Drug Therapy Protocols: Sodium chloride 0.9%

Policy code	DTP_SOC_0722
Date	July, 2022
Purpose	To ensure a consistent procedural approach to sodium chloride 0.9% 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 chloride 0.9%

July, 2022

Drug class [1]

Isotonic crystalloid solution

Pharmacology

Sodium chloride 0.9% is an isotonic crystalloid that acts as a vehicle for many parenteral drugs and as an electrolyte replenisher for maintenance or replacement of fluid deficits.[1,2]

Metabolism

This drug has 100% bioavailability. Excess sodium is predominantly excreted by the kidneys.[1]

Indications

- **Inadequate tissue perfusion/shock**
- **Hypovolaemia**
- **Significant burns** (Total Body Surface Area > 20% for adults or > 10% for paediatrics)
- **To dissolve and dilute drugs** (for the purpose of IM, IV or IO administration)
- As a **flush** following IV or IO drug administration

Contraindications

- Nil

Precautions

- Patients with acute and/or history of heart failure
- Pre-existing renal failure
- Uncontrolled haemorrhage (unless associated with severe head injury)

Side effects

- Excessive administration will result in fluid overload

Presentation

- Ampoule, 10 mL *sodium chloride 0.9%*
- Viaflex plastic container, 100 mL *sodium chloride 0.9%*
- Viaflex plastic container, 500 mL *sodium chloride 0.9%*
- BD PosiFlush™ 10 mL pre-filled *sodium chloride 0.9%* syringe

Onset	Duration	Half-life
Immediate	Variable	N/A

Sodium chloride 0.9%

Schedule

- Unscheduled.

Routes of administration

Intravenous injection (IV)	ACP2, CCP
Intravenous infusion (IV INF)	ACP2, CCP
Intraosseous injection (IO)	CCP
Intraosseous infusion (IO INF)	CCP

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*.
- Use of volume expansion in uncontrolled haemorrhage (without a concurrent traumatic brain injury) may be associated with poor outcomes. Paramedics must administer the minimum amount of IV/IO fluid required to maintain a radial pulse.[3]

Special notes

- Hypotension with a concurrent traumatic brain injury is associated with poor outcomes. In such settings, paramedics must administer the minimum amount of IV fluid required to maintain a systolic BP of 100–120 mmHg (adult).[3,4]
- Excessive fluid infusion may lead to neurogenic pulmonary oedema in the spinal cord injured patient.
- Too rapid infusion of fluids in a patient without a fluid deficit, or with underlying cardiac problems, may cause pulmonary oedema and congestive heart failure.[5]
- Benefits of fluid infusion must be carefully analysed against concerns for the patient's overall condition.[5]
- A gentle fluid challenge may be considered for patients with suspected right ventricular infarct (following 12-Lead ECG acquisition with V4R) and no signs of left ventricular failure (e.g. pulmonary oedema).
- Adult patients must be re-assessed after every 250–500 mL of fluid administration.
- Paediatric patients must be re-assessed after every 10 mL/kg of fluid administration.
- For burns management, the QAS uses the PHIFTEEN B (15-B) formula in adults to identify the hourly parenteral fluid rate goal to be administered from the time of injury.[3]
- BD PosiFlush™ SP pre-filled sodium chloride 0.9% syringes are intended for flushing vascular devices only and **MUST NOT** be used for any dry product reconstitution **AND/OR** medication dilution.

Sodium chloride 0.9%

Adult dosages [1–6]

• Inadequate tissue perfusion/shock
• Hypovolaemia

ACP2 CCP	IV INF	**PRN** – titrate according to the indication and the patient's physiological response to treatment.
CCP	IO INF	**PRN** – titrate according to the indication and the patient's physiological response to treatment.

Significant burns (TBSA > 20%)

ACP2 CCP	IV INF	**mL/hr to be infused = 15 mL/hr x TBSA (nearest 10%)** if > 100 kg administer an additional 200 mL/hr
CCP	IO INF	**mL/hr to be infused = 15 mL/hr x TBSA (nearest 10%)** if > 100 kg administer an additional 200 mL/hr

To dissolve and dilute drugs
(for the purpose of IM, IV or IO administration)

ACP1 ACP2 CCP	IM	**As authorised on individual DTPs**
ACP2 CCP	IV	**As authorised on individual DTPs**
CCP	IO	**As authorised on individual DTPs**

Adult dosages *(cont.)*

As a flush following IV or IO drug administration

ACP2 CCP	IV	**PRN**
CCP	IO	**PRN**

Paediatric dosages [1–6]

• Inadequate tissue perfusion/shock
• Hypovolaemia

ACP2	IV INF	*QAS Clinical Consultation and Advice Line* approval required in all situations. **10–20 mL/kg** May be repeated twice following assessment of the patient's needs and physiological response to treatment. **Total max dose 60 mL/kg.**
CCP	IV/IO INF	**10–20 mL/kg** May be repeated twice following assessment of the patient's needs and physiological response to treatment. **Total max dose 60 mL/kg.**

Paediatric dosages *(cont.)*

Significant burns (TBSA > 10%)

ACP2 CCP	**IV INF**	*QAS Clinical Consultation and Advice Line* consultation and approval required in all situations.
CCP	**IO INF**	*QAS Clinical Consultation and Advice Line* consultation and approval required in all situations.

To dissolve and dilute drugs
(for the purpose of IM, IV or IO administration)

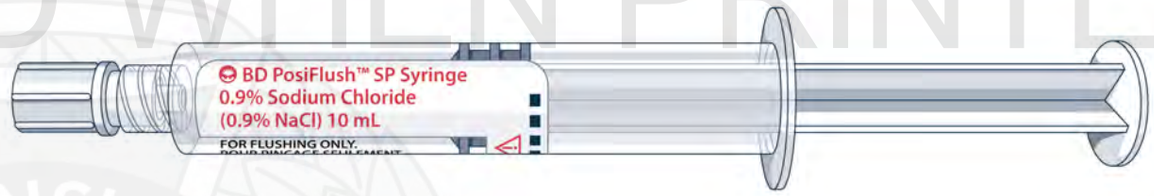
ACP1 ACP2 CCP	**IM**	**As authorised on individual DTPs**
ACP2 CCP	**IV**	**As authorised on individual DTPs**
CCP	**IO**	**As authorised on individual DTPs**

As a flush following IV or IO drug administration

ACP2 CCP	**IV**	**PRN**
CCP	**IO**	**PRN**

BD PosiFlush™ 10 mL SP pre-filled sodium chloride 0.9% syringe instructions

1. Remove the PosiFlush™ pre-filled syringe from the packaging.
2. Check that the syringe tip cap is in place.



3. Inspect clarity – solution should be clear, colourless and free of particulate matter.
4. Depress the plunger to release stopper seal.
5. Complete the required drug checks (refer to *QAS Drug Management Code of Practice*).
6. With a gentle twisting motion remove the tip cap from the syringe ensuring that there is no touch contamination of the sterile luer connection.
7. Hold the syringe upright and expel the air.
8. Connect the syringe to the patient's vascular access device.
9. Gently push the syringe plunger to administer the flush as necessary.
10. Monitor the insertion site for signs of extravasation
11. Recap the syringe with the top cap ensuring that there is no touch contamination of the sterile luer connection
12. Remove the syringe and discard in accordance with the *QAS Infection Control Framework*.