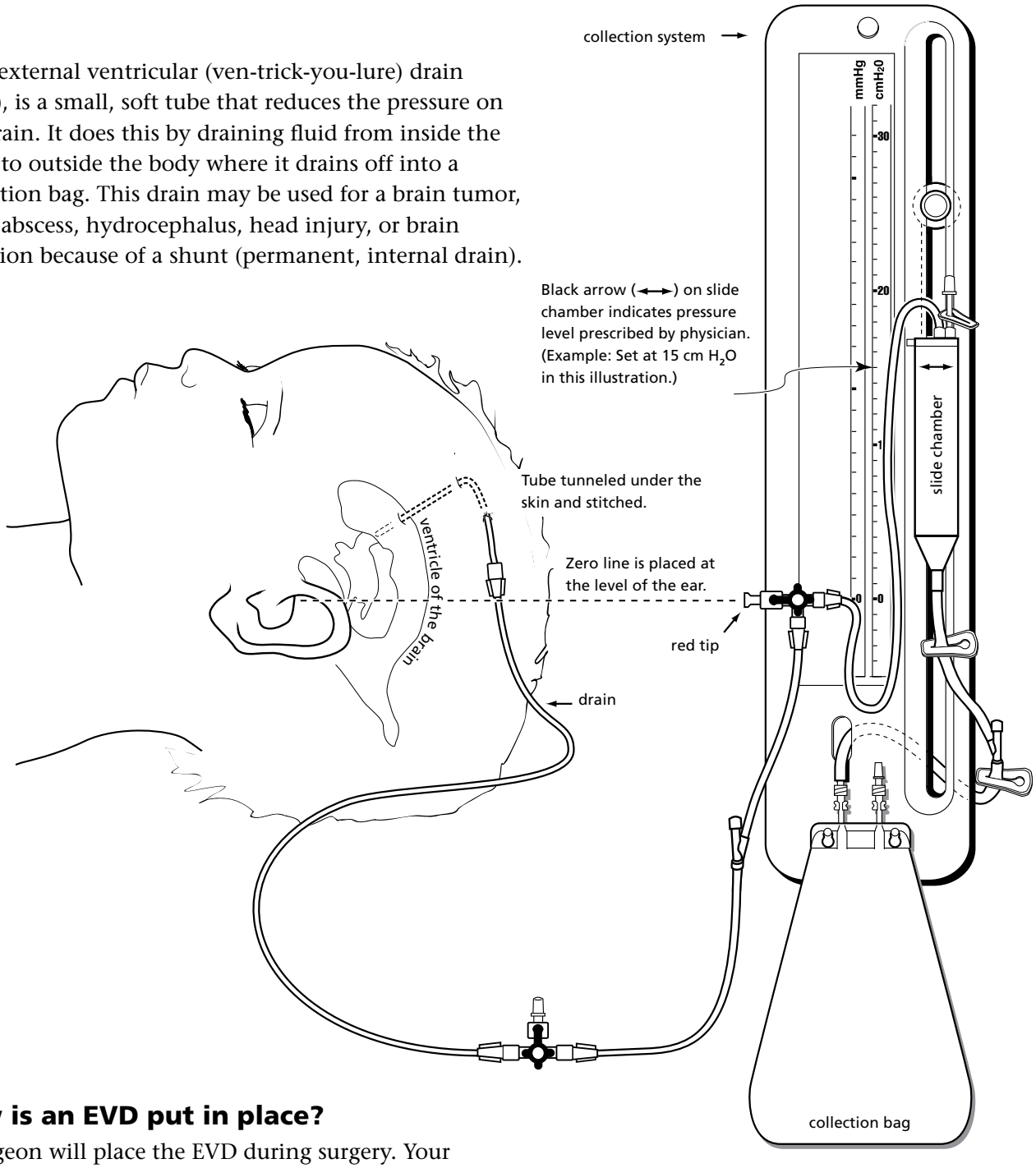
Let's Talk About...

External ventricular drain (EVD)

An external ventricular (ven-trick-you-lure) drain (EVD), is a small, soft tube that reduces the pressure on the brain. It does this by draining fluid from inside the brain to outside the body where it drains off into a collection bag. This drain may be used for a brain tumor, brain abscess, hydrocephalus, head injury, or brain infection because of a shunt (permanent, internal drain).



How is an EVD put in place?

A surgeon will place the EVD during surgery. Your child will receive medicine to help him sleep during the surgery. A small spot on your child's head is shaved in the area that will have the EVD. The doctor makes a small opening in the skin. Then the doctor makes a very small opening in the skull to insert the tube. The tube reaches into a ventricle in the brain *(see the illustration)*. Finally, the doctor stitches the tube under the skin.

How does the EVD work?

The EVD tube allows extra fluid in the brain to drain off, which lowers the pressure in the brain. The tube connects to a collection system that lets the fluid drain out into a collection bag. The collection system hangs on a pole. The surgeon orders the pressure levels to keep the brain fluid pressure correct. Your child's nurse will adjust the zero line on the EVD so it is level with the top of your child's ear. Your child's nurse will place the slide chamber at a level ordered by the doctor, to keep the brain fluid pressure normal.

What will happen after the surgery?

- While the drain is in place, your child won't be allowed to move around very much and he will be watched closely. It is very important to not change the height of the collection system. It is also important to always have help from a nurse to raise or lower your child's head. Do not raise or lower your child's head without help from a nurse. The settings on the system must stay at the correct height all the time, so the right amount of fluid drains off.
- Your child will need to be on a cardiac and pulse oximetry monitor while he has an EVD. These are special machines that watch your child's heart and the oxygen levels in his blood.
- Your child's nurse will frequently check how alert your child is.
- Your child's nurse will watch and record the fluid that collects in the slide chamber and empties it every two hours into the bag. Your child's nurse will clean the skin around the surgery site every 12 hours.
- The nurse also makes sure that your child drinks enough fluid to replace the amount that leaves his body. If your child isn't able to drink enough fluids, the doctor will order fluid through the IV.

When should I call for the nurse?

- Your child needs to change positions, such as sitting up or lying down.
- Your child needs to use the bathroom or wants to go for a walk.
- Your child feels sick to his stomach or vomits.
- Your child cries more or is fussier than usual.
- The drain pulls out or comes apart.
- The collection system comes apart in any way.

Are there any problems to watch for and what can I do?

After your child receives an EVD, your child may experience:

- New emotions. Your child may be angry, scared, confused, or think the EVD is ugly. Be honest with your child in explaining the need for the EVD. Try to be supportive and sensitive to his fears and self-image.
- A headache. Usually headaches are present before the EVD and go away after the EVD is placed. If headaches continue, usually acetaminophen (Tylenol®) helps. Sometimes stronger medicines are used for severe headaches. If headaches continue, talk to your child's doctor.
- Vomiting. Vomiting is common after surgery. If your child vomits, the doctor will change his diet to clear liquids and slowly change his diet to solid, regular food, as long as the food does not make him vomit. Your child's doctor may order medicine to help with nausea and vomiting.

How does the doctor remove the EVD?

If your child improves, the doctor will remove the EVD. The doctor will removes the stitches and then gently pull the tube out. The doctor puts a staple or stitch on the opening to close it. The staple or stitch will be removed during your child's follow-up visit. Sometimes, a child will need to have a shunt put in place. Your doctor will decide if your child needs a shunt.

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