

The Opioid Abuse and Overdose Epidemic in Ohio: Implications for Pharmacists

Amanda R. Kriesen, R.Ph., PharmD

Dr. Amanda Kriesen has no relevant financial relationships to disclose.

Goal. The goal of this lesson is to provide an overview of the opioid abuse and overdose epidemic in the state of Ohio. This review will focus on counseling considerations and pharmacologic interventions for Ohio pharmacists.

Objectives. At the completion of this activity, the participant will be able to:

1. recognize the severity of the opioid overdose epidemic at both a national and state level;
2. describe properties of synthetic compounds likely contributing to the opioid overdose epidemic;
3. recognize typical risk factors and clinical presentation of opioid overdose;
4. demonstrate an understanding of the pharmacist's role in opioid overdose prevention;
5. demonstrate an understanding of the pharmacist's role in medication therapy management and counseling regarding pharmacologic maintenance therapy for opioid dependence and emergency opioid overdose; and
6. identify limitations of non-prescription naloxone.

Background

Addiction is characterized by compulsive use of a substance, use for recreational purposes, and continued use of a substance despite the knowledge of harmful

consequences. Drug addiction is a treatable disease, utilizing a multidisciplinary approach, but relapse is common. Drug-seeking behavior is common among addicts and drug abusers. Drug-seeking tactics include emergency calls or visits near the end of office hours; refusal to endure appropriate examination, testing, or referral; repeated claims of lost prescriptions; tampering with prescriptions; and reluctance to disclose previous medical history or contact information for other treating physicians. Visiting multiple prescribers, or doctor shopping, to acquire additional prescriptions is also a common activity of drug abusers and individuals suffering from addiction. Many of the most sought-after prescription drugs for diversion and misuse are opioid derivatives.

Prescription opioid and heroin abuse has become a significant health burden with major economic, social, and medical consequences. United States prescription opioid sales increased four-fold from 1999-2010, with societal costs associated with misuse estimated at approximately \$56 billion. Opioid abuse is associated with several comorbid conditions such as mental health diagnoses and behavioral health concerns, thereby decreasing overall quality of life. According to the Centers for Disease Control and Prevention (CDC), drug overdose has surpassed motor vehicle accidents as the leading cause of accidental injury deaths in the U.S.

Opioids, specifically prescription pain relievers and heroin, have largely contributed to the national increase in overdose deaths. Patients often assume that prescription pain relievers are safer than illicit drugs because they are medically prescribed; however, when prescription opioids are taken in quantities higher than prescribed and/or used without medical consultation, they may result in severe adverse health effects. Research suggests that abuse of oral prescription opioid pain relievers may lead to heroin use. One study has suggested that four out of five heroin users abused prescription opioids prior to heroin. Nearly half of young people who inject heroin surveyed in three recent studies reported abusing prescription opioids before starting to use heroin. Other individuals reported switching from prescription opioids to heroin due to heroin being less expensive and easily accessible.

Complicating the sharp national increase of unintentional drug overdose deaths in the past few years is the high variability of components with which heroin may be laced. Health care providers are frequently experiencing overdose cases in which standard doses of emergent drug therapy are inadequate to provide reversal of life-threatening respiratory depression. It is suspected that heroin dealers throughout the nation are lacing batches with fentanyl and other potent synthetic opioid derivatives

Table 1
Risk factors for opioid overdose

Risk Factor	Comment
Previous nonfatal overdose	Nonfatal overdose incidents provide insight into a patient's opioid use habits and/or patterns.
Higher daily opioid doses	Patients who take daily opioid doses >50 morphine milligram equivalents are more likely to experience an overdose.
Changes in dose or formulation	Patients using heroin are frequently at risk due to unpredictable changes in substance purity, such as adulteration with fentanyl.
Polypharmacy and mixing substances	Opioid overdoses commonly involve other substances. Barbiturates, benzodiazepines, and stimulants may enhance psychoactive effects of opiates. Gabapentin, clonidine, and promethazine may synergistically enhance depression of the central nervous system.
Social isolation	Isolation is often associated with depression, which is an independent risk factor for drug overdose.
Chronic comorbid disease states	Chronic comorbidities involving organs primarily responsible for metabolism and respiration (i.e., lungs, liver, kidneys, and brain) may decrease one's opioid tolerance.
Periods of abstinence	Abstinence during incarceration, hospitalization, and detox/rehabilitation may reduce one's opioid tolerance.

Adapted from Lim JK, Bratberg JP, Davis CS, *et al.* Prescribe to Prevent: Overdose Prevention and Naloxone Rescue Kits for Prescribers and Pharmacists. *J Addict Med.* 2016;10(5):300-308

to produce a more powerful effect. These substances are available in several preparations including powder, blotter paper, tablets, and spray. They may also be accidentally absorbed via the skin or inhalation of airborne powder, presenting serious danger to public safety workers, first responders, health care workers, and laboratory personnel who may come into contact with these agents.

Prescription fentanyl is significantly more potent than morphine. As a prescription opioid analgesic available in the U.S., fentanyl is reserved for opioid-tolerant patients suffering from severe, debilitating pain (e.g., cancer patients). However, according to the Drug Enforcement Administration (DEA), much of the synthetic fentanyl found in

circulation is not derived from prescription drug diversion. Rather, it is being obtained from outside of the U.S., most likely from China, and being smuggled in via South America and Mexico. In March 2015, DEA issued a nationwide alert on illicitly-manufactured fentanyl as a threat to public health and safety. Synthetic fentanyl is 50 to 100 times more potent than morphine and 30 to 50 times more potent than heroin.

In September 2016, DEA issued a warning to law enforcement and the public regarding a new synthetic opioid being illicitly manufactured and distributed in laced batches of heroin. Carfentanil, a highly potent synthetic opioid utilized to sedate large mammals, has been linked to a significant num-

ber of overdose deaths in various parts of the country. The presence of carfentanil in illicit U.S. drug markets is cause for concern, as the relative strength of this drug could exacerbate deaths from unintentional drug overdoses, even among opioid-tolerant users. According to DEA, carfentanil is 10,000 times more potent than morphine and 100 times more potent than fentanyl. Doses as miniscule as a few grains of salt are potentially lethal.

Since Ohio ranks among the top five states with the highest occurrence of drug overdose-related deaths, it will be used as an example throughout this lesson. From 2013 to 2014, Ohio reported a nearly 20 percent increase in illicit drug overdose deaths. This number increased significantly due to circulation of illegally-produced and trafficked fentanyl and fentanyl-laced heroin throughout the state. Fentanyl-related unintentional drug overdose deaths in Ohio more than doubled from 503 in 2014 to 1,155 in 2015. Heroin-related deaths accounted for 46.7 percent of all overdose deaths in Ohio in 2015. Conversely, prescription opioid-related deaths decreased in the same period, accounting for 21.9 percent of unintentional drug overdose deaths in 2015 — a decrease from 26.6 percent reported in 2014.

Small reductions in prescription opioid-related deaths in Ohio have been observed for four straight years and may be attributed to statewide efforts to reduce the prescription drug supply available for diversion and abuse. Statewide efforts include amplified law enforcement efforts, working with medical professionals to establish opioid prescribing guidelines, and empowering prescribers and pharmacists to prevent opiate abuse by utilizing the Ohio Automated Rx Reporting System (OARRS). As a result of these efforts, Ohio reported a decrease of 81 million opioid doses from 2011 to 2015, effectively reducing the quantity of leftover prescription opioid medication available for diversion or misuse.

Pharmacists are often the first line of primary prevention. The expanding role of pharmacists in acute care and community settings provides an opportunity to play a direct role in optimizing patient outcomes. Pharmacists' ability to monitor local opioid prescribing and dispensing trends via review of statewide prescription drug monitoring databases helps pharmacists identify prescribers who may be abusing privileges and patients who may be at risk of abusing medication. Community pharmacists interact with patients on a daily basis and are well-equipped to identify drug-seeking behavior. Patients who consistently request early refills, repeatedly request replacement of "lost" drugs, and/or exhibit abusive or threatening behavior when denied medication are commonly considered cause for alarm. It is imperative for pharmacists to recognize risk factors, signs, and symptoms of an opioid overdose.

Risk Factors and Clinical Presentation

All opioid agents have some degree of affinity for the mu, lambda, and kappa-opioid receptors; however, the mu-receptor is generally responsible for the adverse effects associated with abuse, misuse, and overdose. Stimulation of these receptors by opioids or heroin may cause euphoria, pain relief, sedation, and respiratory depression.

Risk factors for opioid overdose include previous nonfatal overdose, higher opioid daily doses, polypharmacy and mixing substances, social isolation, chronic comorbid disease states, and periods of abstinence from opioid agents. See Table 1 for further details regarding risk factors for opioid overdose. While these particular risk factors may be present in some patients, pharmacists must remember that not all patients who overdose may exhibit these risk factors. It is also important to note that opioid overdose is not exclusive to drug addicts. Overdose may occur at any point of use, whether it is the first time or the

hundredth time using. Although heroin use was previously concentrated in low-income urban areas, an alarming increase in its use has shifted into non-metropolitan, suburban areas. Current studies report a majority of heroin users are white men in their early twenties, who live in non-urban areas.

Classic clinical presentation of opioid toxicity includes changes in mental status, shallow breathing, and poor bowel motility. Additionally, many patients experiencing opioid toxicity may also present with constricted pupils. Other signs and symptoms include peripheral vasodilation, pulmonary edema, hypotension, bradycardia, chest wall rigidity, myoclonus, or seizures. High doses of opioids cause decreased brain sensitivity to oxygen and carbon dioxide levels, which lowers respiratory drive and tidal volume. Hypoxia due to respiratory depression is often associated with a loss of consciousness; therefore, supportive care to restore ventilation and oxygenation remains the cornerstone of patient management.

Implications for Pharmacists

There is a growing public health concern for preparation and awareness to treat and manage patients with an opioid overdose. Pharmacists are beginning to observe an increasing need for action and education regarding patient care in overdose occurrences. Medication dispensing and counseling patients and caregivers are just some ways pharmacists can contribute to effective patient care. Expanding the pharmacists' role in medication administration and collaborative practice places them in an excellent position to assess patients at risk of opioid abuse for several reasons. First, most abused oral prescription opioid medications are obtained at pharmacies. Next, pharmacists have regular contact with patients at risk or currently abusing opioids. Lastly, pharmacists are ranked among the most highly trusted health care profes-

Table 2
Patient counseling for overdose prevention

Tell patients:

- to only take opioids prescribed for them and according to labeled directions;
- if they become worried about their opioid use, call their pharmacy or health care provider;
- if they are not taking opioids safely, pharmacists may be able to help them locate treatment;
- to always provide their prescribers with an updated medication list;
- to not mix opioids with alcohol or other medications. They should call their local pharmacy to ask if other medications are safe to take while taking opioids;
- to store opioids in a safe and secure place and promptly dispose of any unused medication;
- if they stop taking opioids, a lower dose may be needed upon restarting to prevent overdose; and
- to teach friends and family how to respond to an overdose, including where naloxone is stored and how to administer it.

sionals in the nation.

With implementation of prescription drug monitoring databases, pharmacists are able to quickly evaluate patients' prescription histories to determine legitimate medical use of opioid therapy prior to dispensing medication. While direct effects of prescription drug monitoring programs on reducing mortality are uncertain, several studies have demonstrated benefits of such programs. A 2010 prospective study of 179 clinical records reviewed via OARRS revealed that real-time access to patient-specific records changed practitioners' opioid prescription practices in 41 percent of interactions.

Prescription drug monitoring databases also allow pharmacists to monitor opioid prescribing patterns within their respective state. The same study demonstrated reductions in drug diversion and doctor shopping. Patients who obtain opioid prescriptions from multiple prescribers are often associated

with impending overdose and an increased volume of opioid circulation within communities. Prescription drug monitoring programs aid pharmacists in determining patients who may be doctor shopping. Ohio law prohibits pharmacists from dispensing prescriptions of doubtful, questionable, or suspicious origin, or if a prescription poses a risk to the health of a patient.

While filling prescriptions accurately and efficiently is vital to the pharmacy profession, assuring that the patient understands his or her therapy is equally important. Due to frequent patient interaction, community pharmacists are in an excellent position to engage patients via medication counseling. Asking open-ended questions and allowing for open discussion of a patient's therapy helps reinforce the importance of compliance with the prescribed directions. Table 2 provides talking points to help guide pharmacists in discussing opioid therapy with patients.

Pharmacologic Therapy for Opioid-Dependent Patients

Patients who have experienced a previous non-fatal overdose are encouraged to seek treatment for opioid dependence. However, prescription medication should be considered as only one of many factors determining the success of treatment. To achieve the best possible patient outcome, a multidisciplinary treatment approach which incorporates both psychological counseling and prescription medication is ideal. Pharmacologic agents such as buprenorphine, buprenorphine/naloxone, naltrexone, and methadone in combination with counseling are the cornerstones of therapy for opioid dependence. Pharmacists should be familiar with the pharmacologic properties and prescribing restrictions associated with these agents.

Buprenorphine. Buprenorphine (Buprenex[®], Subutex[®]) is a partial mu-agonist and kappa-antagonist indicated both in maintenance therapy for opioid

dependence and for moderate-to-severe acute or chronic pain. It is a Schedule III substance available as once-daily sublingual tablets, once-weekly transdermal patches and as a once- or twice-daily buccal film. The buprenorphine sublingual tablets, however, are the only formulation with FDA-approval for treating opioid dependence. Buprenorphine is mainly utilized for induction of opioid-dependence treatment in patients experiencing clear and objective signs of opioid withdrawal. It is recommended that patients are rapidly titrated to an adequate therapeutic dose, based on clinical effectiveness. Buprenorphine is not preferred as maintenance therapy; however, patients who are unable to tolerate components of recommended agents for maintenance therapy may use buprenorphine as monotherapy. Maintenance doses are patient-specific and generally range from 4 mg to 24 mg of buprenorphine per day. Doses higher than 24 mg per day have not been demonstrated to provide any clinical advantage. Adverse effects of buprenorphine include CNS depression, hypotension, QT interval prolongation, nausea and vomiting, constipation, and dry mouth.

Buprenorphine/naloxone (Suboxone[®]) is a combination agent recommended for maintenance therapy of opioid dependence. It is a Schedule III substance consisting of a partial opioid agonist and an opioid antagonist and is available as both a sublingual tablet and a sublingual film. Patients are generally initiated on buprenorphine/naloxone after a one- to two-day induction period with buprenorphine monotherapy. Buprenorphine/naloxone is available in four different doses, and patients are generally titrated to a target maintenance dose of buprenorphine 16 mg/naloxone 4 mg as a single daily dose. Because exposure to naloxone is somewhat higher after buccal administration, it is recommended that the sublingual site of administration be used during induction to minimize exposure to naloxone,

to reduce the risk of precipitated withdrawal. The manufacturer recommends against cutting, chewing, or swallowing the sublingual film preparations. Adverse effects of buprenorphine/naloxone include oral hypoesthesia (decreased sensitivity to stimuli), glossodynia (burning mouth syndrome), oral mucosal erythema, headache, nausea, vomiting, hyperhidrosis, constipation, signs and symptoms of withdrawal, insomnia, pain, and peripheral edema.

Due to the potential for physical dependence, prescribers must meet specific criteria and must have a DEA number specific to prescribing buprenorphine-containing products in order to prescribe the agent for opioid dependence. Prescribers must use caution in prescribing buprenorphine-containing agents for patients receiving benzodiazepines or other CNS depressants due to an increased risk of life-threatening respiratory depression. Dose reductions should be considered for CNS depressants, buprenorphine-containing agents, or both, in situations of concomitant administration. Lastly, patients should be advised against abrupt discontinuation of therapy, as it may result in opioid withdrawal syndrome.

Naltrexone. Naltrexone (Revia[®], Vivitrol[®]) is a pure opioid antagonist with high binding affinity to mu-receptors and a similar chemical structure to naloxone (Narcan[®]). It is indicated for use in both opioid and alcohol dependence. Naltrexone is available in both oral and intramuscular formulations. Pharmacists should be advised that naltrexone should not be initiated until patient is opioid-free (including tramadol) for at least seven to 10 days, as determined by urine analysis. This detoxification period is recommended to prevent precipitating severe opioid withdrawal that may require hospitalization. Contraindications to naltrexone therapy include hypersensitivity to naltrexone or any of its inactive components; patients currently using opioid analgesics;

Table 3
Alternative oral
naltrexone regimens

50 mg on weekdays + 100 mg dose
on Saturday
100 mg every other day
150 mg every 3 days

patients with current psychological opioid dependence; and patients in acute opioid withdrawal.

Oral naltrexone (Revia®) is initiated at 25 mg once daily. If no withdrawal symptoms occur, the dose is increased to 50 mg once daily. Alternative oral naltrexone regimens are described in Table 3. It is important to note, however, that the degree of opioid receptor blockade may be reduced with extended-interval dosing regimens and that oral naltrexone doses exceeding 50 mg carry a higher risk of hepatocellular injury. Common adverse effects of oral naltrexone include difficulty sleeping, anxiety, nervousness, abdominal pain/cramps, nausea and/or vomiting, lethargy, joint and muscle pain, and headache.

Intramuscular naltrexone (Vivitrol®) is a once-monthly injectable solution utilized to prevent relapse to opioid dependence following seven to 10 days of opioid detoxification. The recommended IM naltrexone dose is 380 mg every four weeks or once monthly. It is important to note that patients receiving IM naltrexone are further required to attend drug recovery programs such as therapy or counseling while being treated with IM naltrexone. Common adverse effects include nausea, vomiting, injection site reactions (including induration, pruritus, nodules and swelling), muscle cramps, dizziness or syncope, somnolence or sedation, anorexia, decreased appetite and other appetite disorders. IM naltrexone injections should be administered by a health care provider. Recently, Ohio Governor John Kasich signed a bill into law allowing pharmacists to administer certain

long-acting injectable medications. Any opioid antagonist used to treat drug addiction and administered in a long-acting or extended-release form (e.g., IM naltrexone) are among the medications included in the law.

Methadone. Methadone is a full mu-receptor agonist indicated for opiate detoxification, maintenance therapy of opioid dependence, and the treatment of moderate-to-severe pain. It is a Schedule II controlled substance with an abuse potential similar to morphine and is available as an oral solution and a tablet. Methadone differs from other opioid agonists in several ways. Its pharmacokinetic properties, coupled with high interpatient variability in its absorption, metabolism, and relative potency, necessitate a cautious and highly individualized approach to prescribing. When utilized as therapy for opioid dependence, outpatient methadone maintenance and detoxification treatment may be provided only by Opioid Treatment Programs (OTPs) certified by the Federal Substance Abuse and Mental Health Services Administration (SAMHSA) and registered by DEA.

Methadone must be titrated to a patient-specific maintenance dose to alleviate addictive cravings. It should be administered with extreme caution to patients with conditions accompanied by hypoxia, hypercapnia, or decreased respiratory reserve (e.g., asthma, COPD, sleep apnea, etc.). The initial methadone dose should be administered under supervision, when there are no signs of sedation or intoxication, and the patient shows symptoms of withdrawal. A single dose of 20 to 30 mg methadone is often sufficient to suppress withdrawal symptoms. If same-day dosing adjustments must be made, the patient should wait 2 to 4 hours for further evaluation. This allows time for peak levels to be reached. Patients who have not achieved peak levels, those with persistent withdrawal symptoms, and/or patients in whom symptoms

reappear after the two- to four-hour waiting period may then be administered an additional 5 to 10 mg of methadone. The total daily dose of methadone on the first day of treatment should generally not exceed 40 mg.

In patients undergoing short-term opioid detoxification, it is largely recommended that the patient be titrated to a total daily dose of about 40 mg in divided doses to achieve an adequate stabilizing level. Stabilization can be continued for two to three days, after which the dose of methadone should be gradually decreased. Patients on maintenance treatment for opioid dependence should be titrated to a dose at which opioid symptoms are prevented for 24 hours, drug cravings are reduced, the euphoric effects of self-administered opioids are blocked or reduced, and the patient is tolerant to the sedative effects of methadone. Clinical stability for maintenance therapy is most commonly achieved between 80 and 120 mg per day, administered in divided doses.

Methadone carries several FDA-issued black box warnings regarding its high abuse potential, increased risk of life-threatening respiratory depression, and increased risk of life-threatening QT prolongation. Other adverse effects of methadone include CNS depression, agitation, confusion/hallucination, hypotension, constipation, torsades de pointes, and reversible thrombocytopenia.

Pharmacologic Therapy for Emergency Overdose

Naloxone (Narcan®, Evzio®), a mu-receptor antagonist, is the preferred agent to be administered to suspected overdose patients. It is available to administer by several routes, including endotracheal, inhalation, intramuscular, intranasal, intravenous, and subcutaneous. Naloxone alone is not indicated for oral administration. However, when administered as a nebulized solution or via parenteral routes (i.e., IV, IM/SC injection),

Table 4
Naloxone formulations available without a prescription

Formulation	Brand	Dosage	Administration
IM/SC injectable	-----	0.4 mg/mL IM/SC	Inject 1 mL into upper arm; repeat after 2-3 minutes if no response
Auto-injector	Evzio®	0.4 mg/0.4 mL IM/SC	Inject into outer thigh; depress and hold for 5 seconds; repeat with second device after 2-3 minutes if no response
Intranasal spray	Narcan®	4 mg/0.1 mL IN	Spray 0.1 mL into one nostril; repeat with second device into other nostril after 2-3 minutes if no response
Intranasal atomizer	-----	1 mg/mL IN	Spray 1 mL (1/2 of syringe) into each nostril; repeat after 2-3 minutes if no response

naloxone exerts its effects rapidly.

Naloxone reverses the adverse effects of opioids via competitive inhibition of opioid receptors. It has a high binding affinity for the mu-opiate receptor—the receptor responsible for the analgesic, respiratory depressive, and euphoric effects of opioid agonists. By competing with this binding site, naloxone temporarily restores breathing and consciousness within two to five minutes of administration and its effects last between 20 and 90 minutes. The relatively short duration of action may present an issue if medical personnel are not immediately contacted, as many opioid agonists have much longer durations of action, allowing the potential for a patient to relapse into respiratory depression.

Naloxone should be initiated at the lowest effective dose, generally 0.4 mg, and if there is no response, the dose should be repeated every two minutes to a maximum of 15 mg. Dosing may be adjusted accordingly once medical personnel arrive. In cases of polysubstance or high-potency fentanyl-related overdoses, standard doses of naloxone may be insufficient and additional doses may be required for full opioid reversal. Naloxone administration may rapidly precipitate withdrawal symptoms in patients, causing extreme discom-

fort, agitation, and combativeness. Adverse events associated with naloxone administration are mostly related to withdrawal symptoms and include confusion, headache, nausea and vomiting, aggression, tachycardia, shivering, diaphoresis, and tremor.

Patient Counseling. Pharmacists play a key role in naloxone dispensing; therefore, one must be educated to properly counsel patients and caregivers regarding appropriate naloxone use. Patients, family members, and caregivers must be counseled about signs and symptoms of opioid overdose and what to expect after naloxone administration. It is important to remind patients and caregivers that naloxone should only be administered in emergency situations. Patients and caregivers should further be reminded that health care personnel should always be contacted after naloxone administration, even if the patient awakens.

Counseling in regard to administration should also take place and should be based on the dosage form being dispensed. Administration of naloxone nasal spray (Narcan®) requires a separate atomizer device to create a fine mist that can be absorbed via the nasal mucosa and should be administered while the patient is lying on their back. The

nozzle may be placed inside either nostril while pressing the plunger to release the dose. The naloxone intramuscular auto-injector (Evzio®) is dispensed with a training auto-injector and two naloxone-filled auto-injectors. The training injector provides narrated step-by-step instructions for administration. After administration of the initial dose, breathing must be continually monitored. If the patient does not awaken within two to three minutes of initial administration, the second auto-injector dose should be given. Caregivers should be advised to turn patients on their side after naloxone is administered to avoid choking or aspiration.

Dispensing Naloxone without a Prescription.

Several states have authorized the use of standing orders for naloxone administration and dispensing in order to expand its distribution as a potentially life-saving intervention. In these states, a health care professional approved to prescribe naloxone may issue a prescription order for naloxone to be dispensed to any person who meets criteria specified in a physician-approved protocol. The standing medication orders can be filled at community pharmacies and are often billed to insurance. Additionally, a growing number of states have successfully implemented laws explicitly permitting pharmacists to dispense naloxone pursuant to the standing order—an important component that encourages naloxone distribution through community-based outlets that may be more likely to reach individuals at high risk of overdose. As of September 2015, 29 states permit standing orders for dispensing naloxone.

Due to the severity of Ohio's overdose epidemic, legislators have made significant strides in broadening naloxone availability. In 2014, a law was passed enabling first responders to administer naloxone. It also allowed family and friends of patients at risk of overdosing to obtain prescriptions for naloxone. Ohio legislators have since further expanded naloxone

access by passing legislation which permits pharmacists to dispense naloxone without a prescription and in accordance with a physician-established protocol. As of 2016, more than 900 pharmacies in 79 Ohio counties offered naloxone without a prescription.

The Ohio Revised Code states that pharmacists and pharmacy interns may dispense naloxone without a prescription to the following: any individual believed to be at risk of opioid overdose; a family member, friend, or other person in a position to assist an individual who may be at risk of opioid overdose; or a peace officer. Naloxone dispensed without prescription is limited to specific National Drug Codes (NDCs) of intranasal or intramuscular formulations. See Table 4 for a brief description of naloxone formulations available without a prescription in Ohio.

Some critics of increasing naloxone accessibility have voiced concern that such accessibility could potentially exacerbate opioid abuse or drug overdose deaths. They argue that drug addicts may engage in more frequent risky behavior due to a false sense of security because there is a rescue drug available. Given that Ohio's legislation allowing for the dispensing of non-prescription naloxone via a pharmacy board-approved protocol is relatively new, it remains to be seen if increased accessibility correlates to increased risky behavior.

Summary

Drug overdose deaths, especially those attributed to opiates such as prescription analgesics and heroin, continue to be a health care problem of epidemic proportions both nationally and at the state level. Despite increased efforts by lawmakers, educational efforts, and prescription monitoring systems, such as OARRS, having successfully limited the quantity of unused prescription analgesics in community circulation, many who are addicted to prescription opioids may ultimately turn to heroin due to its ease of accessibility and relatively

lower cost. The lacing of heroin with clandestinely-manufactured opioid agents such as fentanyl and carfentanil has further complicated the overdose epidemic.

Effectively treating opioid dependence and increasing accessibility to naloxone as a means to reverse acute opioid overdose may be life-saving, but opponents point out that it may exacerbate the occurrence of opioid overdose deaths. As some of the most trusted and accessible health care professionals in the nation, pharmacists should be prepared to identify patients at risk of opioid overdose and effectively counsel patients and caregivers receiving agents indicated in the treatment of both non-emergent opioid dependence and emergent opioid reversal.

• • • • •

The author, the Ohio Pharmacists Foundation and the Ohio Pharmacists Association disclaim any liability to you or your patients resulting from reliance solely upon the information contained herein. Bibliography for additional reading and inquiry is available upon request.

This lesson is a knowledge-based CPE activity and is targeted to pharmacists in all practice settings. Disclosure: The OPF trustees and other individuals responsible for planning OPF continuing pharmacy education activities have no relevant financial relationships to disclose.

Program 0129-0000-17-004-H01-P

Release date: 4-15-17

Expiration date: 4-15-20

CPE Hours: 1.5 (0.15 CEU)

The Ohio Pharmacists Foundation Inc. is accredited by the Accreditation Council for Pharmacy Education as a provider of continuing pharmacy education.



continuing education quiz

The Opioid Abuse and Overdose Epidemic in Ohio: Implications for Pharmacists

1. According to CDC, which of the following has surpassed motor vehicle accidents as the leading cause of accidental injury deaths in the U.S.?

- a. Drug overdose
- b. Suicide
- c. Drug diversion
- d. Prescription drug abuse

2. Nearly half of young people who inject heroin surveyed in three recent studies reported abusing which of the following before starting heroin use?

- a. Hypnotic sedatives
- b. Amphetamines
- c. Opioids
- d. Benzodiazepines

3. Heroin is laced with fentanyl in all of the following preparations EXCEPT:

- a. blotter papers.
- b. creams.
- c. powders.
- d. sprays.

4. According to DEA, much of the synthetic fentanyl found in circulation is derived from prescription drug diversion.

- a. True
- b. False

5. Carfentanil, a highly potent synthetic opioid, is:

- a. 100 times more potent than heroin.
- b. 10,000 times more potent than fentanyl.
- c. 100 times more potent than morphine.
- d. 10,000 times more potent than morphine.

6. Which of the following opioid receptors is generally responsible for the adverse effects associated with abuse, misuse and overdose?

- a. Alpha
- b. Lambda
- c. Mu
- d. Kappa

Completely fill in the lettered box corresponding to your answer.

- | | | |
|--------------------|---------------------|---------------------|
| 1. [a] [b] [c] [d] | 6. [a] [b] [c] [d] | 11. [a] [b] [c] [d] |
| 2. [a] [b] [c] [d] | 7. [a] [b] [c] [d] | 12. [a] [b] [c] [d] |
| 3. [a] [b] [c] [d] | 8. [a] [b] [c] [d] | 13. [a] [b] [c] [d] |
| 4. [a] [b] | 9. [a] [b] [c] | 14. [a] [b] [c] [d] |
| 5. [a] [b] [c] [d] | 10. [a] [b] [c] [d] | 15. [a] [b] [c] [d] |

I am enclosing \$5 or this month's quiz made payable to: Ohio Pharmacists Association.

1. Rate this lesson: (Excellent) 5 4 3 2 1 (Poor)
2. Did it meet each of its objectives? yes no
If no, list any unmet _____
3. Was the content balanced and without commercial bias?
 yes no If no, why? _____
4. Did the program meet your educational/practice needs?
 yes no
5. How long did it take you to read this lesson and complete the quiz? _____
6. Comments/future topics welcome.

Please print.

Program 0129-0000-17-004-H01-P
0.15 CEU

Name _____

Address _____

City, State, Zip _____

Email _____

NABP e-Profile ID _____ Birthdate _____ (MMDD)

**Return quiz and payment (check or money order) to
Correspondence Course, OPA,
2674 Federated Blvd, Columbus, OH 43235-4990**

7. Stimulation of opioid receptors by opiates or heroin may cause all of the following EXCEPT:

- a. euphoria.
- b. agitation.
- c. sedation.
- d. respiratory depression.

8. Clinical presentation of opioid toxicity includes all of the following EXCEPT:

- a. dilated pupils.
- b. bradycardia.
- c. shallow breathing.
- d. seizures.

9. Which of the following buprenorphine formulations is approved by FDA for treating opioid dependence?

- a. Transdermal patch
- b. Buccal film
- c. Sublingual tablet

10. Adverse effects of buprenorphine include:

- a. diarrhea.
- b. hypertension.
- c. excessive salivation.
- d. QT prolongation.

11. Naltrexone:

- a. is available in a buccal lozenge.
- b. has a low binding affinity to mu-receptors.
- c. is only indicated for use in opioid dependence.
- d. should be initiated after a 7-10 day opioid-free period.

12. Oral naltrexone doses exceeding 50 mg carry a higher risk of:

- a. hepatocellular injury.
- b. joint pain.
- c. nervousness.
- d. headache.

13. The total daily dose of methadone on the first day of treatment should generally not exceed:

- a. 10 mg.
- b. 20 mg.
- c. 30 mg.
- d. 40 mg.

14. All of the following are black box warnings regarding methadone EXCEPT:

- a. increased risk of life-threatening QT prolongation.
- b. increased risk of reversible thrombocytopenia.
- c. high abuse potential.
- d. increased risk of respiratory depression.

15. Naloxone exerts its effects rapidly by all of the following routes EXCEPT:

- a. IV injection.
- b. IM/SC injection.
- c. orally.
- d. when nebulized.

To receive CPE credit, your quiz must be received no later than April 15, 2020. A passing grade of 80% must be attained. CPE credit for successfully completed quizzes will be uploaded to the CPE Monitor. CPE statements of credit can be printed from the CPE Monitor website. Send inquiries to opa@ohiopharmacists.org.