NALOXONE ADMINISTRATION: INTRANASAL ROUTE AND AUTO-INJECTORS

Education and Training Module for Ohio EMS – Version 2.0

NALOXONE (Narcan®)

- Developed in the 1960s
- Opioid antagonist
- Emergent overdose treatment in the hospital and prehospital settings
- Increased demand for naloxone
  - Greater variety of available opioids
  - Increased opioid use and abuse

Frequently Prescribed Opioids

- Buprenorphine
- Codeine
- Fentanyl
- Hydrocodone
- Hydromorphone
- Methadone
- Morphine
- Oxycodone

Frequently Prescribed Combination Opioid Medications

- Lorcet®, Lortab®, Norco®, Vicodin®: Hydrocodone + acetaminophen
- Percocet®: Oxycodone + acetaminophen
- Percodan®: Oxycodone + aspirin
- Suboxone®: Buprenorphine + naloxone

Illegal opioids

- Opium
- Heroin

Routes of Administration of Opioids by Laypersons

- Oral
- Transcutaneous
- Intravenous
- Subcutaneous ("skin popping" during the abuse of opioids)

Signs and Symptoms of an Opioid Overdose

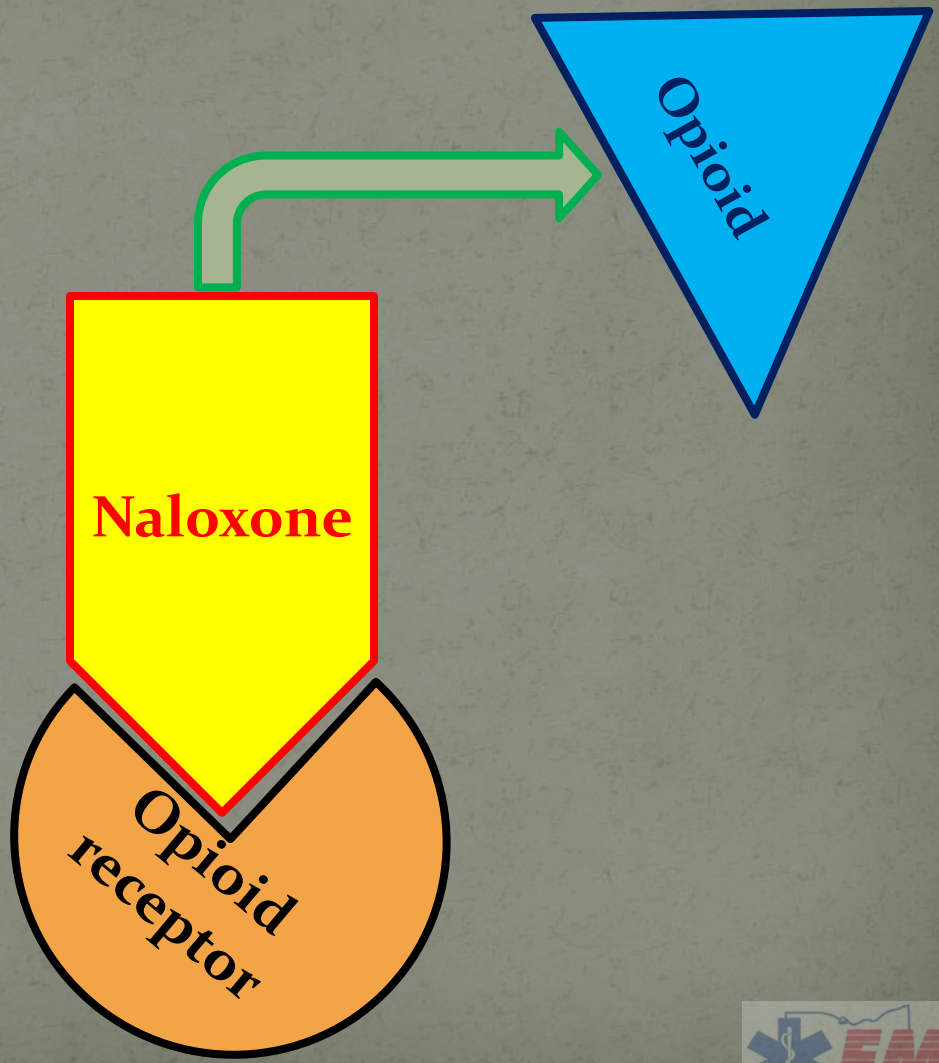
- Miosis (pinpoint pupils)
- Decreased intestinal motility
- Respiratory depression
- Decreased mental status

Risk Factors with Opioid Overdose

- Hypoxia
- Hypercarbia
- Aspiration
- Cardiopulmonary arrest
- The incidence of risk factors increases when other substances such as alcohol, benzodiazepines, or other medications have also been taken by the patient

Physiology of Naloxone

- Naloxone displaces the opioid from the opioid receptor in the nervous system



Physiology of Naloxone

- This may result in the sudden onset of the signs and symptoms of opioid withdrawal

- Agitation
- Tachycardia
- Pulmonary edema
- Nausea
- Vomiting
- Seizures

Routes of Administration of Naloxone

- Endotracheal
- Intramuscular
- Intranasal
- Intravenous

Benefits of Naloxone Administration by Intranasal Route or Auto-Injector

- Equivalent clinical efficacy compared to intravenous naloxone
- Intravenous access may be impossible to establish in chronic intravenous drug abusers

Benefits of Intranasal Route for Naloxone Administration

- Intranasal atomizers facilitate immediate administration of naloxone
- Reduction in the risk of needle stick injury and associated potential infectious disease exposure

Benefits of Naloxone Nasal Spray

- Contains a pre-measured dose of medication which reduces the risk of dosing errors
- Designed for self-administration of medication by patients and laypersons

Benefits of Naloxone Administration by Auto-Injector

- Contains a pre-measured dose of medication which reduces the risk of dosing errors
- Designed for self-administration of medication by patients and laypersons

Ohio EMS Scope of Practice

- On April 16, 2014, the Emergency Medical, Fire, and Transportation Services (EMFTS) Board approved expansion of the Ohio EMS scope of practice to allow emergency medical responders (EMRs) and emergency medical technicians (EMTs) to administer intranasal naloxone and naloxone via auto-injector to persons suspected of suffering from an opioid overdose upon completion of training and with the approval of the medical director

Key Points for Administration of Intranasal Naloxone or a Naloxone Auto-injector

- Medical director approval is mandatory
- Training is mandatory
- A protocol from the medical director is mandatory

Key Points for Administration of Intranasal Naloxone or a Naloxone Auto-Injector

- The medical director retains the authority to limit or prohibit the administration of intranasal naloxone or a naloxone auto-injector
- The administration of naloxone by the endotracheal, intramuscular (exception via an auto-injector), or intravenous routes remains prohibited for EMRs and EMTs

Intranasal Administration Technique

- The dose of naloxone to be administered is determined by the medical director
- Naloxone, in the form of a liquid solution, can be drawn up in a syringe or provided as a pre-filled syringe

Intranasal Administration Technique

- The tip of the syringe should be placed near or just inside the nostril
- Placement of the syringe too far inside the nasal cavity may traumatize the nasal passages or cause epistaxis

Intranasal Administration Technique

- Remove the needle from the syringe prior to administration to prevent trauma to the nasal passages or puncture of the nasal tissues or sinuses
- The use of a mucosal atomization device (MAD) on the tip of the syringe prevents nasal trauma and maximizes the delivery of medication to the patient

Mucosal Atomization Device (MAD)

Intranasal Medication Delivery

Naloxone Nasal Spray

Auto-Injectors

- Spring-loaded syringe and needle device
- Contain a pre-measured dose of medication
- Designed for self-administration of medication by patients or laypersons
- Delivers medication via the intramuscular or subcutaneous route
- Activated by application of firm pressure to the patient's body or by pressing a button on the device

Precautions with Auto-Injectors

- Firm contact of the auto-injector must be maintained against the patient's skin for **5 to 10 seconds** to ensure delivery of the full dose.
- **Never place your thumb or fingers over or near the end of the auto-injector.** Hold the auto-injector firmly with a fisted hand before and during the administration of the auto-injector contents to avoid accidental injection of yourself or dispersal of the contents outside of the patient's body.

Naloxone Auto-Injectors (EVZIO®)

- Currently, naloxone auto-injectors contain a 0.4 mg/0.4 ml naloxone hydrochloride solution
- The administration of one auto-injector will deliver naloxone 0.4 mg intramuscularly or subcutaneously to the patient
- The commercially available cartons of EVZIO® that are currently prescribed to patients and laypersons contain two naloxone auto-injectors and one auto-injector trainer

Naloxone Auto-Injector

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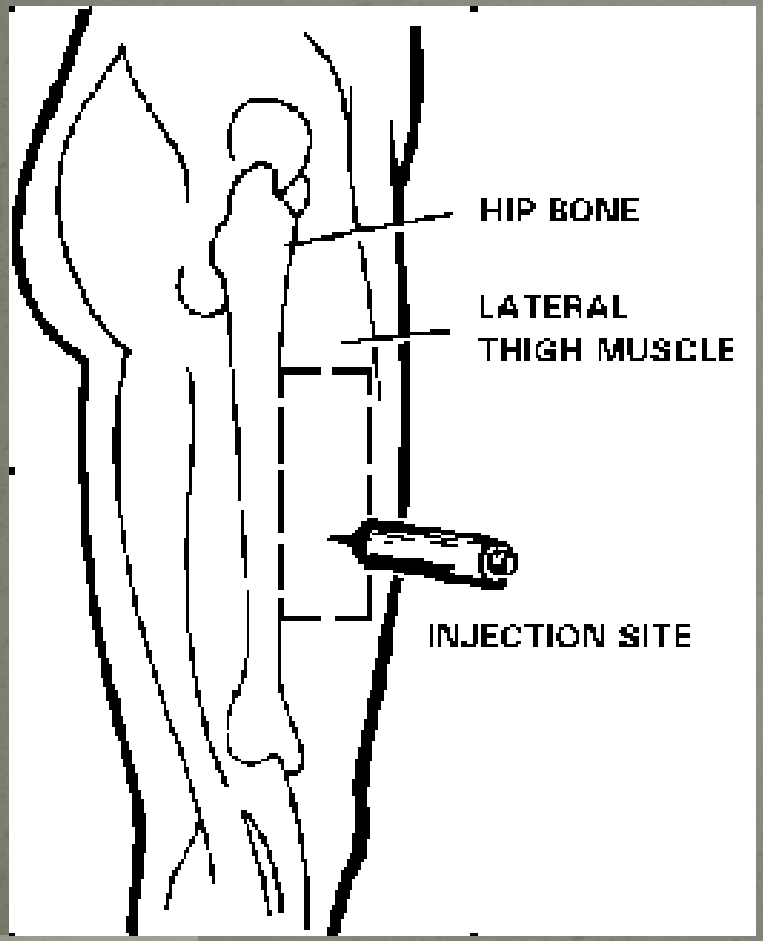
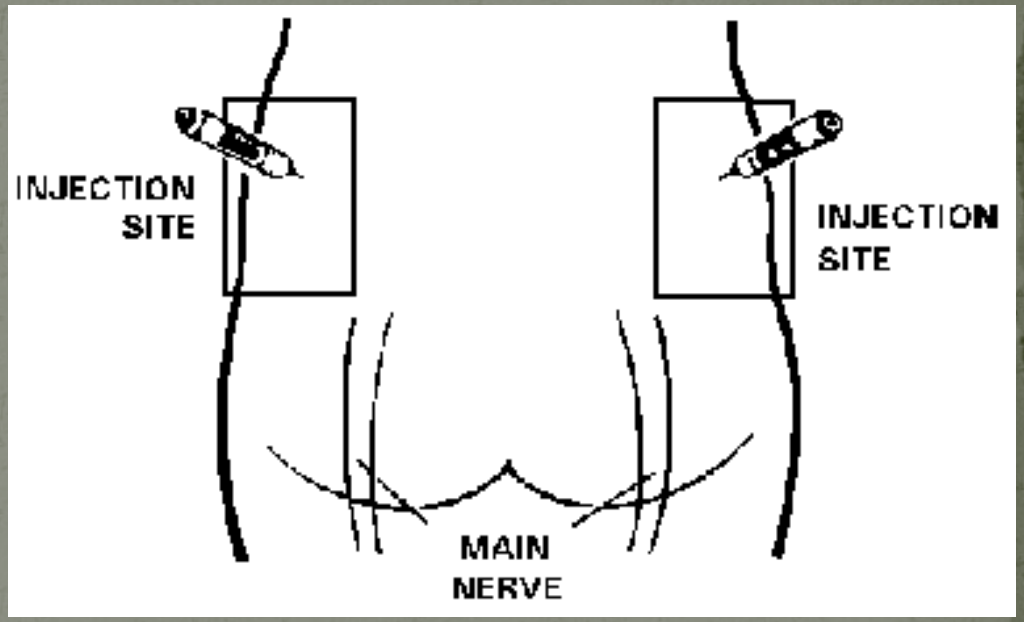
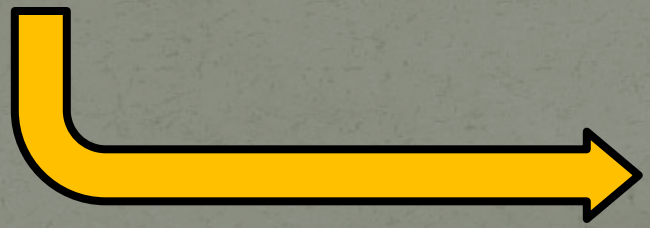
Sites for Injection





Precautions with Naloxone

- The administration of naloxone may result in the rapid onset of the signs and symptoms of opioid withdrawal



- Agitation
- Tachycardia
- Pulmonary edema
- Nausea
- Vomiting
- Seizures

Safety Considerations

- Prior to the administration of naloxone by all EMS providers, all patients should initially receive the appropriate medical interventions to provide support of their airway, breathing, and circulation (ABCs)

Safety Considerations

- All patients should be assessed for other causes of altered mental status and/or respiratory depression (hypoxia, hypoglycemia, head injury, shock, stroke)
- The adverse effects following naloxone administration, particularly in chronic opioid users and abusers, may place the patient and bystanders at risk

Safety Considerations

- Due to the potential adverse effects of naloxone administration, medical professionals often elect to reserve the administration of naloxone to patients with known or suspected opioid overdoses for
  - -Impending cardiopulmonary arrest
  - -Respiratory depression
  - -Shock

Safety Considerations

- The medical director should include parameters within the protocols for EMRs and EMTs on how to address these adverse effects

- Agitation
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Safety Considerations

- The half-life of naloxone is relatively brief (as short as 30 minutes)
- All patients who receive naloxone must be monitored closely for recurrent symptoms, including altered mental status, respiratory depression, and circulatory compromise

Practice Case #1

- You respond to a known drug abuser who is found unconscious with a hypodermic needle inserted into her arm. Her pupils are pinpoint and she does not respond to painful stimuli. Upon assessment of vital signs, her blood pressure is 110/70, pulse is 60, respiratory rate is 2, and a pulse oximeter reading of 84%.
- What is the first action you should take?

Practice Case #1

- This patient is apneic as evidenced by her respiratory rate of 2. The appropriate initial action to take is to open and maintain the airway and administer oxygen via bag valve mask.
- Therapeutic interventions to support the patient's airway, breathing, and circulation should be initiated prior to the administration of naloxone.

Practice Case #2

- You respond to the home of a diabetic hospice patient with cancer. He has decreased mental status and pinpoint pupils. His wife checked his blood glucose prior to calling 9-1-1 and it is 170. The patient was at his baseline mental status until she applied a transcutaneous fentanyl patch that was recently prescribed for pain control. He has a blood pressure of 130/80, pulse of 70, respiratory rate of 18, and a pulse oximetry reading of 95%.
- What action should you take?

Practice Case #2

- You should follow the protocol that is provided by your medical director.
- This patient has stable vital signs. Your medical director may direct you to administer intranasal naloxone or a naloxone auto-injector, remove the fentanyl patch, or transport the patient without any additional medical intervention.
- The medical director retains the authority to allow, limit, or prohibit the administration of intranasal naloxone or naloxone auto-injectors by EMS providers.

Questions?