Opioid Use and Overdose

As health care providers are challenged to address patient care issues at a population health level, much work has focused on reducing patient harm. Missouri hospitals have addressed many patient safety issues and reduced harm across clinical topics throughout the last several years. One key issue has been in the area of adverse drug events, with particular emphasis on managing outcomes for patients receiving opioids as part of a treatment plan.

Recent Hospital Industry Data Institute analysis\textsuperscript{i} of opioid use in Missouri hospitals throughout the last decade indicate the following.

- opioid misuse has grown exponentially in Missouri, particularly in white males younger than the age of 30 who are uninsured
- hospital utilization for opioid overuse in Missouri increased 137 percent between 2005 and 2014 (Figure 1)

Maps from the Center for Behavioral Health Statistics and Quality\textsuperscript{ii} show the significant increase in hospital admissions for primary non-heroin opiates/synhetics admission rates by state (per 100,000 population ages 12 and older) from 2001 to 2011. Missouri notes a five-fold increase in admissions (Figure 2).

Of interest, the top 10 diagnosis codes included on emergency department visit and hospital admission records in Missouri from 2005 to 2014 can be categorized into three common themes — withdrawal symptomatology, poisoning and mental health-associated disorders.\textsuperscript{i}

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{figure1.png}
\caption{Figure 1: Rate of Hospital Inpatient and ED Visits, and Cumulative Percent Change in Missouri, 2005-2014}
\end{figure}

In Missouri, understanding “hot spots” of opioid overuse is another data source to use when strategizing resource allocation in reducing deaths from opiates. According to HIDI analyses, the St. Louis metropolitan area shows the highest statewide rates of hospital utilization for opioid overuse (Figure 3); however, the largest increases during the last 10 years mostly have been in the rural Northeast and Southeast regions of the state.

Figure 4 illustrates that nationally, opioid-related stays increased 31 percent from 1993 to 2012, and more than half of patients were insured with Medicare and Medicaid. HIDI’s analysis shows that in 2014, Missouri uninsured patients accounted for 30 percent of all hospital visits for opioid overuse — an increase of 268 percent throughout 10 years (Figure 5).

Top 10 Diagnosis Codes for ED and Hospital Admissions, 2005 to 2014

- Drug withdrawal
- Poisoning by other opiates and related narcotics
- Depressive disorder, not elsewhere classified
- Opioid-type dependence, unspecified
- Opioid abuse, unspecified
- Drug-induced mood disorder
- Poisoning by opium (alkaloids), unspecified
- Poisoning by heroin
- Major depressive affective disorder, recurrent episode, severe, without mention of psychotic behavior

**Figure 2: Primary Non-Heroin Opiates/Synthetics Admission Rates by State or Jurisdiction, 2001-2011, per 100,000 Population Ages 12 and Older**

**Figure 3: 2005-2014 ZIP-Code Level Hot Spots for Opioid Overuse-Related Hospital Visits**

Sources: HIDI FY 2005 and FY 2014 Missouri Inpatient and Outpatient Hospital Discharge Databases and Nielsen/Claritas 2014 Pop-Facts Premier. Z-scores were calculated at the ZIP-level using the rate of hospital visits between FY 2005 and FY 2014 per 10,000 residents in 2014. ZIP codes with fewer than 50 residents were omitted. The regions depicted in this map are Missouri Workforce Investment Areas.
On Dec. 1, 2015, MHA partnered with the Missouri Academy of Family Physicians, Missouri Association of Osteopathic Physicians and Surgeons, Missouri College of Emergency Physicians, Missouri Dental Association, and the Missouri State Medical Association to publish opioid prescribing guidelines for ED physicians in an effort to curb rates of opioid abuse and overdose in Missouri. Recommendations and policy changes like these provide a foundation from which to manage the morbidity and mortality associated with the misuse and abuse of opioids in Missouri. The next step is engaging all prescribers in following evidence-based guidelines for opioid prescription, improving management of noncancer-related chronic pain and reducing the incidence of abuse and overdose.

Both state and national attention regarding this issue continues to gain momentum as evidenced by the following.

In February 2016, the National Governor’s Association and the American Hospital Association released a joint statement supporting increased efforts towards physician education, access to substance abuse services and monitoring through prescription drug monitoring programs, largely supported through legislative activity across the states.

Also in February 2016, President Obama proposed $1.1 billion to address prescription opioid abuse and the heroin epidemic. The proposal is two-pronged and includes $1 billion in new mandatory funding throughout two years to expand access to treatment for prescription drug abuse and heroin use.

This publication provides recommended guidelines for all prescribers of opioid medications, both inside and outside the four walls of the hospital. While not all-encompassing, they are intended to provide a platform for standardization, create awareness and start a statewide dialogue for improved prescribing practices and treatment modalities for those suffering from opioid abuse and at high risk for overdose death.

**Clinical Background**

In the 1980s and 90s, physicians were encouraged to liberalize the use of opioids to treat noncancer-related pain issues, partly because of the success in using those medications...
to manage cancer-related pain. The logic was that if opioids worked well for one type of pain, they should be effective for other types of pain and provide improved quality of life. However, increased opioid prescriptions have not necessarily led to improved chronic pain control. In fact, the ongoing effects of long-term opioid use are extremely detrimental with potentially catastrophic effects. In 2014, the Agency for Healthcare Research and Quality released a statistical brief, and in 2016, the Centers for Disease Control and Prevention released a draft Guideline for Prescribing Opioids for Chronic Pain, both highlighting several research questions challenging the widespread use of opioids as the treatment of choice for chronic pain management.

Opioid medications are regularly prescribed for all types of acute and chronic pain conditions with evidence that they do not outperform non-narcotic pharmacologic options or alternative therapy options, such as cognitive behavioral therapy and exercise therapy. In fact, a combination of acetaminophen and non-steroidal anti-inflammatory drugs, along with CBT and physical therapy, has been shown to be more effective than opioids in treating both acute and chronic pain. A metric, known as “number needed to treat,” has been used in studies to note the effectiveness of using acetaminophen and NSAIDs versus opioid medications. The National Safety Council has an infographic that compares common pain medications.

Understanding Addiction – Four Clinical Syndromes

The definition of addiction is not well-defined. Several leading expert pain management organizations developed a consensus definition regarding addiction — a “primary, chronic, neurobiological disease with genetic, psychosocial and environmental factors influencing its development and manifestations.” Characteristic behaviors include impaired control over drug use, compulsive use and continued use despite harm and craving. Addiction differs from physical dependence, which is a “state of adaptation manifested by a specific withdrawal syndrome produced through abrupt cessation, rapid dose reduction, decreasing blood levels of the drug and/or administration of an antagonist.” Physical dependence is expected in patients with chronic opioid treatment, but should not be assumed as a sign of addiction. The idea of “pseudoaddiction” describes behaviors commonly witnessed in hospital EDs and clinics — repeated requests for higher doses, running out of medications early, taking more than prescribed, etc. — stemming from undertreatment of pain. This is an important distinction to consider, as ineffective pain control and the resultant drug-seeking behavior lead to labeling patients as addicted to opioids and a belief that pain and addiction cannot occur simultaneously. Finally, the concept of aberrant drug-related behavior, while still poorly defined, should be considered. Doctor shopping, “losing” prescriptions, tampering with prescriptions, demanding behaviors and positive urine toxicology results for illicit drugs and/or negative results for prescribed opioids, are all signs of ADRB. Patients who engage in ADRB may be addicted or have physical dependence on prescription narcotics, or may be diverting them for sale. Patients undergoing chronic opioid treatment may exhibit signs of all four clinical syndromes, but each requires different treatments to manage causal factors.

Each of these four clinical syndromes are not believed to be caused by a single factor. Rather, a combination of genetic, environmental and physical factors are believed to make a person more susceptible to misusing opioid prescription drugs leading to possible addiction or addiction-like behaviors.

Clinical Recommendations for Managing Opioid Prescribing in Noncancer Pain

Opioid Prescribing Practices in the ED

A large majority of patients with opioid addiction issues present to the ED for treatment and ADRB-associated issues. The Missouri Academy of Family Physicians, Missouri Association of Osteopathic Physicians and Surgeons, Missouri College of Emergency Physicians, Missouri Dental Association, Missouri State Medical Association and MHA converged on a set of guidelines for ED providers to consider when caring for patients using opioid medications.

ED opioid protocols have been implemented across the nation to reduce the incidence and risk of opioid misuse and abuse among patients; however, opioid prescription and management occurs in many other settings outside the ED. Based on national guidelines and evidence, the following are suggested recommendations for any practitioner prescribing opioids for noncancer-related acute and chronic pain management.

Prescribers should complete a risk-based screening tool before initiation of opioids and perform ongoing risk assessments during treatment to gauge understanding of the patient’s propensity to addiction. Several tools are available and compared throughout medical literature for reliability and validity, although each tool has its strengths and weaknesses. No single tool has been defined as the gold standard. Practitioners should use the tool most appropriate for their practice
environment and be consistent with its use. Examples are included in the references section of this publication.

Assessment tools, along with other comprehensive psychological testing tools, can be used before and during chronic pain treatment. Note that high-risk scores do not mean that a patient will abuse opioid medication, nor do low-risk scores mean the patient will not. The tools provide prescribers a way to stratify patients with chronic pain management; provide an avenue to begin an open dialogue with the patient and family regarding treatment options, expectations and risks; and provide an opportunity to give education and promote supportive care referrals and treatment. The primary purpose of risk-stratifying patients is to define the intensity and frequency of monitoring and clinical vigilance necessary to mitigate the risk of opioid abuse. The CDC’s draft guidance suggests that providers connect with patients within one to four weeks of starting opioids for chronic treatment, with any dose escalations and every three months (at a minimum), to assess and converse with the patient on the need for ongoing treatment, risks and benefits. A patient at high risk should not be denied pain treatment with opioids simply on risk alone. All patients should receive at least the minimum level of monitoring, with the intensity increasing as the risk level increases and as therapy continues. Physicians and other approved prescribers are professionally called to be empathetic, caring and nonjudgmental. They also should be willing to set and implement treatment boundaries through open communication with the patient.

Practitioners should consider the following guidance in managing opioid prescriptions for noncancer-related pain. The following recommendations are from the CDC’s draft guidelines for prescribing opioid pain medication for patients 18 and older in primary care settings. Recommendations focus on the use of opioids in treating chronic pain (i.e., pain lasting longer than three months or past the time of normal tissue healing) outside end-of-life care.

Dosages more than 90 MME per day should be avoided.

- When using opioids to manage acute pain episodes, prescribe the lowest effective dose of short-acting opioids. The CDC recommends three or fewer days for nontraumatic pain not related to major surgery.
- Avoid concurrent prescription of opioids and benzodiazepines when possible.

Participate in professional education opportunities and provide initial and ongoing education to patients and families. Practitioner education is becoming widely available and easily accessible. Education and resources should focus on risks of initiating and continuing opioid medications, medical necessity and alternate treatment options, appropriate use, tapering medications, proper disposal and movement to a non-narcotic option for ongoing pain management. Examples are included in the references section of this publication.

Use “patient agreements” to set expectations and boundaries for opioid prescriptions. Patient agreements provide a platform for prescribers to begin an open dialogue with patients and families regarding the appropriate use, treatment goals, limitations and boundaries of being prescribed opioid medications. Expectations are well-defined in the agreement and provide guidance to the health care team. They also improve management and oversight of patients. Some clinicians are using additional strategies, such as regularly scheduled urine drug screens and pill counts to monitor usage patterns, as part of the agreements. Providing the prescription alone no longer is good enough. Patient engagement, education and validation of correct use is necessary to curb harm from opioids. Example patient agreements are included in the references section of this publication.

Highest Risk Factors for Opioid Drug Misuse

- males, ages 18 to 24
- history of 12 or more opioid prescriptions
- opioid prescriptions from three or more pharmacies
- early prescription opioid refills
- escalating morphine dosages
- psychiatric outpatient visits
- hospital visits
- diagnoses of nonopioid substance abuse disorders
- depression
- post-traumatic stress disorder
- hepatitis

Additionally, the CDC compiled the following recommendations by reviewing common prescribing guidelines across multiple professional organizations.

- Try nonpharmacologic and/or nonopioid pharmacologic therapy initially, taking into consideration the risks and benefits for the individual patient.
- Short-acting versus extended release or long-acting opioids are recommended.
- Prescribe the lowest possible effective dosage for the individual patient’s characteristics and medical needs. Precautions should be taken when increasing dosage to more than 50 milligrams morphine-equivalent (MME) per day.
Become educated on dependence and addiction behavior treatment modalities, as well as available community resources to assist with addiction treatment referral as needed. Resources are provided in the references section of this publication.

Common levels of treatment, dependent on the patient’s medical needs, include the following:

- ambulatory (excluding medication-assisted opioid therapy)
- detoxification (excluding medication-assisted opioid therapy)
- rehabilitation/residential (excluding medication-assisted opioid therapy)
- medication-assisted opioid therapy

While many resources are available in Missouri to assist patients with opioid abuse treatment, the state lacks a cohesive structure and effective referral channel. The Missouri Department of Mental Health funds multiple treatment programs across the state. Many Missouri hospitals also offer inpatient and outpatient substance abuse services. Medication-assisted treatment programs to lessen withdrawal effects and increase success of maintaining sobriety are growing in number throughout the state. Privately owned, for-profit treatment facilities and those supported by community resources and associations, such as churches, community organizations, college campuses and support group networks (i.e. Narcotics Anonymous), also exist to assist those with opioid addiction. Many of these programs exist in silos, with little to no communication and assistance across the continuum. Ongoing support should be considered across the care continuum as addiction is a chronic, long-term, if not lifetime, condition.

The CDC recommends that efforts to curb opioid overdose deaths be focused on the 10 percent of patients prescribed high doses of opiate narcotics (defined as more than 100 MME dose per day) from a single health professional and the 10 percent of patients receiving prescriptions from multiple prescribers. The President Obama’s funding proposal in the 2017 budget is designed to boost efforts to help individuals with an opioid use disorder seek treatment, successfully complete treatment and sustain recovery. The budget proposal also includes approximately $500 million to continue building current efforts across the Department of Justice and the U.S. Department of Health & Human Services to expand state-level prescription drug overdose prevention strategies, increase the availability of medication-assisted treatment programs, improve access to the overdose-reversal drug naloxone and support targeted enforcement activities.

Currently, insurance coverage for addiction treatment is federally supported through the Affordable Care Act, which requires parity between medical/surgical and mental health/substance abuse treatment. Medicare provides some coverage, although limited and requiring physician supervision, while not covering some forms of outpatient treatment that may prove to be more cost effective. MO HealthNet coverage is similar to Medicare coverage. Physician oversight and medical necessity are keys to coverage, and only certain facilities are licensed and certified to provide treatment for MO HealthNet-covered patients, which reduces the options and results in wait-listed patients. Third-party insurance products typically will cover a percentage portion of treatment with limited amounts and coverage terms. Unfortunately, the demographic most at risk, those white and under 30 years of age, often lack any health insurance or primary care provider.

### Policy Implications

#### Reporting Concerns

Several issues exist in the collection of data related to opioid overdose deaths. Incomplete data affects the ability to completely understand the full scope of the issue.

- Toxicological laboratory tests that might be performed during autopsy are inconsistent across jurisdictions.
- Specific types of drugs involved in overdose cases are not always recorded on the death certificate and vary widely by state. The increase in the reporting of specific drugs in 2014 might have contributed to some of the observed increases in drug overdose death rates involving different types of opioids from 2013 to 2014 because of improved reporting.
- Certain deaths from heroin overdose might be misclassified as morphine overdose because of their similar chemical make-up and metabolism in the body, resulting in underreporting.

#### Prescription Drug Monitoring Programs

The National Alliance for Model State Drug Laws defines a prescription drug monitoring program as "a statewide electronic database that collects data on specifically identified substances dispensed in the state." The database typically is administered by a state regulatory, administrative or law enforcement agency. Data then may be used by approved individuals for professional purposes. For purposes of this discussion, data is used to track the number of opioid prescriptions and patterns. Benefits of a PDMP include the following:

- support access to legitimate medical use of controlled substances
• identify, deter or prevent drug abuse and diversion
• facilitate and encourage the identifi-
cation, intervention with and treat-
ment of persons addicted to prescription drugs
• inform public health initiatives
• educate individuals about PDMPs
and the Substance for comment from April to
facilitate and encourage the iden-

-Addiction Treatment Act of 2000
lder involvement.

The U.S. Department of Justice has
an extensive website with many resources relative to PDMPs and state-level program details.

Expanding Medication-Assisted Treatment and Access to Reversal Agents
Fatal overdose from opioids is preventable. Current prescription drug laws hinder access to medication-assisted treatment and access to the opioid-reversal agent, naloxone. Forty-three states have modified legislation and regulations to increase access to naloxone through a variety of mecha-
nisms. Many others have enacted Good Samaritan laws that are focused on decreasing the criminalization of substance abuse and encouraging first responder contact. Through the Drug Addiction Treatment Act of 2000, qualified U.S. physicians can offer buprenorphine for opioid dependency in various settings, including in an office, community hospital, health department or correctional facility. The Missouri Department of Health and Senior Services and the Substance Abuse and Mental Health Services Administration have since introduced a rule for comment from April to June 2016 to increase the number of patients to which Drug Addiction Treatment Act-Waived Physicians can prescribe buprenorphine.

Expanding naloxone distribution
through a variety of venues and modified prescription drug laws is showing promise in preventing opioid-related overdose deaths. Naloxone distribution has been cited by the North Carolina Harm Reduction Coalition as a key to increasing reversal of overdose. Between 2013 and 2016, 2,024 total reversals were reported through distribution networks in North Carolina, which include syringe/needle exchange programs, medication-assisted treatment programs, rural and urban drug courts, families, and law enforcement. Currently in North Carolina, 160 distribution sites exist, increasing access to within 45 minutes to most residents. The coalition states that seeking input from current and past drug users on the best locations of distribution sites was key to their success in increasing overdose reversals. Societal stigma and criminalization of substance abuse prevents traditional prescription laws and routes from being effective in addressing overdose prevention.

Conclusion
Understanding the potential adverse effects that opioids can have is an essential first step in decreasing harm to patients. Prescribers should use the guidelines and resources provided in this publication to assist in making clinical decisions regarding opioid therapy, particularly for chronic, noncancer-related pain. Additionally, prescribing opioids for acute pain issues not related to trauma or major surgery should be done with caution. Communication with patients and families is critical to developing an effective plan of care for pain management. Use of patient agreement documents can be an efficient way for providers to initiate an open dialogue with patients, agree on a treatment plan and set expectations, as well as review the potential for risks and adverse events. Efforts focused on curbing overdose and deaths related to opioid use are being implemented in other states; however, Missouri has yet to take action. MHA, Missouri Academy of Family Physicians, Missouri Association of Osteopathic Physicians and Surgeons, Missouri College of Emergency Physicians, Missouri Dental Association, and the Missouri State Medical Association

Naloxone
Naloxone hydrochloride prevents or reverses the effects of opioids, including respiratory depression, sedation and hypotension. It is an essentially pure opioid antagonist, i.e., it does not possess the “agonist” or morphine-like characteristics of other opioid antagonists. When administered in usual doses and in the absence of opioids or agonistic effects of other opioid antagonists, it exhibits essentially no pharmacologic activity.

Buprenorphine
Buprenorphine is used in medication-assisted treatment to help people reduce or quit using heroin or other opiates. Unlike methadone treatment, which must be performed in a highly-structured clinic, buprenorphine is the first medication to treat opioid dependency that is permitted to be prescribed or dispensed in physician offices, significantly increasing treatment access.
have taken a strong first step through the publication of the ED Opioid Prescribing Recommendations to start a dialogue and raise awareness of this patient safety issue with emerging population health implications in communities across the state.

1 This publication does not address pain management for end-of-life care. Separate recommendations exist for managing this type of clinical pain.

References


Clinical Resource Links

Initial Screening Tools – to be used prior to initiating opioid therapy

- Screener and Opioid Assessment for Patients in Pain-Revised (SOAPP-R)
- Opioid Risk Tool (ORT)
- Diagnosis, Intractability, Risk, and Efficacy (DIRE)
- Screening Instrument for Substance Abuse Potential (SISAP)
- The Pain Assessment and Documentation Tool (PADT)

Ongoing Screening Tools – to be used at provider-defined intervals during opioid treatment

- Brief Pain Inventory (BPI)
- Pain Frequency, Intensity and Burden Scale (P-FIBS)
- Current Opioid Misuse Measure (COMM)

The following sites are recommended for continuing medical education and for patient education resources regarding prescribing opioids.

- American Academy of Pain Management
- American Pain Society
- American Society of Addiction Medicine
- SCOPE of Pain
- OpioidRisk.com
- National Safety Council
- Clinical Centers Guide
- Pain Matters
- U.S. Pain Foundation
- American Chronic Pain Association
- The National Pain Foundation
- International Association for the Study of Pain (IASP) - News
- IASP - Fact Sheets
- Relief
- PainEDU

Patient Education and Treatment Resources

- CASA Columbia
- Missouri Department of Mental Health, Division of Comprehensive Psychiatric Services, Certified Provider Directory
- Know Your Rights: Rights for Individuals on Medication-Assisted Treatment
- North Carolina Harm Reduction Coalition

Patient Agreement Resources for Chronic Opioid Therapy

- Family Practice Management
- Sample Opioid Treatment Agreement
- Pain.edu Sample