

**Journal Club Synopsis
Block 1, July 22nd, 2014**

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Scenario:

You are working a night shift when suddenly a 45 year-old white male arrives unresponsive and cyanotic. You notice miosis and antecubital track marks as you quickly assess your patient (obviously while administering O₂ via BVM, starting an IV, placing him on a monitor, etc). You “do the DON’T” and POC glucose is 125. You quickly administer Narcan®. Patient awakens immediately and begins breathing on his own. He then promptly vomits on the unsuspecting medical student. He is awake and alert and admits to heroin use. He denies any physical complaints. He states that he recently switched to heroin as he can no longer afford the prescription pain medications for his chronic pain issues. You watch the patient in the ED for over 2 hours and he remains awake and alert and asymptomatic. You go to discharge the patient and remember that there are intranasal Narcan® rescue kits that can be prescribed for people at risk. Do you prescribe this medication?

Introduction:

Drug overdoses are a leading cause of preventable mortality. Unintentional poisoning, primarily due to drug overdose, is now the leading cause of injury-related death among Americans aged 25 to 64, surpassing deaths caused by motor vehicle accidents. Approximately 45 deaths per day in the United States involve prescription painkillers. The rapidly rising number of deaths secondary to drug overdoses constitutes an epidemic in the United States. Opioids such as oxycodone, hydrocodone, and methadone largely drive this epidemic, now killing more Americans than heroin and cocaine combined.

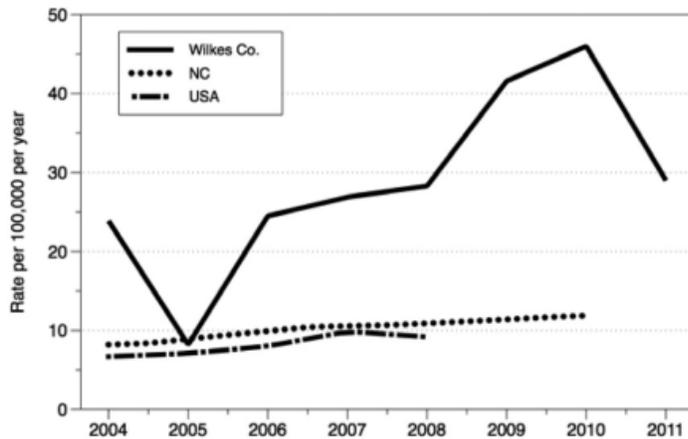
Naloxone Hydrochloride (Narcan®), an opioid antagonist, is a medication that can be safely administered via intravenous (IV), intramuscular (IM), subcutaneous, or intranasal routes. Within minutes, naloxone blocks the central effects of opioids, thus reversing respiratory depression and restoring normal breathing. Naloxone has been used safely by emergency medical professionals for over 40 years. Intranasal naloxone has shown to be an effective and safe alternative to IM administration as it is quick-acting and offers a needleless option for administration. Its only contraindication is known hypersensitivity to the medication.

Multiple programs have been initiated across the United States to reduce the incidence of opioid overdose related deaths. These programs, known as Naloxone Prescription Programs (NPPs), provide training and take-home naloxone rescue kits to individuals at high risk of opioid overdose. Since 1996, NPPs have reportedly trained over 53,000 individuals and resulted in over 10,000 overdose reversals using the naloxone rescue kits. In 2012, Ohio started Project DAWN (Deaths Avoided with Naloxone) with funding and technical assistance from the Ohio Department of Health Violence and Injury Prevention Program. This program, like other NPPs, trains at-risk individuals and provides them with home naloxone rescue kits.

The purpose of this journal club is to ascertain whether or not prescribing Narcan® Kits to those patients who are high risk for opiate overdose is a worthwhile endeavor for ED physicians.

Article 1: Albert, S., Brason, C., et al. Project Lazarus: Community-Based Overdose Prevention in the Rural North Carolina. *Pain Medicine*. 2011. 12: S77- S85.

Project Lazarus is a community-based opioid overdose prevention program in western North Carolina. In Wilkes County, the unintentional opioid overdose rate was quadruple that of the rest of the state. These overdoses were mainly due to prescription opiates (fentanyl, hydrocodone, methadone, oxycodone) as opposed to heroin. This program’s focus was to prevent overdose by education of both members of the community and local prescribing physicians. Narcan® rescue kits also were distributed. There was a significant decrease in the death rate from 43 per 100,000 to 28 per 100,000 following institution of this program (see figure below).



However, it should be noted that the amount of opioid analgesics prescribed also dropped drastically during this time. While the Narcan® kits likely contributed to this radical decrease in death rate, education to both prescribers and the community also probably played a large role. During journal club we discussed that this would be a difficult undertaking to a community the size of Dayton, due to the amount of resources that would need to be utilized as well as difficulty with obtaining “buy-in” from the hundreds of ED physicians that work here. Nonetheless, this study shows that programs such as Project Lazarus can have a significant impact in reversing the epidemic of drug overdoses in a small community like Wilkes County.

Article 2: Clark, A., Wilder, C., Winstanley, E. A Systematic Review of Community Opioid Overdose Prevention and Naloxone Distribution Programs. *Pain Medicine*. Volume 8, Number 3. May/June 2014.

This article is a systematic review of community opioid overdose prevention and naloxone distribution programs. After a focused search, 19 articles met the inclusion criteria for use in this study. All studies used were nonrandomized. The primary components of these programs’ curricula included: 1) recognizing overdose, 2) preventing overdose, 3) risk factors for overdose, 4) appropriate response to overdose, and 5) administration of naloxone. Training sessions for those receiving Narcan® Kits lasted from 10 minutes to one hour. The literature suggests that those undergoing training by these programs are able to administer naloxone effectively. One concerning finding was that most participants do not call EMS when they witness an overdose and provide Narcan®. Given the short half-life of Narcan® (~1 hr), this is a concerning statistic. This review was unable to determine the effectiveness of these programs in reducing fatal and nonfatal overdoses because of methodological limitations of the studies. However, it did show that participation in an Opioid Overdose Prevention Program and being supplied with Narcan® is associated with overdose reversals, increased knowledge and ability to respond appropriately in an overdose situation, and the ability of nonmedical bystanders to safely administer Narcan®.

Article 3: Doe-Simkins et al. Overdose rescues by trained and untrained participants and change in opioid use among substance-using participants in overdose education and naloxone distribution programs: a retrospective cohort study. *BMC Public Health*. 2014. 14: 297.

This article is a retrospective cohort study that compares overdose rescue behaviors between trained and untrained rescuers who used naloxone rescue kits. There were a total of 4926 users who participated in overdose education and naloxone distribution programs. Among these participants, 373 (7.6%) used naloxone during a rescue. There were no statistically significant differences in help-seeking, rescue breathing, staying with the victim, or in the success of naloxone administration by trained versus untrained rescuers. Perhaps more importantly, there was also not a significant difference in heroin use before or after Narcan® kit distribution. This study uses this data to suggest that Narcan® may meet an “over-the-counter” standard. Once again, this study is very limited given data is self-reported.

Bottom Line:

After reading the background and discussion articles, we came to the conclusion that prescription of Narcan® Kits from the ED are a cost-effective, safe, and successful method for prevention of opiate overdose deaths. This will be a hard sell to many older attendings; however, the current data supports its use. Well-designed, randomized-control studies are needed to further evaluate the extent to which Narcan® kits reduce drug-related morbidity and mortality.