

Use of PRN range orders for opioid analgesics (e.g. “morphine, 2-6 mg IV every 2h PRN”) is a common clinical practice designed to provide flexibility in dosing to meet an individual’s unique needs. However, range orders have been shown to be a source of medication errors. It is critical that physicians, nurses, and pharmacists share a common understanding of how to properly write, interpret, and carry out PRN range orders. The intent of the order should be clear, nevertheless, orders that require nurses to administer a specific dose based on a pain intensity rating are not appropriate.

Considerations for Writing and Interpreting PRN Range Opioid Orders:

- **Reasonable range.** A range order should be large enough to provide appropriate options for dose titration, but small enough to ensure safety. The maximum allowable difference between the high and low dose for analgesic dose range orders should be no more than four times the lowest dose (eg. four times 2mg is 8mg).
- **Patient’s prior drug exposure.** If the patient is opioid-naïve, the first dose administered should be the lowest dose in the range; if the patient is opioid tolerant, or has received a recent dose with inadequate pain relief and tolerable side effects, a dose on the higher end of the range should be administered.
- **Prior response.** Inquire about this patient’s response to previous doses. How much relief did prior doses provide, and how long did it last? Did the patient experience side effects? Was the prior dose used for a pain of similar intensity?
- **Age.** For very young or elderly patients, “start low and go slow” – begin with a low dose and titrate up slowly and carefully.
- **Liver and renal function.** If your patient has hepatic or renal insufficiency, anticipate a more pronounced peak effect and a longer duration of action.
- **Pain severity.** As a general rule, for moderate to severe pain increase the dose by 50-100%; do not increase by >100% at one time; to “fine-tune” the dose once pain is at a mild level, increase or decrease by 25%.
- **Anticipated pain duration.** Is the pain acute, chronic, or progressive (likely to worsen)? In other words, is the patient likely to require more or less analgesic over time?
- **Kinetics.** Know the onset, peak, and duration of action for each specific analgesic ordered. Doses of short-acting opioids can be increased at each specified dosing interval, unlike scheduled long-acting opioid formulations that are titrated more slowly.
- **Comorbidities that may affect patient response.** Example: Debilitated patients, or those with respiratory compromise, may be at more risk for hypoxia if oversedated.
- **Concomitant administration of other sedating drugs.** When other CNS depressants are administered in combination with opioids, the dose of each medication required to achieve the desired effect may be 30-50% less than if either drug was administered alone.
- **Combination drugs.** Limit doses of combination drugs, e.g., opioids with acetaminophen or an NSAID. Average adults should not receive more than 4000mg of acetaminophen in 24 hours. Combination drugs may contain as much as 750mg of acetaminophen per tablet. If substantial upward dose titration is required or anticipated, use opioid-only preparations. Multiple PRN

range orders for analgesics that work by different mechanisms of action (for example a PRN nonopioid and a PRN opioid) are encouraged as this promotes multimodal therapy.

- **Avoid multiple PRN opioid orders of the same route.** While there may be some situations when two different routes of administration are indicated, avoid orders that promote frequent dosing by alternating similar short-acting opioids.

EXAMPLE: Opioid naïve patient arrives on unit with order – **Morphine sulfate 2-6 mg IV every 2h PRN pain.**

- Give 2 mg for first dose. Reassess within 30 minutes. If adequate relief, reassess within next 2 hours.
- If no side effects but inadequate relief – may give 4 mg more if 30 minutes or time to peak effect has passed from first dose.
- Total dose therefore is 6 mg in a 2-hour period.

Document Patient Response to PRN dosing

- Reassess pain relief, side effects and adverse events produced by treatment, and the impact of pain and treatment effects on patient function once sufficient time has elapsed to reach peak effect such as 15 to 30 minutes after parenteral drug therapy or 1 hour after oral administration of a prn analgesic or nonpharmacologic intervention.
- Reassessments may be done less frequently for patients with chronic stable pain or for patients who have exhibited good pain control without side effects after 24 hours of stable therapy