Expanding Access to Naloxone through Digital Prescribing Platforms to Address Opioid-Related Mortality

Purpose of the Note

This briefing note addresses the escalating public health crisis of opioid-related mortality in Ontario, focusing on expanding access to naloxone, a life-saving antidote for opioid overdoses. The aim is to evaluate current distribution strategies and propose digital solutions to enhance both accessibility and awareness of naloxone. These solutions aim to address the escalating challenges posed by opioid overdoses, particularly the increasing prevalence of fentanyl-related incidents.

Public Health Issue

In Ontario, the opioid crisis has significantly worsened, with a notable increase in fatalities linked to substances like fentanyl, heroin, morphine, methadone, codeine, and oxycodone. Between 2018 and 2021, deaths due to accidental substance toxicity nearly doubled, rising from 1,586 to 2,886, as highlighted in the 2023 report by the Ontario Drug Policy Research Network (ODPRN)[1]. Notably, opioids were implicated in 85% of these fatalities[1]. Poly-substance use and the contamination of drug supplies, often involving a combination of opioids with alcohol, stimulants, and benzodiazepines, with a pronounced emphasis on the particularly potent fentanyl contribute to this rising trend. In 2020 alone, data released by ODPRN indicated that fentanyl was implicated in a staggering 87% of the 2,456 reported opioid-related deaths[2]. This complex issue is particularly acute among individuals under 45 years of age, who accounted for 60% of opioid-related deaths in 2021[1].

Current Status and Analysis of Digital Solutions being used

In response to the opioid crisis, the Ontario government implemented the Ontario Naloxone Program (ONP) and the Ontario Naloxone Program for Pharmacies (ONPP) to increase distribution of this critical overdose reversal medication[3,4]. These programs center around providing intramuscular and intranasal naloxone through Public Health Units, pharmacies, shelters, and needle exchange sites.

To bolster awareness, accessibility, and education regarding these programs, the provincial government has leveraged diverse digital solutions. This includes a user-friendly link "Where to Get a Free Naloxone Kit" on Ontario.ca website to aid residents locate pharmacies providing free kits[5]. Additionally, comprehensive online resources like the Ontario Harm Reduction Network's website offer valuable information on naloxone, including a kit locator and training videos[6]. The Public Services Health and Safety Association also provides free online naloxone training to support public education efforts. Between 2016-2018, these programs substantially increased naloxone availability from 1.9 kits to 54.3 kits per 100,000 residents, showcasing significant progress[7]. Despite this progress, there remains a concerning gap – between Jan 1 to Dec 31, 2022, only 23% usage of naloxome were reported in case of opioid related death[8].

The challenges include accessibility barriers for marginalized and remote populations without reliable transportation. Additionally, the lack of real-time tracking of kit availability at each location poses challenges. There is also limited engagement from healthcare providers in

prescribing and discussing naloxone with high-risk patients. Also barriers persist around identifying high-risk groups, medication adherence, and linkage to care.

Considering that existing information is available on a website, it introduces a key limitation as users must actively seek out information and services. In contrast, a mobile app offers a proactive solution through features such as notifications, reminders, and real-time tracking. Mobile apps provide seamless integration with sensors, prescription records, and emergency contacts within a user-friendly interface accessible anytime, anywhere. To comprehensively address these challenges and limitations, we propose the development of a multifunctional digital prescribing and information mobile app.

By integrating with electronic health records, the app could identify high-risk patients based on opioid prescription history and risk factors. Healthcare providers could then digitally prescribe and fulfill naloxone prescriptions directly through the app. Additionally, the app would leverage geolocation and mapping technology to locate clusters of high-risk opioid users, similar to how COVID-19 cases were traced. This would enable strategic targeting of outreach, prescribing, and distribution efforts towards high-risk hotspots.

Inspired by the University of Washington's "Second Chance" app, our app could incorporates, a breathing pattern monitoring system using inaudible sound waves. If decreased or absent breathing is detected, the app triggers an alarm prompting user interaction. Failure to respond leads to automatic contact with emergency services or a trusted contact for naloxone administration[9]. Other features would include virtual training, medication reminders, crisis support services, and real-time naloxone location tracking. This innovative digital solution combines prescribing, education, monitoring, and geospatial analytics to dramatically improve naloxone accessibility, usage and patient outcomes. However, it should complement, not replace, existing distribution programs to ensure equitable access. With extensive promotion and partnerships, this digital platform can significantly advance Ontario's capacity to combat the escalating opioid crisis.

Recommendations

While technology alone cannot solve this complex public health crisis, combining digital innovation with existing efforts, under ministerial endorsement in form of sustainable funding and resources should be allocated for app development, promotion, and continuous enhancement. Additionally, partnerships with technology and healthcare stakeholders, including integration with EMRs, pharmacies, and first responders, are critical to facilitate adoption and maximize impact. Extensive public awareness campaigns should also be supported to boost user engagement and proper utilization.

We urge swift action endorsing this digital naloxone prescribing platform, as detailed in this briefing, to gain ground against this escalating emergency and significantly strengthening provincial capacity to reduce the tragic loss of life from opioid overdoses.

References

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