

6.1 Percentage of medication storage areas outside pharmacy where potassium ampoules are available

Purpose

This indicator addresses the effectiveness of processes intended to prevent harm associated with inadvertent administration of concentrated potassium solutions.

Background and evidence

Deaths have occurred in Australia and other countries as a result of errors in administration of parenteral potassium infusions prepared using concentrated potassium ampoules or accidentally selecting potassium instead of saline ampoules.¹ Data from Australian incident monitoring shows that errors in preparation of parenteral potassium infusions using potassium ampoules continue to occur. The common root cause to these errors is the availability of concentrated potassium ampoules in wards and other patient care areas.¹ In 2003, the Australian Council for Safety and Quality in Health Care recommended that hospitals remove potassium ampoules from ward stock and replace them with premixed infusion solutions wherever possible.¹

As deaths from use of concentrated potassium ampoules have occurred even in critical care areas, premixed potassium solutions should be used preferentially in all patient care areas.^{2,3}

Key definitions

Medication storage areas means any cupboard, trolley or other place outside pharmacy where potassium may be stored, including intensive care units, emergency departments, operating theatres and other critical care areas. All medication storage areas should be included whether they are locked or not and regardless of whether risk assessments or other safety precautions have been implemented.

Potassium ampoules means all strengths and presentations of concentrated potassium chloride or other potassium salt solutions that require dilution prior to intravenous infusion.¹

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: Medication storage areas outside pharmacy, including intensive care units, emergency departments, operating theatres and other critical care areas.

Exclusion criteria: Nil.

Recommended data sources: Visual inspection of medication storage areas.

The data collection tool for QUM Indicator 6.1 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 medication storage areas outside pharmacy where potassium ampoules are available

Denominator = number of medication storage areas outside pharmacy in sample

Limitations and interpretation

This indicator does not measure:

- whether potassium ampoules are stored safely
- whether protocols are available to guide safe potassium ampoule use
- whether risk assessments for potassium ampoule storage and use have been performed
- reasons for potassium ampoule availability in certain wards
- reasons why potassium ampoules rather than premixed solutions are used.

Further information

The Australian Commission on Safety and Quality in Health Care web page includes the safety alert, case studies and other tools to reduce the hazards associated with intravenous potassium chloride. Available from www.safetyandquality.gov.au/our-work/medication-safety/medication-alerts/intravenous-potassium-chloride/

A safety alert from the UK National Patient Safety Agency is available from www.nrls.npsa.nhs.uk/resources/?entryid45=59882

Medication Safety Self Assessment for Australian Hospitals⁴ (MSSA) can help identify potential strategies for improvement with this and other indicators. MSSA encourages development of robust systems for safe prescribing, dispensing, administration and monitoring of medicines. MSSA is available at www.cec.health.nsw.gov.au

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, 4.4.2, 4.5.1, 4.5.2, 4.10.1, 4.10.2, 4.10.6, 4.11.1, 4.11.2].⁵

References

1. MEDICATION ALERT! Intravenous POTASSIUM CHLORIDE can be fatal if given inappropriately. Australian Council for Safety and Quality in Health Care, 2003.
2. Patient Safety Bulletin: Emerging themes from reported incidents, Vol. 2007: National Patient Safety Agency, January 2007.
3. Medication Errors, 2nd Edn. In: Cohen MR, ed: American Pharmacists Association, 2007.
4. Medication Safety Self Assessment for Australian Hospitals: Institute for Safe Medication Practices USA (Adapted for Australian use by NSW Therapeutic Advisory Group and the Clinical Excellence Commission), 2007.
5. Australian Commission on Safety and Quality in Health Care. National Safety and Quality Health Service Standards. Sydney, ACSQHC, 2012.