Reducing opioid prescribing through better design of health information technology

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Opioid overdose is now a leading cause of death in the United States

One of the many contributors to the opioid epidemic has been easy access to prescription opioids
Office-based Physician Electronic Health Record Adoption

EHR adoption has more than doubled since 2008

2017


The health information technology community often tries to design sophisticated clinical decision support (CDS) to improve prescribing choices.

- Prescriber makes selection in eRx system
- CDS system recommends evidence-based alternative
- Prescriber revises order

- But prescribers now override >90% of alerts
- Alert fatigue adds to usability burden of electronic health records

Instead, we decided to exploit the power of the **default option**, which has a strong but unobtrusive effect on decisions.
Our innovation “nudges” physician prescribing behavior in the right direction by resetting the default

**Typical e-prescribing order entry:**
1. Physician enters drug name in new order
2. Physician then selects quantity, frequency, etc

**Our innovation:**
1. Physician enters drug name in new order
2. If drug = short-acting opioid:
   - Order **autopopulates** with CDC-recommended minimum for opioid-naive patients
3. Physician can easily overwrite

![Oxycodone 15 mg oral tablet order example](Image)
Academic multi-specialty practice in New York City, ambulatory sites only

Federally qualified health center, >30 sites in and around New York City
Among Weill Cornell physicians, we saw several years of increasing adoption of CDC-recommended prescribing practices, followed by an abrupt increase when we implemented the innovation.

The intervention was also associated with a lower proportion of high-quantity prescriptions (more than 7 days’ supply).

However, the innovation had little effect at the Institute for Family Health, where providers were already much more likely to follow CDC-recommended prescribing practices for new patients.
Why does the default option affect our choices?

1. **Effort** – Staying with the default is easier than switching

2. **Endorsement** – Decision-makers infer that the default option is endorsed by the authority who set up the social or technical system

   In this case, the inference is correct

In this project:

A redesign of the e-prescribing order form strongly affected prescribing choices without interrupting workflow.

There was a ceiling effect; the intervention had no effect in an organization where congruence with recommended prescribing practices was already high.

But even in this organization, the intervention reduced the number of clicks needed to write a prescription for the majority of prescribers.
It’s virtually unheard-of for informatics innovations to **reduce** keystrokes

Weill Cornell: 50% increase in congruent prescriptions with 40% decrease in keystrokes

IFH: No difference in congruent prescriptions but a 60% decrease in keystrokes
Alternatives to traditional clinical decision support can encourage guideline-congruent prescribing while reducing EHR burden

We ‘nudged’ providers to prescribe several hundred fewer high-quantity opioid prescriptions, and made their job easier

There seems to be an upper limit on how far ‘nudges’ can change prescribing choices
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Thank you!
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