

WebM&M

Morbidity and Mortality Rounds on the Web

Spotlight

Lost in Transitions of Care: Managing an Opioid-Dependent Patient with Frequent Hospitalizations



Agency for Healthcare Research and Quality
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Source and Credits

- This presentation is based on the September 2021 AHRQ WebM&M Spotlight Case
 - See the full article at <https://psnet.ahrq.gov/webmm>
 - CME credit is available
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Objectives

At the conclusion of this educational activity, participants should be able to:

- Identify approaches to facilitate effective communication regarding pain management in transitions of care
- Recognize limitations of prescription drug monitoring programs (PDMPs)
- Recognize differences in how oral morphine milligram-equivalents (OME) are calculated and appropriately calculate OME, including specific issues with calculating OME for methadone
- Avoid common pitfalls in opioid management for opioid-dependent patients with chronic non-cancer pain

LOST IN TRANSITIONS OF CARE: MANAGING AN OPIOID-DEPENDENT PATIENT WITH FREQUENT HOSPITALIZATIONS

A case describing how multiple ED encounters and long hospitalizations for a patient with sickle cell crisis led to suboptimal transitions of care and opioid prescribing challenges

Case Details

- Important Notes:
 - *Oral morphine milligram-equivalents (OME) in this case are calculated using the institutions' opioid equianalgesic doses.*
 - *Tables reflect what the pharmacist and prescriber(s) saw, or would have seen, in the prescription drug monitoring program (PDMP) at key transition times. For each controlled substance prescription, the PDMP shows the date filled, the drug name and formulation, the quantity dispensed, and the number of days that quantity would be expected to last according to the instructions given. All dates have been altered but reflect the actual duration between fill dates.*

Case Details

- A middle-aged Black woman presented to the Emergency Department (ED) with sickle cell crisis and a history of multiple, long admissions related to her sickle cell disease, including avascular necrosis of the hip.
 - In the previous 365 days, she had spent 199 days hospitalized (54% of the year) at one hospital.
 - During these prior hospitalizations, her long-acting opioid requirements ranged from **120 to 300 OME**.

Case Details (Encounter 1)

- After a several-months-long hospitalization approximately one year ago, the patient was discharged to a skilled nursing facility (SNF) for post-acute care.
 - Discharged on long-acting oral morphine sulfate extended release (ER) 120 mg twice daily (**240 OME**).
- She was released from the SNF after about one month, but on follow-up with her primary care physician about two weeks later, there was uncertainty about her opioid dosing, apparently because of incomplete records from her multiple sites of care.
- For unclear reasons, the physician did not access the state's prescription drug monitoring program (PDMP) but instead referred her to clinical pharmacy for medication support.
- After this consultation, the patient was started on transdermal extended-release buprenorphine 5 mcg/hour (possibly **~11-63 OME**).

Case Details (Encounter 1)

Table 1. Patient's PDMP entries through SNF stay and subsequent outpatient visits

| Date Filled | Drug Name | Strength | Quantity | Days Supply | Pharmacy |
|-------------|---------------------|----------|----------|-------------|------------|
| Jan 1 | Morphine Sulfate ER | 60 mg | 12 | 3 | SNF |
| Jan 1 | Oxycodone | 15 mg | 26 | 7 | SNF |
| Jan 2 | Morphine Sulfate ER | 60 mg | 60 | 15 | SNF |
| Jan 9 | Tramadol | 50 mg | 120 | 20 | SNF |
| Jan 13 | Morphine Sulfate ER | 60 mg | 60 | 15 | SNF |
| Jan 15 | Tramadol | 50 mg | 84 | 14 | SNF |
| Feb 22 | Butrans patch | 5 mcg/hr | 4 | 28 | Pharmacy A |

Case Details (Encounter 2)

- Shortly after the primary care visit, the patient was readmitted for about two weeks with increased pain.
 - She received oxycodone at **180-240 OME** during this hospital stay and was discharged with instructions to take oxycodone 40 mg ER three times daily (**180 OME**), according to the discharge summary.
 - However, her actual discharge prescription, which was not mentioned on the discharge summary, was for oxycodone/acetaminophen 5/325 mg 1-2 tablets by mouth every 4 hours as needed (**45-90 OME**), as oxycodone ER needed prior authorization and was not covered by her insurance.
 - Ultimately, the oxycodone ER prescription was never filled.

Case Details (Encounter 3)

- Several weeks later, the patient was readmitted to the hospital for increasing pain and was restarted on her previous inpatient regimen with oxycodone ER at 40 mg three times daily (**180 OME**).
 - Within several days after admission, her pain was improved, but the pain pharmacy consultant noted that her self-reported home usage was only “**possibly 23 OME**,” and as a result, they recommended tapering oxycodone by 50% every 3 days.
 - The patient's pain worsened within several days, and therefore her oxycodone ER was titrated back up to 40 mg three times daily (**180 OME**), but continuing severe pain led to further up-titration to 60 mg three times daily (**270 OME**).

Case Details (Encounter 3)

- Her 2-month hospital stay was complicated by severe hip pain due to avascular necrosis, which eventually required total hip arthroplasty.
- After routine postoperative recovery, she was discharged on oxycodone ER 80 mg three times daily (**360 OME**); but because this medication was still not covered by her insurance plan, the care team requested the hospital to cover a 30-day supply to avoid delaying discharge, as shown in the PDMP below:

| Date Filled | Drug Name | Strength | Quantity | Days Supply | Pharmacy |
|-------------|--------------|----------|----------|-------------|------------|
| Jun 17 | Oxycodone | 30 mg | 30 | 5 | Pharmacy B |
| Jun 17 | Oxycontin ER | 80 mg | 90 | 30 | Pharmacy B |

Case Details (Encounter 4)

- Four weeks later during follow-up with the primary care physician, the patient was put back on long-acting oral morphine sulfate ER at 90 mg three times daily (**270 OME**, in addition to short-acting oxycodone/acetaminophen at **90 OME**) with plans to taper the dose.
- Prescriptions were sent to her pharmacy for a 7-day supply for 30 mg and 60 mg tablets of morphine sulfate ER with instructions to take one of each, for a total of 90 mg, three times daily.
 - The outpatient pharmacy insisted on clarification of these instructions, so only 30 mg tablets were initially dispensed.
- Five days later, the 60 mg tablet prescription was filled. In the meantime, the patient's opioid dose gap was “covered” with oxycodone/acetaminophen.

Case Details (Encounter 4)

Table 3. New Additions to PDMP since Encounter 3 and After Follow-up from Encounter 4

| Date Filled | Drug Name | Strength | Quantity | Days Supply | Pharmacy |
|-------------|-------------------------|--------------|----------|-------------|------------|
| Jul 5 | Oxycodone-Acetaminophen | 10 mg-325 mg | 42 | 7 | Pharmacy A |
| Jul 13 | Oxycodone-Acetaminophen | 10 mg-325 mg | 42 | 7 | Pharmacy A |
| Jul 17 | Morphine Sulfate ER | 30 mg | 21 | 7 | Pharmacy A |
| Jul 21 | Oxycodone-Acetaminophen | 10 mg-325 mg | 28 | 7 | Pharmacy A |
| Jul 22 | Morphine Sulfate ER | 60 mg | 21 | 7 | Pharmacy A |

Case Details (Encounter 5)

- About 1.5 weeks after the last morphine sulfate ER fill noted in the previous table, the patient was readmitted for abdominal pain secondary to sickle cell pain crisis.
 - She was started on morphine sulfate ER 60 mg twice daily (**120 OME**) but required up-titration to 120 mg twice daily (**240 OME**).
 - The Pain pharmacy consultant recommended conversion to methadone, so she was discharged with a prescription for methadone 10 mg tablets and directions to take three-quarters of a tablet three times daily (roughly **113-180 OME**).
 - The outpatient pharmacy wanted clarification of the prescription, but had difficulties reaching the care team, so the prescription was never filled.
 - Several days later, the pharmacy received a facsimile request to deactivate the prescription; therefore, the patient never received methadone.

Case Details (Encounter 6)

- Two weeks later, the patient was re-admitted with worsening pain. She was placed on morphine sulfate ER 60 mg twice daily (**120 OME**).
 - Medication reconciliation by a pharmacy technician documented the delayed fill of morphine sulfate ER 60 mg three times daily on July 22 (**180 OME**) but missed the fact that her total dose was **270 OME**.
- On discharge, the patient was instructed to continue morphine sulfate ER 60 mg three times daily, but she was only prescribed immediate-release oxycodone for 3 days at **180 OME**.
- They failed to notice in the PDMP that her most recently filled long-acting opioid prescription was for morphine sulfate ER 90 mg three times daily (7-day supply) 2 months prior (see Table 3).
- Three weeks later, the patient was re-admitted for worsening pain.

Case Details (Encounter 6)

Table 4. New Additions to PDMP since Encounter 4 and Prior to Discharge from Encounter 6

| Date Filled | Drug Name | Strength | Quantity | Days Supply | Pharmacy |
|-------------|-------------------------|--------------|----------|-------------|------------|
| Jul 31 | Oxycodone-Acetaminophen | 10 mg-325 mg | 56 | 14 | Pharmacy A |
| Sep 28 | Oxycodone | 15 mg | 30 | 5 | Pharmacy B |

LOST IN TRANSITIONS OF CARE: MANAGING AN OPIOID-DEPENDENT PATIENT WITH FREQUENT HOSPITALIZATIONS

THE COMMENTARY

By Florence Tan, PharmD, Karnjit Johl, MD, and Mariya
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Overview (1)

- Evidence is limited and best practices are still evolving about how to use opioids safely and effectively in treating chronic noncancer pain, such as the pain associated with sickle cell disease.
- In 2016, the CDC released guidelines for prescribing opioids for chronic pain patients in primary care settings. These guidelines encouraged providers to “prescribe the lowest effective dosage” and recommended that they “avoid increasing opioid doses to ≥ 90 ” OME or “carefully justify a decision (to do so) based on individualized assessment of benefits and risks.”
 - However, concerns that these guidelines were being interpreted too strictly, leading to acute withdrawal symptoms, serious psychological distress, and even opioid-seeking from illicit sources, led to subsequent publication of guidance to “avoid insisting on opioid tapering or discontinuation when opioid use may be warranted,” and to “avoid misinterpreting cautionary dosage thresholds as mandates for dose reduction.”²
 - Also in 2019, the Food and Drug Administration warned of “serious harm in patients who are physically dependent on opioid pain medicines suddenly having these medicines discontinued or the dose rapidly decreased... (including) serious withdrawal symptoms, uncontrolled pain, psychological distress, and suicide.”³

Overview (2)

- For patients with sickle cell disease, the CDC guidelines refer readers to the NHLBI's "Evidence-based Management of Sickle Cell Disease" (2014) which recommends using long- and short-acting opioids for chronic pain unrelieved by non-opioid therapy.
- American Society of Hematology's 2020 guidelines for treating sickle cell disease state that long-term opioid therapy should be considered for pain not managed by non-opioid and non-pharmacological modalities.
- Neither report offers specific dosing guidance but both recommend individualizing therapy based on risks and functional outcomes. Both sets of guidelines allude to the necessity for further research on using long-term opioids for managing chronic pain in patients with sickle cell disease, given uncertainty about the risk of overdose and opioid tolerance.

Overview (3)

- Patients with chronic pain who are taking opioid analgesics daily are often presumed to be opioid tolerant, and therefore at lower risk of overdose, than patients with intermittent acute pain. The FDA defines a patient as *opioid tolerant* if, for at least 1 week, he or she has been receiving
 - Oral morphine 60 mg/day or more;
 - Oral oxycodone 30 mg/day or more;
 - Oral hydromorphone 8 mg/day or more;
 - Transdermal fentanyl 25 mcg/hour or more; or
 - Equianalgesic dose of any other opioid.
- However, when patients are using high-dose opioids for frequent but severe exacerbations of acute pain, classic definitions of opioid tolerance may be of limited value.

Overview (4)

- When patients with chronic conditions seek pain relief in multiple different care settings, transitions of care must be carefully managed.
- Safe transitions across settings are facilitated by medication reconciliation.

Overview (5)

- According to the Joint Commission, medication reconciliation should be done at every transition of care. This process is comprised of five steps:
 1. Develop a list of current medications
 2. Develop a list of medications to be prescribed
 3. Compare the medications on the two lists
 4. Make clinical decisions based on the comparison
 5. Communicate the new list to appropriate caregivers and to the patient

Overview (6)

- This case demonstrates the difficulties associated with multiple transitions of care for patients with chronic conditions involving severe pain, such as sickle cell disease, and the importance of adhering to medication reconciliation guidelines.
 - Highlights the need for multiple safeguards to protect patients from errors in the medication reconciliation process, especially when opioid tolerance and/or dependence exist.
 - As healthcare systems strive to improve outcomes and safety, it is important to focus on the needs of vulnerable patients with challenges that fall outside traditional treatment paradigms.

Approaches to Improving Safety

Approaches to Improving Safety

- Various tools and strategies for improving care and safety for opioid-dependent patients with chronic pain:
 - Access Prescription Drug Monitoring Programs (PDMPs)
 - Ensure feasible dosing
 - Address insurance/refill barriers
 - Clear communication across providers and settings
 - Use OME conversions intelligently
 - Use caution with methadone and buprenorphine
 - Other best practices

Prescription Drug Monitoring Programs (PDMPs)

PDMPs (1)

- A Prescription Drug Monitoring Program is an electronic database to track outpatient, controlled substance prescription dispenses (C-II through C-V).
 - While a great resource for confirming a patient's outpatient opioid regimen upon admission to a hospital, PDMPs should not be relied upon as a complete history of all the controlled substances a patient has been prescribed or received.
 - PDMPs do not reflect opioid usage while hospitalized, so these databases may not be as useful when treating patients with frequent hospitalizations.
 - The data in PDMPs are state-specific and various settings/organizations in addition to hospitals, such as the Veteran's Health Administration (VA) and opioid treatment programs, are not required to report.
 - In this case, the patient's multiple, long hospitalizations resulted in a PDMP record that lacked long-acting opioid fills, **making the patient appear opioid-naïve when she was actually tolerant of high opioid doses.**

PDMPs (2)

- One of the benefits of PDMPs is that they help prescribers to identify high-risk or unsafe patterns of controlled substance dispensing.
 - For example, opioid prescriptions from multiple prescribers and multiple pharmacies may suggest "doctor-shopping" or "pharmacy-shopping" to obtain higher doses at shorter intervals than any single prescriber would recommend.
 - Multiple refills for 5-14 days at a time, as seen with this case, suggest that prescriber(s) may not trust the patient or their home situation, but also increase the risk of opioid withdrawal and adversely affect the physician-patient relationship.

Ensure Feasible Dosing

Feasible Dosing

- Tablet size should be considered when prescribing medications for outpatients.
- For many patients, cutting tablets is a significant inconvenience and even a barrier to use as prescribed.
 - When tablets are scored to enable cutting, they are usually only scored across the middle.
 - Prescribing three-quarters of a tablet, which would be nearly impossible for anyone to cut accurately, should be avoided.
 - In this case, the prescription instructions to take three-quarters of a methadone tablet likely contributed to delay in filling the prescription, as the pharmacist may have sought to have the prescription rewritten to a more feasible dose (e.g., one and a half 5 mg tablets). Prescriber order entry systems with clinical decision support should suggest alternatives that do not involve cutting tablets into portions other than halves.

Address Insurance/Refill Barriers

Insurance/Refill Barriers (1)

- Medication access in outpatient settings may be impacted by various insurance barriers such as requirements for prior authorization (PA) or trial of another medication prior to filling the requested prescription (step therapy).
 - Insurance websites often have accessible prescription drug lists that outline the medications covered, quantity or dose limits, and requirements for prescribing medications that are not usually covered.
 - A telephone call from the prescribing clinician to the outpatient pharmacy before hospital discharge, to ensure that prescribed medications are covered by the patient's insurance, can prevent delays in medication access.
 - In many cases, issues can be resolved by changing from one opioid to another. In this case, the patient's insurance preferred morphine sulfate ER over oxycodone ER, but prescribers repeatedly prescribed the latter medication instead.

Insurance/Refill Barriers (2)

- Care teams should ensure their patients have enough supply of medication if the plan is to have them continue the medication(s) after discharge.
- With the current push to de-prescribe opioids, prescribers might be hesitant to refill opioid prescriptions.
 - Hospital-based providers may prefer to defer refilling long-acting opioids to the patient's usual outpatient provider, who may have a longer therapeutic relationship with the patient.
- However, if the treatment plan is for the patient to continue taking a long-acting opioid after discharge, and the PDMP indicates the patient does not have an adequate supply, failure to offer refills leads to underdosing and increases the risk of readmission and opioid withdrawal.

Clear Communication across Providers and Settings

Clear Communication (1)

- Lack of communication in transitions of care from inpatient to outpatient led to delays in filling prescriptions and serious gaps in access to medications for the patient in this case.
 - In response to the opioid epidemic, pharmacists may request clarifications to ensure medication safety and appropriateness. Although delaying fills while awaiting clarification is within the scope of pharmacist practice, it can adversely affect patient care and possibly result in opioid withdrawal.
 - The challenge of contacting an authorizing provider in a large academic institution, for example, may lead a pharmacist to refuse to fill a prescription if no provider calls back.
 - In this case, dispensing a lower dose of the prescribed medication while awaiting clarification would have been safer than holding the prescription without action.

Clear Communication (2)

- Other factors contributed to communication breakdowns in this case.
 - Multiple changes to the patient's long-acting medication regimen led to confusion about dose equivalence, due to differences in OME calculations (explained below).
 - The long-acting opioid prescription had never been successfully approved and filled, which made the patient appear relatively opioid-naive in the PDMP.

Use Oral Morphine Milligram-Equivalents (OME) Conversions Intelligently

Utilizing OME (1)

- To switch from one opioid to another with the goal of reducing pain and improving function (also known as opioid rotation), providers set up dimensional analysis calculations or ratio proportions using equianalgesic dose tables.
 - However, equianalgesic ratios are not intended for use in converting patients between different opioids and are not fixed—some of the data used to create them came from studies of opioid-naïve patients with acute pain, while other data came from patients with cancer pain.
 - For example, the morphine-to-oxycodone equianalgesic ratio ranges from 1:1 to 1.5:1 to 2:1 based on a recent literature review, but some large academic health systems use a morphine:oxycodone equianalgesic ratio of 30:20 or 25:20.

Utilizing OME (2)

- The CDC has published conversion factors for calculating morphine milligram-equivalents (MME), but this approach is not designed to be used to convert patients from one opioid to another, but rather to identify patients who may benefit from closer monitoring, dose reduction, or prescribing of naloxone to reduce overdose risk.
- Furthermore, the CDC has stated that its opioid guidelines are “intended for primary care physicians treating chronic pain for patients 18 and older” and should not be applied to patients in active cancer treatment, patient experiencing acute sickle cell crisis, or patients with post-surgical pain.

Utilizing OME (3)

Sample equianalgesic table from an opioid calculations textbook, based on the best available evidence and widely used data:

| Drug | Parenteral Dose (mg) | Oral Dose (mg) |
|---------------|----------------------|----------------|
| Morphine | 10 | 25 |
| Codeine | 100 | 200 |
| Fentanyl | 0.15 | NA |
| Hydrocodone | NA | 25 |
| Hydromorphone | 2 | 5 |
| Meperidine | 100 | 300 |
| Oxycodone | -* | 20 |
| Tapentadol | NA | 100 |
| Tramadol | -* | 120 |

*Not available in the US

Taken from: McPherson ML. *Demystifying Opioid Conversion Calculations*. Bethesda, MD: American Society of Health-System; 2019

Utilizing OME: Equianalgesic Calculations (4)

Here is an example of dimensional analysis using an Equianalgesic Table. In this example, a provider wants to switch a patient from Opioid A to Opioid B:

$$\text{XX mg TDD Opioid A} \times \frac{(\text{Opioid B Equianalgesic Dose})}{(\text{Opioid A Equianalgesic Dose})} = \text{XX mg TDD Opioid B}$$

Once the conversion is carried out, clinicians may want to reduce the newly calculated dose by 25 to 50% to account for incomplete cross-tolerance. This is because patients may develop tolerance to opioid A after continued and repeated dosing. Not accounting for incomplete cross tolerance may increase risks for adverse effects.

Utilizing OME: Equianalgesic Calculations (5)

Using the equianalgesic table (slide 39), here is how a provider would convert a patient's medication from oxycodone 40 mg orally every 6 hours to oral hydromorphone:

Step 1: Calculate Total Daily Dose (TDD)

40 mg every 6 hours (4 doses/24 hours) = 160 mg/day oral oxycodone

Step 2: Use equianalgesic table conversion

160 mg oral oxycodone x $\frac{5 \text{ mg oral hydromorphone equianalgesic dose}}{20 \text{ mg oral oxycodone equianalgesic dose}}$ = 40 mg/day oral hydromorphone

Utilizing OME: Equianalgesic Calculations (6)

Step 3: Account for cross-tolerance by reducing the TDD by 25%; this step is not always required but should be carried out on a case-by-case basis, as needed:

$$40 \text{ mg/day oral hydromorphone} \times \frac{75}{100} = 30 \text{ mg/day oral hydromorphone}$$

Step 4: Divide doses equally throughout the day based on half-life and duration. Since hydromorphone has a half-life of 2-3 hours and a duration of 3-4 hours, the provider should prescribe a dose every 4 hours.

$$30 \text{ mg hydromorphone daily} \div 6 \text{ doses per 24 hours} = 5 \text{ mg every 4 hours}$$

Step 5: Consider dosage feasibility (if applicable). Oral hydromorphone tablets are available in 2 mg, 4 mg, and 8 mg amounts. A dose of 5 mg every 4 hours would require a patient to cut tablets in half. For patient convenience, adjust to 4 mg or 6 mg every 4 hours.

Utilizing OME (7)

- Given variation in opioid equianalgesic dose tables, and the lack of evidence supporting use of these tables in converting between different opioid analgesics among patients with acute severe pain due to sickle cell disease or active cancer, it is easy to miscalculate or err in other ways when converting from one opioid to another.
- In this case, the patient's long-acting opioids were changed multiple times over relatively short periods of time, which created many opportunities to introduce errors or variability in OME calculation.

Use Caution with Methadone and Buprenorphine

Methadone and Buprenorphine (1)

- In some cases, it is appropriate to treat patients with methadone for chronic pain.
 - The value of methadone comes not just from its mu-, kappa-, and delta-opioid receptor agonist effects, but also through NMDA receptor antagonism, which is believed to prevent central sensitization and reduction of opioid tolerance, while providing neuropathic benefit as well.
 - Methadone may be an appropriate agent for chronic pain patients who have not achieved adequate pain control on other opioid regimens and require a long-acting agent.
 - A previous [PSNet Spotlight Case](#) highlighted the dangers of methadone in combination with other opioids.

Methadone and Buprenorphine (2)

- Methadone differs from other opioids in several important ways that have implications for patient safety:
 - Interpatient variability in the drug's absorption, metabolism, and relative analgesic potency necessitates a highly individualized approach to prescribing.
 - Incomplete cross-tolerance between methadone and other opioids makes dosing during opioid conversion complex.
 - While methadone's duration of analgesic action for single doses (4-8 hours) approximates that of morphine, the drug's half-life is substantially longer than that of morphine (8-59 hours vs. 1-5 hours).

Methadone and Buprenorphine (3)

- With chronic use, methadone may be retained in the liver and then slowly released, prolonging the duration of action despite low plasma concentrations.
- Due to the long and variable half-life, full analgesic effects may not be attained until after 5-7 days of use; thus, the drug must be titrated slowly.
- Methadone's peak respiratory depressant effects typically occur later, and persist longer, than its peak analgesic effects.
- If methadone is not taken for 3 consecutive days, the patient may lose tolerance to methadone and be at-risk for an overdose if the usual dose is taken.

Methadone and Buprenorphine (4)

- Before initiating methadone, prescribers should:
 - Consider whether patient adherence is anticipated.
 - Obtain a baseline electrocardiogram (ECG) to ensure that the QTc interval is not prolonged at baseline.
 - Ensure that no drug-drug interactions are present.
 - Obtain baseline liver function tests.

Methadone and Buprenorphine (5)

- Conversion from other opioid analgesics to methadone is variable and not linear (i.e., the higher the total daily dose (TDD) of short-acting opioids, the lower the amount of methadone that is needed to achieve an equianalgesic effect).
 - Therefore, the equianalgesic ratio of OME : methadone may range from 3:1 to >20:1.

| Total Daily Baseline Oral Morphine Equivalent dose | Estimated Daily Oral Methadone Requirement as Percent of Total Daily Morphine Equivalent Dose |
|--|---|
| <100 mg | 20 – 30% |
| 100 – 300 mg | 10 – 20% |
| 301 – 600 mg | 8 – 12 % |
| 601 – 1000 mg | 5 – 10 % |
| >1000 mg | < 5 % |

Source: Eli Lilly and Company. Dolophine (methadone hydrochloride) [package insert]. U.S. Food and Drug Administration website. https://www.accessdata.fda.gov/drugsatfda_docs/label/2018/006134s045lbl.pdf.

Methadone and Buprenorphine (6)

- Buprenorphine is a complex medication to use for managing chronic pain. It comes in various formulations—sublingual (SL), buccal, transdermal (TD) patch, and extended-release injection.
- There is no inter-buprenorphine equianalgesic conversion ratio or guidance for healthcare providers.
 - In 2016, the CDC provided conversion factors for converting buprenorphine to oral morphine, but this information was removed in September 2017.
 - Although there is no widely accepted conversion factor from buprenorphine to OME, the package insert offers recommendations for starting buprenorphine doses based on current OME.
 - The 5 mcg/hr patch is the initial buprenorphine dose for patients who are opioid-naïve or taking less than 30 OME. The patch is not recommended for patients on more than 80 OME per day. The maximum FDA-approved dose is 20 mcg/hour as higher doses may increase risk for QTc prolongation.

Best Practices

Best Practices to Improve Safety (1)

Several factors contributed to sub-optimal transitions of care in this case:

- Pharmacists had difficulty reaching the prescribing providers for necessary clarifications of high-dose prescriptions and infeasible instructions that required cutting tablets into three-quarters.
- Multiple changes to the patient's long-acting opioid regimen led to confusion about dose equivalence due to the differences in OME calculations.
 - Although equianalgesic tables are an appropriate starting point, best practices include an automatic reduction for safety as well as additional dose adjustments based on patient-specific characteristics, followed by dose titration as necessary.
 - Conversions to methadone or buprenorphine are best implemented by an experienced clinician.

Best Practices to Improve Safety (2)

- The fact that a long-acting opioid prescription had never been approved and filled, in tandem with prolonged periods of time hospitalized, made the patient appear relatively opioid-naïve in the PDMP.
 - Use the PDMP prior to any prescribing for controlled substances, aware of its limitations.
 - Try to maintain patients in continuous care with their controlled substance prescriber.
 - For patients with high total opioid dosages, collaborate with other providers and engage the patient in shared decision-making to taper opioids and/or consider offering naloxone, based on the patient's goals, needs, and risks.

Best Practices to Improve Safety (3)

- Failure to ensure that prescribed medications were covered by the patient's insurance led to gaps in medication access, which in turn led to return visits to the ED.
 - A bedside medication discharge delivery service can improve patient access and understanding of discharge medications, which has also been shown to reduce 30-day hospital readmissions.
 - Communication interventions at discharge can improve adherence, which is an independent factor associated with reduced readmission rates.

Best Practices to Improve Safety (4)

- Pharmacy technicians who performed medication reconciliation failed to recognize that lengthy hospitalizations can obscure the actual opioid doses that chronically ill patients are receiving.
 - Pharmacy technicians should receive didactic and/or simulation training, and performance-based competency assessment.
- Failure to prescribe enough refills of long-acting opioids when the PDMP showed that the patient would not have enough supply contributed to medication access gaps and put the patient at risk for opioid withdrawal.

TAKE HOME POINTS

Take-Home Points (1)

- Use caution when using PDMP data, especially for patients with long and frequent hospitalizations, patients who may receive prescriptions in a different state or within the VA system, or in opioid treatment programs, as the PDMP will not accurately reflect their overall opioid usage.
- Use caution when calculating or evaluating OME or opioid dose conversions as there is variability in equianalgesic tables amongst institutions due to lack of standardization.
- Use caution when using CDC's OME ratios in settings outside their intended use, which was for identifying high-risk prescribing patterns among outpatients. These ratios are not intended for use in converting from one opioid to another.
- Ensure the patient has adequate supply of long-acting opioids by not only assessing the last fill date and the length of hospitalization, but also by asking the patient.

Take-Home Points (2)

- With the push to de-prescribe opioids, many providers try to limit opioid doses or quantities, or defer to the patient's primary care provider to refill opioid prescription. These practices may lead to underdosing and increase the risk of readmission and opioid withdrawal.
- Consider available dosages when prescribing tablets and select those that support patient adherence; avoid instructions that require patients to cut tablets into quarters.
- Ensure medication reconciliation is done thoroughly at every encounter. Medication reconciliation should involve querying all available sources, including medical records, pharmacy records, PDMP data (if applicable), and patients and caregivers.

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