

Insertion of Pulmonary Artery Catheter: Quick Checklist

Obtain the Following Equipment:

In addition to insertion supplies, you should have prompt access to amiodarone or lidocaine and crash cart during insertion.

1. **Supplies for Insertion of Introducer** (required unless there is an existing introducer that was inserted under full barrier precautions and the access port maintained with a sterile cap).
 - Arrow introducer kit (contains yellow sleeve for insertion of PA catheter)
 - Central line insertion kit
 - Ultrasound machine
 - Central line cart
 - Single use local anaesthetic

2. **Pulmonary Artery Catheter:**
 - Choose one of the two models
 - VIP™ is the **usual model** (check expiration date). The extra lumen (Venous Infusion Port) terminates at 31 cm in the right atrium.
 - Paceport™ model can be used in same way as VIP but the extra lumen terminates at 19 cm in the right ventricle.

A special pacemaker wire called a Chandler Probe can be inserted through the Paceport™ lumen to provide transvenous pacing, however, it is not the most reliable method of pacing. If pacing is the reason for the catheter, a Swan Ganz Pacing catheter is recommended (kept with the pacemaker pulse generators). The Swan Ganz Pacing catheter is a 5 French catheter that is inserted through a 6 French introducer. It has a balloon at the tip to facilitate flow directed insertion, plus a positive and negative pacing electrode. The catheter has no intravenous lumens. A continuous infusion is required through the introducer lumen.

All Swan Ganz catheters contain latex. The VIP is heparin free. Both the Paceport and Swan Ganz Pacing catheters are heparin bonded.

3. **Supplies for Measurement of Pulmonary Artery Pressure**
 - Pressure transducer kit
 - 500 ml bag of normal saline
 - Tyco™
 - Bridge (Do not open; this will be added to the sterile field)
 - P4 Module

4. **Supplies for Measurement of Cardiac Output**
 - Cardiac output cable with both thermistor and injectate temperature probes
 - Room temperature cardiac output CO Set
 - D5W (any size)

1. Prepare Bedside Monitor for Insertion:

- Perform hand hygiene
- Go to “Admit/Discharge” function of Datex™ monitor and do the following:
 1. Ensure patient name and PIN is entered
 2. Go to “Demographics” and enter height and weight (BSA will auto-populate)
 3. Change monitor mode to “Swan Ganz”

2. Prepare Pressure Monitoring System:

- Prime pressure tubing with normal saline
- Connect pressure cable to P4 pressure module

3. Assist with insertion:

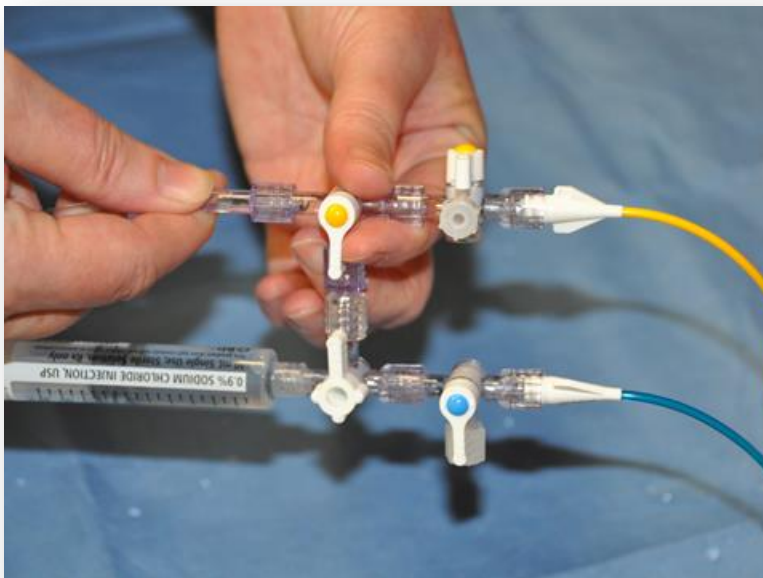
- Review procedural steps with physician before starting including strategies for managing complications such as ventricular arrhythmias. Review steps below before starting.
- Apply bouffant and face mask; be careful not to lean into sterile field
- Perform hand hygiene.
- Assist with preparation of sterile field and opening of central line insertion kit.
- Open introducer kit (if required) and aseptically transfer to physician.
- Once introducer has been inserted, peel back outer packaging of pulmonary artery catheter and aseptically transfer to physician.
- Peel back package and aseptically transfer bridge to physician.
- Open and aseptically transfer 4 sterile saline syringes.
- Connect (physician) a syringe to VIP or Paceport lumen, and both the blue and yellow female ports of the bridge. The yellow male port of the bridge is connected to the PA port of the catheter, and the blue male port of the bridge is connected to the blue port of the PA catheter.
- Flush (physician) the VIP or Paceport™, blue (proximal injectate) and yellow (PA) lumens, and the cross bar of the bridge.



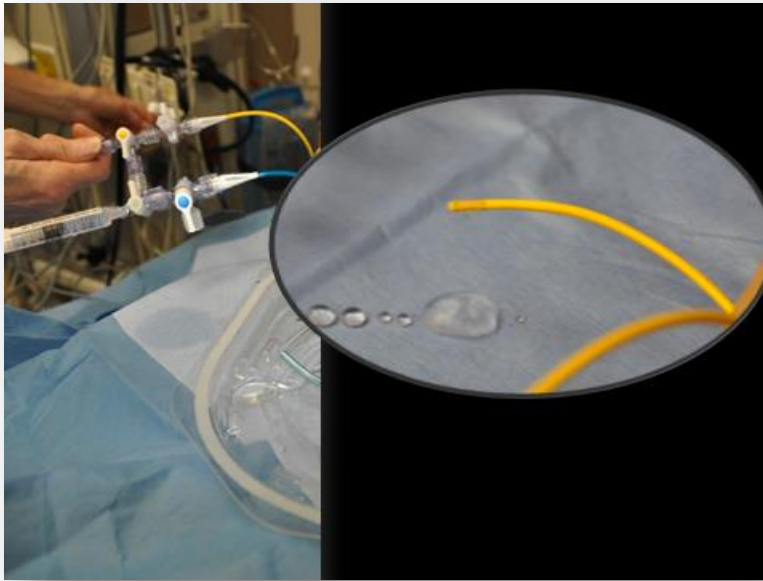
- Transfer (physician) bridge to nurse aseptically. Physician holds PA port of catheter and nurse completes transfer by grabbing saline syringe.



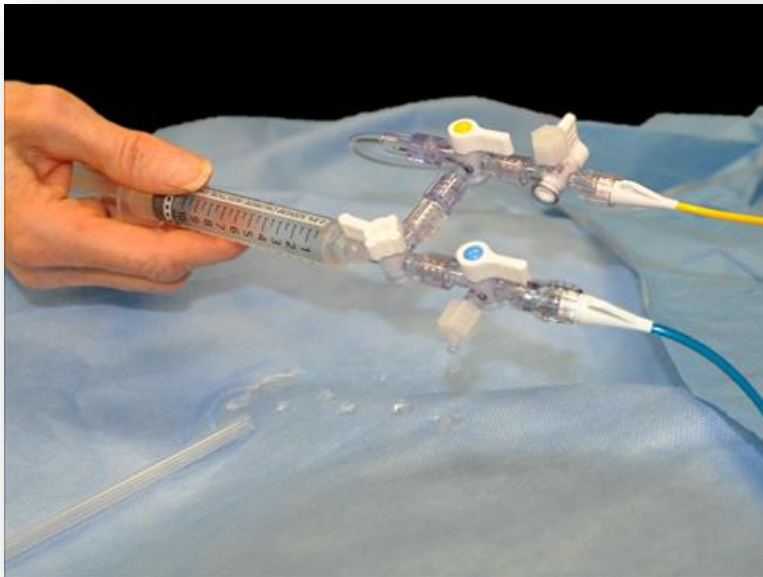
- Connect pressure tubing to PA port.



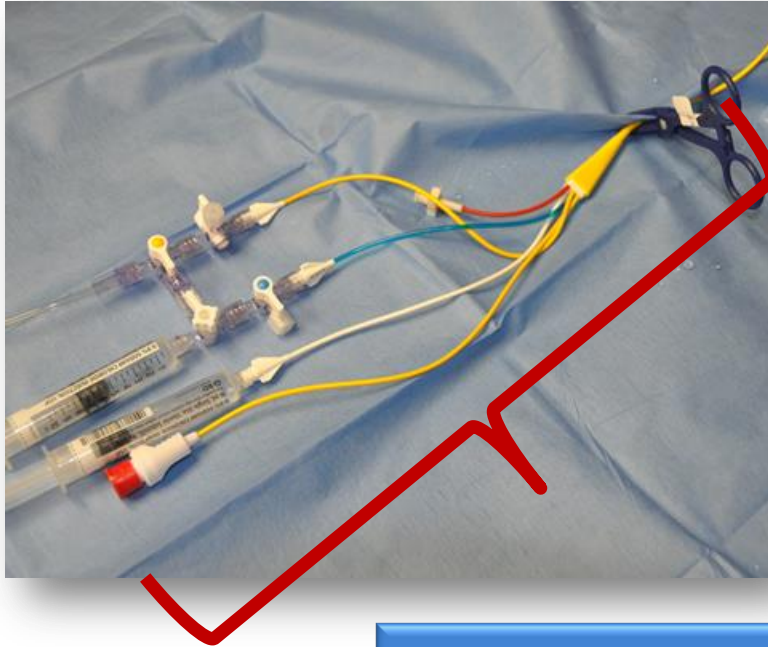
- Flush PA port of catheter thoroughly using the flush device of the pressure tubing. This will remove any residual air bubbles that can impair waveform quality.



- Flush across bridge, then through blue (injectate) port of catheter with flush device of pressure tubing.

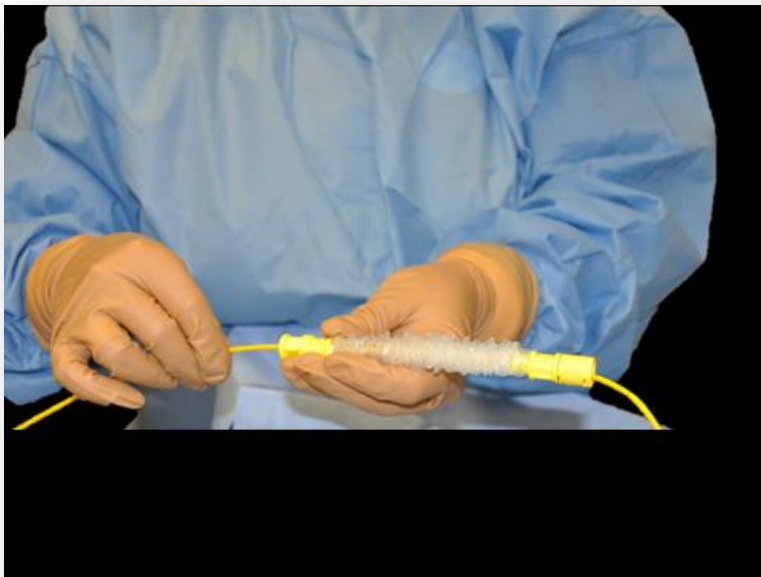


- Secure catheter ports (VIP, bridge, and thermistor) to the edge of the sterile field using towel clamp that is included in central line insertion kit.

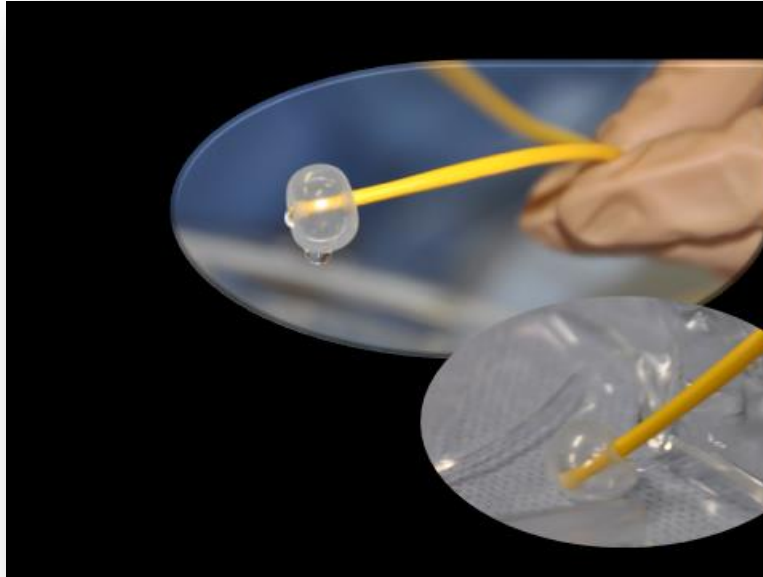


Non-sterile area. Provides nurse with access to balloon port to assist with balloon inflation.

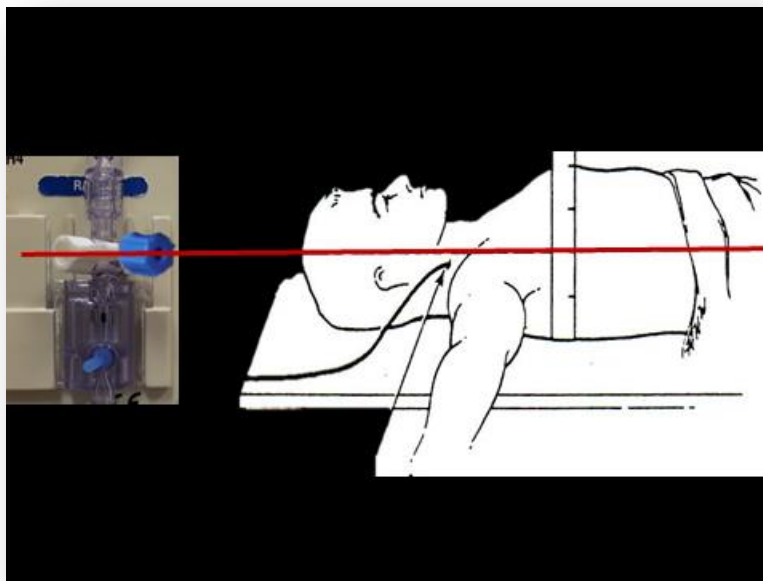
- Advance (physician) PA catheter through yellow sleeve



- Fill (physician) sterile tray with saline from 4th syringe. Inflate balloon under saline to check for leaks, and to evaluate symmetry and retention of air



- Level and zero transducer.

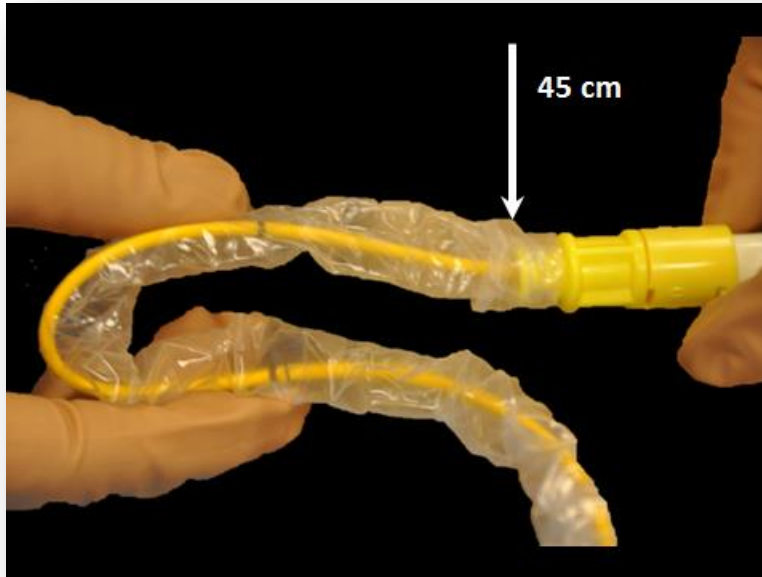


- Wiggle (physician) Swan Ganz to ensure artifact tracing appears on Datex™ monitor (ensuring you can view waveform during insertion).



- Observe monitor for arrhythmias during insertion. Ventricular arrhythmias frequently occur during advancement through the RV but usually resolve as soon as the catheter is advanced (or withdrawn) from RV
- Inflate (nurse) balloon once catheter has been inserted ~15 cm.
- Keep balloon inflated during catheter advancement.
- Ensure balloon is deflated before catheter is withdrawn. Deflate by disconnecting from port (do not manually aspirate air as this may rupture balloon).
- Watch for transition from RA to RV to PA to PWP. Select snapshot as each waveform change appears. Waveforms can also be retrieved from central station using full disclosure feature.
- Print, label and post waveforms in the clinical record after completion of the pulmonary artery insertion to serve as a reference for waveform identification.
- Replace vented cap on transducer stop-cock with dead-end luer lock cap.
- Connect a Microclave™ to sampling stopcock on PA (yellow) side and maintenance infusion port of CVP (blue) side. **Do not place Microclave™ on ports used for pressure monitoring; connect pressure tubing directly.**
- Complete post insertion chest xray.
- Vasoactive drugs can be administered through the introducer and VIP lumen prior to completion of chest xray (waveform verifies catheter location).
- Introducer is the preferred location for infusion of vasoactive drugs; this prevents disruption of infusion during catheter repositioning or removal.

- Document the length of catheter inserted, measured from the point where the catheter first becomes visible at the sleeve. Thin lines represent 10 cm lengths; thick line is 50 cm marker.



ECG LEAD: _____		ANALYSIS: _____							
CARDIOVASCULAR-HEMODYNAMIC	ARTERIAL PULSE	RAD	BRACH	AX	FEM	POP	DP	PT	Other
	0 - Absent 3 - Bounding								
	1 - Weak D - Doppler								
	2 - Normal								
	Rt								
	Lt								
SKIN TEMP: <input type="checkbox"/> HOT <input type="checkbox"/> WARM <input type="checkbox"/> COOL <input type="checkbox"/> CLAMMY <input type="checkbox"/> DIAPHORETIC		CAPILLARY REFILL: <input type="checkbox"/> BRISK <input type="checkbox"/> PROLONGED							
BP: <input type="checkbox"/> NIBP <input type="checkbox"/> ART. LINE SITE: _____		SKIN COLOUR: _____							
PACEMAKER: <input type="checkbox"/> YES SITE: _____		WAVEFORM: _____							
RATE: _____ MA: _____ SENS: _____		TYPE: _____							
VTE PROPHYLAXIS: <input type="checkbox"/> TEDS <input type="checkbox"/> IPC <input type="checkbox"/> Prophylactic AC <input type="checkbox"/> Therapeutic AC		<input type="checkbox"/> FLOTRAC <input type="checkbox"/> SWAN GANZ POSITION: <u>45</u> (cm)							
ACTIONS: <input type="checkbox"/> WAVEFORM POSTED IN CHART <input type="checkbox"/> ECG <input type="checkbox"/> CVP <input type="checkbox"/> PAP <input type="checkbox"/> PWP									
Nurse's Initials: _____									

- Balloon port should be left in the UNLOCKED position with syringe empty and attached to port. The unlocked position shown below ensures that the balloon will always default into the deflated position. The syringe is specially designed to prevent filling with more than 1.5 ml of air and is left attached so that it does not get misplaced.

