MEASURING CENTRAL VENOUS PRESSURE (CVP)

**Keywords:** CVP, transducer, phlebostatic axis, central venous pressure

**AIM**
- To monitor pressure in the central venous circulation to detect potential problems and/or evaluate patient status.

**KEY POINTS**
1. Central Venous Pressure (CVP) relates to an adequate circulatory blood supply. Pressure depends on blood volume, cardiac contractility and vascular tone.
2. CVP is measured in the right atrium or vena cava close to the heart and is a reflection of fluid volume and guides fluid administration, replacement or diuretic administration.
   - Normal range for CVP is 2 to 8mmHg or 3 to 10cmH₂O. The CVP may be measured with a manometer or transducer.
   - Low CVP may indicate hypovolaemia
   - Elevated CVP indicates right ventricular failure or volume overload.
3. Accurate measurement requires equipment levelled to a reference point on the patient. This point is the phlebostatic axis (at the intersection of the midaxillary line and fourth intercostal space) and should be marked with indelible marker. See Clinical Guideline, O&G: Parenteral Therapy: Flushing and Monitoring of an Arterial Line

4. Observe:
   - Hand hygiene before and after any manipulation of vascular access devices or catheter sites (Level I). See Infection Control Manual Policy 2.4 Hand Hygiene
   - An aseptic technique
5. Sterile disposable transducers, pressure tubing and line are replaced at 96 hour intervals.
FOR CVP MONITORING WITH A TRANSDUCER AND MONITOR

EQUIPMENT
- Transducer / pressure tubing / fluid path
- Pressure bag
- Monitor
- Sodium chloride 0.9% 500mL

PROCEDURE
- Obtain verbal consent
- Position patient supine or semi recumbent to 30-45 degree elevation
- Prime pressure tubing with Sodium chloride 0.9%, close connections
- Check flushing mechanism
- Apply the pressure bag and inflate to 300mmHg
- Connect to monitor transducer cable
- Calibrate zero and level the transducer to the phlebostatic axis
- Attach extension tubing to central venous catheter, open fluid path, and adjust rate
- Close the stopcock to the patient and open to air and read the display monitor at end of expiration
- Reopen stopcock to patient; recommence intravenous transfusion at prescribed rate
- Record the result
- Report abnormal readings or change in trends

REFERENCES (STANDARDS)