

**Critical Review Form  
Prognosis**

[Wampler DA, Molina DK, McManus J, Laws P, Manifold CA. No deaths associated with patient refusal of transport after naloxone-reversed opioid overdose. Prehosp Emerg Care. 2011 Jul-Sep;15\(3\):320-4.](#)

**Objectives:** "to examine the safety of the current practice of allowing opioid overdose patients treated with naloxone to refuse transport to the emergency department (ED)" by assessing "mortality during the 48 hours after patients received naloxone to reverse opioid overdose followed by patient-initiated refusal of transport to the ED." (p. 321)

**Methods:** In this retrospective review, a search was conducted of all San Antonio Fire Department (SAFD) EMS records for all patients receiving naloxone between November 2007 and June 2009, and not transported to the ED - whether due to patient refusal, referral to the medical examiner, referral to law enforcement, receipt of aid only, or any other reason. A list of these patients - including name, date of birth, date of EMS service, and SAFD case number - was sent to the Bexar County Medical Examiner's Office (MEO) for cross-reference to identify any patient seen by the MEO within 48 hours (or 30 days for the secondary outcome) of being treated and released by EMS.

According to SAFD protocol, patients with suspected opiate overdose were given 2 mg of intramuscular (IM) naloxone, followed by establishment of intravenous (IV) access and administration of an additional 2 mg of IV naloxone. Patients returning to normal mental status with "decision-making capacity," with acceptable vital signs, were allowed to refuse further care.

The search resulted in a total of 1700 patient encounters with EMS in which naloxone was given. Of these, 592 (35%) were not transported to the hospital, of whom 72% were male and the mean age was 38 years. Of these, 552 (93%) refused transport. In the remaining 40 (7%) cases, the patient presented in cardiac arrest, was given naloxone during resuscitation attempts, and was declared dead in the field.

Guide		Comments
I.	Are the results valid?	
A.	<b>Was the sample of patients representative?</b> <i>In other words, how were subjects selected and did they pass through some sort of "filtering" system which could bias your results based on a non-representative sample. Also,</i>	Yes. This was a sample of patients with opiate overdose for which EMS was called, and who received naloxone. Understandably, only those patients who responded to naloxone were eligible.

	<i>were objective criteria used to diagnose the patients with the disorder?</i>	
B.	<b>Were the patients sufficiently homogeneous with respect to prognostic risk?</b> <i>In other words, did all patients share a similar risk from during the study period or was one group expected to begin with a higher morbidity or mortality risk?</i>	Yes. According to protocol all patients received the same dose of naloxone by the same route (2 mg IM followed by 2 mg IV), and were required to return to normal mental status. It is plausible that the initial degree of intoxication would affect the propensity to develop a recrudescence of symptoms, and hence apnea, and no details regarding the initial presentation were provided.
C.	<b>Was follow-up sufficiently complete?</b> <i>In other words, were the investigators able to follow-up on subjects as planned or were a significant number lost to follow-up?</i>	Yes. Follow-up consisted of cross-referencing records from the MEO to identify any cases of death within 48 hours or 30 days of the EMS encounter. Matches were based on name and date of birth, and it is possible that victims of opiate overdose would provide false information to EMS personnel out of fear of legal reprisal. The authors do not note any adjustment for this possibility.
D.	<b>Were objective and unbiased outcome criteria used?</b> Investigators should clearly specify and define their target outcomes before the study and whenever possible they should base their criteria on objective measures.	Yes. Death was the outcome, and is as objective and unbiased as you can get. Presumably all deaths potentially due to opiate overdose would be referred to the MEO.
<b>II.</b>	<b>What are the results?</b>	
A.	<b>How likely are the outcome? In other words, how many patients had the outcome of interest?</b>	<b>None of the 592 patients receiving naloxone and then refusing transport were examined by the MEO within 48 hours of EMS contact (0%, 95% CI 0% to 0.69%).</b>  Two individuals treated and released by EMS died within 30 days of contact. One of these died of a heroin and cocaine abuse 4 days after contact, while the second died of a gunshot wound.
B.	<b>How precise are the estimates of likelihood?</b> <i>In other words, what are the confidence intervals for the given outcome likelihoods?</i>	See above. This was a fairly large sample size, and the upper bound of the 95% CI remains low (0.69%).
<b>III.</b>	<b>How can I apply the results to patient care?</b>	
A.	<b>Were the study patients and their management similar to those in my practice?</b>	Mostly yes. There were patients in a large urban area suffering opiate overdose and receiving naloxone. Differences in preferred dose and

		route of naloxone could potentially affect the frequency of recrudescence of symptoms, particularly with the growing use of intranasal naloxone ( <a href="#">see previous Journal Club</a> ), which was not used in any of the patients in this study.
B.	<b>Was the follow-up sufficiently long?</b>	Yes. The authors looked primarily at death within 48 hours of EMS encounter, but also extended this to assess for any deaths within 30 days of encounter. It is unlikely that recrudescence could occur greater than 48 hours after a dose of naloxone, and any subsequent deaths would likely be due to additional opiate ingestion.
C.	<b>Can I use the results in the management of patients in my practice?</b>	Yes. This large retrospective study strongly suggests that overdose recrudescence is highly unlikely after a good response to naloxone given by EMS. It seems both safe and prudent release patients who return completely to baseline after naloxone is given without transport to a medical facility.

**Limitations:**

- 1. EMS records were cross-referenced with the MEO records by name and date of birth only. Subjects giving false information to EMS due to legal concerns could be missed with such a strategy.**
- 2. Evaluation of death limited to review of Bexar County Medical Examiners records. Potentially, Any deaths that occurred outside of San Diego County risked not being included. Additionally, any death not considered suspicious or in which overdose was not suspected could also potentially be missed by the ME's office.**

**Bottom Line:**

**In this large retrospective study of patients receiving naloxone by EMS for opiate overdose, there were no deaths attributable to opiates within 48 hours in patients released without transport (incidence of death 0%, 95% CI 0% to 0.69%). These data strongly suggest that overdose recrudescence is highly unlikely after a good response to naloxone given by EMS. It seems both safe and prudent to release patients who return completely to baseline after naloxone is given without transport to a medical facility.**