Drug Therapy Protocols: Morphine

Policy code	DTP_MOR_0722
Date	July, 2022
Purpose	To ensure a consistent procedural approach to morphine 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%
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Morphine

Drug class

Narcotic analgesic[1,2]

Pharmacology

Morphine is a narcotic analgesic that acts on the central nervous system by binding with opioid receptors, altering processes affecting pain perception and emotional response to pain. It also combines to cause respiratory depression, vasodilation, decreases in the gag reflex and slows AV node conduction.[1,2]

Metabolism

By the liver, kidney and lungs.[1]

Indications

- **Significant pain**
- **Sedation**
- **Autonomic dysreflexia** (with systolic BP > 160 mmHg)[3]

NOTE: Morphine is the preferred narcotic agent except under the following circumstances:

- allergy AND/OR Adverse Drug Reaction to morphine;
- haemodynamic instability;
- known/suspected kidney disease;
- when NAS narcotic administration is the preferred treatment; AND/OR
- suspected ACS.

Contraindications

- Allergy AND/OR Adverse Drug Reaction
- Kidney disease (renal failure)

Precautions

- Hypotension
- Respiratory tract burns
- Respiratory depression and/or failure
- Known addiction to narcotics
- Concurrent MAOI therapy
- Cardiac chest pain

Side effects[1,2]

- Bradycardia
- Drowsiness
- Hypotension
- Nausea and/or vomiting
- Pin point pupils
- Respiratory depression

Morphine

Presentation

- Ampoule, 10 mg/1 mL *morphine sulphate pentahydrate*

Onset	Duration	Half-life
5–10 minutes (peak 20–30 minutes (IM)) / 2–5 minutes (peak 20 minutes (IV))	1–2 hrs	2 hours

Schedule

- S8 (Controlled drugs).

Routes of administration

Subcutaneous injection (SUBCUT)	ACP1, ACP2, CCP
Intramuscular injection (IM)	ACP1, ACP2, CCP
Intravenous injection (IV)	ACP2, CCP
Intraosseous injection (IO)	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*.
- If the rare situation when combined narcotic (morphine **AND** fentanyl) therapy is administered, the 'Total maximum dose' must be calculated using a combination of all morphine **AND** Morphine Milligram Equivalent (MME) medication (e.g. fentanyl). For example, 10 mg morphine **AND** 100 microg fentanyl would equal the ACP total maximum dose of 20 mg MME.
- When morphine is administered to a hypotensive patient, ACPs must call for CCP backup where available.
- In the setting of the hypotensive adult patient (SBP < 90 mmHg) all incremental morphine doses must be no greater than 2.5 mg IV or 5 mg IM.
- Morphine (preference for single IM dose) is a suitable analgesic for the treatment of moderate to severe labour pain in full term mothers in the pre-hospital setting. In all situations paramedics must carefully assess the risks and benefits to both mother and child. Morphine will result in a degree of neonatal respiratory depression (transplacental transfer of morphine is rapid and measurable within 5 minutes of IM/IV administration). Therefore, it is imperative to advise the receiving hospital of the time/dose of morphine given, so that a Paediatrician may attend the delivery as appropriate.
- When administering morphine and midazolam to maintain sedation in the intubated patient, appropriate management must be instituted to address any adverse side effects such as hypotension. The addition of morphine in this setting will reduce midazolam requirements, provide analgesia and ultimately decrease the risk of hypotension. Under no circumstances are morphine and midazolam to be mixed in the one syringe.
- All cannulae and IV lines must be flushed thoroughly with sodium chloride 0.9% following each medication administration.

Adult dosages [1–5]

Significant pain		
ACP1 ACP2 CCP	SUBCUT	*QAS Clinical Consultation and Advice Line* approval required in all situations.
ACP1	IM	≥ 70 yrs/cachectic or frail – **2.5–5 mg** Repeated at up to **5 mg** every **10 minutes.** **Total maximum dose 10 mg (or MME).** < 70 yrs – **2.5–10 mg** Repeated at up to **5 mg** every **10 minutes.** **Total maximum dose 20 mg (or MME).**
• **Significant pain** • **Autonomic dysreflexia** (with systolic BP > 160 mmHg)		
ACP2	IM	≥ 70 yrs/cachectic or frail – **2.5–5 mg** Repeated at up to **5 mg** every **10 minutes.** **Total maximum dose 10 mg (or MME).** < 70 yrs – **2.5–10 mg** Repeated at up to **5 mg** every **10 minutes.** **Total maximum dose 20 mg (or MME).**
CCP	IM	**2.5–10 mg** Repeated at up to **5 mg** every **10 minutes.** **No maximum dose.**
ACP2	IV	≥ 70 yrs/cachectic or frail – **2.5 mg** Repeated at up to **2.5 mg** every **5 minutes.** **Total maximum dose 10 mg (or MME).** < 70 yrs – **2.5–5 mg** Repeated at up to **5 mg** every **5 minutes.** **Total maximum dose 20 mg (or MME).**
CCP	IV	**2.5–5 mg** Repeated at up to **5 mg** every **5 minutes.** **No maximum dose.**

Adult dosages *(cont.)*

Sedation		
CCP	IV	**2.5 mg** Repeated PRN. **No maximum dose.**
CCP	IO	**2.5 mg** Repeated PRN. **No maximum dose.**

Paediatric dosages [1–6]

Significant pain		
ACP1	IM	≥ 1 year – **200 microg/kg** **(rounded down to the nearest 5 kg).** **Single dose only.** Weight: 10 – < 15 kg; Dose: 2 mg; Volume: 0.2 mL Weight: 15 – < 25 kg; Dose: 3 mg; Volume: 0.3 mL Weight: 25–30 kg; Dose: 5 mg; Volume: 0.5 mL
ACP1 ACP2 CCP	SUBCUT	*QAS Clinical Consultation and Advice Line* approval required in all situations.

Paediatric dosages

- **Significant pain**
- **Autonomic dysreflexia** (with systolic BP > 160 mmHg)

ACP2	**IM**	≥ 1 year – **100–200 microg/kg** Single maximum dose 5 mg. **Total maximum dose 200 microg/kg (or MME).** < 1 year – *QAS Clinical Consultation and Advice Line* approval required in all situations.
CCP	**IM**	≥ 1 year – **200 microg/kg** Single maximum dose 5 mg. Repeated at 100 microg/kg (maximum 2.5 mg) at 10 minute intervals. **No maximum dose.** < 1 year – *QAS Clinical Consultation and Advice Line* approval required in all situations.
ACP2	**IV**	≥ 1 year – **100 microg/kg** Single maximum dose 2.5 mg. Repeated at 50 microg/kg (maximum 2.5 mg) at 5 minute intervals. **Total maximum dose 200 microg/kg (or MME).** < 1 year – *QAS Clinical Consultation and Advice Line* approval required in all situations.
CCP	**IV**	≥ 1 year – **100 microg/kg** Single maximum dose 2.5 mg. Repeated at 50 microg/kg (maximum 2.5 mg) at 5 minute intervals. **No maximum dose.** < 1 year – *QAS Clinical Consultation and Advice Line* approval required in all situations.

Paediatric dosages *(cont.)*

Sedation

CCP	**IV**	≥ 1 year – **100 microg/kg** Single maximum dose 2.5 mg. **Repeated PRN. No maximum dose.** < 1 year – *QAS Clinical Consultation and Advice Line* approval required in all situations.
CCP	**IO**	≥ 1 year – **100 microg/kg** Single maximum dose 2.5 mg. **Repeated PRN. No maximum dose.** < 1 year – *QAS Clinical Consultation and Advice Line* approval required in all situations.

Note: QAS officers are **NOT** authorised to administer morphine to paediatric patients presenting with cardiogenic chest pain.

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