From: Ron Kirschner, MD, Medical Director
To: ALL HEALTH CARE PROFESSIONALS
Subject: Emergency department naloxone dosing and observation time after administration
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- Naloxone (NAL) is a potentially life-saving opioid antagonist that can reverse respiratory depression and obviate the need for intubation.

- The starting dose recommended in common medical references ranges from < 0.05 mg IV to more than ten-fold greater (Connors).

- A small retrospective study (n=15) found that the median dose needed to reverse respiratory compromise in emergency department (ED) patients was 0.08 mg (range 0.04-0.12) (Kim).

- Higher doses can precipitate opioid withdrawal leading to multiple complications. For patients with respiratory compromise and possible opioid dependence, we recommend starting with 0.04 mg IV.

- In small children, especially those with buprenorphine exposure, higher NAL dosing (e.g. 0.1 mg/kg IV) is appropriate.

- Because NAL's duration of action is short (30-90 minutes) CNS/respiratory depression may recur. The appropriate observation time following EMS or ED administration is 4-6 hours for immediate release opioids.

- Patients with NAL reversal following extended release opioid or methadone ingestion require longer observation, ideally 24 hours due to the risk for delayed respiratory depression.

- For patients with recurrent respiratory depression, continuous naloxone infusion can be initiated at 2/3 the effective reversal dose per hour and titrated to effect (Goldfrank).

References
Connors NJ. The evolution of recommended naloxone dosing for opioid overdose by medical specialty. *J Med Toxicol* 2016; 12: 276.
Goldfrank L. A dosing nomogram for continuous infusion intravenous naloxone. *Ann Emerg Med* 1986; 15: 566.
Kim HK. Reversal of opioid-induced ventilatory depression using low dose naloxone (0.04 mg). *J Med Toxicol* 2016; 12: 107.

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