

Setup of Codman™ EDS 3 CSF Drainage Collection System (Ventricular or Lumbar Drains)

All external ventricular drainage catheters (Codman Microsensor™ ventricular drainage catheter or plan ventricular drainage catheters) must be connected to a CSF drainage collection system. Lumbar ICP monitoring catheters are also connected to a CSF drainage collection system.

Set up the drainage collection system prior to the insertion of the ventricular drainage catheter.

Obtain CSF drainage collection unit

Supplies Needed:

- Codman EDS 3™
- Standard pressure transducer kit (used to flush drainage unit)
- 500 ml bag of normal saline
- Codman laser level
- Portable IV pole

Codman EDS 3™

4-Way Stopcock:

The Codman EDS 3™ uses 4-way stopcocks. A 4-way stopcock can be simultaneously open in 3 directions. The prong of the stopcock points to the channel that is closed.

Turning a 4-way stopcock off to 45 degrees in any direction is closed in all direction. Each of the small prongs points to an open pathway.



Figure 1:
4-Way Stopcock Off to Port

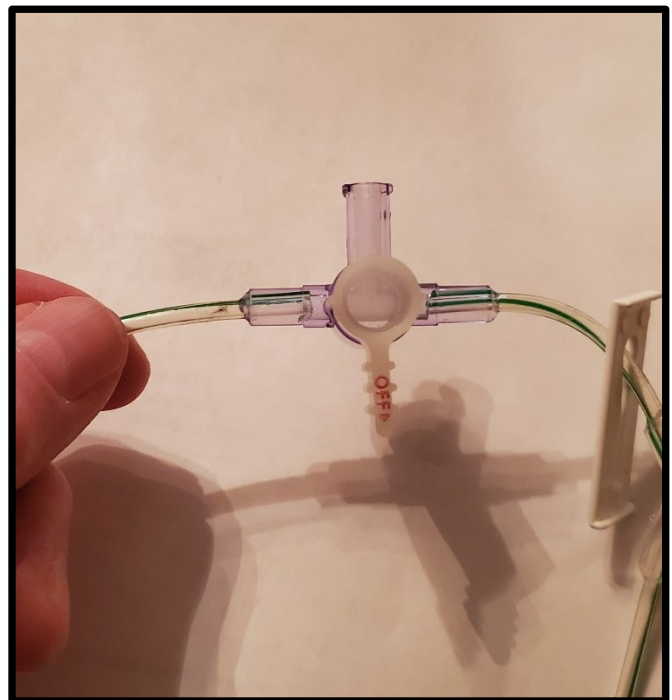


Figure 2:
4-Way stopcock open to flow and to sampling port

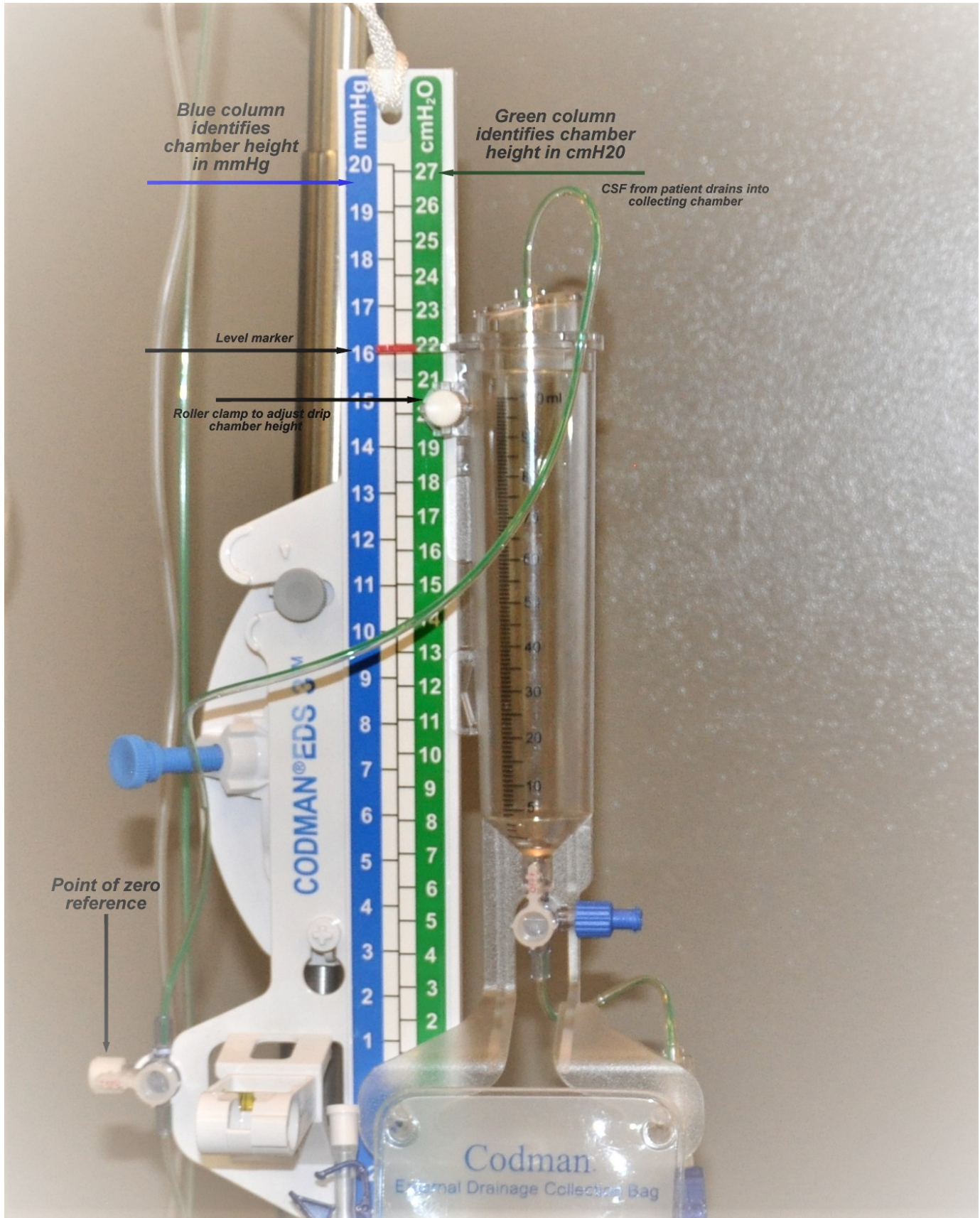


Figure 3 Codman EDS 3

PROCEDURE FOR PRIMING CODMAN EDS 3™ (CSF collection unit):

1. Prime Pressure Transducer Circuit

- Open single pressure transducer kit and carefully check that all stopcocks are tightened before removing from sterile field
- Remove air from 500 mL bag of saline and hang on IV pole
- Spike the saline bag with the transducer flush tubing and prime entire circuit as per [Procedure for Setup of Hemodynamic Circuit](#) (Figure 4)
- Do not pressurize saline bag
- Leave stopcock at the distal end of the pressure tubing off at 45 degrees (off in all directions)



Figure 1: Prime Pressure Tubing

2. Prepare Codman EDS 3™ CSF Drainage Collection Chamber for Priming

- Open Codman EDS 3™ and carefully check that all connections and stopcocks are tightened before removing from sterile field
- Hang the Codman EDS 3™ from the IV pole (Figure 4).
- Identify the distal end of the CSF drainage collecting tubing. This will be connected to the patient's drainage catheter.
- Locate the stopcock closest to the distal tip. This will be referred to as the patient stopcock.

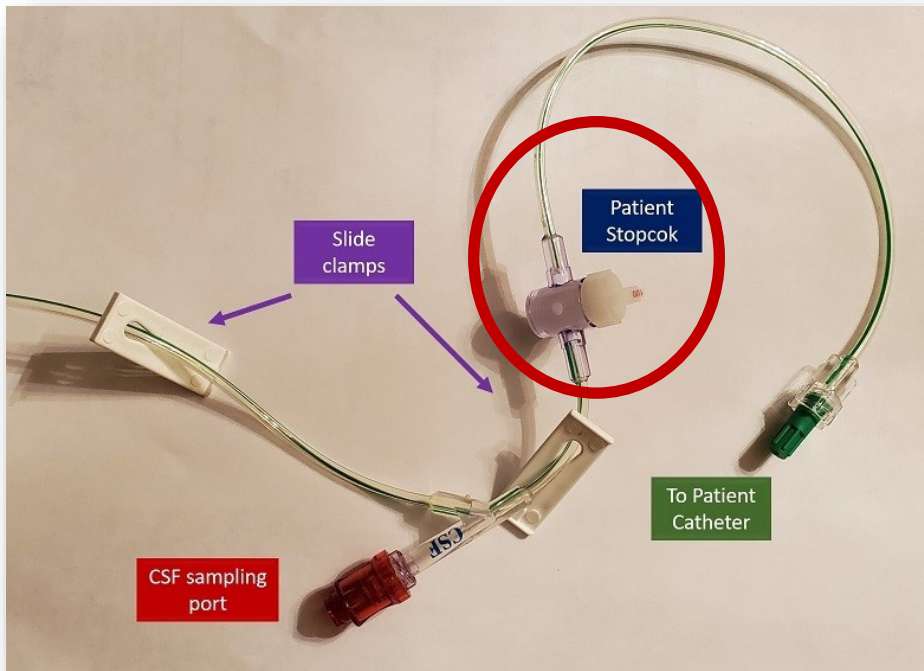


Figure 5 Distal end of drainage tubing

- Remove the extension from the end of the transducer pressure tubing and connect the remaining tubing directly to the patient stopcock (do not use needless access device) (Figure 6).
- The pressure circuit will be used to prime the Codman EDS 3™

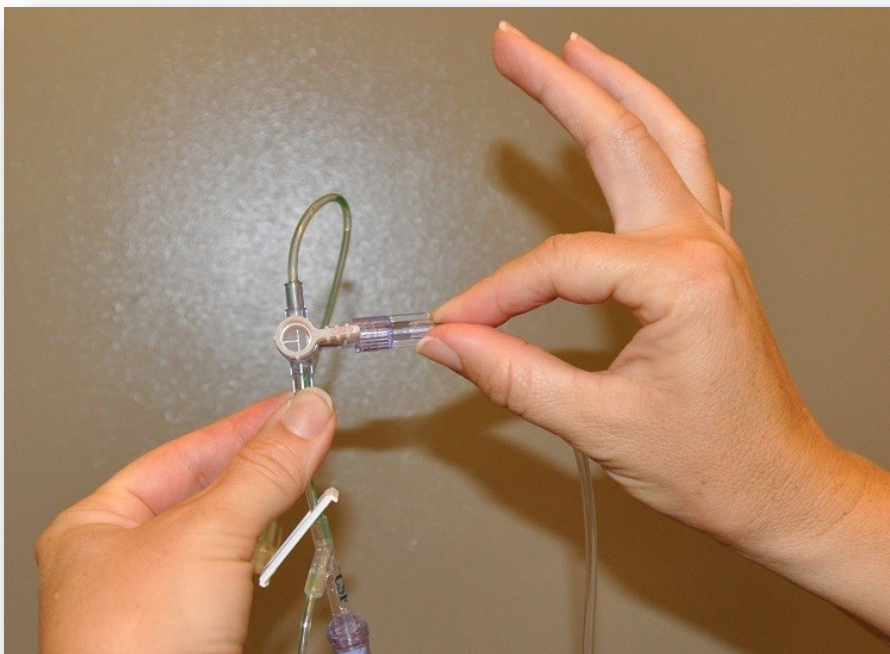


Figure 6 Connect pressure tubing directly to patient stopcock

- Turn the patient stopcock “off” toward the tip of the drainage collecting tube.
- Identify the stopcock located on the panel at the point of zero reference (Figure 7).
- Replace the cap with a dead-end luer-lock cap.
- Turn point of zero stopcock closed toward the cap and open to the catheter and drainage collecting chamber. Leave this stopcock in this position during priming and ongoing monitoring.
- The circuit is now open between the pressure tubing and the drainage collecting chamber. This is now open to begin priming.



Figure 7 Stopcock located at point of zero on drainage panel

3. Prime the Drainage Collecting Chamber

- Do not pressurize the saline bag
- Pull the flush device on the transducer circuit and observe as the drainage collecting unit is primed between the patient stopcock and drainage collection chamber
- When all air bubbles are clear, turn the patient stopcock off to the drainage collecting chamber
- Prime between the patient stopcock and distal tip of the catheter
- When priming is complete, turn patient stopcock to 45 degrees
- **LEAVE THE PANEL STOPCOCK OPEN TO DRAINAGE AT ALL TIMES. USE THE PATIENT STOPCOCK TO TURN DRAINAGE ON AND OFF.** Limiting adjustments to one stopcock reduces the chance that drainage is accidentally turned off.

4. Level the Drainage Collecting Panel with the Tragus

- Prior to connecting the drainage collecting tubing to the patient’s external ventricular drain, the drainage collecting chamber needs to be leveled
- Insert the laser level into the holder that is located at the zero reference level

- Turn the laser beam on and adjust the drainage collecting chamber until the beam is level with the tragus of the ear (fold of skin in front of external auditory canal)

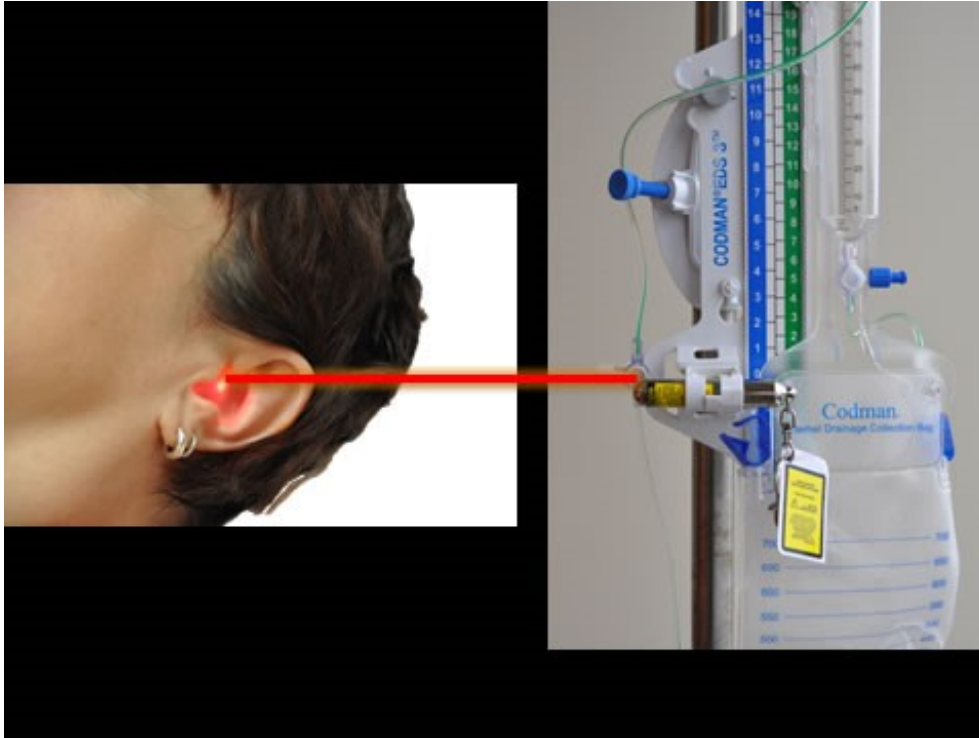


Figure 8 Level the zero reference on the panel with the tragus

- Secure the drainage collecting panel using the pole mount or rope hanger
- **Avoid shining the beam into patient's or healthcare provider's eyes**
- Ensure the laser is turned off when finished

5. Maintenance of the Transducer Circuit

- The pressure-transducer circuit is left in place to maintain a closed system for intermittent flushing of the drainage tubing if required (between the patient stopcock and drainage collecting tubing only)
- DO NOT pressurize the saline bag
- Keep the roller clamp off except during intentional flushing; the non-pressurized flush device will prevent free flow of fluid
- Unless fluid filled pressure monitoring is being performed, keep the patient stopcock "off" to the transducer (open between the patient catheter and the drainage system)
- Tape the transducer to the drainage collecting unit and place a piece of tape with "do not flush" over the flush device as a reminder (Figure 9).
- The level of the transducer has no impact on the intracranial pressure measurement **unless** fluid filled pressure monitoring is in place (ie you are **not** using a Codman Microsensor™ to measure pressure).
- The saline can be used to flush between the patient stopcock and the drainage unit to clear blood or debris.
- **NURSES DO NOT FLUSH INTO THE PATIENT CATHETER OR BETWEEN THE CATHETER AND PATIENT STOPCOCK**

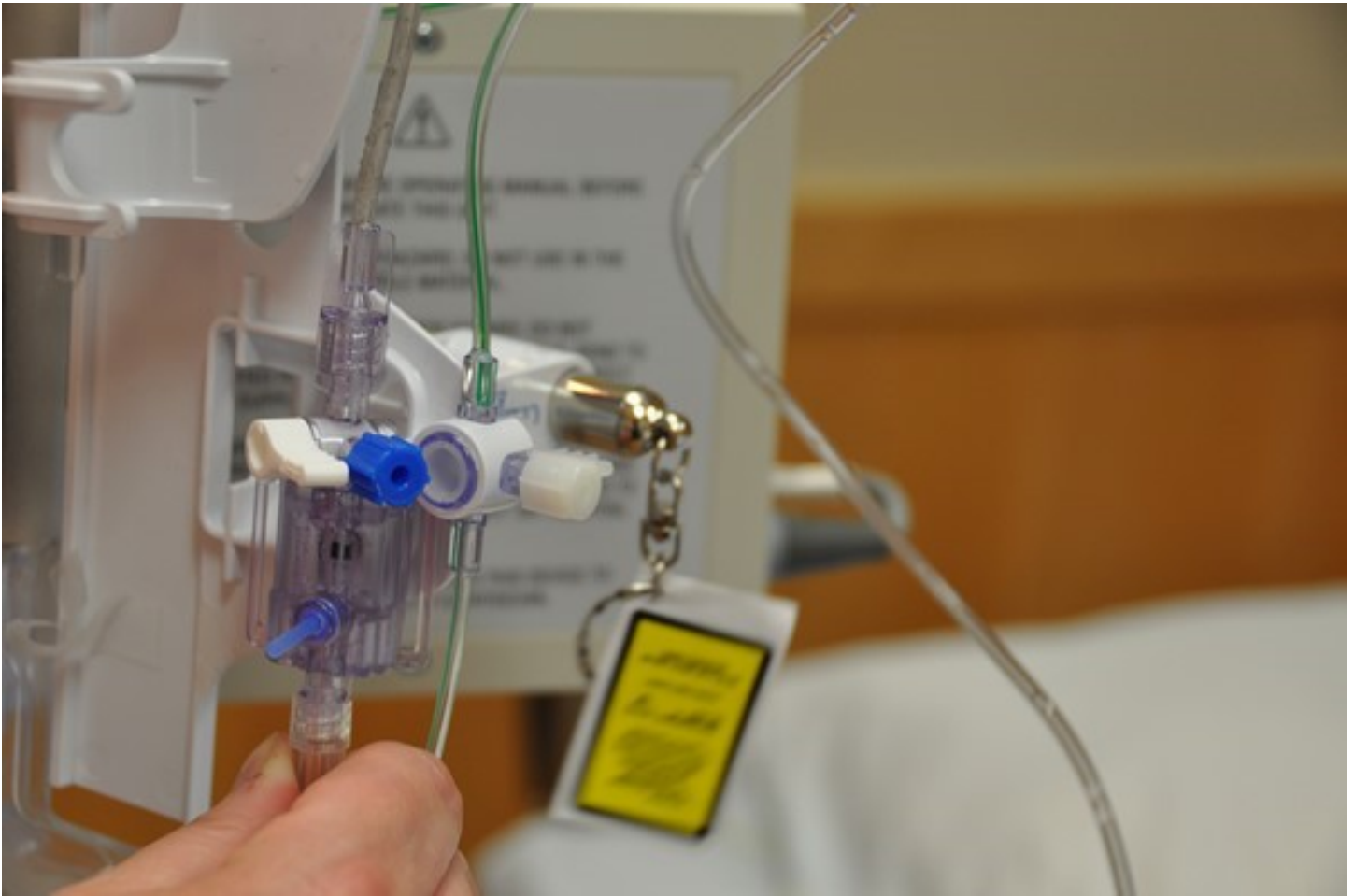


Figure 8 Tape transducer to drainage panel

6. Insert and Prepare Catheter for Connection

- If using a Codman Microsensor™ ventricular drain, assist with zeroing of the catheter prior to insertion as per the [Procedure for the Insertion and Setup of the Codman Express™](#)
- Once the catheter is inserted, the neurosurgeon will insert a luer lock connector into the drainage end of the catheter to enable connection to the drainage tubing
- Connect the distal tip of the Codman EDS 3™ to the patient's catheter
- **Reconfirm the level and position the drainage collecting chamber at the ordered level. The level should be ordered in cmH2O above the patient's head (green column). The corresponding pressure in mmHg (blue column).**
(Figure 10)

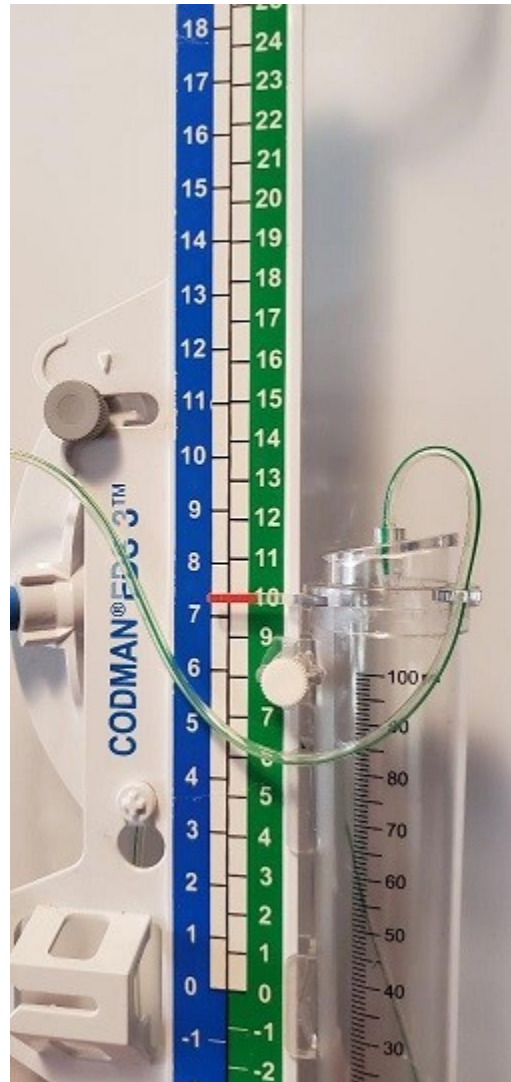


Figure 10
With panel already leveled to the tragus, position the drip chamber to the ordered level.

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