

MORPHINE

Analgesia and Sedation

Read in conjunction with [Disclaimer](#)

! HIGH RISK Medication !

1 mg = 1000 micrograms

<u>Formulary: Restricted</u>				
Presentation	Syringe (morphine sulfate): 1000 microgram/mL Oral solution (morphine hydrochloride): 1000 microgram/mL			
Classification	Opioid analgesic			
Indication	- Analgesia - Sedation - Neonatal Abstinence Syndrome (NAS) – see Morphine NAS protocol			
Special Considerations	- Opioid-naïve infants are at risk of cardiorespiratory depression, particularly if they are breathing spontaneously. - Use with caution in patients with hypersensitivity reactions to other opioids. - Tolerance may develop after prolonged use - wean slowly.			
Monitoring	- Cardiac and respiratory status, urine output, abdominal distension or delay in passage of stool. - Monitor NAS scores in opioid-dependent infants.			
Compatibility	Fluids: Glucose 5%, Glucose 10%, Sodium chloride 0.45%, Sodium chloride 0.9%			
	<u>Compatibility with Heparin</u>			
		Sodium chloride 0.9%	Glucose 5%	Glucose 10%
				Sodium chloride 0.45%
	With Heparin	Stable for 24 hours at room temperature	No stability information (avoid use)	No stability information (avoid use)
	Without Heparin	Stable for 48 hours at room temperature	Stable for 48 hours at room temperature	Stable for 24 hours at room temperature
Y-site: Refer to KEMH Neonatal Medication Guideline Y-Site IV Compatibility in Neonates				
Interactions	Combination use with other CNS depressants can increase the opioid effect - increasing the risk of respiratory depression and sedation.			

Side Effects	Respiratory depression, decreased gastrointestinal motility, hypotension, bradycardia, urinary retention.
Storage & Stability	Schedule 8 Medication Syringe: Store at room temperature, below 25°C Oral solution: Store at room temperature, below 25°C
Comments	- Withdraw/wean slowly following prolonged use. - Respiratory depression / apnoea can be reversed with naloxone. Naloxone is contraindicated in opioid dependent infants.

ORAL	Presentation (for oral use)	Oral solution: 1000 microgram/mL morphine hydrochloride	
	Dosage	Analgesia / Sedation ** For oral doses less than 100 microg – prescriber to annotate medication order with “dilution required” in ‘additional information’ section on medication chart. See Preparation section below for dilution instructions. ** 100 to 200 microg/kg/dose every 4 to 6 hours Oral doses recommended to be rounded to nearest 50 micrograms.	
	Preparation	Dilution required for doses less than 100 microg:  WARNING: error prone dilution – take extra care Dilution: - Draw up 1 mL (1000 microg) of morphine oral solution and dilute to a final volume of 10 mL with sterile water. <i>Concentration now equal to 100 microg/mL.</i> - Measure required dose and discard any unused solution.	
	Administration	- Draw prescribed dose into oral/enteral syringe - Can be given Oral/OGT/NGT - May be given anytime in relation to feeds	

ANALGESIA / SEDATION – CONTINUOUS INFUSION

Presentation (for IV use)	Syringe: 1000 microg/mL morphine sulfate
Dosage	Analgesia / Sedation – Continuous IV infusion 10 to 40 microg/kg/hour - See Preparation section below and Appendix 1 for information how to prescribe morphine on the Variable Rate Infusion Chart. Dose adjustment - Adjust dose according to response and adverse effects. Renal and/or hepatic impairment: No specific dosage adjustments provided. May affect metabolism and excretion.
Preparation	Continuous IV infusion See Appendix 1 for examples on how continuous morphine infusion should be prescribed on the Variable Rate Infusion Chart. Use IV Infusion prepared by CIVAS Pharmacy where available. Sodium chloride 0.9% is the only fluid that has stability data when combined with both heparin and morphine. See compatibility table on page 1 for more information. Dilution: - Draw up 500 microg (0.5 mL) per kilogram of baby's weight and make up to a final volume of 50 mL with a compatible fluid. <i>Concentration = 10 microg/kg/hour = 1 mL/hour.</i> Example: To prepare an infusion for a 780 g infant Weight = 0.78 kg Dose in Infusion = 500 microg x 0.78 kg = 390 microg Dilute 390 microg morphine to 50mL with compatible fluid. Fluid restricted infants - Continuous infusions can be made double, quadruple, etc strength if required for fluid restricted infants. - Ensure medication order is clearly annotated with the strength of the infusion. See Appendix 1. - Pay close attention to the change in infusion rate when changing strength.
Administration	IV infusion: Infuse at the prescribed rate via syringe driver pump.

ANALGESIA / SEDATION – IV PUSH

Presentation (for IV use)	Syringe: 1000 microg/mL morphine sulfate
Dosage	Analgesia / Sedation – Intermittent IV Push 100 to 200 microg/kg/dose every 4 to 6 hours
	Dose adjustment - Adjust dose according to response and adverse effects Renal and/or hepatic impairment: No specific dosage adjustments provided. May affect metabolism and excretion.
Preparation	For doses 100 microg or greater: Administer undiluted.
	For intermittent IV doses less than 100 micrograms the following dilution should be used: Draw up 1000 micrograms (1 mL) of morphine sulfate and make up to 10 mL total volume with sodium chloride 0.9%. <i>Concentration now equal to 100 microgram/mL.</i>
Administration	IV push: IV Injection over 5 minutes. Rapid IV administration may increase adverse effects.



Appendix 1

Morphine continuous infusion example

Child and Adolescent Health Service Neonatology		ALLERGIES & ADVERSE DRUG REACTIONS ☒ Nil Known ☐ Unknown ☐ Yes – refer to NIMC (Tick appropriate box)		Med Rec. No:		
NEONATAL VARIABLE RATE INFUSION CHART		Patient Name: Baby A	Date: 04/11/2024	Surname: UMRN Sticker		
Year: 20 <u>24</u>		Gest Age 27 + 1	CGA 27 + 3	Forename:		
		BW 1220g	Working Wt 1220g	Gender: D.O.B.		
MEDICATION ORDER		RATE CHANGE				
Date: 04/11/2024	Medication: Morphine	Date: 04/11/24				
Route: IV		Time: 0915				
Dose in Infusion: 610 microg	Dose/kg/time (at 1mL/hr): 10 microg/kg/hour	Rate (mL/hr): 1mL/hr				
		Doctor: A. Dr				
Diluent: Glucose 10%	Dose Calculation: 500 microg x 1.22 kg	Nurse: AN BN				
Final Volume: 50 mL	Doctor name: A. Dr Signature: 	Volume Discarded:				
Date: 05/11/2024	Medication: DOUBLE STRENGTH Morphine with 25 units Heparin	Date: 05/11/24	Check compatibility with heparin and fluids.			
Route: IV		Time: 0800				
Dose in Infusion: 1220 microg	Dose/kg/time (at 1mL/hr): 20 microg/kg/hour	Rate (mL/hr): 0.5 mL/hr	Dose/kg/time will change if the concentration is adjusted.			
		Doctor: A. Dr	Indicate the steps taken to calculate the dose in the infusion.			
Diluent: sodium chloride 0.9%	Dose Calculation: 500 microg x 1.22 kg x 2	Nurse: AN BN	Clearly label if increased concentration. I.e "DOUBLE STRENGTH"			
Final Volume: 50 mL	Doctor name: A. Dr Signature: 	Volume Discarded:				
Date: 06/11/2024	Medication: QUADRUPLE STRENGTH Morphine	Date: 06/11/24				
Route: IV		Time: 1050				
Dose in Infusion: 2240 microg	Dose/kg/time (at 1mL/hr): 40 microg/kg/hour	Rate (mL/hr): 0.5mL/hr				
		Doctor: A. Dr				
Diluent: Glucose 5%	Dose Calculation: 500 microg x 1.22 kg x 4	Nurse: AN BN				
Final Volume: 50mL	Doctor name: A. Dr Signature: 	Volume Discarded:				

MR828.02 / MR725.01 NEONATAL VARIABLE RATE INFUSION CHART

Destroy printed copies after use. Refer to the disclaimer.

Women and Newborn Health Service (Western Australia)

Related Policies, Procedures, and Guidelines

HDWA Mandatory Policies:

[MP 0131/20: WA High Risk Medication Policy](#)

Clinical Practice Guidelines:

[CAHS Neonatology – Neonatal Abstinence Syndrome \(NAS\)](#)

[CAHS Neonatology – Intubation](#)

[CAHS Neonatology – Pain Assessment and Management](#)

Pharmaceutical and Medicines Management Guidelines:

[CAHS Neonatology – Medication Administration Guideline](#)

[High Risk Medicines](#)

[Schedule 4 Restricted \(S4R\) and Schedule 8 \(S8\) Medications](#)

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