Patient Instructions: Ventriculoperitoneal (VP) Shunt

Surgical Technique
A ventriculoperitoneal (VP) shunt is a device used to drain extra cerebrospinal fluid (CSF) from the brain and to the peritoneal cavity located near your abdomen. Extra CSF fluid can be caused by different conditions resulting in higher than normal pressure on the brain and hydrocephalus (enlarged ventricles in the brain). A catheter is placed connecting the ventricles of the brain to the abdomen to drain excess CSF. The procedure is performed by making one or two small incisions in the scalp and, using navigation techniques or laparoscope, one end of the catheter is passed into the ventricle of the brain. The catheter may have a valve that allows variable amounts of CSF drainage. The other end of the catheter is then advanced into the abdomen area and secured underneath the skin. Post-operative imaging is obtained and settings on the shunt adjusted to ensure the optimal amount of drainage.

Please visit www.bnasurg.com for more information.

Before Surgery
• Seven days prior to surgery, please do not take any anti-inflammatory NSAID medications (Celebrex, Ibuprofen, Aleve, Naprosyn, Advil, etc.) as this could prolong your bleeding time in surgery.

• If you are taking any blood-thinning medications (Plavix, Coumadin, etc.), please talk to the prescribing doctor about when you can safely stop that medication before surgery to reduce your risk of bleeding. Usually, these medications are stopped anywhere from 3 - 7 days before surgery.

• Increase your strength and improve your recovery by walking at least 30 minutes a day before your procedure. Exercising before surgery will help you recover after your surgery.

• At least one week before surgery, eat healthy foods rich in carbohydrates and protein to fuel your body with the nutrients that it will need during and after surgery.

• Be aware that nicotine users have a significantly higher risk of surgical wound complications, such as healing and infection, as well as increased surgical bleeding. Nicotine disrupts many normal body functions, including nutrients and blood supplies. It is advised that any nicotine use be discontinued at least 4 weeks before surgery.

Day of Surgery
• Do not eat or drink anything after midnight the day before surgery. This also means nothing to drink the morning of surgery, except you may take your prescribed medications (e.g., blood pressure medications) with a sip of water if needed. Consult your surgeon or primary care doctor regarding insulin if you take it. Some hospitals are now allowing clear fluids until a few hours before surgery – please follow the directions of the individual hospital protocols (if you do not follow the individual hospital guidelines this may result in your surgery being canceled).

• Be early or on-time to check-in on the day of surgery so that surgery is not delayed or canceled.

• Bring your hospital surgical folder and any related paperwork (consents, etc.) to surgery.

• Bring a copy of all relevant imaging studies (CT, MRI, or x-rays) to surgery, even if your surgeon has already seen them in the clinic or may have a copy. Surgery may be canceled if your surgeon cannot view your radiographic images on the day of surgery.
After Surgery

- As with any major surgery, you must allow time for the body to recover. Medications for nausea and vomiting, that are very common after this type of surgery, can be prescribed. Please let your doctor know if this is a problem.

- It may take a week, month, or more before you recover your usual energy level.

- **Blood thinners**: If you were on blood thinners (Aspirin, Heparin, Lovenox, Coumadin, Pradaxa, Eliquis, Xarelto, Plavix, etc.) you will need to contact your surgeon for when to safely resume these medications. These medications are usually held for anywhere from 3 to 7 days before restarting.

Activity Level

- Walking is the best exercise after surgery because it strengthens the muscles, increases endurance, relieves stress, improves blood flow, keeps the bowels moving and prevents fluid from building up in the lungs.

- Immediately after surgery, patients are encouraged to walk, starting with short and frequent walks and gradually increasing distances. The sooner patients can be active, the sooner he/she may be able to resume their routine.

- You may discontinue wearing your hospital stockings when ambulating at least 100 yards three times per day.

- Do not lift more than 5-10 pounds for several weeks after surgery. This restriction may be increased to approximately 20 pounds after 4-6 weeks. Your surgical team will help guide you with your specific lifting restrictions after 6 weeks.

Bandage

- If a bandage is present, it may be removed the second day following surgery.

- Depending on your surgeon’s preference, you will have either Steri-Strips, staples, a liquid skin adhesive (Dermabond), or external sutures over your incision.

- Scalp sutures may or may not need to be removed (some can dissolve over time). Ask your if your sutures require removal.

- If anything other than occasional spotting is noted to be coming from the wound (such as clear spinal fluid or pus), notify your surgeon.

- Steri-Strips should be left intact until returning to the clinic for your postoperative follow-up visit 7-14 days following surgery.

- Liquid skin adhesive (Dermabond) should be left in place and will eventually fall off naturally over the next 1-2 weeks.

- Do not use topical ointments on your incision unless approved or directed to do so explicitly by your surgeon.

Bathing

- We recommend waiting to shower until the second day after surgery.

- We recommend you wash your hair daily with a soft shampoo such as baby shampoo and avoid hair products and conditioners until your wound has healed.
Bathing (continued)
- Try to limit showers to no more than 5 - 7 minutes.
- Do not scrub the incision directly. Instead, let the clean water run over the incision and then pat the incision dry.
- Do not soak in a bathtub, hot tub, or pool until you are cleared to do so by your surgeon

Diet
- Narcotic pain medications can be very constipating. Be proactive with stool softeners and laxatives.
- A high fiber diet is recommended.
- Avoid straining on the toilet. Keep stools soft with a high fiber diet and/or use of prune juice, Metamucil, Fiber One cereal, etc.
- Drink plenty of fluids, including Gatorade, or any kind of juice to stay adequately hydrated, prevent blood clots, and other problems.

Pain Medications
- Do not take NSAID medications (Ibuprofen, Naprosyn, etc.) or Cox-2 inhibitors (i.e., Celebrex) for 1 week following surgery.
- Tylenol can be taken as needed.
- Stronger pain medications will be prescribed if Tylenol is inadequate.
- Avoid letting the pain get out of control before taking medication or it will be less effective.
- BNA providers will NOT refill pain medications after hours: 5 pm on weekdays or anytime on the weekend.
- It is crucial to anticipate the need for medication refills so that they can be refilled with adequate notification, which may take anywhere from 24 - 48 hours.

Follow-up
- Call Boulder Neurosurgical Associates’ (BNA) office (303-938-5700) and schedule your routine post-surgical visit for 7-21 days after surgery (if it is not already scheduled).
- Additional follow-ups will be scheduled as needed.

Safety Precautions with VP Shunts
- Precautions with magnets: The pressure setting of some VP shunts may accidentally change if you get too close to a magnet. This depends on the VP shunt model. Be sure to follow the VP shunt manufacturer’s guidelines for magnet precautions specific to your type of shunt. Some general rules for many shunts are: keep all products with magnets at least 2 inches away from the valve implant site (your head) and don’t use magnetic therapy pads and pillows.
Safety Precautions with VP Shunts (continued)

- **MRI imaging:** If you need to have magnetic resonance imaging (MRI), you must tell your MRI technologist that you have a VP shunt **before you have the test.** Depending on the type of VP shunt you have, the magnet in the MRI machine may change your shunt’s pressure setting. In this case, after your MRI, the pressure setting will need to be checked and may need to be reprogrammed by your doctor or nurse practitioner. Some types of VP shunts aren’t affected by MRI. Ask your doctor or nurse if your shunt will need to be reprogrammed after an MRI. No matter what type of VP shunt you have, you won’t need to take any precautions if you’re having a computed tomography (CT) scan, positron emission tomography (PET) scan, or an x-ray.

**When to Call Your Doctor**

Please call your physician’s office immediately with any problems or go to the emergency room if:

- Itching or hives
- Swelling in your face or hands
- Swelling or tingling in your mouth or throat
- Chest tightness
- Trouble breathing
- Ongoing nausea and/or vomiting
- Severe or worsening headaches or neck stiffness
- Confusion or changes in behavior
- Increased drowsiness
- Progressive difficulty seeing or speaking
- Clear fluid leakage from the incision
- Fever greater than 101.4F
- Seizures
- Any new neurologic sensory or motor deficits (weakness, numbness)
- Leg swelling with calf tenderness
- Inability to urinate or burning during urination

- **Other FAQs**

**How long will I be in the hospital?** The length of time you’re in the hospital after your surgery depends on your recovery. Most people stay in the hospital overnight. We have found that patients generally prefer the comforts and support that home offers. The sooner you go home, the lower your risk of complications such as hospital-acquired wound infections, blood clots, and urinary tract infections.

**How much time off from work?** The amount of time needed to recover prior to returning to work varies and depends on your job and you as an individual. Typically, 2 - 3 weeks is sufficient, however patients should ask their surgeon for an individual recommendation. The return to physically demanding jobs will be at the discretion of your surgeon.

**When can I resume driving?** Driving is acceptable, depending on the use of pain medication. We strongly advise against driving while taking narcotic pain medications following the surgery.
**What about pain and other medications?** We will prescribe pain medications and other peri-operative medications on the day of surgery or prior to your discharge from the facility or hospital.

**What kind of follow-up is required?** Patients return to our office for routine follow up appointments at intervals that are determined on a case-by-case basis. We typically see patients back in the office within a couple of weeks following surgery and then increase this interval with subsequent visits. The follow-up schedule will be determined by your surgeon at each follow-up visit.

**Do I need antibiotic prophylaxis for dental procedures?** We recommend avoiding routine dental procedures for 3 months following surgeries in which hardware is placed. This includes any dental work. You should brush your teeth as you normally do. If you must have a dental procedure within 3 months, then it would be advisable to use antibiotic prophylaxis. We generally do not make recommendations about the choice of antibiotic when using it for prophylaxis and we usually defer this to your primary care physician or your dentist. After 3 months, prophylactic antibiotics are not recommended except for specific individuals with extenuating circumstances, such as patients who are at risk for infective endocarditis.