Use of Systems Engineering to Design Safer Opioid Prescribing Processes in Primary Care

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Opportunity

**Background**
Widespread opioid and heroin epidemics are gripping our nation, affecting nearly all socio-economic populations. National costs associated with opiate use are $78.5 billion annually,¹ and cause approximately 91 deaths every day.²

**Objective**
Brigham and Women’s Hospital’s Phyllis Jen Center for Primary Care is dedicated to designing a reliable system that improves the safety and efficiency of the opioid prescription process for patients with chronic pain.

Approach

**Assessing the Initial State**
- Shadowing and Time Studies

**Evaluating Patient Risk**
- Risk Stratification Tree Diagram

**Provider Dashboard**
- SEIPS Thematic Diagram
- System Interaction Analysis Functional Control Structure
- Functional Resonance Analysis Method

Results

- Decreased patient wait times in the prescription pickup process by reducing touch points and adjusting the workflow
- Increased the percentage of patients with urine toxicity screenings on record from 6% to 60% since May 2016
- Made more resources available to patients, including information pages on the risks of opioid use and beverages when urine screening is required
- Created an Opioid Resource Team that helps providers manage patient opioid regimens and interpret urine toxicity screening results

Future Work

**Short Term**
- Have providers assign risk scores to patients using the risk stratification tree
- Build more ‘checks’ into the functional control structure which assures reliable patient care
- Get feedback from providers on the utility of the dashboard

**Long Term**
- Create a process for prescribing Naloxone (overdose treatment) to high dosage patients
- Create process guidelines for other medications prescribed at the Jen Center
- Spread to primary care clinics similar to the Jen Center

Impact

- System balance assessments have improved workflows without increasing workloads for employees of the Jen Center
- Reliable tools have been introduced to provide care providers with access to information required by the refill process
- Patient safety and satisfaction have been designed into the system through policy and workflow changes

References


This project is part of the Engineering High Reliability Learning Lab, which is funded by the Agency for Healthcare Research and Quality