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.[1] Data from controlled trials consistently show a lack of superior analgesic efficacy of pethidine compared to alternative parenteral analgesics.[2] Pethidine has a number of disadvantages which limit its usefulness including:[3]

- 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 (e.g. convulsions) especially in patients with renal dysfunction
- association with potentially serious interactions with other medicines, including monoamine oxidase inhibitors and serotonin reuptake inhibitors, which may result in serotonin syndrome
- being a medicine commonly requested by abusers seeking opioids and abused by health professionals.

Key definitions

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

Data collection for local use

Please refer to the section *Using the National Quality Use of Medicines Indicators for Australian Hospitals* for guidance on sample selection, sample size, measurement frequency and other considerations.

Inclusion criteria: Orders or requisitions for parenteral opioids presented to the pharmacy.

Exclusion criteria: Supplies of parenteral opioids to other hospitals.

Recommended data sources: Opioid orders or requisitions and relevant pharmacy records.

The data collection tool for QUM Indicator 6.3 assists data collection and indicator calculation.

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

A safety bulletin issued by the Institute for Safe Medication Practices Canada, which includes recommendations for improving safety with pethidine (meperidine), is available at **www.ismp-canada.org/download/safetyBulletins/ISMPCSB2004-08.pdf**

This indicator can be used to assist hospitals in meeting the National Safety and Quality Health Service Standard 1 [items 1.2.1, 1.2.2, 1.5.2, 1.6.1, 1.6.2] and Standard 4 [items 4.1.2, 4.2.2, 4.5.1, 4.5.2, 4.11.1].[4]

References

1. Use of pethidine for pain management in the emergency department. Position statement. NSW Therapeutic Advisory Group, 2004.
2. Clark RF, Wei EM, Anderson PO. Meperidine: therapeutic use and toxicity. J Emerg Med 1995; 13: 797-802.
3. Kaye KI, Welch SA, Graudins LV, et al. Pethidine in emergency departments: promoting evidence-based prescribing. Med J Aust 2005; 183: 129-133.
4. Australian Commission on Safety and Quality in Health Care. National Safety and Quality Health Service Standards. Sydney, ACSQHC, 2012