Objective

This study aimed to estimate the number of naloxone kits needed to reduce overdose risk in a sample of 10 US states across a range of access points.

Methods

- We constructed a Bayesian model of people at risk of opioid overdose and fitted to prescription, heroin, and fentanyl-dominant state-specific epidemic types using 2017 data.
- We performed a literature review and modified-Delphi panel to estimate parameters linked to naloxone need.
- Overdose death, paramedic-attended overdose, and at-risk population data were used to calibrate the model for 10 states: Massachusetts, Rhode Island, North Carolina, South Carolina, Oklahoma, Arizona, California, Idaho, Oregon, and Washington.
- We measured naloxone saturation using the outcomes of potentially fatal overdose deaths averted and probability of witnessed overdose reversed.
- We explored the impact on mortality if naloxone kits were distributed across 9 states at the same rate as Massachusetts.

Results

- In 2017, there were 12,086 overdose deaths across the 10 states.
- We estimated 27,199 overdose deaths averted by naloxone, resulting in 3,350 fewer deaths.
- Community program and pharmacy distribution were more available than dispensed prescription, however, attainment saturation was not achieved.
- The highest probability of naloxone witnessed overdose was in Rhode Island (60.3%; 95% CI 43.2% - 85.1%)
- If Massachusetts community program distribution had been applied to the other 9 states, 12,958 deaths could have been averted.
- Within Massachusetts, naloxone contributed to community program distribution (22.7%) and pharmacy-facilitation (22.7%) at overdose death.

Conclusion

- Naloxone distribution efforts in 9 states were far from attaining maximum reach.
- Community program and pharmacy distribution can avert more overdose deaths and increase the likelihood that naloxone is used during a witnessed overdose.

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