



How do Opioids Compare to Each Other? Calculating MME

In response to the national opioid crisis, Nebraska Medicaid will be implementing total daily dose limits of opioids. These limits are intended to enhance the safe use of opioids. Commonly prescribed opioids include: codeine, fentanyl, hydrocodone, hydromorphone, methadone, morphine, oxycodone, oxymorphone, tapentadol, and tramadol.

In the CONSORT study, patients who received more than 100 mg per day morphine milligram equivalent (MME) of opioids were nine times more likely to experience an overdose (fatal and non-fatal). In this study, it was observed that the patients who received the highest doses were most often male, smokers, had a history of treatment for depression or had a history of substance abuse. While higher doses are considered a risk factor, even patients taking lower doses were found to be at risk for overdose.¹

The information in Table 1 can be used to calculate the MME for the listed opioids. A patient's total daily dose of each opioid taken per day is multiplied by the factor listed and added together to calculate the approximate MME.

To calculate a patient's MME, multiply the number of milligrams of the opioid taken (mcg per hour for fentanyl only) by the conversion factor in Table 1. If the patient is taking more than one opioid, the MME for each opioid is calculated and added together for a total daily sum or daily MME.

	MME Conversion Factor
Buprenorphine	20-40
Codeine	0.15
Fentanyl transdermal (in mcg/hour)	2.4
Hydrocodone	1
Hydromorphone	4
Methadone	Highly Variable
Morphine	1
Oxycodone	1.5
Oxymorphone	3
Tapentadol	0.4
Tramadol	0.1

For example, if a patient is using one 50 mcg patch of fentanyl each day with up to eight tablets of hydrocodone 5 mg/APAP per day, the total daily MME is calculated as follows:

50 mcg fentanyl/hour X conversion factor of 2.4 = 120 MME

8 tablets X 5 mg hydrocodone X conversion factor of 1 = 40 MME

120 MME + 40 MME = **160 Total Daily MME**

The Centers for Disease Control and Prevention (CDC) offers an app, the *Opioid Guideline App*, which includes an MME calculator.

An initial daily limit of 300 MME was put in place in December of 2018 for Nebraska Medicaid patients, unless being treated for active cancer, enrolled in hospice, or receiving end of life care. Claims for total daily doses of more than 300 MME began rejecting on December 6, 2018 unless an approved prior authorization was on file.

Nebraska Medicaid plans to lower the maximum MME to:

- 250 MME in June 2019
- 200 MME in December 2019
- 150 MME in June 2020
- 120 MME in December 2020
- 90 MME in June 2021

References

1. Dunn K, Saunders K, Rutter C, et al. Opioid Prescriptions for Chronic Pain and Overdose. *Ann Intern Med.* 2010 Jan 19;152(2):85-92.
2. Adapted from the Nebraska Pain Management Guidance Document, 1st Edition, October 2017 Accessed 12-18-2018.

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