Turning the tide on the opioid crisis

In February 2022, findings of the Stanford-Lancet Commission on the North American Opioid Crisis were published, presenting an analysis of seven key domains related to the crisis including regulatory failures, lack of addiction-related health and social care services, and the slow pace of innovation. Among the Commission’s recommendations were promoting opioid stewardship (ie, risk-reduction interventions) such as prompts in electronic prescribing systems that nudge clinicians towards safer prescribing, and tasking a federal agency with leading innovative projects, including developing machine-learning algorithms to predict risk of addiction and overdose. But how can these recommendations be implemented in an equitable, patient-centric way?

This issue of The Lancet Digital Health includes two studies aiming to reduce opioid-related deaths. In the first study, Majid Afshar and colleagues developed a natural language processing-based tool that can accurately screen for alcohol misuse, opioid misuse, or non-opioid drug misuse using electronic health record (EHR) notes collected during the first day of hospitalisation. This automated screening tool could potentially be used to supplement physician diagnosis, overcoming staffing challenges and improving hospital screening rates. Scaling up automated screening for substance use disorder is a key component of the White House’s 2022 National Drug Control Strategy.

In the second study, Wei-Hsuan Lo-Ciganic and colleagues developed a machine-learning algorithm to predict risk of opioid overdose in 3-month periods using Medicaid data, stratifying beneficiaries into risk subgroups. The authors showed the algorithm’s generalisability by applying it to data from a different time period and a different state, and demonstrated improved performance compared with opioid risk measures currently used by state Medicaid programmes. Their risk classification scheme could support more targeted, cost-effective interventions for each risk subgroup.

Such efforts to curb the opioid crisis are gravely needed given the aggravating effect of the COVID-19 pandemic, with provisional data suggesting that by April 2021 there had been over 75,000 overdose deaths from opioids during the preceding 12 months. But the effect has been unequal, with a greater percentage increase in overdose fatality rates among Black adults in 2020 compared with 2019. The study by Afshar and colleagues included a bias assessment for model equity by race and ethnicity, in addition to age and sex, showing that although most metrics showed no evidence of bias the false discovery rate (the proportion of false positives within the predicted positives of a group) was higher for non-Hispanic Black individuals compared with non-Hispanic Whites, suggesting overestimation of risk in this group. The authors further acknowledge implicit bias embedded in provider notes. In a Comment on the study, Tyne Riddick and Esther Choo emphasise that innovations that use such notes risk perpetuating these biases. Bennett Allen and Magdalena Cerdá, commenting on the study by Lo-Ciganic and colleagues, echo this sentiment, calling on researchers to duly consider the social and ethical implications of their work in this area.

Patient trust is integral to the success of automated substance misuse screening tools. But trust in these tools can be diminished by a lack of algorithmic transparency, as is the case for the commercial substance misuse algorithm NarxCare by Bamboo Health, the leading platform for the identification and management of substance use disorder in the USA. Furthermore the algorithm supposedly assimilates data from various sources to assign individuals risk scores, including from EHRs, prescription drug monitoring programmes, and the criminal justice system, raising concerns of bias against those who’ve been prescribed opioids for chronic conditions and those with criminal records. These concerns highlight the need for external validation of such algorithms in heterogeneous datasets to ensure they are not only safe and effective, but do not discriminate against those in need.

The opioid crisis is an enduring public health concern, and reforms of legal, regulatory, pharmaceutical, and health-care systems are needed to stem the spread and save lives. Innovative approaches using predictive analytics could play a powerful role in identifying individuals at risk of an overdose or substance misuse and direct them to the care and support they need. But such innovations must be transparent and patient-centric, and must not further deepen existing inequities.

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Editorial

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