

This podcast can be accessed at www.pedscases.com, Apple Podcasts, Spotify, or your favourite podcasting app.

Approach to Opioid Use Disorder

Developed by Justin Park and Dr. Dzung Vo for PedsCases.com.

May 2, 2022

Introduction:

Hello everyone,

Welcome to PedsCases! My name is Justin Park, and I am a second-year medical student at the University of British Columbia. In this podcast, we will have a discussion around how we can approach opioid use disorder in youth. This podcast was made in collaboration with Dr. Dzung Vo, a pediatrician, adolescent medicine specialist, and the Division Head for Adolescent Health and Medicine at BC Children's Hospital and the University of British Columbia. For this podcast, we will define adolescents as anyone who is between the ages of 12-17, young adults between 18-25, and youth as the two groups combined.

Objectives:

After listening to this podcast, the learner should be able to:

1. Define opioid use disorder (commonly referred to as OUD)
2. Delineate the variety of ways OUD affects the youth and their unique susceptibilities
3. Describe how opioid use disorders are treated in youth
4. Discuss the current gaps in care for youth with opioid use disorder and overdose treatment

Clinical Case:

Let's start with a case. Sam, a 16-year-old male, comes into your clinic with his mother. Sam tells you that he has been using fentanyl for the past year, but now wants to receive help in quitting as he feels that his social and academic life has been severely impacted by his substance use. Sam looks visibly anxious and unwell; he complains of an upset stomach and aching muscles and joints. His mother also comments that Sam has been moody and irritable lately.

What is your plan in providing care to adolescent patients who present this way?

Background:

Developed by Justin Park and Dr. Dzung Vo for PedsCases.com.

May 2, 2022

Let's start by talking about what opioid use disorder is, and how it affects the youth. Opioid use disorder, or OUD (which is listed in the DSM-5), is a chronic condition in which repeated use of opioids causes neurological changes in the reward system of the brain, leading to continuous cravings and harmful substance use.¹ Youth are particularly vulnerable to this, as earlier exposure to opioids in life is correlated to a higher risk of the development of OUD.^{2,3} For this reason, healthcare providers should be aware that any encounters with opioids during adolescence can potentially lead to long-term addiction, leading to a wide array of serious social and developmental consequences.³

Those who live with OUD are at a higher risk of contracting infections such as HIV, endocarditis and hepatitis C.^{3,4,5} They are also more likely to experience violence, injuries from accidents, and sexual assault.³ Furthermore, those with an OUD often simultaneously suffer from a mental health disorder and/or homelessness; this, in combination with the youth's risk-taking nature, can lead to episodes of opioid overdose and eventually, death.^{3,6} In addition to these health risks, OUD can impact the patient's social life as they are more likely to have conflicts with their friends and family, dropout of school, become street entrenched, or become negatively involved with the legal system.³

Adolescents may often be excluded from the discussion around OUD because it is mainly thought of as a problem pertaining to adults. However, opioid overdose is one of the leading causes of death in youth⁷ and its incidence has continued to rise dramatically over the last two decades.⁸ In fact, youth are the fastest growing age demographic when it comes to hospitalizations due to opioid use.⁹ In 2017, it was found that 3% of grade 7-12 students use prescribe opioids in Canada recreationally.¹⁰ More than 1000 youth in British Columbia alone have died due to overdose in 2016⁹ and between 2010-2015, approximately 10% of youth death in Ontario was opioid related.¹⁰ It is believed that the most common reasons for opioid use among adolescents include management of pain and anxiety, stress relief, or peer pressure.¹¹

The youth are especially susceptible to developing OUD for the following reasons. Firstly, their brain is still undergoing development and does not fully mature until their mid-twenties.⁶ Particularly, the prefrontal cortex, which is the structure responsible for regulating impulses and making rational decisions, is not yet fully formed, making youth vulnerable to partaking in risky behaviours such as substance use.^{1,4} Secondly, the concentration of gonadal hormones such as testosterone, estradiol, and DHEAS increases during puberty. These hormones are able to bind to receptors on the limbic system of the brain, which can cause adolescents to: a) overlook risks and focus on seeking rewards, b) neglect advice from adults, and c) become more emotionally driven, which are all characteristics that can influence adolescents to begin using opioids.³ The youth's vulnerabilities are further increased if the individual does not have a responsible adult who is involved in their life, or if they are street-entrenched.³

In addition, the groups who traditionally are victims of stigma and marginalization have an elevated risk of misusing opioids, due to the harmful impacts and trauma resulting from marginalization. These groups include the LGBTQ and the Indigenous community, as well as those who face discrimination due to their mental health state or disability.¹⁰ For example, the First Nations Regional Health Survey in British Columbia reports that First Nations youth with at least one parent who has experienced trauma related to the residential school system have a higher rate of substance misuse.¹⁰

As you can see, OUD can be a result of a complex interaction between social, environmental, and biological determinants which include a wide variety of risk factors, such as low

socioeconomic status, familial maltreatment, intergenerational trauma, and vulnerabilities posed by developing neural structures, among many others.^{1,4} Therefore, it is very important to note that OUD should *not* be attributed to flaws in one's morals or character, as this is an inaccurate representation of what the condition is actually derived from,^{3,5} and could exacerbate the stigma that surrounds this disorder.¹⁰ Let's dive into the topic of stigma next, as it is a big part of what the OUD patients face in their lives.

Stigma Around OUD:

Stigma refers to the negative opinions and beliefs held about a certain group of people based on their characteristics. For OUD patients, it is a common problem which can impact their everyday lives.

The negative perceptions held about individuals who suffer from OUD can be detrimental to the effort in treating and supporting this population. Stigma can induce a sense of shame, social isolation, and lowered self-confidence for the victim, which creates barriers in access to proper care and can encourage the continuous use of substances.¹⁰ It can also lead to fewer substance use treatment resources being available, and more support for implementing or continuing the enforcement of legal punishments, which can increase the health risks by discouraging patients from seeking help.⁵ Furthermore, involvement with the criminal justice system as a result of punitive laws around opioid use can increase the risk of death, as those who are incarcerated have a higher prevalence of OUD, as well as higher rate of mortality by up to 129 times greater within 2 weeks of being released, compared to that of the general population.⁸

Unfortunately, evidence suggests that healthcare providers also commonly hold biases against OUD patients and are less motivated to work with them.¹² This results in suboptimal care being provided as it can hinder collaboration between the patient and the professional, and diminishes patient empowerment, both of which negatively affect their treatment outcome.¹² Furthermore, these providers were seen spending less time with the patient, showing less empathy, and being less engaged in interacting with the patient.¹² As future and current healthcare providers, we must learn to recognize and overcome our own biases to provide the best quality of care that OUD patients need and deserve.

To mitigate the effects of stigma against the OUD patients, there are various ways we can help. To destigmatize the victims of this disorder, it is recommended that we use neutral, person-first language that shows respect and dignifies the individual.¹⁰ For example, instead of referring to them as 'drug addicts', a more appropriate term would be to say 'people who use drugs'. Also, we should avoid using pejorative colloquialisms such as 'junkies'. In addition, using a trauma-informed approach to make informed policies and clinical decisions can help to break down the barriers that exist due to institutional stigma.¹⁰ This means that we should be aware of how previous trauma can affect individuals, and be mindful of the importance of emotional safety and autonomy of pediatric patients.¹⁰ In this way, we can help to provide inclusive and collaborative environments for these patients to seek help in. With this in mind, we will next talk about how we are currently treating youth with OUD.

Current Treatment for OUD

Traditionally for adolescents, the most common way to treat OUD is through an abstinence-based, behavioural therapy along with a short-term in-patient detoxification program to address the withdrawal symptoms.^{7,13}

Many forms of behavioural therapy are available, which can include:

1. Cognitive behavioural therapy¹³, which aims to change any negative and distorted thoughts within the patient to encourage positive behavioural changes
2. The adolescent community reinforcement approach¹⁴, which encourages involvement within the community of friends, family, work, school, or other organizations that may offer a lifestyle more rewarding than opioid use
3. Contingency management method¹⁵, in which the patient is rewarded for choosing activities other than opioid use
4. Family-focused intervention¹³, which addresses any issues within the patient's family that may be driving the misuse of opioids.

The efficacies of different psychosocial therapies were found to vary for different patients; therefore, each patient should be offered treatment that is tailored to their individual needs.¹³ Furthermore, if appropriate, active family involvement should be encouraged as they can help by providing emotional support, as well as by encouraging patients to attend follow-up appointments and to be diligent in their medication regimen.¹³ For this reason, a thorough family history should be taken to gain an understanding of the family dynamic and to gain consent from the patient to involve their family members.

Unfortunately, most of these behavioural interventions are suggested to be somewhat ineffective.^{7,16} This is because they are associated with poor patient retention, which is vital to treatment success – so much so that it is increasingly being used as a measure of treatment quality for OUD.¹⁶ Optimizing retention of care is particularly crucial for youth as they have higher treatment attrition rate compared to adults¹⁶; the good news is that there is another form of treatment which offers better retention of care compared to behavioural therapy alone, which is to use Medications for OUD, referred to as MOUD.¹⁶

The three MOUDs generally used are buprenorphine, methadone, or naltrexone.¹⁷ Buprenorphine, often formulated as buprenorphine-naloxone, is a high-affinity partial opioid agonist which can be used to taper the patient off harmful opioids. Some clinical guidelines suggest this to be the first line of therapy recommended for moderate/severe OUD in youth,¹³ as it offers take-home dosing for treatment flexibility and a better safety profile than methadone.¹³ Furthermore, compared to methadone, buprenorphine is suggested to be more effective in eliminating cravings and withdrawal symptoms, as well as being less stigmatizing.¹⁸ Buprenorphine can be administered as a daily sublingual tab (buprenorphine-naloxone), or as a monthly subcutaneous injection in an extended release formulation. Methadone is a full opioid agonist which serves as the other common option for opioid agonist therapy, and is recommended to be the alternative when the patient does not respond well to buprenorphine treatment.¹³ There may be a role for buprenorphine-extended release monthly injections in youth also, which has been reported successfully in the literature.¹⁸ In acute settings (e.g. emergency department or inpatient), hydromorphone or morphine can be used to relieve withdrawal symptoms, pending decisions about more medium-to-long term opioid agonist therapy.¹⁹ Opioid agonist therapy does not have a set duration and is recommended to continue as long as the patient and the clinician feel that there is a need to do so.¹³ The details of the induction of MOUDs are out of the scope of this podcast. However, if interested, there is a free

course available at <https://www.bccsu.ca/provincial-opioid-addiction-treatment-support-program/> offered by the British Columbia Centre on Substance Use designed for opioid agonist treatment prescribers covering the available pharmacotherapy, induction methods, acute care strategies, and more (you can find the link in the podcast script available at PedsCases.com).

Naltrexone is an opioid receptor antagonist which can block the effects of opioids. However, it is less studied in youth compared to the other medications mentioned prior, therefore more research should be done before using it as a treatment option, particularly as its use is associated with episodes of relapse and fatal overdose.⁷

Opioid withdrawal symptoms, which can continue for weeks to months after stopping use, can also be addressed using MOUDs such as either methadone or buprenorphine/naloxone, or other medications such as clonidine, an alpha-adrenergic agonist, or NSAIDs.²⁰ One very important point to note is that treatment of OUD should never consist of withdrawal symptom management alone, as this is linked to increased instances of relapse, infection transmission risk, and overdose.¹³ The current standard of care is that withdrawal symptom management is followed with intensive behavioural treatment.¹³

It is encouraged that treatment is given as early as possible to prevent lifelong addiction and harm.⁸ The British Columbia Centre on Substance Use recommends referring to the following criteria when considering opioid agonist therapy in youth:¹³

1. Patient has moderate to severe opioid use disorder
2. Patient has comorbid psychiatric disorders
3. Psychosocial treatment interventions were not successful
4. Patient has a history of overdose, injection drug use, or emergency department visits due to opioid use
5. Patient has a high risk of morbidity and mortality
6. Patient has a supportive family who can be engaged in monitoring and supporting the treatment
7. Patients who are 16 years old or older

Note that not all points need to be met to decide if opioid agonist therapy should be started.

Increasing numbers of health organizations have begun to endorse the usage of medications for first line routine treatment of OUD in youth, such as the Society for Adolescent Health and Medicine, American Association of Pediatrics, the BC Centre on Substance Use.^{8,13,21} The use of MOUDs in treatment is associated with lower mortality, fewer relapses, and higher treatment retention,^{8,16} and treatment with both pharmacologic and behavioral therapy is suggested to have better clinical outcomes compared to behavioural therapy alone.⁸ However, despite these positive observations, it is a highly underutilized form of treatment as only a very small percentage of youth with OUD receive pharmacological treatment.^{7,16} In our next section, we will talk about why this is the case.

Gaps in Care for Treatment of Adolescents with Opioid Use Disorder

There are various roadblocks which can hinder the use of MOUDs in youth, such as lack of research and resources, policies restricting access, and stigma.¹⁶

Although pharmacological therapy of OUD has been shown to be safe and effective in adults, only a few randomized controlled trials have been performed regarding using MOUDs for youth which, although have proved their benefit, are not enough to address many other treatment-relevant questions.²¹ For example, questions surrounding:

1. The exact efficacy, effectiveness, and cost-effectiveness of each medication
2. The optimal duration of pharmacotherapy
3. Strategies most effective in tapering opioid agonists
4. The most effective models of medication induction and delivery
5. Safety concerns (particularly with methadone)

still need to be answered.^{13,21} Due to this, there is limited guidance for clinicians and discomfort among healthcare providers in using pharmacological therapy with youth, leading to a shortage of clinicians who are comfortable prescribing MOUDs for treatment.¹⁶ Buprenorphine-naloxone induction can be challenging clinically^{18,22}, with a risk of causing iatrogenic precipitated withdrawal, although this risk can be mitigated using micro-dosing induction strategies.²³ There is a call for more research to be done to answer these questions, but barriers due to ethical concerns may be limiting the research from being done on youth.¹³

The lack of treatment guidelines for youth with OUD is also present in the acute care setting, as there is currently no standard of care in Canada for youth who visit the emergency department experiencing opioid overdose.⁶ Oftentimes they are discharged after only a few hours of observation, either by themselves or with another youth, often against medical advice, and given less oversight than adults who have received prescribed opioids for surgical procedures.⁶ This is very dangerous as the risk of a fatal overdose in youth increases dramatically after a non-fatal episode⁶; in fact, it was found that those discharged after an overdose-related visit at the ER were 3.5 time more likely to die within a year compared to those with a non-overdose related visit.²⁴

Additionally, the current laws in North America may prevent access to timely pharmacologic therapy for youth.²¹ In the US, only those who are 16 or older can receive buprenorphine treatment and methadone can only be prescribed to adolescents if they have had two previous nonpharmacological treatment attempts which have failed.⁷ Although specific age restrictions are not present in Canada for youth, researchers have identified numerous youth-related barriers such as distrust in authority figures and adults, discrimination by service providers, not knowing about existing available services, long wait times, transportation issues, and lack of prerequisite requirements such as a fixed address.²⁵

Pharmacological treatment may also be overlooked initially due to the perception among patients, families, and clinicians in thinking that using medications should be the last resort.²¹ Although early use of medication is associated with reduced mortality and increased treatment retention, oftentimes youth are only offered pharmacologic treatment after exhausting the available behavioural options due to this misperception.¹⁶ Some also hold stigma against opioid agonist therapy thinking that it is more like replacing one addiction with another rather than treating the disorder, which can have a detrimental impact on youth seeking help.²¹

These gaps in care suggest that there is much more work to be done in research and education to develop safe and effective treatments for youth when it comes to OUD. This is crucial to be able to provide timely access to pharmacotherapy for youth with OUD to minimize the risk for life-long addiction and mortality.

Clinical Case:

Let's now revisit our clinical case about Sam, a 16-year-old male who presented to your clinic seeking help for his OUD. You first take a detailed history:

Sam had been experiencing major depression stemming from his father's sudden death two years ago, as well as the academic stresses from school. Sam first tried opioids when his friend offered him oxycontin pills at a party, which he continued to buy and take from his friend, as they were helpful in managing these negative feelings. Due to these pills' limited availability, Sam progressed to smoking fentanyl as it was more readily accessible.

It is evident that Sam is motivated to quit as his fentanyl use is severely affecting his marks at school by decreasing his focus, as well as his relationship with his mother by causing frequent arguments. You ask for permission from Sam if you can involve his mother into the treatment discussion as you can tell that he has a very supportive family, to which he agrees. With both Sam and his mom, you discuss the possible treatment options including different behavioural therapies as well as the use of MOUDs, in this case, buprenorphine/naloxone as a first line treatment option.

You make a referral to a psychologist for Sam to receive cognitive behavioural therapy. Furthermore, you prescribe buprenorphine-naloxone to Sam and explain that the medication can also help to manage his withdrawal symptoms including his upset stomach, muscle aches, and irritability. You plan the buprenorphine-naloxone induction including dosing and monitoring with Sam and his mother carefully, and since you are on-call that night, you invite them to call you if there are any questions or problems. A follow up appointment is scheduled for the following day.

Key learning points:

In conclusion, the key learning points of this podcast are:

1. Opioid use disorder is a chronic medical condition in which repeated use of opioids causes neurological changes in the reward system of the brain, leading to continuous cravings and substance use.
2. It can be a result of many different biopsychosocial determinants and risk factors.
3. Most youth are currently treated with behavioural therapy alone, however implementing pharmacotherapy is showing promise by increasing treatment retention, reducing withdrawal symptoms, reducing mortality and relapse.
4. Only a small portion of youth receive pharmacotherapy due to many barriers such as lack of research and resources, policies restricting access, and stigma

We hope that this podcast was helpful for your learning on how to approach opioid use disorder in adolescents. Thank you for listening!

Bibliography

1. Kosten TR, George TP. The neurobiology of opioid dependence: implications for treatment. *Science & practice perspectives / a publication of the National Institute on Drug Abuse, National Institutes of Health*. 2002;1(1):13-20. doi:10.1151/spp021113
2. Jordan CJ, Andersen SL. Sensitive periods of substance abuse: Early risk for the transition to dependence. *Developmental Cognitive Neuroscience*. 2017;25:29-44. doi:10.1016/j.dcn.2016.10.004
3. Warshawski T, Charles G, Moore E, et al. Building an Effective System of Care for Adolescents Following Opiate Overdose: Stabilization Care, Residential Secure Care, Family and Community Engagement, and Ethical Concerns. In: *Clinical Care for Homeless, Runaway and Refugee Youth*. Springer International Publishing; 2020:157-185. doi:10.1007/978-3-030-40675-2_9
4. Whitesell M, Bachand A, Peel J, Brown M. Familial, Social, and Individual Factors Contributing to Risk for Adolescent Substance Use. *Journal of Addiction*. 2013;2013:1-9. doi:10.1155/2013/579310
5. Saloner B, McGinty EE, Beletsky L, et al. A Public Health Strategy for the Opioid Crisis. *Public Health Reports*. 2018;133:24-34. doi:10.1177/0033354918793627
6. Warshawski T, Warf C. It is time for an ethical, evidence-based approach to youth presenting to the ED with an opioid overdose. *Paediatrics and Child Health (Canada)*. 2019;24(6):374-376. doi:10.1093/pch/pxz011
7. Westenberg JN, Tai AMY, Elsner J, et al. Treatment approaches and outcome trajectories for youth with high-risk opioid use: A narrative review. *Early Intervention in Psychiatry*. Published online April 29, 2021. doi:10.1111/eip.13155
8. Society for Adolescent Health T. Medication for Adolescents and Young Adults With Opioid Use Disorder. *Journal of Adolescent Health*. 2021;68(3):632-636. doi:10.1016/j.jadohealth.2020.12.129
9. Giang V, Thulien M, McNeil R, Sedgemore K, Anderson H, Fast D. Opioid agonist therapy trajectories among street entrenched youth in the context of a public health crisis. *SSM - Population Health*. 2020;11:100609. doi:10.1016/J.SSMPH.2020.100609
10. Public Health Agency of Canada. *Preventing Problematic Substance Use in Youth.*; 2018. Accessed June 10, 2021. <https://www.canada.ca/content/dam/phac-aspc/documents/corporate/publications/chief-public-health-officer-reports-state-public-health-canada/2018-preventing-problematic-substance-use-youth/2018-preventing-problematic-substance-use-youth.pdf>
11. McCreary Centre Society. *PRESCRIBING PAIN - Misuse of Prescription Medication, Heroin and Other Substances among Youth in BC*. Accessed July 4, 2021. www.mcs.bc.ca.
12. van Boekel LC, Brouwers EPM, van Weeghel J, Garretsen HFL. Stigma among health professionals towards patients with substance use disorders and its consequences for healthcare delivery: Systematic review. *Drug and Alcohol Dependence*. 2013;131(1-3):23-35. doi:10.1016/j.drugalcdep.2013.02.018
13. British Columbia Centre on Substance Use. *Treatment of Opioid Use Disorder for Youth: Guideline Supplement.*; 2018. Accessed June 11, 2021. <http://www.bccsu.ca/care-guidance-publications/>

14. Godley MD, Passetti LL, Subramaniam GA, Funk RR, Smith JE, Meyers RJ. Adolescent Community Reinforcement Approach implementation and treatment outcomes for youth with opioid problem use. *Drug and Alcohol Dependence*. 2017;174:9-16. doi:10.1016/j.drugalcdep.2016.12.029
15. Stanger C, Budney AJ. Contingency Management Approaches for Adolescent Substance Use Disorders. *Child and Adolescent Psychiatric Clinics of North America*. 2010;19(3):547-562. doi:10.1016/j.chc.2010.03.007
16. 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 Pediatrics*. 2018;172(11):1029-1037. doi:10.1001/jamapediatrics.2018.2143
17. Levy S, Ryan SA, Gonzalez PK, et al. Medication-assisted treatment of adolescents with opioid use disorders. *Pediatrics*. 2016;138(3). doi:10.1542/peds.2016-1893
18. Azar P, Wong JSH, Jassemi S, et al. A Case Report: Rapid Micro-Induction of Buprenorphine/Naloxone to Administer Buprenorphine Extended-Release in an Adolescent With Severe Opioid Use Disorder. *American Journal on Addictions*. 2020;29(6):531-535. doi:10.1111/ajad.13050
19. BC Children's Hospital. Policy and Orders - PED Opioid Withdrawal (ED and Inpatient) Medications.
20. British Columbia Centre on Substance Use. *A Guideline for the Clinical Management of Opioid Use Disorder.*; 2017. Accessed June 20, 2021. <http://www.bccsu.ca/care-guidance-publications/>
21. Medication for Adolescents and Young Adults With Opioid Use Disorder. *Journal of Adolescent Health*. 2021;68(3):632-636. doi:10.1016/j.jadohealth.2020.12.129
22. 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. *American Journal on Addictions*. 2019;28(4):262-265. doi:10.1111/ajad.12869
23. Adams KK, Machnicz M, Sobieraj DM. Initiating buprenorphine to treat opioid use disorder without prerequisite withdrawal: a systematic review. *Addiction Science & Clinical Practice* 2021 16:1. 2021;16(1):1-6. doi:10.1186/S13722-021-00244-8
24. Moe J, Chong M, Zhao B, Scheuermeyer FX, Purssell R, Slaunwhite A. Death after emergency department visits for opioid overdose in British Columbia: a retrospective cohort analysis. *CMAJ Open*. 2021;9(1):E242-E251. doi:10.9778/cmajo.20200169
25. Barker B, Kerr T, Nguyen P, Wood E, DeBeck K. Barriers to Health & Social Services for Street-Involved Youth in a Canadian Setting. *Journal of public health policy*. 2015;36(3):350. doi:10.1057/JPHP.2015.8