High-Risk Medicine Standard: Neuromuscular blocking agents PRINTABLE STANDARD

Last updated: 26 February 2024. **Printed copies are uncontrolled and should not be relied upon as up to date.**

Neuromuscular blocking agents produce skeletal (including respiratory) muscle relaxation. They are used to facilitate endotracheal intubation and control of the airway, to allow mechanical ventilation and to prevent reflex muscle contraction. Examples of neuromuscular blocking agents include atracurium, cisatracurium, mivacurium, rocuronium, suxamethonium and vecuronium.

Neuromuscular blocking agents are considered high-risk medicines because inadvertent use in patients without the availability of staff skilled in airway support can lead to respiratory arrest, permanent harm, or death.

Serious incidents have occurred as a result of the inadvertent administration of a neuromuscular blocking agent to patients instead of a sedative.

Identified contributing factors to incidents involving neuromuscular blocking agents include:

- look-alike packaging and labelling
- sound-alike medicine names
- drug administration after extubation
- use of pre-prepared, unlabelled syringes
- unsafe storage, particularly small quantities in refrigerators
- use in clinical areas where clinical staff may be unfamiliar with the drugs and their action.

This standard outlines the minimum actions required to mitigate risks associated with neuromuscular blocking agents use. This standard does not contain clinical guidance on neuromuscular blocking agents use.

Minimum requirements for clinical protocol

The Drug and Therapeutics Committee are to approve any clinical protocols relating to neuromuscular blocking agents and ensure inclusion of the following, at a minimum:

- any specific training, qualifications, skills or competencies required to prescribe or administer neuromuscular blocking agents
- specific neuromuscular blocking agent storage requirements
- any additional equipment required, for example, use of ‘red plunger’ syringes
- a statement that ventilator support is to be present during and after administration and whilst these medicines have an effect
- minimum requirements for patient responsiveness prior to extubation.

Governance requirements

Adherence to the requirements specified in this standard is to be monitored by governance committees (for example, Drug and Therapeutics Committee) and service managers (including, but not limited to, Directors of Pharmacy and Nurse Unit Managers). An implementation checklist is available and can be used by facilities and individual units to determine compliance with these requirements.

Storage and supply

- Supply of neuromuscular blocking agents is to be limited to critical care areas where there is a clinical need and where patients have the capability to be ventilated and monitored.
- Reversal agents are to be available in clinical areas where neuromuscular blocking agents are used and stored.
- In clinical areas where a small number of doses are kept refrigerated to support cardiopulmonary resuscitation, specially identified secure storage is to be used. Refer to the Society of Hospital Pharmacists of Australia Neuromuscular blocker storage chart for more information on adjusted storage and expiry of neuromuscular blockers.
- Where neuromuscular blocking agents do not have warning labels on their outer packaging or are removed from their original packaging (for example, to be added to an intubation pack), warning labels are to be applied to the outer container stating ‘Warning: contains paralysing agent’ or similar.

Administration

- Once prepared, labelling is to comply with the appropriate standards for anaesthesia and the Australian Commission on Safety and Quality in Health Care National Standard for User-applied Labelling of Injectable Medicines Fluids and Lines.
- Red coloured barrel/plunger syringes are to be used when drawing up neuromuscular blocking agents.
- Where practicable, an independent second person check is to occur prior to administration of neuromuscular blocking agents. The second person check processes are outlined in the NSW Health Policy Directive *Medication Handling* (PD2022_032) including circumstances where a second person check is not mandated (for example, when a medicine is administered by an authorised prescriber).

References

- Australian and New Zealand College of Anaesthetists. PG51(A) Guideline for the safe management and use of medications in anaesthesia 2021. [Internet]. Available from: https://www.anzca.edu.au/getattachment/17f3f75c-9164-41e6-a918-9f403261c8eb/PS51-Guideline-for-the-safe-management-and-use-of-medications-in-anaesthesia. Published April 2021. Accessed November 27, 2023.
- Therapeutic Goods Administration. Warning labels of medicines containing neuromuscular blocking agents. [Internet]. Available from: https://www.tga.gov.au/resources/resource/guidance/warnings-labels-medicines-containing-neuromuscular-blocking-agents. Updated October 8, 2020. Accessed November 27, 2023.
- Australian Commission on Safety and Quality in Health Care. National Standard for User-applied Labelling of Injectable Medicines, Fluids and Lines. [Internet]. Available from: https://www.safetyandquality.gov.au/sites/default/files/migrated/National-Standard-for-User-Applied-Labelling-Aug-2015.pdf. Published August 2015. Accessed November 27, 2023.