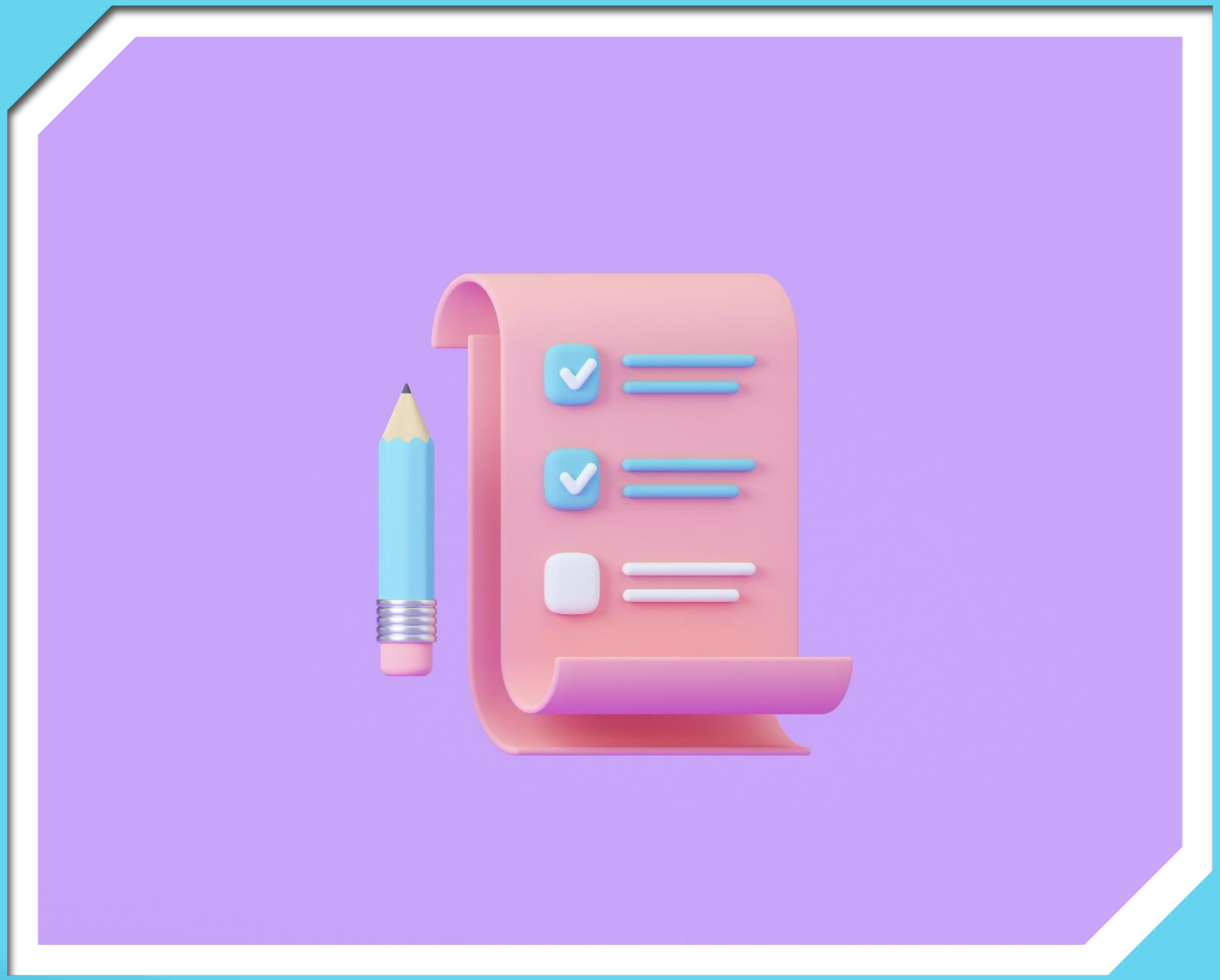
UNDERSTANDING OPIOIDS

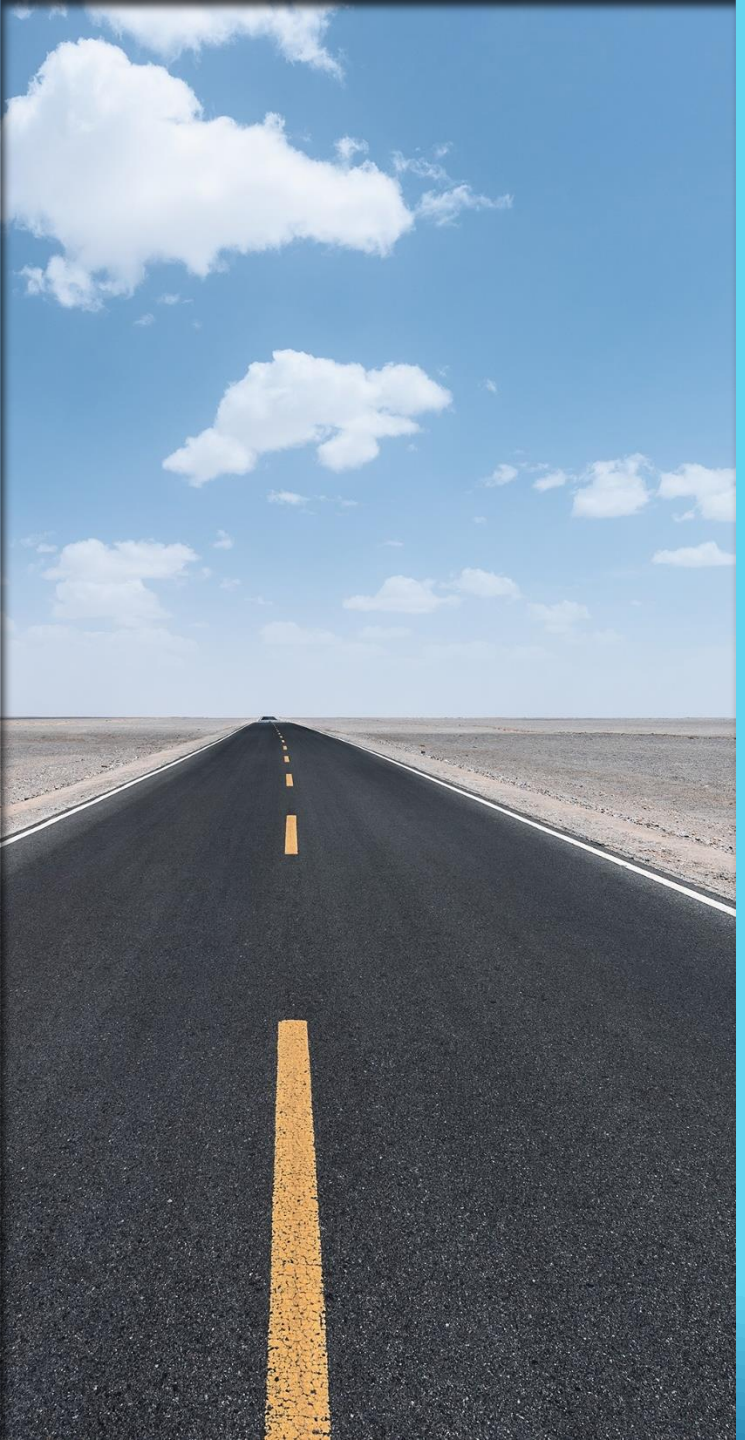


OBJECTIVES

- What is an opioid?
- Oral Morphine Equivalents
- Buprenorphine
- A note on Tramadol

- Opioids have a bad reputation in society, however, there is good data to support the usage of them in patients with cancer related pain
- Why the bad rep?
  - Potential for misuse, abuse, and addiction
  - Regulated by the government

- Opioid is an all-encompassing term that includes naturally occurring opiates and synthetic derivatives
  - **Natural Opioids** – morphine and codeine
  - **Semi-Synthetic Opioids** – hydrocodone, oxycodone, hydromorphone, and oxymorphone
  - **Synthetic Opioids** – methadone, fentanyl, tramadol

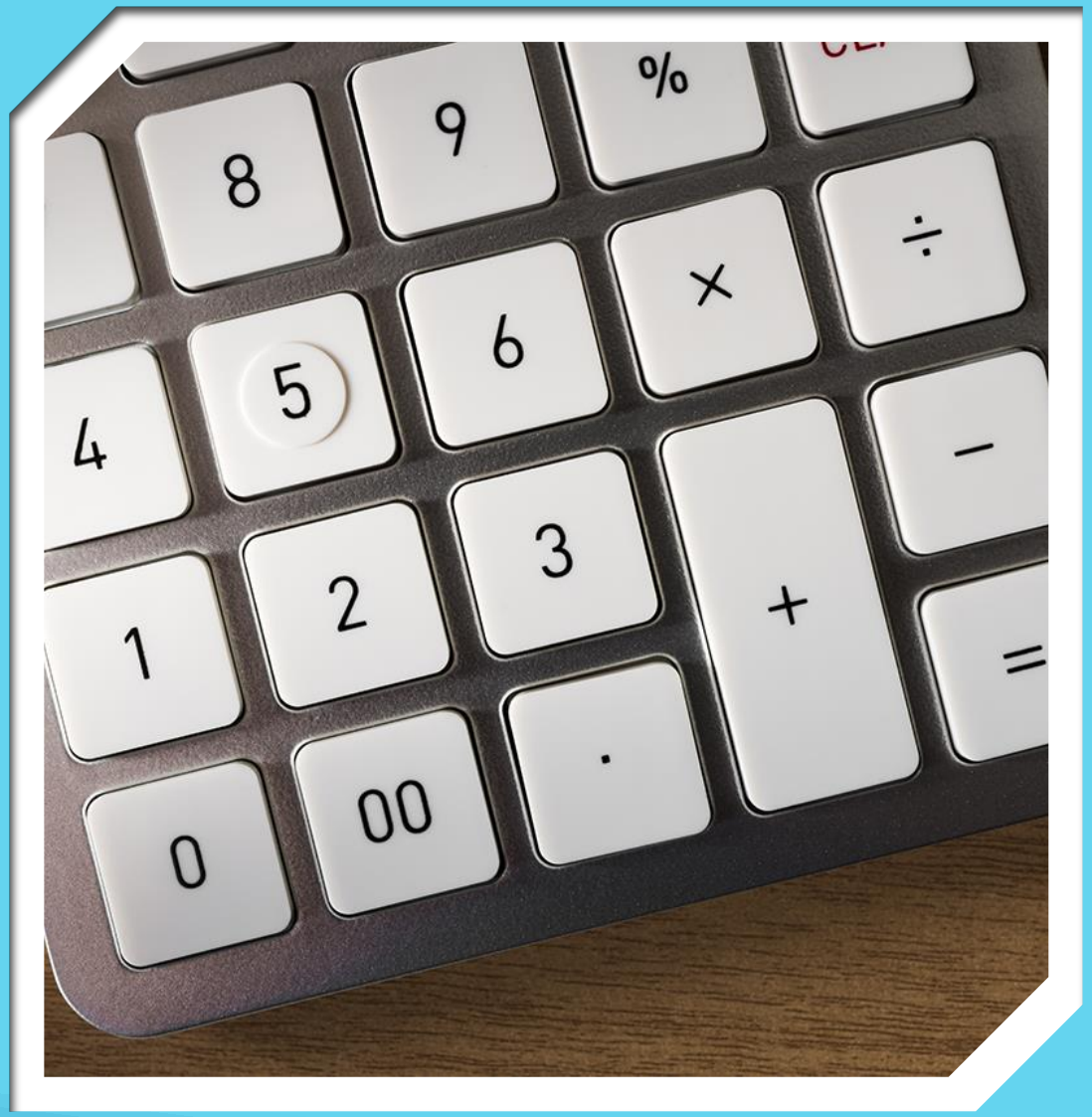


ORAL MORPHINE EQUIVALENTS

- Oral Morphine Equivalents (OMEs) determine opioid analgesic equivalence
- Daily OME is the total analgesic equivalence of opioid a patient takes on a daily basis (this includes long-acting, and short-acting forms)
- Not uncommon for cancer related pain patients to be on a long-acting form of an opioid, with a short-acting opioid used for breakthrough pain

EQUIANALGESIC OPIOID DOSING

Drug	Parenteral (mg)	Oral (mg)
Morphine	10	30
Buprenorphine	0.3	0.4 (sl)
Codeine	100	200
Fentanyl	0.1	NA
Hydrocodone	NA	30
Hydromorphone	1.5	7.5
Meperidine	100	300
Oxycodone	10	20
Oxymorphone	1	10
Tramadol	100	120



EXAMPLE

- A patient is on 30 mg of long-acting oral oxycodone twice daily. They have 10 mg of immediate release (short-acting) oxycodone that they take for breakthrough pain every 4 hours as needed. They typically take this about 4 times per day.
  - What is the patient's total Oral Morphine Equivalent Dose?

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Meperidine	100	300
Oxycodone	10	20
Oxymorphone	1	10
Tramadol	100	120

Long-acting oxycodone dose =
30 x 2 = 60 mg

+

Short acting oxycodone dose =
4 x 10 = 40 mg

100 mg daily oxycodone

$$\frac{\text{100 mg oral oxycodone}}{\text{X mg oral morphine}} = \frac{\text{20 mg oral oxycodone}}{\text{30 mg oral morphine}}$$

3000 = 20x

X = 150 mg oral morphine

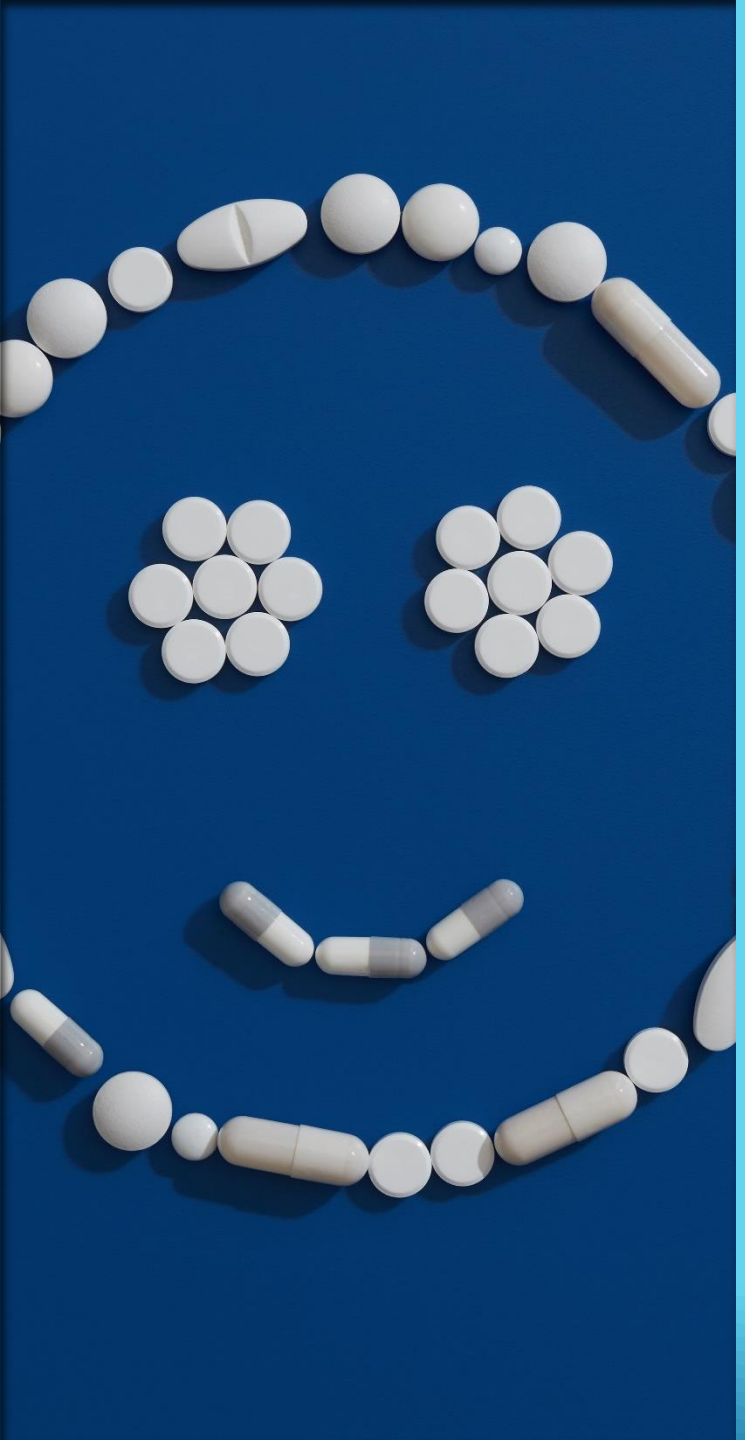
MECHANISM OF ACTION

- Binds to kappa, mu, and delta receptors
- Opioid receptors influence reward pathways, respiration, cardiovascular function, mood, feeding
- Tolerance occurs over time
- Typical side effects include nausea, dizziness, constipation, sleepiness, respiratory depression
- Most patients develop tolerance to these side effects. They will never develop tolerance to constipation!

IF YOU SEND SOMEBODY HOME WITH AN OPIOID, PLEASE PRESCRIBE A BOWEL REGIMEN!!

- Senna nightly (stimulant)
- Miralax daily (osmotic)

- If on chronic opioids at home, and they present to the emergency department with an acute traumatic injury, understand that their pain medication requirement is going to likely be a lot higher than somebody that is not on chronic opioids
- Be prepared to titrate quickly if your typical dosing strategy is not adequate



BUPRENORPHINE

- Buprenorphine is **NOT** only used to treat addiction! It is a very powerful pain medication as well, with multiple reasons for utilizing it over other opioids:
  - There is less respiratory depression
  - It is safer in the older adult population
  - It is safe in renal impairment
  - Less cognitive impairment side effects than traditional opioids
  - High affinity for opioid receptors, higher than most traditional opioids

SHOULD I USE BUPRENORPHINE IN THE ED?

Effective for treatment of opioid withdrawal in a patient with opioid use disorder

It may also be effective for patients that are on chronic opioids (say, for back pain) and come into the ED withdrawing from opioids because "they ran out of their script early because they were doubling up on doses." They present with a COWS score of 12:

- 40-80 OME and COWS > 8, start 2-4 mg sublingual
- >80 OME and COWS > 8, start 8 mg sublingual

WHAT IF A PATIENT HAS AN ACUTE PAIN CRISIS AND IS ON BUPRENORPHINE?

- Let's consider a trauma patient that comes in with OUD on buprenorphine. They are in serious pain from what appears to be a femur fracture
- If on bup, **USE BUP!**
- IV bup dosed at 0.15 mg (5 IV morphine), 0.3 mg (10 IV morphine), or 0.6 mg (20 IV morphine)

TRAMADOL

- Caution
- It acts on opioid receptors, therefore is an opioid
- It can cause tolerance and withdrawal
- Risk of serotonin syndrome
- Can still lead to respiratory depression
- Lowers the seizure threshold

TAKEAWAYS

- Understand that OMEs exist, and chronic opioid users will have higher opioid requirements
- Prescribe bowel regimen if sending home with opioids, even if only a short course
- If on buprenorphine, use buprenorphine
- Be cautious with tramadol

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