The Role of Healthcare IT in the Opioid Crisis

Opioids are a class of drugs that includes prescription painkillers (e.g. OxyContin and Vicodin), synthetic opioids such as fentanyl, and the illegal street drug heroin.¹ No matter the form it takes, opioid abuse has become for America—and medical providers working on the front lines of the crisis—a public enemy. Consequently, ending the opioid epidemic has become a national priority for government officials and the healthcare industry.

According to the Centers for Disease Control and Prevention (CDC), more than 70,000 drug overdose deaths occurred in the U.S. in 2017. Of those deaths, nearly 68% involved opioids.² Later in that year, the president officially declared the country’s opioid crisis a public health emergency and signed into law the Substance Use-Disorder Prevention that Promotes Opioid Recovery and Treatment (SUPPORT) for Patients and Communities Act.³

The Opioid Crisis and Healthcare Costs

The CDC’s National Syndromic Surveillance Program (NSSP) revealed that between July 2016 and September 2017, hospital emergency department visits as a result of opioid overdoses rose by 30% in all parts of the country.⁴ During this same period, Midwestern states saw a significant increase in ER visits as a result of opioid overdoses. In 16 states, opioid overdoses in large cities grew by 54%.⁵ This increase has had a blatant impact on the ever-rising costs of healthcare.

An analysis of 647 healthcare organizations showed that approximately $1.94 billion in annual hospital costs were attributable to patients who had experienced an opioid overdose between October 2017 and October 2018. Medical care provided in emergency departments alone accounted for more than $600 million in hospital costs. The report also found that the annual cost of hospital care for overdose patients represented a significant portion of healthcare expenditures and could ultimately prove to be financially deleterious to providers in areas with high rates of opioid addiction.⁶

Clearly, healthcare organizations grappling with the opioid crisis have a clinical and financial imperative to identify technologies and methodologies that will enable the delivery of high-quality care to opioid overdose patients at a lower cost. From analytics tools to prescription drug monitoring programs to digital opioid technology, the industry is availing itself of legacy and emerging health IT to manage this crisis.
Data Analytics

The healthcare analytics market is expected to reach $50.5 billion by 2024 at a compound annual growth rate (CAGR) of 28.3% during the forecast period. Data analytics enhance clinical decision support, as well as other mission-critical administrative and operational functions. Better data leads to better insights and, in order to remain competitive in a crowded space and comply with mandates introduced with healthcare reform legislation, organizations have little recourse but to invest in best-in-class analytics technology. In the specific case of opioid patients, data can be used to identify groups at high risk for addiction in an effort to prevent opioid misuse. A powerful and robust analytics solution will enable organizations to aggregate and analyze patient data with the objective of creating successful treatment plans.

However, to have a measurable impact on treatment planning, the data must be actionable, accurate, and readily available to clinicians. If these parameters aren’t met, providers will not only have difficulty in understanding the scope and depth of their community’s opioid problem, but they will also be ill-equipped to provide viable solutions for mitigating its effects and treating their patients. If the data is old or incomplete, it will be challenging or impossible for providers to implement management strategies that result in improved patient outcomes.

Analytics tools can identify potential social and medical determinants for opioid misuse and generate insights that help inform a provider’s clinical decisions and prescribing practices. Data analytics also enable providers to recognize patient scenarios, prescribe correctly, and take the necessary clinical steps to achieve the best outcome.

For example, patients who have been identified by analytics as being at high risk for opioid misuse can be placed in a drug education program or a targeted care management plan to receive assistance in their prescription drug use. In addition to improving care coordination, healthcare data can enable providers to respond proactively to the opioid crisis and reduce the high costs associated with opioid ER visits and admissions.

The CDC’s stated position is that it is critical to improve big data analytics capabilities on the federal level if the fight against opioid misuse is to be successful on the state level. The Department of Health and Human Services’ (HHS) five-point strategy to fight the opioid epidemic includes “strengthening our understanding of the crisis through better public health data and reporting.” Toward this end, in 2017 the CDC awarded $28.6 million in additional funding to 44 states and the District of Columbia to support their efforts to respond to the opioid overdose epidemic.

The management of the voluminous amounts of data captured by healthcare organizations requires robust technology that automates processes. The solution ideally should also streamline user interfaces for prescription drug monitoring programs (PDMPs) and other systems so that medical informatics, analysts, and clinicians can focus on using that data to get in front of the opioid crisis.
Prescription Drug Monitoring Programs

The CDC defines a prescription drug monitoring program (PDMP) as an electronic database that tracks controlled substance prescriptions in a state. PDMPs enable healthcare providers to track prescription data with the purpose of preventing overdose deaths, allergies, or adverse drug reactions. A 2016 study by Pew Charitable Trusts made the case for the use of PDMPs by hospitals and providers. The organization’s report outlined the following advantages of PDMP use: identifying and reducing doctor shopping, limiting controlled substance availability and prescribing, reducing medical and drug costs related to inappropriate prescribing, and improving health outcomes for some states.10

Even before the opioid crisis became a national public health emergency, prescription drug abuse was becoming a growing problem. In response, the CDC released guidelines that encourage providers to exercise restraint in prescribing opioids for pain management.11 Hospitals and state health agencies are deploying technology platforms that support PDMPs to track the behaviors of prescribing providers and patients. However, the use of PDMPs is state-dependent; while some states mandate their use, others leave it up to hospitals and providers to decide.

One Kansas-based company that delivers digital government services announced the release of its comprehensive PDMP technology to help government agencies combat the opioid crisis. The solution, called “RxGov,” includes features such as data transparency and a unique patient matching algorithm. Specifically, RxGov uses machine learning—an application of artificial intelligence (AI) that provides systems the ability to automatically learn and improve from experience without being explicitly programmed. RxGov matches patients’ full names, nicknames, and maiden names to a single record to prevent patients from shopping around among doctors to obtain prescriptions.12

Another company has deployed its PDMP platform, which provides access to mandatory pharmacy reporting. “PMP Aware” is now live in 30 states and provides access to mandatory pharmacy reporting. The platform integrates state PDMP data into EHRs and physician and pharmacist workflows to provide real-time data at the point of care.13 The company also operates the PMP InterConnect, an interstate prescription drug data sharing platform that now includes 45 states.

Although PDMPs have had a positive effect on reducing over-prescribing, the lack of interoperability across the states remains an issue. The development of standards for state-to-state data exchange will be an important factor in enabling providers and pharmacists to track the dispensation of prescription opioids that could lead to patient dependency.

Emerging Technologies

The Food and Drug Administration believes that controlling the opioid epidemic will necessitate the use of cutting-edge medical devices and sophisticated data analytics that can predict and treat misuse. A number of start-up companies are focused on developing digital solutions to combat opioid misuse. Technologies, such as a prescription implant that releases a low dose of a buprenorphine or an app that enables doctors to determine a patient’s risk for opioid abuse, are making their way into clinical practice.
Brigham and Women’s Hospital in Boston partnered with a technology company that develops digital pills to pilot-test capsules embedded with ingestible wireless sensors to measure patients’ prescription opioid use. The capsules are designed to emit a radio signal when digested that is transmitted to a wearable reader worn by the patient. The wearable then transmits the message via Bluetooth to a cloud-based platform that can be viewed by a provider or pharmacist to monitor patient adherence and any change in dosing patterns. 14

As promising as digital pill technology seems, there are still challenges to be overcome with respect to implementation. Privacy concerns over personal data could prevent patients from agreeing to have their medication usage tracked electronically. Brigham and Women’s Hospital is optimistic that digital pills will prove to be yet another weapon in the battle against opioid misuse, and the facility will continue to test the technology with chronic pain patients who are long-term users of prescription opioids.

Conclusion

It is estimated that the total economic burden of prescription opioid misuse alone in the U.S. is $78.5 billion a year, which includes costs in healthcare, lost productivity, addiction treatment, and criminal proceedings. 15 The deployment of cutting-edge healthcare IT that includes data analytics, prescription drug monitoring programs, and emerging technology, such as digital pills, will enable the healthcare industry to create and enhance treatment protocols that result in improved outcomes for opioid-dependent patients. The best-case application for healthcare IT in the management of the opioid crisis is to use sophisticated technology to prevent patients from becoming dependent on opioids in the first place and to cost-effectively treat current patients. Supported by innovative health IT, providers can have a positive impact on the lives of patients struggling with opioid addiction while reducing the economic burden on healthcare delivery and society.

1. https://www.drugabuse.gov/drugs-abuse/opioids
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