




Br³⁵eaking Ba⁵⁶d Outcomes:

Decision Rules and Risk-Stratification of Naloxone Resuscitation

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REVIEW

Do heroin overdose patients require observation after receiving naloxone?

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ABSTRACT

Context: Heroin use in the US has exploded in recent years, and heroin overdoses requiring naloxone are very common. After awakening, some heroin users refuse further treatment or transport to the hospital. These patients may be at risk for recurrent respiratory depression or pulmonary edema. In those transported to the emergency department, the duration of the observation period is controversial. Additionally, non-medical first responders and lay bystanders can administer naloxone for heroin and opioid overdoses. There are concerns about the outcomes and safety of this practice as well.

Objectives: To search the medical literature related to the following questions: (1) What are the medical risks to a heroin user who refuses ambulance transport after naloxone? (2) If the heroin user is treated in the emergency department with naloxone, how long must they be observed prior to dis-

ARTICLE HISTORY

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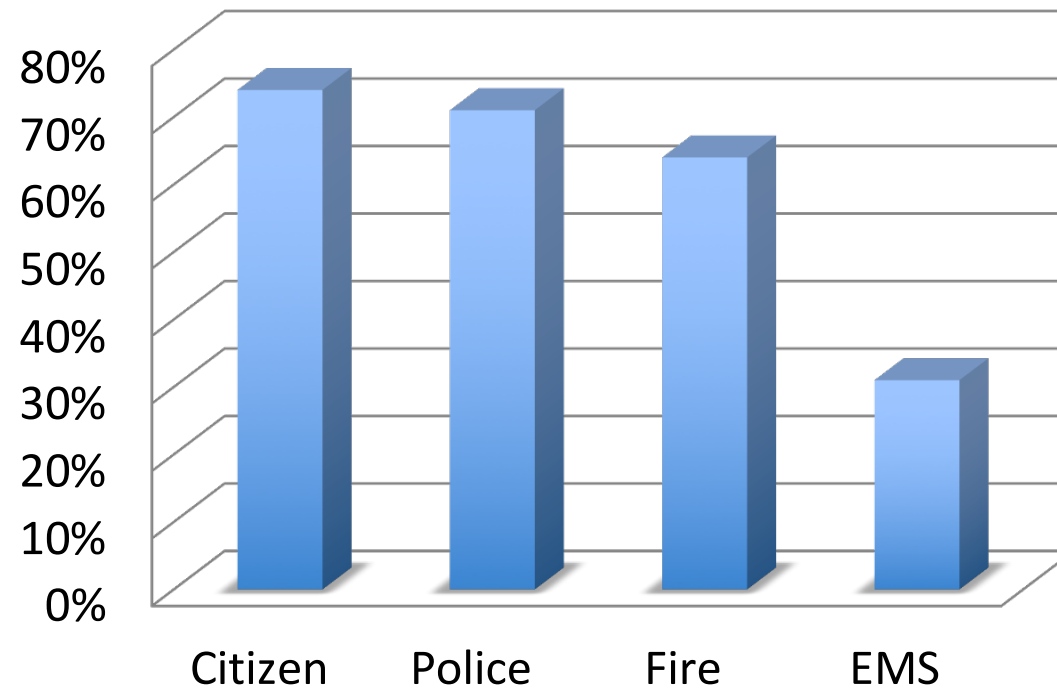
KEYWORDS

Heroin overdose; treat-and-release; emergency medical services; antidote



Can EMS providers risk stratify patients following naloxone reversal?

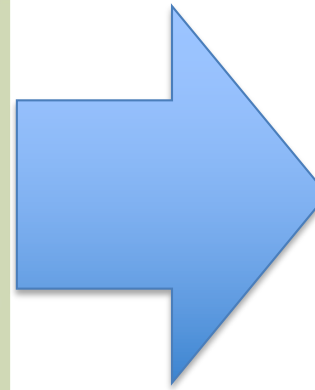
If you get your first Naloxone from... what is the chance you will get a second?



After the administration of naloxone for presumed opioid overdose, patients can be safely discharged by EMS if they meet all 6 criteria:

- Can mobilize as usual
 - Have a normal O₂ saturation >95%
 - Have a normal respiratory rate (>10 and <20 breath/min)
 - Have a normal temperature
 - Have a normal heart rate (>50 and <100 beats/min)
 - Have a Glasgow Coma Scale score of 15
- + Provider judges them to be safe for discharge**

Average: 37 minutes



Typically > 4 hours

Predefined Hospital Interventions/Adverse Events

- More Naloxone
- Death
- Bipap
- Intubation
- Oxygen
- etc.

81 (16%) subjects had a predefined events

So What's My Chance of an Having a Problem?

- If you don't pass all the criteria or the provider does not judge you to be safe:
 - 1 out of 5 (PPV = 0.217)
- If you pass all 6 criteria and the provider judges you to be safe:
 - 1 out of 50 (NPV = 0.980)

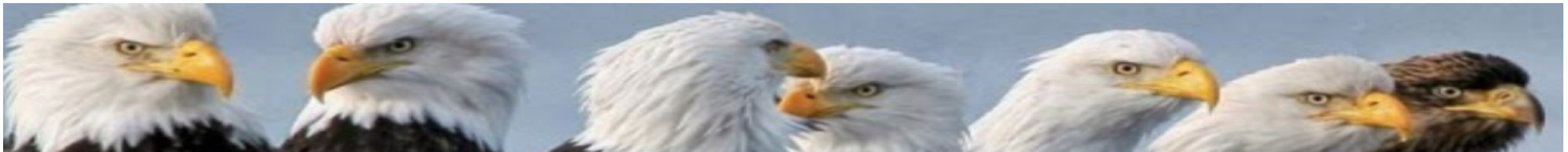
**Do EMS providers have
to wait 37 minutes
before risk stratifying
patients?**

	EMS
Time after naloxone	37 minutes
Miss rate	2%

	EMS	Hospital
Time after naloxone	37 minutes	> 1 hour
Miss rate	2%	4%

Avoiding EMS (Over) Use of Naloxone in Opioid Overdose

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Is This the Correct Dose of Narcan?



Is there any downside?

A Case

- Middle aged male w suspected OD. Reported to be in cardiac arrest.
- EMS: pt in a bed at back of trailer with acquaintance doing CPR. Reported to have snorted oxycodone and possibly fentanyl and meth
- PE: Airway patent with repositioning, inadequate ventilation but spontaneous ventilation present. Strong carotid pulse
- BP.. P 103 RR 18 SpO2 66% BGL 208
- Lungs “Clear BBS” GCS 3



A Case: Treatment

- Narcan 2 mg IN then 0.5 mg IV
- Blood noted in airway
- SpO2 improved to 92% during BVM
- Pt suddenly became alert and extremely combative for 4-5 minutes
- Ketamine
- SpO2 decreased
- BVM: copious amounts of blood suctioned from airway

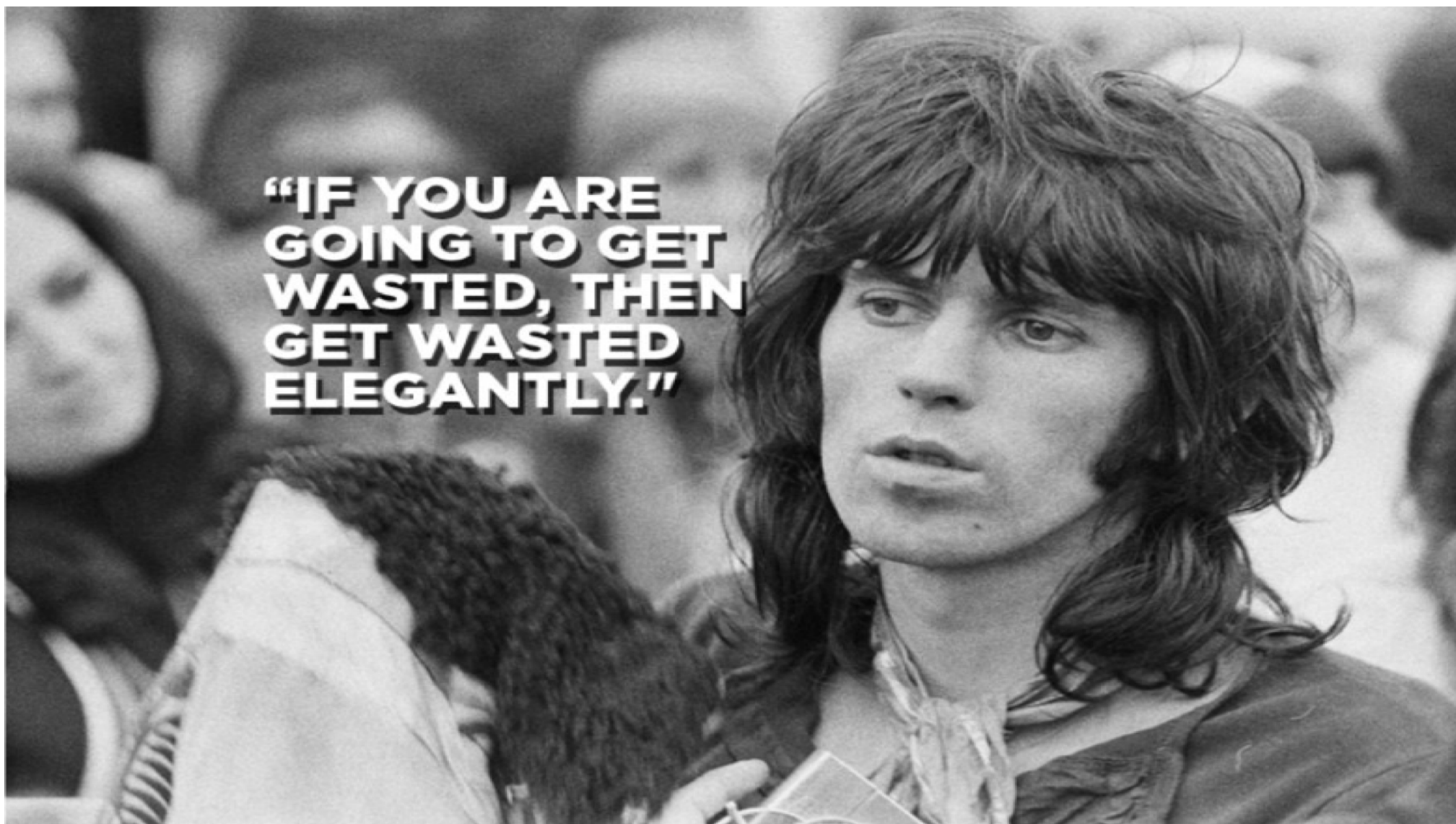


Airway Management

- RSI
- Bradycardia and witnessed arrest
- CPR
- Asystole and prolonged arrest
- ROSC
- Died in ICU. Multiorgan failure



**"IF YOU ARE
GOING TO GET
WASTED, THEN
GET WASTED
ELEGANTLY."**





Unconscious-Unknown-Breathing Absent =



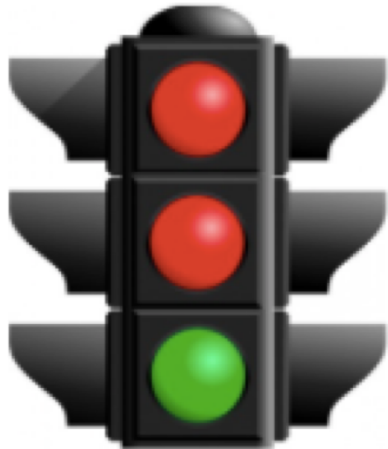
Michael Levy MD



...Wha



No-No-Go!



NO – NO – GO!

CONSCIOUS

BREATHING NORMALLY

CPR INSTRUCTIONS



Thanks to Julie Buckingham and Seattle RA



Dyspnea After a Heroin Overdose

By JUSTIN KOSIROG, MD and WESLEY EILBERT, MD ON JANUARY 17, 2018

<http://epmonthly.com/article/dyspnea-heroin-overdose/>

Opioid Overdose

Opioids are group of licit and illicit compounds that act upon natural receptors that modulate pain and breathing, among other effects. They differ regarding potency and duration of action.

Guidelines

AFD providers shall approach known or suspected opioid overdose as an “unconscious/unknown” respiratory emergency. Early recognition and treatment of hypoxemia and ventilatory failure are the management goals.

Clinical Presentation: 3 Hallmarks

- **(1) Respiratory depression or apnea**: Respiratory rate > 12 is not consistent with opiate overdose. CONSIDER OTHER CAUSES
- **(2) Stupor or unconsciousness**
- **(3) Miosis**: a common finding, but may not be present
- Airway compromise and/or aspiration may be present
- Pulmonary edema may be present or may become manifest with use of naloxone
- Some patients may have received Public Access Naloxone prior to EMS arrival
- Combative and/or violent behavior is may occur with the use of Naloxone particularly with large doses

Treatment

- Exam and vital signs
- Airway and ventilatory support as indicated
- Cardiac monitor with EtCo2 waveform capnography and SpO2 pulse oximetry on all unconscious patients
- Determination of ventilatory status and oxygenation state drives decision on Naloxone dosage and provider intent to 'wake patient up'
- Naloxone administration as per Medication Standing Orders
- Patients receiving oxygen, ventilatory assistance and/or Naloxone will be on a cardiac monitor (EtCo2 waveform and pulse oximetry)

Adult Dose

IV, IO: 0.4mg iv and titrate. Consider adding 2mg to 10cc flush cleared of 2cc (then 10cc total) and titrate dose as 0.2mg/ml

IM: 0.4mg. May repeat in 2-3 minutes. May have a more rapid onset than and is a preferred route of administration to IN

IN: 1mg. May repeat in 2-3 minutes

Conclusion

- Overdose events are either
 - Actual therapeutic endpoints
 - Respiratory emergency
 - Cardiopulmonary arrest
- We know how to handle respiratory emergency
- Large doses of naloxone can have unintended consequences and are unnecessary for EMS

