

PACEMAKER

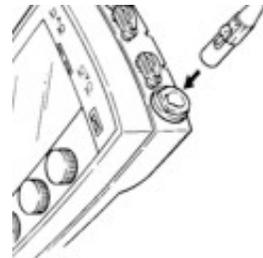
1. Place an **introducer** in the IJ, subclavian, or femoral veins. Right IJ or left subclavian are preferred. Use the introducer in the pacemaker kit, it's a little smaller than the 7.5 Fr Cordis that we use for aggressive resuscitation and fits the wire better. But if you placed a 7.5 Fr catheter, that's fine.
2. Attach the **sterile sheath** (in introducer kit) to distal tip of introducer (**not** the tip of the side port that is used to infuse fluids, draw blood, etc.)
3. Attach the **lead adapter** to the pacer box, **ventricular (V)** side. The lead adapter should be stored with the box; if it's missing you can pace without it, see below.
4. Noting the **positive and negative** wires (see printing on wires themselves) Attach the wire to the lead adaptor and insert the other end of the wire through the sterile sheath. If lead adapter is missing, place the wires directly into the small holes on the pacer box.

Lead Adapter



If patient is really crashing:

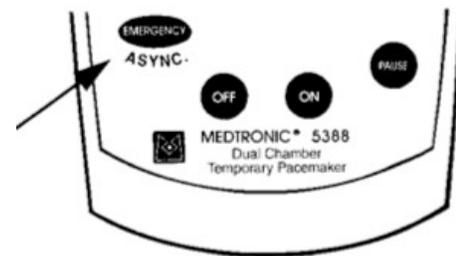
5. Set the pacer to **Emergency Pacing Mode** to quickly gain access to high output, asynchronous pacing (DOO). Do this by pushing the EMERGENCY/ASYNC button at any time (i.e., while the device is on, off, in a menu, or locked).
6. Turn the output all the way up and rate to 80.
7. Gently advance the wire until electrical capture. Verify mechanical capture by palpating the pulse, watching the pulse ox waveform, or an arterial line if you have it. Don't worry about attaching the pacemaker to an ECG as is often recommended.
8. If still no capture, withdraw, rotate the wire 90 degrees, and repeat.



If patient is only sort of crashing:

Note that while complications with flexible pacer wires are uncommon, the complications are bad. If the patient is stable, consider deferring the procedure to cardiology.

5. Use the "On" button rather than the emergency async button to initiate demand pacing.
6. Turn the output all the way down to zero.
7. Advance the tip past the catheter (10 cm), add 1.5 cc of air to the balloon.
8. Gently advance the catheter until the sense indicator light starts blinking – this is the patient's heart rate. You're now in the RV.
9. Deflate the balloon and gently advance until capture is verified by palpating a pulse.
10. If unsuccessful, withdraw and repeat. Can also attempt method described in section above.



Great job! Now suture wire in place, get a CXR, an ECG, and a cardiologist to the bedside to tinker with dials and arrange for an implantable pacemaker.

The patient will probably go to the CCU. **Have the CCU bring down another pacer box for us to have**, since they're getting our pacer box (attached to the patient), or make sure we get our pacer box back.

Don't forget to address reversible causes of bradycardia: drugs (**beta blocker**, **calcium channel blocker**, anti-arrhythmics such as **digoxin**), **electrolytes**, and **ischemia**. Also rule out a pericardial effusion.

The pacemaker takes a single 9V battery. To replace the battery, press the button on the bottom of the unit firmly; this will pop open the battery compartment.

