DOBUTAMINE

ACTIONS and USES
This agent is a positive inotrope which is used to increase systemic blood pressure and cardiac output in neonates with hypotension. It can be used with dopamine.

DOSAGE
5 - 20micrograms/kg/minute.

ADMINISTRATION
By continuous infusion of a diluted solution. **NEVER** give at concentration of more than 5mg/ml.
Preferably administer via central venous line- see monitoring
RECONSTITUTION
Note: different strength 5mg in1mL in a 50mLvial. Ready to use infusion but usually diluted.

Standard Strength Dilution 10 microgram/kg/min at rate of 1mL/hr

Dilute 30mg/kg (6mL/kg) of dobutamine 5mg/mL to a final volume of 50mL with sodium chloride 0.9% or glucose 5%.

See how to calculate infusion rate and example

If patient is fluid restricted it may be prescribed as a double strength solution

Double Strength Dilution 20 microgram/kg/min at rate of 1mL/hr

MUST WRITE "DOUBLE-STRENGTH" and unit concentration on IV Administration record under "Concentration" columns.
Dilute 60mg/kg (12mL/kg) of dobutamine 5mg/mL to a final volume of 50mL with sodium chloride 0.9% or glucose 5%.

See how to calculate infusion rate and example

Other compatible diluent
- Glucose 10%

Compatible medicines if they meet close to the cannula site**:**
- dopamine, fluconazole, lidocaine, potassium chloride
- if made up in glucose 5%: adrenaline, milrinone, morphine, noradrenaline, ranitidine.

INCOMPATIBILITIES
Do not mix or infuse with sodium bicarbonate aciclovir, furosemide, heparin, phenytoin, piperacillin/tazobactam,

STORAGE
Discard vials immediately after opening. Do not store diluted solutions. Unopened vials are stored in the medicine cupboard.

MONITORING
Neonates receiving dobutamine will be intensively monitored for cardiovascular and renal parameters. Nausea, vomiting, hypertension, tachycardia and an increase in pulmonary vascular resistance can occur. Thrombophlebitis and hypersensitivity reaction may also occur.

Dobutamine has a low pH and may cause venous irritation and tissue damage in cases of extravasation it should be preferably administer via central venous line.

Tolerance may develop with continuous infusions longer than 72 hours requiring an increase in dose.

Infusion rate: The infusion rate can be calculated from the following equation:

$$\text{Dobutamine infusion rate (mL/hour)} = \frac{\text{Dose (micrograms/kg/minute) x patient weight (kg) x 60 (minutes)}}{\text{1000 x final concentration (mg/mL)}}$$

For example: To administer a dose of 10micrograms/kg/minute of dobutamine to a 2kg patient using a standard solution of 30mg/kg in 50mL concentration

Add 2x6mL= 12mL of dobutamine 5mg/mL(60mg) to 38ml glucose 5% to make a final concentration of 60mg in 50mL = 1.2mg/mL

$$\text{Dobutamine infusion rate (mL/hour)} = \frac{\text{10 (micrograms/kg/minute) x 2 (kg) x 60 (minutes)}}{\text{1000 x 1.2mg/mL}} = \frac{1200}{1200} = 1\text{mL/hr}$$

Double Strength Dilution example A fluid restricted 2kg neonate requires an infusion of 20micrograms/kg/minute of dobutamine.

Using the double strength solution 60mg/kg in50mL concentration

Add 2x12mL=24mL of dobutamine 5mg/mL to 26ml of glucose 5% to make a final concentration of 120mg in 50ml =2.4mg/mL

$$\text{Dobutamine infusion rate (mL/hour)} = \frac{\text{20 (micrograms/kg/minute) x 2 (kg) x 60 (minutes)}}{\text{1000 x2.4 mg/mL}} = \frac{2400}{2400} = 1\text{mL/hr}$$