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Educational Objectives

GOAL: To provide knowledge and awareness of the safety, efficacy, and legal status of the opioid overdose antagonist naloxone as a part of comprehensive opioid overdose education for patients and caregivers.

After participating in this activity, pharmacists will be able to:

- > Identify ways to implement harm reduction concepts for patients taking prescription opioids and/or using heroin.
- > Compare and contrast the various naloxone formulations currently available for outpatient use.
- > Discuss the evidence supporting the effectiveness of increased access to naloxone in reducing opioid overdose deaths.
- > Describe the regulations, statutes, and models relevant to pharmacist prescribing and dispensing of naloxone.
- > List the essential steps to teach patients regarding how to identify and respond to a suspected opioid overdose.

After participating in this activity, pharmacy technicians will be able to:

- > Identify ways to implement harm reduction concepts for patients taking prescription opioids and/or using heroin.
- > List the various naloxone formulations currently available for outpatient use.
- > Discuss the evidence supporting the effectiveness of increased access to naloxone in reducing opioid overdose deaths.
- > Describe the regulations, statutes, and models relevant to pharmacist prescribing and dispensing of naloxone.



The University of Connecticut School of Pharmacy is accredited by the Accreditation Council for Pharmacy Education as a provider of continuing pharmacy education.

Pharmacists and pharmacy technicians are eligible to participate in the knowledge-based activity, and will receive up to 0.2 CEUs (2 contact hours) for completing the activity, passing the quiz with a grade of 70% or better, and completing an online evaluation. Statements of credit are available via the CPE Monitor online system and your participation will be recorded with CPE Monitor within 72 hours of submission.

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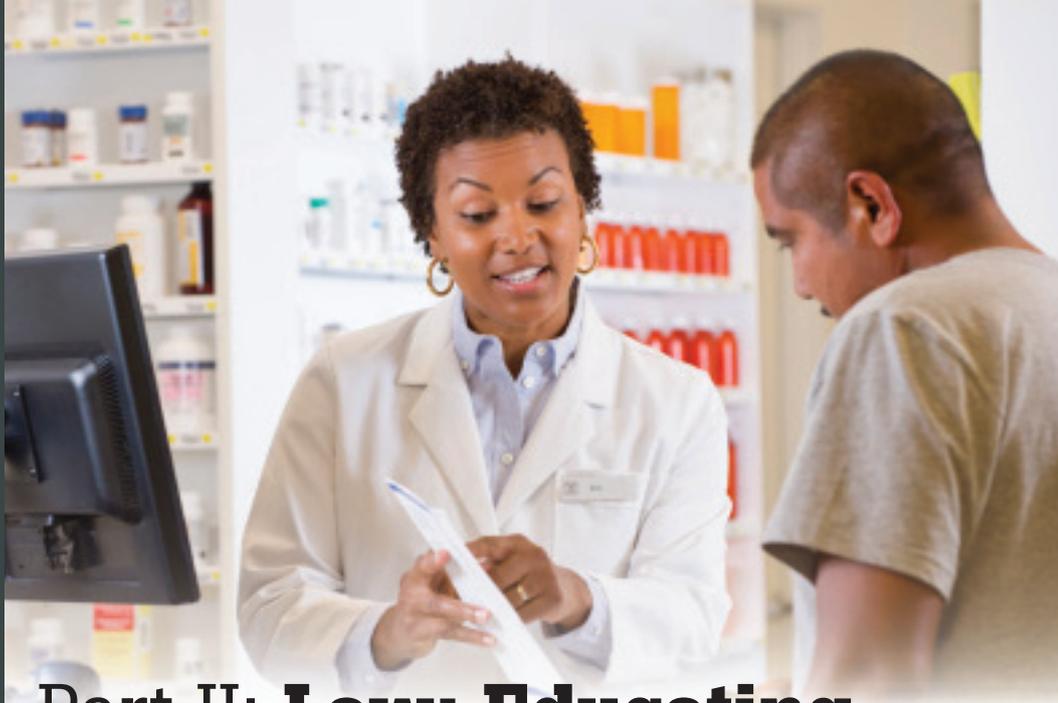
Activity Fee: There is no fee for this activity.

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For questions concerning the online CPE activities, e-mail: cpehelp@advanstar.com.



Part II: Law: Educating and empowering patients and caregivers

The pharmacist's role in reducing the risk of opioid overdose

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Abstract

Pharmacists are accessible public health practitioners who are focused on medication safety education and intervention. The most recent national data suggest that the prescription opioid and heroin overdose epidemics show no signs of abating. Beyond standard education, pharmacists can use several harm reduction tools to enhance opioid medication safety for patients who use prescription opioids or heroin, as well as their families and friends. Naloxone, a safe and effective antidote for opioid overdose, is a proven tool to reduce opioid overdose deaths in the community. Pharmacists play an increasingly valuable role in prescribing naloxone for patients at risk of overdose and their caregivers as states make policy changes to create pharmacist-initiated prescribing models. Optimal outcomes of naloxone availability in and distribution from pharmacies include a decrease in opioid-related overdose deaths, an educated and de-stigmatized public, and increased evidence-based treatment for patients in recovery.

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THE PHARMACIST'S ROLE IN REDUCING THE RISK OF OPIOID OVERDOSE

Introduction

The drug overdose epidemic in the United States has yet to peak. In 2014, more than 47,000 Americans died of drug overdose, a statistically significant increase of 6.5% compared to the number who died in 2013 and the highest number of overdose deaths ever recorded in one year.¹ The age-adjusted rate of overdose deaths due to all opioids (prescription, including morphine, oxycodone, and hydrocodone; plus heroin, including forms increasingly contaminated by non-pharmaceutical fentanyl) has tripled since 2000, representing 61% of all overdose deaths in 2014 (n = 28,647).¹ Age-adjusted prescription opioid overdose death rates increased 9% from 2013 to 2014, and heroin-associated overdose death rates increased 26% from 2013 to 2014.¹ In a speech on October 21, 2015, in Charleston, West Virginia, the state with the nation's highest overdose death rate, President Barack Obama said, "So this crisis is taking lives. It's destroying families. It's shattering communities all across the country. And that's the thing about substance abuse—it doesn't discriminate. It touches everybody—from celebrities to college students, to soccer moms, to inner-city kids. White, Black, Hispanic, young, old, rich, poor, urban, suburban, men and women. It can happen to a coal miner; it can happen to a construction worker; a cop who is taking a painkiller for a work-related injury. It could happen to the doctor who writes him the prescription."²

The opioid overdose epidemic is driving rapid and widespread systematic changes to increase access to naloxone, a safe and effective antidote for opioid-induced respiratory depression, the principal cause of opioid overdose death.^{3,4} Since naloxone was approved by the Food and Drug Administration (FDA) in 1971, this agent has been used by emergency medical services and professionals in emergency and acute healthcare settings to reverse opioid overdoses. Over the past 20 years, naloxone has been distributed in the community to more than 150,000 people at the highest risk of opioid overdose death: heroin users and their friends and family members;

a total of 26,000 reversals have been documented.⁵ Most unintentional overdose deaths are witnessed,^{6,7} and data show that the rate of opioid overdose deaths declines proportionally to the amount of naloxone distributed or dispensed in a community.⁸

Public health advocates, policymakers, first responders, and clinicians can use the Substance Abuse and Mental Health Services Administration (SAMHSA) Opioid Overdose Prevention Toolkit to implement wider distribution of naloxone in their communities.⁹ Overdose education and naloxone distribution (OEND) to heroin users and co-prescribing of naloxone with prescription opioids are supported by guidelines and statements from the World Health Organization (WHO),¹⁰ American Medical Association (AMA),¹¹ American Public Health Association (APHA),¹² American Society for Addiction Medicine (ASAM),¹³ American College of Medical Toxicology (ACMT),¹⁴ National Association of Boards of Pharmacy (NABP),¹⁵ and American Pharmacists Association (APhA).¹⁶

“Multiple studies have shown that most opioid overdoses are witnessed and that other injection drug users, caregivers, friends, and/or family members are willing and able to respond and reverse the overdose.”

Despite this broad organizational support, availability of continuing education on naloxone,¹⁷ opioid prescribing guidelines that recommend naloxone for patients at risk for overdose, and media attention, the implementation model of a prescriber writing a prescription for naloxone for pa-

tients at risk of overdose (permitted in all 50 states) and/or for their friends or family members (third-party prescribing, permitted in 38 states¹⁸) remains limited.^{19,20} This problem is not limited to just a few medical specialties such as palliative care and physical therapy and rehabilitation. Although some prescriber specialists prescribe opioids in high volumes individually, most opioids are prescribed by generalist practitioners according to a recent analysis of Medicare claims data.²¹ In fact, researchers have found that providers continue to prescribe opioids for patients who have already experienced a nonfatal opioid overdose 91% of the time, despite the significant risk for subsequent fatal overdose in these patients.^{22,23}

As the most accessible healthcare professionals and medication safety experts in the community, pharmacists encounter both groups of patients experiencing the greatest increases in opioid overdose deaths: those using prescription opioids and those injecting heroin, as well as their caregivers, family, and friends. Pharmacists are ideal partners to help reduce unintentional opioid-related deaths by proactively identifying and educating patients at risk for overdose, recommending safe storage and disposal of opioids, selling nonprescription syringes and syringe disposal, and stocking and dispensing all forms of naloxone. In most states, pharmacists can prescribe naloxone through standing orders, collaborative practice agreements, and/or independent prescriptive authority, essentially making naloxone a behind-the-counter medication.²⁴

Corporate pharmacy chains, national pharmacy organizations, and their members have taken on the opioid crisis by establishing partnerships with the White House.²⁵ In October 2015, CVS Health and Rite Aid planned to train thousands of their pharmacists in overdose education and naloxone education and are expected to stock naloxone in hundreds of their stores, primarily in states that have broadening models of naloxone prescribing by pharmacists. The National Association of Chain Drug Stores (NACDS), National Community Pharmacists Association (NCPA), American

Society of Health-System Pharmacists (ASHP), and APhA will market and distribute educational materials on naloxone and offer overdose educational programs for their pharmacist and pharmacy technician members. Additionally, the National Association of Boards of Pharmacy (NABP) will continue to link state prescription drug monitoring programs (PDMPs) in its national network and improve pharmacist and prescriber access to this database.²⁵ The College of Psychiatric and Neurologic Pharmacists (CPNP) have produced an informative and comprehensive educational guideline on naloxone access and education, as well.²⁶

Harm reduction strategies

The secretary of the U.S. Department of Health and Human Services (DHHS) established three priority areas to address opioid overdose in March 2015: prevention, focusing on prescribing guidelines to increase the appropriate use of opioids and use of PDMPs; expanded access to treatment, including methadone and buprenorphine; and harm reduction with expanded access to and distribution of naloxone.²⁷ The 2015 White House Office of National Drug Control Policy (ONDCP) also emphasized the importance of expanded naloxone access to reduce the harm of fatal respiratory depression that results from prescription opioid and/or heroin overdose.²⁸

Harm reduction is a continuum of measures to help patients with substance use disorder to minimize the morbidity and mortality associated with drug misuse and injecting drugs, factors not necessarily related directly to the drug's effects.²⁹ Practitioners and advocates of harm reduction accept that abstinence from substances, while an option for some patients, is not a panacea, and therefore accept that most patients with substance use disorder, a chronic, relapsing condition, will continue to use drugs. Clinicians should not judge patients with substance use disorder who are not abstinent as "failures" or "immoral" but should attempt to meet each patient's needs on an individualized basis to maximize long-term outcomes. Clinicians who practice harm reduction should also understand that patients with substance use

TABLE 1 Pharmacy-based interventions to address opioid overdose

Intervention	Goal
Access the Prescription Drug Monitoring Program (PDMP or PMP)	To detect and identify potential controlled substance misuse, including multiple prescriptions, pharmacies, and providers
Promote safe opioid storage (lockboxes) and disposal	To reduce opioid diversion by caregivers/friends/family
Participate in opioid use contracts/insurer lock-in programs	To encourage use of one prescriber and one pharmacy for all opioids and other controlled substances
Provide screening, overdose education, and referral to treatment programs	To triage patients at risk of overdose and provide targeted, relevant information regarding opioid use disorders and heroin use
Sell nonprescription syringes at the maximum allowed quantity desired by the patient and provide safe syringe disposal	To promote safe syringe usage and decrease transmission of blood-borne pathogens
Stock, dispense, and prescribe (where permitted) all formulations of naloxone	To provide opioid and heroin users and caregivers/friends/family with a safe and effective opioid overdose reversal agent

Source: Ref 20, 24, 29, 35, 44, 46-51, 54, 56-63, 65-77, 114-123

disorder can help to implement harm reduction strategies for others with substance use disorders who have yet to seek any form of assistance.²⁹

Originally implemented to reduce the transmission of HIV, hepatitis B, and eventually hepatitis C among people who inject drugs, several harm reduction interventions are already implemented in most U.S. pharmacies, following Centers for Disease Control and Prevention (CDC) guidelines for the comprehensive care of people who inject drugs³⁰: Providing condoms, selling over-the-counter HIV tests, dispensing antivirals (treatment as prevention) for HIV, dispensing antivirals for hepatitis B and C, vaccinating against hepatitis B, offering prescription and nonprescription needle and syringe dispensing and sales, providing safe syringe disposal, dispensing buprenorphine, and offering education. In some pharmacies with retail clinics, sexually transmitted infection screening is also available.³¹ In addition to syringe access and disposal, several other interventions are available to identify and reduce the potential for harm among heroin and prescription drug users, misusers, and their caregivers who access

pharmacies: Using the PDMP; offering risk-stratified overdose screening, education, and referral to treatment; offering safe opioid storage and disposal; and stocking, dispensing, and prescribing naloxone (Table 1).^{20,24,28,31-62}

Role of PDMPs

Pharmacists, prescribers, and law enforcement officials can access PDMP databases in all states except Missouri. Some states also permit delegation of access to licensed personnel such as registered nurses, pharmacy technicians, and/or student interns. PDMPs are typically housed at state departments of health and are administered by personnel who work closely with the state boards of medicine and pharmacy. The purpose of the PDMP is to identify overprescribing, diversion, and fraud related to controlled substances in that state. The APhA, NABP, and other organizations have advocated nationwide integration and information sharing of state-level data in real time to allow users to see the complete prescribing history of the patient and/or prescriber.³² Many states are expanding the

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number of classes of scheduled drugs for which information is collected (e.g. from Drug Enforcement Administration [DEA] schedule II and III drugs to schedules II through V drugs), changing how quickly the information is updated in the system from pharmacies (e.g. from weekly to 24-hour reporting), and mandating that users register to use the system as a requirement of state licensure renewal. In some states, PDMP checks must be performed for some users before the first controlled substance prescription is issued, after 6 months of opioid use, and/or before every controlled substance prescription is written.

Because PDMPs collect data from every pharmacy regardless of whether the patient paid cash or used insurance, they are a comprehensive resource to clinicians, allowing them to detect not only red flags for diversion, but also significant overdose risk factors. Risk factors include: ≥ 4 pharmacies used, ≥ 4 prescribers, high-dose opioid prescriptions (≥ 50 morphine mg equivalents), long-term opioid use (≥ 120 days), high-risk combinations of long-acting and shorter-acting opioids, opioids prescribed with other controlled substances (principally benzodiazepines), prescription of buprenorphine for treating opioid use disorder, and methadone use for pain.^{9,33-43} Some researchers and policymakers have recommended that naloxone prescriptions should also be reported in the PDMP to help identify and track which high-risk groups are receiving this life-saving opioid antidote, whom to target for overdose training, and how to market naloxone to the public.⁴⁴ More research is needed to determine how to motivate clinicians to register for and use the PDMP, whether use of the PDMP changes medical or pharmacy practice, and whether use of the PDMP has any significant and sustained effect on the number of emergency department visits related to nonfatal opioid overdoses and/or the incidence of opioid overdose deaths.⁴⁵⁻⁵¹

Interventions to limit opioid diversion

Consistently, national representative surveys have reported that most nonmedical users of prescription opioids divert

opioid medications for free from family or friends.⁵² Safe opioid storage and disposal are important interventions to prevent overdose not only among patients with opioid use disorder, but also among people in households who live with opioid users.^{53,54} Children, especially adolescents, are particularly vulnerable to accidental injury and unintended overdose from opioid medications.⁵⁵ Lockboxes are over-the-counter devices that prevent unauthorized access to opioids.⁵³ Pharmacists and pharmacy technicians in all 50 states can stock, recommend, and sell these storage devices, ideally near the pharmacy or in the pharmacy, in addition to recommending them with every opioid prescription. One pilot study of outpatients prescribed an opioid who received a 15-minute web-based intervention on safe opioid storage demonstrated significantly greater knowledge of opioid safety after a one-month follow-up, potentially expanding the options for pharmacists' recommendations.⁵⁶

Until October 2014, pharmacies were prohibited by law from collecting, returning, and disposing of patients' unused controlled substances. DEA Drug Take-

site pharmacy, and retail pharmacies to collect controlled substances through mail-back programs and/or on-site collection receptacles.⁵⁷

In May 2015, California's Safe Drug Disposal Plan, which mandated pharmaceutical manufacturers to pay for disposal of their products used in Alameda county, was upheld in the 9th Circuit Court of Appeals after an appeal to the U.S. Supreme Court was denied.⁵⁸ Several other jurisdictions that also funded disposal projects through manufacturer payment including King County, Washington,⁵⁹ and other counties and cities in California benefited from this final legal step.⁶⁰ Now pharmacies across the country can charge pharmaceutical manufacturers to fund the installation and maintenance of safe disposal receptacles and/or mail-back programs without the added barrier of charging the patient for this service.

Opioid use contracts and non-prescription syringe programs

A decade ago, a seminal paper was published describing the implementation of opioid use contracts, sometimes called

PAUSE AND PONDER

Think about how you can proactively advocate harm reduction techniques to both non-prescription and prescription syringe purchasers, such as offering naloxone prescriptions and syringe disposal.

Back days and secure 24-hour access to drug disposal containers at police stations were some of the few options available for patients looking to safely dispose of controlled substances; other recommendations included disposing of opioids by mixing the medications with cat litter or coffee grounds and placing them in the trash.⁵⁴ On October 9, 2014, final regulations promulgated according to the Secure and Responsible Drug Disposal Act of 2010 were enacted, allowing authorized manufacturers, distributors, reverse distributors, narcotic treatment programs, hospitals/clinics with an on-

“pain contracts,” to limit the harms of opioid use in patients requiring chronic administration of opioids.⁶¹ These are agreements among one patient, prescriber, and pharmacy that are designed to promote exclusivity and limit prescription misuse and diversion by theoretically limiting the patient from going to multiple pharmacies and/or multiple prescribers. Five years later, the authors of a systematic review found little evidence that these contracts had significant effects on opioid misuse.⁶² Similarly, 46 state Medicaid programs have designed “lock-in” programs to compel patients who demonstrate behaviors

consistent with diversion to use only one designated pharmacy and one prescriber. While these programs have been shown to result in cost savings to the Medicaid program, they have not been shown to change behavior or to affect opioid overdose rates or quantity of drugs dispensed.⁶³ Besides recommending naloxone for Medicaid patients with risk factors for overdose,⁶⁴ pharmacists should consider opioid use agreements not as interventions to be used alone but as one part of the collection of individual and community harm reduction interventions available to reduce opioid supply, combined with the use of the PDMP; safe opioid storage and disposal; and screening, brief intervention, and referral to treatment (SBIRT).

A survey in Utah and Texas showed that only half of pharmacists are currently screen-

der.⁶⁵ Not all pharmacists have the training, confidential workspace, and time needed to provide screening, brief intervention, and referral to treatment for all of their opioid-using patients. Pharmacists do provide medication information leaflets with opioid prescriptions. These forms, with some modifications, could more clearly and consistently inform patients about the risks and benefits of short- and long-term opioid therapy, including risks of overdose and overdose response.⁶⁷ Requiring pharmacist involvement in risk evaluation and mitigation strategies (REMS) for long-acting opioids is yet another option to broaden pharmacist knowledge and maximize patient education through regulatory means.

In April 2015, the CDC published a report about an epidemic of HIV and hepatitis C infections acquired via syringe reuse and sharing by networks of injection drug users

To prevent a repeat of this public health calamity, pharmacists should advocate this evidence-based harm reduction effort and provide syringe disposal, especially in areas with high rates of prescription drug misuse by injection and in areas where access to syringe exchange programs is limited.⁷⁰⁻⁷² In the Indiana outbreak, the citizens affected were misusing prescription opioids, increasing the likelihood that someone in their network was interacting with a pharmacist to fill the prescription. Pharmacists may also increase their public health reach into the community by offering public syringe disposal, providing information on safer syringe disposal (e.g. empty laundry detergent container) and/or selling syringe disposal boxes. Studies have shown a positive feedback effect of serving current or former injection drug users, with decreased stigma reported among pharmacists who dispense syringes⁷³ or medication-assisted therapy.⁷⁴

Researchers have studied the barriers to legal nonprescription syringe purchase and disposal in pharmacies. Besides the typical barriers to any public health or clinical activities in the community pharmacy such as time, space, training, and reimbursement,^{72,75} pharmacist attitudes toward people who inject drugs (including the belief that crime rates around the pharmacy⁷⁶ and even opioid overdoses in pharmacy parking lots⁷⁷ increase with nonprescription syringe sales, a belief that has been thoroughly debunked) likely continue to affect pharmacist promotion of inexpensive nonprescription syringe sales. Still, a majority of pharmacists surveyed from around the world support providing syringes and syringe disposal for injection drug users.⁷⁰

One of the most controversial but evidence-based interventions to prevent overdose deaths and reduce non-drug-related harms among injection drug users is the creation of supervised or safe injection facilities. Safe injection facilities allow drug users to inject pre-obtained drugs under supervision by medical personnel.⁷⁸

Although years of data rigorously support the life-saving and harm reduction benefits of supervised or safe injection facilities for injection drug users outside

PAUSE AND PONDER

Review the naloxone formulations in Table 2. Think about which formulations are best for your patient population, based on the characteristics listed for each.

ing for misuse of prescription opioids and/or discussing opioid misuse with patients. However, the survey results did show that screening pharmacists were more likely to discuss opioid misuse than pharmacists who did not report screening behaviors.⁶⁵ In 2014, the Ohio Department of Mental Health and Addiction Services analyzed 2519 responses from prescribers and pharmacists to a survey on how their state PDMP would help them intervene or refer patients with substance use disorder to treatment.⁶⁶ Among the 862 pharmacists who responded, only 34% moderately or strongly agreed that they were comfortable educating patients to seek help for substance use disorder, and only 28% agreed that they had the knowledge needed to refer patients. When pharmacists did refer, they referred to an addiction specialist, rehabilitation clinic, or 12-step organization, but they did so infrequently. Between 80% and 90% of the pharmacists surveyed were not familiar with clinically validated screening instruments used to screen and refer patients with substance use disorder.

in rural Scott County, Indiana.⁶⁸ Most members of these intergenerational networks were crushing and injecting oxycodone, a prescription opioid medication. Local, state, and national public health agencies responded with a comprehensive set of interventions, including medical care for HIV and hepatitis C, creation of a public education campaign, community outreach, substance use disorder treatment, and temporary establishment of a syringe exchange program.⁶⁸ At the time of this epidemic it was already legal in Indiana and 47 other states for nonprescription syringe and needle purchase at pharmacies.⁶⁹ In Scott County and other rural areas with a relatively limited set of providers to write prescriptions for syringes and/or restrictions on syringe exchange programs, pharmacists play an essential role in providing this proven harm reduction service. Indiana law does not limit the number of syringes purchased but does require that the buyer provide identification, which may be a barrier to syringe access.⁶⁹

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TABLE 2

Naloxone formulations

	Injectable (and intranasal) generic ^a	Intranasal branded ^b	Injectable generic	Auto-injector branded
				
Layperson experience	X		X	X
Assembly required	X		X	
Can titrate dose	X		X	
Strength	1 mg/mL	4 mg/0.1 mL	0.4 mg/mL OR 4 mg/10 mL	0.4 mg/0.4 mL
Pharmacy cost per kit^c	\$\$	\$\$	\$	\$\$\$ ^d
Prescription and quantity	#2 2-mL Luer-Jet Luer-Lock needleless syringe plus #2 mucosal atomizer devices (MAD-300)	#1 two-pack of two 4-mg/0.1-mL intranasal devices	#2 single-use 1-mL vials or #1 10-mL multidose flip-top vial PLUS #2 3-mL syringe with 23- to 25-gauge 1- to 1.5-inch intramuscular needles	#1 two-pack of two 0.4-mg/0.4-mL prefilled autoinjector devices
Directions for suspected opioid overdose	Spray 1 mL (1/2 of syringe) into each nostril. Repeat after 2-3 minutes if no or minimal response.	Spray 0.1 mL into one nostril. Repeat with second device into other nostril after 2-3 minutes if no or minimal response.	Inject 1 mL in shoulder or thigh. Repeat after 2-3 minutes if no or minimal response.	Inject into outer thigh as directed by English voice-prompt system. Place black side firmly on outer thigh and depress and hold for 5 seconds. Repeat with second device in 2-3 minutes if no or minimal response.
Some portions developed with funding from NIDA R01 DA034634				

^aIMS/Amphastar has an additional naloxone product that is *not recommended* for layperson and take-home naloxone use because it is too strong of a dose for injection by laypersons (naloxone HCl injection, USP, 2 mg/2 mL Min-I-Jet prefilled syringe with 21-gauge and 1.5-inch fixed needle NDC # 76329-1469-1 (10 pack) and 76329-1469-5 (25 pack)).

^bAs of January 12, 2016, Narcan nasal spray has been approved by the FDA but is not yet publicly available.

^cThere is considerable price variance for each product; local pharmacists will be able to provide specific local pricing.

^dProduct and copay coupons are available; visit manufacturer website for more information.

Source: Adapted with permission from Ref 17

the United States,⁴⁵ only two operate in North America. One major newspaper's editorial board, however, recently advocated the use of safe injection facilities in addition to naloxone for harm reduction.⁷⁹ It is unknown what role pharmacists could play in such facilities, however potential roles would be advocacy of harm reduction, education regarding opioid overdose prevention and response with naloxone, and referral for substance use disorder treatment.

Naloxone formulations available

Naloxone is a competitive antagonist at central nervous systems (CNS) mu (μ) receptors, binding to them with robust affinity to effectively and rapidly displace most opioid molecules and thereby reversing both respiratory depression and analgesia.⁸⁰ Healthy volunteers who received up to 100 times the recommended dose of naloxone experienced no ill effects.⁸⁰ Naloxone can be administered via intravenous (IV), intranasal (IN), intramuscular (IM), and

subcutaneous (SC) routes (Table 2).¹⁷ It has no effect when administered orally; for this reason, naloxone is co-formulated with other medications, most commonly buprenorphine, to deter patients only from altering and injecting it. Naloxone's lipophilicity permits widespread distribution to the CNS with an onset of action of one to three minutes and an elimination half-life (duration of action) of 30 to 90 minutes.⁸⁰ Importantly, this half-life is often shorter than the duration of action of long-acting opioids,

and so the victim may redevelop respiratory depression. Responders should always have kits that contain more than one dose of naloxone in case another dose is needed beyond 90 minutes.

For decades, emergency responders and healthcare workers in acute care settings administered IV naloxone to successfully reverse opioid-induced respiratory

“ Prescribing and dispensing naloxone to individuals carries the same civil and criminal legal risk as prescribing and dispensing other non-controlled substance medications.”

depression. In 1994, one study showed that the IN route was as effective as the IV route, but overdose victims were more likely to need a second rescue dose with IN administration.⁸¹ In a randomized controlled trial of naloxone treatment for heroin overdose, IN efficacy was equivalent to IM efficacy, and the mean time to adequate response was 10 minutes for both routes of administration. Significantly more patients randomized to IN naloxone were found to require supplemental doses (although this was not the primary study objective).⁸² No research published to date has demonstrated superior efficacy of one form over another for reversing opioid-induced respiratory depression.

Community programs have distributed generic IN and IM forms of naloxone with overdose response education to high-risk patients, with more than 26,000 reversals recorded by these programs.⁵ This is despite the lack of an official FDA approval for the use of the IV formulation via the IN route with a mucosal atomizer device (MAD). Both the IN and IM forms can be titrated to effect and are available at similar price points at most pharmacies at the time

of writing. The MAD is a medical device and cannot be charged as a drug to insurance companies; it can only be charged as durable medical equipment. Some innovative state Medicaid programs in New Mexico and Massachusetts have increased their reimbursement rates for generic IN naloxone to cover the cost of two atomizers, or an estimated \$10 for two devices, to reduce this additional barrier to naloxone kit sales. The IN syringes are made of glass and work best when patients are trained to assemble and administer them; one study, however, reported that patients were able to successfully reverse opioid overdoses without any training.⁸³ IM vials are dispensed with appropriate length syringes for injection into the shoulder or thigh muscle. Some patients may see syringes as triggers of past or current injection drug use, and some caregivers may feel uncomfortable using syringes and keeping them in a safe yet accessible place with the naloxone vials in their home.

In 2014, the first FDA-approved IM auto-injector for naloxone was approved. The manufacturer explicitly designed and marketed this device to be used by laypeople with minimal training, as the kit that is dispensed contains a trainer device along with two active drug delivery devices. The kit is modeled after an epinephrine auto-injector device and uses an English voice-prompt system to guide caregivers through the steps to administer the injection and to remind them to call 911. No needles are exposed, and the units do not require batteries for the duration of time the naloxone remains in date.⁸⁴

The most recent addition to the naloxone armamentarium is the FDA-approved all-in-one IN device. Several large chain pharmacies have already committed to stocking and dispensing this new formulation, which does not require assembly or a MAD and is dispensed as a kit of two 4-mg IN devices. Each device delivers a complete dose into one nostril. The other device is reserved for supplemental use in case the victim redevelops overdose symptoms. No trainer device is included.⁸⁵ Individuals with limited hand strength may find this formulation more difficult to use.

Naloxone adverse events are extremely rare and are most likely related to withdrawal symptoms and/or consequences of hypoxic brain injury caused by the overdose of opioids.⁸⁶ One study showed that naloxone “over-antagonism” is likely folklore, as this complaint is rarely reported to medical personnel and overdose researchers.⁸⁷ Still, overdose response advocates anticipate collection and analysis of adverse event data gathered in the community from real-world use of the highest-strength naloxone product, focusing on overdose withdrawal syndrome. FDA approval of this product was contingent on the product meeting pharmacokinetic targets relative to IM naloxone administration, a standard FDA practice, not on efficacy and safety related to actual overdose reversal in field trials.

Naloxone: A feasible and effective solution

The greatest number of overdose reversals, and by proxy, prevented opioid overdose deaths, are recorded from community-based programs supplying take-home naloxone principally to heroin users and/or their friends and family. Data from Vancouver, British Columbia⁸⁸; Pittsburgh, Pennsylvania⁸⁹; Los Angeles, California; and communities across North Carolina,⁹⁰ overwhelmingly support the feasibility and success of take-home naloxone initiatives.¹⁹

Nonfatal opioid prescription and heroin overdose patients who present to emergency departments are at a dramatically increased risk of subsequent overdose and death.⁹¹ At one emergency-department-based OEND program, recipients of the education reported following at least some of the overdose steps, and 32% reported administering naloxone to a witnessed overdose victim. More data are needed to determine whether OEND to high-risk patients in the ED has an effect on community overdose death rates.⁹²

An increasing number of police first responders are receiving overdose education and administering naloxone when responding to 911 overdose calls. One prospective study from Ohio examined the rate of opioid-related deaths before and after a police

THE PHARMACIST'S ROLE IN REDUCING THE RISK OF OPIOID OVERDOSE

TABLE 3

Naloxone myths and facts

Myth	Fact
Drug users will use naloxone as an "escape" and continue to use drugs without the consequences of an overdose.	Heroin users who had access to naloxone decreased their drug use and accessed treatment more frequently. ^{83,107}
Naloxone isn't safe.	Although serious adverse events have been reported, most events are related to opioid withdrawal, and even then, are rarely seen. ^{9,86,87,96,108,109}
Naloxone administration requires extensive training and should only be administered by health professionals.	Potential naloxone users can be effectively trained in 5-10 minutes. ⁹⁸ Laypeople have reversed overdoses even without training. ⁸³ Police, fire, and EMS first responders are proven effective overdose responders. ^{103,93,110}
Naloxone distribution is not cost effective and is a waste of money.	Each overdose costs a mean of \$37,000. ¹¹¹ Providing naloxone to heroin users is cost effective at \$421/quality-adjusted life-year gained, preventing one death for every 164 naloxone prescriptions. ¹¹²
Naloxone distribution has no effect on opioid overdose deaths or reversals.	A 47% reduction in fatal overdose rate was seen when naloxone coverage of ≥ 250 kits per 100,000 population was available in the community. ⁸
Naloxone should only be given to heroin users.	Most major medical associations support co-prescribing naloxone with opioid prescriptions as overdose deaths frequently occur in prescription opioid users. ¹⁰⁻¹⁴ Family members of people at risk of overdose are highly motivated to obtain and use naloxone. ¹¹³ A majority of people who died from opioid overdose in one state had visited a pharmacy for opioid prescriptions in the month prior to death. ⁴⁴
Intramuscular naloxone works better than intranasal naloxone.	A randomized controlled trial that compared the intramuscular and intranasal routes found comparative efficacy for reversal of respiratory depression. ⁸²

Source: Ref 8-14, 44, 82-83, 86-87, 93, 98, 103, 108-113

IN naloxone OEND program. The average number of opioid overdose deaths declined significantly each quarter after the training: officers administered naloxone to 67 individuals, 52 (77.6%) of whom survived.⁹³

The strongest data, although observational, show a direct relationship between naloxone distribution in the community and decreases in opioid deaths.⁸ Researchers in Massachusetts examined the relationship between the number of IN naloxone kits and overdose educational interventions performed and the number of overdoses in 19 different communities across the state

using an interrupted time-series analysis. A total of 2912 people were trained, and 327 rescues were reported. A significant 27% reduction in the overdose rate was seen in communities with 100 kits/100,000 population as compared to communities with no naloxone distribution. When naloxone coverage was at or above 250 kits/100,000 population, a 46% decrease in overdose deaths was observed.

Table 3 highlights several myths and facts about the evidence supporting naloxone use.^{8-14,32,91,92,95,96,103-112}

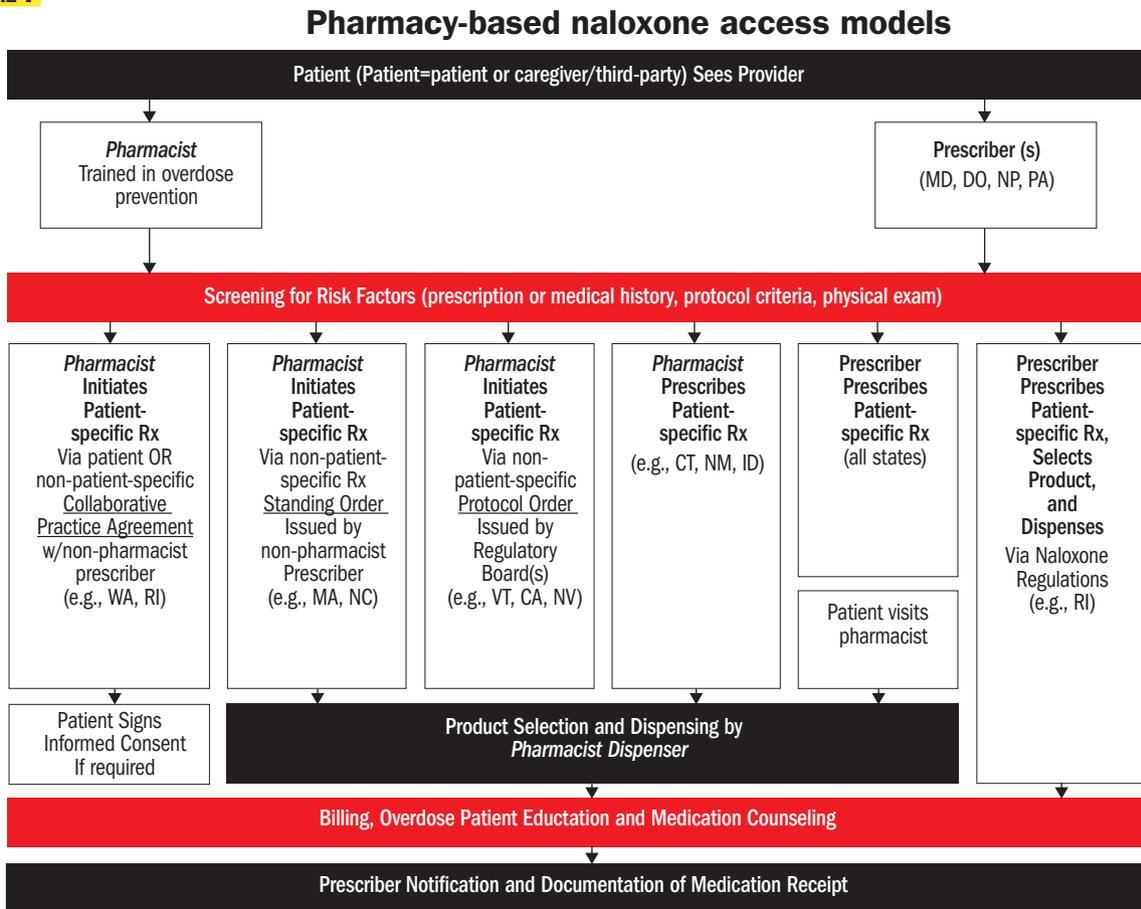
Regulations, statutes, and models relevant to pharmacist prescribing and dispensing of naloxone

Naloxone is a medication that can be legally prescribed by practitioners authorized to prescribe medications and dispensed by pharmacists in all 50 states and all U.S. territories. Some states also permit prescriber stocking and dispensing of naloxone, potentially increasing patient access.⁹⁴ Naloxone is not a controlled substance and therefore lacks the restrictions of DEA controlled substance medications. According to data from the Rhode Island Governors Strategic Plan On Addiction and Overdose, 86% (n = 349) of the individuals who died of an opioid-involved overdose between January 2014 and August 2015 had been prescribed an opioid or co-prescribed an opioid and a benzodiazepine in the past 30 days,⁴⁴ and none of those who died showed evidence of possessing naloxone or a naloxone prescription. In Rhode Island and across the nation, increasing access to naloxone at the pharmacy through policy changes and implementation of those policies is urgently needed.⁹⁵

There are three categories of statutes, policies, and regulations that enable increased use of naloxone to treat opioid-induced respiratory depression: third-party and pharmacist prescribing, increased pharmacy access, and immunity for prescribers, dispensers, first responders, and laypersons (commonly called Good Samaritan laws).¹⁸

Multiple studies have shown that most opioid overdoses are witnessed and that other injection drug users, caregivers, friends, and/or family members are willing and able to respond to reverse the overdose.^{6,96} These "third-parties" may represent a significant proportion of prescriptions filled at pharmacies, especially since they do not face the stigmatization that prescription misusers and illicit opioid users often face in healthcare settings, including pharmacies.²⁴ Thirty-eight states permit third-party prescribing of naloxone as of September 2015, waiving the requirement of a relationship between the prescriber and the person who will ultimately receive

FIGURE 1



Source: Adapted with permission from Ref 24

the drug.¹⁸ Most states define the end-user as the person who picks up the prescription with a legitimate medical need, either at risk of overdose themselves or in a position to help someone at risk. Further clarification of this unique practice is needed by federal and state officials to sustain and expand caregiver naloxone access through federal, state, and private insurer coverage for the individual whose name appears on the prescription and in the insurer's membership list. Some interpret this practice as anything from a contract violation to the serious crime of insurance fraud, as the naloxone being dispensed may be administered to an individual who is not covered by that person's insurance. As a result, some pharmacies and providers are appropriately apprehensive of legal consequences such as insurer audits and tort liability, and may

set policies that restrict third-party access to naloxone to only those who can pay the cash price for a naloxone kit.

Policies that permit pharmacist prescribing of naloxone exist in several forms: CPAs, standing orders, protocol orders, and pharmacist prescribing (Figure 1).²⁴ Of the 38 states that have at least one of these forms, only seven explicitly require pharmacist training in overdose response including naloxone. These training requirements vary in format, certification, length, and renewal frequency, from an annual one-hour Accreditation Council for Pharmacy Education (ACPE)-certified online training for Rhode Island pharmacists participating in the CPA to a one-time four-hour live training in New Mexico. Only 16 states require some form of pharmacist-delivered patient education on overdose response steps and naloxone

training beyond state requirements for medication counseling.¹⁸

Rhode Island was the first state in the country to implement a statewide CPA to permit pharmacists to prescribe and dispense naloxone to patients at risk of overdose and to anyone voluntarily requesting naloxone.²⁴ Although Rhode Island's law did not explicitly give pharmacists the ability to initiate prescriptions, only to modify and manage prescriptions, a waiver from the Board of Pharmacy allowed initiation of naloxone using this mechanism. A majority of states do already permit initiation of medications using CPAs. CPAs in these states offer qualified pharmacists an immediate opportunity to begin collaborating with prescribers to increase the safety of the opioids that they prescribe through naloxone dispensing.

THE PHARMACIST'S ROLE IN REDUCING THE RISK OF OPIOID OVERDOSE

Currently, few data exist on the effects of pharmacy-based naloxone (PBN), access to naloxone, and overdose education in emergency departments. After a year and a half of implementing a CPA for naloxone in Rhode Island, healthcare providers found that opioid overdose rates were similar in 2014 to the rates in 2013. However, in surrounding states without statewide access to naloxone via pharmacies, the opioid overdose rates significantly increased, suggesting but not proving that pharmacy-based naloxone may have had an effect.²⁴ Researchers are currently studying the effects of pharmacy-based naloxone in Rhode Island and Massachusetts through a 3-year \$1.3 million grant from the Agency for Healthcare Research and Quality, partnering with CVS Health, independent pharmacies, and outpatient pharmacies at

prescriber in protocol orders.²⁴ Finally, New Mexico, Idaho, North Dakota, and Connecticut explicitly allow pharmacist prescribing, with the pharmacist's name appearing as the prescriber and dispenser on the naloxone prescription.

Prescribing and dispensing naloxone to individuals carries the same civil and criminal legal risk as prescribing and dispensing other non-controlled substance medications. Still, as part of many naloxone access laws, most states have further decreased any theoretical legal or disciplinary risk for pharmacists by instituting criminal immunity in 24 states, protection from civil actions in 30 states, and disciplinary action protection in 23 states. Layperson immunity originates in Good Samaritan laws, naloxone access immunity provisions, or both. A total of 34 states have passed laws

of overdose themselves but also are in contact with other users at risk and are a proven resource to revive their friends. The Drug Overdose Prevention Education (DOPE) project in San Francisco uses an outline of steps that can be effectively reviewed with heroin users in as little as five minutes.⁹⁸ This is important, as results from one survey of pharmacists indicate that time is the most significant barrier to participating in public health activities.⁹⁹ When pharmacists recommend naloxone to patients at risk of overdose, it is important to deliver the education in multiple ways. Unique to naloxone, the person picking up the prescription will need to subsequently teach their caregivers. A combination of techniques works best for retention, with all information delivered at the patient's level of health literacy. In addition to receiving verbal education with motivational interviewing techniques, people who pick up naloxone should also receive written handouts similar to medication guides, links to peer-to-peer video product demonstrations (found at prescribetoprevent.org) and a checklist attached to the box or device and/or listed on a card that can be kept in a wallet. Extrapolating from the asthma inhaler education literature, these techniques should enhance patient understanding and effectiveness of medication delivery techniques using a device.^{100,101} Pharmacists who stock, prescribe, and dispense naloxone kits that require assembly should ideally acquire demonstration devices to review with their patients, similar to demonstration inhalers; the IM auto-injector is an exception, as this device has a trainer included in the kit.

The components for essential layperson overdose training fall into the following categories: prevent and recognize overdose, deliver rescue breathing, call 911, administer naloxone, monitor response, and stay with the patient.¹⁰² The American Heart Association 2015 Opioid-Associated Life-Threatening Emergency Algorithm response steps for adults include check for unresponsiveness, call 911, obtain automated electric defibrillator and naloxone and check for breathing, begin CPR based on the rescuer's training (which may or

PAUSE AND PONDER

What are some of the best ways to efficiently and effectively provide overdose education in the pharmacy? How will reviewing the essential response steps be different for caregivers who approach you for naloxone versus patients you've screened to be at risk of overdose themselves?

Rhode Island Hospital and Boston Medical Center.⁹⁷

Standing medication order legislation commonly authorizes non-patient-specific orders for naloxone to be prescribed by several different groups, including first responders (police, fire, EMS), nurses, and/or pharmacists. As of September 2015, 30 states permitted pharmacist participation in naloxone standing orders.¹⁸ In these agreements, just as with CPAs, a non-pharmacist prescriber allows pharmacists to prescribe naloxone to anyone who meets a set of criteria, with the non-pharmacist prescriber's name appearing on each prescription. As of September 2015, in California, Vermont, Nevada, Oregon, Ohio, and Illinois, medical and/or pharmacy boards had issued a non-patient-specific statewide protocol order that authorizes pharmacist prescribing. The difference between standing orders and protocol orders is that the pharmacist's name appears on the prescription as the

granting various forms of immunity to laypersons who respond to an overdose. This represents a considerable legal shift from prosecuting drug users to implementing a public health response to protect individuals with a severe substance use disorder. Immunity provisions vary by state and range from protecting the rescuer from arrest, charge, and prosecution for controlled substance and/or paraphernalia possession to more rarely granting immunity for violations of restraining orders and/or parole, or other crimes.¹⁸

Training patients and caregivers in how to respond to opioid overdoses

The greatest quantity of data on the most effective components of opioid overdose response training comes from decades of take-home naloxone community trainings for heroin users across the country. In this setting, heroin users are not only at risk

may not include rescue breathing), administer naloxone, and stay with the patient. The authors also recommend that opioid overdose education be provided to those at risk, with or without naloxone.¹⁰³

Pharmacist-delivered education starts with medication safety, whether or not naloxone is being prescribed or dispensed with opioid prescriptions. Patients should be advised to only take prescription opioids that are prescribed to them and to only take them as directed. Patients should also be told to ensure that all prescribers know about all medications that are prescribed, and then should be advised to avoid mixing opioids with alcohol, to store the medication in a safe and secure place and safely dispose of unused medication, and to teach friends and caregivers how to identify and respond to an overdose. Signs of overdose include slow or absent breathing, snoring or gasping while breathing, pinpoint pupils, blue lips and nails, and lack of response when the rescuer rubs the patient's sternum with the knuckles of a closed fist while yelling the patient's name.

Most community overdose programs teach rescue breathing to restore oxygenation to the victim, and some international programs recommend rescue breathing and chest compressions once an overdose is identified. The American Society of Anesthesiologists published an opioid overdose resuscitation guide with short instructions on rescue breathing and chest compressions.¹⁰⁴ Basic rescue breathing instructions that a pharmacist can provide are as follows: make sure the airway is clear; placing one hand on the chin, tilt the head back to open the airway; pinch the nose closed; give two slow rescue breaths into the mouth; make sure the chest rises with each breath; and give one breath every five seconds until the person can breathe independently.

If the person does not breathe independently, the responder needs to call 911, provide his or her location, and state that the victim is unresponsive and not breathing. Research has found that 911

is called in fewer than half of overdose cases.⁹⁶ People may be scared to call 911 in the case of an overdose for a variety of reasons, most commonly because police are notified of a 911 call involving an overdose. Additionally, even if responders live in a state with a Good Samaritan law, people are frequently unfamiliar with the law's specific protections and avoid calling 911. Responders are also less likely to call 911 if the overdose bystanders had experienced an overdose themselves or if more than four bystanders were present; however, if a female bystander is present or if a bystander ever witnessed an overdose before, 911 is more likely to be called.¹⁰⁵

The next step is teaching the responder how to administer naloxone, which is best demonstrated using a training device. If a training device is not available, patients can be shown pictograms that demonstrate how to assemble generic naloxone kits, where to inject IM naloxone, and how forcefully to spray IN naloxone. Pharmacists can show patients the trainer for the auto-injector kit and answer any questions about the trainer. Patients can also be advised to watch several three-minute videos that show a demonstration of each product.¹⁰⁶

Responders and patients need to be informed of what to expect after naloxone administration, including no response or withdrawal symptoms. Victims who regain normal respirations and consciousness may seek out more opioids to relieve withdrawal symptoms. They should instead be educated to wait for emergency responders to arrive. Depending on the amount and type of opioids taken, the victim may not respond to the first dose of naloxone. In this situation, responders should be instructed to continue to rescue breathe for the patient, giving one breath every five seconds.

If the patient is still unresponsive with slow or no breathing after two to three minutes, another dose of naloxone can be administered. When the patient regains adequate respirations but remains uncon-

scious, the patient should be placed in the rescue or recovery position. This action is designed to decrease the chance that the patient will vomit and subsequently choke. Raise the victim's arm closest to you straight above their head. Straighten the leg closest to you. Bend the other leg at the knee and bring the other arm across the chest. Gently roll the person toward you, protecting the victim's head. Continue to maintain an airway by tilting the head back and placing one hand under the cheek. The patient should end up on the ground on one side with their top leg and arm crossed over their body. In all cases, caregivers need to be instructed to stay with the victim after giving naloxone, to either administer another dose of naloxone, especially for cases in which a long-acting opioid was taken, and/or to ensure that the victim receives definitive medical care when first responders arrive.

Conclusion

Pharmacists possess many tools to reduce opioid-related harms in their communities: using the PDMP, screening for opioid overdose risk factors, offering education and referral for substance use disorder treatment, dispensing medication-assisted treatment, promoting safe storage and disposal strategies and providing syringe exchange programs or non-prescription syringe sales. Pharmacist prescribing and/or dispensing of naloxone is the most effective way to reduce preventable, unintentional, opioid-related overdose deaths. In most states, pharmacists can participate in naloxone access models that permit them to select, prescribe, and dispense one of four different naloxone formulations. Once naloxone has been purchased, pharmacists then educate patients and caregivers about the essential overdose response steps: Identify overdose, perform rescue breathing, call 911, administer naloxone, and stay with the patient.

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TEST QUESTIONS

For Pharmacists

1. Which of the following harm reduction techniques is proven to have the greatest effect on reducing the transmission of HIV among patients who are injecting opioids?

- a. Dispensing or selling syringes
- b. Offering safe opioid disposal
- c. Prescribing naloxone
- d. Offering safe syringe disposal

2. Which of the following naloxone formulations has the highest naloxone concentration per dose delivered?

- a. Branded intramuscular
- b. Generic intranasal
- c. Branded intranasal
- d. Generic intramuscular

3. Which of the following groups that use naloxone have documented the MOST opioid overdose reversals with naloxone?

- a. Laypeople who receive take-home naloxone from community-based programs.
- b. Caregivers of patients with chronic pain who obtain naloxone from pharmacists.
- c. Police officers trained to respond to overdoses with naloxone.

d. Hospital emergency department nurses who care for patients with nonfatal overdose.

4. In Rhode Island, when a statewide pharmacy-based naloxone collaborative practice agreement was begun, which of the following BEST describes what happened to annual opioid overdose deaths?

- a. The incidence dramatically decreased because of widespread distribution of naloxone to opioid users and their caregivers.
- b. Annual rates plateaued in Rhode Island, whereas neighboring states without statewide pharmacy-based naloxone agreements reported an increase in overdose deaths.
- c. Overdose death rates climbed at a rate similar to annual increases in past years despite the increased availability of naloxone.
- d. Deaths from prescription opioids declined, whereas heroin overdose deaths increased.

5. When reviewing overdose response education steps with caregivers, it is essential to advise caregivers to stay with the patient after reversal is achieved for which of the following reasons?

- a. Patients in withdrawal may become aggressive to bystanders.
- b. Patients who took long-acting opioids may go back into respiratory depression.
- c. Naloxone side effects may be severe and require basic life support.
- d. Patients in opioid withdrawal may experience injury from seizures.

6. Which of the following is the most common barrier to calling 911 to report an overdose as reported by laypeople?

- a. Lack of access to a phone
- b. Lack of knowledge regarding Good Samaritan laws
- c. Home remedies used
- d. Fear of police response

7. Which of the following pharmacy-based interventions to address opioid overdose lacks data to support its use alone?

- a. Medicaid lock-in agreements
- b. Opioid use contracts
- c. Opioid disposal receptacles
- d. Nonprescription syringe sales

8. Which of the following formulations of naloxone is proven to have superior efficacy compared to other formulations?

- a. Intranasal

- b. Intramuscular
- c. Intravenous
- d. All formulations of naloxone have equivalent efficacy

9. How many states currently have pharmacy naloxone laws that require pharmacists provide patient education on overdose response and naloxone beyond that required by state and federal counseling statutes?

- a. Zero
- b. Sixteen
- c. Twenty-four
- d. Thirty

10. Which of the following BEST defines third-party prescribing of naloxone?

- a. Initiating a naloxone prescription in the name of the likely victim using a standing order model for a person who is not at risk of overdose but lives with a potential victim.
- b. A pharmacist initiating a naloxone prescription under prescriptive authority instead of a physician.
- c. Filling a naloxone prescription for a patient who is not at risk of overdose but could respond to another person at risk of overdose.
- d. Initiating a prescription for naloxone for a first responder in a municipality.

For Pharmacy Technicians

1. Which of the following harm reduction techniques is available and can be performed by technicians independently from pharmacists in almost all states?

- a. Selling nonprescription syringes
- b. Disposing of syringes
- c. Recommending naloxone
- d. Selling opioid lockboxes

2. Which of the following is the MOST expensive naloxone formulation available?

- a. Branded intranasal
- b. Auto-injector intramuscular
- c. Generic intranasal
- d. Generic intramuscular

3. Which of the following naloxone formulations requires assembly, including a mucosal atomizer device?

- a. Branded intranasal
- b. Branded intramuscular
- c. Generic intramuscular
- d. Generic intranasal

4. Which of the following occurred when naloxone was distributed or dispensed in a community setting?

- a. Decreased drug overdoses are recorded
- b. Increased heroin use is observed
- c. Increased drug overdoses are recorded
- d. Decreased enrollment in treatment programs is observed

5. Which of the following is the BEST suggestion pharmacy staff can make to patients who would like to securely dispose of their unused controlled substances?

- a. Wait for announcements for DEA Take-Back days.
- b. Mix medications with either cat litter or coffee grounds and throw them away in the trash.
- c. Bring medications to the pharmacy counter for collection by the pharmacist.
- d. Utilize mail-back programs or secure collection receptacles at hospitals, police stations, or pharmacies.

6. Which of the following occurred after heroin users had access to naloxone?

- a. They used more drugs because they no longer feared overdose.
- b. They used fewer opioids than before overdose education.
- c. They decreased use of available treatment programs.
- d. They had more fatal overdoses than before naloxone.

7. Which of the following pharmacy naloxone access models may require the patient to complete a release of patient information or informed consent?

- a. Collaborative practice agreement
- b. Standing order model
- c. Protocol order model
- d. Pharmacist-prescriber model

8. In which of the following pharmacy naloxone access models would the pharmacist be entered as the prescriber as well as the dispenser?

- a. Standing order model
- b. Protocol order model
- c. Nurse practitioner prescriber model
- d. Collaborative practice agreement

9. In which of the following naloxone access models would the pharmacist NOT be able to discuss with the patient which naloxone formulation to dispense?

- a. Collaborative practice agreement
- b. Standing order model
- c. Protocol order model
- d. Prescriber dispensed model

10. Which of the following is TRUE regarding prescribing, distribution, and administration of naloxone?

- a. Naloxone should be co-prescribed with prescription opioids
- b. Naloxone administration requires extensive training
- c. Naloxone distribution is not cost effective
- d. Naloxone should only be given to heroin users

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