

► External Cardiac Pacing

External cardiac pacing may be performed for the treatment of symptomatic bradycardia. This procedure is required for transport providers and optionally available for first-responder paramedic providers.

» **Indications**

- Symptomatic bradycardia (heart rate less than 60 and one or more signs or symptoms below)

Signs and symptoms:

- Blood pressure less than 90 systolic;
- Shock—Signs of poor perfusion, evidenced by:
 - decreased level of consciousness or decreased sensorium;
 - prolonged capillary refill;
 - cool extremities or cyanosis;
- Chest pain, diaphoresis;
- CHF or acute shortness of breath.

» **Contraindications**

- Patients with asymptomatic bradycardia (pacing equipment should be immediately available)
- Asystole
- Brady-asystolic cardiac arrest
- Hypothermia (relative contraindication) – patient warming measures have precedence
- Children less than 14 years old (hypoxia/respiratory problems are most likely causes of bradycardia in children and should be addressed.)

» **Equipment**

- ✓ Cardiac monitor/defibrillator with pacing capability
- ✓ Pacing electrodes

» **Procedure**

- 1) Patient assessment and treatment per Symptomatic Bradycardia treatment guideline.
- 2) Explain procedure to the patient.
- 3) Place pacing electrodes and attach pacing cable to pacing device per manufacturer's recommendations.
- 4) Set pacing mode to demand mode, pacing rate to 80 BPM, and current at 10 mA.
- 5) As possible/if required, provide patient sedation/pain relief with midazolam or morphine sulfate IV or IM. Patients with profound shock and markedly altered level of consciousness may not require sedation/pain relief initially.
- 6) Activate pacing device and increase the current in 10 mA increments until capture is achieved (pacemaker produces pulse with each paced QRS complex).
- 7) Assess patient for mechanical capture and clinical improvement (BP, pulses, skin signs, LOC).
- 8) Continue monitoring. Contact base for further orders if patient symptoms are not resolving (consideration for dopamine, further alteration of pacer settings) or if further sedation /pain control orders required.