

Opioids and Other Common Substances: What You Need to Know

Abstract

This fact sheet focuses on opioids, a highly addictive class of substance with a high risk of unintentional overdose death. We review how opioid overdoses can be temporarily reversed with naloxone (Dhalla, et al., 2009; Straus, et al., 2013) and some important resources.

Opioids and the Brain

Opioids are a class of substances that include prescription pain medications (e.g., oxycodone, hydrocodone, and codeine) as well as the illicit drug heroin (National Institute on Drug Abuse [NIDA], 2018). Heroin and prescription pain medications are addictive, have the same chemical structure, and perform similar neurological actions in the human body (NIDA, 2018). Opioids are a Central Nervous System (CNS) depressant that slow the signaling in the CNS and provide a reduced sensation of pain (Stoeber, et al., 2018). Opioids work by attaching to the opioid receptors (“ports” that send and receive signals) in the brain, which are responsible for sensing pain and preventing pain signals throughout the body (Huxtable, et al., 2011; Stoeber, et al., 2018; Lintzeris & Nielsen, 2010). Opioids are one of the most commonly used medicines for acute pain management due to their effectiveness and ability to attach to the receptors so effectively (Huxtable, et al., 2011; Stoeber, et al., 2018).

Opioid Overdose

As mentioned above, the use of opioids, especially in combination with other CNS depressants (e.g., alcohol, benzodiazepines), causes slowing or dulling of the CNS. As the body’s critical functions slow, they can reach a dangerous level of inactivity or stop all together, resulting in an overdose (i.e., a toxic amount of a substance that overwhelms the body and can result in death; Steynor & Macduff, 2015; Stoeber, et al., 2018). Knowing the signs and symptoms of an opioid overdose could save a life. If you or someone you love is using opioids (i.e., prescription pain medication or heroin), it is important to be aware of the signs and symptoms of an opioid overdose and know how to administer naloxone quickly during an emergency (Green, et al., 2008).



Common Substances Used with Opioids That Increase Risk of Overdose

Benzodiazepines and Opioids

Benzodiazepines (a class of CNS depressant) are prescription medications that stimulate gamma-aminobutyric acid (GABA) chemicals in the brain which then bind to GABAA receptors and decrease feelings of anxiety (Lintzeris & Nielsen, 2010). Opioids are commonly co-prescribed with a benzodiazepine prescription, but this combination can result in unintentional overdose deaths due to the slowing of the CNS and dangerously slowed breathing rate (Jones & Mcaninch, 2015; Lintzeris & Nielsen, 2010). In fact, approximately 29% of opioid overdose deaths involved benzodiazepines in 2010 (Jones, et al., 2013). Furthermore, nearly 60% of people who died from opioid-related complications had benzodiazepines in their system at time of death (ages 15-64 years; Gomes, et al., 2011).

Alcohol and Opioids

Alcohol is one of the riskiest substances that can be taken with opioids, since alcohol and opioids both depress the CNS resulting in slowed signaling and breathing (Gudin, et al., 2015). Research has found that alcohol is used with opioids more frequently than any other substance (Hickman, et al., 2008; Larance, et al., 2016). The most dangerous consequence of consuming alcohol with opioids is alcohol's ability to cause "slow-acting" opioids to rapidly release their chemicals and increase their chemical actions in the body unintentionally (Gudin, et al., 2015).

What to do in an Overdose Emergency

In an overdose situation, always call for emergency medical services (EMS) help first, then administer naloxone (Narcan ©) to provide a temporary overdose reversal and prevent overdose death until EMS arrives (Rando, et al., 2015). Remember the acronym **CCAPSS** (Call 9-1-1, Check Circulation, Airway, Pupils, Slurred Speech, and trouble Staying Awake) if you find yourself in a possible overdose situation (Schiller, 2019):

CALL 9-1-1 Immediately

Check circulation: "Do they have a pulse?"

Airway: "Are they able to breathe on their own? Are their lips blue or pale?"

Pupils: "Do they have pinpoint, or very small pupils?"

Slurred Speech: "Are they able to talk without severe slurring or mumbling?"

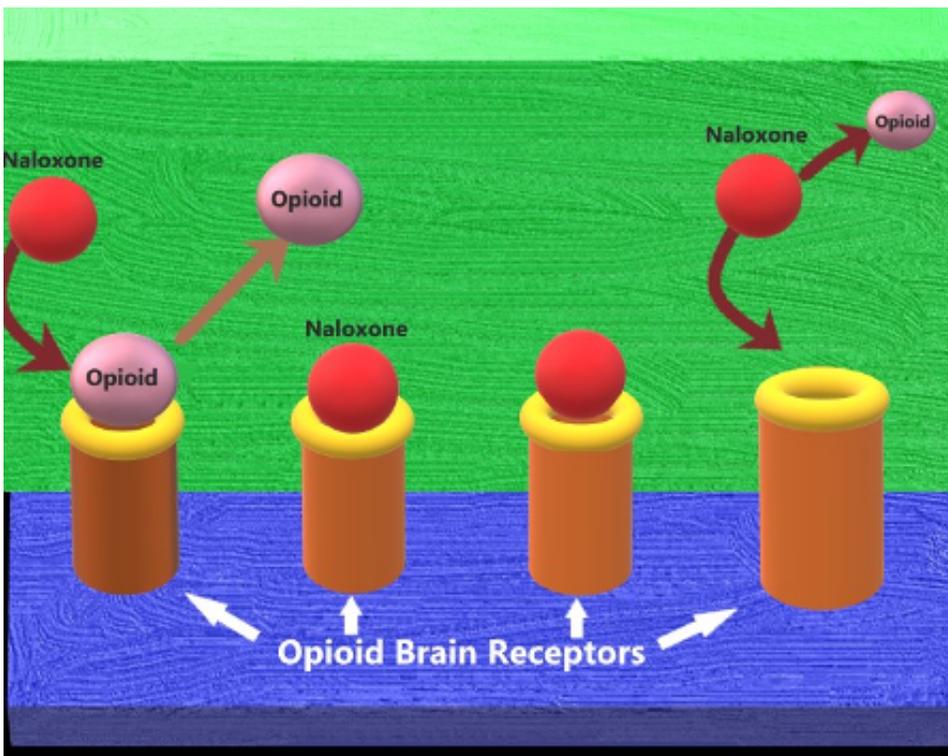
Staying Awake: "Do they seem to have trouble staying awake? Are they unconscious or unresponsive?"

If the person has difficulties in any of the above areas, they may be experiencing an opioid overdose. If you have naloxone on hand it would be appropriate to administer it.

Naloxone

When opioids enter the brain, they act like a "key" and insert into specific opioid receptors, similar to a "lock" (Straus, et al., 2013). Naloxone has the potential to "knock" opioids off the brain's opioid receptors. However, this only works for a short duration (approximately 30-90 minutes) before the opioids will re-attach to the brain's receptors. In some cases where there are high levels of opioids present, a person may overdose multiple times or an overdose may require multiple doses of naloxone to reverse the overdose effects (Straus, et al., 2013; Lynn & Galinkin, 2017). Figure 1 shows how naloxone works on the brain's opioid receptors to reverse an overdose.

Figure 1. Naloxone removes opioids from the brain receptor and attaches itself, reversing the effects of opioid overdose temporarily (e.g., Straus, et al., 2013).



What Else Should I Know?

In 2016, Utah passed the "Opiate Overdose Response Act" which allows pharmacists to dispense naloxone by the use of a "Standing Order" to anyone, without needing a prescription (Balough, et al. 2019; *some restrictions apply). Additionally, the "Good Samaritan Law" allows bystanders to report an overdose and provides some protections against prosecution in order to save a life (Balough, et al. 2019; *some restrictions apply). Please see Table 1 for a brief list of where to find more information.

Table 1. Opioid, Naloxone, and Emergency Resources and Websites

General Utah Resources	Naloxone Websites	Emergency Numbers	Therapy Locator Websites
211utah.org	Naloxone.org	911 (EMS & Police)	Utahaddictioncenters.com
Opidemic.org	Utahnaloxone.org "Free Naloxone rescue kits available"	1-800-273-8255 (Suicide Hotline)	Intermountainhealthcare.org
Health.utah.gov.	Naloxoneforall.org	1-800-222-1222 (Poison Control)	Findtreatment.samhsa.gov
Utahsuicideprevention.org			

Note. All of the resources provided are for educational purposes and USU does not specifically endorse their services. Cognitive behavioral and other cognitive resources are intended to provide information, not to treat chronic pain or other mental health concerns. USU does not control the websites or books referenced above.

Always consult your medical provider when considering seeking treatment or management of a medical condition and/or medications.

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