drug-tests/
- SCOPE of Pain (Safer/Competent Opioid Prescribing Education) | Continuing Medical Education | School of Medicine | Boston University. Accessed August 6, 2020. https://www.scopeofpain.org/
- Huhn AS, Hobelmann JG, Oyler GA, Strain EC. Protracted renal clearance of fentanyl in persons with opioid use disorder. *Drug Alcohol Depend*. 2020;214:108147. doi:https://doi.org/10.1016/j.drugalcdep. 2020.108147
- Smith PC, Schmidt SM, Allensworth-Davies D, Saitz R. A singlequestion screening test for drug use in primary care. Arch Intern Med. 2010;170(13):1155-1160. doi:https://doi.org/10.1001/archinternmed. 2010.140
- Smith PC, Schmidt SM, Allensworth-Davies D, Saitz R. Primary care validation of a single-question alcohol screening test. J Gen Intern Med. 2009;24(7):783-788. doi:https://doi.org/10.1007/s11606-009-0928-6
- Mayfield JJ, Ball EM, Tillery KA, et al. Beyond Men, Women, or Both: A Comprehensive, LGBTQ-Inclusive, Implicit-Bias-Aware, Standardized-Patient-Based Sexual History Taking Curriculum. *MedEd-PORTAL*. 13. doi:https://doi.org/10.15766/mep_2374-8265.10634
- 66. Weaver TL, Gilbert L, El-Bassel N, Resnick HS, Noursi S. Identifying and intervening with substance-using women exposed to intimate partner violence: phenomenology, comorbidities, and integrated approaches within primary care and other agency settings. J Womens Health (Larchmt). 2015;24(1):51-56. doi:https://doi.org/10.1089/jwh. 2014.4866
- Sue K. How to Talk with Patients about Incarceration and Health. AMA J Ethics. 2017;19(9):885-893. doi:https://doi.org/10.1001/journalofethics.2017.19.9.ecas2-1709
- 68. Giftos, Jon. Returning from incarceration: reducing risks of reentry for justice-involved patietns with opioid use disorder. Presented at the: The New England Office Based Addiction Treatmetin Extension for Community Health Outcomes Tele-Education Series; March 20, 2019; Boston Medical Center, Boston, MA.
- 69. Centers for Disease Control and Prevention. Integrated Prevention Services for HIV Infection, Viral Hepatitis, Sexually Transmitted Diseases, and Tuberculosis for Persons Who Use Drugs Illicitly: Summary Guidance from CDC and the U.S. Department of Health and Human Services. MMWR. Published online 2012. Accessed August 5, 2020. https://www.cdc.gov/mmwr/preview/mmwrhtml/rr6105a1.htm
- Wurcel AG, Anderson JE, Chui KKH, et al. Increasing Infectious Endocarditis Admissions Among Young People Who Inject Drugs. Open Forum Infect Dis. 2016;3(3):ofw157. doi:https://doi.org/10.1093/ofid/ ofw157
- Centers for Disease Control and Prevention. Sexually transmitted diseases treatment guidelines. MMWR. 2015;64(RR-03):1-137.
- Visconti AJ, Sell J, Greenblatt AD. Primary Care for Persons Who Inject Drugs. Am Fam Physician. 2019;99(2):109-116.
- Rosenthal ES, Silk R, Mathur P, et al. Concurrent Initiation of Hepatitis C and Opioid Use Disorder Treatment in People Who Inject Drugs. *Clin Infect Dis.* Published online February 3, 2020. doi:https:// doi.org/10.1093/cid/ciaa105
- 74. AASLD-IDSA. Recommendations for testing, managing, and treating hepatitis C. Accessed August 5, 2020. http://www.hcvguidelines.org
- Bernard CL, Brandeau ML, Humphreys K, et al. Cost-Effectiveness of HIV Preexposure Prophylaxis for People Who Inject Drugs in the United States. Ann Intern Med. 2016;165(1):10. doi:https://doi.org/10.7326/ M15-2634

- Centers for Disease Control and Prevention: US Public Health Service. Preexposure prophylaxis for the prevention of HIV infection in the United States—2017 Update: a clinical practice guideline. Published online March 2018. Accessed November 17, 2019. https://www.cdc. gov/hiv/pdf/risk/prep/cdc-hiv-prep-guidelines-2017.pdf.
- Silapaswan A, Krakower D, Mayer KH. Pre-Exposure Prophylaxis: A Narrative Review of Provider Behavior and Interventions to Increase PrEP Implementation in Primary Care. J Gen Intern Med. 2017;32(2):192-198. doi:https://doi.org/10.1007/s11606-016-3899-4
- Taylor JL, Walley AY, Bazzi AR. Stuck in the window with you: HIV exposure prophylaxis in the highest risk people who inject drugs. *Subst Abus*. Published online October 23, 2019:1-3. doi:https://doi.org/10. 1080/08897077.2019.1675118
- Choi S, Biello KB, Bazzi AR, Drainoni M-L. Age differences in emergency department utilization and repeat visits among patients with opioid use disorder at an urban safety-net hospital: A focus on young adults. *Drug Alcohol Depend*. 2019;200:14-18. doi:https://doi.org/10. 1016/j.drugalcdep.2019.02.030
- Schechter-Perkins EM, Dwyer KH, Amin A, et al. Loop Drainage Is Noninferior to Traditional Incision and Drainage of Cutaneous Abscesses in the Emergency Department. *Acad Emerg Med.* Published online May 14, 2020. doi:https://doi.org/10.1111/acem.13981
- Patel MR, Foote C, Duwve J, et al. Reduction of Injection-Related Risk Behaviors After Emergency Implementation of a Syringe Services Program During an HIV Outbreak. JAIDS Journal of Acquired Immune Deficiency Syndromes. 2018;77(4):373-382. doi:https://doi.org/10. 1097/QAI.000000000001615
- Hagan H, Pouget ER, Des Jarlais DC. A Systematic Review and Meta-Analysis of Interventions to Prevent Hepatitis C Virus Infection in People Who Inject Drugs. J Infect Dis. 2011;204(1):74-83. doi:https://doi.org/ 10.1093/infdis/jir196
- Wejnert C, Hess KL, Hall HI, et al. Vital Signs:: Trends in HIV Diagnoses, Risk Behaviors, and Prevention Among Persons Who Inject Drugs — United States. *Morbidity and Mortality Weekly Report*. 2016;65(47):1336-1342.
- Whiteman A, Burnett J, Handanagic S, Wejnert C, Broz D, NHBS Study Group. Distance matters: The association of proximity to syringe services programs with sharing of syringes and injecting equipment - 17 U.S. cities, 2015. Int J Drug Policy. 2020;85:102923. doi:https://doi. org/10.1016/j.drugpo.2020.102923
- Resource Center | National Harm Reduction Coalition. Harm Reduction Coalition. Accessed September 17, 2020. https://harmreduction.org/ hrc2/resource-center/
- Motavalli D, Taylor JL, Childs E, et al. "Health Is on the Back Burner." Multilevel Barriers and Facilitators to Primary Care Among People Who Inject Drugs. J Gen Intern Med. Published online September 11, 2020. doi:https://doi.org/10.1007/s11606-020-06201-6
- Syed ST, Gerber BS, Sharp LK. Traveling Towards Disease: Transportation Barriers to Health Care Access. J Community Health. 2013;38(5):976-993. doi:https://doi.org/10.1007/s10900-013-9681-1
- United States Department of Agriculture Economic Research Service. USDA ERS - Food Security and Nutrition Assistance. Accessed September 24, 2020. https://www.ers.usda.gov/data-products/agand-food-statistics-charting-the-essentials/food-security-and-nutrition-assistance/
- Vais S, Siu J, Maru S, et al. Rides for Refugees: A Transportation Assistance Pilot for Women's Health. J Immigrant Minority Health. 2020;22(1):74-81. doi:https://doi.org/10.1007/s10903-019-00946-x
- de la Vega Buitron P, Losi S, Sprague Martinez L, et al. Implementing an EHR-based Screening and Referral System to Address Social Determinants of Health in Primary Care. *Medical Care*. 2019;57:S133. doi:https://doi.org/10.1097/MLR.00000000001029
- Substance Abuse and Mental Health Services Administration. The Opioid Crisis and the Black/African American Population: An Urgent Issue. Office of Behavioarl Health Equity, Substance Abuse and Mental Health Services Administration; 2020.
- James K, Jordan A. The Opioid Crisis in Black Communities: The Journal of Law, Medicine & Ethics. Published online July 17, 2018. doi:https://doi.org/10.1177/1073110518782949
- Substance Abuse and Mental Health Services Administration. Substance Use Disorder Treatment for People with Co-Occurring Disorders. Treatment Improvement Protocol (TIP) Series, No. 42. SAMHSA Publication No. PEP20-02-01-004.; 2020. Accessed September 24, 2020. https:// store.samhsa.gov/sites/default/files/SAMHSA_Digital_Download/ PEP20-02-01-004_Final_508.pdf

- Gonzalez G, Rosenheck RA. Outcomes and Service Use Among Homeless Persons With Serious Mental Illness and Substance Abuse. PS. 2002;53(4):437-446. doi:https://doi.org/10.1176/appi.ps.53.4.437
- Drake RE, Essock SM, Shaner A, et al. Implementing Dual Diagnosis Services for Clients With Severe Mental Illness. PS. 2001;52(4):469-476. doi:https://doi.org/10.1176/appi.ps.52.4.469
- 96. Karapareddy V A Review of Integrated Care for Concurrent Disorders: Cost Effectiveness and Clinical Outcomes. *Journal of Dual Diagnosis*. 2019;15(1):56-66. doi:https://doi.org/10.1080/15504263.2018. 1518553
- Fiellin DA, Pantalon MV, Chawarski MC, et al. Counseling plus buprenorphine-naloxone maintenance therapy for opioid dependence. N Engl J Med. 2006;355(4):365-374. doi:https://doi.org/10.1056/ NEJMoa055255
- Bassuk EL, Hanson J, Greene RN, Richard M, Laudet A. Peer-Delivered Recovery Support Services for Addictions in the United States: A Systematic Review. J Subst Abuse Treat. 2016;63:1-9. doi:https://doi. org/10.1016/j.jsat.2016.01.003
- Kelly JF, Humphreys K, Ferri M. Alcoholics Anonymous and other 12step programs for alcohol use disorder. *Cochrane Database of Systematic Reviews*. 2020;(3). doi:https://doi.org/10.1002/14651858. CD012880.pub2
- Heil SH, Jones HE, Arria A, et al. Unintended pregnancy in opioidabusing women. J Subst Abuse Treat. 2011;40(2):199-202. doi:https:// doi.org/10.1016/j.jsat.2010.08.011
- 101. Terplan M, Hand DJ, Hutchinson M, Salisbury-Afshar E, Heil SH. Contraceptive use and method choice among women with opioid and other substance use disorders: A systematic review. *Prev Med.* 2015;80:23-31. doi:https://doi.org/10.1016/j.ypmed.2015.04.008
- 102. Griffith G, Kumaraswami T, Chrysanthopoulou SA, Mattocks KM, Clark RE. Prescription contraception use and adherence by women with substance use disorders. *Addiction*. 2017;112(9):1638-1646. doi:https://doi.org/10.1111/add.13840
- 103. Stulberg DB, Dahlquist IH, Disterhoft J, Bello JK, Hunter MS. Increase in Contraceptive Counseling by Primary Care Clinicians After Implementation of One Key Question® at an Urban Community Health Center. Matern Child Health J. 2019;23(8):996-1002. doi:https://doi. org/10.1007/s10995-019-02754-z
- 104. Bryson A, Koyama A, Hassan A. Addressing long-acting reversible contraception access, bias, and coercion: supporting adolescent and young adult reproductive autonomy. *Curr Opin Pediatr.* Published online March 31, 2021. doi:https://doi.org/10.1097/MOP. 0000000000001008
- 105. Binswanger IA, Stern MF, Deyo RA, et al. Release from prison-a high risk of death for former inmates. *N Engl J Med.* 2007;356(2):157-165. doi:https://doi.org/10.1056/NEJMsa064115
- 106. Nunn A, Zaller N, Dickman S, Trimbur C, Nijhawan A, Rich JD. Methadone and buprenorphine prescribing and referral practices in US prison systems: results from a nationwide survey. Drug Alcohol Depend.

2009;105(1-2):83-88. doi:https://doi.org/10.1016/j.drugalcdep.2009. 06.015

- 107. Rich JD, McKenzie M, Larney S, et al. Methadone continuation versus forced withdrawal on incarceration in a combined US prison and jail: a randomised, open-label trial. *Lancet.* 2015;386(9991):350-359. doi:https://doi.org/10.1016/S0140-6736(14)62338-2
- Zucker H, Annucci AJ, Stancliff S, Catania H. Overdose prevention for prisoners in New York: a novel program and collaboration. *Harm Reduct* J. 2015;12:51. doi:https://doi.org/10.1186/s12954-015-0084-8
- 109. Hadland SE, Bagley SM, Rodean J, et al. Receipt of Timely Addiction Treatment and Association of Early Medication Treatment With Retention in Care Among Youths With Opioid Use Disorder. JAMA Pediatr. 2018;172(11):1029-1037. doi:https://doi.org/10.1001/jamapediatrics. 2018.2143
- Committee on Substance Use And Prevention. Medication-Assisted Treatment of Adolescents With Opioid Use Disorders. *Pediatrics*. 2016;138(3):e20161893. doi:https://doi.org/10.1542/peds.2016-1893
- 111. Alinsky RH, Hadland SE, Matson PA, Cerda M, Saloner B. Adolescent-Serving Addiction Treatment Facilities in the United States and the Availability of Medications for Opioid Use Disorder. J Adolesc Health. 2020;67(4):542-549. doi:https://doi.org/10.1016/j.jadohealth.2020. 03.005
- 112. Feder KA, Mojtabai R, Musci RJ, Letourneau EJ. U.S. adults with opioid use disorder living with children: Treatment use and barriers to care. J Subst Abuse Treat. 2018;93:31-37. doi:https://doi.org/10.1016/ j.jsat.2018.07.011
- 113. Link HM, Jones H, Miller L, Kaltenbach K, Seligman N. Buprenorphine-naloxone use in pregnancy: a systematic review and metaanalysis. American Journal of Obstetrics & Gynecology MFM. 2020;2(3). doi:https://doi.org/10.1016/j.ajogmf.2020.100179
- 114. Pregnancy and Substance Use: A Harm Reduction Toolkit. Harm Reduction Coalition. Accessed December 4, 2020. https://harmreduction.org/issues/pregnancy-and-substance-use-a-harm-reductiontoolkit/
- 115. Substance Abuse and Mental Health Services Administration. Clinical Guidance for Treating Pregnant and Parenting Women With Opioid Use Disorder and Their Infants. Substance Abuse and Mental Health Services Administration; 2018. Accessed December 4, 2020. https://store.samhsa.gov/product/Clinical-Guidance-for-Treating-Pregnant-and-Parenting-Women-With-Opioid-Use-Disorder-and-Their-Infants/SMA18-5054

Publisher's Note: Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.