

**PROTOCOL FOR: Dobutamine: IV Administration**

- POLICY:**
1. This medication is to be administered in critical care areas only, where patient is on a cardiac monitor, and must be administered on an infusion pump, using drug guardrails.
  2. On the Cardiac Step-Down Unit, the preferred maximum dose of dobutamine is 10 mcg/kg/min. Higher doses may be administered on the CSDU if the attending physician/APRN feels it is clinically indicated, the patient's clinical condition does not require transfer to the ICU, and the charge nurse/nursing supervisor feels that the patient can be safely managed on the unit.
  3. In the ICU/ED/PACU, the maximum dose is 20 mcg/kg/min, unless specifically ordered by the physician/APRN (Doses up to 40 mcg/kg/min have been used.)

- INDICATION:**
1. Decreased cardiac output(CO)/cardiac index(CI), decreased blood pressure/perfusion related to poor CO/CI.

**DESIRED PATIENT**

- OUTCOMES:**
1. Patient will demonstrate improved CO/CI. Usual target is to achieve **CI > 2**. If patient does not have a Swan-Ganz catheter (as on CSDU), will demonstrate signs of improved CO/CI (i.e. ↑ B/P, ↑ urine output).
  2. Patient will not suffer negative side effects of dobutamine.

**CLINICAL  
ASSESSMENT AND**

**CARE: A. Prior to Starting Infusion:**

1. Validate solution concentration per MD order:

Suggested concentrations:

Single: 250 mg/250 ml D<sub>5</sub>W = 1mg/ml (premix)  
Double: 500 mg/250 ml D<sub>5</sub>W = 2mg/ml  
Quad: 1000 mg/250 ml D<sub>5</sub>W = 4mg/ml  
(May be mixed in NS if specifically ordered.)

2. Perform baseline assessment:

- a) LOC
- b) VS: BP, apical HR, respiratory rate, CO/CI and hemodynamics (PA, PAOP readings, if Swan-Ganz catheter in place)
- c) Baseline rhythm strip
- d) Skin color, peripheral perfusion, body temp
- e) Heart and lung sounds

3. Medication is calculated/infused in mcg/kg/minute. \*Use central line for infusion if available.

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4. Any pre-existing hypovolemia should be corrected with suitable volume expanders before beginning dobutamine.
  5. A Swan-Ganz catheter is useful to assess response to therapy.
- B. Beginning the Infusion:
1. Start at **2.5 mcg/kg/min** unless otherwise ordered.
  2. Increase by **2.5 mcg/kg/min**, every **5 minutes** or per specific MD/APRN order, as tolerated, until desired hemodynamic effect is achieved: ↑ CO/CI, or other signs of improved CO (↑ B/P, ↑ urine output)
  3. Orders must be obtained from MD/APRN if titration requires a rate less than or greater than the ordered rate.
  4. Document VS and dose changes on the frequent vital sign section of the flowsheet during initial and active titration.
  5. Closely monitor the patient for the initial 15 minutes of the infusion to assess:
    - a) LOC
    - b) VS
    - c) Chest discomfort, SOB
    - d) ST segment variation indicative of ischemia
    - e) Rhythm changes (especially tachycardia, vent. arrhythmia)
    - f) CO/CI (if patient has a Swan-Ganz catheter in place)
- C. Care During Infusion:
1. Continue to titrate medication to desired patient response.
  2. Reassess VS with each titration adjustment. VS frequency may vary based on patient response and how actively the med requires adjustment.
  3. Continue to assess cardiac rhythm, documenting any changes in the clinical record.
  4. Because dobutamine increases AV conduction, patients with atrial fibrillation are at risk of developing a rapid ventricular response and therefore should be closely monitored during administration of dobutamine.
  5. Usual dosage is **2.5-10 mcg/kg/min** but higher doses have been used. Refer to initial policy statements for maximum dose per unit.

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6. Notify the physician/APRN to consider new orders if desired response is not obtained at the current ordered titration rate or maximum dose ordered.
7. Notify physician/APRN if patient exhibits:
  - a) Chest pain
  - b) SOB
  - c) ST depression
  - d) Significant dysrhythmias, HR >140
  - e) Intolerable headache
8. Stabilization:
  - a) Once desired response is achieved, with stable vital signs, the infusion can be maintained at the set rate and **vital sign assessment interval** may be changed to **every hour**. (Frequency of vital signs may be reduced to every 2 hours during the night shift if patient is stable and sleeping.) If VS assessment warrants making an adjustment to the infusion rate, frequency of VS needs to return to frequency of active titration.

D. Potential Complications:

1. Use assessment intervals to validate the presence or absence of complications:
  - a) Signs of ischemia, i.e., chest pain, SOB, ST depression.
    - 1) Assess VS
    - 2) Titrate the drip down to the level it was at prior to occurrence of symptoms and notify physician/APRN.
    - 3) If chest pain and SOB are severe, stop infusion and notify physician/APRN (half-life of drug is approximately 2 minutes).
  - b) Dysrhythmias:
    - 1) Assess vital signs and notify physician/APRN.
    - 2) Titrate the infusion down to the level it was at prior to the occurrence of the dysrhythmia.
    - 3) May need IV antiarrhythmic drug (per MD/APRN order) if symptoms persist after cessation of drip.
  - c) Headache:
    - 1) Administer analgesics as ordered.

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2) Reduce stimuli, keep HOB at 30°.

3) If pain intolerable, notify physician/APRN.

d) Extravasation: may cause tissue pain and inflammation

**E. Weaning /Discontinuation of Infusion:**

1. Begin downward titration per MD/APRN order; This may be accomplished by decreasing the infusion by 2.5 mcg/kg/min at assessment intervals. (Complications as noted above may warrant immediate intervention, discontinuation, and MD/APRN notification).
2. As the drip is weaned, assess for signs of decreased CO/CI, hypotension, decreased urinary output, decreased mental acuity.

**PATIENT**

- TEACHING:**
1. Reinforce the rationale for dobutamine therapy.
  2. Review potential side effects associated with dobutamine such as SOB, chest pain, and headache and instruct the patient to report these adverse reactions.

**APPROVAL:** ICU Standards Committee  
ED Standards Committee  
Nursing Standards Committee  
Cardiac Step-Down Standards Committee

**EFFECTIVE DATE:** 4/90

**REVISION DATES:** 1/92, 1/93, 1/95, 10/95, 3/96, 8/97, 8/99, 1/02, 3/03, 3/08, 4/09

**REVIEWED DATES:** 9/08, 10/09