

Guidelines for NON - CRITICAL CARE staff

Common vasoactive drugs

These drugs are used to maintain cardiovascular stability. The full guide to administration can be found on **BSUH infonet > intensive care unit > clinical guidelines > inotropes**

These drugs MUST

- be given via a central venous catheter.
- Be given via a 'dedicated' line (several vasoactives can run together in one lumen of a CVC) with a 2, 3 or 4 lumen connector.
- given via an ICU specific syringe driver – these allow you to change the rate without pausing the infusion. All ICU pumps have ICU or HDU spray-painted on them.
- Be 'double pumped' ie: when changing syringe, the old and new infusions run concurrently to prevent loss of infusion during change **UNLESS 'RAPID CHANGE-OVER' TECHNIQUE IS USED, DUE TO LACK OF AVAILABLE PUMPS**

These drugs MUST NOT

- be paused, stopped or disconnected suddenly – they have a short half-life and pausing/stopping/disconnection may cause rapid CVS deterioration or arrest **UNLESS 'RAPID CHANGE-OVER' TECHNIQUE IS USED, DUE TO LACK OF AVAILABLE PUMPS**
- be given as a bolus, or bolused via the pump – this could cause rapid CVS instability
- run with ANY drug other than a vasoactive drug

COMMON VASOACTIVES

- NORADRENALINE – vasopressor: causes vasoconstriction and used to improve BP
USES: sepsis, septic shock, severe hypotension not resolved with fluid
- ADRENALINE – inotrope: increases contractility, raises BP and HR
USES: sepsis, septic shock, severe bradycardia
- DOBUTAMINE – inotrope and vasodilator: increases contractility and reduces cardiac work
USES: cardiac failure, cardiogenic shock
- MILRINONE – inotrope and vasodilator: increases contractility and reduces cardiac work
USES: cardiac failure, cardiogenic shock
- METARAMINOL – vasopressor: causes vasoconstriction and raises BP
USES: severe hypotension – used as temporary measure until CVC/norad established

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NORADRENALINE(alternative name: Norepinephrine))

PREP

- draw up DRUG - 4mgs/4mls (1mg/ml)
- add to 46mls 5% dextrose to make 50mls
- concentration is 80mcgs/ml

PRIME

- PRIME the line AND 3 or 4-way connector with drug and CLAMP line.
- Ensure both SYRINGE and LINE are labelled with drug, drug concentration and date

ATTACH

- Set syringe in PUMP, set rate, volume to be infused (VTBI) and PURGE line after unclamping
- ATTACH primed line to CVC

INFUSE

- Check rate and pump
- ensure all lines/connectors UNCLAMPED
- start infusion

SPECIAL NOTES ON NORADRENALINE:

- Once infusion rate is 10mls/hr or more, concentration of noradrenaline or adrenaline should be increased
 1. 8mgs/8mls in 42mls 5% dextrose = 160mcgs/ml
 2. 16mgs/16mls in 34mls 5% dextrose = 320mcgs/ml
 3. 32mgs/32mls in 18mls 5% dextrose = 640mcgs/ml

****STRENGTHS > 8mgs/50mls require EXPERT help to start and change – do not attempt without senior ICU nurse help!****

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DOBUTAMINE 250mgs/50mls

PREP

- draw up DRUG - either 250mgs/50mls (NEAT)
- or 250mgs in 20mls and add to 30mls of 5% dextrose
- concentration is 5mgs/ml

PRIME

- PRIME the line AND 3 or 4-way connector with drug and CLAMP line.
- Ensure both SYRINGE and LINE are labelled with drug, drug concentration and date

ATTACH

- Set syringe in PUMP, set rate, volume to be infused (VTBI) and PURGE line after unclamping
- ATTACH primed line to CVC

INFUSE

- Check rate and pump
- ensure all lines/connectors UNCLAMPED
- start infusion

SPECIAL NOTES ON DOBUTAMINE:

- DOBUTAMINE has a longer half life than noradrenaline. It is safe to stop one infusion and start the next with a short gap in between

****dobutamine should not be started without assistance and supervision from a senior ICU nurse colleague****

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METARAMINOL 10mgs/20mls

METARAMINOL is used only for short term or immediate BP support during severe hypotension – during intubation/procedures or whilst waiting for CVC and noradrenaline to commence

PREP

- draw up 10mgs DRUG and add to 19mls NaCL
- concentration is 500mcgs/ml

ADMINISTER

- administer via peripheral or central IV route
- dose usually 1-2mls as bolus, as directed by Dr

Alternatively: to preserve noradrenaline supplies, metaraminol may be used first line in NON-SEPTIC patients with NORMAL cardiac output. Advice must be sought from ICU team before commencing.

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MILRINONE 10mgs/50mls

****MILRINONE is not commonly used – this should only be started after advice from ICU CONSULTANT and should only be commenced with SENIOR ICU NURSE help****

PREP

- Draw up DRUG - 10mgs in 10mls amp and add to 40mls 5% dextrose
- concentration is 10mgs/50mls - 200mcgs/ml

PRIME

- PRIME the line AND 3 or 4-way connector with drug and CLAMP line.
- Ensure both SYRINGE and LINE are labelled with drug, drug concentration and date

ATTACH

- Set syringe in PUMP, set rate, volume to be infused (VTBI) and PURGE line after unclamping
- ATTACH primed line to CVC

INFUSE

- Check rate and pump
- ensure all lines/connectors UNCLAMPED
- start infusion

SPECIAL NOTES ON MILRINONE:

- MILRINONE has a longer half life than noradrenaline. It is safe to stop one infusion and start the next with a short gap in between

****MILRINONE is not commonly used – this should only be started after advice from ICU CONSULTANT and should only be commenced with SENIOR ICU NURSE help****

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'DOUBLE PUMPING'

'Double pumping' is done with adrenaline and noradrenaline, to prevent BP collapse during syringe changeover

The full guide to administration can be found on **BSUH infonet > intensive care unit > clinical guidelines > inotropes**

BASIC PROCEDURE

PREP & PRIME

- prepare drug as per instructions
- change IV line every 24hrs

ATTACH

- Set syringe in PUMP, set rate, volume to be infused (VTBI) and PURGE line after unclamping
- ATTACH primed line to CVC - ensure all clamps UMCLAMPED

DOUBLE PUMP

- START NEW infusion at same rate as the one about to end
- WATCH MAP and wait for sustained rise in MAP >10mmHg
- WEAN old syringe down in small increments until down to 0.5mls - then PAUSE old infusion
- WAIT for BP to stay stable BEFORE switching off old infusion

NORADRENALINE at concentrations >8mgs/50mls may take considerable time to 'double pump'

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'RAPID CHANGE-OVER' TECHNIQUE FOR NORADRENALINE AND ADRENALINE IF 'DOUBLE-PUMPING' CANNOT BE USED DUE TO LACK OF AVAILABLE PUMPS

'Rapid change-over' should only be used for concentrations of 4mg/50mls or 8mgs/50mls. Above this, 'double-pumping' must be used.

prep

- Prepare DRUG as per norad/adrenaline flowchart
- RESET VTBI for NEW infusion whilst pump still running

swap

- GIVE BOLUS 0.1ml of infusion from OLD syringe
- QUICKLY remove OLD syringe and insert NEW syringe into pump DO NOT ATTACH TO GIVING SET
- QUICKLY PURGE new syringe to remove mechanical slack
- QUICKLY attach NEW syringe to giving set and press START

observe

- OBSERVE CLOSELY: you can expect BP to be labile during the -period, this may require some small titration of infusion in the 10minutes after swap-over, until BP stabilises.

ALL NON-ICU STAFF SHOULD DO THE 'RAPID CHANGEOVER' UNDER DIRECT OBSERVATION OF AN ICU COLLEAGUE UNTIL THEY HAVE SUFFICIENT EXPERIENCE TO DO THIS WITHOUT DIRECT SUPERVISION.