METHODS BRIEF

Impact of algorithms designed into interstate data sharing,

Terri Lewis, National Changhua University of Education

Introduction

Congressional response to the illicit drug use crisis resulted in a series of regulatory changes that incorporated adoption of CDC Guidelines for Prescribing for Chronic Pain (2016). Together with utilization of surveillance algorithms, these regulations have resulted in unintended consequences to consumers disabled by chronic illness and rare diseases. Consequences include over identification of disabled persons as potential abusers of controlled medications, disrupted care, under treatment, increased costs, patient abandonment, prescription filling issues, and suicide.

Study Design and Methods

Step 1. Survey: To explore the impact of these regulations, this researcher conducted a national survey of persons (N4740, 50 states) with multiple chronic conditions who have been receiving long term community supports. Thirty (30) questions were devised to allow choice making responses. Each question incorporated an open-ended question to allow respondents to explain their selections. Using **grounded field theory approaches**, **contextual analysis** was applied to open ended responses to extract a glossary of terms and identify respondent trends by a variety of criteria including state, demographics, zip code, disease status, medications prescribed, physician transactions, and patient outcomes. Extracted data was evaluated using qualitative and quantitative analysis. The patient experience was compared to risk assessment recommendations captured in CDC Guidelines for Prescribing for Chronic Pain (2016), published research, public documents, and public databases. Trends in the response data suggest that risk assessment is associated with stigmatization and abandonment as unmeasured factors in the success or failure of health seeking exchanges between physicians and patients. These risk assessment strategies are summarized at this link
https://www.cdc.gov/drugoverdose/prescribing/guideline.html#anchor_1561563220

Step 2. Underlying the patient reported data is the use of digital tracking of prescriptions for controlled substances. Funded by the *Harold Rogers Prescription Drug Monitoring Program (PDMP) Act,* these tools are now in use by every state, and are coupled with other digital tracking databases to create scoring systems that label patient exchanges with various system actors – physicians, pharmacies – and assign composite risk tracking scores based on a calculation across 17 data fields in three areas – opioids, benzodiazepines, and 'community factors.' I explored patient reports of outcomes of changes to prescribing routines post implementation of the PDMP in the response data by type. The link to CDC's recommendation for the use of this tool is here:
https://www.cdc.gov/drugoverdose/pdmp/providers.html

Step 3. I deeply explored what is understood about the construction of the PDMP as an AI tool, its' expectations for performance, and raise questions of design, bias, and fitness for its' intended use in surveillance, detection, and tracking of controlled substances as it affects users of

controlled substances with chronic diseases who are reliant on these medications to maintain their health status.

Challenges and Opportunities

Increasingly, artificial intelligence is being used to surveil health data extracted from patient medical and pharmacy records. Tools have been developed that rely on AI algorithms to track the movement of controlled substances from manufacturers to pharmacies, patients, and through processes associated with physician prescribing practices. The net result is that algorithm derived scoring is now being used to flag physicians, pharmacies and patients encounters as potentially aberrant under fraud, waste and abuse criteria.

Multi-year funding awards by government agencies for these proprietary tools have been granted to sole source contractors that lack public transparency with regard to design of algorithms, development, test, validation and interpretation.

Concern is increasing among clinical professionals that the use of proprientary AI tools may not perform as intended due to assumptions and selected variables that fail to distinguish casual abusers from persons with chronic comorbidities who rely on controlled substances for long term support.

Discussion Questions

1. Published data indicates that prescription opioids are steadily decreasing as the negative consequences of illicit opioids are increasing. However, the public has limited access to the design or performance of privatized AI tools that inform public policy and regulation. They remain largely untested and unverified for predictive capability. Should drug surveillance tools be subject to FDA approval as health care applications?
2. On the patient side of this question, negative consequences of AI surveillance algorithms include over identification as potential abusers of controlled medications through constructed risk scoring, long wait times for care, wrong treatment, patient abandonment, under treatment, prescription filling issues, and suicide. Without scrutiny, should forensic tools be used to make clinical decisions about prescribing?
3. On the physician side of this question, negative consequences of AI surveillance algorithms include over identification of clinical prescriptions as engaging in aberrant prescribing practices, arrest and incarceration, workforce reductions, loss of clinical capacity to meet public health objectives. What are the due process rights of physicians tagged by AI algorithms?
4. On the health policy side of this question, negative consequences of AI surveillance algorithms are imposed by lack of verified, tested outcome measures to assess policy. Can we be sure that we are (a) doing the right things or (b) doing things right?