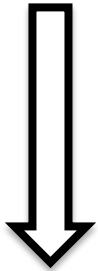


LANCASHIRE AND SOUTH CUMBRIA CRITICAL CARE INTRAVENOUS DRUG MONOGRAPHS

Drug preparation and administration guide

Full details on how to prepare and administer intravenous medication is available from the drug SPC at www.emc.medicines.org.uk or use the Injectable medicine guide available via intranet.



Medusa Home Page | Inj Med Guide | Logout | NHS

Injectable Medicines Guide

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User: Ward Staff
Organisation: East Lancashire Hospitals NHS Trust

Please use the menu bar at the top right-hand corner of this page to select an activity. Each main function area has a drop-down menu, select the activity you want from the drop-down

[IntraVENOUS drugs](#) of the monographs, please send these to Gill Bullock at Gill.Bullock@imperial.nhs.uk.

[IntraMUSCULAR drugs](#)

[Ocular drugs](#)

[Paediatric IntraVENOUS drugs](#)

[Subcutaneous drugs](#)

[Documents and links](#)

To register additional users, download the [Instructions](#) and [Registration Form](#) (MS Word format).

What's New

10/01/2016 - Major incident on the Injectable Medicines Guide.
There has been a major incident on the Injectable Medicines Guide with the NHS versions of the website down since Saturday morning. The website is now back. Please accept my apologies for the disruption and we will be holding a major incident review as a result of this. Please let me know if there are any residual problems.

Introduction to using this Website

Hover over the **Inj Med Guide** on the menu bar at the top right hand corner of this page OR use the links on the left hand side of the home page to access the following: -
IntraVENOUS drugs - to access all IV medicines on the website
IntraMUSCULAR drugs - to access IM medicines (mainly used in mental health) on the website
Ocular drugs - to access ocular injections on the website (section under development)
Paediatric IntraVENOUS drugs - to access paediatric specific IV medicines on the website (section under development)

Click on down arrow and type first letter of the medicine, scroll down to required drug and click on relevant button to read or print monograph.

Printing from the website
When printing a monograph, click on the button 'print monograph' at the top of the monograph. Do not use the 'tool bar' print option because the right hand margin of the printed version may not be complete and information may be lost.

Links to BNF, SPCs, PIL's and other relevant information
Monographs contain links to the current BNF and latest SPCs /Summary of Product

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Alfentanil

Full details are available from the SPC www.emc.medicines.org.uk or use the Injectable medicine guide available via Medusa on the intranet

Dose

Maintenance: 0.5-2.5mg per hour

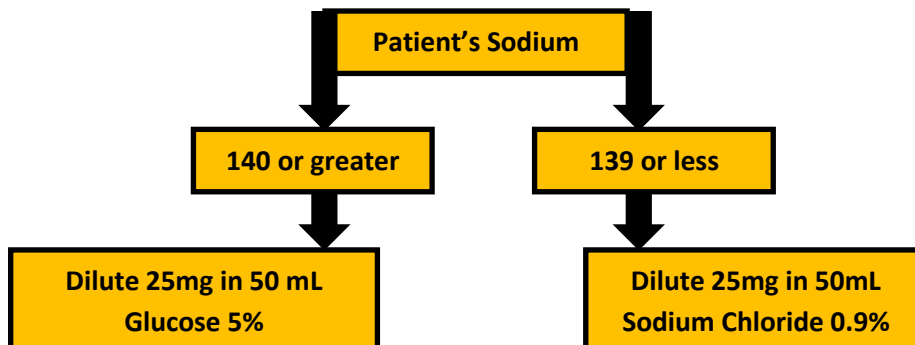
Route

Intravenous infusion only

Preparation

5mg/mL ampoules

25mg (5mL) to be made up to 50mL with Sodium Chloride 0.9% or Glucose 5%



Administration

Comment on Trust's SMARTPUMPS

Storage / Stability

After reconstitution, use immediately

Flushing

Flush with sodium chloride 0.9% or glucose 5%

Other Information

Compatible infusions: Acetylcysteine, adrenaline, aminophylline, amiodarone (if both in glucose 5%), aprotinin, atracurium, bivalirudin, cisatracurium, clonidine, dexmetomidine, dobutamine, dopamine, dopexamine, esmolol, etomidate, fentanyl, furosemide, heparin sodium, insulin, labetalol, linezolid, midazolam, morphine sulfate, noradrenaline, propofol, remifentanyl

Compatible infusion fluids: Sodium chloride 0.9%, glucose 5%, compound sodium lactate (Hartmann's), glucose 5% in sodium chloride 0.9%.

Incompatible: Amphotericin, glyceryl trinitrate, omeprazole, phenytoin, sodium bicarbonate, thiopental

Amiodarone

Full details are available from the SPC www.emc.medicines.org.uk or use the Injectable medicine guide available via Medusa on the intranet

Dose

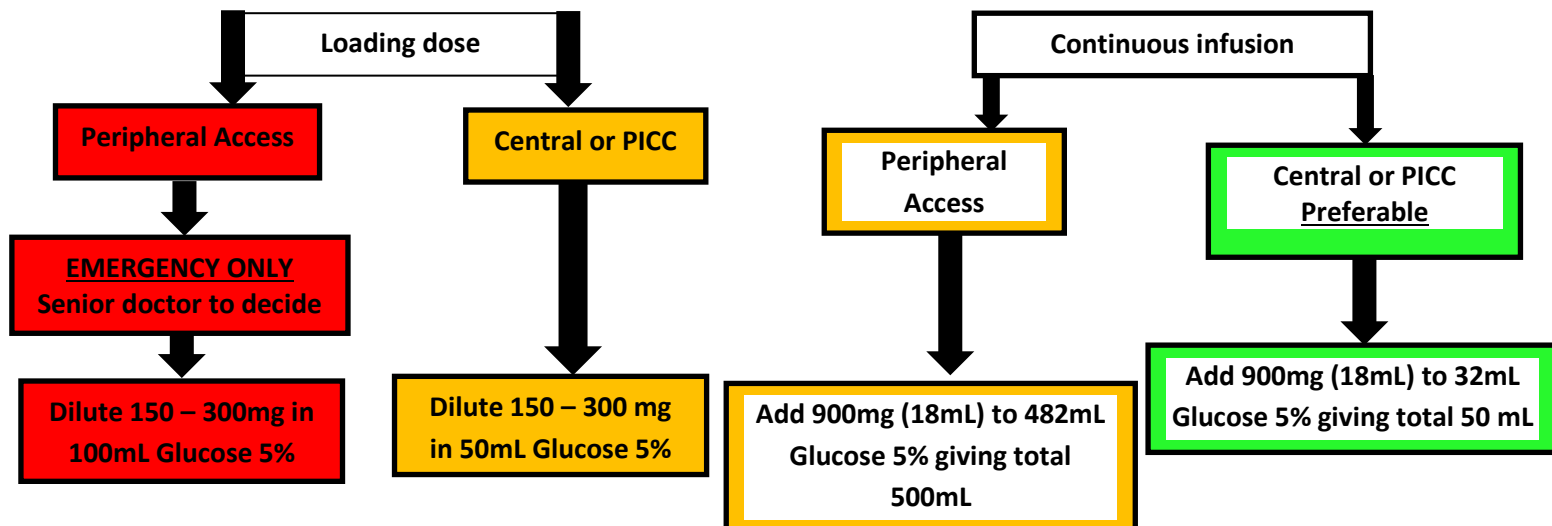
Loading dose: 150 – 300mg over 20 minutes to 1 hour

Continuous infusion: 900mg over 24 hours

Route

Central venous or PICC Line only (Peripheral access may be used in Emergencies ONLY)

Preparation



Blackpool Cardiac Intensive Care ONLY:

600mg continuous infusion via peripheral and central in 500mL or 50mL glucose 5% respectively.

Administration

Comment on Trust's SMARTPUMPS

Storage / Stability

Expiry time to be written on 'medicine added' label of continuous infusion: 24 hours

Flushing

IV infusion via a central venous access device: Do not flush the central venous access device. After the infusion is discontinued, disconnect the administration set, aspirate the cannula contents and then flush with sodium chloride 0.9%.

Other Information

Do NOT give amiodarone with any drug diluted in sodium chloride 0.9%.

See MEDUSA for full list of compatible and incompatible drugs due to extensive list

Clarithromycin

Full details are available from the SPC www.emc.medicines.org.uk or use the Injectable medicine guide available via Medusa on the intranet

Dose:

500mg twice a day

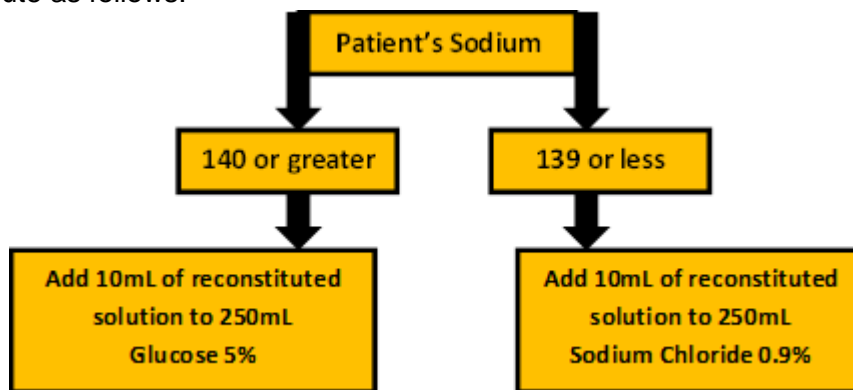
Route:

IV infusion

Preparation:

Reconstitute with 10mL water for injections and shake the vial to dissolve the contents. N.B. Do **NOT** initially reconstitute with sodium chloride 0.9%.

Further dilute as follows:



Administration

Comment on Trust's SMARTPUMPS

Storage / Stability

Discard drug following 24 hours. Store vials at room temperature and in original container to protect from light.

Flushing

Flush with glucose 5% or sodium chloride 0.9%.

Other Information

If patient experiences discomfort at the injection site, can reduce rate of administration to 125mL/hr.

Clonidine

Full details are available from the SPC www.emc.medicines.org.uk or use the Injectable medicine guide available via Medusa on the intranet

Dose

Intermittent infusion

Doses of 50 to 400micrograms TDS or QDS have been used

Continuous Infusion

Doses in the range of 0.25 to 1 microgram/kg/hour are typically used. Doses up to 4 microgram /kg /hour have been used in exceptional circumstances. Use ideal body weight.

Doses should normally start at around 0.25 microgram/kg/hour for an hour as a loading dose; the rate is then titrated to sedative effect. Initial bolus dose of 10 micrograms may be used and repeated until desired effect is reached.

Route

IV injection or infusion

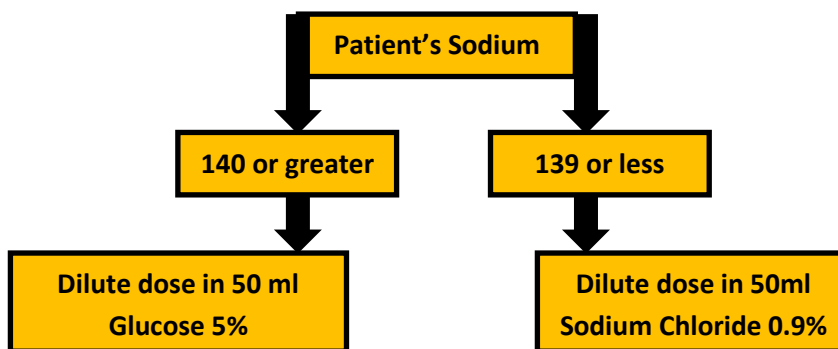
Preparation flow diagram

PERIPHERAL

Use 5 x 150 microgram ampoules to produce a 750microgram/50mL syringe for administration

CENTRAL

Use 10 x 150 microgram ampoules to produce a 1500microgram/50mL syringe for administration



Administration

Comment on Trust's SMARTPUMPS

Continuous infusion should be reduced gradually by 0.25-0.5mL/hr. Withdrawal should be over several hours.

Other Information

Compatible infusion fluids: Alfentanil, aminophylline, atracurium, fentanyl, furosemide, heparin, insulin, labetalol, magnesium, midazolam, morphine and potassium chloride, remifentanyl. Amiodarone and dobutamine if clonidine made up with glucose 5%

Incompatible infusion fluids: Omeprazole

Dexmedetomidine

Full details are available from the SPC www.emc.medicines.org.uk or use the Injectable medicine guide available via Medusa on the intranet

Dose

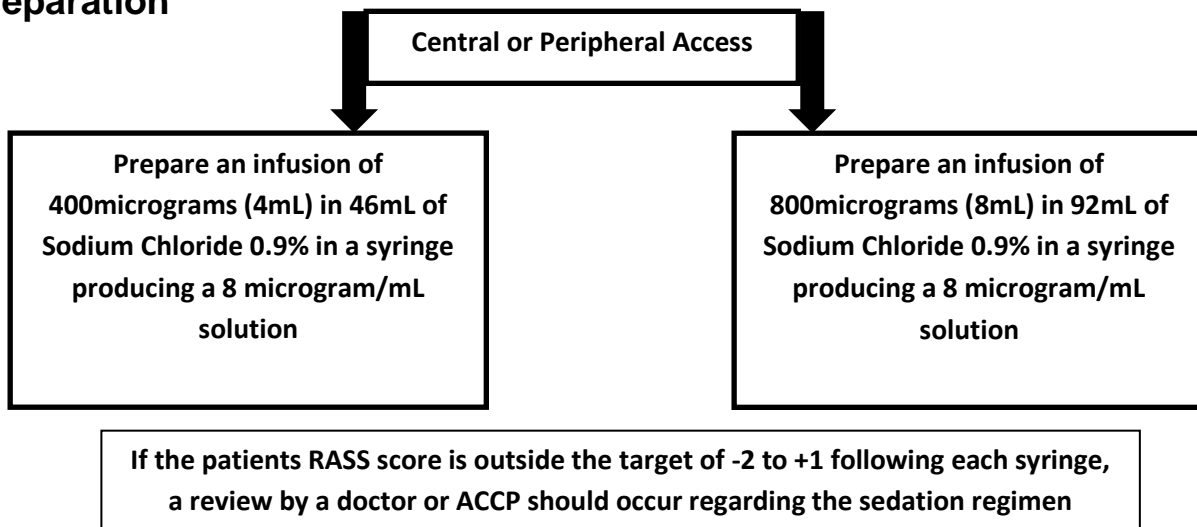
Initial infusion rate 0.7 micrograms /kg /hour

See clinical guidance

Route

Peripheral or Central continuous infusion

Preparation



Administration

Comment on Trust's SMARTPUMPS

Do not abruptly stop

Storage / Stability

24 hours after dilution

Protect undiluted ampoules from light

Flushing

Flush with sodium chloride 0.9% or Glucose 5%

IV infusion via a central venous access device: Do not flush the central venous access device. After the infusion is discontinued, disconnect the administration set, aspirate the cannula contents and then flush with sodium chloride 0.9% or Glucose 5%

Other Information

Compatible infusions: Atracurium besilate, ciprofloxacin (in sodium chloride 0.9%), dexamethasone, digoxin, dobutamine, dopamine hydrochloride, etomidate, fentanyl, fluconazole, levofloxacin, lidocaine hydrochloride, mannitol 20%, metoclopramide hydrochloride, midazolam, mivacurium, morphine sulfate, noradrenaline (norepinephrine), phenylephrine hydrochloride, procainamide hydrochloride, rocuronium bromide, thiopental sodium, tobramycin (in sodium chloride 0.9%), vecuronium bromide

Compatible infusion fluids: Glucose 5%, sodium chloride 0.9%, compound sodium lactate (Hartmann's solution)

Furosemide

Full details are available from the SPC www.emc.medicines.org.uk or use the Injectable medicine guide available via Medusa on the intranet

Dose

Individual dose: Give initial dose of 1.5-2mg/kg (see table below), if diuresis achieved, repeated doses can be given 8 hourly.

Pre-infusion bolus doses:

Weight	Dose
< 50kg	50mg
51 – 70kg	100mg
71 – 100kg	150mg
> 100kg	200mg

Continuous infusion: 1 – 10 mg per hour. Discuss with consultant if higher rate required.

Route

Intravenous infusion only

Preparation

Individual dose: Doses up to 50mg can be given undiluted as a bolus over 3 minutes.

Doses above 50mg to be diluted in 50mL sodium chloride 0.9% in a syringe and given over 60 minutes.

Continuous infusion – Add 500mg Furosemide and dilute to a total of 50mL of Sodium Chloride 0.9% in a syringe

Administration

Comment on Trust's SMARTPUMPS

Storage / Stability

Discard after 24 hours

Flushing

Flush with sodium chloride 0.9% or glucose 5%

Other Information

Compatible (it is assumed that medicines meet close to the vascular access device):

Ceftazidime, fentanyl, heparin, meropenem, metoprolol, potassium chloride, tirofiban.

Incompatible (exclusion from this list does not imply compatibility)

Adrenaline, amikacin, amiodarone, argipressin, azithromycin, caffeine citrate, caspofungin, ciprofloxacin, cisatracurium, clarithromycin, clonidine,⁽¹⁴⁾ diazepam, diltiazem, dobutamine, dopamine, doxapram, droperidol, eptifibatide, erythromycin, esmolol, filgrastim, fluconazole, gentamicin, glucose, hydralazine, isoprenaline, isosorbide dinitrate, ketamine, labetalol, levofloxacin, lidocaine, metoclopramide, midazolam, milrinone, morphine, nicardipine, noradrenaline, omeprazole, ondansetron, pantoprazole, pethidine, phenylephrine, promethazine, quinidine, rocuronium, tobramycin, vasopressin, vecuronium bromide, verapamil

Ketamine

Full details are available from the SPC www.emc.medicines.org.uk or use the Injectable medicine guide available via Medusa on the intranet

Dose

See unit guidance

Route

Intravenous infusion only

Preparation

Final concentration of any dilution should be **10mg/mL**.

WARNING: Preparation is dependent on the concentration available; 10mg/mL, 50mg/mL and 100mg/mL are available.

If **10mg/mL** vials available draw up undiluted into a 50mL syringe.

If **50mg/mL** vials available, take 10 mL and add to 40mL sodium chloride 0.9% a bag or syringe.

If **100mg/mL** vials available, take 5mL and add to 45 mL sodium chloride 0.9% in a bag or syringe.

Administration

Comment on Trust's SMARTPUMPS

Do not abruptly stop

Storage / Stability

Discard after 24 hours

Flushing

Flush with sodium chloride 0.9%

Other Information

Compatible (it is assumed that medicines meet close to the vascular access device): Morphine, propofol.

Incompatible: Barbiturates, diazepam doxapram (when mixed together in the same infusion fluid or syringe).

Diazepam should be given separately and not mixed in the same container.

Metaraminol

Full details are available from the SPC <http://www.medicines.org.uk/emc> or use the Injectable medicines guide available via Medusa on the intranet

Dose

Titrate to target MAP

Route

Intravenous infusion only

Preparation

Pre-filled syringes are available on the unit

Solution for injection. May be given diluted or undiluted to aid administration.
For example dilute 10mg/1mL ampoule to 10mg/20mL (500 microgram/mL concentration).

Solution for infusion. Dilute to a 500microgram in 1mL concentration with sodium chloride 0.9%. For example, 20mg in 40mL or 25mg in 50mL.

Administration

Comment on Trust's SMARTPUMPS

Do not abruptly stop

Storage / Stability

Discard syringe after 24 hours

Flushing

IV infusion via a central venous access device: Do not flush the venous access device. After the infusion is discontinued, disconnect the administration set, aspirate the cannula contents and then flush with sodium chloride 0.9% or glucose 5%.

Other Information

Compatible infusion fluids: Glucose 5%, sodium chloride 0.9%, Plasma-Lyte 148

Incompatible infusion fluids: Amphotericin B, benzylpenicillin, dexamethasone, erythromycin, hydrocortisone, thiopental

Midazolam for sedation

Full details are available from the SPC www.emc.medicines.org.uk or use the Injectable medicine guide available via Medusa on the intranet

Dose

As per target RASS score or ICP as prescribed

Route

Intravenous infusion only

Preparation

100mg/50mL vials

10mg/2mL vials are no longer stocked on Critical Care as per NPSA alert 'Reducing risk of overdose with midazolam injection in adults'

Administration

Comment on Trust's SMARTPUMPS

Do not abruptly stop

Storage / Stability

Discard drug following 24 hours

Flushing

Do NOT flush without initially aspirating the line

Other Information

Compatible infusion fluids: Glucose 5%, sodium chloride 0.9%, glucose 4% with sodium chloride 0.18%. Adrenaline, amikacin, amiodarone (in glucose 5%), atracurium, calcium gluconate, caspofungin (in sodium chloride 0.9%), cefotaxime, cisatracurium, clindamycin, digoxin, dopamine, erythromycin, esmolol, fentanyl, fluconazole, gentamicin, glyceryl trinitrate, haloperidol, heparin sodium, insulin soluble, labetalol, methylprednisolone, metronidazole, milrinone, morphine sulfate, noradrenaline (in glucose 5%), potassium chloride, propofol, ranitidine, remifentanyl, sodium nitroprusside (in glucose 5%), tobramycin, vancomycin, vecuronium clonidine, ketamine, morphine.

Incompatible: Albumin, amoxicillin, amphotericin, ampicillin, ceftazidime, cefuroxime, co-amoxiclav, cotrimoxazole, dexamethasone, fosphenytoin, furosemide, hydrocortisone, imipenem, omeprazole, pantoprazole, sodium bicarbonate, thiopental, aciclovir, alteplase, diazepam, flecainide, phenobarbital, phenytoin.

Noradrenaline

Full details are available from the SPC www.emc.medicines.org.uk or use the Injectable medicine guide available via Medusa on the intranet

Dose

Initial target MAP of 65 mmHg or greater

Route

Intravenous infusion only

Preparation

4mg in 50mL: Add ONE vial of 4mg in 4mL Noradrenaline to 46ml Glucose 5% in a 50mL syringe

8mg in 50mL: Add TWO vials of 4mg in 4mL Noradrenaline to 42ml Glucose 5% in a 50mL syringe

16mg in 50mL: Add FOUR vials of 4mg in 4mL Noradrenaline to 34ml Glucose 5% in a 50mL syringe

Administration

Comment on Trust's SMARTPUMPS

Storage / Stability

Discard syringe after 24 hours

Flushing

Do NOT flush without initially aspirating the line

Other Information

The concomitant administration of noradrenaline and other medicines via a Y-site should be avoided if possible to prevent inadvertent bolus administration of noradrenaline.

Compatible infusions (it is assumed that medicines meet close to the vascular access device):

Adrenaline, amiodarone, cisatracurium in glucose 5%, clonidine in sodium chloride 0.9%, dobutamine in glucose 5%, dopamine in glucose 5%, fentanyl, glyceryl trinitrate, heparin sodium, hydrocortisone, midazolam in glucose 5%, milrinone in glucose 5%, morphine in glucose 5%, potassium chloride, propofol, remifentanil in sodium chloride 0.9%, vasopressin in sodium chloride 0.9%, vecuronium.

Compatible infusion fluids: Sodium chloride 0.9% glucose 5% and sodium chloride 0.9%, Hartmann's. Sodium chloride 0.9% not usually recommended as a diluent because of lack of protection from oxidation.⁽⁴⁾

Incompatible:- Alkaline solutions, Insulin, aminophylline, thiopental.

Lancashire and South Cumbria Consultation		
	Committee/Group	Date
Consultation	Critical Care Consultants Lancashire and South Cumbria Critical Care Pharmacists Lancashire and South Cumbria Network Lead Nurse	September 2021
Approval Committee	Lancashire and South Cumbria Critical Care CEG (Clinical Effectiveness Group)	15 / 09 / 2021
NEXT REVIEW DATE:	August 2023	
Host	Monographs hosted centrally by Lancashire Medicines Management Group	
AMENDMENTS:		

Internal Consultation		
	Committee/Group	Date
Consultation		
Approval Committee		
NEXT REVIEW DATE:		
AMENDMENTS:		