Drug Therapy Protocols: Furosemide (frusemide)

<table>
<thead>
<tr>
<th>Policy code</th>
<th>DTP_FRU_0519</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date</td>
<td>May, 2019</td>
</tr>
<tr>
<td>Purpose</td>
<td>To ensure a consistent procedural approach to furosemide (frusemide) administration.</td>
</tr>
<tr>
<td>Scope</td>
<td>Applies to all Queensland Ambulance Service (QAS) clinical staff.</td>
</tr>
<tr>
<td>Health care setting</td>
<td>Pre-hospital assessment and treatment.</td>
</tr>
<tr>
<td>Population</td>
<td>Applies to all ages unless specifically mentioned.</td>
</tr>
<tr>
<td>Source of funding</td>
<td>Internal – 100%</td>
</tr>
<tr>
<td>Author</td>
<td>Clinical Quality &amp; Patient Safety Unit, QAS</td>
</tr>
<tr>
<td>Review date</td>
<td>May, 2022</td>
</tr>
</tbody>
</table>

While the QAS has attempted to contact all copyright owners, this has not always been possible. The QAS would welcome notification from any copyright holder who has been omitted or incorrectly acknowledged.

All feedback and suggestions are welcome. Please forward to: Clinical.Guidelines@ambulance.qld.gov.au

Disclaimer

The Digital Clinical Practice Manual is expressly intended for use by QAS paramedics when performing duties and delivering ambulance services for, and on behalf of, the QAS.

The QAS disclaims, to the maximum extent permitted by law, all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages and costs incurred for any reason associated with the use of this manual, including the materials within or referred to throughout this document being in any way inaccurate, out of context, incomplete or unavailable.


This work is licensed under the Creative Commons Attribution-NonCommercial-NoDerivatives V4.0 International License

You are free to copy and communicate the work in its current form for non-commercial purposes, as long as you attribute the State of Queensland, Queensland Ambulance Service and comply with the licence terms. If you alter the work, you may not share or distribute the modified work. To view a copy of this license, visit http://creativecommons.org/licenses/by-nc-nd/4.0/deed.en

For copyright permissions beyond the scope of this license please contact: Clinical.Guidelines@ambulance.qld.gov.au
**Furosemide (frusemide)**

**Drug class**
Loop diuretic

**Pharmacology**
Furosemide (frusemide) is a potent loop diuretic that acts by inhibiting sodium and chloride absorption in the ascending Loop of Henle (proximal and distal tubules).\(^1\)\(^{-}^3\)

**Metabolism**
The majority of parenteral frusemide is excreted in the urine within 24 hours, the remainder is excreted in the faeces.\(^1\)

**Indications**
- **Congestive cardiac failure**
- **Fluid overload** (with compromised renal function)
- **Oliguria** (after correction of hypotension and hypovolaemia)

**Contraindications**
- Allergy and/or Adverse Drug Reaction
- Pre-hospital use in acute cardiogenic pulmonary oedema
- Patients < 12 years of age

**Side effects**
- Marked diuresis can lead to hypotension
- Potassium loss associated with diuresis may aggravate or potentiate dysrhythmias

**Presentation**
- Ampoule, 20 mg/2 mL *furosemide* (frusemide)

**Onset (IV)** | **Duration (IV)** | **Half-life**
--- | --- | ---
3–5 minutes (peak 30 minutes) | ≈ 2 hours (following stat IV dose) | 1.5 hours

**Precautions**
- Hypotension
Furosemide (frusemide)

Schedule

- S4 (Restricted drugs).

Routes of administration

<table>
<thead>
<tr>
<th>Routes of administration</th>
<th>Adult dosages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intravenous infusion (IV INF)</td>
<td>CCP ESoP aeromedical – RSQ Clinical Coordinator consultation and approval required in all situations.</td>
</tr>
</tbody>
</table>

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 Consult and Advice Line.
- Increased infusion doses may be required in patients with chronic renal impairment and/or who take regular high dose oral furosemide (frusemide).
- All cannulae and IV lines must be flushed thoroughly with sodium chloride 0.9% following each medication administration.

Paediatric dosages

- **Congestive cardiac failure**
- **Fluid overload** (with compromised renal function)
- **Oliguria** (after correction of hypotension and hypovolaemia)

**Note:** QAS officers are NOT authorised to administer furosemide (frusemide) to paediatric patients.

**Paediatric dosages**

CCP ESoP aeromedical – RSQ Clinical Coordinator consultation and approval required in all situations.

Continue furosemide (frusemide) infusions already commenced at hospital, using the same concentration and administration rate already established. This may involve withdrawing previously mixed and labelled solutions from the referring hospital. Should the RSQ Clinical Coordinator request a furosemide (frusemide) infusion be commenced, the following procedure is to be undertaken.

Commence infusion at **5 mg/hour** (2.5 mL/hour) and increase by **5 mg/hour** (2.5 mL/hour) every 60 minutes to a maximum dose of **20 mg/hour** (10 mL/hour) until the desired urine output is achieved.

*Syringe preparation:* Mix 100 mg (10 mL) of furosemide (frusemide) with 40 mL of sodium chloride 0.9% in a 50 mL syringe to achieve a final concentration of 2 mg/mL. Ensure all syringes are appropriately labelled. Administer via syringe driver.