

EXTERNAL PACING

1. Level: Paramedic, RN
2. Purpose: Temporary application of externally applied electrodes to deliver an adjustable electrical impulse directly across an intact chest wall for the purpose of rhythmically stimulating the myocardium to increase the mechanical heart rate.
3. Indications:
 - 3.1. The treatment of hemodynamically compromised patients in settings where cardiac output is compromised due either to the complete failure of cardiac rhythm or to an insufficient rate of the patient's intrinsic pacemaker.
 - 3.1.1. Bradycardia (ECG other than second-degree Mobitz Type II or third-degree AV Block)
 - 3.1.2. Second-degree Mobitz Type II and third-degree AV block with a systolic BP of less than 80 mmHg, or 80-100 mm Hg with shock-like signs or symptoms
 - 3.2. Pediatric patients (40 kg or less) with profound symptomatic bradycardia unresponsive to optimal airway management, oxygenation, epinephrine, and atropine.
4. Procedure
 - 4.1. Symptomatic bradycardia (ADULTS)
 - 4.1.1. Pre-medicate if possible:
 - 4.1.1.1. Ketamine 0.1-0.3 mg/kg IV/IN.
 - 4.1.1.2. Midazolam 2.5 mg IV/IN if Ketamine is unavailable.
 - 4.1.2. Start at a pacemaker heart rate of 70 and the milliamperes (mA) at 50 mA.
 - 4.1.3. Gradually increase mA in 5 mA increments until palpable pulse confirms mechanical capture or 200 mA is obtained.
 - 4.1.4. If mechanical capture is achieved, adjust current to 5 mA. above mechanical capture.
 - 4.1.5. If mechanical capture is lost, increase current 5 mA. increments until recaptured.
 - 4.1.6. If 200 mA is reached without capture, lower current back to 50 mA and increase rate by 10 bpm, begin increasing current again.
 - 4.1.7. If there is no mechanical capture, contact medical control for further orders.
 - 4.2. Symptomatic bradycardia (PEDIATRICS)
 - 4.2.1. Confirm adequate oxygenation and ventilation.
 - 4.2.2. Pre-medicate if possible: Midazolam using the Broselow drug dose..
 - 4.2.3. Start at a pacemaker heart rate of 100 beats and the milliamperes (mA) at 50 mA.
 - 4.2.4. Gradually increase mA in 5 mA increments until palpable pulse confirms mechanical capture or 200 mA is obtained.
 - 4.2.5. If mechanical capture is achieved, adjust current to 5 mA. above mechanical capture.
 - 4.2.6. If mechanical capture is lost, increase current 5 mA. increments until recaptured.
 - 4.2.7. If 200 mA is reached without capture, lower current back to 50 mA and increase rate by 10 bpm, begin increasing current again.
 - 4.2.8. If no mechanical capture, contact medical control for further orders
5. Contraindications:
 - 5.1. Open wounds or burns to chest wall
 - 5.2. Wet environment
6. Adverse effects/complications

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- 6.1. Patient may experience mild to moderate discomfort.
- 6.2. Musculoskeletal twitching in the upper torso may occur during pacing, this is normal.