Morphine Equivalent Dosing

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Morphine equivalent dosing (MED) determines a patient's cumulative intake of any drugs in the opioid class over 24 hours in an effort to help reduce the likelihood of overdose. The primary side effect of opioid overdose is respiratory depression, which frequently leads to serious complications or death. No one wants that.

Healthcare professionals can play an important role in averting opiod overutilization or overdose by paying attention to and understanding morphine equivalent dosing, and at times, "pressing pause" to allow for further evaluation. Tracking daily MED totals can help you:

- Minimize the potential for prescription drug abuse/misuse
- Reduce the number of unintentional overdose deaths associated with pain medications

100 mg morphine-equivalent dose *equals* …

hydrocodone
100 mg

hydromorphone
25 mg

oxycodone
65 mg

fentanyl (mcg/hr)
37
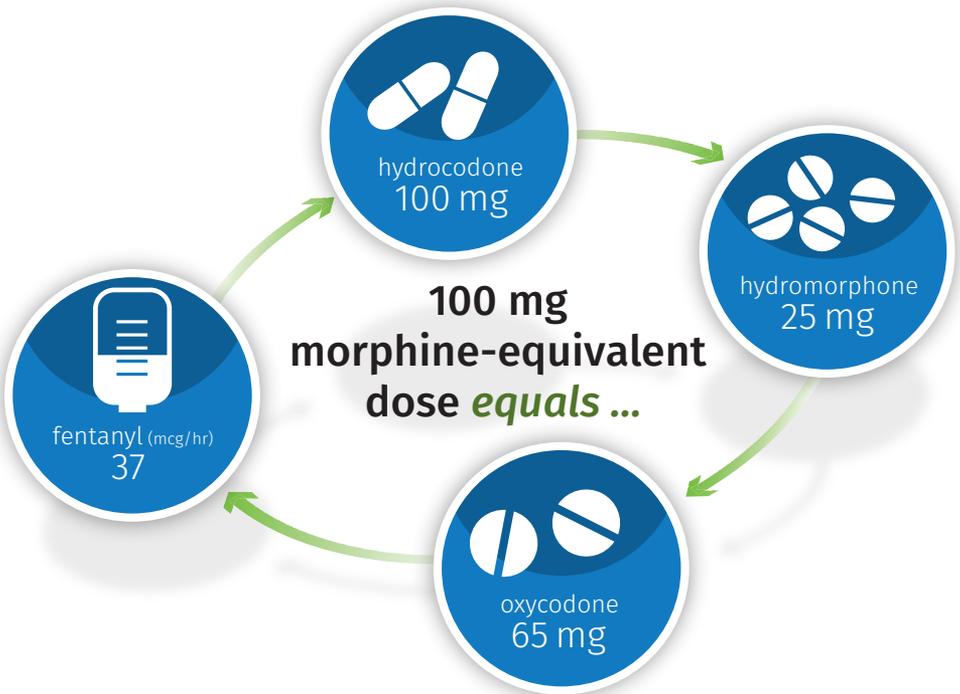
Do the Math

Milligram Morphine Equivalent (MME) is a value assigned to opioids to represent their relative potencies.

MME is determined by using an equivalency factor to calculate a dose of morphine that is equivalent to the ordered opioid. Daily MED is the sum of the MME of all opioids a patient is likely to take within 24 hours, and that total is used to determine if the patient is nearing a potentially dangerous threshold.

The Centers for Medicare & Medicaid Services (CMS) publishes morphine equivalent tables. In its 2017 Call Letter draft, CMS recommends:

- Point-of-sale (POS) soft edit threshold: **90-120 mg** daily cumulative MME
- Hard edit threshold: **200 mg** daily cumulative MME

In 2013, CMS determined that approximately ***775,000 beneficiaries (2% of Medicare Part D enrollees) met or exceeded 200 mg MED*** for at least one day. That number does not take into account cancer or hospice patients, which CMS advises not be considered when determining the appropriate threshold for acute pain management patients.

Where Do the Problems Start?

While there are morphine equivalent tables available and ways to calculate MED, the fact of the matter is that many healthcare organizations take a reactive approach.

For example, in hospitals, nurses monitor patients for telltale signs of too high an intake of opioids – such as constipation, CNS depression (decreased mental alertness, low blood pressure, etc.), and early markers for respiratory depression. The team can then respond after inappropriate dosing has occurred to counteract the already discernible effects of overutilization.

MED needs to be considered or examined at various stages of the patient's care process:

- **Prescriber level:** When an order is written, prescribers need to not only be aware of a patient's weight, conditions, profile, and opioid tolerance (high tolerance is generally defined as someone who has taken 60 mg of oral morphine for at least 7 consecutive days), but also the possibility of overlapping opioid prescriptions from two or more providers.

- **Nurse administration level:** Considering MED is especially helpful when dealing with patients taking PRN medications to help administrators calculate the total daily opioid dose, which would include all maintenance and potential PRN opioids.

- **Pharmacist dispenser level:** MED screening can be employed as a safety check on the commercial side of healthcare, potentially alerting retail pharmacists to a patient exceeding a set threshold, so that they can return to the prescriber for verification or to recommend an alternative therapy.

- **Prescription insurance plans and state Medicaid programs:** PBMs and insurance plans are now looking at MED as a tool for the safe prescribing of opioids. Although there are not national requirements yet, some states have set guidelines. Massachusetts currently allows for payment for patients taking less than 240 mg equivalents of morphine and is considering decreasing that to 120 mg before a prior authorization is required. The state of Washington has provided guidelines that emphasize a dosing "yellow flag" at 120 mg per day morphine equivalent dose for new patients with chronic pain. In 2016, the Pharmacy Quality Alliance announced a series of performance measures regarding MED that it encouraged plans to follow. They included assessing the populations that are receiving high-dose opioid prescriptions with potential for adverse events, assessing populations receiving opioids from multiple prescribers, and establishing criteria for both situations.

- **Medicare Part D:** MED reporting is likely to become a standard required of payers by CMS. If Medicare Part D patients exceed the MED threshold, it will help determine if a patient needs counseling.
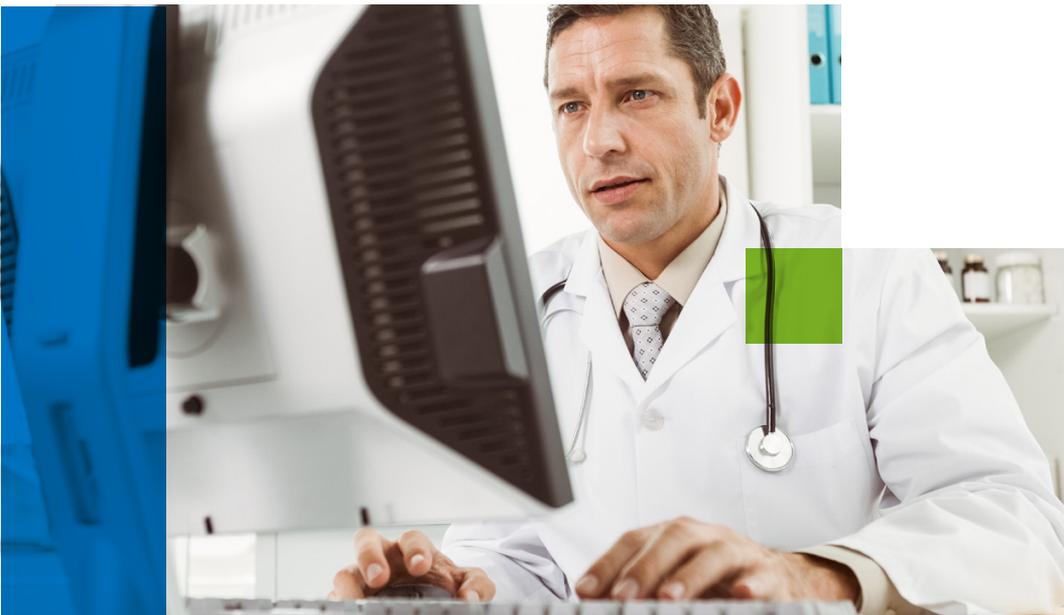
Keeping Track – Now and in the Future

MME calculators

- There are several opioid calculators available to help professionals determine total MED. For example, the New York City Department of Public Health has a smartphone app that enables you to plug in the current drug and dose a patient is getting. It then generates the morphine milligram equivalent. The calculator allows you to enter multiple drugs to give a cumulative morphine equivalent.

- The Calculators module in Lexicomp® Online and Lexicomp Mobile Apps also features an opioid agonist conversion calculator with equianalgesic ratio guidelines.

MED clinical screening and alerts

- Technology now presents a solution to help healthcare organizations be more proactive and avoid opioid overutilization in the first place, rather than monitor, wait, and take action after the fact.

- EMR-integrated MED screening pioneered by Wolters Kluwer Clinical Drug Information can be configured to consider patient profile, prescription, medication administration, and ingredient data within the electronic record to generate a warning of potential opioid overutilization before it occurs.

Drug Utilization Review (DUR) alerts

- Industry resources are developing DUR screening tools to alert pharmacists if a patient is not opioid tolerant before dispensing fentanyl patches.

- DUR alerts including MED within the pharmacy system could help identify a patient who has reached the MED threshold and cue the pharmacist to further evaluate the patient's therapy for safety concerns.

Prescription Monitoring Program (PMP)

- Another useful future step would be incorporating MED in information delivered from PMPs. Today, the Ohio Automated Rx Reporting System (OARRS) calculates the active cumulative MED for each patient based on prescriptions reported to the PMP. This is prominently displayed on the report for the pharmacist to review. Ohio provides opioid prescribing guidelines for any provider treating chronic, non-terminal pain patients who are receiving more than 80 mg MED for longer than three months.

- In retail settings, screening can be used as an additional safety check to help determine possible instances of "doctor-shopping."

MED SOLUTIONS FROM
WOLTERS KLUWER CLINICAL DRUG INFORMATION

Medi-Span® Clinical Morphine Equivalent Dosing API

Wolters Kluwer is pioneering proactive clinical decision support with a Morphine Equivalent Dosing API.

The MED data package provides a rolling total MED over 24 hours and automatically alerts professionals to potential safety issues BEFORE overutilization occurs.

What It Provides

- Identifiers, morphine conversion factor, and morphine milligram equivalents – the API calculates the morphine equivalent daily dose to determine if patients are under a set daily limit
- Normalizes opioids against morphine so a fuller list of drugs, beyond just morphine, are counted against the total dose
- Allows customization of MED threshold values across an organization
- MED data Power Pack can be added to the Medi-Span Clinical Dose Screening and Drug Orders API to upgrade its dose screening functions

What It Does for Your Business

- Helps professionals calculate the dose and route of each opioid a patient has received in 24 hours to help reduce risks for adverse drug reactions
- Allows a caregiver to be alerted to possible overutilization issues at times of order entry and administration
- MED is key information for incorporation into prescription monitoring programs (PMPs) to help identify patients that may be receiving opioids from multiple prescribers and multiple pharmacies

Medi-Span® Patient Safety Programs File

In addition to popular features such as Acetaminophen Ingredient Indicator, Pseudoephedrine Ingredient Indicator, Black Box Warnings (BBW) Indicator, and Monitoring Programs / REMS Indicator to help alert professionals to potential medication safety issues requiring consideration, the Patient Safety Programs File has added morphine equivalent dosing information.

The file provides MME values to assist you in calculating MED totals.

Wolters Kluwer