Naloxone Training

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Disclosure Statement of Financial Interest

I, David Kirschke,

DO NOT have a financial interest/arrangement or affiliation with one or more organizations that could be perceived as a real or apparent conflict of interest in the context of the subject of this presentation.

Disclosure Statement of Unapproved/Investigative Use

I, David Kirschke,

DO NOT anticipate discussing the unapproved/investigative use of a commercial product/device during this activity or presentation.

Erwin Police Department

- Started carrying naloxone April 2016
  - Including School Resource Officers
- First rescue July 1, 2016
  - Elderly woman accidentally took too much pain medicine

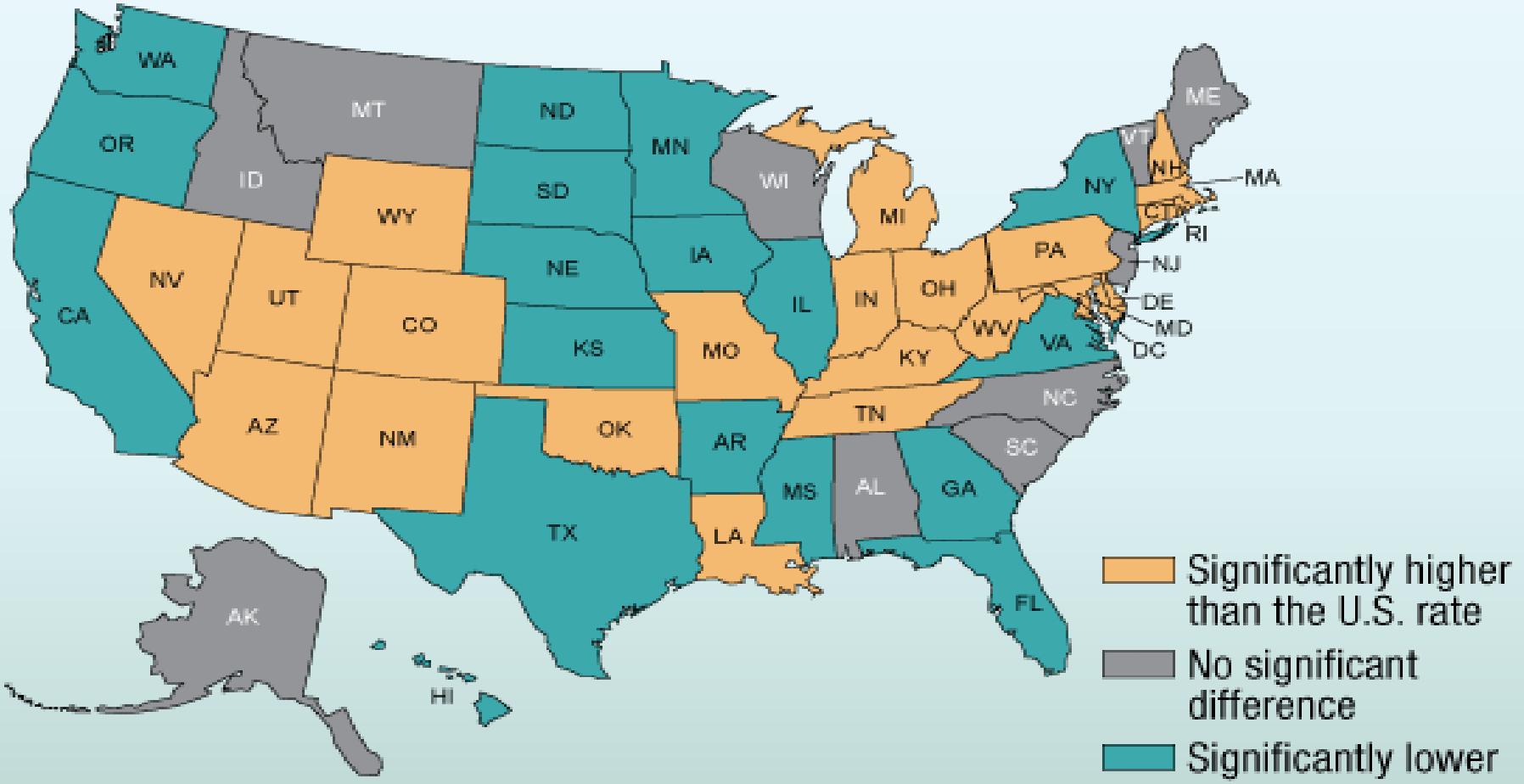
Outline

- Drug overdose crisis: US and Tennessee
- Tennessee Naloxone Rescue Act 2014
- Naloxone safety and use
- TDH training: Recognizing and responding to a potential opioid overdose

US Opioid Overdose Deaths

- Drug overdose deaths more than doubled since 1999
- During 2013, 43,982 drug overdose deaths reported
  - Unintentional, intentional (suicide or homicide), or undetermined intent
- Over half associated with opioids
  - 16,235 (37%) were associated with prescription opioid analgesics (e.g., oxycodone and hydrocodone)
  - 8,257 (19%) with heroin

Drug-poisoning death rates, by state: United States, 2014



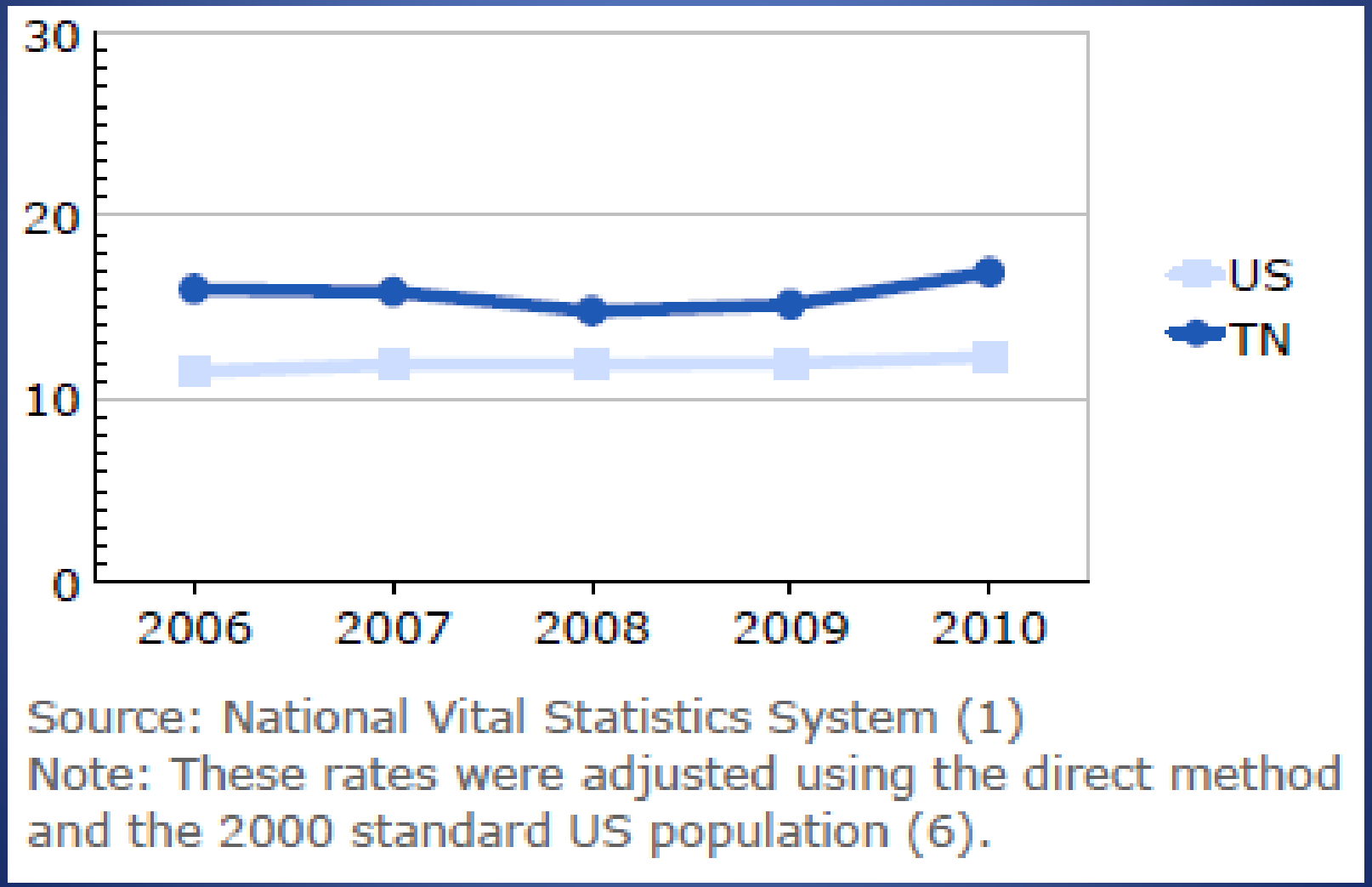
The U.S. rate is 14.7 per 100,000 population.

Source: National Center for Health Statistics

Tennessee Overdose Deaths

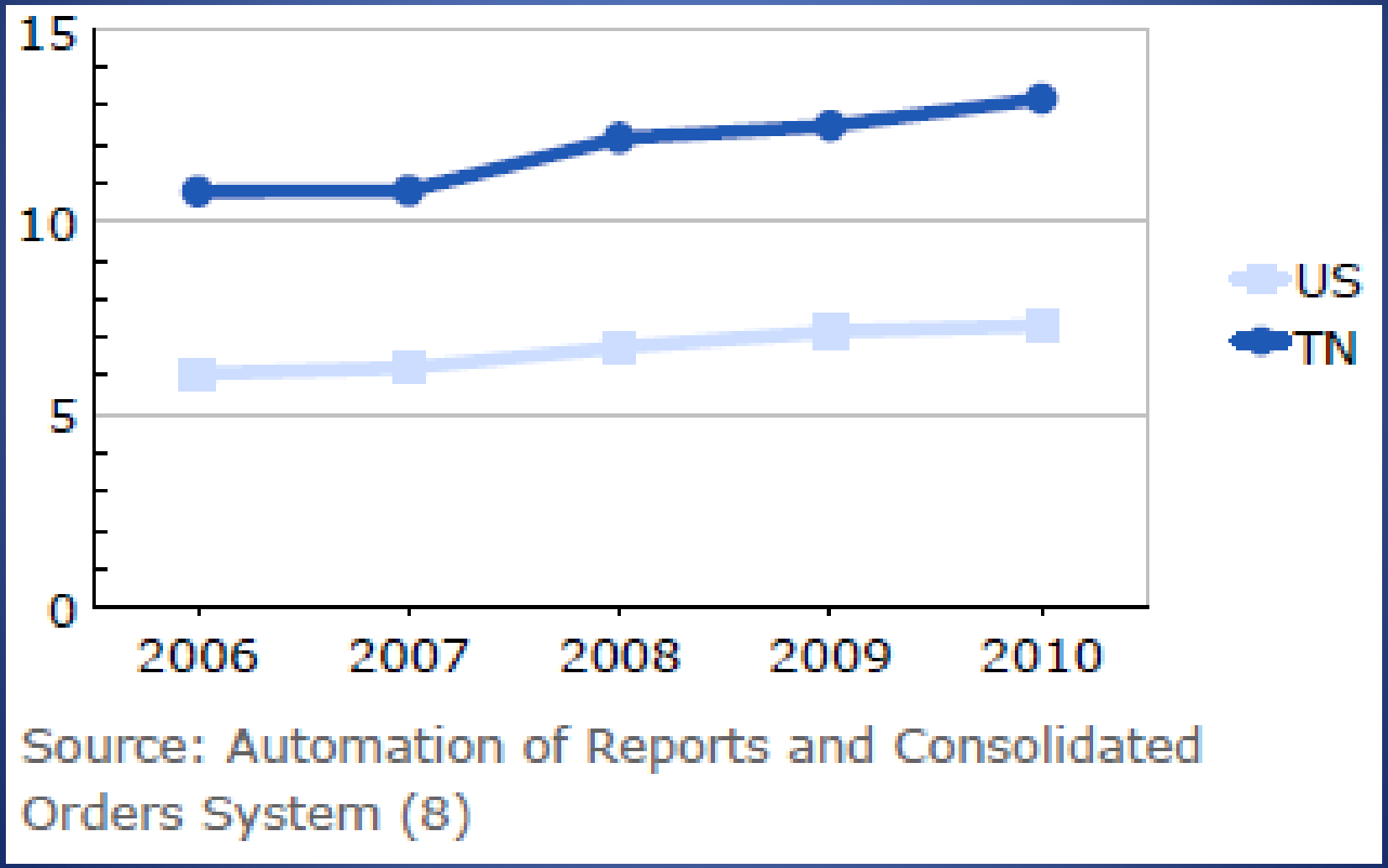
Year	OD	MVA	Homicide	Suicide
2012	1,094	958	456	956
2013	1,166	1,008	405	1,017
Total	2,260	1,966	861	1,973

Drug overdose death rate (age-adjusted per 100,000 population)



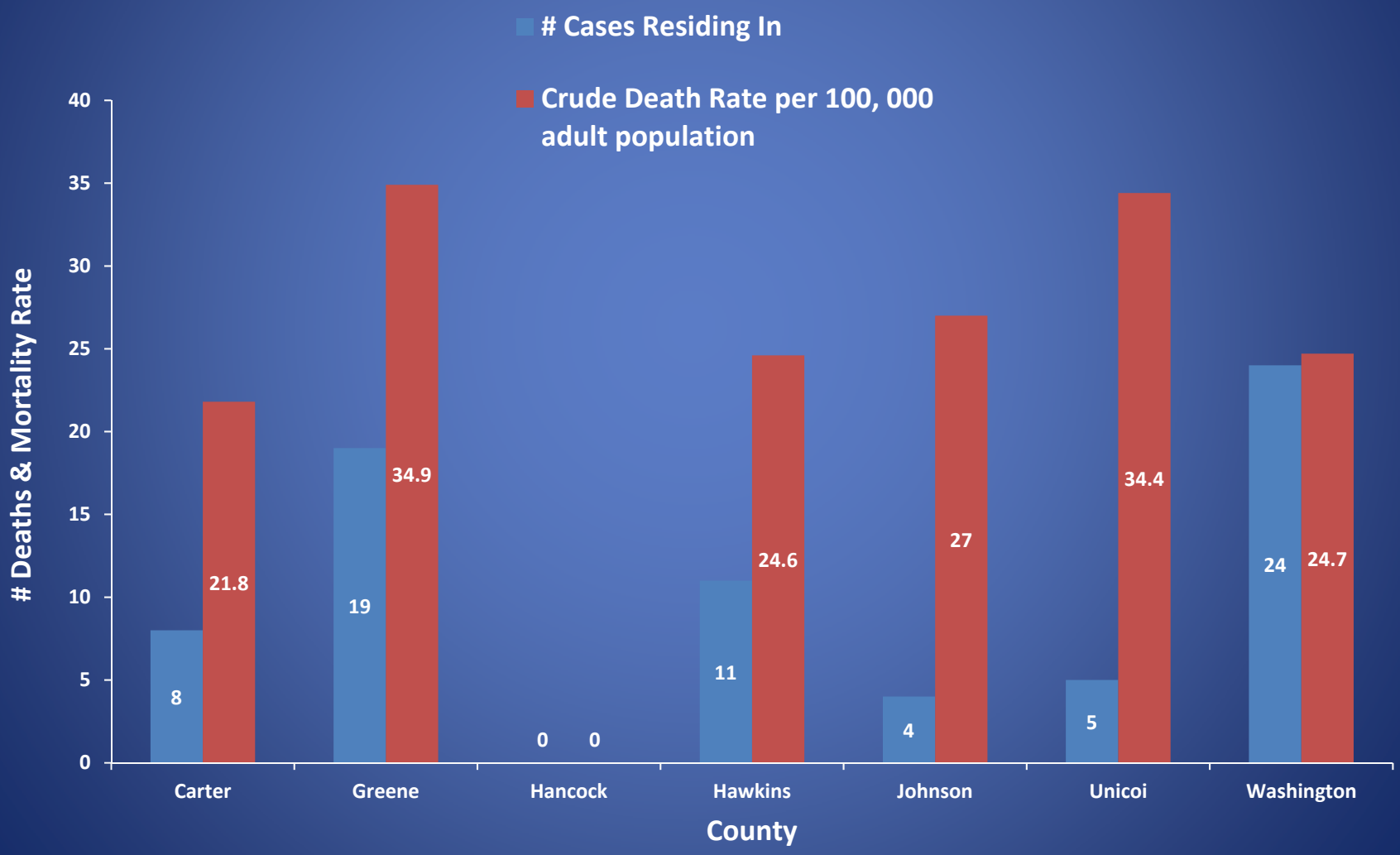
Source: National Vital Statistics System (1)
Note: These rates were adjusted using the direct method and the 2000 standard US population (6).

Kilograms of morphine equivalents of opioid pain relievers sold (per 10,000 population)



Source: Automation of Reports and Consolidated Orders System (8)

County of Residence, County Death Rate vs. TN Death Rate, 2014



Epidemiology of Overdose Deaths in Tennessee

2013 data

- **54% men**
- **Highest rates among persons aged 25-44 years**
- **Most white (90%)**
- **72% high school diploma, GED certificate or less education**
- **83% accidental/unintentional**
- **Opioid pain medicine contributed to >50%**

Preventing Drug Overdose Deaths

- Primary prevention
- Education of providers about safe, effective pain management
  - Chronic pain guidelines
- State laws on prescription drug misuse and abuse
  - Controlled Substance Monitoring Database
- Addiction treatment
- Harm Reduction

Harm Reduction Using Naloxone

Providing naloxone kits to laypersons:

- **Reduces overdose deaths**
- **Is safe**
- **Is cost-effective**

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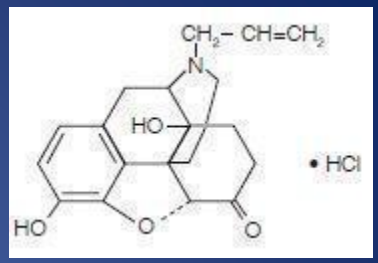
Naloxone Rescue Act (SB1631/HB1427)

- Allows a licensed healthcare practitioner to prescribe naloxone to a person at risk of having an opiate related overdose, or a family member or friend of the at risk individual
- Training in administration of naloxone
  - Available on TDH website
- Provides immunity from civil prosecution for both prescribing practitioner and individual administering naloxone
- Public Chapter 623, effective July 1, 2014

Naloxone



- Opioid antagonist
- Synthetic congener of oxymorphone
- Prevents or reverses the effects of opioids
  - Respiratory depression, sedation and hypotension
- Essentially pure opioid antagonis
- Does not possess the “agonistic” or morphine-like properties
- In absence of opioids exhibits essentially no pharmacologic activity

Withdrawal Symptoms

- Only significant adverse reactions:
  - Related to reversing dependency and precipitating withdrawal
  - Result of sympathetic excess
- Patients experiencing opioid withdrawal may complain of the following:
  - Dysphoria and restlessness
  - Rhinorrhea and lacrimation
  - Myalgias and arthralgias
  - Nausea, vomiting, abdominal cramping, and diarrhea

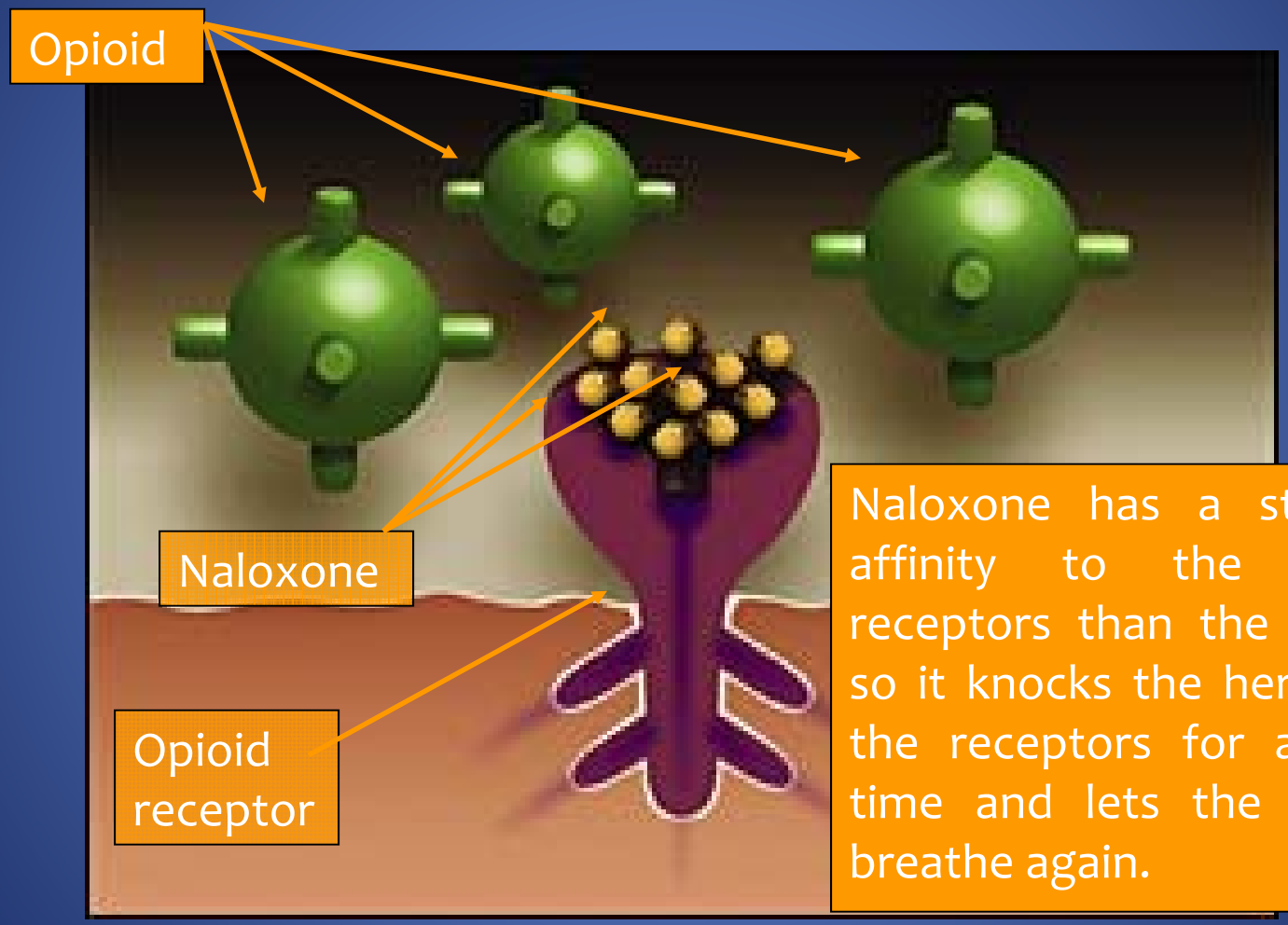
Adverse Events Following IM and IN Administration

- **No major adverse events in either group**
- **Adverse events (described as mild)**

Table 7. Adverse events after naloxone 2 mg by intramuscular (IM) or intranasal (IN) routes [Kelly *et al.* 2005].

Event term	IM ($n = 71$)	IN ($n = 84$)
	n (%)	*n* (%)
Agitation and/or irritation	10 (14%)	2 (2.4%)
Nausea and/ orvomiting	4 (5.6%)	6 (7.1%)
Headache	2 (2.8%)	0 (0%)
Tremor	1 (1.4%)	1 (1.2%)
Sweating	0 (0%)	1 (1.2%)

How does naloxone work?



Naloxone has a stronger affinity to the opioid receptors than the opioid, so it knocks the heroin off the receptors for a short time and lets the person breathe again.

Naloxone Safety

- WHO's List of Essential Medicines
- Pure opioid antagonist - no potential for abuse
- Little to no effect on person unless they are experiencing an opioid overdose
- Accidental administration poses no threat or danger
  - Including to children or pregnant women
- Studies suggest laypersons trained in administration can do so as effectively as EMS personnel

Onset and Duration of Action

- Intravenous (IV)
  - Onset of action is generally apparent within two minutes
- Subcutaneous or intramuscular
  - Onset of action is slightly less rapid than IV
- Intramuscular administration produces a more prolonged effect than intravenous administration
  - Approximately 2 hours
- Effects of opiate may return as the effects of naloxone dissipates

Repeat Administration

- Patient who has satisfactorily responded to naloxone should be kept under continued observation
- Repeated doses of naloxone should be administered as necessary
  - Duration of action of some opioids may exceed that of naloxone

Respiratory Depression Due to Other Drugs

- Not effective against respiratory depression due to non-opioid drugs
- Reversal of respiratory depression by partial agonists or mixed agonist/antagonists (eg, buprenorphine) may be incomplete or require higher doses of naloxone
- If an incomplete response occurs, respirations should be mechanically assisted as clinically indicated

Usual Adult Dose for Opioid Overdose

- 0.4 to 2 mg/dose IV/IM/subcutaneously
- May repeat every 2 to 3 minutes as needed
- Therapy may need to be reassessed if no response is seen after a cumulative dose of 10 mg

Naloxone Training

- **Developed by TDH**
  - **Recognizing a possible opioid overdose**
  - **Understanding risk factors**
  - **Responding to an opioid overdose emergency**

Risk Factors for Overdose

- Mixing Drugs
- Tolerance
- Quality/dosage
- Using Alone
  - increases the chance of fatally overdosing
- Age & Physical Health
- Mode of Administration
- Previous Non-Fatal Overdose

Signs of Overdose

- Loss of consciousness
- Unresponsive to outside stimulus
- Breathing is very slow and shallow, erratic, or has stopped
- Choking sounds, or a snore-like gurgling noise (sometimes called the “death rattle”)
- Pupils may be very small

Responding to a Suspected Opioid Overdose

Step 1 - Rub to wake

- Rub your knuckles on the bony part of the chest (sternum) to try to get them to wake up and breathe.

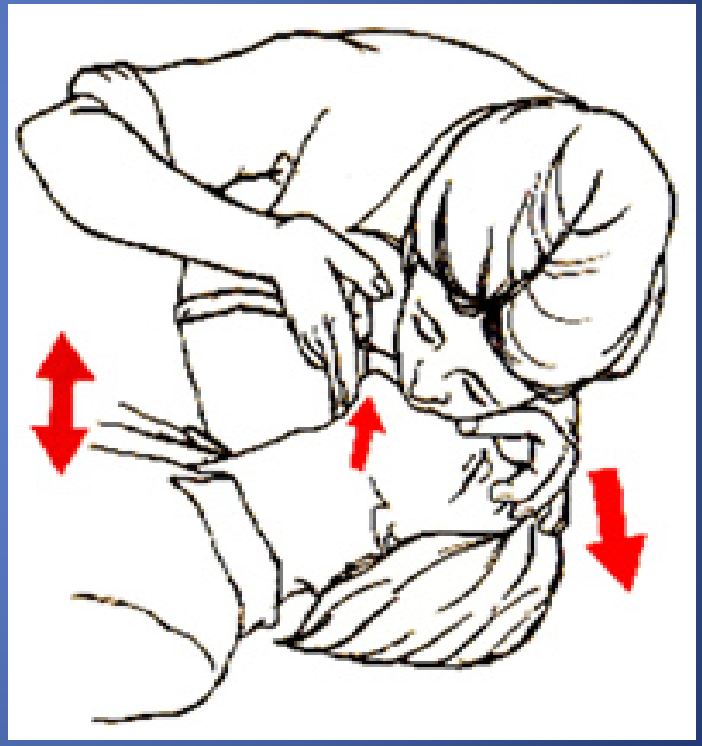
Step 2 - Call 911

Tell them

- The address and where to find the person
- A person is not breathing
- When medics come tell them what drugs the person took if you know
- Tell them if you gave Naloxone

Step 3 - If the person stops breathing, give breaths mouth to mouth or use a disposable breathing mask

- Put them on their back
- Pull the chin forward to keep the airway open put one hand on the chin, tilt the head back, and pinch the nose closed
- Make a seal over their mouth with yours and breathe in two breaths. The Chest, not the stomach, should rise
- Give one breath every 5 seconds



Step 4 - Give naloxone

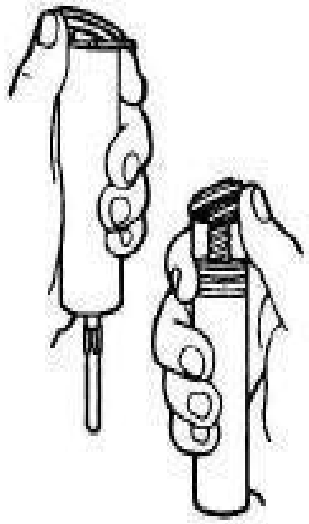
Injectable:

- Give naloxone (discard any opened naloxone within 6 hours of using) Injectable naloxone: inject into the arm or upper outer top of thigh muscle 1cc at a time always start from a new vial

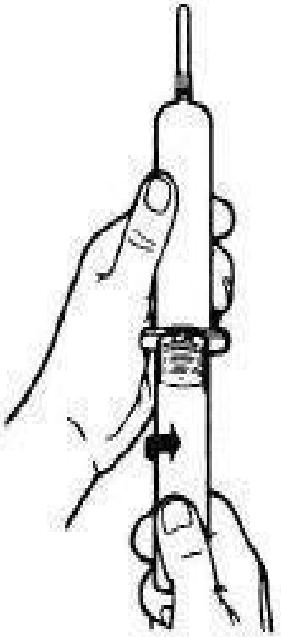
Intranasal:

- Squirt half the vial into each nostril, pushing the applicator fast to make a fine mist.

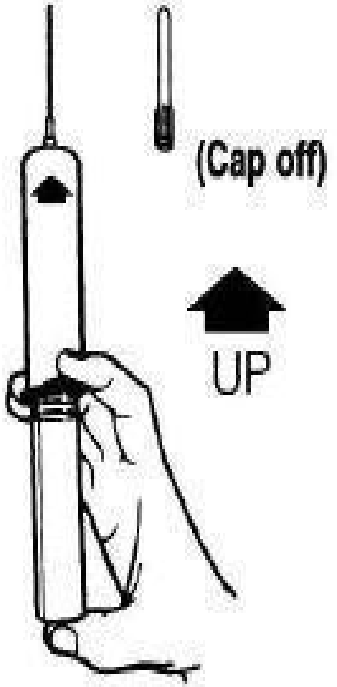
Injectable Naloxone



Remove protective caps. Align vial such that the injector needle is centered on the stopper.

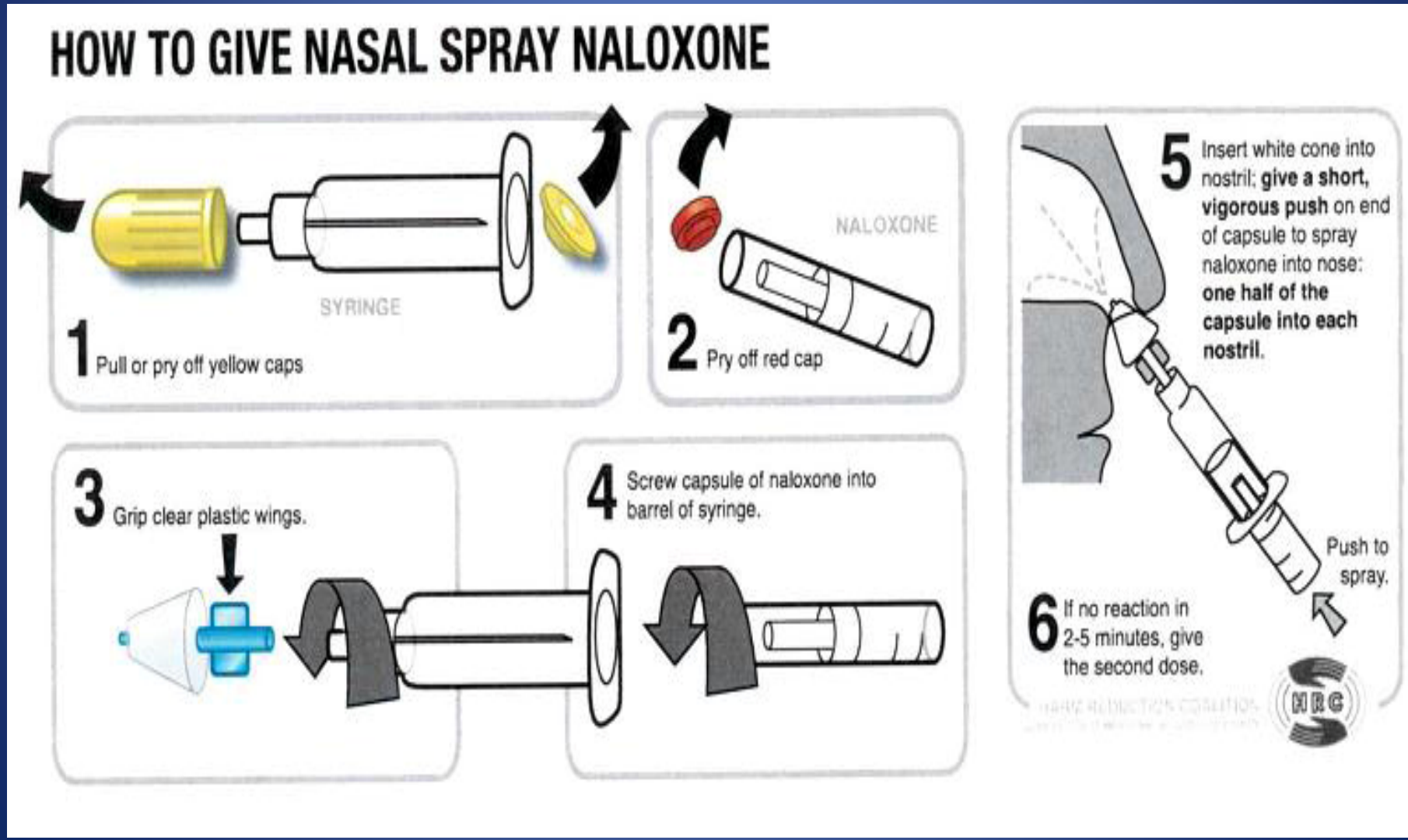


Thread vial into injector 3 half turns, or until needle penetrates stopper.* DO NOT PUSH VIAL INTO INJECTOR; THIS MAY CAUSE MISALIGNMENT.



Remove needle cap and expel air before injection.

Intranasal Naloxone



Step 5 - Stay with the person and keep them breathing

- Continue giving mouth to mouth breathing if the person is not breathing on their own after that administration of naloxone
- Give second dose of naloxone after 2-5 minutes if they do not wake up and breath more than 10-12 breaths a minute
- Naloxone can spoil their high and they may want to use again, make sure they are aware that overdosing is still possible when naloxone wears off

Step 6 - Place the person on their side

- People can breathe in their own vomit and die.
- If a person is breathing put them on their side to prevent this.
- Naloxone can induce vomiting, this position will help protect them from inhaling that vomit.

Step 7 - Convince the person to follow the paramedics advice

If paramedics advise to proceed to an emergency room then health care staff can

- Relieve symptoms of withdrawal
- Prevent a second overdose
- Observe and administer naloxone as needed
- Assess risk of the person for other overdoses brought on by drugs other than opioids

Step 8 - What if police show up?

- Tennessee Naloxone Rescue Act allows bystanders to administer naloxone if they suspect an overdose

Narcan for Schools

- Adapt will provide access to 1 carton of NARCAN® Nasal Spray at no cost
- State and local school district can participate in the NARCAN® Nasal Spray High School Program
- http://www.narcannasalspray.com/how-to-get-nns/partnerships/
- Call 1-844-4NARCAN (462-7226)
- http://www.narcannasalspray.com/nns-4-mg-dose/how-to-use-nns/

Narcan Nasal Spray

- **Naloxone 4mg intranasal spray**

REVIVE! Kits

Kits include:

- **Mucosal atomizer**
- **Latex-free gloves**
- **Rescue breathing shield**
- **Information card (includes naloxone and rescue position graphics)**
- **Return cards**
- **Stickers**

REVIVE!
OPIOID OVERDOSE PREVENTION FOR THE COMMONWEALTH OF VIRGINIA

References

- For more information about naloxone, visit the American Public Health Association website www.ncbi.nlm.nih.gov/pmc/articles/PMC2661437/
- To view a video about naloxone and how it is used, visit http://prescribetoprevent.org/video/
- TDH naloxone information
  - http://tn.gov/health/topic/information-for-naloxone
- Harm Reduction Coalition website
  - http://harmreduction.org/issues/overdose-prevention/

Thank You

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Withdrawal symptoms

- Unlike withdrawal symptoms precipitated by withdrawal of other agents, opioid withdrawal is generally not life-threatening.
- Withdrawal symptoms induced by naloxone administration tend to dissipate in a period of 30–60 minutes due to the relatively short half-life of naloxone

Seizures

- Seizures are a well-known complication after severe cerebral hypoxia
- Patients in the setting of opioid overdose may have been hypoxic for an unknown duration
- Contribution by naloxone to a seizure is unclear

Cardiac arrest

- In the context of hypoxia (as in after a narcotic overdose), seizures and cardiac arrest can occur
- In the overdose setting, co-consumed drugs such as cocaine may be contributory

Tachycardia

- Buajordet and colleagues [Buajordet *et al.* 2004] reported tachycardia in the range of 80–180 bpm
- None of these patients were hospitalized
- Tachycardia is also listed as one symptom of opioid withdrawal

Pulmonary edema

- **Pulmonary edema can be observed as a terminal event of a severe opioid overdose**

NASN Position Statement

- It is the position of the National Association of School Nurses (NASN) that the safe and effective management of opioid pain reliever (OPR)-related overdose in schools be incorporated into the school emergency preparedness and response plan.
- The school nurse is an essential part of the school team responsible for developing emergency response procedures.
- School nurses in this role should facilitate access to naloxone for the management of OPR-related overdose in the school setting.

NASN
National Association of School Nurses