OPEN
Prevention. Treatment. Recovery.

TOOLKIT

PEDIATRIC SURGICAL PAIN MANAGEMENT TOOLKIT

FOR HEALTHCARE PROFESSIONALS

TABLE OF CONTENTS

TOGETHER WE CAN MAKE A DIFFERENCE

This toolkit focuses on prevention of opioid related complications in children and adolescents by intervening at the point many are first introduced to them: when acute pain is treated after surgery (1).

Over the past several decades, despite having good intentions of addressing postoperative pain, providers failed to recognize that opioids have significant risks even when used to treat acute pain and prescribed them as the primary means to control pain in children undergoing surgery.

Unfortunately, postoperative opioid prescribing has helped fuel the opioid epidemic, leading to misuse, dependence, and substance use disorder among adolescents — as well as a startling increase in the incidence of overdose in young children.

AN UNPRECEDENTED INCREASE IN OVERDOSE DEATHS

Prescription opioids are a major factor in overdose and death (2). Between 2015 and 2016, prescription opioid-related overdose deaths increased by 30% among individuals aged 15 to 24 years, the highest of any age group (3). The age-adjusted rate of opioid overdose deaths continues to rise (a 4% increase from 2018 to 2019, which includes increases among adolescents and young adults) (4,5). There is evidence of persistent use in those newly exposed to opioids after surgery – pharmacy data shows that 5% of adolescents prescribed opioids to manage acute postoperative pain receive another prescription 3-6 months following surgery, far past the time postoperative pain should have resolved (6).

Although the risks are now clear, opioids continue to be prescribed for management of acute pediatric post-surgical pain in quantities and durations greater than required, without explanation of the risks, alternative strategies for pain management, or options for safe storage and disposal.

Counseling regarding safe opioid storage and disposal is not standardized or consistently delivered. We know the role prescription opioids play in overdose, that overdose rates continue to rise, and that new persistent use following surgery occurs among adolescents at the same rate as adults. To overcome the untoward impacts of opioid use during surgical care, we must change the culture of post-surgical opioid prescribing and pain management. It is not too late.

MITIGATING THE RISK IS NECESSARY AND WITHIN OUR POWER

The current state of the epidemic is changeable. We can mitigate the risks of opioids by:

- Following evidence-based standards for prescribing pain management medications
- Providing non-opioid based strategies to manage pain
- Creating a culture of opioid safety and consistent messaging by care providers
- Educating pediatric patients and their caregivers about postoperative pain and the risks of opioids
- Encouraging safe storage and disposal of opioid prescriptions

FOR HEALTHCARE PROFESSIONALS

Nearly half of the opioids prescribed to patients under 21 years old could be classified as high risk, based on pharmacy data from 2019 (7). More than half of these prescriptions were written by dentists and surgeons.

TO BEGIN TO COMBAT THE OPIOID EPIDEMIC, WE NEED TO:

- Review our prescribing patterns
- Consider the amount of opioid being prescribed and consumed
- Rethink patients' pain management

BEST PRACTICES FOR PEDIATRIC POSTOPERATIVE PAIN MANAGEMENT

We convened a multidisciplinary working group at Michigan Medicine with representatives from Surgery, Anesthesiology, Nursing, Pharmacy, Child Life, and Psychology, who provide care for patients and families after surgery. Together, we discussed concerns about postoperative pain and formulated a common message about how to best manage it. We encourage you to consider doing the same at your institution.

Michigan Medicine's multidisciplinary working group has developed the following:

THROUGHOUT THE PERIOPERATIVE PATHWAY

Provide a consistent message about pain management and medication use, risks, storage, and disposal. Make sure that verbal and written instructions from all providers are consistent, from preoperative evaluation to postoperative follow-up. Coordinate transitions between all clinicians to establish shared expectations for postoperative recovery and pain management needs.

PREOPERATIVE COUNSELING

As early as possible before surgery, discuss expectations regarding the experience of pain, length of recovery, and functional pain management goals with the patient and family in an age-appropriate manner. Do not routinely provide opioid prescriptions intended for postoperative use prior to surgery.

INTRAOPERATIVE CONSIDERATIONS

Discuss with the anesthesia team how to best manage the patient's pain in the operating room so postoperative pain is minimized. Think about using a nerve block, local anesthetic catheter, or epidural when appropriate. Administer intravenous non-opioid medications (e.g., ketorolac, acetaminophen) for management of pain before arrival in the post-anesthesia care unit unless contraindicated.

IMMEDIATE POSTOPERATIVE CONSIDERATIONS

In the recovery area, use nonpharmacologic techniques such as distraction, Child Life services, and parental presence to address pain and anxiety as soon as it is safe to do so. When appropriate, give enteral non-opioid medications if not already administered pre- or intraoperatively. If opioids are used in the recovery area, oral administration is preferred over IV administration. Consider obtaining a consult from the Pain Service if the patient's pain is poorly relieved despite standard therapy or from the Pediatric Psychiatry Service if a new history of substance use disorder is identified in a patient.

POSTOPERATIVE DISCHARGE CONSIDERATIONS

Use non-opioid therapies as a primary method for pain management and include dosing of over-the-counter (OTC) medications and instructions for their use. Discuss and encourage non-pharmacologic therapies, including distraction, heat or ice, and physical therapy.

FIRST-LINE MEDICATIONS FOR PAIN CONTROL

Acetaminophen (Tylenol®) and ibuprofen (Motrin®) can provide similar pain management to opioids. Specifically, a randomized study on pediatric patients undergoing tonsillectomy and adenoidectomy, a procedure associated with significant postoperative pain, showed that ibuprofen and acetaminophen in combination provided similar analgesia to morphine without risk of respiratory depression (8).

Patient-reported outcome data collection by OPEN also show that for procedures such as circumcision, herniorrhaphy, appendectomy and adenoidectomy, patients have adequate pain management with acetaminophen and ibuprofen alone (9). Even if opioids are prescribed, using medications such as acetaminophen and ibuprofen can decrease opioid use.

PRESCRIBE ACETAMINOPHEN AND IBUPROFEN

Since acetaminophen and ibuprofen are available over the counter and don't require a prescription for patients to use, patients and caregivers often do not receive instructions on how to use them after surgery. The packaging instructions for acetaminophen and ibuprofen provide dosing for an age and weight range and recommend as-needed use. If families follow these instructions, they may be under-dosing their children and inadequately addressing their pain. And if they were prescribed an opioid, they may think this is the first medication they should use for their child's pain, not understanding that acetaminophen and ibuprofen often provide adequate pain relief when dosed and administered correctly and that an opioid may not be needed.

YOUR GUIDANCE CAN MAKE A DIFFERENCE

At Michigan Medicine, acetaminophen and ibuprofen are sent electronically as prescriptions to a patient's pharmacy. When acetaminophen and ibuprofen are written as prescriptions and instructions on how to use them are provided, families then have clear information regarding dosing and understand these are the first-line medications for pain management. Some insurance companies may cover the cost of these medications when they are written as a prescription.

HOW TO DOSE ACETAMINOPHEN AND IBUPROFEN

ACETAMINOPHEN

(Tylenol®)
15 mg/kg every 6 hours
(with a maximum of 650 mg per dose)

IBUPROFEN

(Motrin®)
10 mg/kg every 6 hours
(with a maximum of 600 mg per dose)

- For mild pain, these are used either individually or together on an as-needed basis.
- For moderate pain, they are given on a schedule together every 6 hours during the day, and at night as needed (if the patient wakes) for 1-2 days after surgery, and then as needed.
- For severe pain, they are given on a schedule together around the clock for 2 days after surgery and then as needed.

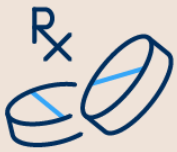
- Avoid ibuprofen and other non-steroidal anti-inflammatory drugs (NSAIDs) in patients with bleeding disorders, renal disease, peptic ulcer disease, and for specific operations at surgeon discretion. Do not use ibuprofen in children under 6 months of age. Use only one NSAID at a time (do not combine NSAIDs).
- Use caution when prescribing acetaminophen in patients with hepatic impairment or active liver disease.

GIVE ACETAMINOPHEN AND IBUPROFEN TOGETHER

Many families are familiar with using acetaminophen and ibuprofen on an alternating basis as-needed for fever and assume they should use them for pain control in the same way. However, from a pain management standpoint, the half-life of both of these medications is long enough that they can be given together.

Giving these two different medications at the same time has benefits:

- Much simpler for families
- Decreases the likelihood of missing or duplicating a dose
- Less disruptive to both sleep and daytime schedules



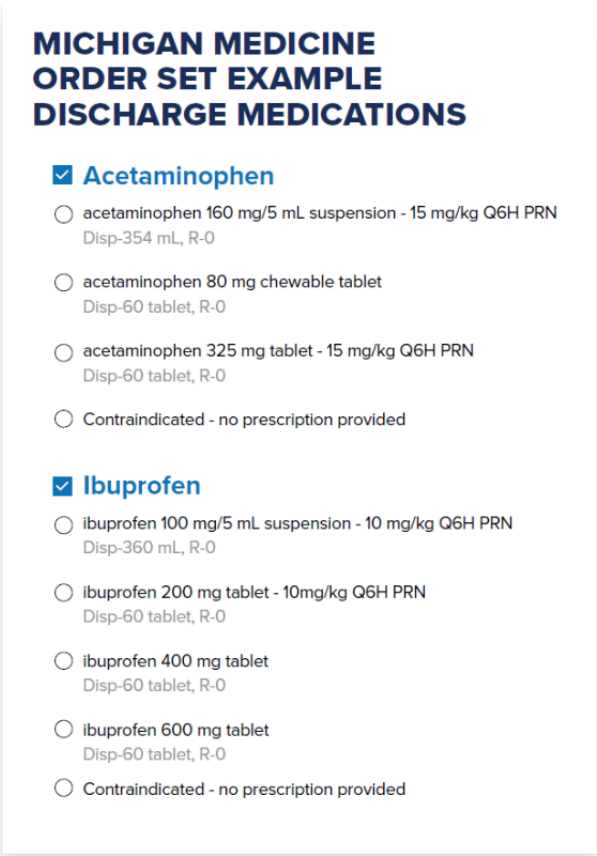
Key Point:

- **Use weight-based dosing for acetaminophen and ibuprofen.**
- **Recommend several days of around-the-clock use for severe pain.**
- **Give acetaminophen and ibuprofen at the same time.**

STREAMLINE PRESCRIBING AND EDUCATION BY USING ORDER SETS

At Michigan Medicine, we use the Epic electronic medical record system. When patients are discharged after surgery, providers use a discharge order set that contains instructions on postoperative care. Standard orders for acetaminophen and ibuprofen and instructions on their use have been added to the postoperative order sets. This simplifies the process of prescribing for providers and removes the barrier of additional work.

It also allows for standard weight based dosing and instructions, and offers the opportunity for families to receive the medication at a pharmacy (where it may be covered by insurance). Providing the medications as a prescription validates these over-the-counter medications as the first-line choice for pain management and ensures patients receive the appropriate dose for their size.



MICHIGAN MEDICINE ORDER SET EXAMPLE DISCHARGE MEDICATIONS

☑ **Acetaminophen**

- ○ acetaminophen 160 mg/5 mL suspension - 15 mg/kg Q6H PRN
  Disp-354 mL, R-0
- ○ acetaminophen 80 mg chewable tablet
  Disp-60 tablet, R-0
- ○ acetaminophen 325 mg tablet - 15 mg/kg Q6H PRN
  Disp-60 tablet, R-0
- ○ Contraindicated - no prescription provided

☑ **Ibuprofen**

- ○ ibuprofen 100 mg/5 mL suspension - 10 mg/kg Q6H PRN
  Disp-360 mL, R-0
- ○ ibuprofen 200 mg tablet - 10mg/kg Q6H PRN
  Disp-60 tablet, R-0
- ○ ibuprofen 400 mg tablet
  Disp-60 tablet, R-0
- ○ ibuprofen 600 mg tablet
  Disp-60 tablet, R-0
- ○ Contraindicated - no prescription provided

Key Point:
Create and use order sets to prescribe first-line medications and provide patient education.

MICHIGAN MEDICINE PATIENT EDUCATION ON ORDER SET

This information is contained in the order set and prints as part of the patient's After Visit Summary discharge paperwork.

IF MEDICATION IS NEEDED TO MANAGE YOUR CHILD'S PAIN AFTER SURGERY, THE BEST MEDICATIONS TO BEGIN WITH ARE OVER-THE-COUNTER PAIN MEDICINES. THESE ARE ACETAMINOPHEN (EXAMPLE: TYLENOL®) AND IBUPROFEN (EXAMPLE: MOTRIN® OR ADVIL®).

- Do NOT give ibuprofen to children under 6 months of age or if your child's doctor has told you not to use it.
- Do NOT give any medications in higher amounts or more often than instructed.

IF YOUR CHILD IS PRESCRIBED BOTH TYLENOL AND MOTRIN, THE BEST WAY TO CONTROL THEIR PAIN IS TO GIVE THE MEDICATIONS TOGETHER EVERY 6 HOURS.

To do this, you would:

- Start with a dose of Motrin® and Tylenol® together
- 6 hours later give another dose of Motrin® and Tylenol® together

TIPS FOR GIVING MEDICATION SAFELY:

- For liquid medications, check the concentration on the bottle to make sure you're giving the correct milligram-based dose.
- Only use an oral syringe or medication cup to dose correctly. If a dosing tool does not come with the medication, ask the pharmacy for one.
- Household spoons are not accurate to measure medications.
- If your child resists taking the medication, use the syringe to squirt small amounts of medicine into the side of their cheek. This prevents gagging and your child is less likely to spit out the medication.
- If your child is resistant to taking pain medication, you may try mixing it with a food or syrup your child enjoys. Some mixes that have worked for other children include mixing medicine with a popsicle to make a slushy or adding chocolate syrup or applesauce.
- Be careful if you are mixing medication with a food your child enjoys in hopes of making it easier for them to take. If you do this, only mix the medication into a small spoonful of food. Otherwise, if they don't finish it, you won't know how much medication they took.

You can also use other non-medication approaches to manage your child's pain. These include spending time with them, playing or doing special projects, eating special foods, watching their favorite shows or movies, and using a cold or warm pack. More information on postoperative pain management can be found at https://michigan-open.org/pediatrics/

PROVIDER TOOL: OPIOID PRESCRIBING RECOMMENDATIONS

OPEN conducted a survey of caregivers for pediatric (under 18) postoperative patients at Michigan Medicine from 2020 through 2022. Over 1,000 surveys have been completed for pediatric patients undergoing a variety of surgical procedures through spring 2022. Procedures were selected based on the frequency with which they occurred and/or associated opioid prescriptions.

Eligible patients and their caregivers were called to ask about the quantity and duration of opioid use, use of over-the counter pain medications, pain score, and overall satisfaction with post-surgical pain management. Patient demographic information, procedure type, and opioid prescription data were gathered from electronic health records and matched with survey information to analyze prescribing patterns, compare pain management, and assess for evidence of overprescribing.

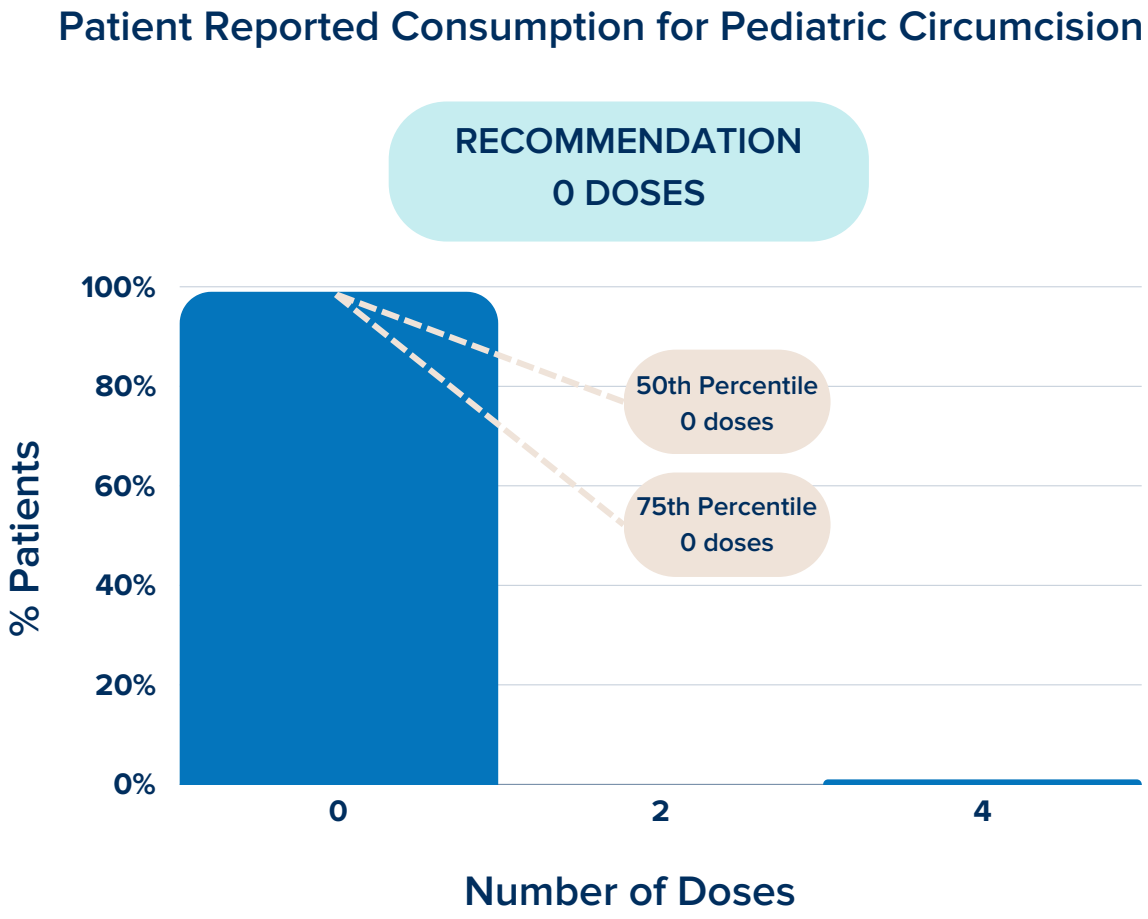
Prescribing recommendations were then developed based on actual use, patient reported outcomes, and expert consensus. Many of our patient-reported outcome surveys show opioids are prescribed in greater quantities than patients take and stay in the home after surgery, remaining a persistent source for misuse and diversion.

Specific Procedure Opioid Prescribing Recommendations

PROCEDURE	Doses^ of Opioid
DENTAL	
Dental Extraction	0
GENERAL	
Appendectomy	0
Inguinal Hernia	0
Umbilical Hernia	0
ORTHOPEDICS	
Hand Surgery and Trigger Finger Release	0 - 5
Knee Surgery – Arthroscopic, Open, Ankle, Arthroscopy	0 - 15
ORIF – Elbow, Humerus, Radius, Ulna	0 - 5
ORIF – Hip, Tibia, Ankle, Femur	0 - 10
Orthopedic Bone Lesion Removal, Hardware Removal, Osteotomy – Rotation Femur/Tibia, Shortening Femur/Tibia	0 - 5
Percutaneous Pinning – Wrist, Elbow, Humerus	0
Orthopedic Tendon / Soft Tissue Procedure	0
OTOLARYNGOLOGY	
Adenoidectomy	0
Mastoidectomy and Tympanoplasty	0
Tonsillectomy (11 years and younger)	0 - 5
Tonsillectomy (12 years and holder	0 - 15
PLASTICS	
Pediatric Cleft Lip and Palate, Alveolar Cleft Bone Graft	0 - 5
UROLOGY	
Circumcision	0
Hydroelectomy and Orchidopexy	0
Hypospadias Repair	0
Penile Surgery – Chordee Release, Meatoplasty or Meatotomy	0
Ureteral Reimplant	0 - 5

^ In patients weighing less than 50 kg, we define a dose of opioids as oxycodone ranging from 0.05 mg/kg to 0.1 mg/kg. For patients >50 kg, a dose is 5 mg of oxycodone. When patients weighing less than 50 kg fall into a BMI category >95th percentile for age, either a lower mg/kg starting dose or ideal body weight/lean body mass should be used to determine total dose. A lower mg/kg starting point should also be considered in those with comorbidities predisposing to respiratory depression. OPEN's opioid prescribing recommendations are continually updated with additional data and analysis. Visit https://michigan-open.org/prescribing-recommendations/ for the most up-to-date information.

CASE STUDY: CIRCUMCISION



PATIENT COHORT

- 114 pediatric patients
- Pain addressed with acetaminophen and ibuprofen
- 1 patient prescribed an opioid
- 65% survey response rate

NEARLY ZERO OPIOIDS PRESCRIBED

For the 114 patients undergoing circumcision during the quality improvement period, only one patient was prescribed an opioid for pain management.

CASE STUDY: CIRCUMCISION

PAIN AND PAIN EXPECTATIONS WERE MANAGED

Parents reported that pain after surgery was mostly mild to moderate. On the scale of 1 to 5, 1 being no pain and 5 being worst possible pain, the median pain reported was 2.5. Notably, even parents of children experiencing pain did not report dissatisfaction with pain management. Nearly all parents reported their child's pain being about what they expected or better than they expected.

PARENTS SATISFIED WITH PAIN MANAGEMENT

Nearly all parents of children undergoing circumcision in the project period reported satisfaction with their child's pain management.

CONSIDER BMI WHEN USING WEIGHT-BASED DOSING

In children, opioids are prescribed based on weight (mg/kg) up to a maximum weight of 50 kg. However, most oral opioids have a small volume of distribution and are not well absorbed by fat. If obese children are dosed based on their actual weight, they are at greater risk for complications or side effects compared to children in a lower weight category. In addition, a number of overweight and obese children have comorbid sleep-disordered breathing and are already at higher risk for respiratory complications related to opioid use (11).

Key Point:
Consider obesity when prescribing opioids and adjust dosing.

HOW SHOULD OPIOIDS BE PRESCRIBED FOR OVERWEIGHT AND OBESE CHILDREN TO ENSURE THEY DO NOT RECEIVE HIGHER DOSES THAN ARE SAFE?

Optimally, body mass index (BMI) would be considered when dosing opioids. If BMI falls outside of the healthy weight range, providers should not follow strict weight-based dosing and instead consider using ideal body weight, lean body mass or lower dose per kg reference. A recent review performed at Michigan Medicine shows that children with BMI in the overweight and obese categories are receiving more morphine milligram equivalents compared to their peers who fall into a healthy weight category (12). Further research is necessary to determine how to best calculate opioid dosing in overweight and obese children.

PATIENT-SPECIFIC PRESCRIBING CONSIDERATIONS

SCREENING TO IDENTIFY PATIENTS AT RISK FROM OPIOIDS

The following best practices were adapted from the Prescription Drug and Opioid Abuse Commission (PDOAC) prescribing recommendations, which were created in partnership with OPEN and the University of Michigan Injury Prevention Center (13). These strategies have been implemented at Michigan Medicine since 2019.

SCREEN FOR THE PATIENT'S OPIOID-RELATED RISK BY LOOKING FOR THE FOLLOWING FACTORS:

- Increased risk of respiratory depression: Concurrent medication use (e.g., prior opioid prescriptions, sleep aids, benzodiazepines), obstructive sleep apnea, obesity, neurological disorder, oxygen desaturation prior to discharge.
- Increased risk of opioid misuse: Concurrent medication use (e.g., prior opioid prescriptions, sleep aids, benzodiazepines), depression, anxiety, chronic pain, past prescription misuse, substance use, or substance use disorder.

EDUCATE PATIENTS AND FAMILIES ABOUT THE FOLLOWING:

- Use of prescription opioids ONLY to manage severe breakthrough pain that is not relieved by acetaminophen and ibuprofen.
- How to taper opioid use as pain improves.
- The side effects of opioid medications (sedation, respiratory depression, dependence, withdrawal).
- The risks of opioid medications, which include addiction, overdose, and diversion (use by anyone other than to whom it was prescribed).
- How to safely store and dispose of opioids.
- Appropriate use of naloxone, if prescribed.

COORDINATE POSTOPERATIVE CARE TRANSITIONS WITH PRIMARY CARE PROVIDERS FOR PATIENTS WITH ELEVATED RISK.

- Refer patients to a specialist for management of substance use disorder or chronic pain, if appropriate.
- Use language that respects individuals with substance use disorder to mitigate stigma.
- If a patient screens positive for increased risk, provide the patient and family education regarding possible adverse outcomes and establish a follow-up plan. The prescription drug monitoring program (PDMP) must be accessed prior to prescribing controlled substances in schedules 2-5 when exceeding a 3-day supply, in compliance with Michigan law. Prescribing limits and “Start Talking” consent may also apply based on patient age and clinical indication.

- Do NOT prescribe codeine or tramadol. Due to pharmacogenetic differences, codeine and tramadol are poor choices for pain management and should not be prescribed.
- Do NOT prescribe fentanyl or long-acting opioids (e.g. methadone, OxyContin®).
- AVOID prescribing opioids that contain acetaminophen (e.g. Norco®, Vicodin®, Percocet®) to minimize risk of acetaminophen overdose.
- AVOID prescribing opioids with other sedative medications (e.g., benzodiazepines, skeletal muscle relaxants).
- If concurrent prescribing is necessary (e.g., to manage postoperative muscle spasms), educate the patient and family about the increased risks of sedation and respiratory depression and consider co-prescribing naloxone.
- For additional information about naloxone, refer to https://michigan-open.org/medic/.

CHECK MEDICATION MONITORING PROGRAMS BEFORE YOU PRESCRIBE

Prescription drug monitoring programs (PDMPs) are state-level electronic databases that track prescriptions for controlled substances such as opioids (14). All 50 states and the District of Columbia have implemented PDMPs in an effort to improve risky opioid prescribing practice and keep patients safe and informed (15).

In Michigan, the PDMP is the Michigan Automated Prescription System (MAPS). Michigan law requires that a query of MAPS be performed when an opioid supply of three days or more is prescribed for a patient. It is good practice to check MAPS prior to prescribing any opioid or controlled substance, regardless of duration.

WE CAN MAKE PDMPS MORE EFFECTIVE

For PDMPs to be most effective, states must work together to improve accessibility, ease of use, and the transparency of PDMPs across state lines. Electronic interstate data sharing will aid in increasing PDMP data's utility, enhancing patient care, and avoiding drug diversion and misuse. This is crucial as evidence suggests that patients cross state lines in order to seek pain management options and avoid detection by PDMPs (16). In addition, integration of EHR systems, real-time data updates, improved accessibility and ease of use, and access delegation are all critical facilitators that may help improve PDMP implementation and efficacy (17).

Integrating PDMP access into the EHR may lead to greater efficiency by:

- Reducing the time and effort providers need to access patients' prescription histories.
- Allowing providers to both interact with patients and obtain pertinent information in one step.

Once every quarter, the Michigan Department of Regulation and Licensing sends providers a report of the controlled substances they have prescribed for patients. To assess for ongoing use in patients who have received new opioid prescriptions, consider checking another MAPS report on the patients on your report.

Key Point:
Use PDMPs before and after prescribing opioids.

PREOPERATIVE MEDICATION COUNSELING

As prescribers write for fewer opioids, there may be concern about possible increase in phone calls for refills or inadequate pain management. In fact, single institution studies found that with appropriate patient education, not only did patients consume less medication, but requests for refills did not increase (18). To ensure appropriate pain management, all patients and families should receive preoperative counseling about postoperative pain and how to manage it.

SET CLEAR EXPECTATIONS

Talk about the experience of pain and usual length of recovery with the patient and family in a manner that is age appropriate.

- "Some pain is normal. Your child should be able to walk and do light activity, but may be sore for a few days. This will gradually get better with time."
- "Half of all patients who have this procedure take less than five doses of an opioid medication."

DISCUSS EFFECTIVE ALTERNATIVES

Discuss use of over-the-counter medications.

- "Tylenol® and Motrin® are the first medications we use to manage your child's pain after surgery. By themselves, they are often enough to manage your child's pain."

EXPLAIN SAFER USE

Explain when opioids should be used.

- "These pills are only for management of severe pain from your child's surgery and should not be used to manage pain from other conditions."

TALK ABOUT RISKS

Talk about the possible risks associated with opioids.

- “We are careful about opioids because they have been shown to be addictive, cause harm, and even cause overdose if used incorrectly or abused.”

ADVOCATE FOR DISPOSAL

Let patients know that they should dispose of their medications after acute post-surgical pain has resolved, and how they should do this.

- “Disposing of the opioid prevents accidental overdose or misuse. You can use a drug disposal bag, take pills to an approved collector (including police stations), or mix the medication with kitty litter in a bag and throw it in the trash.”

MICHIGAN MEDICINE PHARMACY COUNSELING EXAMPLE

To help educate families about safe use, storage, and disposal of their opioid medications, pharmacy counseling for opioids was implemented at Michigan Medicine. When families pick up their opioid prescription here, they receive counseling on safe use, storage, and disposal as well as a Deterra® drug disposal bag. The bag allows families to dispose of their opioid medication safely at home after acute postoperative pain has resolved.

C.S. MOTT CHILDREN'S HOSPITAL
UNIVERSITY OF MICHIGAN HEALTH

The prescription received today is an opioid. Please review this sheet to ensure the opioid is given & stored safely.

Medication overview

Medicine name/brand_____

Dose_____

Circle pain type: Mild / Moderate / Severe

Medication Tracking

Side effect review

☐Drowsiness
☐Upset stomach
☐Constipation
☐Other_____

Refer to the info sheet provided by the pharmacist to learn more about the side effects of your medication.

Keep safely

List some places in your home where medicine can be safely stored out of a child's reach.

Toss safely

Scan the QR code to find drug disposal information and resources near you, or visit:
michigan-open.org/takebackmap

I will use these steps to safely administer medication prescribed to _____.
Name of child

I will safely store this medication in _____.
Location in home

I will throw away unused medication when it is no longer needed, using the following safe disposal method: _____.
Method

[Download Example]

CONNECT WITH PRIMARY CARE PROVIDERS FOR BETTER OUTCOMES

While a prescription from a surgeon may be the initial point of opioid exposure for a patient, the relationship a surgeon has with a patient is often episodic and as a result, signs of ongoing use or misuse may not be identified. A primary care provider has a longitudinal relationship with the patient and can be better equipped to identify persistent use, misuse, or onset of substance use disorder. However, primary care providers are often unaware that their patients have received an initial opioid prescription from their surgeon. Providing a primary care provider with information about their patient's operative procedure and the plan for management of acute postoperative pain (especially if that plan includes an opioid prescription) allows for better communication, consistent messaging, and improved patient monitoring after surgery.

Dear PCP,

Today, your patient (insert patient name) underwent (insert surgery name).

Postoperative medications include:

(list all new medications prescribed today)

If the patient was prescribed an opioid, we intend this for short-term use to manage severe breakthrough pain only. We expect the nature of their pain to be time-limited and no further opioid medication to be prescribed. If you have concerns, please contact us.

Sincerely,
Surgeon

The goal of this communication is to let the primary care provider know that their patient had surgery, when it occurred, the plan for pain management, whether an opioid was prescribed and, if so, how much was dispensed, and the expectations in terms of pain duration and plan for refills (if any).

Ideas in terms of sharing this information include using the capability of the electronic medical record to auto-populate a letter or communication to the primary care provider containing this information. If an after-visit summary is created by your electronic medical record, you might forward a copy of this automatically to the primary care provider. Providers could also add standard language to their operative notes containing this information and forward the operating report to the primary care provider.

DOWNLOADABLE RESOURCES

Medication Tracking Log

This log will help you keep track of which medication you've given your child, including the time they've received it and the dose.

Download the log

Non-Pharmacological Pain Management Brochure

Learn how to manage or reduce your child's pain and anxiety without using medication.

- Distraction techniques
- Mindful breathing
- Memory bank exercise

Download the OPEN brochure: English, Spanish, Arabic

Medication Safe Storage & Disposal Brochure

Learn how to safely store and dispose of medications.

Download our stock card: English, Spanish, Arabic

Pain Plan Tool

Making a plan before surgery about how you might address pain can help with recovery and pain management. You should consider both medications as well as non-medication options that have worked well in the past.

Download the tool

Customize

Co-branding our materials with your organization's logo is available upon request and free of charge.

Brochures

We offer to customize the brochures seen throughout this guide with your organization's logo free of charge. OPEN's brochures include all of the legislatively mandated education required when prescribing an opioid.

Visit our website to view and request your free customized brochures.

LEARN MORE

Helpful Resources

- How opioids specifically affect teenagers: National Institute on Drug Abuse
- About opioids and their risks: Centers for Disease Control and Prevention
- How to talk to your child about surgery: Children's Hospital at Dartmouth-Hitchcock
- Three- to five-minute videos from the Pediatric Trauma Group at C.S. Mott Children's Hospital on medication safety and non-medication options for pain management in five- to eight-year-olds and eight- to 12-year-olds.
- A website created by the Pediatric Trauma Group at C.S. Mott Children's Hospital focused on medication safety.

Additional Information

- National Institute on Drug Abuse (NIDA)
- Centers for Disease Control and Prevention (CDC)
- Children's Safety Network
- US Food and Drug Administration (FDA)
- Substance Abuse and Mental Health Services Administration (SAMHSA)
- National Institutes of Health (NIH)
- US Drug Enforcement Administration (DEA)

ACKNOWLEDGMENTS

AUTHORS AND CONTRIBUTORS

OPEN
Prevention. Treatment. Recovery.

www.michigan-open.org

OPEN

At OPEN (Overdose Prevention Engagement Network), we work with physicians, public health experts, policymakers, and payers to positively impact the opioid epidemic through improved prescribing and pain management. OPEN aims to prevent opioid-related harms throughout the state and beyond through data-driven research, evidence-based pain management recommendations, development of education and resources for patients and providers, and community engagement. Visit michiganopen.org for the most up to date recommendations, educational materials, and resources.

C.S. MOTT CHILDREN'S HOSPITAL
UNIVERSITY OF MICHIGAN HEALTH

www.mottchildren.org

PEDIATRIC TRAUMA
University of Michigan Health
C.S. Mott Children's Hospital Pediatric Surgery
ACS Verified Level 1 Pediatric Trauma Center

www.pediatric-trauma.med.umich.edu

University of Michigan Health C.S. Mott Children's Hospital

The University of Michigan Health C.S. Mott Children's Hospital, a Level 1 Pediatric Trauma Center, cares for the most seriously injured children. Our work involves educating children and adults, advocating for effective laws, providing reduced cost safety products to low-income families, conducting research, and creating safe environments. In addition, we provide a wide range of educational injury prevention programs and outreach events for children, parents, and community members, such as car seat installation tutorials and infant safety classes

---

MICHIGAN HEALTH ENDOWMENT FUND

www.mihealthfund.org

Funding

This project was funded by the Michigan Health Endowment Fund (MHEF). The views and opinions contained in the publication do not necessarily reflect those of MHEF and should not be construed as such.

REFERENCES

1. Groenewald, C. B., Rabbitts, J. A., Gebert, J. T., & Palermo, T. M. (2016). Trends in opioid prescriptions among children and adolescents in the United States. Pain, 157(5), 1021–1027. https://doi.org/10.1097/j.pain.0000000000000475
2. Jones, C. M., Einstein, E. B., & Compton, W. M. (2018). Changes in synthetic opioid involvement in drug overdose deaths in the United States, 2010-2016. JAMA, 319(17), 1819. https://doi.org/10.1001/jama.2018.2844
3. Seth, P., Scholl, L., Rudd, R. A., & Bacon, S. (2018). Overdose deaths involving opioids, cocaine, and psychostimulants — United States, 2015–2016. MMWR. Morbidity and Mortality Weekly Report, 67(12), 349–358. https://doi.org/10.15585/mmwr.mm6712a1
4. Spencer MR, Garnett MF, Miniño AM. Drug overdose deaths in the United States, 2002–2022. NCHS Data Brief, no 491. Hyattsville, MD: National Center for Health Statistics. 2024. DOI: https://dx.doi.org/10.15620/cdc:135849
5. Gomes, T., Tadrous, M., Mamdani, M. M., Paterson, J. M., & Juurlink, D. N. (2018). The burden of opioid-related mortality in the United States. JAMA Network Open, 1(2). https://doi.org/10.1001/jamanetworkopen.2018.0217
6. Harbaugh, C. M., Lee, J. S., Hu, H. M., McCabe, S. E., Voepel-Lewis, T., Englesbe, M. J., Brummett, C. M., & Waljee, J. F. (2018). Persistent opioid use among pediatric patients after surgery. Pediatrics, 141(1). https://doi.org/10.1542/peds.2017-2439
7. Chua, K.-P., Brummett, C. M., Conti, R. M., & Bohnert, A. S. (2021). Opioid prescribing to us children and Young Adults in 2019. Pediatrics, 148(3). https://doi.org/10.1542/peds.2021-051539
8. Lauren E. Kelly, Doron D. Sommer, Jayant Ramakrishna, Stephanie Hoffbauer, Sadaf Arbab-tafti, Diane Reid, Jonathan Maclean, Gideon Koren; Morphine or Ibuprofen for Post-Tonsillectomy Analgesia: A Randomized Trial. Pediatrics February 2015; 135 (2): 307–313. https://doi.org/10.1542/peds.2014-1906
9. Harbaugh CM, Vargas G, Streur CS, et al. Eliminating Unnecessary Opioid Exposure After Common Children's Surgeries. JAMA Surg. 2019;154(12):1154–1155. doi:10.1001/jamasurg.2019.2529
10. Hannam, J., & Anderson, B. J. (2011). Explaining the acetaminophen–ibuprofen analgesic interaction using a response surface model. Pediatric Anesthesia, 21(12), 1234–1240. https://doi.org/10.1111/j.1460-9592.2011.03644.x
11. Gurnani, M., Birken, C., & Hamilton, J. (2015). Childhood Obesity: Causes, Consequences, and Management. Pediatric Clinics of North America, 62(4), 821–840. https://doi.org/10.1016/j.pcl.2015.04.001
12. Unpublished institutional data. Publication will be provided.

REFERENCES

13. Opioid Commission releases acute pain prescribing recommendations for Health Professionals. OPEN. (n.d.). Retrieved March 18, 2022, from https://michigan-open.org/opioid-commission-releases-acute-pain-prescribing-recommendations-for-healthprofessionals/
14. Substance Abuse and Mental Health Services Administration. (2017). Prescription Drug Monitoring Programs: A Guide for Healthcare Providers. In Brief, 10(1). https://store.samhsa.gov/sites/default/files/d7/priv/sma16-4997.pdf
15. Issues at a Glance: Prescription Drug Monitoring Programs (PDMP). American Association of Nurse Practitioners. Accessed June 27, 2024. https://www.aanp.org/advocacy/advocacy-resource/policy-briefs/issues-at-a-glance-prescription-drug-monitoring-programs-pdmp
16. Interstate PDMP access and data sharing alignment. PDMP Assist. (2021, January). Retrieved March 18, 2022, from https://www.pdmpassist.org/pdf/resources/Interstate_PDMP_Access_and_Data_Sharing_Alignment_20210125.pdf
17. Strickler, G. K., Zhang, K., Halpin, J. F., Bohnert, A. S. B., Baldwin, G. T., & Kreiner, P. W. (2019). Effects of mandatory prescription drug monitoring program (PDMP) use laws on prescriber registration and use and on risky prescribing. Drug and Alcohol Dependence, 199, 1–9. https://doi.org/10.1016/j.drugalcdep.2019.02.010
18. Patient counseling. OPEN. (n.d.). Retrieved March 18, 2022, from https://michigan-open.org/patient-counseling/
19. Deterra System User. (2022, February 21). Safe at-home medication disposal: Deterra Drug Disposal System. Deterra System. Retrieved March 18, 2022, from https://deterrasystem.com/
20. Seal&Send Consumer Medication Mail Back. Stericycle. (n.d.). Retrieved March 18, 2022, from https://www.stericycle.com/en-us/solutions/specialty-services/seal-send-medication-in-home-medication-return
21. Drug Disposal. https://www.michigan.gov/egle/about/organization/materials-management/hazardous-waste/drug-disposal
22. FDA. (n.d.). Drug disposal: Drug take back locations. U.S. Food and Drug Administration. Retrieved March 18, 2022, from https://www.fda.gov/drugs/disposal-unused-medicines-what-you-should-know/drug-disposal-drug-take-back-locations
23. Research C for DE and. Drug Disposal: FDA's Flush List for Certain Medicines. FDA. Published online October 1, 2020. https://www.fda.gov/drugs/disposal-unused-medicines-what-you-should-know/drug-disposal-fdas-flush-list-certain-medicines.
24. Environmental Protection Agency. (n.d.). Frequent Questions about the Management Standards for Hazardous Waste Pharmaceuticals and Amendment to the P075 Listing for Nicotine Final Rule. EPA. Retrieved March 18, 2022, from https://www.epa.gov/hwgenerators/frequent-questions-about-management-standards-hazardous-waste-pharmaceuticals-and

QUESTIONS? CONTACT US.

OPEN
Prevention. Treatment. Recovery.

open-support@med.umich.edu

www.michigan-open.org

https://doi.org/10.56137/OPEN.000080