

MORPHINE

This drug must be guardrailed

Trade Name	IV: Morphine Sulphate injection B.P (DBL) Oral: RA – Morph (Pfizer)			
Class	Opiate analgesic			
Mechanism of Action	Stimulates brain opiate receptors. Releases histamine and centrally suppresses adrenergic tone, increasing venous capacitance. Alters perception of, and response to pain.			
Indications	Indication 1: Analgesia Indication 2: Sedation Indication 3: Dependence following long term infusion Indication 4: Treatment of opiate withdrawal Indication 5: Palliative care			
Contraindications	Hypersensitivity to morphine. Use with caution in patients with raised intracranial pressure, hepatic or renal impairment, hypotension or breathing difficulties.			
Supplied As	IV: Morphine sulphate 10mg in 1 mL for injection. Oral: Morphine hydrochloride solution 1mg/mL for oral use.			
Dilution *Two dilution steps required*	<ul style="list-style-type: none"> Bolus Dose (if not bolusing from an existing infusion) 			
	Drug	0.9% Saline Added	Final Volume	Concentration
	10mg (1mL)	9mL	10mL	1mg/mL
	<ul style="list-style-type: none"> IV Infusion: see morphine iv infusion sheet <p>Make up a 1mg/mL solution as above then further dilute by taking wt (kg) in mL of 1mg/mL solution and make up to 50mls with normal saline, 5% or 10% dextrose. No heparin needed unless it is only made up in normal saline, and concentration <5mg/mL.</p> <p>1mL/hr = 20 microgram/kg/hr Maximum concentration to be ≤ 200 microgram/mL Double strength the infusion for all babies <1kg to fluid restrict so 1mL/hr = 40 microgram/kg/hr</p> <ul style="list-style-type: none"> Subcutaneous Infusion: see separate subcutaneous infusion sheet 			

<p>Dosage</p> <p>*Must chart guardrail and use Alaris pump for IV infusions*</p>	<p>Bolus: 25 or 50 microgram/kg/dose Can be given as a bolus from the continuous infusion on the guardrailed pumps or from a separately drawn up 1mg/mL solution If give >2 boluses in 24hrs consider increasing the infusion dose Monitor the fluid volume received from the boluses (1.25ml - 2.5mL at standard infusion concentration)</p> <p>100 microgram/kg/dose Use if immediate analgesia/ sedation is required Draw up a 1mg/mL solution to give this dose as the volume is too high if given directly from the infusion</p> <p>Infusion: 5-30 microgram/kg/hour Start at 10microgram/kg/hr for sedation while on mechanical ventilation. Higher rates in surgical cases</p> <p>Conversion to oral dose: Oral dose is 3-5 times iv dose Oral microgram dose calculated below $\frac{\text{iv dose (microgram/kg/hr)} \times \text{Weight (kg)} \times 24\text{hrs} \times (3 \text{ to } 5)}{\text{Number of oral doses per day}}$</p> <p>Narcotic Abstinence Syndrome: See separate protocol</p>
<p>Guardrails</p>	<p>Conc: Min – 3 microgram/mL Max – 200 microgram/mL Soft Min: 2 microgram/kg/hr Hard Max: 60 microgram/kg/hr Soft Max: 30 microgram/kg/hr Default: 10 microgram/kg/hr</p>
<p>Guardrails Boluses</p>	<p>Default Rate: 50mL/hr – bolus will be given over 1.5-3 minutes at standard infusion concentration Soft Min: 10 microgram/kg Hard Max: 50 microgram/kg Soft Max: 50 microgram/kg Default: 25 microgram/kg</p>
<p>Interval</p>	<p>Bolus dose: as required , dose can last 1-4 hours Infusion: continuous Oral: 4-6 hourly</p>
<p>Administration</p>	<p>IV, oral, subcutaneous</p>

Compatible With	<p>Solution: 5% and 10% dextrose, sodium chloride 0.9%</p> <p>Terminal Y-site:</p> <p>Acyclovir, adrenaline, alprostadil, amikacin, aminophylline, amiodarone, ampicillin, atropine, benzylpenicillin, calcium chloride, casfongin, cefazolin, cefotaxime, ceftazidime, ceftriaxone, chloramphenicol, clindamycin, dexmedetomidine, dexamethasone, digoxin, dobutamine, dopamine, enalapril, erythromycin, fentanyl, fluconazole, furosemide, gentamicin, glycopyrrolate, heparin, insulin, hydrocortisone, hyoscine hydrobromide, lidocaine, linezolid, lorazepam, magnesium, meropenem, methylprednisolone, metoclopramide, metronidazole, midazolam, milrinone, naloxone, noradrenaline, pancuronium, paracetamol, phenobarbital, piperacillin/tazocactam, potassium chloride, propranolol, ranitidine, sodium bicarbonate, sodium nitroprusside, ticarcillin/clavulanate, tobramycin, TPN, trimethoprim/sulphamethoxazole, vancomycin, vecuronium, voriconazole, zidovudine.</p>
Incompatible With	<p>Aminophylline, azathioprine, azithromycin, flucloxacillin, folic acid, ganciclovir, indomethacin, phenytoin, thiopental.</p> <p>There is no information on compatibility of morphine with lipid solutions</p>
Interactions	<p>Morphine decreases effects of diuretics by inducing release of ADH. Morphine may increase zidovudine levels by competitively inhibiting glucuronidation or directly inhibiting metabolism.</p>
Monitoring	<p>Respiratory and cardiovascular status. Bowel and urinary output (especially at higher doses).</p>
Stability	<p>IV/Subcut:</p> <p>Discard opened vial immediately after use Use a new vial for each dose. Continuous infusions need to be changed after 24 hours</p> <p>Unused reconstituted 1mg/mL solution may be kept if repeated boluses may be required.</p> <ul style="list-style-type: none"> • May be kept for the length of the shift of the nurse who drew up the drug and is caring for the patient • The syringe must be labelled with the name of the drug and the name of the patient and may be stored in the controlled drug safe. • Any morphine remaining in the syringe at the end of that nurse's shift should be discarded and if ongoing treatment is required a new syringe should be prepared by nursing staff on the next shift. <p>Oral:</p> <p>Open bottles of morphine mixture may be kept for 6 months or the manufacturer's expiry whichever is shorter.</p>

Storage	Store below 25°C and in a controlled drug safe. Protect from light. Development of a yellow colour does not indicate toxicity, or loss of potency.												
Adverse Reactions	Respiratory depression, bradycardia, hypotension, ileus and delayed gastric emptying, urinary retention, sweating, nausea and vomiting, development of tolerance. Seizures (higher or more rapid doses). Naloxone reverses effects. Mechanical ventilation may be preferable if narcotic effects required.												
Comments	RA-Morph® is a clear colourless or pale yellow solution. It is sugar and alcohol free.												
References	Neofax 2000, 1999 Medicines for Children RCPCH. ADC 2000;83:F101-3												
Updated By	<table> <tr> <td>K Simonsen</td> <td>Nov 2003 (calculation of oral dose)</td> </tr> <tr> <td>P Schmidt, B Robertshawe</td> <td>December 2004</td> </tr> <tr> <td>A Lynn, B Robertshawe</td> <td>September 2009 (guardrail)</td> </tr> <tr> <td>A Lynn, B Robertshawe</td> <td>Nov 2012 (re-order profile, discard vial)</td> </tr> <tr> <td>A Lynn</td> <td>May 2013/Aug 2015 (guardrail boluses)</td> </tr> <tr> <td>A Lynn, B Robertshawe</td> <td>October 2021 (routine review)</td> </tr> </table>	K Simonsen	Nov 2003 (calculation of oral dose)	P Schmidt, B Robertshawe	December 2004	A Lynn, B Robertshawe	September 2009 (guardrail)	A Lynn, B Robertshawe	Nov 2012 (re-order profile, discard vial)	A Lynn	May 2013/Aug 2015 (guardrail boluses)	A Lynn, B Robertshawe	October 2021 (routine review)
K Simonsen	Nov 2003 (calculation of oral dose)												
P Schmidt, B Robertshawe	December 2004												
A Lynn, B Robertshawe	September 2009 (guardrail)												
A Lynn, B Robertshawe	Nov 2012 (re-order profile, discard vial)												
A Lynn	May 2013/Aug 2015 (guardrail boluses)												
A Lynn, B Robertshawe	October 2021 (routine review)												