

## **COST, QUALITY, AND OUTCOMES LEADING PRACTICE: Vanderbilt University Medical Center's (VUMC) Collaborative, Data-Driven Approach to Opioid Management**

### **Submitting Organization**

Vanderbilt University Medical Center (VUMC)

### **Problem Statement**

In the United States each day more than 115 people die after overdosing on opioids, and in the state of Tennessee alone, at least three people die from an opioid-related overdose on a daily basis.<sup>1,2</sup> While Vanderbilt University Medical Center (VUMC) had in place several committees for pain and opioid oversight, the organization decided that, given the current crisis, specific management of opioids required its own attention. In order to successfully monitor and manage opioids across its patient populations, VUMC needed accurate and timely data on opioid prescribing practices throughout all of its departments (both in-patient and outpatient) and among its many clinics.

### **Method**

VUMC established the VUMC Opioid Stewardship and Safety (VOSS) committee, an enterprise-wide, multidisciplinary team comprised of 20+ representatives from both the clinical and business sides of the organization, including medical staff, nursing, administration, pharmacy, supply chain, legal, quality, and safety. The goal of VOSS is to reduce unnecessary opioid prescribing while increasing the use of non-opioid alternatives for pain management through education, and to implement enterprise-wide standardized practices for the prescribing of opioids for both chronic pain and surgical procedures.

"Vanderbilt is a very collaborative organization where initiatives are supported from the top, therefore a lot can be done fast," said David Edwards, MD, PhD, Division Chief for Pain Medicine, VUMC.

"Vanderbilt as an institution and its leadership have really entrusted and enabled us to achieve our goals related to opioid management by providing us with the resources and tools to make it happen."

### **Date Implemented**

2017-present

### **Means**

#### **Access to Data**

In order to gain visibility into opioid prescribing practices, the VOSS team's first task was to develop an opioid prescribing database and dashboard through which they can monitor and track all opioid prescriptions on discharge from every department and clinic.

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<sup>1</sup> National Institute on Drug Abuse (NIH): <https://www.drugabuse.gov/drugs-abuse/opioids/opioid-overdose-crisis>

<sup>2</sup> TNTogether: Ending the Opioid Crisis: <https://www.tn.gov/governor/2018-legislative-priorities/tn-together.html>

“We continue to develop actionable data on what physicians are prescribing for both opioids and their alternatives so that we can determine whether prescribing practices are appropriate,” said Hayley Rector, PharmD, BCPS, Pharmacy Program Director for Inventory Management, VUMC. “With this data we can provide a feedback loop to physicians, and also assess our own performance with regards to identifying and addressing gaps in care.”

For example, use of the dashboard data enabled the VOSS team to uncover a significant issue associated with the implementation of VUMC’s new electronic health record (EHR) system. Dr. Edwards explains that best practice from the clinician’s perspective, and from the perspectives of the Centers for Medicare and Medicaid Services (CMS) and The Joint Commission, is to prescribe a patient somewhere between 50-70 percent of the maximum total amount of opioids that he or she could take during the prescription period for “as needed” prescriptions. In order to arrive at the prescribed amount, the prescribing physician takes into account how many days the patient may need to take the maximum daily amount to manage severe pain, as well as how much medication he or she will need to cope during days of lesser pain. This best practice helps lower the number of opioid tablets circulating in the community.

The legacy EHR at VUMC would autocalculate the maximum pill count even for “as needed” prescriptions. When VUMC switched from its legacy EHR system to its new EHR system, auto calculation was removed so that prescribers would be asked to insert the number of pills themselves, thus enabling best-practice prescribing. With the dashboard in place, the VOSS team was able to discover this pattern and address the issue, and detect the effect of change across the enterprise in real time.

This passive intervention had a significant impact on “as needed” oxycodone and hydrocodone immediate release inpatient discharge prescriptions. By turning off the default setting, which would automatically prescribe patients the maximum total amount of these opioids, and requiring physicians to calculate best practice amounts instead, 126,000 fewer opioid tablets will reach the hands of VUMC patients each year. The VOSS team also changed the default settings for general prescribers of outpatient prescriptions, and they are currently conducting a study to determine the impact of this change.

“In multiple states, including Tennessee, there are opioid distribution lawsuits where suppliers and supply chain are the primary targets,” said Edwards. “Drug companies are saying that they produce the opioids and give them to us – the suppliers – and once they are in our hands it is no longer their responsibility. We have a nice safety net with our dashboard, which allows us to identify prescribing practices in individual areas – departments, divisions, individuals – so that we can understand our drug distribution patterns, where opioids are going, and why they are being prescribed. It is another check in the chain that keeps our patients and our system safe. Without the opioid stewardship committee, and the database, we would not be able to see these trends.”

### **Clinician Education**

A prime focus of the VOSS committee is to educate clinicians on best practices in opioid prescribing, and changing state legislation that impacts prescribing practices. For example, Tennessee significantly changed its opioid prescribing laws as of July 1, 2018, requiring prescribers to thoroughly evaluate the patient, check the Controlled Substance Monitoring Database (CSMD) for the patient’s opioid history, and document consideration of alternative treatment and why an opioid is being used. The new legislation also places maximum limits on quantities and requires the prescriber to include an ICD-10 code on the prescription and in the patient’s medical record. Use of the opioid prescribing database and dashboard enables the VOSS team to identify practice trends in prescriber behavior so that the team can detect whether or not educational interventions are having an impact promoting positive change.

## **Patient Education and Resources**

The VOSS team has identified patient education as a critical component to opioid management, and therefore developed educational documentation and implemented opioid disposal resources to help patients better manage their opioid prescriptions. These include:

**Prescription Medication Disposal Units:** VUMC has placed MedSafe disposal units at each of its four retail pharmacies: Children’s Outpatient Pharmacy, The Vanderbilt Clinic Pharmacy, Medical Center East Pharmacy, and One Hundred Oaks Pharmacy. These drop boxes allow patients to safely dispose of unused or expired opioid medications. VUMC has registered its MedSafe boxes with the U.S. Drug Enforcement Administration (DEA), and listed their locations on appropriate patient education websites, to help patients find them.

**Home Drug Disposal:** Recognizing that VUMC’s patient population includes individuals in rural areas without access to MedSafe units, VOSS researched ways in which these patients could safely dispose of unused/expired opioids from their homes. They identified the DisposeRx at home drug disposal system as a potential solution. A patient simply adds warm tap water and the DisposeRx powder to their medication vial. The solution solidifies the contents, making the drugs inside the vial unusable. The patient then discards the vial in their trash. VOSS is currently working to determine if it can secure funding to cover the cost of the solution.

**Opioid Disposal Flyer:** The VOSS team recently developed an opioid disposal flyer to educate patients with acute pain prescriptions on how to safely dispose of the amounts they don’t use (e.g., MedSafe drop boxes, DisposeRx system). VOSS will soon be piloting the flyer with opioid prescriptions across its four retail pharmacies, with the goal of later broadening its use among emergency department (ED) and clinic patients.

“While we previously had patient education pieces on general medication disposal, we wanted an opioid specific education piece to help educate patients with acute pain prescriptions to throw away the amounts they don’t use so we have less circulating in the system,” said Terry Bosen, PharmD, Medication Safety Program Director, VUMC.

In addition, VOSS is designing a study to randomize education for patients who are prescribed opioids at discharge from the hospital where they receive educational information, including the opioid disposal flyer. A representative from VUMC will call the patients at the end of their prescriptions to determine what they did with any unused medication.

## **Redesigned Care Pathways**

VUMC is a leading institution in enhanced recovery after surgery (ERAS) protocols; having implemented 12 protocols with new ones added each year. The organization leverages evidence, best practices, and guidelines to develop standardized pathways of care for specific surgery types. It is a collaborative approach that requires communication and decision making among key stakeholders – surgeons, anesthesiologists, pain specialists, nurses, therapists, supply chain, and pharmacy. The use of opioids in these pathways has been a key consideration, and one where VUMC has had tremendous success.

For example, VUMC has developed a care pathway for patients undergoing colorectal surgery. Through the use of alternative surgical techniques, equipment, analgesics, and pain medication, the health system has eliminated the use of opioids for this specific surgery type while sustaining effective pain control.

Additionally, VUMC’s adult ED has joined the Tennessee Hospital Association’s (THA) Opioid Light ED Collaborative. This group of 28 hospitals is targeting five ED pain pathways and recommending opioid alternatives within each pathway.

The VOSS team is currently gathering data within its opioid prescribing database and dashboard on opioid prescriptions among ED “treat and release” patients – the outpatients of the ED – with the goal of supplying this information to the collaborative to help guide pathway redesign.

### **The Role of Supply Chain**

At VUMC, the supply chain team serves as both an information resource and a gatekeeper for the VOSS committee and the organization as a whole. Bob Sentell, Principal Contracting Sourcing Officer for Supply Chain and Pharmacy at VUMC, is a member of the committee, bringing 40 years of experience as a pharmacist, and supply chain expertise, to help guide decision making around products and services.

“In the past clinical and supply chain were totally separate but now through this committee we have a bridge between the clinical aspects of drug therapy and the cost,” said Sentell.

Sentell and the pharmacy clinical and procurement teams play a critical role in managing the supply of opioids and alternatives for VUMC. Insurance company coverage for specific drugs is continuously changing based on their contracts with drug manufacturers, therefore VUMC often must switch from one formulation to another to drive down costs for the health system and its patients. This includes both opioids and non-opioid analgesics. Safety issues and shortages also force the need to change and adopt different formulations, as does the introduction of new drug products. The pharmacy and supply chain teams monitor this dynamic environment and provide clinical staff and other stakeholders the information needed to make informed decisions.

Supply chain helps direct the procurement of solutions used for opioid disposal as well. When VOSS was seeking solutions to help patients dispose of unused/expired opioids safely, the supply chain team researched the various alternatives, including their costs and efficacy, and facilitated the contracting of these products.

### **Outcomes**

- Through its Opioid Stewardship and Safety (VOSS) committee, VUMC has achieved the following outcomes:
- Up to 100 percent reduction in opioid use in specific departments and care pathways through the use of alternative medications and other interventions
- An annual reduction of 126,000 opioid tablets for “as needed” oxycodone and hydrocodone immediate release inpatient discharge prescriptions

### **Tools**

- Opioid prescribing database and dashboard in Tableau that facilitates tracking and trending opioid prescribing across VUMC
- MedSafe and DisposeRx solutions for unused/expired opioid disposal by patients
- Physician and patient education documents, including flyers on opioid disposal

### **How Does Your Example Address the Issue from a CQO Perspective?**

“In this crisis there are a lot of different opioid formulations out there and the drug companies are still offering us more of these products,” said Edwards. “Supply chain serves as the gatekeeper by bringing us education on all of the different options that we have available so that we are not burdening our system and patients with added costs and risk. Supply chain also helps drives better quality and outcomes by providing information on medication and devices – and how to safely dispose of them – to help us protect the communities that we serve.”

## About Vanderbilt University Medical Center (VUMC)

Managing more than 2 million patient visits each year, Vanderbilt University Medical Center (VUMC) is one of the largest academic medical centers in the Southeast, and is the primary resource for specialty and primary care in hundreds of adult and pediatric specialties for patients throughout Tennessee and the Mid-South. The School of Medicine's biomedical research program is among the nation's top 10 in terms of National Institutes of Health peer review funding, receiving more than \$500 million in public and private awards during 2016. The Medical Center is the region's locus of postgraduate medical education, with over 1,000 residents and fellows training in more than 100 specialty areas. Vanderbilt University Adult Hospital and the Monroe Carell Jr. Children's Hospital at Vanderbilt are recognized each year by U.S. News & World Report's Best Hospitals rankings as national leaders, with 19 nationally ranked adult and pediatric specialties. Through the Vanderbilt Health Affiliated Network, VUMC is working with over 60 hospitals and 5,000 clinicians across Tennessee and five neighboring states to share best practices and bring value-driven and cost-effective health care to the Mid-South.

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