Quick Setup for Pulmonary Artery Insertion and Cardiac Output Measurement

Equipment:

- 500ml bag of D5W
- Injectate setup for cardiac outputs (Found in Bay 1 clean utility room on cart, bottom shelf)
- CO module P4 and CO cable (Bay 3 equipment room)
- Swan Ganz catheter, bridge to connect to Swan Ganz catheter (found in line cart, in drawer)
- Primed pressure tubing (prime with premixed NS and Heparin 1000u/500ml bag) to connect to bridge and Swan Ganz catheter
- Line cart –bring to bedside

Procedure:

- Perform hand hygiene and put on non-sterile gloves.
- Change Datex™ monitor mode to CCTC Swan Ganz (See procedure for Datex Modes).
- Insert P4 module into Datex™ monitor and connect CO cable to CO on this module (see procedure for more information).
- Prime pressure tubing and connect to P4 pressure module. If Swan Ganz mode is selected, P4 waves will be enabled and default to PA, scale of 60 mmHg and yellow waveform.
- Connect pressure tubing to yellow side of bridge and prime through all ports and stopcocks
- Connect a Microclave™ to sampling stopcock on PA (yellow) side and maintenance infusion port of CVP (blue) side.
- Assist physician to flush both proximal and the distal lumens of the PA catheter with sterile saline filled syringe and to test balloon for symmetrical inflation.
- Remind physician to advance PA catheter through sleeve before insertion into introducer
- Once PA is advanced through the sleeve, connect the PA port to the yellow side of the bridge. Towel clamps should be used to keep the unsterile bridge from contaminating the sterile field.
- Level and zero transducer.
- Instruct MD to wiggle Swan Ganz and ensure artifact tracing appears on Datex™ monitor, (ensuring you can view waveform during insertion).
- Observe monitor for arrhythmias during insertion. Balloon inflation and withdrawal if necessary usually resolve ventricular ectope
- Watch for transition from RA to RV to PA to PWP. Select snapshot as each waveform change appears. Print, label and post waveforms in the clinical record after completion of the pulmonary artery insertion to serve as a reference for waveform identification/
- Following insertion and chest xray confirmation, measure cardiac output.
Checklist for Cardiac Output Measurement (refer to procedure for detailed information)

- Prime CO Injectate Set with D5W and connect syringe in a direct line to the blue side of the bridge.
- Connect cardiac output cable to pulmonary artery catheter. Insert gently to avoid damaging the pins. Note: the thermistor only has 3 pins; this is the normal configuration.
- You should have TBlood on a digit field. If you do not, change the monitor mode (Admit function) to CCTC Swan Ganz.
- You should have a digit field for CI. If you do not, go to Monitor Setup and select digit fields. Turn the CI field on.
- In patient demographics or the cardiac output menu, enter the patient’s height and weight or the BSA from Critbase. Once this is entered, CI will automatically compute.
- Connect injectate temperature probe to syringe.
- Collect hemodynamic readings before measuring cardiac output.
- Confirm PA tracing on screen.
- Confirm that there are no vasoactive drugs infusing into the proximal injectate port (blue). The preferred port for vasoactive infusions is the introducer.
- Confirm that there are no cold blood products or infusion > 100 ml/hr infusing into the introducer or VIP/Paceport lumens.
- Press “Wedge, CO,ScVO2” button on monitor.
- Select “CO”.
- Open clamp and slowly draw exactly 10 ml of D5W into syringe.
- Close stopcock to maintenance IV and open stopcock to syringe.
- Select “Start cardiac output”.
- Observe the injectate temperature. It is important to watch this during the initial injection to ensure that it falls.
- Inject Now will appear on the screen. Watch the patient’s breathing and begin injection at the end of inspiration (this will time the injection to reach the heart at end expiration).
- Datex™, inject 10 mls from syringe at a continuous, steady motion.
- Ensure that the injectate temperature is between 18-25 degrees.
- Perform a minimum of 3 measurements and obtain the average from the edit screen.
  Review waveforms before averaging and remove any with irregular waveforms or extreme values.
- If the CI is extremely low (especially < 1.0), confirm that the injectate probe is properly connected.
- Remove non-sterile gloves and perform hand hygiene.
- Obtain blood gases (venous and arterial) and enter all data into Critbase.
Figure 5

- Mixed venous gases here
- Maintenance IV here!

- Pressure line here!
- Cardiac output syringe here!