Opioid Rotation and Conversion Assumptions and Considerations

Goals:
- Provide optimal pain analgesia
- Reduce risk of excessive side effects (ie. sedation)
- Reduce risk death and serious adverse effects (ie. respiratory depression)
- Reduce risk of withdrawal symptoms

Indications for opioid rotation:
- Occurrence of intolerable adverse effects during dose titration
- Poor analgesic efficacy despite aggressive dose titration
- Problematic drug-drug interactions
- Preference or need for a different route of administration
- Change in clinical status (e.g., concern about drug abuse or the development of malabsorption syndrome) or clinical setting that suggests benefit from an opioid with different pharmacokinetic properties
- Financial or drug-availability considerations

Assumptions:
- There is no gold standard opioid equianalgesia table applicable to all clinical situations and expectation of this is unrealistic.
- Prescribers must be familiar with opioid rotation and conversion issues as miscalculated doses may lead to adverse effects, toxicity or inadequate pain control.
- All opioid equianalgesia tables are guidelines only.
  - Much of the information represents single dose equivalents in certain study populations. These populations are heterogenous in nature and therefore limitations exist on how equianalgesic tables may be applied.

Considerations:
- Prevention of errors is best achieved by:
  - Knowledge of opioid pharmacology
  - Awareness of limits of equianalgesic tables
  - Application of opioid rotation and conversion guidelines
  - Tailoring opioid use to individual patient characteristics and response
- State relevancy for long-term dosing on equianalgesic tables

Conclusions:
- It is imperative that clinical information be used to make decisions on opioid rotation and conversion.

Summary:
- Use equianalgesic tables as intended – as a guideline
- Consider a “safety factor”
- Titrate to effect
- Monitor clinically
- Recognize lack of complete cross-tolerance between opioids
- Caution in setting of organ dysfunction


Guideline for Opioid Rotation and Conversion

Note: These guidelines may be applied to all rotations (switch opioid) and conversions (alternative route) but special considerations need to be followed for those involving methadone, transdermal fentanyl and transmucosal fentanyl or sufentanil preparations (see next page).

Step 1:
- Calculate the equianalgesic dose of the new opioid based on the equianalgesic table.
- If switching to any opioid other than methadone or fentanyl, identify an “automatic dose reduction window” of 25%-50% lower than the calculated equianalgesic dose.
  - Select a dose closer to the lower bound (25% reduction) or the upper bound (50% reduction) of this automatic dose reduction window on the basis of a clinical judgment that the equianalgesic dose table is applicable based on the specific characteristics of the opioid regimen or patient.
    - Select a dose closer to the upper bound (50% reduction) of the window if the patient is:
      - receiving a relatively high dose of the current opioid regimen
      - not Caucasian
      - elderly
      - medically frail
    - Select a dose closer to the lower bound (25% reduction) if the patient does not have these characteristics or is undergoing a conversion to a different route of administration using the same drug.

Step 2:
- Perform a second assessment to determine whether to apply an additional increase or decrease of 15%-30% to enhance the likelihood that the initial dose will be effective for pain, or conversely, unlikely to cause withdrawal or opioid-related side effects.
  - pain severity
  - other medical or psychosocial characteristics
    - gender differences
    - organ dysfunction
    - inter- and intra-individual differences in pharmacokinetic and pharmacodynamics
  - bidirectional differences in equivalence between some opioids
- If a supplemental “rescue dose” is used for titration, calculate this at 5%-15% of the total daily opioid dose and administer at an appropriate interval.

Follow-Up:
- Have a strategy to frequently assess initial response and to titrate the dose of the new opioid regimen to optimize outcomes.
  - Titrate supplemental “rescue doses” as the baseline opioid requirements increase.
- Monitor closely for opioid withdrawal symptoms
  - Protracted withdrawal symptoms:
    - Dysphoria, fatigue, sleep disturbance
  - Acute withdrawal symptoms:
    - Early: Drug craving, anxiety, fear of withdrawal
    - Intermediate: Anxiety, restlessness, insomnia, yawning, rhinorhea, lacrimation, diaphoresis, stomach cramps, mydriasis
    - Delayed: Tremor, muscle spasms, vomiting, diarrhea, hypertension, tachycardia, fever, chills, piloerection


Conversion of methadone

This area requires expertise and additional training and should only be carried out by qualified health care providers.

Step 1:
- Calculate the equianalgesic dose of the new opioid based on the equianalgesic table.
- For methadone the “automatic dose reduction window” should be identified at 75%-90% lower than the calculated equianalgesic dose.
   - For individuals on very high opioid doses (e.g., 1000 mg morphine equivalents/day or higher), great caution should be exercised in converting to methadone at doses of 100 mg or greater per day.
     - The dose ratio of morphine equivalents to methadone is affected by prior opioid dose.
       - Ex. < 1000mg morphine equivalents/day ratio is 10 morphine: 1 methadone
       - Ex. > 1000mg morphine equivalents/day ratio is 15 morphine: 1 methadone
     - Consider inpatient monitoring, including serial electrocardiogram monitoring.
     - Outpatient conversion may be appropriate in selected patients with appropriate monitoring and vigilance.
   - Select a dose closer to the lower bound (75% reduction) or the upper bound (90% reduction) of this automatic dose reduction window on the basis of a clinical judgment that the equianalgesic dose table is relatively more or less applicable, respectively, to the specific characteristics of the opioid regimen or patient.
     - Select a dose closer to the upper bound (75% reduction) of the reduction if the patient is:
       - receiving a relatively high dose of the current opioid regimen
       - not Caucasian
       - elderly
       - medically frail
     - Select a dose closer to the lower bound (90% reduction) of the reduction if the patient does not have these characteristics.

Step 2:
- Follow as outlined

Follow-Up:
- Follow as outlined

Conversion for transdermal fentanyl

Step 1:
- If switching to transdermal fentanyl, calculate dose conversions based on the equianalgesic dose ratios included in the package insert for these formulations.

Step 2:
- Follow as outlined

Follow-Up:
- Follow as outlined

Conversion for transmucosal fentanyl/sufentanyl

These preparations have a very short time to peak effect and very short duration of action. They should be used for rescue dosing such as prior to painful dressing changes or procedures.

Step 2:
- If an oral transmucosal fentanyl formulation is used as a rescue dose, begin dosing at one of the lower doses irrespective of the baseline opioid dose.

Follow-Up:
- Follow as outlined