



Drug Therapy Protocols: Sodium bicarbonate 8.4%

Policy code	DTP_SOB_0722
Date	July, 2022
Purpose	To ensure a consistent procedural approach to sodium bicarbonate 8.4% administration.
Scope	Applies to all Queensland Ambulance Service (QAS) clinical staff.
Health care setting	Pre-hospital assessment and treatment.
Population	Applies to all ages unless specifically mentioned.
Source of funding	Internal – 100%
Author	Clinical Quality & Patient Safety Unit, QAS
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Sodium bicarbonate 8.4%

July, 2022

Drug class

Alkalisating agent^[1,2]

Pharmacology

Sodium bicarbonate 8.4% is a hypertonic solution that acts as a buffer. Excess hydrogen ions react with bicarbonate resulting in the formation of carbon dioxide and water. This action assists in restoring plasma pH to within normal ranges.^[1,2]

Metabolism

Metabolised to CO₂ and H₂O.^[1]

Indications^[3-5]

- **Cardiac arrest:**
 - secondary to suspected hyperkalaemia (e.g. chronic renal failure)
 - secondary to tricyclic antidepressant (TCA) OR propranolol overdose
- Significant injury with potential for **crush syndrome**
- **TCA poisoning** (with QRS > 0.14 AND terminal R wave in aVR)
- **Sodium channel blockade due to non-TCA poisoning** (with QRS > 0.14 AND terminal R wave in aVR)
- **Suspected hyperkalaemia** (with QRS widening AND/OR AV dissociation)

Contraindications

- Nil

Precautions

- Nil

Side effects

- Cerebral oedema
- Congestive heart failure

Presentation

- Vial, 100 mL sodium bicarbonate 8.4%

Onset (IV)

Immediate

Duration (IV)

Variable

Half-life

Variable

Schedule

- Unscheduled.

Routes of administration

Intravenous injection (IV) 

Intraosseous injection (IO) 

Special notes

- Ambulance officers must only administer medications for the listed indications and dosing range. Any consideration for treatment outside the listed scope of practice requires mandatory approval via the *QAS Clinical Consultation and Advice Line*.
- Care must be taken to avoid extravasation into tissues as necrosis may occur.
- Sodium bicarbonate 8.4% administration is not indicated in the newly born pre-hospital resuscitation.
- The Phebra branded sodium bicarbonate vials are unable to be spiked with QAS supplied Alaris® giving sets. All medication must be withdrawn and administered using a 50 mL syringe and 19 G drawing up needle.
- All cannulae and IV lines must be flushed thoroughly with sodium chloride 0.9% before and following each medication administration.
- All parenteral medications must be prepared in an aseptic manner. The rubber stopper of all vials must be disinfected with an appropriate antimicrobial swab and allowed to dry prior to piercing.

Adult dosages^[1-5]

Cardiac arrest

- secondary to suspected hyperkalaemia (e.g. chronic renal failure)
- secondary to TCA or propranolol overdose

Significant injury with potential for crush syndrome

Suspected hyperkalaemia (with QRS widening AND/OR AV dissociation)



IV

100 mL
Single dose only.



IO

100 mL
Single dose only.

TCA poisoning (with QRS > 0.14 AND terminal R wave in aVR)



IV

100 mL
Repeated every 5 minutes.
Total maximum dose 300 mL.



IO

100 mL
Repeated every 5 minutes.
Total maximum dose 300 mL.

Sodium channel blockade due to non-TCA poisoning (with QRS > 0.14 AND terminal R wave in aVR)



IV

100 mL
Single dose only.



IO

100 mL
Single dose only.

Paediatric dosages^[1-5]

- **Cardiac arrest**
 - secondary to suspected hyperkalaemia (e.g. chronic renal failure)
 - secondary to TCA or propranolol overdose
- **Significant injury with potential for crush syndrome**
- **Suspected hyperkalaemia** (with QRS widening AND/OR AV dissociation)

CCP	IV	1 mL/kg Single dose only.
CCP	IO	1 mL/kg Single dose only.



SODIUM BICARBONATE INTRAVENOUS INFUSION BP 8.4 %
8.4 g in 100 mL

Each vial contains Sodium Bicarbonate 8.4 g (100 mmol) in 100 mL of solution, pH 7.3-7.6.

Use in one container with antimicrobial preservative. Particles must be removed by filtration.

Directions for use: For intravenous infusion only.

Store below 25°C (77°F).

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 West Ryde, NSW 1585
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For intravenous infusion only
 AUST R 10801

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