BURTON CRITICAL CARE DRUG MONOGRAPH

DOBUTAMINE	
CLASS	Inotropic sympathomimetic – act on beta1 receptors in cardiac muscle and increase contractility
INDICATION	Inotropic support in infarction, cardiomyopathies, septic shock and cardiogenic shock
DOSE	Continuous Intravenous infusion DOSE RANGE : 0 – 20micrograms/kg/min Initially 2.5 – 5 micrograms/kg/min adjusted according to response
PRESENTATION	Glass vial: 250mg in 50mL
pH	2.5 -5.5
ROUTE	IV CENTRAL ONLY EMERGENCY USE PERIPHERALLY - Dilute to 2 mg/mL for administration into a large peripheral vein, this is a short term measure in an emergency as there is increased risk of extravasation that may cause tissue necrosis (See Table 2 below for preparation and rate)
PREPARATION/ ADMINISTRATION	**CENTRAL = 5mg/mL (See Table 1 for rate)** Draw up 250mg in 50mL vial and administer via a syringe pump
CAUTION	Dobutamine is an inodilator and thus may improve cardiac output but worsen hypotension. Extreme caution or avoid in marked obstruction of cardiac ejection (such as idiopathic hypertrophic subaortic stenosis); tachycardia; monitor serum-potassium concentration; tolerance may develop with continuous infusions longer than 72 hours; hyperthyroidism
CONTRAINDICATIONS	Phaeochromocytoma
SIDE EFFECTS	Arrhythmias, tachycardia, palpitation, chest pain, dyspnoea, bronchospasm, headache, fever, eosinophilia, reduced platelet aggregation (on prolonged use), rash, phlebitis; *rarely* psychosis; *very rarely* bradycardia, cardiac arrest, AV block, myocardial infarction, coronary artery spasm, hypokalaemia, angle-closure glaucoma, petechial bleeding; *also reported* cerebral haemorrhage, pulmonary oedema, anxiety, paraesthesia, tremor, myoclonic spasm, increased urinary urgency, pruritus of scalp

Table 1: DOBUTAMINE INFUSION 5MG/ML (CENTRAL IV)

DOSE CALCULATION = $\frac{\text{Rate (mL/hr) x 5000micrograms (mcg)}}{\text{Body Weight (kg) x 60 (mins)}}$ = mcg/kg/min of dobutamine patient is receiving per hr

RATE CALCUALTION = $\frac{\text{DOSE (mcg/kg/min) x Body Wt (kg) x 60 (mins)}}{\text{5000 mcg/mL (Concentration)}}$ = mL/hr to start patient on if dose specified

DOSE RANGE = 0 – 20micrograms/kg/min
CONCENTRATION = 5mg/mL (5000mcg/mL)

WEIGHT (kg)	PRESCRIBED infusion rate range (mL/hr)	Infusion rate in mL/hr equivalent to 1micrograms/kg/min
35	0 – 8	**0.4**
40	0 – 9	**0.5**
45	0 – 10	**0.5**
50	0 – 10	**0.6**
55	0 – 15	**0.7**
60	0 – 15	**0.7**
65	0 – 15	**0.8**
70	0 – 15	**0.8**
75	0 – 20	**0.9**
80	0 – 20	**1**
85	0 – 20	**1**
90	0 – 20	**1.1**
95	0 – 20	**1.1**
100	0 – 25	**1.2**
110	0 – 25	**1.3**
>120	0 – 30	**1.4**

Table 2: DOBUTAMINE INFUSION 2MG/ML (PERIPHERAL IV)

DOSE CALCULATION =	Rate (mL/hr) x 2000micrograms (mcg) / Body Weight (kg) x 60 (mins)	= mcg/kg/min of dobutamine patient is receiving per hr

RATE CALCUALTION =	DOSE (mcg/kg/min) x Body Wt (kg) x 60 (mins) / 2000 mcg/mL (Concentration)	= mL/hr to start patient on if dose specified

DOSE RANGE = 0 – 20micrograms/kg/min

CONCENTRATION = 2mg/mL (2000mcg/mL)

Preparation: 500mg in 250mL sodium chloride 0.9%. or glucose 5%

Withdraw 100mL from bag and add 500mg (100mL) i.e. 2mg/mL

Administer via doBUTamine Evo-IQ volumetric pump [Care Area: QHB Critical Care]

WEIGHT (kg)	PRESCRIBED infusion rate range (mL/hr)	Infusion rate in mL/hr equivalent to 1micrograms/kg/min
35	0 – 21	**1**
40	0 – 24	**1.2**
45	0 – 27	**1.4**
50	0 – 30	**1.5**
55	0 – 33	**1.7**
60	0 – 36	**1.8**
65	0 – 39	**2**
70	0 – 42	**2.1**
75	0 – 45	**2.3**
80	0 – 48	**2.4**
85	0 – 51	**2.6**
90	0 – 54	**2.7**
95	0 – 57	**2.9**
100	0 – 60	**3**
110	0 – 66	**3.3**
>120	0 – 72	**3.6**

References:

1. **Nottingham University Hospital NHS Trust: Pharmacy Drug Guidelines Folder Jan2017 https://www.nuh.nhs.uk/download.cfm?doc=docm93jijm4n601 Accessed Aug 2020**

2. **EMC Medicines SPC https://www.medicines.org.uk/emc/product/6270/smpc Accessed Nov 2023**

3. **Dobutamine: Medusa IV Guidelines https://medusa.wales.nhs.uk/IVGuideDisplay.asp Accessed Nov 2023**

Documentation Controls

Development of Guideline:	Pharmacist – Critical Care
Consultation with:	Pharmacist - EPMA
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Review Date	December 2026
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