Intravenous Infusion Orders for Common Medications in the Emergency Department and Intensive Care Unit Guideline

1. Purpose

To provide information on the prescribing and administration of common medications administered by intravenous infusion in Bunbury Hospital Critical Care Areas. This information aims to support medical, nursing, midwifery and pharmacy staff in safe medication use.

2. Guideline

The intravenous infusion order information for individual medications are for use **only** within the critical care areas at Bunbury Hospital, Western Australian Country Health Service (WACHS) – South West (SW). This includes the emergency department (ED) and intensive care unit (ICU). The information is provided in table format and uses multiple abbreviations. A list is provided below.

Abbreviation	Full text meaning
ABG	Arterial blood gas
aPTT	Activated partial thromboplastin time
ARDS	Acute respiratory distress syndrome
BIS	Bispectral index
bpm	Beats per minute
BGL	Blood Glucose level
CK	Creatine kinase
CRRT	Continuous renal replacement therapy
DEHP	Diethylhexyl phthalate
ECG	Electrocardiogram
GCS	Glasgow coma scale
HR	Heart rate
IBW	Ideal body weight
IV	Intravenous
K+	Potassium
MAP	Mean arterial pressure
MO	Medical officer
Na+	Sodium
PCIA	Patient controlled intravenous analgesia
PE	Pulmonary embolism
PVC	Polyvinyl chloride
RR	Respiratory rate
RSS	Ramsay sedation score
SBP	Systolic blood pressure

Drug	Presentation	Standard prescription and location of prescription	Diluent [1,2] (preferred diluent in bold)	Usual Dose	Usual rate	Other information
Actrapid® (neutral human insulin, soluble insulin, regular insulin)	100 units/mL	**Central and peripheral access (syringe driver)** 60 units in 60 mL (MR176)	**Sodium chloride 0.9%** Glucose 5%	According to BGLs	Titrate to BGLs between 5-10 mmol/L	**Minimum 2 hourly BGLs or until BGL level stable** Inform MO if rate > 10 ml/hr
Acetylcysteine	2 g/10 mL	**Central and peripheral access (volumetric pump)** For Paracetamol overdose:	**Glucose 5%** Sodium chloride 0.9% (see Australian Injectable Drug Handbook – only compatible with some brands)	200 mg/kg in 500 mL over 4 hours then 100 mg/kg in 1 L over 16 hours. **		**Double strength 200 mg/kg in 1 L over 16 hours – if paracetamol initial concentration is greater than double the nomogram, or if advised by toxicology. See Appendix A for nomogram. #Do not use nomogram if modified release paracetamol ingested. #Note: all patients weighing greater than 110 kg should be dosed according to a bodyweight of 110 kg
		For acute liver failure (not related to paracetamol overdose): (MR176)		200 mg/kg in 250 mL over 4 hours then 100 mg/kg in 250 mL over 16 hours – continuing until improvement in liver function up to a total treatment duration of 72 hours.		

Drug	Presentation	Standard prescription and location of prescription	Diluent [1,2] (preferred diluent in bold)	Usual Dose	Usual rate	Other information
Adrenaline (Epinephrine) (Indication: Anaphylaxis)	1 mg/mL	**Central (PREFERABLE) or peripheral (volumetric pump)** 1 mg in 100 mL (MR176)	**Glucose 5%** Sodium chloride 0.9%	0.1 microg/kg/hr (initial)	1 mL/kg/hr	Cardiovascular monitoring required. Titrate to response.
Adrenaline (Epinephrine)	1 mg/mL	**Central access only (syringe driver)** 3 mg (single strength) in 50 mL 6 mg (double strength) in 50 mL (SW MR177) cont. **Central access only (volumetric pump)** 6 mg (single strength) in 100 mL 12 mg (double strength) in 100 mL (SW MR177)	**Glucose 5%** Sodium chloride 0.9%	(1-15 microg/min)	0-10 mL/hr	Titrate to HR / MAP/ SBP / bronchospasm.

Drug	Presentation	Standard prescription and location of prescription	Diluent [1,2] (preferred diluent in bold)	Usual Dose	Usual rate	Other information
Alteplase	10 mg with 10 mL diluent 50 mg with 50 mL diluent	**Central and peripheral access** Vials are reconstituted with the accompanying sterile WFI to a concentration of 1 mg/mL ■ 10 mg vial is reconstituted with 10 mL of sterile Water for Injection ■ 50 mg vial is reconstituted with 50 mL of sterile Water for Injection	**Sodium chloride 0.9%** ■ Dilution is not necessary but may be diluted with 0.9% Sodium Chloride if required ■ Do not dilute lower than 0.2 mg/mL	**Dose for Ischaemic Stroke** The recommended dose is 0.9 mg/kg bodyweight. **Maximum dose: 90 mg.	This dose is given in 2 parts: 10% of the total dose is administered as an IV bolus, followed immediately by the remaining dose added to 50 mL sodium chloride 0.9% and administered as an IV infusion over 60 minutes.	**Avoid thrombolytics, antiplatelet agents and anticoagulants for 24 hours post administration of alteplase for ischaemic stroke. See “Protocol for Intravenous Thrombolysis in Acute Ischaemic Stroke”
				Dose for pulmonary embolism (PE) For patients weighing > 65 kg, give 100 mg over 2 hours For patients weighing **≤ 65 kg**, give a dose of **NO MORE THAN** 1.5 mg/kg over 2 hours	■ 10 mg IV bolus over 1 minute ■ 90 mg IV infusion over 2 hours ■ 10 mg IV bolus over 1 minute ■ Remaining dose via IV infusion over 2 hours	**For PE: If patient is already on unfractionated heparin prior to alteplase, withhold heparin infusion while on alteplase and restart heparin at the same rate as before alteplase was administered, provided aPTT is less than twice the upper limit of normal.

Drug	Presentation	Standard prescription and location of prescription	Diluent [1,2] (preferred diluent in bold)	Usual Dose	Usual rate	Other information
Amiodarone	150 mg/3 mL	**Peripheral access (volumetric pump)** Loading dose: 150-300 mg in 250 mL (MR170A(T))	**Glucose 5%**	**Loading dose**: over 30-60 minutes	250-500 mL/hr	Monitor BP & HR. Notify MO if HR<60 bpm. Use glucose 5% in glass, polyolefin or rigid PVC containers (e.g. Baxter® Viaflo® or Braun Ecolofac®, Freeflex®). ****NB.** If above not available, split maintenance dose into two 12 hr infusions of 450-600 mg (**not the preferred option**). Use a non-DEHP giving set: "blue line" low-sorbing polyethylene-lined administration set to connect to Alaris® syringe driver **or** "orange" line (REF 611400704) to connect to volumetric pump. Amiodarone is adsorbed onto PVC and leaches plasticiser from PVC. A 0.22 micron in-line filter is recommended. If peripheral, use large antecubital vein. NB. Maintenance infusions are **NOT** recommended via peripheral line, consider central line insertion.
		Peripheral access (volumetric pump) Maintenance dose: 900-1200 mg in 500 mL (MR176)	**Glucose 5%**	**Maintenance dose**: as a continuous infusion (over 24 hours)	21 mL/hr	
		Central access (volumetric pump) Loading dose: 150-300 mg in 100 mL (MR170A (T))	**Glucose 5%**	**Loading dose**: over 30-60 minutes	100-200 mL/hr	
		Central access (volumetric pump) Maintenance dose: 900-1200 mg in 100 mL ****(see other information)** (MR176)	**Glucose 5%**	**Maintenance dose**: as a continuous infusion (over 24 hours) ****(see other information)**	4.2 mL/hr	

Drug	Presentation	Standard prescription and location of prescription	Diluent [1,2] (preferred diluent in bold)	Usual Dose	Usual rate	Other information
Calcium Chloride	10% (1 g/10 mL, 6.8 mmol Ca^{2+}/10 mL)	**<u>Central access</u> (Prismaflex® (CRRT) syringe driver):** For CRRT anticoagulation: 5 g (34 mmol Ca^{2+}) in 50 mL (SW MR174H)	**Undiluted**	Variable (as per ionised calcium levels).		Extravasation can cause tissue necrosis. Monitor injection site closely. Do not mix with phosphate.
Calcium Gluconate	931 mg/10 mL (2.2 mmol/L Ca^{2+}/10 mL)	**Central and peripheral (large vein) access** 10 mL in 100 mL	**Undiluted** cont.	2.2 mmol calcium (10 mL)	Push over 5 mins	Preferred for peripheral calcium replacement. Extravasation can cause tissue necrosis. Monitor injection site closely. Do not mix with phosphate
			Glucose 5% or 0.9% sodium chloride		15 to 60 minutes	

Drug	Presentation	Standard prescription and location of prescription	Diluent [1,2] (preferred diluent in bold)	Usual Dose	Usual rate	Other information
Cisatracurium	5 mg/2.5 mL	**Central and peripheral access (syringe driver)** 100 mg in 50 mL (MR176)	**Undiluted**	1-3 microg/kg/min	0.5-10 microg/kg/min (0.03-0.6 mg/kg/hr)	Continuous monitoring required. Monitoring of neuromuscular function is recommended. Titrate to response using 'Train of Four' monitoring. There may be wide interpatient variation in dosage requirements. Sedation scoring/monitoring. Patients must be well sedated whilst receiving cisatracurium. Sedation scoring systems may be unreliable due to skeletal muscle paralysis, so close clinical observation for distress, awareness and pain are required. Refer to product information for conversion into mL/hr rates. Flush line with 20 mL of sodium chloride 0.9% or glucose 5% to avoid accidental re-paralysis. Discard infusion solution 24 hours after preparation.
				ARDS (short term use – 48 hours) **IV load**: 0.15 - 0.2 mg/kg **Maintenance Infusion:** 0.5-3 microg/kg/min (max 10 microg/kg/min)		

Drug	Presentation	Standard prescription and location of prescription	Diluent [1,2] (preferred diluent in bold)	Usual Dose	Usual rate	Other information
Clonidine	150 microg/mL	**Central and peripheral access (syringe driver)** 600 microg in 50 mL (SW MR177)	**Sodium chloride 0.9%**	**Infusion:** 0.2 – 2 microg/kg/hr	0-15 ml/hr Max rate limited by BP and HR	Titrate to Ramsay Sedation Score. Monitor BP and HR. Notify MO if SBP <90 mmHg and/or HR <60 bpm. Bolus up to 50 microg can be given over at least 5 minutes. Sudden withdrawal of clonidine infusion may result in agitation, sweating and hypertension. Reduce dose gradually. Rate will depend on duration of infusion. (Max dose of 1200 microg/24 hrs)
				Bolus: 50 microg to 150 microg, 4 to 6 hourly in 10 mL 0.9% sodium chloride)	5 – 10 minutes	

Drug	Presentation	Standard prescription and location of prescription	Diluent [1,2] (preferred diluent in bold)	Usual Dose	Usual rate	Other information
Dexmedetomidine	200 microg/ 2 mL	**Central and peripheral access (syringe driver)** 200 microg in 50 mL (SW MR177)	**Sodium chloride 0.9%** Glucose 5%	Initial dose: microg/kg/hr Usual dose: 0-1 microg/kg/hr Maximum dose: 1.5 microg/kg/hr		**DO NOT BOLUS** Cardiac monitoring required. Can cause bradycardia/ hypotension. Monitor BP and HR. Notify MO if SBP <90 mmHg and/or HR <60 bpm. Use caution in patients with impaired hepatic function and patients over 65 years of age.
Dobutamine	250 mg/20 mL	**Central access only (syringe driver)** 250 mg in 50 mL (SW MR177) **Central access only (volumetric pump)** 500 mg in 100 mL (SW MR177) **Peripheral access (LARGE VEIN)** 250 mg in 250 mL	**Glucose 5%** Sodium chloride 0.9%	2.5 - 15 microg/kg/min, based on ideal body weight	**Initially:** 2.5 microg/kg/min **Usual dose:** 2.5-10 microg/kg/min. **Max:** 40 microg/kg/min (Based on IBW)	Cardiac monitoring required. Report if HR >130 bpm. ****Can be administered via a large peripheral vein while waiting for a central line at >1 mg/mL (extravasation causes necrosis) Contains sodium metabisulfite which may cause allergic reactions in susceptible people **see Appendix B for calculation table

Drug	Presentation	Standard prescription and location of prescription	Diluent [1,2] (preferred diluent in bold)	Usual Dose	Usual rate	Other information
Dopamine	200 mg/5 mL	**Central access (syringe driver)** 200 mg in 50 mL (SW MR177)	**Glucose 5%** Sodium chloride 0.9%	0-20 microg/kg/min	**Initial dose:** 2.5 microg/kg/min **Usual dose:** up to 20 microg/kg/min	Continuous cardiac monitoring required. Titrate to BP. **see Appendix C for dose calculation table
		Peripheral access (LARGE VEIN) (volumetric pump) 200 mg in 500 mL (SW MR177)	**Glucose 5%** Sodium chloride 0.9%	0-20 microg/kg/min		
Esmolol	100 mg/10 mL	**Central and peripheral access (large vein) (syringe driver)** 500 mg in 50 mL (SW MR177)	**Undiluted**	**Loading dose:** 500 microg/kg over 1 minute then **Maintenance dose:** 25-200 microg/kg/min	Rates calculated as per weight and dose.	Inform Pharmacist if esmolol is being used to ensure continued supply. Continuous cardiac monitoring required. Avoid infusion into small veins, thrombophlebitis and necrosis on extravasation can occur.

Drug	Presentation	Standard prescription and location of prescription	Diluent [1,2] (preferred diluent in bold)	Usual Dose	Usual rate	Other information
Fentanyl	500 microg/ 10 mL	**Central and peripheral access** **Infusion (syringe driver):** 500 microg in 50 mL (SW MR177)	**Glucose 5%** Sodium chloride 0.9%	**Initial dose:** 20 microg/hr. **Usual range**: 1-100 microg/hr. Titrate to pain and Ramsay Sedation Score target.	**Initial rate:** 2 mL/hr **Usual range:** 1-10 mL/hr	Titrate to analgesic effect/sedation. Continuous oxygen monitoring required.
	2000 microg/ 100 mL (Pre-mixed) CADD	**Central and peripheral access** **Infusion (CADD pump):** 2000 microg in 100 mL (MR170.5 / MR170.6)	**Undiluted**	See “Other information”	See “Other information”	Refer to the WACHS Intravenous Opioid Administration Policy. Monitor sedation score and respiratory rate along with other observations specified on the PCIA-IV Opioid Infusion Prescription and Additional Observation Chart.
Frusemide (Furosemide)	250 mg/25 mL	**Central or peripheral access (syringe driver)** 500 mg undiluted in 50 mL (MR176)	Undiluted	**Initial dose:** 20 mg/hr. Titrate to target urine output.	**Initial rate:** 2 mL/hr **Usual rate**: 0-10 mL/hr	**Monitor potassium levels.** **Central administration preferred.** Protect from light. Peripheral administration may cause phlebitis. Maximum 1 g (2 syringes per day). Review ongoing use after 2 grams total infused. Bolus dose: maximum rate 4 mg/minute.

Drug	Presentation	Standard prescription and location of prescription	Diluent [1,2] (preferred diluent in bold)	Usual Dose	Usual rate	Other information
Glyceryl trinitrate	50 mg/10 mL	**Central access (syringe driver)** 50 mg in 50 mL (MR176)	**Glucose 5%** Sodium chloride 0.9%	**Initial:** 10-25 microg/min (0.6 – 3 mL/hr)	1-15 mL/hr	Titrate to SBP target. Continuous cardiac monitoring required. Use sodium chloride 0.9% for acute stroke patients. Refer to WACHS Specialised Medication – Intravenous Glyceryl Trinitrate for **ADULTS** in Critical Care Areas Guideline. Glyceryl trinitrate must be added to non-PVC container (i.e. glass bottles, plastic semi-rigid container e.g. Ecoflac® Plus bottle or FreeFlex® bag). Infuse with a low-sorbing polyethylene-lined administration set to reduce loss due to adsorption to PVC giving sets (up to 80% loss). Use a “blue” low-sorbing Alaris® administration set for Alaris® syringe driver or an “orange” line (Ref#611400704) for volumetric pump.
		Central or peripheral access (volumetric pump) 50 mg in 100 mL (MR176)	**Glucose 5%** Sodium chloride 0.9%	**Initial:** 10-50 microg/min (1.2 – 6 mL/hr)	1-30 mL/hr	

Drug	Presentation	Standard prescription and location of prescription	Diluent [1,2] (preferred diluent in bold)	Usual Dose	Usual rate	Other information
Heparin	25,000 units/ 5 mL	**Central and peripheral access (volumetric pump)** Infusion: 25,000 units in 500 mL (MR170C)	**Sodium chloride 0.9%** Glucose 5%	Therapeutic anticoagulation: refer to nomogram (on anticoagulation medication chart MR170C) for dosing and titration information.		Monitor aPTT within 6 hours of every rate change, otherwise daily as per heparin nomogram in Anticoagulation medication chart (MR170C). See Appendix D: Print a copy of the FLUID RESTRICTED nomogram and ATTACH to Anticoagulation Chart over existing page 3 – put a line through the original nomogram on the WA Anticoagulation Medication Chart.
		Fluid restricted patients: 25,000 units in 50 mL		For fluid restricted patients see Appendix D for Infusion Nomogram.		

Drug	Presentation	Standard prescription and location of prescription	Diluent [1,2] (preferred diluent in bold)	Usual Dose	Usual rate	Other information
Isoprenaline	1 mg/5 mL	**<u>Central access only</u> (syringe driver)** 3 mg in 50 mL (SW MR177)	**Glucose 5%** Sodium chloride 0.9%	**Initial dose:** 2 microg/min **Usual dose:** 0.5 to 10 microg/min Titrate to clinical effect. (Max dose 30 microg/min)	**Initial:** 2 mL/hr **Usual rate:** 1-10 mL/hr	Titrate to target HR. If HR > 110 bpm notify MO. Continuous cardiac monitoring required.
		Peripheral Access (volumetric pump) 2 mg in 500 mL (SW MR177)	**Glucose 5%** Sodium Chloride 0.9%	**Initial dose:** 2 microg/min **Usual range**: 0.5-10 microg/min **Maximum dose:** 20 microg/min	**Initia**l: 30 mL/hr **Usual:** 7.5-150 mL/hr **Max rate:** 300 mL/hr	**CENTRAL** line preferred. Please consider central line insertion. Continuous cardiac monitoring required. Titrate to target HR. If HR > 110bpm consider decreasing rate of infusion or temporarily discontinuing infusion. Do not give simultaneously with Adrenaline or Digoxin. Protect from light.

Drug	Presentation	Standard prescription and location of prescription	Diluent [1,2] (preferred diluent in bold)	Usual Dose	Usual rate	Other information
Ketamine	200 mg/2 mL	**Central and peripheral access (volumetric pump)** For Analgesia: 200 mg in 100 mL (see "Other information")	**Sodium chloride 0.9%** Glucose 5%	0-10 mg/hr (0.1-0.2 mg/kg/hr)	0-5 mL/hr	Refer to WACHS-SW Ketamine Infusion (Low Dose Intravenous Analgesia) in the Acute Care setting Procedure and SW MR113A Ketamine Infusion Analgesia Record.
		Central and peripheral access (volumetric pump) For sedation (critically ill patients): 200 mg in 100 mL (SW MR177)		0.5-1 mg/kg/hour Start at lower dosage listed and titrate to effect	0.5-1 mg/kg/hour	Titrate to analgesic effect/sedation. Intensivist to annotate order with rate and sedation score target. Higher doses may be used under the direction of an intensivist for bronchospasm or by an emergency consultant. Continuous oxygen monitoring required.
		Central and peripheral access (volumetric pump) For refractory asthma management 200 mg in 100 mL (SW MR177)		**Initial bolus:** 0.5 – 1 mg/kg **Usual Range:** 0.5 – 2 mg/kg/hr	0.5–2 mg/kg/hr	

Drug	Presentation	Standard prescription and location of prescription	Diluent [1,2] (preferred diluent in bold)	Usual Dose	Usual rate	Other information
Levosimendan	12.5 mg/5 mL	**Central and peripheral access (volumetric pump)** 12.5 mg in 250 mL (SW MR177)	**Glucose 5%**	**Start rate**: 0.1 microg/kg/min for at least 1 hr. **Maintenance rate:** 0.05–0.2 microg/kg/min Refer to product information for doses and weight-based rates of administration.	0.05-0.2 microg/kg/min.	Kept in fridge. Unregistered drug therefore SAS Category A form and register to be completed and pharmacist informed of use. Loading dose generally not used. Use a single infusion of 12.5 mg only (second infusion should not be prescribed unless requested by a consultant cardiologist or intensivist - long half-life). Monitor HR, BP and ECG.
Magnesium Sulphate	2.47 g (10 mmol/5 mL amp)	10 mmol in 50 to 100mL	**Sodium chloride 0.9%** Glucose 5%	10 mmol	over 30 min	Emergency situations: 10 mmol in 10 mL over 10 min may be used. When faster rates are used monitoring of BP, HR, RR, oxygen saturation and reflexes are required.
	8% (80 mg/mL, 32 mmol in 100 mL WFI)	Pre-Eclampsia /Foetal Neuroprotection	Pre-made bags	See KEMH Medication Guideline: KEMH Magnesium Guideline		

Drug	Presentation	Standard prescription and location of prescription	Diluent [1,2] (preferred diluent in bold)	Usual Dose	Usual rate	Other information
Metaraminol	10 mg/mL	**Central and peripheral (LARGE VEIN) access (syringe driver)** 20 mg in 40 mL (SW MR177)	**Glucose 5%** Sodium Chloride 0.9%	Titrate to MAP	0-20 mL/hr titrated to MAP	In cases of severe shock, direct IV bolus doses may be administered (prepare syringe: 10 mg in 20 mL). Administer 0.5-2.5 mg (1-5 mL) as a slow IV push dose. Maximum effect is not immediately apparent; wait at least 10 minutes should elapse before increasing the infusion rate. Continuous cardiac monitoring required. Titrate to MAP. Prescription must include target MAP and BP. Extravasation may cause tissue necrosis. May cause severe hypersensitivity reactions in patients who are sensitive to sulphites.

Drug	Presentation	Standard prescription and location of prescription	Diluent [1,2] (preferred diluent in bold)	Usual Dose	Usual rate	Other information
Midazolam	50 mg/10 mL	**Central and peripheral access (syringe driver)** 50 mg in 50 mL (single strength) 100 mg in 50 mL (double strength) (SW MR177)	**Glucose 5%** Sodium chloride 0.9%	**Initial dose** 2 mg/hr **Usual range**: 0-10 mg/hr Titrate to Ramsay Sedation Score	0-10 mL/hr (of single strength 50 mg/50 mL)	Midazolam infusion is not recommended in patients who are not ventilated unless on consultant order.
Milrinone	10 mg/10 mL	**<u>Central access only</u> (syringe driver)** 10 mg in 50 mL (SW MR177) **<u>Central access only</u> (volumetric pump)** 20 mg in 100 mL (SW MR177)	**Glucose 5%** Sodium chloride 0.9%	**Loading dose:** 50 microg/kg over 10 minutes, followed by maintenance infusion (monitor patient closely - loading dose can cause significant blood pressure drops). **Maintenance infusion:** 0.375-0.75 microg/kg/min, adjusted to clinical and haemodynamic response. (**Max dose** = 1 microg/kg/min)	Common range: 0-10 mL/hr	Continuous cardiac monitoring required. Maximum of 1.13 mg/kg daily. Use slower rate in patients with renal impairment. Indicated for short-term use only (maximum 48 hours). Use actual body weight up to 120 kg. Over 120 kg use adjusted body weight.

Drug	Presentation	Standard prescription and location of prescription	Diluent [1,2] (preferred diluent in bold)	Usual Dose	Usual rate	Other information
Morphine	10 mg/mL 30 mg/mL	**Central and peripheral access (syringe driver)** 50 mg (single strength) in 50 mL 100 mg (double strength) in 50 mL (SW MR177)	**Glucose 5%** Sodium chloride 0.9%	**Initial dose:** 0.02– 0.04 mg/kg/hour then titrate to effective pain relief/sedation. **Usual range:** 0-10 mg/hr (most commonly within 0.5-2 mg/hr)	0-10 mL/hr of single strength	Monitor Ramsay Sedation Score and respiratory rate. Morphine infusion rate greater than 5mg/hr is not recommended in patients who are not ventilated except on consultant order. Continuous oxygen monitoring required. Active metabolites accumulate in renal impairment. Use with caution or consider an alternative opioid.
		Central and peripheral access (CADD pump) 100 mg in 100 mL (MR170.5/MR170.6)	**Sodium chloride 0.9%**	See “Other information”	See “Other information”	Refer to WACHS Intravenous Opioid Administration Policy. Monitor Ramsay Sedation Score and respiratory rate along with other observations specified on the PCIA-IV Opioid Infusion Prescription and Additional Observation Chart.

Drug	Presentation	Standard prescription and location of prescription	Diluent [1,2] (preferred diluent in bold)	Usual Dose	Usual rate	Other information
Naloxone	400 microg/ mL	**Central and peripheral access (syringe driver)** 2 mg in 50 mL (MR176)	**Glucose 5%** Sodium chloride 0.9%	**Initial rate** following bolus dose: Start infusion at 2/3 of the bolus dose/hr then titrate to effect **Usual range** 100-400 microg/hr Higher doses may be required in severe opioid overdose	**Initial rate:** Variable **Usual rate:** 2.5-10 mL/hr	Titrate to GCS & RR > 8-10.
Noradrenaline (Norepinephrine) *(Continued on next page)*	4 mg/4 mL	**Central access only (syringe driver)** 4 mg (single strength) in 50 mL 8 mg (double strength) in 50 mL 16 mg (quad strength) in 50 mL (SW MR177) **Central access only (volumetric pump)** 8 mg (single strength) in 100 mL 16 mg (double strength) in 100 mL 32 mg (quad strength) in 100 mL (SW MR177)	**Glucose 5%** Sodium Chloride 0.9%	**Initial dose:** 5 microg/min. Titrate to Mean Arterial Pressure (MAP) **Usual dose** 0.01-0.5 microg/kg/min	Start at 5 mL/hr then titrate.	DO NOT BOLUS Continuous cardiac monitoring required. High doses >2 microg/kg/min (100 mL/hr single strength) may be needed in severe septic shock. Extravasation can cause tissue necrosis. If this occurs, refer to WACHS Peripheral Vasopressor Infusion Guideline – Adults.

Drug	Presentation	Standard prescription and location of prescription	Diluent [1,2] (preferred diluent in bold)	Usual Dose	Usual rate	Other information
Noradrenaline (Norepinephrine) *(Continued)*	4 mg/4 mL	**Peripheral access- large vein (volumetric pump)** *(only in emergency situations where a central line is unavailable)* 4 mg in 500 mL	**Glucose 5%** Sodium Chloride 0.9%	**Initial Rate:** 2 to 5 microg/min Titrate to MAP (Max 10 microg/min)	15 to 37.5 mL/hr (Max 75 mL/hr)	DO NOT BOLUS Extravasation can cause tissue necrosis. If this occurs, refer to WACHS Peripheral Vasopressor Infusion Guideline – Adults.
Octreotide	100 microg/mL 500 microg/mL	**Central access (volumetric pump)** 500 microg in 100 mL (MR176)	**Sodium chloride 0.9%** Glucose 5%	25-50 microg/hr	5-10 mL/hr	Bolus dose 25-50 microg then continuous infusion. Continuous cardiac monitoring required for continuous infusion.
		Peripheral access (volumetric pump) 500 microg in 500 mL (MR176)	**Sodium chloride 0.9%** Glucose 5%		25-50 mL/hr	

Drug	Presentation	Standard prescription and location of prescription	Diluent [1,2] (preferred diluent in bold)	Usual Dose	Usual rate	Other information
Pantoprazole	40 mg powder for reconstitution	**Central and peripheral access (volumetric pump)** Loading dose: 80 mg in 100 mL (MR176)	**Sodium chloride 0.9%** Glucose 5%	80 mg over 30 minutes	100 mL/hr	NB. Brands vary. Some may not contain preservative and therefore diluents and infusion stability may vary.
		Central and peripheral access (volumetric pump) Maintenance dose: 80 mg in 100 mL (MR176)		8 mg/hr	10 mL/hr	
Phenylephrine	10 mg/mL	**Central access only (syringe driver)** 10 mg in 50 mL (SW MR177) **Central access only (volumetric pump)** 20 mg in 100 mL (SW MR177)	**Glucose 5%** Sodium chloride 0.9%	**Initial rate:** 0.5 mg/hr **Usual rate:** 0-3 mg/hr	**Initial rate:** 2.5 mL/hr **Usual rate:** 0-15 mL/hr	Titrate to MAP. Contains sodium metabisulfite (may cause allergic reactions in susceptible people.) Light sensitive.

Drug	Presentation	Standard prescription and location of prescription	Diluent [1,2] (preferred diluent in bold)	Usual Dose	Usual rate	Other information
Phosphate (potassium or sodium dihydrogen)	10 mmol / 10 mL	**<u>Central access</u> (volumetric pump)** 10 mmol per 100 mL (40 mmol in 100 mL over 4 hours can be prescribed by consultant) (MR176)	**Glucose 5% Sodium chloride 0.9%**	10-20 mmol	Infuse over 1-4 hours **per** 10 mmol	Longer infusion times preferable.
		Peripheral access (volumetric pump) 10 mmol **per** 250 mL (MR176)		10-20 mmol	Infuse over 1 to 12 hours **per** 10 mmol	
Potassium chloride	Pre-mixed bag	**<u>Central access only</u> (volumetric pump)** 40 mmol in 100 mL (MR176)	**Pre-mixed bag**	Titrate to achieve desired potassium level	(0-20 mmol/hr)	Inform MO if target levels not achieved. **2 hourly ABGs and K+** **Do not bolus** **Continuous cardiac monitoring is required if given faster than 10 mmol/hr** ***Consultant providing approval for non-standard solutions ***must*** be documented on the fluid chart.**
	10 mmol/10 mL	**<u>Central access only</u> (volumetric pump)** 50 mmol in 50 mL	**NEAT ***		0-20 mL/hr	
	Pre-mixed bag	**Central and peripheral access (volumetric pump) <u>SUPPLEMENTATION</u>** 10 mmol in 100 mL (MR176)	**Pre-mixed bag**	According to requirements.	100 mL/hr (10 mmol/hr)	

Drug	Presentation	Standard prescription and location of prescription	Diluent [1,2] (preferred diluent in bold)	Usual Dose	Usual rate	Other information
Propofol	500 mg/50 mL (1%)	**Central and peripheral access (syringe driver)** 500 mg in 50 mL (SW MR177)	**Administer undiluted (NEAT)**	**Usual dose:** 1-3 mg/kg/hr. Target Ramsay Sedation Score	0-20 mL/hr - (depending on patient weight).	Notify MO if Ramsay Sedation Score unachievable. Max rate is 4 mg/kg/hr. Maximum 4800 mg/24 hours including boluses. Doses of more than 20 mL/hr shouldn't be used for more than 24 hours due to risk of propofol infusion syndrome. Continuous oxygen monitoring required. If used for >72 hrs monitor CK twice weekly to check for propofol-related infusion syndrome. 1 mL of propofol injection provides 0.1 g of lipid (1.1 kcal).

Drug	Presentation	Standard prescription and location of prescription	Diluent [1,2] (preferred diluent in bold)	Usual Dose	Usual rate	Other information
Salbutamol	5 mg/5 mL	**Central access (syringe driver)** 5 mg in 50 mL (100 microg/mL) (MR176)	**Glucose 5%** Sodium chloride 0.9%	Usual range 5- 20 microg/min	Usual range: 3-12 mL/hr	Titrate to avoid tachycardia. Monitor potassium, cardiac and respiratory function. Wean no more than 1-2 mL/hr every hour.
		Peripheral access (volumetric pump) 5 mg in 500 mL (10 microg/mL) (MR176)			Start at 50 mL/hr Usual range: 25-120 mL/hr	Titrate to avoid tachycardia. Monitor potassium, cardiac and respiratory function. Wean no more than 10-20 mL/hr every hour.
Sodium bicarbonate 1.26% (“Isotonic”)	8.4% (8.4 g in 100 mL) vial (Hypertonic)	**Central and peripheral access (volumetric pump)** 170 mL of 8.4% with 830 ml diluent is isotonic (Total volume = 1000 mL) (MR176)	Water for injection	Variable	0-250 mL /hr	**Prepare infusion using a 3-WAY TAP** (NB. Do not spike bung/port on infusion bag more than 3 times). Isotonic bicarbonate as renoprotective infusion. Undiluted 8.4% HCO_3 - can be given as bolus dose (preferably via central line, if possible) for other indications. Undiluted solution is highly irritant. Extravasation may cause tissue necrosis.

Drug	Presentation	Standard prescription and location of prescription	Diluent [1,2] (preferred diluent in bold)	Usual Dose	Usual rate	Other information
Sodium nitroprusside	50 mg/2 mL vial	**Central access only (syringe driver)** 50 mg in 50 mL (SW MR177)	**Glucose 5%**	Initial dose 0.3 microg/kg/min titrate SBP. Maximum rate 10 microg/kg/min for up to 10 minutes.	0.5-6 microg/kg/min.	***See Appendix E for dose calculation tables. **Protect infusion from light and use within 24 hours.** Wrap syringe or infusion bag with aluminium foil. It is not necessary to cover the drip chamber or the tubing. Discard the infusion if the colour changes particularly to blue, green or red. Continuous BP monitoring required. Avoid abrupt withdrawal. **Prolonged rapid or high dose infusions can produce clinically significant levels of cyanide. Monitor blood cyanide levels if treatment >72 hr.** Use IBW for overweight patients.
	50 mg/2 mL vial	**Peripheral access** 50 mg in 500 mL (SW MR177)	**Glucose 5%**	**Initial rate**: 0.3 microg/kg/min (based on IBW) Titrate to SBP **Maximum rate:** 10 microg/kg/min	0.5 – 6 microg/kg/min (0.3 mL/kg/hr to 3.6 mL/kg/hr)	

Drug	Presentation	Standard prescription and location of prescription	Diluent [1,2] (preferred diluent in bold)	Usual Dose	Usual rate	Other information
Sodium chloride 3% (Hypertonic)	1000 mL bag (containing sodium 513 mmol and chloride 513 mmol)	**Central access only (volumetric pump)** Sodium Chloride 3% 1000 mL (MR176)	**Pre-made bag**	Titrated to achieve desired serum sodium concentration. NB. Dose dependent on requirement of sodium replacement. Ensure close monitoring of serum sodium throughout infusion and cease when appropriate for the patient. Patient may not require the entire contents of the pre-made bag.	Rate as per Endocrinology - Therapeutic Guidelines. Refer to "Hyponatraemia" in the "Electrolyte Abnormalities" section.	**2/24 ABG / Na+** To avoid osmotic demyelination, the maximum rate of change in the serum sodium concentration in chronic hyponatraemia should be: • Max. 10 mmol/L in the first 24 hours • Max. 18 mmol/L in the first 48 hours.

Drug	Presentation	Standard prescription and location of prescription	Diluent [1,2] (preferred diluent in bold)	Usual Dose	Usual rate	Other information
Thiopentone (Thiopental)	500 mg vial (powder for reconstitution)	**<u>Central access only</u>** **(syringe driver)** 1 g in 50 mL (20 mg/mL) (SW MR177)	Water for injection	Target BIS (Bispectral Index) 20 **Initial dose:** 125 mg/hr **Usual dose:** 0-300 mg/hr	**Initial rate**: 6.25 mL/hr **Usual range:** 0-15 mL/hr Target BIS 20	Boluses of 125 mg can be given. All other sedation should be ceased while on thiopentone infusion. Monitor respiratory status at all times. Use only where cardiorespiratory resuscitation equipment is available. Final concentration of 34 mg/mL in water for injection is isotonic. Concentrations less than 20 mg/mL in water for injections are not used as they cause haemolysis. Extravasation may cause tissue necrosis. Some loss of the drug occurs due to absorption / adsorption to PVC containers and to burettes and IV lines. Repeated doses have a cumulative effect with delayed recovery.

Drug	Presentation	Standard prescription and location of prescription	Diluent [1,2] (preferred diluent in bold)	Usual Dose	Usual rate	Other information
Vasopressin (Argipressin)	20 units/mL	**Central and peripheral access (syringe driver)** Central Diabetes insipidus: 2 units in 50 mL (0.04 units/mL) (SW MR177)	**Glucose 5%** Sodium chloride 0.9%	**Initial dose**: 0.2 units/hr **Usual range:** 0.1-0.8 units/hr	**Initial rate**: 5 ml/hr **Usual range:** 1-20 mL/hr	Titrate in 0.2 mL increments to target urine output. Extravasation may cause tissue necrosis. Central line preferred.
		Central access only (syringe driver) Vasopressor (inotropic): 20 units in 50 mL (0.4 units/mL) (SW MR177)		**Initial dose**: 0.02 units/min **Usual range:** 0.01 – 0.04 units/min	**Initial rate:** 3 mL/hr **Usual range:** 1.5-6 mL/hr	Titrate to target MAP. Extravasation may cause tissue necrosis.

3. Roles and Responsibilities

Authorised prescribers, including medical practitioners, nurse practitioners and endorsed midwives are responsible for:

- ensuring adequate assessment and history relative to the urgency of the situation is available before prescribing medications
- documenting relevant risk assessments prior to prescribing (i.e. Venous thromboembolism (VTE) risk assessment).
- writing all orders on a WACHS approved medication chart for administration within the health service, ensuring they are complete and unambiguous.
- endorsing any verbal orders, or providing documentation to confirm the verbal order
- recording the administration of medication on an appropriate medication chart.

The **nurse or midwife** is accountable for the safe administration of medications. This requires:

- a sound knowledge of the use, action and usual dose, frequency of use, route of administration, precautions and adverse effects of the medications being administered
- training has been completed in accordance with the nursing framework including medication safety training, best possible medication history training and infusion pump training
- they maintain competency with the medications available in their work environment.

Pharmacists are responsible for:

- assessment and documentation of medication history prior to admission to hospital
- clinical review of the prescribed medications during the course of the admission
- assist in preparation of medication list on discharge for complex patients and communication of the list to other care providers.

All staff are required to work within policies and guidelines to make sure that WACHS is a safe, equitable and positive place to be.

4. Monitoring and Evaluation

4.1 Monitoring

Bunbury Hospital ICU and ED are to evaluate clinical incidents related to administration of IV medications and trends should be reported to the WACHS-SW Medication Safety Committee.

4.2 Evaluation

The evaluation of this document will be managed via the WACHS-SW Medication Safety Committee, utilising expertise from the Bunbury Hospital critical Care directorate medical, nursing and pharmacy staff for currency of information, in line with review timelines for this document.

5. Compliance

This guideline supports compliance with the WACHS-SW Medication Prescribing and Administration Policy and best practice for medication safety.

Guidelines are designed to provide staff with evidence-based recommendations to support appropriate actions in specific settings and circumstances. As such, WACHS guidelines should be followed in the first instance. In the clinical context, where a patient's management should vary from an endorsed WACHS guideline, this variation and the clinical opinion as to reasons for variation must be documented in accordance with the Documentation Clinical Practice Standard.

WACHS staff are reminded that compliance with all policies and procedures is mandatory.

6. References

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7. Definitions

Nil

8. Document Summary

Coverage	WACHS – SW Bunbury Hospital Emergency Department and Intensive Care Unit
Audience	Nursing, midwifery, medical and pharmacy staff
Records Management	Clinical: Health Record Management Policy
Related Legislation	*Medicines and Poisons Act 2014* (WA) Medicines and Poisons Regulations 2016 (WA)
Related Mandatory Policies / Frameworks	• MP 0131/20 – High Risk Medication Policy • Clinical Governance, Safety and Quality Framework
Related WACHS Policy Documents	• Medication Prescribing and Administration Policy • Intravenous Opioid Administration Policy • Specialised Medication – Intravenous Glyceryl Trinitrate Guideline • Specialised Medication – Phosphate Supplementation in Adults Guideline • Handling and Supply of Potassium Ampoules Procedure • Ketamine Infusion (Low Dose Intravenous Analgesia) in the Acute Care setting Procedure (WACHS-SW)
Related Forms	• MR113A WACHS SW Ketamine Infusion Analgesia Record • MR170.5 WACHS PCIA/IV Opioid Infusion Prescription & Additional Observation Chart • MR170.6 WACHS PCIA/IV Opioid Infusion Continuation Sheet • MR170A WACHS Hospital Medication Chart – Adult Short Stay • MR170C WACHS Anticoagulation chart • MR174H WACHS SW Intravenous Infusion Chart for CRRT Calcium Chloride 10% Infusion (Bunbury ICU only) • MR176 Intravenous Fluid Treatment Chart • MR177 WACHS SW Intravenous Infusion Medication Chart Vasoactive/Sedative Agents Infusion
Aboriginal Health Impact Statement Declaration (ISD)	ISD Record ID: 2501
National Safety and Quality Health Service (NSQHS) Standards	4.01, 4.04, 4.143, 4.15
Aged Care Quality Standards	Nil
National Standards for Mental Health Services	Nil

9. Document Control

Version	Published date	Current from	Summary of changes
4.00	28 November 2023	28 November 2023	• Infusion monographs edited to be able to be utilised across both domains for Bunbury Critical Care and updated to reflect current practice. • Monographs added for alteplase, calcium gluconate, phosphate and magnesium. • Appendices added to support information for acetylcysteine in Paracetamol toxicity, dobutamine dosing, dopamine dosing, heparin infusion for fluid restricted patients and infusion rates for sodium nitroprusside. • Change of title

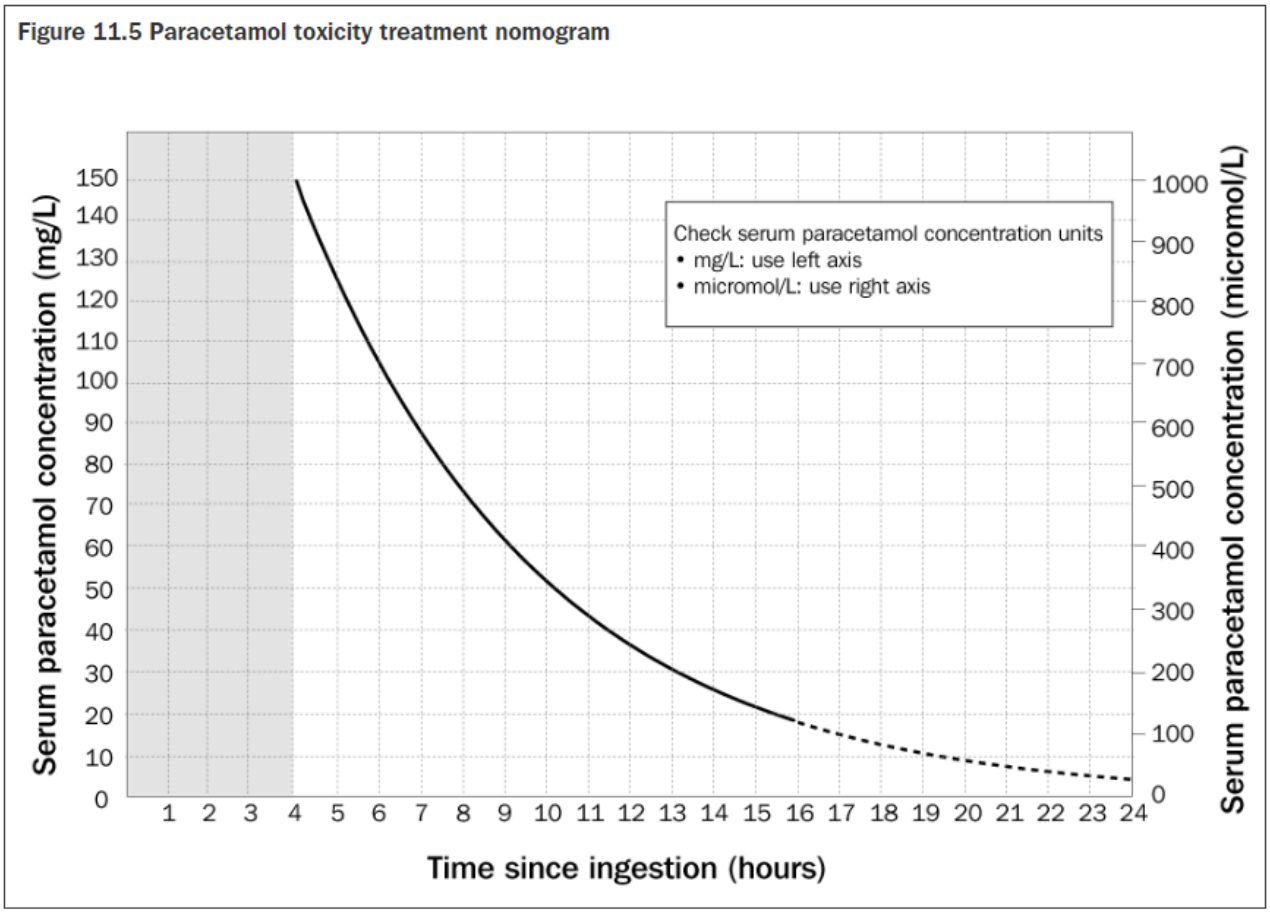
10. Approval

Policy Owner	Executive Director South West
Co-approver	Executive Director Clinical Excellence Executive Director Nursing and Midwifery
Contact	WACHS-SW Regional Chief Pharmacist
Business Unit	Clinical Services
EDRMS #	ED-CO-14-87511

This document can be made available in alternative formats on request.

Appendix A: Paracetamol toxicity treatment nomogram

Figure 11.5 Paracetamol toxicity treatment nomogram



Therapeutics Guidelines Paracetamol poisoning : immediate release preparations

Appendix B: Dobutamine dose calculations by patient weight: for central access concentration only (5mg/mL)

	Dose (microgram/kg/min)					
	2.5	5	10	15	20	
Patient weight (kg)						
50	1.5	3	6	9	12	Rate* (ml/hr)
60	1.8	3.6	7.2	10.8	14.4	
70	2.1	4.2	8.4	12.6	16.8	
75	2.25	4.5	9	13.5	18	
80	2.4	4.8	9.6	14.4	19.2	
90	2.7	5.4	10.8	16.2	21.6	
100	3	6	12	18	24	
120	3.6	7.2	14.4	21.6	28.8	

Sir Charles Gairdner Hospital Dobutamine Guideline, page 2.

Appendix C: Dopamine dose calculations by patent weight: for central access concentration only (4mg/mL)

Patient weight (kg)#	Dose (microgram/kg/min)								
	0.5	1	2	2.5	3	3.5	4	4.5*	
50	0.2	0.7	1.5	1.9	2.2	2.6	3	3.4	Rate (mL/hr)
60	0.5	0.9	1.8	2.2	2.7	3.1	3.6	4	
70	0.5	1	2	2.6	3	3.7	4	4.7	
75	0.5	1.1	2.2	2.8	3.3	3.9	4.4	5	
80	0.6	1.2	2.4	3	3.6	4.2	4.8	5.4	
90	0.7	1.3	2.6	3.4	3.9	4.7	5.2	6	
100	0.7	1.5	3	3.8	4.5	5.2	6	6.7	
125	0.9	1.9	3.8	4.7	5.7	6.5	7.6	8.4	

For obese patients use ideal body weight (IBW) for calculations.
***** Maximum rate/dose allowed for this specific indication

Sir Charles Gairdner Hospital Dopamine Guideline, page 5.

Appendix D: Heparin infusion nomogram for fluid restricted patients

Treatment recommendations do NOT cover all clinical scenarios and do not replace the need for clinical judgement.

Infusion Nomogram for Intravenous Unfractionated Heparin
For FLUID RESTRICTED PATIENTS
25,000 units in 50 mL

Patients requiring fluid restrictions (e.g. patient with heart failure or severe renal impairment) may require a more concentrated dilution of unfractionated heparin than the standard dilution used in the WA Anticoagulation Medication Chart –25,000 units in 500 mL of sodium chloride 0.9% (50 units/mL).

Print a copy of the FLUID RESTRICTED nomogram and ATTACH to Anticoagulation Chart over existing page 3 – put a line through the original nomogram on the WA Anticoagulation Medication Chart.

This nomogram (weight-based guides) is ONLY valid when using an unfractionated heparin concentration of 25,000 units in 50 mL and STANDARD aPTT targets.

INITIAL ORDER : Prescriber should complete order (initial bolus and initial infusion rate) on page 2. See below for recommended dose for Venous Thromboembolism (VTE) or Acute Coronary Syndrome (ACS).

- It is important that a bolus dose of unfractionated heparin is prescribed and administered on initiating an unfractionated heparin infusion to ensure that the therapeutic range is reached within the first 24 hours of therapy.

MAINTENANCE : Prescriber to indicate on page 2 of Anticoagulation Chart whether nurse should maintain infusion rate based on nomogram as indicated OR whether the prescriber is to be contacted following each aPTT test.

IT IS RECOMMENDED FOR SAFETY THAT

- **All bolus doses be drawn up from separate ampoules into a syringe for administration.**
- **A syringe driver is used to administer the infusion due to the very low infusion rates required.**

Venous Thromboembolism (DVT/PE) Bolus and Initial Rate Requirements

		Weight Based Guide for Initial Dose											
Bolus Dose 80 units/kg	Weight	≤40 kg	45 kg	50 kg	55 kg	60 kg	65 kg	70 kg	75 kg	80 kg	85 kg	90 kg	≥95 kg
	Units	3200	3600	4000	4400	4800	5200	5600	6000	6400	6800	7200	7200
Initial Rate 18 units/kg/hour	Rate (mL/hour)	1.4	1.6	1.8	2	2.2	2.3	2.5	2.7	2.9	3.1	3.2	3.2

Acute Coronary Syndrome Bolus and Initial Rate Requirements

		Weight Based Guide for Initial Dose											
Bolus Dose 60 units/kg	Weight	≤40 kg	45 kg	50 kg	55 kg	60 kg	65 kg	70 kg	75 kg	80 kg	85 kg	90 kg	≥ 95 kg
	Units	2400	2800	3000	3300	3600	4000	4000	4000	4000	4000	4000	4000
Initial Rate 12 units/kg/hour	Rate (mL/hour)	1	1.1	1.2	1.3	1.4	1.5	1.7	1.9	2	2	2	2

Nomogram for modifying rate of administration for Venous Thromboembolism and Acute Coronary Syndrome

MAINTENANCE	MAINTENANCE ORDER Use weight column on nomogram and row for aPTT range for mL/hour conversion of unit/kg/hour		Weight Based Rate for Maintenance Dose											
		Weight	≤40 kg	45 kg	50 kg	55 kg	60 kg	65 kg	70 kg	75 kg	80 kg	85 kg	90 kg	≥ 95 kg
	aPTT	Dose Adjustment	Rate Change (mL/hour) This rate equals recommended change in units/hour for a 50 unit/mL dilution. Remeasure aPTT within 6 hours of each rate change											
	< 51	Bolus dose as per indication (VTE OR ACS listed above) Then increase 3 units/kg/hour	+0. 2	+ 0.3	+0.3	+0.3	+0.4	+ 0.4	+ 0.4	+ 0.5	+ 0.5	+0.5	+ 0.5	+ 0.6
	51-69	Increase 2 units/kg/hour For VTE consider 40 units/kg bolus dose	+ 0.2	+ 0.2	+ 0.2	+ 0.2	+ 0.2	+ 0.3	+ 0.3	+ 0.3	+ 0.3	+ 0.3	+ 0.4	+ 0.4
	70-100	No Change	Remeasure aPTT within 24 hours (or next morning)											
	101-115	Reduce 1 unit/kg/hour	- 0.1	- 0.1	- 0.1	- 0.1	- 0.1	- 0.1	- 0.1	- 0.2	- 0.2	- 0.2	- 0.2	- 0.2
	116-125	Hold for 30 minutes Then reduce 2 units/kg/hour	- 0.2	- 0.2	- 0.2	- 0.2	- 0.2	- 0.3	- 0.3	- 0.3	- 0.3	- 0.3	- 0.4	- 0.4
	> 125	• Contact doctor • Hold for 60 minutes • Then reduce 3 units/kg/hour	- 0.2	- 0.3	- 0.3	- 0.3	- 0.4	-0.4	- 0.4	-0.5	- 0.5	- 0.5	- 0.5	- 0.6

Slight variances of aPTT ranges may occur due to changes in laboratory reagents used. Please check with your Pathology Laboratory.

***Please note:** Each hospital is required to check with their Pathology laboratory should determine its own therapeutic target range for heparin against a gold standard test (eg residual anti-Xa activity). Because of this, hospitals should not use a WA Anticoagulation Chart from another hospital as ranges will change from hospital to hospital.*

Version 6 November 2023

WA Anticoagulant Medication Chart Supporting Resources Department of Heath WA

Appendix E: Sodium nitroprusside dose calculations by patient weight

	PERIPHERAL ACCESS : Infusion rates (mL/hr) based on concentration of 100microgram/mL						
Patient Ideal Bodyweight (kg)	Sodium Nitroprusside dose in microgram/kg/min						
	0.3 microg/kg/min	2 microg/kg/min	3 microg/kg/min	4 microg/kg/min	6 microg/kg/min	8 microg/kg/min	10 microg/kg/min
	Infusion rate (mL/hr)						
40 kg	7.2 mL/hr	48 mL/hr	72 mL/hr	96 mL/hr	144 mL/hr	192 mL/hr	240 mL/hr
50 kg	9 mL/hr	60 mL/hr	90 mL/hr	120 mL/hr	180 mL/hr	240 mL/hr	300 mL/hr
60 kg	10.8 mL/hr	72 mL/hr	108 mL/hr	144 mL/hr	216 mL/hr	288 mL/hr	360 mL/hr
70 kg	12.6 mL/hr	84 mL/hr	126 mL/hr	168 mL/hr	252 mL/hr	336 mL/hr	420 mL/hr
80 kg	14.4 mL/hr	96 mL/hr	144 mL/hr	192 mL/hr	288 mL/hr	384 mL/hr	480 mL/hr
90 kg	16.2 mL/hr	108 mL/hr	162 mL/hr	216 mL/hr	324 mL/hr	432 mL/hr	540 mL/hr
100 kg	18 mL/hr	120 mL/hr	180 mL/hr	240 mL/hr	360 mL/hr	480 mL/hr	600 mL/hr
	CENTRAL VENOUS ACCESS ONLY: Infusion rates (mL/hr) based on concentration of 1mg/mL						
Patient Ideal Bodyweight (kg)	Sodium Nitroprusside dose in microgram/kg/min						
	0.3 microg/kg/min	2 microg/kg/min	3 microg/kg/min	4 microg/kg/min	6 microg/kg/min	8 microg/kg/min	10 microg/kg/min
	Infusion rate (mL/hr)						
40 kg	0.7 mL/hr	4.8 mL/hr	7.2 mL/hr	9.6 mL/hr	14.4 mL/hr	19.2 mL/hr	24 mL/hr
50 kg	0.9 mL/hr	6 mL/hr	9.0 mL/hr	12 mL/hr	18 mL/hr	24 mL/hr	30 mL/hr
60 kg	1.1 mL/hr	7.2 mL/hr	10.8 mL/hr	14.4 mL/hr	21.6 mL/hr	28.8 mL/hr	36 mL/hr
70 kg	1.3 mL/hr	8.4 mL/hr	12.6 mL/hr	16.8 mL/hr	25.2 mL/hr	33.6 mL/hr	42 mL/hr
80 kg	1.4 mL/hr	9.6 mL/hr	14.4 mL/hr	19.2 mL/hr	28.8 mL/hr	38.4 mL/hr	48 mL/hr
90 kg	1.6 mL/hr	10.8 mL/hr	16.2 mL/hr	21.6 mL/hr	32.4 mL/hr	43.2 mL/hr	54 mL/hr
100 kg	1.8 mL/hr	12 mL/hr	18 mL/hr	24 mL/hr	36 mL/hr	48 mL/hr	60 mL/hr

Fiona Stanley Fremantle Hospital Group Sodiun Nitroprusside Specialised Drug Guideline, page 5.