South Australian Neonatal Medication Guidelines

Neostigmine

500 microgram/mL injection (SAS), 2500 microgram/mL injection

Note:

This guideline provides advice of a general nature. This statewide guideline has been prepared to promote and facilitate standardisation and consistency of practice, using a multidisciplinary approach. The guideline is based on a review of published evidence and expert opinion.

Information in this statewide guideline is current at the time of publication.

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Health practitioners in the South Australian public health sector are expected to review specific details of each patient and professionally assess the applicability of the relevant guideline to that clinical situation.

If for good clinical reasons, a decision is made to depart from the guideline, the responsible clinician must document in the patient's medical record, the decision made, by whom, and detailed reasons for the departure from the guideline.

This statewide guideline does not address all the elements of clinical practice and assumes that the individual clinicians are responsible for discussing care with consumers in an environment that is culturally appropriate, and which enables respectful confidential discussion. This includes:

- The use of interpreter services where necessary,
- Advising consumers of their choice and ensuring informed consent is obtained,
- Providing care within scope of practice, meeting all legislative requirements, and maintaining standards of professional conduct, and
- Documenting all care in accordance with mandatory and local requirements

Synonyms

Neostigmine methylsulfate

Dose and Indications

1 mg = 1000 microgram

Prescribe all doses in microgram

Reversal of Non-depolarising Neuromuscular Blockade (e.g. from pancuronium, vecuronium, rocuronium)

- **Intravenous:**
  - Give atropine immediately prior to neostigmine dose (in separate syringes) to prevent muscarinic effect (such as bradycardia, increased salivation and hyperperistalsis). See atropine SA NeoMed guideline.
  - 50 microgram/kg/dose, if needed give a further dose of 25 microgram/kg/dose

Myasthenia Gravis

Consult Neurologist prior to initiating treatment

- **Test dose – Intramuscular:**
  - Premedication with atropine is recommended (refer to atropine dosing guideline).
  - 50 to 250 microgram (irrespective of weight)
- **Short Term Management – Intramuscular, Subcutaneous:**
  - 50 to 250 microgram (irrespective of weight) every 2 to 4 hours, half an hour before feeding
  - Obtain specialist advice for long term use or oral therapy.

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Preparation and Administration

Intravenous, Intramuscular, Subcutaneous

- **If the 500 microgram/mL injection (SAS product) is available:**
  - Use undiluted.
- **If only the 2500 microgram/mL injection is available:**
  - Dilute 1 mL of the 2500 microgram/mL neostigmine injection with 4 mL of compatible fluid (to a total volume of 5 mL). The resulting solution contains 500 microgram/mL neostigmine.

Neostigmine 500 microgram/mL (IV, IM, Subcut):

Dose	50 microgram	100 microgram	200 microgram	300 microgram
Volume	0.1 mL	0.2 mL	0.4 mL	0.6 mL

- For intravenous administration, give over 1 minute. Administer undiluted, or small volumes can be further diluted for ease of administration.
- Discard remaining solution.

Compatible Fluids

Glucose 5%, glucose 10%, glucose/sodium chloride solutions, sodium chloride 0.9%

Adverse Effects

- Increased salivation, vomiting, diarrhoea, abdominal cramps, rash, anaphylaxis
- Over treatment may lead to cholinergic crisis with increased cholinergic effects (e.g. excessive sweating, miosis, nystagmus, bradycardia, hypotension, increased muscle weakness leading to fasciculation and paralysis), central nervous system effects (e.g. ataxia, seizures, tremor, agitation and coma), bronchospasm and respiratory failure.
- Atropine is used to control side effects.

Monitoring

- Respiratory and cardiovascular status
- Monitoring requirements are dependent on clinical context

Practice Points

- Onset of action from intravenous dose is usually 1 minute, complete reversal usually occurs within 5 to 20 minutes with most neuromuscular blocking agents and effects last for 20 to 30 minutes

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Document Ownership & History

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Does this Neonatal Medication Guideline amend or update and existing Neonatal Medication Guideline? **Y**
If so, which version? **2.0**
Does this Neonatal Medication Guideline replace another Neonatal Medication Guideline with a different title? **N**
If so, which Neonatal Medication Guideline (title)?

Approval Date	Version	Who approved New/Revised Version	Reason for Change
16/12/2025	V3.0	Clinical Guideline Domain Custodian	Formal review
05/07/2018	V2.0	SA Health Safety and Quality Strategic Governance Committee	Formally reviewed in line with 5 year scheduled timeline for review.
11/2012	V1.0	SA Maternal & Neonatal Community of Practice	Original SA Maternal & Neonatal Community of Practice approved version.

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