

# Critical Care Specialty Procedural Guideline D-6.1

## Central Venous (CVP)/Right Atrial (RA) Catheter: Pressure Measurement, Removal

### Policy Statement(s)

#### Pressure Measurement

- CVP or RA represents right ventricular (RV) function and is used to evaluate right-sided heart preload. Normal 2-8 mmHg.
- Monitoring trends in CVP is more meaningful than a single reading.
- Central venous access may be obtained in a variety of places:
  - internal jugular vein
  - subclavian vein
  - femoral vein
  - external jugular vein
- CVP waveform normally has a, c, v waves present.

#### Removal

- An RN can remove a central venous catheter with a physician's order.
- The central venous catheter tip is obtained for [culture](#):
  - Upon order of a physician.
  - If there is evidence of infection at the site.
  - If the patient's temperature is elevated.
- After removal, cleanse CVP or RA catheter site with alcohol and apply an occlusive dressing.

### Procedural Guideline(s)

- [Pressure Measurement](#)
- [Removal](#)

#### Pressure Measurement

1. Assure transducer has been leveled, zeroed and the square wave test is adequate.
2. Observe pressure tracing (Figure 1) to validate CVP tracing.
3. Pressure readings may be obtained with the patient's head elevated up to 45 degrees as long as the transducer is leveled to the phlebostatic axis.

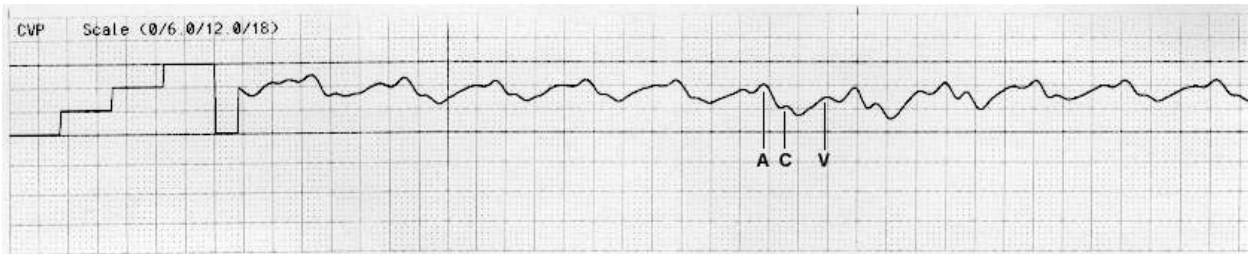
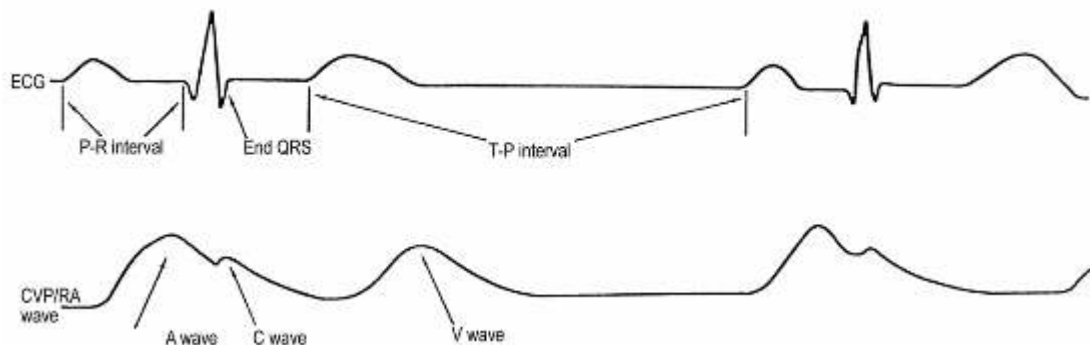


Figure 1

4. CVP waveform consists of (Figure 2):
  - A wave which correlates with PR interval of the ECG tracing.
  - C wave which correlates with the end of QRS.
  - V wave which correlates with after the T wave.
5. Measure the mean of the A wave to obtain pressure.





6. The mean of the A wave generally will be consistent with the monitor value displayed unless large A waves are present. If large A waves are present, the monitor value may not reflect actual CVP.
7. CVP/RA catheters may be removed by RN, RRT, CVMT, or physician.

### Removal

1. Obtain equipment:
  - Disposable suture removal set
  - Sterile gauze sponges
  - Alcohol wipes
  - Transparent dressing
2. Turn off the IV or flush infusion.
3. Position patient in a supine position with head of bed flat (if patient can tolerate it).
4. Inspect the site for signs and symptoms of infection.
5. Remove the sutures securing the catheter.
6. Hold a sterile gauze sponge over the insertion site.
7. Have the patient take a deep breath and hold it. If the patient is unable to hold their breath, wait until the patient breathes in to remove the catheter.
8. Grasp the catheter hub and slowly withdraw the catheter. If resistance is met, allow the patient to relax and try again to withdraw the catheter. If resistance continues, leave the catheter in place and notify the physician.
9. After the catheter has been removed, apply pressure, wipe with alcohol, and apply a sterile transparent dressing.
10. Inspect the catheter tip; it should be smooth. If it appears to have been severed, save the catheter and notify the service. Send tip for culture as indicated.

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### Resources

- Intensive Care Units

### [Department of Nursing Standards of Patient Care:](#)

I

### [Department of Nursing Standards of Clinical Nursing Practice; Standards of Care:](#)

I, II, V, VI

### [Department of Nursing Standards of Clinical Nursing Practice; Standards of Professional Performance:](#)

I, VII, VIII

### Cross References

- [Central Access Catheters: Long-Term and Short-Term: Flushing, Site Care, Drawing Blood, Culturing, Damaged Catheter, Procedural Guideline D-6.5](#)
- [Invasive Hemodynamic Monitoring System \(Set-Up, Daily Maintenance Check, Level and Zero Transducer, Square Wave Test\), Critical Care Specialty Procedural Guideline D-2](#)
- [Central Venous Pressure \(CVP\) Monitoring: Manometer Setup, Procedural Guideline G-11](#)

### Literature References

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### Alphabetical Index Titles