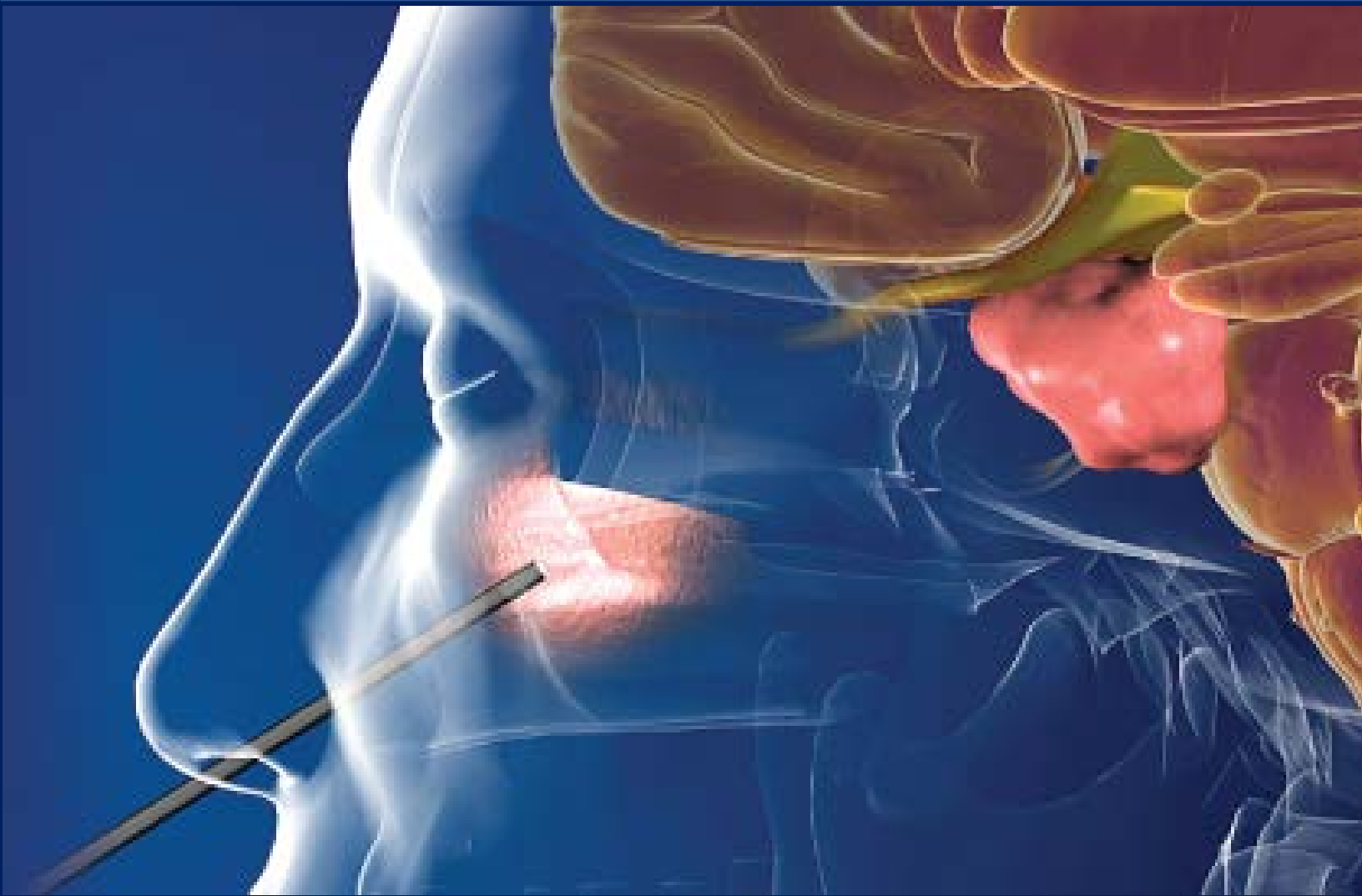


Complex Endoscopic Skull Base Surgery

Enhanced Recovery After Surgery (ERAS)

Your Guide to Healing





UVA Health

Department of Neurosurgery – Pituitary Center

Name:

Date of surgery:

Arrival Time:

Check-in location:

Thank you for choosing UVA Health.

We look forward to taking care of you in our Multi-Disciplinary Pituitary Clinic.

The following surgery has been recommended for you:

This handbook is intended to guide you through your recovery and help answer any questions you may have. We welcome your feedback on how we can improve your experience.

We would like you to bring this handbook with you:

- ☒ To all future office visits
- ☒ During your hospital stay

Department of Neurosurgery – Pituitary Center

Complex Endoscopic Skull Base Surgery Team

Neurosurgeon (Brain Surgeon)



Michael P. Catalino, M.D.



Melike Mut Askun, M.D.

Otolaryngologist/ENT (Head and Neck Surgeons)



Jose Mattos, M.D. MPH



Spencer Payne, M.D.

Nurse Practitioners



Karen Clark, AG- ACNP
Neurosurgery



Meredith Kelley, DNP, FNP
Otolaryngology

Pituitary Nurse Coordinator



Dawn Shaver, MSN, CNRN
Neurosurgery

Access Associates: These team members help to coordinate your appointments.



Shinika Lewis
Senior Access Associate
Neurosurgery



Lori Jones
Senior Access Associate
Neurosurgery

Contact Information

The main hospital address: UVA Health
1215 Lee Street
Charlottesville VA 22908

Contact	Phone Number
Department of Neurosurgery	800.362.2203 Fax 434.924.2994
Pituitary Office	800.650.2650 434.982.3591
If you don't receive a call by 4:30pm the day before surgery (or by Friday at 4:30pm if your surgery is scheduled for Monday) please call:	434.924.5035
Anesthesia Perioperative Medicine Clinic	434.924.5035
Hospital Inpatient Unit: 6W	434.924.2488
Hospital Inpatient Unit: 6N (NIMU)	434.924.8201
UVA Main Hospital (after 4:30pm, on weekends, and holidays ask for Neurosurgery resident on call, pager 1576 or Endocrine Fellow on call, pager 1263)	434.924.0000
Lodging Arrangements/ Hospitality House	434.924.1299 434.924.2091
Parking Assistance	434.924.1122
Interpreter Services	434.982.1794
Hospital Billing Questions	800.523.4398
Neuroendocrine Fax Number	434.924.5894

Important Appointments

Before Surgery

Appointment	Date & Time
Imaging	
Labs	
Meet with Neurosurgery NP	
Meet with ENT (occasionally day of surgery)	
APMC Visit (Anesthesia)	
Ophthalmology, if needed	

Write any special instructions here:

After Surgery

Appointment	Date & Time
7-10 days: Lab draw (Any local lab) and Neurosurgery NP visit Blood draw for sodium level and sometimes cortisol. A lab order will be given to you at discharge. If you do not receive an order when you leave the hospital, please call Dawn at 434.982.3591 and she will fax an order to the lab of your choice. You will be notified of any abnormal lab values.	
2-3 weeks: ENT doctor, if needed After surgery you <i>may</i> need to see the ENT doctor. You will be notified by the ENT team if you need to see them at 2-3 weeks after surgery. This will be arranged before you leave the hospital.	
5-7 weeks: Ophthalmology, if needed Visual field exam This is only for patients with visual deficits before surgery.	
8 weeks: ENT doctor	
8 weeks: Imaging- MRI	
8 weeks: Neurosurgery. Endocrinology, if needed	
8 weeks: Lab work	

Write any special instructions here:



It is very important to remember, after this surgery, **you should NOT have any nasal swabs done for testing.** You should have oral testing, if needed, after this surgery.

(this page intentionally left blank)

Table of Contents

Section 1:

What is ERAS?

Before Your Surgery

Preparing for Surgery

Day Before Surgery

Section 2:

Day of Surgery

After Surgery

Section 3:

After Discharge

Recovery

Follow-up Appointments

Section 4:

Patient's Checklist

(this page intentionally left blank)

Enhanced Recovery After Surgery (ERAS)

What is Enhanced Recovery?

Enhanced recovery is a new way of improving the experience of patients who need major surgery. It helps patients recover sooner so life can return to normal as quickly as possible. The ERAS program focuses on making sure that patients are actively involved in their recovery.



There are four main stages:

1. **Planning and preparing before surgery** – giving you plenty of information so you feel ready.
2. **Reducing the physical stress of the operation** – allowing you to drink up to 2 hours before your surgery.
3. **A pain relief plan** that focuses on giving you the right medicine you need to keep you comfortable during and after surgery.
4. **Early feeding and moving around after surgery** – allowing you to eat, drink and walk around as soon as you can.

It is important that you know what to expect before, during, and after your surgery. Your care team will work closely with you to plan your care and treatment. You are the most important part of the care team.

It is important for you to participate in your recovery and to follow our advice. By working together, we hope to keep your hospital stay as short as possible.

Introduction to Complex Skull Base Surgery

Anterior skull base tumors are found in the front of the skull near where the eyes sockets and sinuses are located. They can be benign (noncancerous) or malignant (cancerous) depending on the type.

Several types of skull base tumors exist. Some examples include:

Meningioma

- Meningiomas are the most common type of brain tumor. They are tumors that develop in the membranes that line and protect the brain and spinal cord, called the meninges. While 90% of meningiomas are noncancerous (Grade 1), some tumors may be atypical (Grade 2) or malignant (Grade 3), meaning that the cells show cancerous growth. Meningiomas occur most commonly in women, and are often discovered at older ages, but a meningioma may occur at any age.

Craniopharyngioma

- A craniopharyngioma is a rare type of noncancerous (benign) brain tumor that forms near, but not in, the pituitary gland. It does not spread to other areas of the body. It grows slowly and is usually not discovered until it pushes on adjacent structures in the brain causing symptoms. Craniopharyngiomas typically occur in children and young adults.

Esthesioneuroblastoma (Nasal cavity tumor)

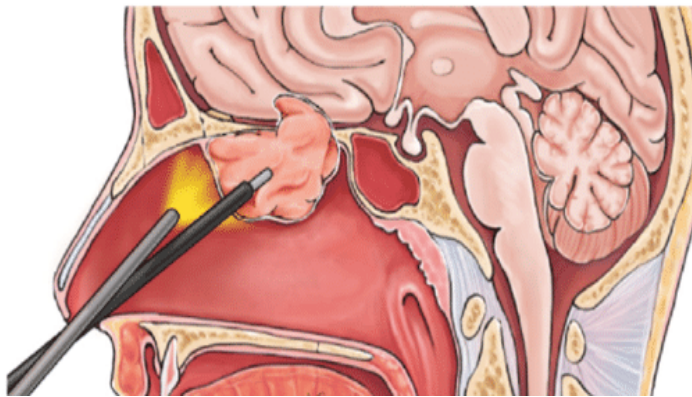
- An esthesioneuroblastoma (ENB) is a rare tumor found in the nose, also known as an olfactory neuroblastoma. It forms in the olfactory nerves that extend from the brain into the nasal cavity, the open space behind the nose. Esthesioneuroblastomas may spread from the nasal cavity to the nasal sinuses or to nearby tissue. They may also spread to the brain or to other parts of the body and are cancerous. This type of tumor is found in both adult men and women — at any age. However, it is relatively rare and only makes up about three to five percent of all tumors that occur inside the nose.

Symptoms of skull base tumors can develop slowly over time and may include:

- Headache
- Visual changes, including double vision and blurring
- Vomiting and nausea
- Confusion, mood swings, or behavior changes
- Balance problems
- Increased need to pee and excessive thirst
- Changes in menstrual periods
- Nose bleeds

Endoscopic Transphenoidal Surgery

In Endoscopic Skull Base Surgery, a team approach is often used, with head and neck surgeons working directly with neurosurgeons. The team uses high resolution cameras and highly specialized instrumentation to remove anterior skull base tumors. This is a minimally invasive technique and avoids the use of large incisions in the face and neck (unlike standard open surgery). The head and neck surgeon will start by removing bone and making a small opening from the nose into the sphenoid sinus. The neurosurgeon will then insert an endoscope, a surgical camera and light, that allows a clear view of the tumor. Microsurgical instruments are used to cut out as much of the tumor as possible without harming nearby healthy tissue.



How long is the surgery?

Expect about 3 to 5 hours in the operating room (OR). You will then spend time in the post-anesthesia care unit (PACU) until you are ready to go to your room on 6 West or 6 North (NIMU).

How long will I stay in the hospital?

Expect to stay about 5-6 days.

Before Your Surgery

Clinic

During your clinic visit we will check a neurologic exam and review your MRI. We may also check your pituitary function. You will work with our entire team to prepare for surgery. This team may include:

- The surgeons who may have fellows, residents, or medical students working with them
- Endocrinologists, if needed
- Nurse Practitioners (NPs)
- Clinical nurse coordinators
- Access associates



During your clinic visit, we will:

- ☐ Ask questions about your medical history
- ☐ Perform a physical exam
- ☐ Do lab work and check your pituitary function, if needed
- ☐ Ask you to sign the surgical consent forms

We will review:

- ☐ Preparing for surgery and for making a discharge plan.
- ☐ What to do before surgery if you are on blood thinners.
- ☐ Obtaining pre-operative surgical clearances if needed.
- ☐ Quitting smoking if you currently smoke.

Write any special instructions here:

Preoperative Anesthesia Clinic

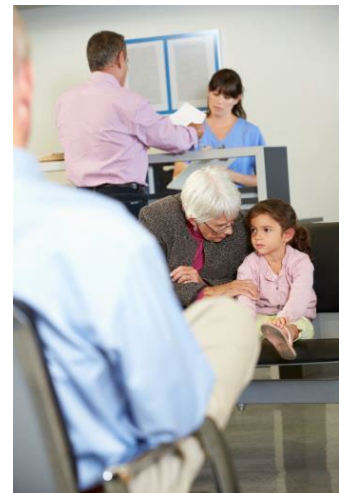
The Preoperative Anesthesia Clinic will check your medical and surgical history to see if you need an anesthesia evaluation before surgery. This extra step helps the anesthesia team make sure you get safe care on the day of your surgery.

If an anesthesia evaluation is needed, the Preoperative Anesthesia Clinic will let you know. Then:

- An appointment will be scheduled for a visit a few weeks before your surgery
 - Your medications will be reviewed
 - You might need a blood test, a heart test (EKG), and/or other tests that your surgeon or anesthesiologist may ask for
- 
- A man in a white lab coat is standing in front of a whiteboard, pointing at it with his right hand. The whiteboard has some faint, illegible writing on it. The man is seen from the side, and his face is partially visible.

If you have any questions or can't make the appointment with the Preoperative Anesthesia Clinic, call 434-924-5035. Missing this visit could cause your surgery to be cancelled.

There may be times that you are instructed to go to the Preoperative Anesthesia Clinic after your appointment with your surgeon. If so, you are welcome to a same day appointment, but please allow up to 2 hours.



Please note: If you were told by your surgical team that you did not need any testing or evaluation prior to surgery but receive a call to schedule with the Preoperative Anesthesia Clinic, this is because the anesthesia team feels it is in your best interest when they review your history.

Medic Alert Bracelet



If you are on hydrocortisone, prednisone or dexamethasone replacement, you should wear a medic alert bracelet at all times with the label “**Adrenal Insufficiency**” or list the name of what steroid you are taking. You can get a medic alert bracelet at <https://www.medicalert.org/>

Medications to Stop Prior to Surgery

14 Days Prior

Stop birth control pills and all vitamin, herb, and joint supplements, such as:

CoQ10	Glucosamine	Juice Plus®	Ogen	Omega 3, 6, 9
Chondroitin	Flaxseed oil	St. John's Wort	Ginkgo	Ginseng
Echinacea	Fish oil	Saw palmetto	Garlic	Multivitamins
Emcy	Kava	Valerian	Ephedra	MSM

7 Days Prior

STOP all aspirin containing products, such as:

Alka-Seltzer®	Excedrin®	BC Powder®	Goody's Powder®	Percodan®
Aspirin (81mg to 325mg)	Fasprin® (81mg)	Bufferin®	Norgesic®	Ecotrin®
Disalcid® (Salsalate)	Pepto-Bismol®	Dolobid® (Diflunisal)		

Stop all non-steroidal anti-inflammatory medications (NSAIDs), such as:

Advil® (ibuprofen)	Aleve® (naproxen)	Arthrotec® (volatren/cytotec)
Ansaid® (flubiprofen)	Anaprox® (naproxen)	Cataflam® (diclofenac)
Celebrex® (celecoxib)	Clinoril® (sulindac)	Daypro® (oxaprozin)
Feldene® (piroxicam)	Indocin® (indomethacin)	Meclofen® (meclofenamate)
Mediprin® (ibuprofen)	Mobic® (meloxicam)	Motrin® (ibuprofen)
Naprelan® (naproxen)	Naprosyn® (naproxen)	Nuprin® (ibuprofen)
Orudis® (ketoprofen)	Oruvail® (ketoprofen)	Relafen® (nabumetone)
Tolectin® (tolmetin)	Voltaren® (diclofenac)	

Talk to your Primary Care or Cardiologist about when to stop taking antiplatelets or anticoagulants, such as:

Coumadin® (warfarin)	Plavix® (clopidogrel)	Pletal® (cilostazol)
Xarelto® (rivaroxaban)	Eliquis® (apixaban)	Lovenox® (enoxaparin)
Aggrenox	Antithrombotics	Effient (prasugrel)
Ticlid (ticlopidine)	Trental (pentoxifylline)	

If you have heart stents, stents in your brain or other body parts, or any other specific indication for taking aspirin or plavix, please discuss with your cardiologist or neurologist and our team PRIOR to discontinuing these before surgery.

Quitting Smoking/Nicotine Products Before Surgery:

Why Quit Before Surgery?

To ensure optimal healing, do not use any nicotine-containing products for at least one month before and after your surgery. Quitting smoking and nicotine products is crucial for a successful surgery and recovery. Nicotine significantly hinders your body's ability to heal, increasing the risk of complications. Be sure to inform your care team if you use Nicotine products.

Quitting 4 weeks before surgery decreases surgical complications and risks by 20%-30%!



Complications related to Nicotine use and Surgery:

- Increases wound complications
- Decreases oxygen which is needed for tissues to heal
- Decreases the amount of blood, nutrients, and oxygen that are able to get to the wound
- Decreases the ability of cells to kill bacteria and fight infection
- Constricts blood vessels that are needed to start the healing process
- Increases risk of hernias
- Significantly increases rates of deep site infections and having to have your surgery site re-operated on

Long-Term Benefits of Quitting:

- Improved survival rates
- Fewer and less severe surgical side effects
- Faster recovery from treatment
- Increased energy levels
- Enhanced quality of life
- Reduced risk of certain cancers
- Reduced health risks to loved ones.



Your Path to a Healthier Recovery

Preparing to Quit:

- ☑ Smoke-Free Environment: All UVA facilities are smoke-free. You will not be permitted to smoke during your hospital stay.
- ☑ Medical Assistance: Speak with your healthcare provider about medications that can aid in your nicotine cessation.
- ☑ Trigger Identification: Recognize your smoking triggers and develop strategies to manage them.
- ☑ Alternative Activities: Plan alternative activities to replace nicotine use. Create a "quit kit" with helpful items.
- ☑ Continued Support: Maintain your quit plan after discharge and enlist the support of friends and family.
- ☑ Personal Reasons: Write down personal reasons for quitting.
- ☑ Inform Support System: Tell friends and family of your plans.
- ☑ Track Habits: Note when and why you use nicotine.
- ☑ Stress Management: Find new ways to handle stress.
- ☑ Medication Planning: Talk to your doctor about cessation medications.
- ☑ Clean Environment: Remove smoke smells from your home and car.
- ☑ Mindful Use: Pay attention to when you use nicotine and ask yourself if you really need it.

Quitting improves your overall health and allows you to focus on a successful recovery.

**Remember: Quitting is a journey, and you are not alone.
Your health is worth it!**

Smokefree.gov: 1-800-784-8669: www.smokefree.gov
American Lung Association: 1-800-548-8252, www.lung.org
Virginia Quit Line: 1-800-QUITNOW: www.quitnow.net/virginia
Quit Smoking Blue Ridge: www.vdh.virginia.gov/blue-ridge/tobacco-and-nicotine



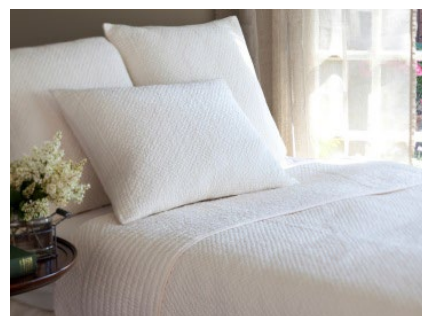
STOP SMOKING AND STAY HEALTHY

Preparing for Surgery

When you leave the hospital after your surgery, you will need some help from family or friends. You should arrange for support at home prior to coming for surgery. It will be important to have help with meals, taking medications, etc.

A few things you can do before you come into the hospital:

- ☐ Clean and put away laundry
- ☐ Clean your bed linens, especially if you have a pet who shares your bed.
- ☐ Put the things you use often at waist height to avoid having to bend down or stretch up too much to reach them.
- ☐ Buy the foods you like and other things you will need since shopping may be hard when you first go home. Prepare meals that you can freeze and easily reheat.
- ☐ Cut the grass, tend to the garden and do all house work.
- ☐ Arrange for someone to get your mail and take care of pets and loved-ones, if necessary.
- ☐ Be sure you have a working digital thermometer. We will ask you to monitor your temperature once you are discharged from the hospital.
- ☐ Arrange transportation to and from the hospital and all appointments.
- ☐ We recommend you have the following non-prescription medications at home before your surgery:
 - NeilMed® Sinus Rinse – please purchase and practice prior to surgery. For more information visit www.neilmed.com.
 - Saline Nasal Spray
 - Tylenol (acetaminophen) 325mg tablets (for pain)
 - Advil/Motrin (ibuprofen) 200mg tablets (for pain)
 - Colace (docusate sodium) 100mg tablets (stool softener)
 - Miralax powder or Senna (for constipation)
 - Biotene Mouth Rinse



Remember to review the page in section 1 for medications you may be taking and when to stop taking them before your surgery. ***This is very important to prevent your surgery from being postponed or cancelled!***

If you have any questions on the instructions you received, call your surgeon's office right away.

Pre-Surgery Checklist

What you SHOULD bring to the hospital:

- ☐ This handbook
- ☐ A **list** of your current medications. Please leave your medications at home. **You do not need to bring the actual bottles.** They will be provided for you once you are in the hospital.
- ☐ Any paperwork given to you by your surgeon
- ☐ A copy of your Advance Directive form, if you completed one
- ☐ A book or something to do while you wait
- ☐ A change of comfortable clothes for discharge
- ☐ Any toiletries that you may need
- ☐ If you use an oxygen tank, be sure you have enough oxygen and tank supplies for the ride home after surgery
- ☐ **NeilMed® Sinus Rinse**



What you SHOULD NOT bring to the hospital:

- ☒ Large sums of money
- ☒ Valuables such as jewelry or non-medical electronic equipment

*Please know that any belongings you bring will go home with your care partner or be locked away in “safe keeping.”

For your safety, you should plan to:

- ☒ Identify a Care Partner for your stay in the hospital.
- ☒ Have a responsible adult with you to hear your discharge instructions and drive you home.
- ☒ If you plan to take public transportation, a responsible adult should travel with you.
- ☒ If possible, identify someone to stay with you the first week after discharge to help take care of you. You cannot drive for 2 weeks after your surgery. You will need someone to drive you to the lab 7-10 days after surgery.

Care Partners are family or friends you designate to be active members of your healthcare team. They are given a special security code to call in and ask questions about your recovery. They can help keep other family members and friends informed about your condition. You are asked to designate Care Partners during the admission process but you can change a Care Partner at any time during your hospital stay. You can have up to 2 Care Partners if you wish.



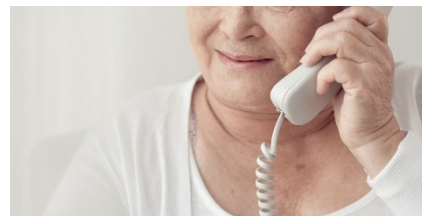
Visitors must stop by the Information Desk to get a visitor pass and should wear it at all times while in the hospital. Please remember that the hospital is a place for healing and rest. Try to keep conversations quiet and, if sharing a room, please be respectful of other patients' needs for rest or private time with their families. Also make sure that nurses and doctors can move freely around the bedside to provide care. Our Family Lounges on each floor have information about hospital and local resources including local accommodations.

Close-by Lodging options are available. Please refer to the insert at the front of the handbook for more details.

Day Before Surgery

Scheduled Surgery Time

A nurse will call you the day before your surgery to tell you what time to arrive at the hospital for your surgery. If your surgery is on a Monday, you will be called the Friday before.



If you do not receive a call by 4:30 pm, please call 434.924-5035.

Please write what time the nurse tells you to arrive on page 1 of this handbook in the space provided.

Remember:

- ☐ Remove nail polish, makeup, jewelry and all piercings.

Food and Drink the Night Before Surgery

- ☐ Do not eat solid foods after midnight before your surgery
- ☐ Be sure to have a 20-ounce Gatorade™ ready and available for the morning of surgery. If you are diabetic, you may drink water.
- ☐ After midnight, you CAN still have water or Gatorade up to 2 hours before you arrive at your surgery location. Finish drinking at the time instructed by the phone call nurse.
- ☐ Do NOT drink any other liquids after midnight or the morning of surgery. If you do, we may have to cancel the surgery



Day of Surgery

Before you leave home

- ☐ Remove nail polish, makeup, jewelry and all piercings.
- ☐ Brush your teeth.
- ☐ You may drink water or Gatorade on the morning of surgery. Finish drinking at the time instructed by the phone call nurse.
- ☐ Do NOT drink any other liquids. If you do, we may have to cancel the surgery.

Hospital arrival

- ☐ Arrive at the hospital on the morning of surgery at the time you wrote on page 1 - **(this will be approximately 2 hours before surgery)**.
- ☐ Check in to the location as instructed by the phone call nurse.
- ☐ Your family will be given a tracking number so they can monitor your progress.

Surgery

When it is time for your surgery, you will be brought to the pre-op area. There you will be checked in for surgery and meet your anesthesia and surgery teams.



In Preop, you will:



- ☒ Be identified for surgery and get an ID band for your wrist.
- ☒ Be checked in by a nurse and asked about your pain level.
- ☒ Be given an IV and weighed by the nurse.
- ☒ Be given several medicines that will help keep you comfortable during and after surgery.
- ☒ Meet the surgery team where your consent for surgery will be reviewed. Your family member can be with you during this time.
- ☒ Meet the anesthesia team who will review your medical history and will discuss your anesthesia plan.

In the Operating Room



From Preop, you will then be taken to the operating room (OR) for surgery and your family will return to the family waiting lounge.

Many patients do not recall being in the OR because of the medication we give you to relax and manage your pain.

Once you arrive in the OR:

- ☑ We will do a “check-in” to confirm your identity and the location of your surgery.
- ☑ You will move to the operating room table and be connected to monitors.
- ☑ Boots will be placed on your legs to reduce the risk of developing blood clots during surgery.
- ☑ You will be given antibiotics through your IV prior to surgery to reduce your risk for infection.

Once you are asleep:

- ☑ We may insert a catheter (tube) into your bladder. This will allow the doctors to carefully monitor your fluids and urine output.
- ☑ Just before starting your surgery, we will do a “time-out” to check your identity and confirm the location of your surgery.
- ☑ After this, your surgical team will perform your operation.

During your surgery, the Operating Room nurse will call or send a text message to your family approximately every 2 hours to update them, when possible.



After Surgery

Recovery Room (PACU)

After surgery, you may be taken to the recovery room (PACU). Patients can remain in the PACU for about 2-4 hours and then may be assigned a room on an acute care unit (typically, 6 West). Your family will be updated by PACU upon your arrival, then 2 hours later (if still in PACU), and when you are leaving for your room on 6 West. If your family does not receive a call, they can call the operator at 434.924.0000 and ask for the PACU.

Once you are awake:

- ☑ You will be given clear fluids to drink.
- ☑ Post-operative nausea and vomiting is very common after your surgery. We give you medication to reduce this.



The surgeon will also call your family to give them an update, or the surgeon might visit them in the Surgery Consult Room in the second floor OR and Procedure Check-In area.

Acute Care Unit on 6th floor: 6W or 6N

Once to your room, you:

6 West: 434.924.2488

6 North: 434.924.8201

- ☑ May be in a semi-private room with a roommate, with a privacy curtain drawn around your bed.
- ☑ Will be encouraged to take deep breaths to exercise your lungs and help prevent pneumonia
- ☑ Will have your temperature, pulse, and blood pressure checked after you arrive.
- ☑ Will have an IV in your arm to give you fluid and you will be allowed to drink fluids.
- ☑ Will have inflatable sleeves or boots placed on your legs to help prevent blood clots. These should be worn whenever you are in the hospital bed after surgery.
- ☑ May also receive a blood thinner shot in the abdomen to help prevent blood clots.
- ☑ Will resume your home medications (with the exception of some diabetes, blood pressure, and blood thinning medications).
- ☑ Will get up and out of bed after your surgery, with help from the nurse.
- ☑ May still have a catheter in your bladder. The catheter will be removed once you are allowed to get out of bed. This is usually either the day of surgery or the day after your surgery.
- ☑ Will use your sterile saline nasal spray every hour you are awake for 2 weeks. (See following page for more information).
- ☑ Will use your Afrin nasal spray 2 times a day (every 12 hours) for 3 days or 6 doses. After the 6th dose, you will throw this away as it can cause rebound congestion.

☒ Nasal Sprays and Rinses

Nasal Sprays



- ☒ Your nasal sprays are very important. They keep the crusty build up out of your head which can lead to worsening headaches, congestion and/or infection.
- ☒ Please use them as directed for the entire time they are prescribed.
- ☒ You will begin using sterile saline nasal spray the day of surgery.
You will use it every hour you are awake for 2 weeks.

☒

NeilMed® Sinus Rinse

- ☒ This may start the day after surgery or several days after surgery.
- ☒ The doctors will let you know when to start the Neil Med sinus rinse.
- ☒ You will use the rinse 3 times a day for 2 weeks and then 2 times a day for 3 months.
- ☒ Directions for use are listed in Section 3.



Afrin Nasal Spray

- ☒ This will start the day of surgery.
- ☒ You will use this 2 times a day (every 12 hours) for 3 days or 6 doses.
- ☒ After the 6th dose, you will throw this away as it can cause rebound congestion.

Notes: _____

Pain control following surgery

Managing your pain is an important part of your recovery. It is normal for you to have some pain for a few days after surgery. The goal is to lower the pain so that you can comfortably walk and take deep breaths effectively. We will ask you regularly about your level of comfort.

One way your care team will help you safely control your pain after surgery is by using non-opioid medications during your recovery. The goal is to use as little opioid medication as possible to control your pain. If you need stronger pain medication, it is OK. You should let your surgeon know if your pain is worsening and it is not relieved with any medication.

You will get several *non-opioid* pain medications around-the-clock to keep you comfortable. These will include:

- ☑ **Tylenol (acetaminophen)** – to relieve pain and reduce fevers.
- ☑ **Advil or Motrin (ibuprofen)** - to decrease swelling and pain after surgery. These medications are known as NSAIDs and are safe for short-term use after surgery (unless you had a gastric bypass).
- ☑ **Ketoralac**- to relieve pain. This will be given by mouth and by IV after your surgery (you will not take this if you have any renal (kidney) problems).

You may also have *opioid* pain medication as needed for additional pain.

- Opioids are powerful pain medications, with many serious side effects. Opioids (usually **oxycodone**) may be used after surgery only when needed for severe pain, but they should not be used first to treat mild or moderate pain.
- Side effects of opioids include nausea, constipation, dizziness, headache, drowsiness, vomiting, itching, and respiratory depression (slow breathing).
- Prescription opioid drug use may lead to misuse, abuse, addiction, overdose and death. Your risk of opioid abuse gets higher the longer you take the medication.
- If you have sleep apnea, no opioids will be prescribed due to the risk of respiratory depression (slow breathing).

If you are on long-standing pain medication prior to surgery, you will be provided with an individualized regimen for pain control with the assistance of our pain specialists.

Comfort Menu

Keeping you comfortable and controlling your pain are very important to us. As part of your recovery, we like to offer you different ways to address your pain. In addition to medication, we offer other options to help make you comfortable during your stay. We hope this comfort menu will help you and your healthcare team to better understand your pain and recovery goals. Please let your care team know if you would like to try any of these options to help address your pain and improve your comfort. If you need additional items or have any questions, please ask.



- ☐ **Distraction:** focus your mind on an activity like creating art with our art supplies, doing puzzle books and reading magazines
- ☐ **Ice Therapy:** ice packs are available.
- ☐ **Noise or Light Cancellation:** an eye mask, earplugs and headphones are available for your comfort and convenience. We can also help you create a sleep plan.
- ☐ **Pet Therapy:** hospital volunteers visit the unit with therapy animals. Ask about their availability.
- ☐ **Positioning/Movement:** changing position in your bed/chair or getting up to walk (with help) can improve your comfort.
- ☐ **Prayer and Reflection:** connect with your spiritual or religious center of healing and hope through prayer, meditation, reflection and ritual. Also, ask about our chaplaincy services.
- ☐ **Controlled Breathing:** taking slow deep breaths can help distract you from pain you are feeling. This can also help if you are feeling nauseated (upset stomach).

Using the **4-7-8** technique, you can focus on your breathing pattern:

- Breathe in quietly through your nose for 4 seconds
- Hold the breath for 7 seconds
- Breathe out through your mouth for 8 seconds

- ☐ **Television Distraction:** we offer a relaxation channel through the UVA in-room television. Turn to channel 17.
- ☐ **Calm App:** for Android or iOS: if you have a smart device, download the free **Calm** app for meditation and guided imagery. You can find it by searching in the app store.



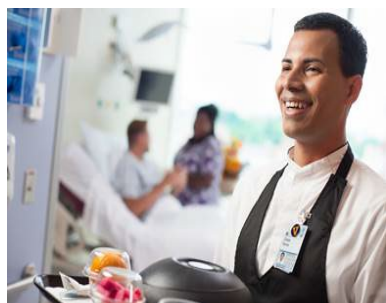
Bowel Management Plan:

Constipation is very common with the use of anesthesia and narcotic pain medication. It is very important to avoid constipation and hard stools after surgery. We have established a bowel management plan to prevent constipation. **We do not want you to strain for any reason after surgery.**

- You will be given a stool softener (**Senna**) and a laxative (**Miralax**) when you are in the hospital. As long as you are taking narcotics or are having any signs of constipation, you should continue the stool softeners.
- You can use Miralax or suppositories if you are constipated after discharge.
- If the stool softeners or Miralax do not help with your constipation after discharge, please call the pituitary office.

First Day After Surgery

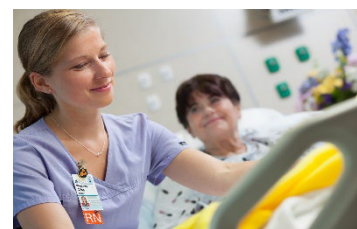
On the day after your surgery, you will:



- ☑ Be able to eat regular foods as soon as you are ready.
- ☑ Be encouraged to drink, if your sodium level is normal.
- ☑ Most likely have your IV stopped.
- ☑ Be asked to get out of bed, get dressed, sit in chair, and walk the hallways, with help from nursing staff.
- ☑ Use Afrin nasal spray every 12 hours. (Remember this is only used for 3 days or 6 doses).
- ☑ Use sterile saline nasal spray every hour you are awake. This helps to decrease nasal crusting.
- ☑ Use NeilMed® Sinus Rinse (If your doctor tells you to use). Use the rinse 3 times a day for 2 weeks and then 2 times a day for 3 months. (Directions found in Section 3).
- ☑ Prepare for discharge.

You will be able to go home when you:

- ☑ Are comfortable and your pain is controlled.
- ☑ Are off all IV fluids and drinking enough to stay hydrated.
- ☑ Are not nauseated and able to tolerate medications by mouth.
- ☑ Do not have a fever.
- ☑ Have stable or normal hormone and sodium levels.



REMEMBER: You will NOT be allowed to blow your nose for 6 weeks. You CAN wipe your nose, if needed. If you cough or sneeze, you MUST open your mouth.

Complications after surgery

Due to the way we perform the surgery, the sensitivity of the pituitary gland, and the potential for opening of the membrane containing cerebrospinal fluid (CSF), sometimes there are things that may happen after surgery. These may include:

Spinal Fluid leak: This can occur during surgery and, if it does, will be repaired while you are still in the operating room.

- Spinal fluid looks like water.
- A lumbar drain is occasionally placed to help manage a cerebrospinal fluid (CSF) leak. An extra day or two may be required in the hospital if you experience a spinal fluid leak during the operation.
- Even though the CSF leak was repaired during surgery, you are still at risk of developing a CSF leak after surgery.
- Most often, the CSF leak is apparent within the first 48 hours after surgery and is fixed before you go home.
- Diagnosing and treating a CSF leak after surgery will prevent you from developing meningitis. This is a **serious** infection. Patients with meningitis often will have a stiff neck, fever, clear drainage from the nose, nausea or vomiting, changing or worsening headache, or worsening vision. If you are experiencing any of these symptoms, you should call the pituitary clinic during the week and the resident on call during nights, weekends, and holidays.

Nosebleed: If you have a nosebleed that is a trickle and lasts less than 5 minutes, this is normal. In very rare cases, patients can have a heavy, constant, bright red nose bleed. If this happens, go to your nearest Emergency Department and call us on the way, if possible.

Sleep Apnea/ CPAP: If you have sleep apnea and are on home CPAP, we will ask you **NOT** to use the CPAP for two weeks after surgery. We will also not send you home with any narcotics because they can decrease your ability to breathe. After two weeks you can resume using your CPAP.

Sinus Infection: If you are having **thick, green drainage** with facial pain and a fever, please call the nurse coordinator (during the week) or the neurosurgery resident on-call (on nights, weekends and holidays).

Adrenal insufficiency: This occurs when the pituitary gland cannot stimulate the adrenal glands to make cortisol (the body's natural steroid).



If your blood cortisol **level is too low** after your surgery, you will be sent home with hydrocortisone.

- You should take this 2x daily until the Tuesday evening before your Wednesday follow-up appointment at 2 months after surgery. You should take the hydrocortisone Tuesday morning but none after that until after your post-op visit on Wednesday. You should bring the hydrocortisone with you to the appointment so that if you are feeling bad, you can take it as soon as the labs are drawn (after the appointment).
- If you have a 'sick day' (nausea/ vomiting, fevers, etc.), you will need to double your regular dose of hydrocortisone.

If your cortisol **level is normal** after surgery:

- You will NOT need to take hydrocortisone.

If you become adrenally insufficient after you leave the hospital:

- You will need hydrocortisone replacement
- Symptoms of adrenal insufficiency include fatigue, headache, and nausea.
- If you are experiencing any of these symptoms, you should call the pituitary clinic during the week and the resident on call during nights, weekends, and holidays.



If you have headaches; are lightheaded when standing; have nausea, stomach pains, severe fatigue, and/or are vomiting (flu-like symptoms) please call. This is a medical emergency. During the week, call the pituitary nurse coordinator at 434.982.3591. For nights, weekends and holidays, call 434.924.0000 and ask for the neurosurgery resident on-call.

Diabetes Insipidus: this happens when the pituitary gland does not make enough anti-diuretic hormone. This hormone helps control your urination. Without enough of this hormone, you will pee excessively, including at nights and have a great thirst.

- This is treated by giving you an anti-diuretic hormone replacement medicine called desmopressin or DDAVP.
- This does not usually delay hospital discharge.
- Please note – after your surgery, you will breathe through your mouth because of nasal congestion. This leads to a dry mouth, and as you drink more, you will urinate more as well. This does not mean that you have diabetes insipidus.



Syndrome of Inappropriate Antidiuretic Hormone Secretion (SIADH): this happens when the pituitary gland releases too much anti-diuretic hormone which causes the sodium level in your blood to drop. This condition is serious and symptoms include feeling ill, headaches, feelings nauseated, and/or decreased appetite. **If you have any symptom of SIADH, please call Dawn or Karen during the day or the neurosurgery resident on call at 434.924.0000 for nights, holidays or weekends. This needs to be diagnosed and treated quickly.**

- This is treated with strict fluid restrictions.
- This can delay hospital discharge.
- SIADH usually happens 7-10 days after surgery but it can happen sooner.
- The post-op lab orders will be given at discharge. If you do not have the orders, please call Dawn at 434.982.3591 and she will fax the orders to the lab of your choice. The results will be faxed to Dawn, who will call you with any abnormal values.
- All patients should get a sodium level checked 7-10 days after surgery with results sent to the Pituitary Clinic. This can be checked at any local lab. Hospital outpatient labs are preferred.

Discharge

Before you are discharged, you will be given:



- ☐ A copy of your discharge instructions.
- ☐ A list of any medications you may need.
- ☐ Prescriptions for any medications prescribed while you were admitted and for pain medication.
- ☐ Instructions on when to return to the pituitary clinic.
Please write these in the boxes on page 5.
- ☐ The post-op lab orders

Before you leave the hospital

- ☐ We will ask you to identify how you will get home.
- ☐ We will ask who will stay with you.
- ☐ Be sure to collect any belongings that were stored in “safe keeping.”

Our Case Managers help with discharge needs. Please let us know the names, locations, and phone numbers of:

- ☐ Your home pharmacy:

- ☐ Your home healthcare agency (if you have one):

- ☐ Any special needs after your hospital stay:

(this page intentionally left blank)

After Discharge

When to Call

Complications do not happen very often, but it is important for you to know what to look for and who to call in case you start to feel bad.



Red Zone: Medical Emergency– **Call 911 or get to the nearest Emergency Department**

- Bright Red Blood gushing from your nose
- Unresponsive

Yellow Zone: Worsening Symptoms – during the week, call the pituitary nurse coordinator at 434.982.3591. For nights, weekends and holidays, call 434.924.0000 and ask for the neurosurgery resident on-call

- Temperature over 100.4 °F
- Clear dripping from your nose (constant like a faucet)
- Green or cloudy drainage from your nose
- Odor or bad taste
- No bowel movement in 3 days
- You are vomiting, nauseated or have diarrhea
- Decreased appetite
- You are feeling faint
- Severe fatigue
- You have a change in your mental status
- You are feeling weaker instead of stronger
- You have a changing or worsening headache
- You have visual changes such as double vision, blurred vision or loss of vision
- You have a stiff neck (unable to touch your chin to your chest without pain)



Green Zone: Symptoms are under control

- Mild constipation
- Blood tinged or yellowish drainage from your nose



If you any have trouble between 8am and 4:30pm, **please call the Pituitary Clinic at 434.982.3591**. After hours, please call the UVA Main Hospital at 434.924.0000 and ask for the neurosurgery resident on call.

Infection

- Signs of infection are listed in the **Yellow Zone** on the previous page.
- If you have a fever over 100.4 °F you need to call the Pituitary Clinic at 434.982.3591. They will assess you and give you instructions.

Dry Mouth

- Biotène® Dry Mouth Oral Rinse helps to manage dry mouth symptoms.
- You can use Biotène® Dry Mouth Oral Rinse up to 5 times a day.

Directions:

1. Use one tablespoon of Biotène® Dry Mouth Oral Rinse
 2. Rinse for 30 seconds
 3. Spit out
- Sour candy or gum also helps to stimulate saliva production.



Pain

You **will** alternate acetaminophen and ibuprofen for improved pain control. Take over-the-counter medications as prescribed.

If you have no renal (kidney) problems, you may be given ketorolac for pain. **You CANNOT take ibuprofen, Advil, or other NSAIDS with ketorolac.**

Additionally, we may send you home with a prescription for an opioid pain medication to use for severe pain only. If you would like this filled at the hospital pharmacy, please tell your nurse so it will not cause delay in your discharge home.

Since opioid pain medications can often cause nausea, you should take this medication with a small amount of food.

Your health care team will work with you to create a treatment plan based on the medications you are prescribed. It's important to remember that misuse of opioid pain medicines is a serious public health concern. If you take more of your opioid pain medication than was prescribed or more often than what was prescribed, you will run out of your medication before your pharmacy will allow a new prescription to be filled. Virginia has a Prescription Monitoring Program for these types of medications to help keep patients safe.

Ask your health care team if you have specific questions.



Pain Medication Weaning

After surgery, you *may* be taking an opioid medication to help you with your pain. As your pain improves, you will need to wean off your opioid pain medication. Weaning means slowly reducing the amount you take until you are not taking it anymore. You may find that the pain is well controlled by other medications like NSAIDs (ex: ibuprofen and Tylenol).



Taking opioids may not provide good pain relief over a long time and sometimes opioids can cause your pain to get worse. Opioids can have many different side effects including constipation, nausea, tiredness, and even dependency. The side effects of opioids increase with higher doses. Gradually weaning to lower doses of opioid pain medication can help you feel better and improve your quality of life. If you are not sure how to wean off of your opioid medication, please contact your family doctor.

To wean from your opioid, we recommend slowly reducing the dose you are taking. For example, increase the amount of time between doses. If you are taking a dose every 4 hours, extend that time:

- Take a dose every 5 to 6 hours for 1 or 2 days
- Then, take a dose every 7 to 8 hours for 1 or 2 days.

You can also reduce the dose.

- If you are taking 2 pills each time, start taking 1 pill each time. Do this for 1 or 2 days.
- Then, increase the amount of time between doses, as explained above.

Once your pain has improved and/or you have effectively weaned off opioids, you may have opioids remaining. The **UVA Pharmacy** is now a **DEA registered drug take-back location**. There is a Drop Box available in the main lobby of the pharmacy 24 hours 7 days per week for patients or visitors to safely dispose of unwanted or unused medications.

Remember to Use Your Nasal Saline Rinses (Irrigations) after Discharge

Nasal Sprays

- ✓ Your nasal sprays are very important.
- ✓ They keep the crusty build up out of your head, which can lead to worsening headaches, congestion and/or infection.
- ✓ Please use them as directed for the entire time they are prescribed.
- ✓ You will begin using sterile saline nasal spray the day of surgery.
- ✓ You will use it every hour you are awake for 2 weeks.



Afrin nasal spray



- ✓ This will start the day of surgery.
- ✓ You will use this 2 times a day (every 12 hours) for 3 days or 6 doses.
- ✓ After the 6th dose, you will throw this away as it can cause rebound congestion.

NeilMed® Sinus Rinse

- ✓ This may start the day after surgery or several days after surgery.
- ✓ The doctors will let you know when to start the Neil Med sinus rinse.
- ✓ You will use the rinse 3 times a day for 2 weeks and then 2 times a day for 3 months.



Notes: _____

Directions for NeilMed® Sinus Rinse

1. Please wash your hands before handling the bottle.
2. Fill your NeilMed® rinse bottle with 8oz of warm water.

KEY: The water you use is important. Please use sterile or distilled water. You can also boil your home water for 5 minutes and then let it cool to body temperature. Cooling the water to room temperature is critical. Please do not use tap or faucet water when using NeilMed® nasal wash devices unless it has been boiled and cooled down to room temperature. See below for further instructions.

3. Add NeilMed® packet to rinse. If you prefer to make your own salt solution, the recipe should be: $\frac{1}{4}$ tsp of kosher or sea salt, $\frac{1}{4}$ tsp baking soda and 8oz of water.
4. Tighten the cap on the bottle securely. Place one finger over the tip of the cap and shake the bottle gently to dissolve the mixture.
5. Standing in front of a sink, bend forward and tilt your head down. Keeping your mouth open without holding your breath, put the cap against your nasal passage. Squeeze the bottle gently until $\frac{1}{2}$ (120mL) of the bottle is used. Expect that solution will drain from the opposite nasal passage or from your mouth. Try not to swallow the salt solution. Some people find it easier to do this while in the shower.
6. Repeat for other nasal cavity (120mL).
7. Following your rinse, tilt your head to the side and forward. Remember that your cheek sinuses are like bowls, so by tilting to the side and forward, residual solution may flow out of that sinus. Repeat for other side. If any solution has reached the back of your throat, it is safe to spit this out. Sometimes, it's helpful to wait 15-20 minutes to do this a second time to clear everything out.
8. Use the NeilMed® Sinus Rinse 3 times per day for 2 weeks and then 2 times per day for 3 months. This is in addition to your saline nasal spray.
9. If you have been prescribed a nasal steroid, use it 30 minutes after your saline sinus rinse is completed.



*If you develop pain in your ears from rinsing, this usually means that you are rinsing too forcefully and should squeeze the bottle more gently, or apply a lighter, pulsating force.

*Do not be alarmed if excess rinse drains from your nose later on after rinsing (from 15 minutes to 2 or more hours).

Cleaning Directions (recommended after each use of the product):

1. Rinse the cap, tube and bottle using running water. Fill the bottle with previously boiled, distilled or drinkable water.
2. Add a few drops of dishwashing liquid or baby shampoo.
3. Attach the cap and tube to the bottle; hold your finger over the opening in the cap and shake the bottle vigorously.
4. Then squeeze the bottle hard to allow the soapy solution to clean the interior of the tube and the cap and empty out the bottle completely.
5. Using a bottle and nipple brush, scrub the bottle, cap and tube thoroughly. (Available at general merchandise or baby supply stores.)
6. Rinse the soap from the bottle, cap and tube thoroughly, and place the items on a clean paper towel to dry.



How to take care of your nasal bottle:

It is important to **STERILIZE** your rinse bottle at least 3 times per week. Sterilizing your bottle helps to prevent bacteria from growing inside of it which can cause an infection or congestion.

- ☑ To **STERILIZE** your bottle, either microwave your bottle for 2 minutes or wash it in the dishwasher on the top shelf.
- ☑ Look at the bottle and tube regularly for any cracks or changes in color.
- ☑ If there are any signs of deterioration or permanent color changes, please clean thoroughly.
- ☑ If the color changes remain after cleaning, discard the items and purchase new ones.



You only need to replace your rinse bottle if it gets damaged or if you develop a sinus infection. New rinse bottles and boxes of additional salt packets are available over-the-counter in the sinus and allergy section at most local grocery stores and pharmacies. Supplies can also be purchased online.

Hobbies and Activities

Walking is encouraged from the day following your surgery. Start slowly and give your muscles time to warm up before starting any activity. Remember to use caution as you resume your previous activities for 6 weeks.

You CAN:

- ☒ Walk three or four times daily
- ☒ Take a shower and put your head under the stream of water.
- ☒ Use the saline nasal spray and Neil Med sinus rinse as directed.



You CANNOT:

- ☒ Run, ride bikes, lift weights or anything that will put pressure on your head while you are recovering from surgery.
- ☒ Blow your nose for 6 weeks. Wiping is ok. *If you need to cough or sneeze, open your mouth so that the pressure goes out.*
- ☒ Lift more than 10 pounds for 2 weeks after surgery and nothing more than 25 pounds for 4 additional weeks.
- ☒ Submerge your head for 8 weeks (i.e. swimming, bath).

Work

You should be able to return to work 4–6 weeks after your surgery. You will have lifting and bending restrictions for 6 weeks. If you need a “Return to Work” form for your employer or disability papers, ask your employer to fax them to our office at 434.924.5894.

Driving

You should not drive for at least 2 weeks after surgery and not until you are off pain medications. You can ride in a car after surgery. If you had vision problems before surgery, make sure your vision is checked before you drive. Follow up with your optometrist or ophthalmologist.

Follow-up appointments

Please refer to the appointment page located in section 1 of this handbook and your checklist.

Nasopharyngeal Swabs

- ☑ Please be aware that we ask that following your transsphenoidal surgery that you **DO NOT** obtain NASOPHARYNGEAL (through the nose) testing for COVID 19.
- ☑ Always reach out to us if you are being asked to have any testing through your nose as we can let you know if this is safe. This is important because there is a risk of injuring your surgery site.
- ☑ You may obtain oral testing (swab of the throat) for COVID 19 instead.
- ☑ Please reach out to our office if you have any questions or concerns or if you ever require documentation for this request.



It is very important to remember, after this surgery, you should **NOT** have any nasal swabs done for testing. You should have oral testing, if needed, after this surgery.

Write any questions you have here:

(this page intentionally left blank)

Skull Base Surgery Pathway: The Patient's Checklist

GOAL: Safe transition from hospital to home or next care setting through learning basic knowledge of postoperative care and monitoring.

	Actions	Check when complete
Actions	Plan for your care after hospital discharge. If possible, identify someone to stay with you the first week after discharge to help take care of you. You cannot drive for 2 weeks after your surgery. You will need someone to drive you to the lab 7-10 days after surgery.	
Medications	Make an updated list of your medications. Include all prescriptions, over the counter medications and supplements including herbals.	
2 weeks prior to surgery	Actions	Check when complete
Actions	You may have any appointment with the Preoperative Anesthesia Clinic.	
Medications	Stop taking any vitamins, supplements, and herbs 2 weeks before your surgery including Vitamin E, fish oil, flaxseed, and OTC supplements. See list in section 1 of your handbook.	
Medications	If you are on any blood thinner medications, follow any specific instructions that your nurse gave you regarding if and when to stop taking them before your surgery. If you have any questions, call your surgeon's office.	

Week prior to surgery	Actions	Check when complete
Actions	Pack your hospital bag.	
Actions	Prepare your home: place things in easy to reach places, clean bed linens, and buy foods that you can prepare after surgery, etc.	
Medications	Stop taking ibuprofen (Motrin® or Advil®), naproxen (Aleve®) and aspirin-containing medications 1 week before surgery. Tylenol is safe to use. Refer to page 13.	
Medications	Starting three days before surgery , take a dose of Miralax to help regulate your bowels. This is easiest taken in the late afternoon or early evening.	☐ Day 3 before ☐ Day 2 before ☐ Day 1 before
Actions	Purchase the following items to have at home. ☐ Tylenol (acetaminophen) 325mg tablets (for pain) ☐ Advil/ Motrin (Ibuprofen) 200 mg tablets (for pain) ☐ Miralax (polyethylene glycol) powder (for constipation) ☐ Colace (docusate sodium) 100mg tablets (stool softener) ☐ NeilMed Sinus Rinse (bring this with you to the hospital) ☐ Biotene Mouth Rinse (for after surgery)	

Morning of Surgery	Action	Check when complete
Medications	Take any medication you were instructed to take the morning of surgery.	
Diet	Do not eat the morning of surgery. Continue drinking clear liquids such as water, apple juice and Gatorade™ as directed by the phone call nurse. Drink your Gatorade™ before check in, then nothing more to drink. If you are diabetic, you may drink Gatorade™ G2 or Gatorade™ ZERO.	
Actions	Bring your NeilMed® Sinus Rinse	
Actions		
Actions	Bring an updated <u>list</u> of your medications. Do not bring your medications.	
Actions	Bring this ERAS handbook and this checklist in to the hospital with you when you check in for surgery.	

After Surgery	Action	Check when complete
Mobilize	You will get out of bed with assistance from nursing staff usually the day after surgery. You will also get out of bed and sit in the chair for meals.	
Pain management	Discuss with nurse what will be used to manage post-operative pain.	
Diet	You may have a regular diet as tolerated.	
Nasal Management	Nasal Sprays ☒ Your nasal sprays are very important. They keep the crusty build up out of your head which can lead to worsening headaches, congestion and/or infection. ☒ Please use them as directed for the entire time they are prescribed. ☒ <u>You will begin using saline nasal spray the day of surgery.</u> ☒ You will use it every hour you are awake for 2 weeks. NeilMed® Sinus Rinse ☒ This may start the day after surgery or several days after surgery. <u>The doctors will let you know when to start the NeilMed® sinus rinse.</u> ☒ You will use the rinse 3 times a day for 2 weeks and then 2 times a day for 3 months. Afrin® Nasal Spray ☒ <u>This will start the day of surgery.</u> ☒ You will use this 2 times a day (every 12 hours) for 3 days or 6 doses. ☒ After the 6th dose, you will throw this away as it can cause rebound congestion.	

Post-operative Day 1	Action	Check when complete
Mobilize	You will get out of bed with assistance and walk to the bathroom or in the hallway with nursing staff.	
Infection/ complication prevention	Identify signs and symptoms of infection and complications. Demonstrate knowledge of appropriate actions to take.	
Pain Management	Pain well-controlled on oral pain medications. Describe pain management plan for discharge.	
Nasal Management	☒ Use Afrin® nasal spray every 12 hours. (Remember only use for 3 days). ☒ Use saline nasal spray every hour you are awake. This helps to decrease nasal crusting. ☒ Understand how and when to use Neilmed® rinse (See section 5 in the handbook)	
Diet	Continue regular diet as tolerated. Will be encouraged to drink, if your sodium level is normal.	
Bowel Management	We do not want you to strain for any reason after surgery. You will be given a stool softener (Colace and Senna) and a laxative (Miralax) when you are in the hospital. As long as you are taking narcotics or are having any signs of constipation, you should continue the stool softeners.	

Discharge	Action	Check When Complete
Actions	Your care partner and responsible ride home will need to be at the hospital by 9AM the morning of your discharge. It is important that they are here to listen to discharge instructions and learn how to safely care for you at home. We aim to discharge by noon.	
Discharge Instructions	Verbalize understanding of signs and symptoms of a potential complication and what actions to take in the event of a complication.	
Discharge Instructions	Remember, you will NOT be allowed to blow your nose for 6 weeks. You CAN wipe your nose, if needed. You MUST sneeze or cough with your mouth open.	
Discharge Instructions	Instructions on when to return to the pituitary clinic. Please refer to the appointment pages in the first section of your handbook.	
Discharge Preparation	Ensure you have a ride home from the hospital, extra oxygen (if you need it), and all of your belongings that may have been stored in “safe keeping” during your hospital stay.	
Nasal management	☒ Nasal Sprays- You will use it every hour you are awake for 2 weeks._ ☒ Use Afrin® nasal spray every 12 hours. (Remember only use for 3 days). ☒ Understand when and how to use NeilMed® . <u>This may start the day after surgery or several days after surgery.</u> The doctors will let you know when to start the Neil Med sinus rinse. ☒ You will use the rinse 3 times a day for 2 weeks and then 2 times a day for 3 months. ☒ See Section 5 for directions	

Follow-up appointments	Action	Check When Complete
Actions	We will set up a follow-up appointment for you where we will do a new MRI test, full blood work, and a visit with both the endocrinologist and the neurosurgeon all on the same day.	
Results	The results of your post-operative MRI will be discussed with you. Your endocrinologist will follow-up with you to discuss the results of your blood work and any changes in medications if needed.	
ENT	You may need to see the ENT before your 8 weeks follow up appointment and will be given that appointment at discharge	
Hydrocortisone	☒ If you were started on hydrocortisone during your hospital stay, DO NOT take any for 24 hours before your follow-up appointment and none the morning of the appointment. ☒ Bring the medication with you to the appointment and we will check your cortisol without the hydrocortisone in your system to see if you can stop taking this medicine. ☒ Please call your endocrinologist with any questions.	
Hydrocortisone	If you were taking hydrocortisone before surgery , you may not need to stop taking your hydrocortisone before your follow up appointment. We will discuss this with you after your surgery.	
Vision	☒ If you had visual problems before surgery, please see your ophthalmologist 1 to 2 weeks before your return to our clinic to have formal visual field testing completed. ☒ Bring these results with you to your appointment or have them faxed to our office at 434.924.5894.	