



POLICY NO:	PROC-21
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## TRANCUTANEOUS PACING

**Goal/Purpose:** Transcutaneous pacing (TCP) allows for temporary cardiac pacing through pacing pads on the skin for treatment of symptomatic bradyarrhythmias. Consider alternate causes of dysrhythmias prior to initiation of TCP including hypoxia, hypothermia, head injury, aneurysm, and drug overdose. Refer to Dysrhythmias: Symptomatic Bradycardia.

### Indications/Requirements

1. Symptomatic bradycardia defined as heart rate less than 50 bpm and signs of diminished perfusion related to bradycardia and unresponsive to atropine treatment.
2. Symptomatic “failed” permanent pacemakers.
3. Symptomatic second-degree AV block Type II or third-degree AV block
4. Symptomatic bradycardia in post heart transplant patient (denervated transplant heart)

### Contraindications (unless approved by the base physician)

1. Non-intact skin at the site of the electrode placement
2. Age 14 years or less
3. Cardiac Arrest


### Equipment


1. Pacemaker/monitor (and defibrillator)
2. 2 sets of electrodes: rhythm monitoring & pacing

### Transcutaneous Pacing Procedure

1. Consider premedication with Midazolam for amnesic effect. For pain control, see Interim Adult Pain Assessment and Management protocol.
2. Turn monitor on to “pacing” mode.
3. Apply monitor cable leads to patient to determine rhythm.
4. Apply pacing pads. Anterior pad just to the left of the sternum and the posterior pad on the patient’s back to the left of the spine (preferred).
  - a. Alternate anterior placement may be used. Place the anterior pad below the right clavicle and the other (posterior) pad on the left lower chest avoiding the diaphragm.
5. Attach pads to the instrument cable and attach cable to pacer, carefully check all connections
6. Set initial pacing rate at 80 bpm.
7. Select output level: begin at 10 mA and increase by 10 mA until capture/pulses are noted, then increase output by an additional 10 mA.

APPROVED:

  
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8. Assessment of capture (typically between 50-90 mA): look at the ECG tracing on the monitor for pacer spikes that are each followed by a QRS complex. Assess quality of femoral or radial pulses and monitor blood pressure.
9. If capture is maintained but the patient remains symptomatic of inadequate tissue perfusion (B/P < 90 systolic, altered level of consciousness) consider increasing the rate by 10 bpm until 100 bpm is reached.
10. If perfusion remains a problem, consider IV fluids and dopamine.
11. If perfusion still remains a problem or unable to gain capture, contact the base physician for consultation and/or alteration of TCP settings.
12. Assess comfort level of patient and treat.

### **Documentation**

1. Print an initial rhythm strip
2. Record rate, output level, and capture
3. Patient's response and outcome
4. Print rhythm strips and record vital signs as needed
5. Any further interventions
6. A complete PCR with supporting EKG's, rhythm strips, etc. must be left with the receiving hospital

### **Precautions/Complications/Special Information**

1. Failure to recognize VF due to the size of pacing artifact on the ECG screen.
2. Induction of other dysrhythmias.
3. Soft tissue discomfort may result from pacing. Ensure adequate analgesia and amnesia.
4. Switching to TCP pacing is acceptable if patient seems unresponsive to atropine.

### **Transport Considerations**

1. If TCP is initiated by Fire/First Response Paramedic, then continue using that pacer/monitor throughout transport. (i.e. Don't change monitors if you have capture until you reach the ED.)