Understanding and Supporting Adolescents with an Opioid Use Disorder

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Introduction

Adolescent use of opioids illicitly, opioid use disorder, and related deaths continue to climb.

Objectives

1. Review data on the rise of adolescent illicit opioid use, use disorder, and overdose.
2. Discuss treatment options for adolescents with opioid use disorder.
3. Identify the challenges facing adolescents in accessing, maintaining, and benefiting from evidence-based care targeting opioid use disorder.

Information in this brief will be most beneficial to people who currently serve, or would like to serve, adolescents with an opioid use disorder (OUD). People who work with young adults with OUD may also benefit. The term "adolescent" encompasses the developmental period between puberty's onset and adulthood. There is a great deal of variation between individual adolescents, and also between stages within the period of adolescence, marked by physical, developmental, and legal milestones. We present information from research focused on groups labeled "adolescents." When studies included young adults (up to age 25) we note this specifically.

Opioid Use in Adolescence: Scope of the Issue

The opioid epidemic crosses into all U.S. demographics, hitting adolescents particularly hard. Between 2001 and 2014 rates of opioid use disorder diagnosis increased by approximately six-fold in people between the ages of 13-25 (Hadland et al., 2017). There was also an escalation in the opioid-related deaths among adolescents. Nationally, the pediatric death rate related to opioids increased by 268% between 1999 and 2016 (Gaither, Shabanova & Leventhal, 2018). While prescription-type opioid use is still widespread among adolescents, and often the introduction point for adolescent opioid use (Cerdá et al., 2015), the recent surge in opioid deaths appears to be driven by illicit opioids, such as heroin and non-prescription-fentanyl (Bohm & Clayton, 2019).

Adolescents and Fentanyl

Recent and dramatic increases in fentanyl (a very powerful, human made opioid) represents a particularly dangerous situation for adolescents. Why is this opioid so concerning for adolescents?

- By nature of their brain development, adolescents tend to carry beliefs about their own invincibility, also called optimistic bias. In the case of fentanyl, believing that overdose "would never happen to me" is especially dangerous because the stakes are so high: even a small amount of fentanyl can result in death. A recent study of people who use fentanyl bore out this optimistic bias: younger people (18-25) seemed to perceive more immunity to

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fentanyl's lethality, while people over 35 perceived more risk associated with fentanyl and reported attempting to avoid this substance if possible (Gunn et al., 2021).

- Optimistic bias can also play a role in adolescents' underestimation of becoming addicted to opioids. Adolescents may make assumptions about people with opioid use disorder or a person who has an opioid overdose, for example, picturing someone who uses drugs intravenously. They might not know that physical dependence can develop quickly on fentanyl, without needing to "graduate" to IV drug use. Adolescents thinking they are just experimenting with drugs may not understand that people can overdose by snorting or smoking fentanyl, or even taking it orally.
- By nature of their age, adolescents have shorter drug use histories and therefore less experience using and being around people who use. They may think that they are "just partying" or engaging in drug experimentation. Because fentanyl is so potent, it poses risks for quickly developing physical dependence, use disorder, or death by opioid poisoning. Adolescents who think they are using casually may not fully grasp the risks of fentanyl. Furthermore, lack of experience with opioids means lower tolerance levels, increasing a person's risk for overdose death.
- Illicitly manufactured fentanyl can be pressed into fake pills, thereby made to look like less powerful, legitimate opioids. People can't gauge risk if they don't know what they are taking, and counterfeits are a danger for people of all ages. However, adolescents' tendency to take risks and trust others make them less likely to question what they are getting, putting them at risk for taking more than their bodies can handle.
- Previous literature indicates that people under 30 are more likely to start opioid use trajectories with prescription opioids compared to people over 30 (Cedarbaum & Banta-Green, 2016). We could see a similar trend in the current era: younger people starting opioid use trajectories with fentanyl.

Treatment for Adolescents with an Opioid Use Disorder

As with adults, medications are the standard of treatment for adolescents with an opioid use disorder. Accompaniment of other services like counseling and mental health care can be a part of a "whole person" approach. Details about the three medications that target OUD (buprenorphine, methadone, and naltrexone) what they are and how they work is described elsewhere. Here, we discuss the use of these medications with adolescents: what research has shown, and clinical considerations.

Medication	Research findings	Clinical considerations for adolescents
Buprenorphine	• Two randomized controlled trials with people 15-21 (Woody et al., 2008) and 16-24 (Marsch et al., 2016) show that longer buprenorphine treatment episodes result in lower opioid use compared to shorter episodes. • A randomized controlled trial with people 16-18 compared buprenorphine and clonidine detoxification. Higher opioid abstinence was shown in the buprenorphine group (Marsch et al., 2005).	• Buprenorphine is the only medication approved by the US Food and Drug Administration (FDA) to treat opioid use disorder in people 16 years and older. • Despite FDA approval and explicit recommendation by the American Academy of Pediatrics to improve access for adolescents (Committee on Substance Use and Prevention, 2016), buprenorphine remains under prescribed.
Methadone	• No randomized controlled trials examine methadone in adolescents. • A retrospective chart review indicated that adolescents on methadone had longer treatment retention than adolescents on buprenorphine (Bell & Mutch, 2006), which parallels findings in adults. • Two studies showed that adolescents enrolled in methadone treatment had less heroin use than those who dropped out of treatment (Kellogg et al., 2006; Smyth, Elmusharaf & Cullen, 2018).	• Methadone is not FDA-approved to treat people under 18. • Methadone can only be administered in an Opioid Treatment Program (OTP), which requires written, parental consent for people under 18. • OTPs are typically set up to serve high volumes of adults with opioid use disorder; such environments may not be therapeutic for adolescents. • Because methadone is used infrequently with adolescents, there is less information to inform dosing decisions.
Naltrexone	• Mitchell et al. (2021) attempted a randomized controlled trial with youth (15-21) comparing extended-release naltrexone (XR-NTX) with "treatment as usual". Numerous randomizing challenges meant that results are difficult to interpret. Those who received naltrexone XR-NTX had an average of 1.3 injections, indicating very low retention. • A retrospective chart review of an Australian Emergency Department examined 8 adolescents (aged 15-19) before and after a naltrexone implant. Results indicated reduction in overdose associated with naltrexone implants (Hulse & Tait, 2003).	• Naltrexone is not FDA-approved to treat people under 18. • Overdose risk is increased when people miss doses or discontinue naltrexone. Adolescents tend to have poor treatment retention; therefore, this consideration is especially important. • Developmentally, adolescents are prone to test limits. In the case of naltrexone, they may try to "challenge" the medication's blocking effect. That is, take large amounts of opioids to see if they can feel the effect on top of naltrexone. This behavior increases risk for overdose. • As with adults, naltrexone: 1) does not have established efficacy in preventing return to opioid use; and 2) induction onto naltrexone can be a barrier because full opioid withdrawal is required prior to induction.

Treatment Challenges for Adolescents with an Opioid Use Disorder

Difficulties accessing medication, people's negative or inaccurate beliefs about medication, and poor treatment retention all pose threats to adolescents' ability to successfully initiate, maintain, and benefit from medication treatment. While these issues are mirrored in adult treatment for opioid use disorder, the challenges are magnified for adolescents.

Medication Accessibility for Adolescents with an Opioid Use Disorder

Compared to adults, adolescents with an opioid use disorder have particularly low rates of entering treatment, regardless of whether treatment offers medication (Wu et al., 2016). Washington State data show than those ages 18-19 have the shortest time on buprenorphine of all age groups measured, and that those 20-24 also have significantly shorter time on buprenorphine than those ages 25-29 (Banta-Green et al., 2021). Most of the treatment that adolescents are routed to does not include medication (Hadland et al., 2018). Treatment that does not include ongoing medication usually consists of counseling and case management. This type of treatment is often met with dropout and return to opioid use (Pecoraro et al., 2013; Matson et al., 2014). When buprenorphine is offered, it is commonly framed as a detox medication with short stints on buprenorphine focused on tapering off the medication (Pecoraro et al., 2013; Matson et al., 2014). Short-term buprenorphine tapers contradict research findings, which show that longer buprenorphine treatments yield better results, that is, better treatment retention and less opioid use (Woody et al., 2008; Marsch et al., 2016).

Why is access to evidence-based opioid treatment so difficult for adolescents? Two reasons are immediately apparent. First, there is a dearth of providers that serve youth with OUD (Hadland et al., 2016). Second, the beliefs and attitudes towards medication for adolescents with OUD stand in the way. That is, medication stigma on the part of providers, the criminal legal system, loved ones, and adolescents themselves may prevent adolescents from connecting with the treatment. As we discuss below, these beliefs are often misguided. Clinical researchers, encouraged by science plus their own clinical experiences, have leveled a call to action aimed at prescribers and organizations serving adolescents to expand medication services (Woody & Fishman, 2020), and discard the stigma around medications for adolescents (Bagley et al., 2017).

Negative Beliefs about Medication for Adolescents with an Opioid Use Disorder

Parents, loved ones, and providers tend to voice a set common of concerns when it comes to adolescents being on medication for an opioid use disorder. Adolescents themselves have some the same concerns, but parents, the criminal legal system, loved ones, and providers are important here because they have so much influence over an adolescent's treatment. Concerns about adolescents on medication usually come from worries about an adolescent's health and safety. But many of the concerns may also be rooted in beliefs about medication that are inaccurate or uninformed. Two common concerns about medication treatment for adolescents, and their underlying beliefs, are discussed here.

Common Misperception 1: *Medications should be a last resort for adolescents with OUD because initiating medications will banish adolescents to medication for the rest of their lives.*

Here, the concern is around duration of medication treatment for adolescents with an opioid use disorder: how long is long enough? Unfortunately, we cannot turn to scientific evidence to guide length of treatment decision for adolescents. Research testing buprenorphine with adolescents have short trial periods (i.e., 12 weeks; Woody et al., 2008), and such studies do not follow adolescent participants post-treatment. Without longer term outcome data, it is impossible to make precise recommendations about duration of treatment. Parallel research in adults is addled with the same issues, namely short follow up windows and lack of longitudinal studies. However, experts discourage limits on treatment length (Volkow et al., 2014), and note that "extending treatment for years allows individuals to increase their opportunities to return to work, to regain their health, to

avoid involvement with the criminal justice system, and to establish supportive networks of non-drug-using individuals" (National Academies of Sciences, Engineering, and Medicine, 2019, p. 5). In adults, consensus indicates that opioid use disorder is a chronic illness that may need long-term management. While people may take exception to this framing for adolescents, there are good reasons to not limit duration of medication treatment:

- Longer medication treatments are shown to have better outcomes in adolescents (Matson et al., 2014; Marsch et al., 2016; Woody et al., 2008).
- Intervening early with effective treatment could change the life course for an adolescent with OUD. Not providing the effective treatment (i.e., medication) could allow drug use patterns to set in more deeply. Early and effective intervention is more likely to interrupt drug use and hold off the formation of drug use habits and lifestyle.
- Supporting biopsychosocial stability during important developmental periods may lead to greater stability in adulthood.
- Clinical researchers are not suggesting 'lifetime' is the proper duration of medication treatment (Borodovsky et al., 2018; Pecoraro et al., 2013). Instead, the recommendation is swift uptake of medications and longer treatments periods. Getting bogged down in the 'lifetime' question distracts away from the issue at hand: adolescents with OUD have a problem that can be treated effectively immediately, resulting in less opioid use, reduced risk of opioid poisoning, and increased quality of life.

Common Misperception 2: *Adolescents need the most intensive level of care (e.g., medically supervised detox, "rehab", inpatient) to address a severe OUD.*

Here, the belief is that a one-time intensive intervention will "fix" adolescents and return them to pre-OUD state. It can be hard to accept that an adolescent has a severe illness like opioid use disorder; an alluring fantasy is that sending them off to an intensive treatment will transform them. At best, this belief may be met with disappointment if the adolescent returns to using post-treatment or otherwise does not seem "cured." At worst, an intensive treatment episode without ongoing medications exposes adolescents to more risk for opioid poisoning and subsequent permanent injury or death because tolerance to opioids will be lower.

- Compared to behavioral treatment, medication treatment has better outcomes including less drop out and less opioid use (Hadland et al., 2018).
- Medications, like short intensive treatment stints, are not curative. But medications are unparalleled at addressing the physiological aspects of opioid use disorder, which can help an adolescent learn the coping and other skills helpful for ongoing recovery and successful adulthood.

Treatment Retention and Engagement

Above we discussed a common concern that an adolescent with OUD will have be on medications for a lifetime. Yet, there is irony in this concern given that treatment retention for any length of time is a challenge for adolescents. A sampling of retention data for adolescents and young people with OUD is presented here:

- A retrospective chart review of individuals aged 14-25 enrolled in an outpatient treatment setting providing buprenorphine, retention was 45% at 60 days and 9% at one year (Matson et al., 2014).
- A systematic review of literature on medication retention in adolescents and young adults with OUD revealed that younger age was associated with shorter retention periods (Viera et al., 2020).

- A retrospective chart review indicated a buprenorphine retention rate of 56% at 6 months for people 18–25 years, compared to 78% among older adults (Schuman-Olivier et al., 2014).

There is no singular reason why retention rates are so poor for adolescents with OUD. But it is obvious that providers are not engaging adolescents in ways that are useful. For example, adolescents generally cannot be treated for OUD in the places where they receive regular medical care, as approximately 1% of pediatricians prescribe buprenorphine (Hadland et al., 2016). To enhance treatment retention for adolescents, treatment can be decentralized from larger settings (e.g., hospitals; large medical clinics) to smaller pediatric or family practice settings. Other ideas for engaging adolescents in their care include:

- Share treatment decision making with adolescent patients. At the very least, adolescents should be a collaborator, if not the driver, of their treatment plan.
- Involve adolescents in program development.
- Use relevant and appropriate technology with adolescents.
- Involve parents and loved ones in adolescents' care. Families can be allies: invite families to treatment; and provide them naloxone.
- Rapid, low barrier access to care including drop-in hours and willingness to engage people who use multiple substances.
- An "open door policy" to engage and re-engage in whatever way an adolescent wishes. This is particularly important given adolescents' ambivalence regarding buprenorphine and frequent starting and stopping.
- Involve adolescents in efforts to push out information via technology and social medial.
- Display adolescents' stories or other artwork.
- As appropriate, adolescents can be mentors and supports to their peers in formal and informal ways.

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