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# Introduction to Opioid Conversion Calculations

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## INTRODUCTION

### *Consider these scenarios:*

- MJ is a 72-year-old woman with breast cancer who has grown too weak to swallow her MS Contin tablets. How do you convert her to oral morphine solution? How often is it administered? What happens when she can't swallow the oral morphine solution?
- WE is a 54-year-old man with an end-stage malignancy referred to hospice with an implanted intrathecal pump, which is delivering 1 mg of morphine per day. The hospice nurse calls you and wants to know what would be an appropriate dose of oral morphine to give the patient for breakthrough pain?
- SA is a 94-year-old woman with dementia and severe osteoarthritis. She has been maintained on a transdermal fentanyl patch for the past year, but she now weighs 72 pounds and doesn't seem to be receiving the expected continued benefit. How do you convert her to oral oxycodone solution? When do you start the oral oxycodone solution relative to removing the transdermal fentanyl patch?
- WP is a 48-year-old man recently diagnosed with lung cancer, status-post open lung resection. Three days after surgery, WP has received 8 mg of intravenous hydromorphone in the 12 hours prior to discharge. His surgeon writes an order for oxycodone 5 mg/acetaminophen 325 mg, 1 tablet every 4 hours as needed for pain on discharge. Twenty-four hours later, WP's wife is on the phone with the surgeon's office staff, demanding more pain medication. The office staff are concerned about drug-seeking behavior. What's the scoop?
- JR is a 68-year-old man with prostate cancer with significant metastatic disease. He is referred to your outpatient palliative care clinic for a pain consult. He is receiving oral MS Contin 100 mg every 12 hours, oral hydromorphone 4 mg every 4 hours as needed (prn) (using about 5 doses per day), a transdermal fentanyl patch 100 mcg/hr applied every 3 days, and a morphine subcutaneous infusion at 1 mg/hr with 0.5 mg bolus (using about 12 per day). His physician asks your advice on converting all this to a simpler regimen, specifically using methadone. Where do you start?

## OBJECTIVES

*After reading this chapter, the participant will be able to:*

1. Identify common clinical scenarios that are appropriate for opioid conversion.
2. Compare and contrast the concepts of potency and equianalgesia.
3. Explain the principles used to develop an Equianalgesic Opioid Dosing table and describe the limitations of this tool.
4. Use a five-step process to switch a patient from one opioid to a different opioid.

**Ah, . . . drug math.** Those two little words can make a strong healthcare professional clench their bowels and want their mommy. But, this doesn't have to be the case! Armed with an understanding of conversion calculations, some semisolid facts about equivalencies, and a healthy sense of "Does that *look* right?" you'll be just fine! Just like much of healthcare, there is both science and art involved in performing opioid conversion calculations. This book is designed to teach you how to do opioid conversion calculations safely and effectively. Jump in; the water's fine!

Opioids are the mainstay of pain management in patients with moderate-to-severe pain. Morphine is practically mother's milk to practitioners who work with patients with advanced illness due to its familiarity, availability of multiple dosage formulations, low cost, and proven effectiveness. However, morphine is not always the answer. For example, we know that up to 30% of cancer patients show poor responsiveness to a given opioid such as morphine during routine administration.<sup>1</sup> This is only one reason why healthcare practitioners must be able to transition patients from one opioid to another, which may require changing the route of administration and/or dosage formulation. A recent multicenter study conducted with palliative care patients showed that 12% of patients required a change to a different opioid (not counting a change in route of administration) for reasons including lack of pain control (64%), development of adverse effects (51%), and medication application problems (22%).<sup>2</sup> Let's take a closer look at the clinical situations that result in the need to switch a patient from one opioid to another.

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## REASONS FOR CHANGING OPIOIDS

### ***Lack of Therapeutic Response***

If the patient's pain is not responding adequately to the opioid and a repeat assessment indicates that opioid therapy continues to remain appropriate, a dose increase would be the most likely intervention. The increase in pain may be due to disease progression or the development of opioid analgesic tolerance. If the patient cannot tolerate an increase in dose due to the development of adverse effects or an increase in dose does not produce a satisfactory reduction in pain, switching to a different opioid may be beneficial.

Occasionally, a patient is receiving a combination analgesic (e.g., Percocet, which contains oxycodone and acetaminophen), and an increase would exceed the maximum recommended daily dose of acetaminophen (4 g). In this case, switching to a tablet or capsule containing just oxycodone would be appropriate, with subsequent dosage titration.

### ***Development of Adverse Effects***

If the patient develops an adverse effect to an opioid, the healthcare professional must consider plan B.

***Opioid-induced adverse effects are well recognized and include the following:***

- Gastrointestinal (nausea, vomiting, constipation)
- Autonomic (xerostomia, urinary retention, postural hypotension)
- Cutaneous (pruritus, sweating)