Pharmacists, opioid safety, take-home naloxone, and preventing overdose

Posttest questions

1. Rapid implementation of creative prevention programs has reduced the number of fatal opioid drug poisonings in recent years.
   A. True
   B. False***

   Rationale: While there has been implementation of prevention programming, the number of opioid overdose death has increased fourfold between 2000 and 2014.

2. Pharmacists can play an essential role in each of the Substance Abuse and Mental Health Services Administration’s five strategies to prevent overdose deaths.
   A. True***
   B. False

   Rationale: Pharmacists are the public’s most accessible medication safety experts. They have extensive knowledge about prescription opioid medications (e.g., indication, mechanism of action, dosage, adverse drug reactions, drug interactions). For this reason, pharmacists are ideally situated to decrease opioid overdose deaths through education and provision of naloxone.

3. Which year had the highest recorded numbers fatal opioid poisonings?
   A. 1967
   B. 1999
   C. 2009
   D. 2014***

   Rationale: In 2014, there were more than 28,000 opioid poisonings. After rising for more than a decade, the number of prescription drug overdoses declined slightly in 2012 and remained steady in 2013. However, heroin overdoses have sharply increased since 2010. Unfortunately, recent mortality data for 2014 show that “nearly every aspect of the opioid overdose death epidemic worsened in 2014.”

4. Which of the following scenarios could increase overdose risk (check all that apply):
   A. Dispensing high dose opioids (more than 50 morphine milligram equivalent)
   B. Rotating from one opioid to another because of incomplete cross-tolerance
   C. Concomitant opioid–alcohol use
   D. Additional prescriptions for benzodiazepines and other CNS depressants
   E. Previous experience with overdose
   F. All of the above***

   Rationale: Opioids doses higher than 50 MME and rotating from one opioid to another due to incomplete cross tolerance are both associated with overdose risk. Using opioids at the same time as CNS depressants such as benzodiazepines or alcohol may increase risk of unintentional overdose. People who have previously experienced an overdose may experience another overdose event.
5. People who have no opioid tolerance also have very low overdose risk if nonmedical use is intermittent.
   A. True
   B. False***
   Rationale: Intermittent recreational use of opioids carries a unique vulnerability to overdose because the opioid naïve person’s resilience to varying purity, potency, or doses is less than that of a person with an existing tolerance.

6. Of the more than 26,000 opioid overdose rescues by laypeople using naloxone reported since 1996, how many were performed by active drug users?
   A. None
   B. A few
   C. About half
   D. Most***
   Rationale: People who use drugs are the most likely to be present when an overdose event occurs and is the group responsible for the majority of layperson naloxone uses.

7. Why are the rare serious adverse events such as seizures, arrhythmia, and hypertensive reactions difficult to interpret?
   A. Opioid toxicity and hypoxemia can manifest the same symptoms.
   B. Simultaneous use of stimulants such as cocaine or amphetamines predisposes victims to hypertension once the opioid toxicity was reversed.
   C. Both of the above***
   D. None of the above
   Rationale: The rare serious adverse events associated with naloxone are difficult to interpret because there are several confounding factors involved in many overdoses and because some of the events might be more associated with the opioid and the lack of oxygen than the naloxone, but it is hard to tease that apart.

8. Naloxone is associated with _______ risks for adverse events than other commonly used injectable rescue medications such as epinephrine for anaphylactic shock and glucagon for hypoglycemia.
   A. Fewer***
   B. About the same
   C. More
   Rationale: Naloxone is a pure opioid antagonist, is very safe to use, and has a short side effect profile. It has no adverse effects on people who do not have opioids in their system.

9. Providing education and take-home naloxone to laypeople should focus exclusively on the patient who may be at risk for an opioid overdose.
   A. True
   B. False***
   Rationale: Because naloxone is a rescue medication for use after a person is already experiencing an overdose, if it is possible, providing education to the people who may be the first responders to an overdose is useful.
10. The overdose victim may feel withdrawal symptoms and/or the pain that the opioids were prescribed to treat after receiving naloxone. An overdose responder should do what to make the person feel better?
   A. Encourage the victim to consume a small amount of opioids.
   B. Deliver an additional dose of naloxone.
   C. **Tell the person that they will feel better soon, after the naloxone wears off.***
   D. Deliver a dose of buprenorphine to start medication-assisted therapy.

Rationale: While the withdrawal and recurrence of pain that may be associated with people who receive naloxone because of an overdose may be very uncomfortable, those symptoms will resolve quickly due to naloxone’s short duration of effect. Consuming more opioids will not help because the naloxone has a higher affinity to the opioid receptors than most opioids and additional naloxone doses would only worsen and possibly lengthen the symptoms.

11. Which resuscitative measure is appropriate for laypeople to perform during an opioid overdose emergency?
   A. Rescue breathing
   B. Chest compressions
   C. **Both of the above***
   D. None of the above

Rationale: Opioid overdose prevention programs in the United States generally teach rescue breathing. Some overdose prevention programs in Canada and the United Kingdom recommend chest compressions only or chest compressions with rescue breathing.

12. Why should the overdose responder stay with the victim for several hours or until emergency medical providers assume care (check all that apply)?
   A. The overdose victim may feel withdrawal symptoms and/or pain and attempt to consume more opioids.
   B. The overdose could recur after the naloxone wears off.
   C. The victim should be civilly committed to evaluate whether there is a harm to self, and the overdose responder is often needed for that process.
   D. **A & B***
   E. B & C
   F. All of the above

Rationale: People whose overdose has been reversed by naloxone may want to alleviate temporary pain or withdrawal symptoms by consuming more substances, but this will not help and could put the person at risk for rebound opioid toxicity. Longer acting and high dose opioids may outlast naloxone’s duration of effect. The overdose victim should not be left alone for several hours following the rescue.

13. What is the minimum number of doses that should be dispensed as part of a naloxone kit?
   A. 1
   B. **2***
   C. 3
   D. 4

Rationale: Because the overdose could recur after the naloxone wears off and because stronger opioids may require more than one dose for response, the minimum number of doses in a complete naloxone kit is two.
14. Of the existing naloxone products in the United States, how many are not advised for layperson take-home naloxone use?
A. 2***
B. 3
C. 5
D. All are acceptable for layperson use

Rationale: Naloxone Carpuject™ (NDC# 0409-1782-69) is not recommended for layperson and take-home naloxone use because it is complicated to assemble. Naloxone Min-I-Jet Prefilled syringe with 21 Gauge and 1 ½” fixed needle (NDC# 76329-1469-1 & 76329-1469-5) is not recommended because it is too strong of a dose by injection only for laypersons.

15. Which of the available naloxone products allow for the user to titrate the dose (check all that apply)?
A. Injectable (also off label nasal) generic
B. Intranasal brand name
C. Injectable generic
D. Auto-injector brand name
E. A & B
F. A & C***

Rationale: The branded nasal naloxone spray and the auto-injector deliver a fixed dose of naloxone. The remaining products may be titrated.

16. Which of the available naloxone products must be manually compounded to create a complete naloxone kit?
A. Injectable (and nasal) generic
B. Intranasal brand name
C. Injectable generic
D. Auto-injector brand name
E. A & B
F. A & C***

Rationale: Both the branded nasal naloxone spray and the auto-injector are already packaged with layperson user instructions and contain everything needed to use the naloxone. The remaining products must be compounded into a kit because they do not have instructions for laypersons and they must be accompanied by a delivery device (either IM needles or nasal adapters, depending on the product).

17. Which mechanisms may pharmacists use to expand naloxone access (check all that apply)?
A. Collaborative pharmacy practice agreements
B. Standing orders for naloxone provision by pharmacists
C. Naloxone provision per licensing pharmacy or medicine board protocol
D. Pharmacist as prescriber
E. All of the above***

Rationale: Each of the options are pharmacist-centered methods that expand naloxone access and add to the reach that community-based naloxone distribution and traditional medical models provide. The four mechanisms yield similar experiences for the patient or customer, so usually only one method is necessary and the best fit depends on state-level context.
18. Which of the above mechanisms is least likely to require policy or legislative adjustments?
   A. Collaborative pharmacy practice agreements***
   B. Designate naloxone over the counter
   C. Standing orders for naloxone provision by pharmacists
   D. Naloxone provision per licensing pharmacy or medicine board protocol
   E. Pharmacist as prescriber

   Rationale: Most states have existing language that allow for collaborative pharmacy practice agreements (though they may be referred to as “collaborative drug therapy” or “collaborative drug management” agreements). Designating naloxone over the counter requires FDA action; standing orders for naloxone provision by pharmacists requires legislative or regulatory change and a prescriber to issue a standing order; both allowing for naloxone provision at pharmacies and pharmacists as prescribers require state level pharmacy or medicine board action.

19. Which of the four pharmacy-based naloxone models has the most limited geographical reach?
   A. Collaborative pharmacy practice agreements
   B. Standing orders for naloxone provision by pharmacists
   C. Naloxone provision per licensing board protocol
   D. Pharmacist as prescriber***

   Rationale: The pharmacist as the naloxone prescriber is limited to the geographical reach of the individual pharmacist(s) who can initiate naloxone prescriptions, while the other options may reach beyond the individual pharmacist and affect systems.

20. By September 2015, all but _______ states had passed legislation to improve layperson naloxone access.
   A. 2
   B. 5
   C. 7***
   D. 13

   Rationale: By September 15, 2015, all but seven states had passed legislation to improve naloxone access to laypeople. Those states were AZ, IA, KS, MO, MT, SD, and WY. However, naloxone access legislation is rapidly changing and the most current information can be found at the Prescription Drug Abuse Policy System (PDAPS) at PDAPS.org.