

National Association of State EMS Officials



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Medical Issues on the Use of Naloxone in Out-of-Hospital Settings

According to the National Institute on Drug Abuse (NIDA), “Drug addiction is a brain disease. Although initial drug use might be voluntary, drugs of abuse have been shown to alter gene expression and brain circuitry, which in turn affect human behavior. Once addiction develops, these brain changes interfere with an individual’s ability to make voluntary decisions, leading to compulsive drug craving, seeking and use.” Opiate drugs can elevate the dopamine levels in the brain's reward areas, producing a state of euphoria and relaxation that when misused and abused can lead to life-threatening consequences. Treatment to prevent disability and death from unintended opioid overdose is currently available through the use of naloxone, an antidote to narcotic overdose that rapidly reverses the respiratory depression and prevents unintentional death. To ensure the safety of the public including safety and treatment effectiveness for drug overdose victims, the administration of naloxone in out-of-hospital settings requires education of caregivers and laypersons that includes an understanding of the following:

- Many life-threatening conditions other than opiate overdose can cause altered mental status or respiratory depression including, but not limited to, trauma, stroke, sepsis, shock, dehydration,

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metabolic (chemical) imbalances, and low blood sugar. Each of these time-sensitive conditions require immediate intervention by licensed medical personnel and can be overlooked in patients with drug overdose if both conditions occur at the same time. Delayed appropriate medical diagnosis and intervention can result in permanent disability and even death.

- The administration of naloxone may precipitate narcotic withdrawal or unmask severe pain in those who regularly take opioids.
- Side effects from the administration of naloxone to a person using opiates can be potentially life-threatening if individuals are not properly trained to recognize and respond to them. These can include--
 - Chest pain, tachycardia, irregular heartbeat that can precipitate myocardial ischemia;
 - Hypertension;
 - Cough, wheezing, feeling short of breath;
 - Pulmonary edema;
 - Severe nausea or vomiting than can result in aspiration;
 - Severe headache, agitation, anxiety, confusion;
 - Seizures
- Acute withdrawal can precipitate confusion and agitation, which could lead to violent confrontations with anyone that administers naloxone, especially law enforcement.
- The half-life of naloxone (30 to 81 minutes) is shorter than the half-life of many opiates. When the dose of naloxone wears off, the victim can relapse into a life-threatening situation.
- Given the shorter serum half-life of naloxone compared to most opiates, the patient must be closely monitored to determine need for repeated doses.
- Opioid addiction is associated with a multitude of other medical and psychological problems including acute and chronic diseases, life-threatening infections, the risk for infectious disease, and severe and refractory pain that deserve proper evaluation and ongoing management by specially trained medical professionals.

Opioid Overdose as a Significant Public Health and Public Safety Concern

The Centers for Disease Control and Prevention (CDC) collects and analyzes national public health data, noting, “Deaths from drug overdose have been rising steadily over the past two decades and have become ***the leading cause of injury death in the United States***. Nearly 9 out of 10 poisoning deaths are caused by drugs.” In 2012, the CDC reports that drug overdose caused more deaths than motor vehicle traffic crashes among people 25-64 years old. From 1999 to 2013, the death rate from prescription

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opioid-caused overdose nearly quadrupled. Deaths from heroin overdose rose an astounding 270% between 2010 and 2013. Nearly two million Americans, aged 12 or older, either abused or were dependent on opioids in 2013. Together, heroin and prescription pain medications take the lives of almost 25,000 Americans per year —nearly 70 people per day. The Drug Enforcement Administration (DEA) notes that prescription drug abuse and the diversion of prescription drugs have become the number one priority and the number one problem in the U.S. The White House published its *National Drug Control Strategy* indicating, “...about 22 million Americans need treatment for a substance use disorder, and yet only 2 million—about 1-in-10—actually receive the treatment they need.”

The National Association of State EMS Officials believes that the increase of substance abuse in the United States is a significant public health and public safety concern that warrants consideration of several related issues:

- Acknowledgement of substance addiction as a serious health-threatening medical condition that requires intervention and treatment by medical professionals.
- Opiate overdose leads to respiratory failure, respiratory arrest, and imminent death if not properly and emergently managed.
- Naloxone (manufactured under the brand names of Narcan® and EVZIO®) is an antidote to narcotic overdose that rapidly reverses the respiratory depression and prevents unintentional death. It can be given by nasal spray or auto-injector, so can be used by lay persons and law enforcement, as well as emergency medical services (EMS) personnel.
- Community efforts to control opiate overdose should include medical professionals, law enforcement, caregivers/family members, at-risk populations, and advocates working together to develop compassionate and collaborative strategies to reduce harm to victims of drug overdose.

State Policy Efforts on the Use of Naloxone in Out-of-Hospital Settings

As of February 2015, twenty-two states and the District of Columbia have enacted some form of “Drug Overdose Immunity ‘Good Samaritan’ Law.” “Good Samaritan” laws regarding drug overdoses fall into two primary categories. The first encourages calling 9-1-1 to seek medical assistance for oneself or someone experiencing an overdose by providing criminal immunity for both the person in need and the person who sought help. The second provides varying levels of criminal or civil immunity for those involved with the prescription, possession, or emergency administration of the opioid antidote naloxone to reverse the effects of the overdose. Thirty states and the District of Columbia have implemented a law or developed a pilot program to allow administration of medication to reverse the effects of an

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opiate-related overdose by professional or lay persons, including law enforcement personnel. According to the National Conference of State Legislatures:

States with 9-1-1 criminal immunity laws include: Alaska, California, Colorado, Connecticut, Delaware, District of Columbia, Florida, Georgia, Illinois, Louisiana, Maryland, Massachusetts, Minnesota, New Jersey, New Mexico, New York, North Carolina, Pennsylvania, Rhode Island, Utah, Vermont, Washington and Wisconsin.

States with immunity laws related to prescribing and administering medication to reverse the effects of suspected opioid overdose: California, Colorado, Connecticut, Delaware, District of Columbia, Georgia, Illinois, Indiana, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Minnesota, Missouri, New Jersey, New Mexico, New York, North Carolina, Ohio, Oklahoma, Oregon, Pennsylvania, Rhode Island, Tennessee, Utah, Vermont, Virginia, Washington and Wisconsin.

Administration of Naloxone by Emergency Medical Services (EMS)

As of June 2015, all states permit Paramedics and Advanced Emergency Medical Technicians (AEMT) or the state's equivalent intermediate-level EMS providers to administer naloxone. Sixty-six percent of states permit Emergency Medical Technicians to administer naloxone (including Alaska, Arizona, California, Colorado, Connecticut, Delaware, Georgia, Illinois, Indiana, Louisiana, Maryland, Massachusetts, Michigan, Minnesota, Missouri, Montana, Nevada, New Hampshire, New Jersey, New Mexico, New York, North Carolina, Ohio, Oklahoma, Oregon, Pennsylvania, Rhode Island, Texas, Utah, Vermont, Virginia, Washington, and Wisconsin) and the District of Columbia. Fifty-eight percent of states that recognize the Emergency Medical Responder level permit EMRs to administer the medication (including Connecticut, Illinois, Indiana, Louisiana, Massachusetts, Maryland, Michigan, North Carolina, New Hampshire, New Mexico, New York, Ohio, Oklahoma, Oregon, Pennsylvania, Texas, Vermont, and Wisconsin).

Recommendations on the Use of Naloxone in Out-of-Hospital Settings

NASEMSO believes that STATE legislation intended to reduce harm caused by unintentional overdose by providing access and immunity related to the administration of naloxone should also:

- **Incentivize programs that provide drug misuse and abuse education, overdose prevention, access to treatment, and recovery support services.**

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- Provide criminal and civil immunity protection for all persons that activate a 9-1-1 response for a suspected drug overdose prior to or simultaneous with administering medications.
- Require education and training in the prevention, detection, and appropriate response to drug overdose including:
 - activating the EMS system
 - cardiopulmonary resuscitation
 - recognition of opioid overdose symptoms
 - proper technique for administration of the opioid antagonist
 - positioning of the victim
 - first aid for respiratory failure and acute opioid withdrawal
 - essential follow-up procedures
- Require medical (physician) oversight over all community and public safety opioid antagonist programs to ensure protection of the public and enhanced patient outcomes through quality practices and standards, such as proper packaging, storage, labeling, training, patient encounters, mode of administration, amount administered, effects of opioid antagonist administration, and patient disposition.
- Encourage the use of state-based prescription drug monitoring programs as a resource to physicians to mitigate opiate abuse and the practice of “doctor shopping” that enables the acquisition of prescribed narcotics from multiple physicians and/or healthcare networks.
- For deceased victims who have received naloxone in the emergent setting, provide adequate resources for medical examiners to perform a proper death investigation and autopsy to include toxicological analysis, interpretation of toxicological findings, and death certification to improve the precision of death certificate data available for public health surveillance.

NASEMSO believes that **FEDERAL** legislation intended to reduce harm caused by unintentional overdose by providing access related to the administration of naloxone should also:

- Require the National Institute on Drug Abuse (NIDA) to prioritize research on drug overdose, overdose prevention, and recitivism, such as:
 - Evaluate scientific evidence on the effectiveness of overdose prevention programs.

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- Examine the circumstances that contribute to drug overdose and identification of drugs associated with increased fatal outcomes.
 - Evaluate patient outcomes related to the administration of naloxone by non-medical caregivers in the out-of-hospital setting.
 - Encourage the Food and Drug Administration (FDA) to support research and implement requirements by which manufacturers of opioid-based painkillers can demonstrate that their products are resistant to misuse and abuse by patients.
 - Incentivize medical education to assist licensed practitioners authorized to treat opioid addiction with Schedule III, IV, and V narcotic medications that have been specifically approved by the Food and Drug Administration for that indication.
 - Require the Centers for Medicare and Medicare Services (CMS) to identify and incentivize opportunities for states to increase access and availability for substance abuse treatment.
 - Encourage the National Highway Traffic Safety Administration (NHTSA) to expedite the revision of the National EMS Scope of Practice Model to promote the administration of naloxone by EMS personnel at all levels.
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Common Medications That Cause Narcotic Overdose

Opioids -- also called opiates or narcotics -- are medications made from opium, which comes from the poppy plant. They reduce the intensity of pain signals reaching the brain and affect those brain areas controlling emotion, resulting in diminished perception of a painful stimulus. Contrary to common belief, the majority of opiate abuse arises from legally prescribed opioids. Hydrocodone products are the opioid most commonly prescribed for a variety of painful conditions, including dental and injury-related pain. Morphine is often used before and after surgical procedures to alleviate severe pain. Morphine and codeine are the two *natural* products of opium. Synthetic modifications or imitations of morphine produce the other opioids:

- Heroin (street drug)
- Dilaudid® (hydromorphone)
- Percocet®, Percodan®, OxyContin® (oxycodone)
- Vicodin®, Lorcet®, Lortab®, Zyhydro® (hydrocodone)
- Demerol® (meperidine or pethidine)

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- Methadone
- Duragesic® (fentanyl)

Opioids act by attaching to specific proteins called opioid receptors, which are found in the brain, spinal cord, gastrointestinal tract, and other organs in the body. When these drugs attach to these receptors, they reduce the perception of pain. Opioids can also produce drowsiness, mental confusion, nausea, constipation, and, depending upon the amount of drug taken, can depress respiration. Some people experience a euphoric response to opioid medications since these drugs also affect the brain regions involved in reward. Those who abuse opioids may seek to intensify their experience by taking the drug in ways other than prescribed. For example, OxyContin® is an oral medication used to treat moderate to severe pain through a slow, steady release of the opioid. People who abuse OxyContin® may crush the tablets and snort or inject it, thereby increasing their risk for serious medical complications, including overdose. Taken as prescribed, opioids can be used to manage pain safely and effectively. The uncontrolled use of opioids either for prescribed benefits or non-medicinal effects leads to increased tolerance and addiction. When abused, even a single large dose can cause severe respiratory depression and death. Someone who is physically dependent on an opioid medication will experience withdrawal symptoms when use of the drug is abruptly reduced or stopped. These symptoms can be mild or severe (depending on the drug) and can usually be managed medically or avoided by slowly tapering the amount used.

Fentanyl is a powerful synthetic opiate analgesic similar to but more potent than morphine. It is typically used to treat patients with severe pain, or to manage pain after surgery. It is also sometimes used to treat people with chronic pain who are physically tolerant to opiates. Like heroin, morphine, and other opioid drugs, fentanyl works by binding to the body's opiate receptors, highly concentrated in areas of the brain that control pain and emotions. When prescribed by a physician, fentanyl is often administered via injection, transdermal patch, or in lozenge form. However, the type of fentanyl associated with recent overdoses was produced in clandestine laboratories and mixed with (or substituted for) heroin in a powder form. Mixing fentanyl with street-sold heroin or cocaine markedly amplifies their potency and potential dangers. Effects include: euphoria, drowsiness, respiratory depression and/or arrest, nausea, confusion, constipation, sedation, unconsciousness, coma, tolerance, and addiction.

Methadone, a drug long valued for treating heroin addiction and for use in managing chronic pain, is increasingly being abused by recreational drug users and is causing an alarming increase in overdoses and deaths. The surge in methadone abuse appears linked to several factors, including the growing abuse of heroin and OxyContin. Health and law enforcement officials are reporting that some of these addicts are turning to methadone when they cannot get the other drugs.

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