# Nudges for Naloxone in the Opioid Epidemic

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This issue of the journal presents another reminder from Lebin et al. on the staggering count of opioid overdose deaths, equal to over 200 fatalities per day or about 3% of total mortality in America.[1] Practicing clinicians are partially to blame since one-fifth of those who develop opioid misuse were originally prescribed an opioid for medical care.[2] Each death, furthermore, might have been prevented by naloxone antidote treatment.[3] Past scientists have not been oblivious, of course, and studies suggest Clinical Decision Support (CDS) interventions help promote a strategy of naloxone co-prescribing with opioids.[4] This new study now extends such CDS interventions beyond the emergency department or office settings to inpatient general medical hospital wards.

The CDS intervention by Lebin et al. involved investigators focusing on their own hospital to garner stakeholder cooperation and harness existing electronic health records. The specific computer pop-up reminder was a good example of an intervention integrated into existing workflows to provide a nudge for busy clinicians. The essential feature was to mandate a forced choice for a naloxone co-prescription when a high-risk opioid was prescribed at discharge. Outcomes were then tracked by a system-wide electronic network covering affiliated community pharmacies to assess subsequent naloxone dispensing. The main finding showed a tenfold increase in co-prescribing naloxone comparing intervals before and after the CDS intervention (0.6% vs 6.3%, $p < 0.001$).

The study has several strengths for clinicians who might wish to adopt a similar CDS intervention at their own institution. The core study has big numbers that reinforce the frequency of the problem; specifically, 325,913 total hospital discharges identified as patients receiving an opioid prescription. The observed effect size is reasonable and also shows plenty of opportunity for more improvements since only 1 in 16 patients received a naloxone prescription at study conclusion. The potential drop-off in subsequent adherence is unknown and invites more investigation of long-term durability: for example, patient mortality in the long run rather than filled prescriptions in the short run.

The study also highlights the continuing popularity of prescribing opioids to patients discharged from hospital. Specifically, during the 8-year baseline interval, the study identified an average of 70 prescriptions per day (total = 203,270). In contrast, the 4-year intervention interval identified an average of 84 prescriptions per day (total = 122,643). Collectively, the difference amounts to a 21% increase (not decrease) that is not easily explained by changes in patient demographics or other shifts over time (e.g., the COVID-19 pandemic). In addition, the study documents the relative simplicity of adapting a CDS intervention, including how to implement iterative modifications (such as correcting for inappropriate over-triggering of patients discharged to hospice).

An important limitation of the research is about potential alternative strategies for preventing opioid overdoses; that is, pop-up reminders to physicians are not the only way to increase naloxone prescribing. For example, programs for pharmacy-based prescribing or nursing-led initiatives might achieve the same or greater increase in naloxone prescribing without nudging physicians.[5] In addition, many healthcare regions now allow naloxone prescribing to a third party (e.g., a friend or family member rather than the patient at-risk of overdose). Such initiatives have intuitive appeal since a third party may be more likely to raise concerns about problematic opioid use and witness an overdose. Regardless of strategy, the core theory is solid; namely, naloxone saves lives.

Naloxone treatment also requires practicalities beyond writing a prescription. Intranasal sprays are easiest for patients, may need 5 min to be effective, and work best if a patient's head is tilted back (so contents don't roll out the nostril). Effects last about 1 h, and a repeat dose should be planned in advance. Naloxone has a long shelf-life (4 years) with no need for refrigeration (room temperature is fine). Naloxone is not as important as CPR for a cyanotic patient who is not breathing (hence, continue rescue breathing throughout). Some popular misconceptions also need to be extinguished sometimes; namely, do not strike a patient

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when they are unconscious, do not attempt an ice-water bath, and do not leave unsupervised in hopes a patient will "sleep it off."

Naloxone co-prescribing is becoming more mainstream, yet several barriers persist unrelated to CDS interventions. A survey of primary care physicians described a lack of training on naloxone, insurance costs, dispensing logistics, and fear of offending patients.[6] Patients cited additional concerns, including a lack of education about naloxone, a perception that overdose risk stems from misuse, and a misconception that accepting a naloxone prescription might imply opioid misuse.[7] Another nuance is that patients tend to be more willing to accept naloxone if clinicians use non-stigmatizing language and frame it as an antidote for worst-case scenarios.[8] The best way to get naloxone to more patients when needed, however, will require more than a simple nudge to physicians.

The study by Lebin et al. has some other limitations that merit attention. The design is fundamentally a before-and-after comparison vulnerable to hidden confounding. The pragmatic approach implies an unblinded study where patients, physicians, and scientists were fully aware of the intervention.[9] The research also examined a surrogate endpoint rather than actual patient adherence, subsequent readmission rates, or overdose deaths. Electronic pop-up reminders also raise questions about counterproductive alert fatigue with thoughtless dismissals.[10] Furthermore, policymakers need to stay mindful of potential complaints showing that nudges can sometimes be interruptive, unacceptable, or inappropriately timed (as documented in this study).

Lebin et al. deserve applause for their efforts yet are unlikely to be joined by a proliferation of other CDS interventions for additional causes of death. The broad constraint is that most other causes of death do not have an easy prevention strategy and that alert fatigue quickly arises around lesser issues. Moreover, the ultimate effectiveness of a CDS intervention requires extra effort by both physicians and patients in a setting where everyone is too busy. Nonetheless, Lebin et al. have made some headway around overdose deaths in America by harnessing a computerized nudge. Naloxone saves lives, and a more available antidote circulating in the public domain is a win.

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***Declarations***

***Conflict of interest*** *The authors declare that they do not have a conflict of interest.*

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