

Generic Name	Conversion Factor to MME per day
Morphine sulfate containing products	1 ¹
Buprenorphine patch	12.6 ²
Buprenorphine tablet/film/syrup	10 ¹
Butorphanol nasal spray	15 ⁵
Codeine containing products	0.15 ¹
Dihydrocodeine containing products	0.1
Fentanyl 12 mcg/hr patch	7.2 ⁶
Fentanyl 25 mcg/hr patch	7.2 ⁶
Fentanyl 50 mcg/hr patch	7.2 ⁶
Fentanyl 75 mcg/hr patch	7.2 ⁶
Fentanyl 100 mcg/hr patch	7.2 ⁶
Hydrocodone containing products	1 ¹
Hydromorphone tablet	4 ¹
Hydromorphone suppositories	10 ⁴
Levorphanol tabs	7.5 ³
Meperidine containing products	0.1 ¹
Oxycodone containing products	1.5 ¹
Oxymorphone containing products	3 ¹
Tapentadol containing products	0.4 ¹
Tramadol containing products	0.1 ¹

1. Centers for Disease Control and Prevention, Atlanta, GA, June 2015. For more information, contact Mbohm@cdc.gov.

2. The MME conversion factor for buprenorphine patches is based on the assumption that 1mg parenteral buprenorphine is equivalent to 75mg oral morphine and that one patch delivers the dispensed micrograms per hour over a 24 hour day. Example: 5 mcg/hr buprenorphine patch * 24 hrs = 120 mcg/day buprenorphine = 0.12 mg/day = 9 mg/day oral morphine mg equivalent. In other words, the conversion factor not accounting for days of use would be 9/5 or 1.8. However, since the buprenorphine patch remains in place for 7 days, we multiplied the conversion factor by 7 (1.8 * 7 = 12.6). In this example, MME/day for four 5 mcg/hr buprenorphine patch * (4 patches/28 days) * 12.6 = 9 MME/day.

3. Conversions based on Facts & Comparisons. Available at <http://online.factsandcomparisons.com>. Accessed October 2014.

4. Based on personal communication with an expert compounding pharmacist. May 2014. The absorption is much greater via rectal administration.

5. The MME conversion factor for butorphanol nasal spray is based on the assumption that 1mg transnasal of butorphanol is equivalent to 2mg parenteral butorphanol which is equivalent to 10mg parental morphine which is equivalent to 30mg oral morphine. Thus: 1mg NS butorphanol = 30mg PO morphine resulting in a conversion factor of 15

6. The MME conversion factor for 25 mcg/hr fentanyl patches is based on the assumption that 1mg parenteral fentanyl is equivalent to 100mg oral morphine and that one patch delivers the dispensed micrograms per hour over a 24 hour day which concurs with the published range, at the lowest end, of 60-134 MME. Example: 25 mcg/hr fentanyl patch * 24 hrs = 600mcg/day fentanyl = 60 mg/day oral morphine mg equivalent. In other words, the conversion factor not accounting for days of use would be 60/25 or 2.4. However, since the fentanyl patch remains in place for 3 days, we multiplied the conversion factor by 3 (2.4 * 3 = 7.2). This conversion factor of 7.2 agrees with the CDC conversion factor¹. In this example, MME/day for ten 25 mcg/hr fentanyl patch * (10 patches/30 days) * 7.2 = 60 MME/day.