

## 6.3 Percentage of parenteral opioid dosage units that are pethidine

### Purpose

This indicator assesses the effectiveness of processes that restrict availability of pethidine and is an indirect measure of the appropriateness of opioid use for analgesia.

### Background and evidence

Pethidine should not be considered a first line agent for treatment of severe pain.<sup>1</sup> Data from controlled trials consistently show a lack of superior analgesic efficacy of pethidine compared to alternative parenteral analgesics.<sup>2</sup> Pethidine has a number of disadvantages which limit its usefulness including:<sup>3</sup>

- A shorter duration of action than morphine with no additional analgesic benefit
- Similar side effects to morphine, including bronchospasm and increased biliary pressure
- Metabolism to norpethidine which has potential toxic effects (eg convulsions) especially in patients with renal dysfunction
- Association with potentially serious interactions with other drugs, including monoamine oxidase inhibitors and serotonin reuptake inhibitors, which may result in serotonin syndrome
- Being the drug most commonly requested by drug abusers seeking opioids and the drug most often abused by health professionals

### Key definitions

**Parenteral opioid dosage units** means ampoules, vials or infusion bags of any opioid medication for parenteral administration.

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## Data collection for local monitoring

**Recommended sample selection:** Records of all orders or requisitions for parenteral opioids presented to the pharmacy over a one month period. If the hospital supplies parenteral opioids to other hospitals, totals should be adjusted accordingly.

**Recommended sample size:** All parenteral opioid orders or requisitions over a one month period

**Recommended methodology:** Audit of parenteral opioid orders or requisitions.

## Data collection for inter-hospital comparison

This indicator may be suitable for inter-hospital comparison. In this case, definitions, sampling methods and guidelines for audit and reporting need to be agreed in advance in consultation with the coordinating agency.

## Indicator calculation

$$\frac{\text{Numerator}}{\text{Denominator}} \times 100\%$$

**Numerator** = Number of parenteral opioid dosage units that are pethidine

**Denominator** = Total number of parenteral opioid dosage units requisitioned from pharmacy (including pethidine) in sample

## Limitations and interpretation

This indicator does not examine the reason for pethidine utilisation or use of oral pethidine. If there is concern about the results of this indicator, further investigation may be appropriate.

It is acknowledged that pethidine may be an appropriate therapy in some specific indications. Nevertheless, the ratio of pethidine to all parenteral opioids should be close to zero.

## Further information

Recommendations for improving safety with pethidine are available at [www.ismp-canada.org/download/CACCN-Spring05.pdf](http://www.ismp-canada.org/download/CACCN-Spring05.pdf)

## References

1. Use of pethidine for pain management in the emergency department. A position statement of the NSW Therapeutic Advisory Group Inc: NSW Therapeutic Advisory Group Inc, 2004.
2. Clark RF, Wei EM, Anderson PO. Meperidine: therapeutic use and toxicity. *Journal of Emergency Medicine* 1995; 13:797-802.
3. Kaye KI, Welch SA, Graudins LV, et al. Pethidine in emergency departments: promoting evidence-based prescribing. *Medical Journal of Australia* 2005; 183:129-33.