

Substantial increase in life-saving opioid overdose intervention urgently needed in almost every US state

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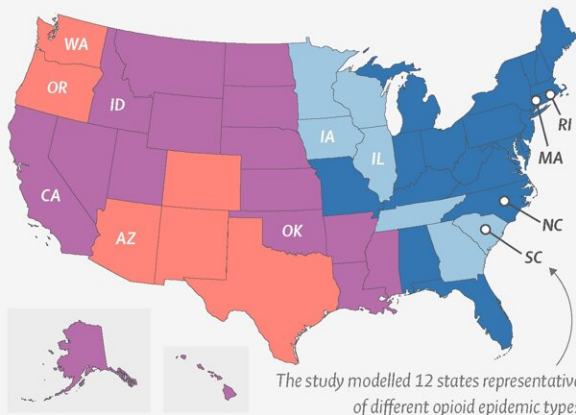
Expanded distribution of naloxone is key in addressing the opioid overdose crisis

The life-saving medication can be used to reverse the effects of an opioid overdose

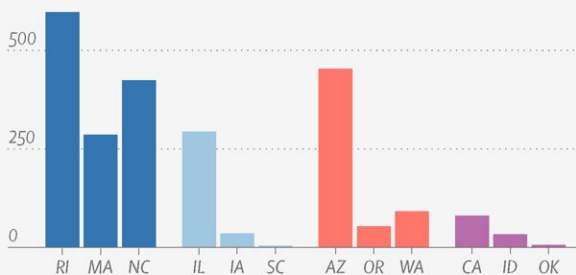
Naloxone is effective against a wide range of opioids but community naloxone distribution is greatest in fentanyl-dominated states

Fentanyl epidemic Fentanyl-mixed epidemic
Heroin and prescription opioid epidemic Prescription opioid epidemic

Epidemic type by state, 2017

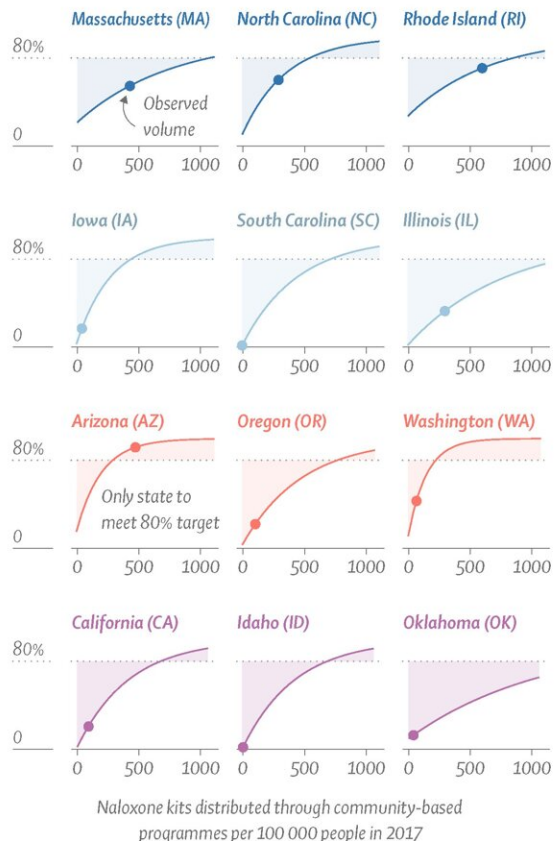


Naloxone kits distributed through community-based programmes per 100 000 people in 2017



A substantial increase in access to naloxone is needed in almost all states to achieve an 80% intervention rate

Projected rate of naloxone intervention during a witnessed overdose, by number of kits distributed per 100 000 people



Read the full paper: Irvine MA, Oller D, Boggis J, Bishop B, Coombs D, Wheeler E, et al. Estimating naloxone need in the USA across fentanyl, heroin, and prescription opioid epidemics: a modelling study. *Lancet Public Health* 2022. Published online Feb 10

State-specific estimates are available at: www.naloxoneneededtosave.org

THE LANCET *Public Health*

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Distribution of naloxone, a life-saving intervention that can reverse the toxic effects of an opioid overdose, must be substantially expanded across the USA, and include more community-based and pharmacy-initiated access points, in order to avert opioid overdose deaths effectively. Credit: The Lancet

Distribution of naloxone, a life-saving intervention that can reverse the toxic effects of an opioid overdose, must be substantially expanded across the USA, and include more community-based and pharmacy-initiated access points, in order to avert opioid overdose deaths effectively.

The new study, published in *The Lancet Public Health* journal, is the first to estimate naloxone needs for each U.S. state and found significant gaps in access to and distribution of this life-saving intervention. Using estimates from 12 modelled states for 2017, the authors determined the number of additional kits needed to avert 80% of witnessed opioid overdose deaths, with estimates ranging from no additional naloxone kits needed to as many as 1,270 kits needed per 100 000 people per year. The study also indicates that state-specific naloxone needs vary by [epidemic](#) type and naloxone distribution pathways, with areas experiencing high fentanyl use requiring more naloxone kits. Distribution of naloxone through community programs and pharmacies were the most effective pathways.

The authors conclude that making naloxone more accessible at the community level, especially for people at the highest risk of witnessing a [drug overdose](#) and to people who use drugs, could avert substantial numbers of [opioid overdose deaths](#).

"As the COVID-19 pandemic continues to collide with the opioid crisis and we see more fentanyl in the illicit drug supply, we must ensure we have life-saving interventions, such as naloxone, in the hands of people who are most likely to be there when an overdose happens. People who use drugs and people living in the community must be considered first responders and need easy access to naloxone so they can act quickly to save a life," says senior author Prof Traci Green of Brandeis University

(USA).

She adds, "Our study provided estimates for naloxone needs by state, but a consistent national framework for reporting opioid overdoses and tracking community-based and pharmacy-initiated naloxone distribution is also urgently needed to inform policies and allocate resources that will finally turn the tide on this unprecedented epidemic."

To estimate the number of naloxone kits needed per state in order to reduce fatal opioid overdoses over one year, the authors considered the type of naloxone access point (community programme, provider prescribed, or pharmacy initiated); the dynamics of the epidemic type (prescription opioid, heroin, fentanyl, or mixed epidemic) in each state; and how choice of access point and the type of epidemic affects state-specific naloxone needs. The authors modelled naloxone needs for 12 U.S. states identified as representative of each epidemic type based on 2017 data, and the number of kits needed to avert deaths in 80% of all witnessed overdoses. Naloxone need for all other states were projected based on the models. [2,3]

For instance, the state of Massachusetts, which has a well-established state-wide community-based naloxone distribution program but also is experiencing widespread fentanyl use, would need to distribute an estimated 740 extra community program kits per 100,000 people to achieve this goal. In states where kits were already distributed widely, and fentanyl use was not widespread, fewer additional kits were needed. In Arizona, for instance, the target of 80% of witnessed deaths averted was met in 2017. However, Arizona has seen large increases in fentanyl use since 2017, suggesting greater naloxone need to align with the evolving epidemic; this study's model can help to inform the future need. Among the 12 representative states, Illinois, a large state with high numbers of overdoses involving heroin and fentanyl, relied less upon prescribers and pharmacies for naloxone distribution and more upon one

centralized community-based naloxone distribution programme hub at the time of the study. Illinois would need to distribute 1,720 naloxone kits per 100,000 people per year to meet the goal of averting 80% of witnessed overdose deaths.

"Naloxone is one of several interventions that can help reduce deaths from overdose and so we used the concept of saturation to answer, mathematically, how many deaths we can expect to avert and how many naloxone kits a state would need to make substantial progress in saving lives. Unfortunately, no state reached that saturation point. But, based on our study, now we know where we need to go and have meaningful benchmarks to aim for," says first author Prof Michael Irvine of the British Columbia Centre for Disease Control (Canada).

The authors found that across state-specific results, naloxone kits provided through community-based and pharmacy-initiated access points resulted in a higher probability of naloxone use in witnessed overdoses and a higher number of deaths averted per 100,000 people than through prescription-only access points. Because naloxone may be confiscated or stolen, ensuring naloxone remains within reach of people at risk of experiencing or witnessing an overdose is crucial.

The importance of community-based and pharmacy-initiated access points also highlighted the variations in the opioid epidemic by region. Fentanyl overdose deaths were concentrated in the eastern United States while the midwest displayed a mixed epidemic of prescription opioids, fentanyl, and heroin. States in the western United States were primarily characterised by prescription opioid epidemics except for the southwest and Pacific Northwest, which had a mixture of prescription opioid and heroin epidemics. Alaska and Hawaii had prescription opioid epidemics.

"Although our calculations suggest a substantial public health effect from expanded naloxone distribution, it's important to remember that

naloxone has no effectiveness against an unwitnessed overdose. The nuances of the epidemic must be understood by region and epidemic type and improving naloxone availability at the community level is only one part of a much more urgent need to reform public health policies around drug use. These policies should include scaled-up interventions aimed at ensuring overdoses are witnessed, such as safe consumption sites and improved education about harm reduction practices. More importantly, the deep underlying social determinants of health that can perpetuate drug addiction and overdoses, such as poverty, excessive incarceration, and structural racism must be addressed to break the deadly cycle of addiction," says Prof Green.

The authors acknowledge some limitations of their study. The data used in the study were from 2017, and rates of overdoses have increased since 2017 across the USA, and epidemic types may have evolved. The authors relied on data from community-based naloxone programmes, estimated overdose events, and estimated deaths due to overdose. Because of the unavailability of accurate data, the authors also relied on expert opinion to inform components of the study, including the saturation point of naloxone distribution by state. Furthermore, some jurisdictions under-report deaths due to overdose; therefore, state-specific calculations might underestimate the need for naloxone. Finally, for simplicity, the authors assumed that use of a naloxone kit would result in survival from an overdose.

Writing in a linked Comment, Charles Marks of the University of Nevada, Reno and the University of San Diego California (USA), and Karla D Wagner of the University of Nevada, Reno (USA), who were not involved in the study, say, "The scale-up of naloxone distribution provides an opportunity for public health professionals and stakeholders to empower people who use drugs and all those affected by the [overdose](#) crisis. Irvine and colleagues have provided important estimates for the potential impact of naloxone scale-up but achieving these estimates

requires that we work to ensure the wellbeing of the people who use drugs and others tasked with responding to overdoses. Harm reduction in the USA has historically been practiced by communities of people who use drugs for communities of people who use drugs, by providing low threshold services. The harm reduction philosophy depends on the idea that people who use drugs deserve to be cared for, valued, and supported. As national [naloxone](#) distribution efforts become widespread, efforts must continue to focus on the wellbeing of people who use drugs."

More information: Michael A Irvine et al, Estimating naloxone need in the USA across fentanyl, heroin, and prescription opioid epidemics: a modelling study, *The Lancet Public Health* (2022). [DOI: 10.1016/S2468-2667\(21\)00304-2](#)

Provided by Lancet

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