

America embraces treatment for opioid drug overdose

To get the life-saving drug naloxone to people at risk of overdose from prescription painkillers, states adopt decade-old tactics pioneered in heroin users in New Mexico. Ted Alcorn reports.



Jeanne Block vividly remembers the first time that naloxone she had provided was used to save a life. It was 2002, and Block, a registered nurse, was at a clinic in northern New Mexico where weeks earlier she had given one of the state's first training sessions on how to use the medication to reverse an opioid drug overdose. One of the attendees ran in to tell her someone was dying just a few blocks away and needed a dose of naloxone. "I just gave it to him and said come back and let me know what happens, and he ran out the door", she recalls. A half-hour later he returned to report that the victim was alert and walking around. "I will probably always remember that", she says, "and I still see that guy around occasionally, and whenever we see each other we kind of give each other a pat on the back".

During the past decade, unintentional poisonings in the USA have skyrocketed and are now the country's leading cause of injury death, killing more people than gunfire or car accidents. Between 1999 and 2010, annual fatal drug poisonings increased from 16 849 to 38 329, with most of this growth attributable to prescription painkillers.

In most cases, opioid drug overdose induces unconsciousness and respiratory depression and ends in cardiac arrest, a process that may occur over a period of minutes or even hours. In contrast to other injury deaths, this provides a window of opportunity to intervene, and the drug naloxone provides a means for doing so.

An opioid antagonist, naloxone monopolises the body's chemical receptors for opioid drugs—whether licit formulations like oxycodone or illicit ones like heroin—displacing the opioid drug and freeing the patient from the overdose. Arguably, naloxone's unusual specificity and forgiving toxicology means it is safer

than aspirin, since there is low risk of ingesting too much, and no effect if mistakenly administered to a person who has not ingested opioid drugs.

The challenge is ensuring naloxone is available and given to overdose victims who urgently need it. Some of the most successful tactics for doing so were pioneered during the past two decades in people who use heroin, and New Mexico was at the forefront.

"The state department of health recognised that having naloxone as close to the victim as possible...could save lives."

Ground zero

Naloxone's adoption in New Mexico was as much a matter of necessity as of choice. The state's drug overdose death rate has been the nation's highest in all but 2 years since 1992, and at the epicentre of the epidemic—Rio Arriba County in the rural, mountainous north of the state—the rate of 68 annual deaths per 100 000 residents between 2006–12 was five times the national average. Heroin use had been prevalent in the county for decades and those who overdose down one of its long, country roads may wait as long as 90 minutes for paramedics to respond. The state department of health recognised that having naloxone as close to the victim as possible—even closer than a first responder—could save lives.

But they were steering against strong headwinds. Under President George W Bush, the federal government opposed distribution of naloxone to people who use heroin, citing a lack of scientific data about its efficacy and a concern that by making injection drug use safer, naloxone might encourage it. Steve Jenison, who oversaw infectious diseases for the

health department at the time, says that a programme in Chicago had been distributing naloxone to people who use heroin for several years but no state had formalised the practice into law. "It was difficult to know what to do when we did it because we didn't have any models. We were pretty much playing it by ear."

Beginning in 2001, New Mexico adopted a series of laws to ensure naloxone could be distributed to people who use heroin through the state's needle exchange programmes. It was the first state to allow lay users to administer the drug without liability, and in 2007 it adopted the country's first so-called good samaritan law to protect heroin users from legal repercussions when they summoned aid in the event of an overdose.

Since the first overdose she helped reverse, Jeanne Block has continued distributing naloxone and training people to use it, currently as harm reduction coordinator for La Familia Healthcare for the Homeless in Santa Fe, NM. In the 2013 fiscal year, she distributed 1884 doses of naloxone—more than all other providers in the state combined—and her patients reported reversing 502 separate overdoses.

Nationwide, heroin users are still underserved: a recent survey of community-based naloxone distribution programmes found most states did not have one. But dozens of states have passed laws comparable to New Mexico's, and research by Phillip Coffin, director of substance use research with the San Francisco Department of Public Health, CA, has shown that naloxone is highly cost-effective in preventing overdose. "Giving naloxone to heroin users is kind of a no-brainer at this stage: it's really hard to justify not doing", says Coffin.



Joe Phelan/Portland Press Herald via Getty Images

Published Online
June 6, 2014

[http://dx.doi.org/10.1016/S0140-6736\(14\)60928-4](http://dx.doi.org/10.1016/S0140-6736(14)60928-4)

For the survey of community-based naloxone distribution programmes see <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6106a1.htm>

For more on the cost-effectiveness of naloxone see <http://annals.org/article.aspx?articleid=1487798>

For the 2007 national survey on prescribing naloxone see <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2078257/>

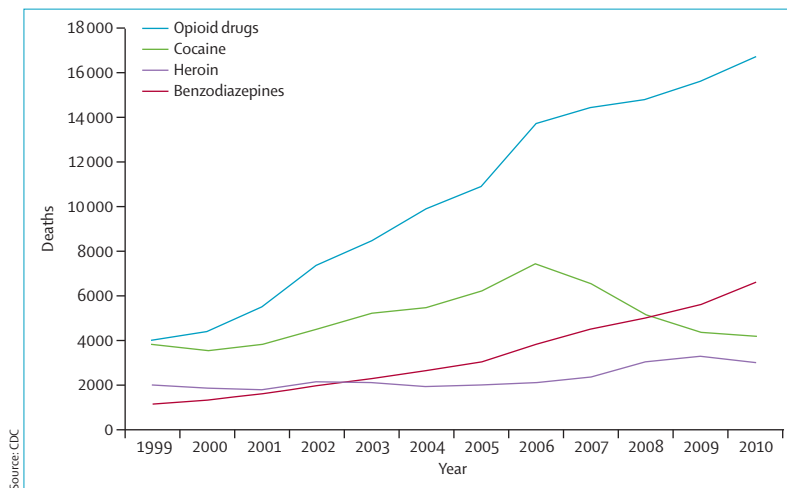


Figure: US drug overdose deaths by substance 1999–2010 (deaths not mutually exclusive)

"The next big question is: who else should we be giving naloxone to?"

An evolving epidemic

In New Mexico as in the rest of the country, the character of the drug overdose epidemic has shifted (figure), and naloxone distribution has had to shift with it. By 2006, prescription opioid drugs overtook heroin as the leading cause of overdose death in the state, and people at highest risk now came from the broader swathe of the population who chronically use prescription opioid drugs. Counter-intuitively, although these people were in regular contact with the medical system, they had less access to naloxone than did rural, uninsured heroin users obtaining it through needle exchanges.

To increase distribution of naloxone through the formal health sector, the state's Board of Pharmacy passed a regulation in January allowing pharmacists to prescribe the drug under their own licenses to patients seeking opiate drug prescriptions, and 60 pharmacists completed the required training when it was first offered. Pharmacies aren't stocking the drug until insurers commit to paying for it, but in May the state Medicaid programme approved coverage for the drug, and state epidemiologist Michael Landen hopes this will create wider acceptance with other insurers.

"Currently the market does not provide naloxone in retail pharmacies", he says, "So we're trying to change that market, and we think Medicaid will be a driver to do that."

The limited routes available for administering naloxone—intravenously or with a nasal atomiser—have also hindered broader acceptance. But in April, 2014, the US Food and Drug

"...I think...we're all going to be touched in some way by this epidemic."

Administration approved a hand-held autoinjector for naloxone manufactured by the company Kaléo. The pocket-sized device plays simple verbal instructions to guide users through its use and delivers the drug through a retractable needle. Kaléo's CEO Spencer Williamson says that getting the device into the hands of people who need it will require educating prescription drug users and clinicians about the issue. "You would be surprised at the number of pain medicine specialists who don't even realise that they have patients at risk for opioid overdose within their own practices."

The bigger picture

Treating acute overdose is essential—as one provider put it, people can

recover from substance abuse but they can't recover from death—but it is only the tip of the iceberg of overall prescription drug abuse. For every opioid drug overdose death in 2010 an estimated 115 people are dependent on prescription painkillers. Some hope naloxone will help prompt a conversation about the broader problem.

In a project overseen by Phillip Coffin, six clinics in California are prescribing naloxone to any patient who has used opioid drugs for more than 3 months. Whereas injection drug users provided with naloxone are more likely to employ it to treat an overdose, Coffin hypothesises that providing naloxone to these patients will have a behavioural effect. "I'm looking for a change in the way that people interact with their opioid. The naloxone is there and will hopefully never be used, but I hope it helps people recognise the real risk of prescription opioids."

Co-prescribing naloxone with prescription opioid drugs is the exception rather than the rule. A national survey in 2007 indicated that only 23% of physicians had heard of prescribing naloxone as a strategy to prevent overdose. One of that study's authors, Jody Rich, a professor of medicine at Brown University, RI, has spent years raising awareness among practitioners in Rhode Island, where overdoses are the leading cause of years of preventable life lost by people younger than 65 years.

Rich's professional crusade took a personal turn last summer when an overdose claimed the life of his 23-year old nephew. "I got to understand at a much deeper level, a visceral level, the impact of this overdose on immediate family and friends", he reflected. "It's like dropping a pebble into the pond: these waves just keep going out further and further. I think we're all touched—we're all going to be touched in some way by this epidemic."

Ted Alcorn