The key to maintaining the hydration status of a patient is rigorous monitoring. In most instances, checking the intravenous fluid rate, recording the patient’s mentation and respiratory rate, auscultating the lung fields, and calculating urine output are sufficient monitoring parameters. However, for some patients, central venous pressure (CVP) monitoring may be elected, particularly if the patient is prone to hypertension or has a history of renal, lung, or heart disease.1,2

CVP measures the success of the interaction among cardiac pumping, circulating blood flow, vascular tone, and intrathoracic pressures. This measurement determines how much fluid can be administered to a patient without causing fluid overload.1

To obtain CVP measurements, a central line catheter is placed into the anterior vena cava through the jugular vein. The tip of the catheter should be cranial to the atrium (not in it); taking a radiograph to confirm the location is recommended.1,2

Technicians need to be particularly attentive during CVP monitoring because placement of the patient and the manometer has to be consistent (see box). Because CVP values vary, the veterinarian may establish a baseline for each patient. Changes in trends for individual patients are then monitored closely, and any increase or decrease of 5 cm of water should be brought to the veterinarian’s attention.1

## References


### CVP Monitoring

**Supplies needed**

- Extension set
- Three-way stopcock
- 250-ml bag of isotonic fluids
- 20-ml/drop intravenous line
- Tape
- CVP manometer
- Heparinized saline flush
- Level, with rolled gauze tied to each end

**Procedure:**

- Attach the intravenous line to the bag of fluids, and run the fluids through the line, leaving no air bubbles.
- Attach the stopcock to the end of the fluid line.
- Attach the extension line to the opposite end of the stopcock.
- Attach the manometer to the upright part of the stopcock.
- Fill the manometer and the extension set with the intravenous fluids.
- Turn off the intravenous fluids.
- Use heparinized saline to flush the jugular catheter.
- Make sure the extension set is clamped, and then attach it to the jugular catheter.
- Place the patient in lateral recumbency, and make sure the zero mark of the manometer is level with the right atrium. Using a level, pull one end of the gauze strip to the zero mark on the manometer and pull the other end parallel to the thoracic inlet of the patient.
- When the level is showing accuracy, tape the manometer to the side of the cage.
- Open up the extension line.
- The fluid level in the manometer will equilibrate with the pressure in the vena cava.
- The level will fluctuate during respirations or heartbeats; if there is no fluctuation, the catheter may not be in far enough.
- After the level has settled, record the measurement in centimeters (cm).
- A minimum of three readings should be recorded.
- It is important to note the position of the patient in the cage when readings are made; a change in position could create inaccurate readings.