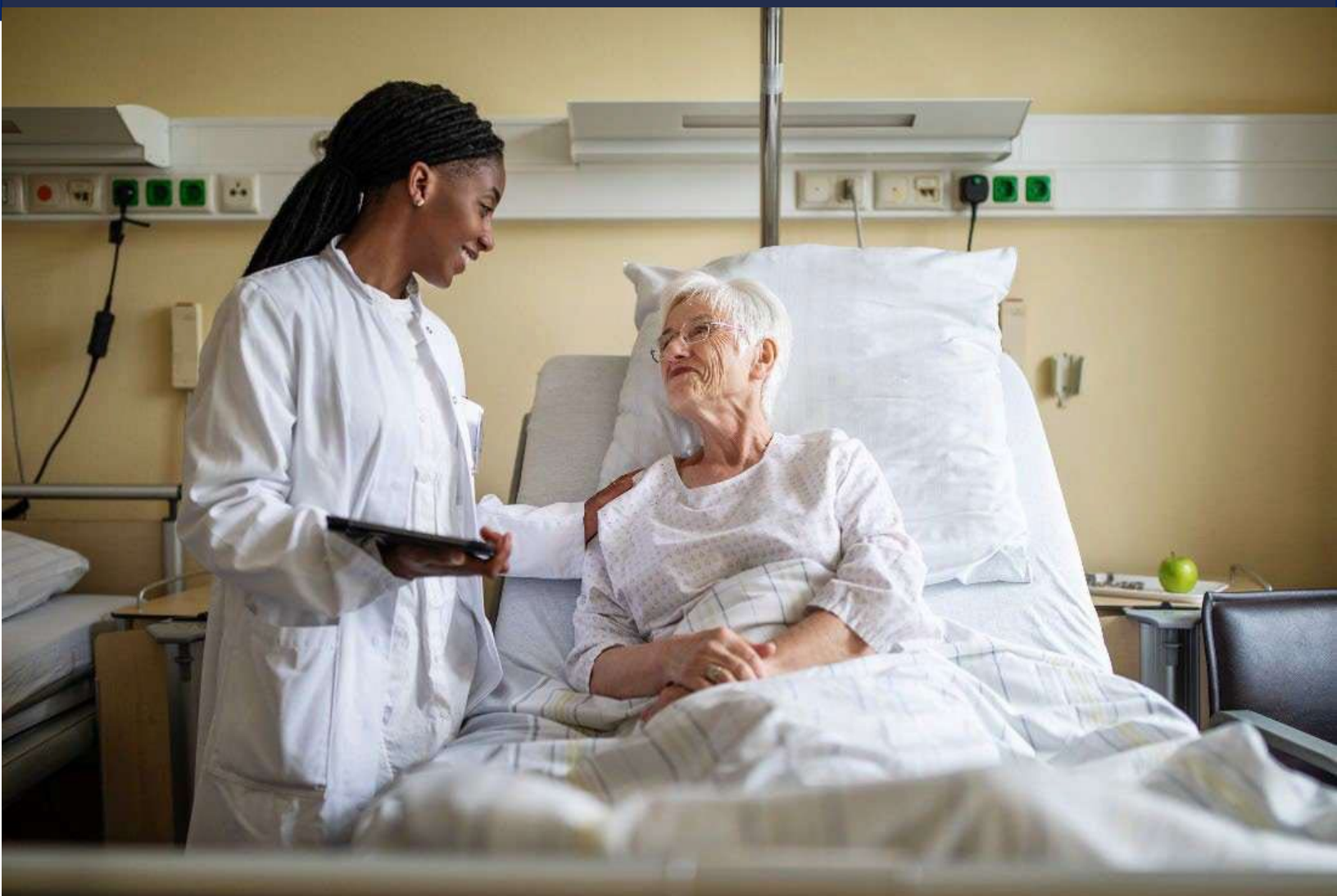
Percutaneous Nephrolithotomy (PCNL)

Enhanced Recovery After Surgery (ERAS)

Your Guide to Healing

UVA Health
University Medical Center



_____

Patient Name

_____

Surgery Date/Time to Arrive

_____

Surgeon

We want to thank you for choosing UVA Health for your surgery. Your care and well-being are important to us. We are committed to providing you with the best possible care using the latest technology.

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.

Please bring this book with you to:

- ❒ Every office visit
- ❒ Your admission to the hospital
- ❒ Follow up visits

Contact Information

Main Hospital Address:
UVA Health
1215 Lee Street
Charlottesville, VA 22908

Outpatient Surgery Center:
Battle Building
1204 West Main Street
Charlottesville, VA 22903

Contact	Phone Number
Urology Clinic at Fontaine	434.924.2224
Fontaine Clinic Fax	434.297.6555
Urology Nurse Care Coordinator	434.243.0755 (phone) 434.244.9481 (fax)
Interventional Radiology	434.924.9401
Preoperative Anesthesia Clinic	434.924.5035
If no call received by 4:30pm the day before surgery, please call	434.924.5035
2 North (Surgical Observation Unit)	434.320.3967
5 Central	434.924.5238
PACU Extended Stay	434.924.5386
Main Hospital	434.924.0000 (ask for Urology resident on call)
Discharge Lounge	434.243.7068
MyChart Assistance	434.282.1749
Lodging Assistance	434.924.1299
Parking Assistance	434.982.1600
Interpreter Services	434.982.1794
Patient and Guest Services	434.956.6789

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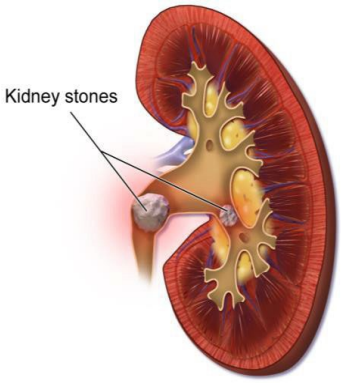


What are kidney stones?

Kidney stones are hard, rock-like crystals that form in the kidneys when pee becomes too concentrated. They can be as small as a grain of sand or as big as a golf ball. Kidney stones may remain in the kidney or pass into the ureter (a tube) to the bladder then out the urethra (pee tube). If the stone gets stuck in the kidney or ureter, causing a blockage, this can cause pain.

What symptoms are associated with stones?

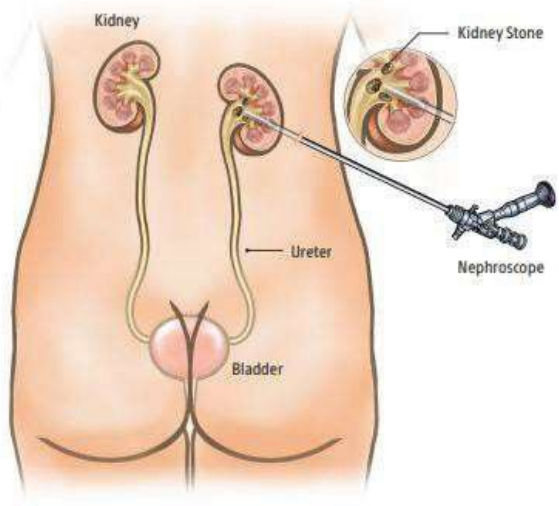
Some patients may not have symptoms. However, when stones block the urine flow between the kidney and bladder, it can cause pain. Pain is often felt along the sides between the ribs and hip and lower abdomen or groin. Other common symptoms are blood in urine, feeling of intense need to pass urine, nausea, and vomiting.

How are stones diagnosed?

Image testing is done to confirm stones, the number of them, location, and size of stones. An abdominal x-ray and/or kidney ultrasound or non-contrast CT of the abdomen are most commonly used.

Treatment

Given the size of your stones and location of your stones, we recommend percutaneous nephrolithotomy (PCNL). It is a procedure used for patients with larger stones or difficult anatomy. A small cut is made in your back for direct access to the kidney. From there the stone can be broken apart and removed. It has the highest success rates for stone removal. Complications may include: pain or discomfort in the lower abdomen and back, bleeding/blood in the urine, injury to the kidney or any of the surrounding structures.



www.mykidneystone.com

Enhanced Recovery After Surgery (ERAS)

What is Enhanced Recovery After Surgery?

Enhanced recovery is a program designed to help patients, who need major surgery, feel better faster. ERAS helps patients recover quickly so they can get back to normal life as soon as possible. The ERAS program focuses on making sure patients play an active role in their recovery.

There are 4 main stages in the ERAS program:

1. **Planning and preparing before surgery –** Giving you all the information you need so you feel ready.
2. **Reducing the stress of the surgery** – Allowing you to drink fluids up to 2 hours before your surgery.
3. **Pain relief plan** – Making sure you get the right medicine to stay comfortable during and after surgery.
4. **Getting up and moving after surgery** – Helping you get out of bed and walk as soon as you can.

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

You should actively take part in your recovery and follow the ERAS program. By working together, we hope to make your hospital stay as short as possible and help you heal quickly.

Before your Surgery

Clinic

During your clinic visit, we will see if you need surgery and what kind of surgery it will be. You will work with our whole team to get ready for the surgery.

Our team is made up of:

- The Surgeons, who may have Fellows, Residents, or medical students working with them
- Nurse Practitioner (NP)
- Physician Assistant (PA)
- Nurse Coordinator (RN)
- Clinic Nurses
- Schedulers
- Administrative assistants

During your clinic visit, we may:

- Ask questions about your medical history
- Perform a physical exam
- Ask you to sign the surgical consent forms

You will also receive:

- Instructions on how to get ready for surgery
- Special instructions if you take blood thinners
- Instructions on quitting smoking if you smoke
- Special antibacterial soap to use when you shower the night before and the morning of surgery

Over the Counter Medications to Stop Prior to Surgery

- Stop taking any vitamins, supplements, and herbs 2 weeks before your surgery
- Stop taking ibuprofen (Motrin® or Advil®) and naproxen (Aleve®) 1 week before surgery
- Aspirin: Stop one week before surgery; resume 48 hours after
- You may continue to take acetaminophen (Tylenol®)

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 in-person or tele-med appointment will be scheduled for a visit a few weeks before your surgery.
- Your medications will be reviewed.
- You may have a blood test, test of the heart (EKG), and/or other tests the surgeon or anesthesiologist requests.
- **For questions, or if unable to keep the appointment with Preoperative Anesthesia Clinic, please call 434.924.5035**. Failure to keep this visit with the preoperative Anesthesia Clinic before surgery may result in cancellation of surgery.

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.

Do you take anticoagulant/antiplatelet (blood thinner) medication?

If so, you will need to notify the doctor that prescribed it to you and let them know you will be having surgery. It is the prescribing provider's responsibility to provide instructions for how long you can safely be off this medication. Please be sure that your surgeon is aware as well.

☐ Instructions for _____

☐ Your last dose of blood thinning medication before surgery should be on:

_____

☐ We are recommending a bridge of this medication. Please refer to you After Visit Summary (AVS) for specific instructions about this medication.

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 HEALTY

Preparing for Surgery

You should expect to be in the hospital for **1 day**. When you leave the hospital after your surgery, you will need some help from family or friends. It will be important to have help with meals, taking medications, etc. If possible, identify someone to stay with you the first week after discharge to help take care of you.

You can do a few simple things before you come into the hospital to make things easier for you when you get home:

- ☑ Wash and put away laundry.
- ☑ Put clean sheets on the bed.
- ☑ Put the things you use often between waist and shoulder height to avoid having to bend down or stretch too much to reach them.
- ☑ Bring downstairs the things you are going to use often during the day. Remember, you WILL be able to climb stairs after surgery though.
- ☑ Buy the foods you like and other things you will need since shopping may be hard when you first go home.
- ☑ Arrange for someone to get your mail and take care of pets and loved-ones, if necessary.
- ☑ Eat healthy food before your surgery - this helps you to recover faster.
- ☑ Get enough exercise so you are in good shape for surgery.

Over the counter medications we recommend you have at home after surgery:

- Acetaminophen (Tylenol) 325 mg (for pain)
- Ibuprofen (Advil/Motrin) 200 mg (for pain)
- Miralax powder or Senna and Probiotics (for constipation)

Pre-Surgery Checklist

What you SHOULD bring to the hospital

- ☐ A list of your current medications. Please leave your medications at home. 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
- ☐ Your CPAP or BiPAP, if you have one

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 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.

Identify a Care Partner

Healing happens best when you have the comfort of a familiar face nearby. That's why we welcome a family member or trusted friend to serve as a Care Partner.

A patient can name 1-2 adults as Care Partners.
The Care Partner can:

- ❒ Receive patient status updates over the phone.
- ❒ Serve as an active member of the healthcare team, helping to manage the patient's care.
- ❒ Learn to perform daily care tasks from the nursing staff.
- ❒ Feel empowered to ask questions of the providers and staff and help facilitate communication between the patient and the healthcare team.

- ❖ 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' need for rest or private time with their families. Also make sure that nurses and doctors can move freely around the bedside to provide care.

Being a Care Partner does not designate them as the patient's legal decision-maker or allow them to sign consent forms for the patient.

The Care Partner will be given a security code and an identification band. The code allows staff to give information and updates over the phone. Do not share the code or the status updates with anyone other than the designate Care Partner, including friends or family. The Care Partner identification band should be worn at all time.

Days Before Surgery

Scheduled Surgery Time
Please write the surgery date and arrival time on the first page of this notebook for easy access.

If your surgery is in the Main Hospital:
A nurse will call you the day prior to surgery and 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 4:30pm, please call 434.924.5035.

If your surgery is in the Outpatient Surgery Center:
A nurse will call you approximately 2 days prior to surgery and tell you what time to arrive at the hospital for your surgery.

If you do not receive a call by 4:30pm the day before your surgery, please call 434.924.5035.

Eating and Drinking the Day Before Surgery

- ❒ You may eat and drink normally until midnight, unless instructed differently by your surgeon.
- ❒ After midnight, you may only have water and a 20-ounce Gatorade until the time you are told by the phone call nurse.
- ❒ Have a 20-ounce Gatorade ready for the morning of surgery. Drink this the morning of surgery and complete at the time instructed by the phone call nurse.
- ❒ **Follow the instructions from the phone call nurse.**

Day of Surgery

Before you leave for the hospital

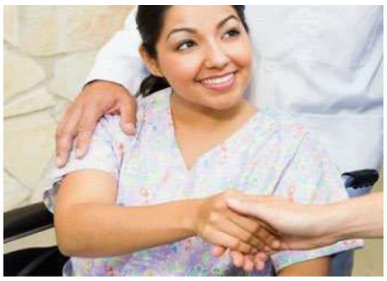
- Remove nail polish, makeup, jewelry, all body piercings.
- Remember to brush your teeth.
- Drink water or 20 ounces of Gatorade™ on the morning of your surgery and finish at the time instructed by the phone call nurse.
- Do NOT drink any other liquids. If you do, we may have to cancel surgery.

Hospital arrival

- Arrive at the surgery location on the morning of surgery at the time you wrote down on page 1. This will be approximately 2 hours before surgery.
- Check in at the location 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 Surgical Admissions Suite (SAS)/preop area.



In SAS, you will:

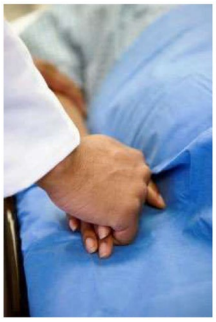
- Be identified for surgery and get an ID band for your wrist.
- Be checked in by a nurse and asked about your pain level.
- Be given an IV and be weighed by the nurse.
- Talk with someone from the surgical team who will make sure all of your questions are answered and review the consent form.
- Meet the Anesthesia team. The Anesthesia doctors may offer you a numbing medication injection into the region of the back where your surgery will be performed. This helps with pain reduction during and after surgery.
- Be given oral medicines that will help keep you comfortable during and after surgery.

In the Operating Room

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

The surgery itself will last 1.5-2 hours, but to you it will feel like only a few minutes have passed when you wake up in the recovery room. Some 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 lie down on the operating room bed.
- ✓ You will be hooked up to monitors.
- ✓ Boots will be placed on your legs to help prevent blood clots.
- ✓ We will give you antibiotics, if needed, to prevent infection.
- ✓ Then the anesthesiologist will put you to sleep with a medicine that works in 30 seconds.
- ✓ Just before starting your surgery, we will do an additional "time out" to confirm the location of your surgery.

During surgery, the Operating Room team will contact (call or text) your family every 2 hours to update them.

After Surgery

Recovery Room (PACU)
After surgery, you will be taken to the recovery room. Most patients remain in the recovery room for about 2 hours. The staff in the family lounge will tell your family where you are located so they can join you when you are ready for visitors.

- ❒ You may have blood work drawn.
- ❒ You may also get an X-ray of your chest. This helps to evaluate if there is any injury to the lung as the kidney is close to the lung.
- ❒ You will have a catheter in your bladder and possibly tubes coming out of your back to drain your kidney. Your nurse will help empty these a few times per day while you are in the hospital.

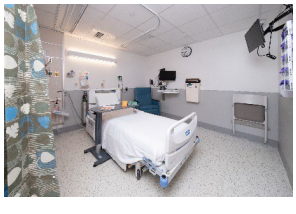
Once you are awake:

- ❒ You will get out of bed (with help) to start moving assoon as possible. This will speed up your recovery and prevent you from getting blood clots or pneumonia.
- ❒ The surgeon will also call your family after surgery to give them an update.

From the recovery room, you will either transfer to a second recovery area where you will prepare to go home or you will transfer to a new unit where you will continue to recover during your hospitalization.

Extended Stay Unit (Phase 3 PACU)
You will be brought to the Extended Stay Unit if your surgeon plans to send you home the same day or the next morning. Typically, patients sent to the Extended Stay Unit will be sent home within 24 hours of surgery.

Surgical Observation Unit
You will be brought to the Surgical Observation Unit if your surgeon plans to send you home 1-2 days after surgery. You will have a private room with access to shared hallway bathrooms.



Hospital Inpatient Unit

Our hospital surgical units offer a mix of private and semi-private rooms for recovery. Sometimes, it can take more than 2 hours to get a room if the hospital is full and patients need to be discharged to make room for new patients. The staff in the family lounge will tell your family your room number so they can join you.

Once to your room, you will:

- ❒ Be given oxygen and have your temperature, pulse, and blood pressure checked after you arrive.
- ❒ Have an IV in your arm to give you fluid and medications.
- ❒ Will be able to have clear liquids. Medicines required for the surgery make some people nauseous. If you are not having nausea, you will be able to have solid food.
- ❒ Be given an incentive spirometer (a lung exerciser). We will ask you to use it 10 times an hour to keep your lungs open.
- ❒ Be placed on your home medications, as appropriate.

From any of these areas, you will be discharged once:

- ❒ Your pain is controlled.
- ❒ You are eating and drinking.
- ❒ You can pass urine.
- ❒ You can move as you did prior to surgery.
- ❒ You have someone to pick you up and stay with you.

Your Care Team

In addition to the nursing staff, the Urology team will care for you.

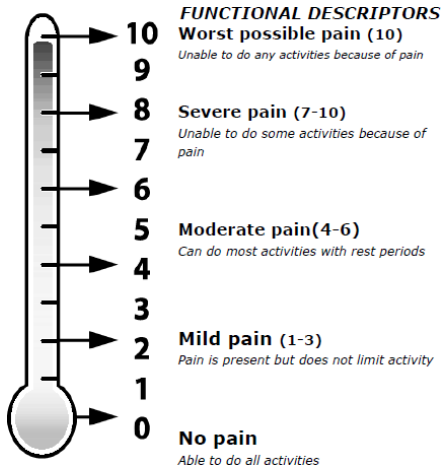
This team is led by your surgeon, and includes a fellow or a chief resident along with residents, 1-2 medical students, Nurse Practitioners, and Physician Assistants.

There will always be a physician in the hospital 24 hours a day to tend to your needs.

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.

We will use many different types of pain medications during your recovery. The goal is to use as little narcotic medication as possible to control your pain. If you need stronger pain medication, it is OK. If your pain is worsening and it is not relieved with any medication, you should let your surgeon know.



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

Inpatient Expectations

First Day After Surgery

You will:

- ☑ Be asked to get out of bed with help, walk the hallways multiple times
- ☑ Be encouraged to drink clear fluids, try solid food
- ☑ Have your IV turned off but not removed
- ☑ Have your catheter removed

You may be able to go home if you:

- ☑ Are off all IV fluids and drinking enough to stay hydrated
- ☑ Your pain is well controlled
- ☑ Are not nauseated or belching (burping)
- ☑ Do not have a fever
- ☑ Are able to get around on your own

Remember, we will not discharge you from the hospital until we are sure you are ready. For some patients this requires an additional day in the hospital.

Discharge

Before you are discharged, you will be given:

- ☑ A copy of your discharge instructions
- ☑ A list of any medications you may need
- ☑ Instructions on when to return to see your surgeon in clinic (usually in 7-10 days to have the ureteral stent removed)

Before you leave the hospital

- We will ask you to identify how you will get home and who will stay with you.
- Help you collect any belongings that were stored in “safe keeping”.
- Teach you how to change your dressing for your wound.
- Teach you how to measure, empty, and clean your drainage tubes (if you go home with any).

Our Case Managers help with discharge needs. Please let us know the names of

Your home healthcare agency (if you have one)

_____

Any special needs after your hospital stay

_____

Your home pharmacy

_____

Meds to Beds Program is a free service for patients admitted to the hospital. If you choose to enroll you get medications delivered to your bedside before discharge so you won't have to stop at a retail pharmacy on your way home from the hospital.

Complications Delaying Discharge

Sometimes there are things that may happen after surgery which may keep you in the hospital longer. We do our best to prevent these from happening. These may include:

Post-Operative Nausea & Vomiting - After your surgery, you may feel sick to your stomach. This is common and we give you medication to help you feel better. The best way to avoid this from happening is to decrease the amount of narcotic pain medications you take, get up to walk as much as possible after your surgery, and eat small amounts of food and drinks. As long as you can drink and keep yourself hydrated, the stomach upset will likely pass.

Fever – After your surgery, we monitor you closely. Fevers can be a sign of infection. Kidney stones can harbor bacteria and sometimes removing the stones can give you an infection. If we are concerned about infection, you may need to stay longer to receive more antibiotics.

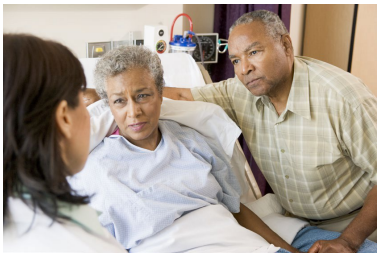
Bleeding –We monitor you closely to watch for any signs of bleeding.

Kidney injury –We need to make a hole in the kidney to remove the stones. We monitor your kidney function with blood work on the day of surgery and after surgery. Often this is a short-term change in your kidney function.

Lung injury – The kidney is located near the lung. Sometimes the hole we make in your back during surgery is close to the lung and causes air and fluid from surgery to get between the lung and the lining (pleura). If we are concerned for this then we get an X-ray of your chest, often in the recovery unit. If there is air or fluid in the chest, then we may need to call lung experts to place a tube to remove the air and fluid and to reinflate the lung.

Pneumonia – We encourage you to do deep breathing exercises to prevent pneumonia. Walking is the best exercise but using the incentive spirometer (lung exerciser) will also help to prevent pneumonia after surgery. It can be hard to take deep breaths after surgery, but this is very important.

Blood clots – Blood clots can be very dangerous. They can cause blockage or travel to other parts of the body. We encourage you to get up and walk around as much as possible to prevent blood clots from forming. While you are in the hospital, you will wear boots that squeeze your legs. We strongly recommend that you walk around as much as possible.



After Discharge

When to Call

Complications do not happen very often, but it is important for you to know what to look for if you start to feel bad.

After you leave the hospital, you should call us at any time if you:

- Have worsening or new pain unrelieved by pain medication
- Have back or flank (side) pain
- Have a fever greater than 101°F or shaking chills
- Are vomiting, nauseated and unable to keep liquids down
- Have frequent stools/diarrhea or stools that look lighter, or are abnormal in color
- Are unable to have a bowel movement for more than 3 days while using stool softeners and laxatives (Senna, Miralax, Milk of Magnesia)
- Have difficulty passing your urine, it becomes bloody (like ketchup) or cloudy, or you are passing blood clots
- Tubes (stents or nephrostomy tubes) that fall out early

Please call us if your surgical site:

- Becomes bright red and painful, or redness starts spreading
- Starts to drain infected material that is not clear yellow or light red/pink
- Releases cloudy or foul-smelling fluid
- Starts draining more than normal

Contact Numbers

If you have trouble or questions between 8:00am and 4:30pm, call the Urology nurse triage line at 434.924.9333.

After 4:30pm and on weekends, call the main hospital at 434.924.0000. Ask to speak to the Urology Resident on call. The resident on call is managing other patients in the hospital so please be patient and the resident will return your call as soon as possible.

Post Op Medications

We use multiple methods to help with your pain and other symptoms after surgery. Below are a few medications that we often prescribe. Your doctors will weigh your other medical conditions and kidney function to decide if all of the below medications are appropriate for you.

Take the **Pyridium (phenazopyridine)** as needed three times a day if you are having burning when passing urine. This will turn your urine orange.

Take **Flomax (tamsulosin)** to help with pain from the stent and to help pass small pieces of stone left over. Possible side effects may be lightheadedness, dizziness, semen going backwards into bladder instead of out tip of penis (retrograde ejaculation). Tell your eye doctor if you have taken this medication and have eye surgery coming up.

Take **Trospium (Sanctura)** as needed three times a day for bladder spasms (feeling like you need to urinate).

Take with a stool softener such as **Senna.** You should also take a laxative medication **(Miralax)** to help prevent constipation.

If you are given an **antibiotic** take for as many days as prescribed.

If you have normal kidney function, starting the third day after your surgery, you *will* alternate **Tylenol and ibuprofen (if you have normal kidney function)** for improved pain control. These medications work well together in different parts of the pain pathway. Ibuprofen especially helps with pain from inflammation after this surgery. For example:

- 6AM take acetaminophen 975 mg
- 9AM take ibuprofen 600 mg
- 12PM/noon take acetaminophen 975 mg
- 3PM take ibuprofen 600 mg
- 6PM take acetaminophen 975 mg
- Continue alternating acetaminophen and ibuprofen
- Do not exceed acetaminophen 4,000 mg (4g) in 24 hours

If you do not have normal kidney function, do not take ibuprofen. Only take acetaminophen. This is 975 mg every 6 hours. For example, you could take this at 6AM, 12PM/noon, 6PM and 12AM/midnight. Do not exceed acetaminophen 4,000 mg (4g) in 24 hours.
If you are able to take Ibuprofen, do not exceed 2400 mg in 24 hours.

Additionally, we *may* send you home with a prescription for a narcotic pain medication (oxycodone or dilaudid) to use for severe pain only. Since narcotic pain medications can often cause nausea, you should take this medication with a small amount of food.

Taking narcotics may not provide good pain relief over a long time and sometimes narcotics can cause your pain to get worse. Narcotics can have many different side effects including constipation, nausea, tiredness, and even addiction. Operating heavy equipment or driving is not permitted when using narcotic pain medications.

Prescriptions can be written for amounts not to exceed 7 days after surgery. There are now regulatory limits on the number and dose of medication that can be prescribed at one time. Medication refills may be requested Monday-Friday during business hours 8am to 4pm. Please allow 48 hours for approval of medication refill. Medication refills are not available evenings or on weekends or holidays. The UVA Urology on Call provider WILL NOT refill prescriptions for pain medications. Refill of narcotic prescriptions may require an office visit for the provider to evaluate you in person as per Virginia State regulations.

As your pain improves, you will need to wean off your narcotic pain medication. Weaning means slowly reducing the amount you take until you are not taking it anymore. 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, reduce to only 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 narcotics, you may have narcotics remaining. The UVA Pharmacy is 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.

Ask your health care team if you have specific questions.

Bowel Function

After your operation, your bowel function will take several weeks to settle down and may be slightly unpredictable at first. For most patients, this will get back to normal with time.

Constipation

Constipation is very common after surgery. It is very important to AVOID CONSTIPATION AND HARD STOOLS after surgery.

We will ask you to take a stool softener (Senna) or laxative medication (Miralax) to help prevent constipation once you are home. Please continue to take this each night until you stop your narcotic pain medication. If diarrhea occurs, please stop the stool softener and laxative medication. If you have not had a bowel movement after 2 days, take a suppository or an enema. If you are still having constipation, please call the Urology clinic to discuss with a nurse.

Walking and regular activity will also help to prevent constipation.

Urine Expectations

Some blood in the urine is expected for a few days after your surgery. This can continue for the entire time you have tubes in your urinary tract. Urine that looks like pink lemonade, punch or red wine should get better on its own. It only takes a few drops of blood – often left over from your surgery – to stain lots of urine. This is like making Kool-Aid where a small package of dye turns a full pitcher of water red.

Urine that looks thick and dark like ketchup is concerning; please contact us immediately if that happens. It is important to drink plenty of fluids to keep your urine flowing and as clear as possible. You should drink 6-8 glasses of water a day.

It is also normal to have dribbling, urine leakage, or burning when you urinate after this procedure. This generally improves within a few days. If you cannot urinate for >8 hours, please call the clinic or after business hours go to Emergency Room immediately.

Diet

Some patients find their appetite is less than normal after surgery. This could be a sign of constipation. Small, frequent meals throughout the day may help. You can eat any food you can tolerate after surgery**. It is most important that you stay well hydrated.**

Prevent Kidney Stones with Your Diet

For the next 5 to 7 years, about 1 in 2 people will form a new stone. The risk is higher if you have a family history of kidney stones or have medical problems like high blood pressure, obesity, or diabetes. Most kidney stones are made of calcium and can be managed by changes to your lifestyle and diet.

Increased Fluid Intake

We recommend increasing your water intake. It is the simplest thing you can do to prevent formation of stones.

- ☑ Drink plenty of fluids each day. Increase water intake (2-3L/day or 70-100 ounces/day). Try drinking water before bedtime so you will pass urine overnight and try drinking water as soon as you wake up in the morning.
- ☑ Remember that if you are losing moisture on a hot day through sweating, you will need to drink more than usual to make up for that loss through your skin.
- ☑ Fluid intake should be spread out as evenly as possible during the day.
- ☑ If you don't get up once at night to urinate, you're not drinking enough. When you get up to urinate, drink another glass of water!

Increased Dietary Citrate

Citric acid is an organic acid and a natural part of many fruits and fruit juices. Citric acid (not ascorbic acid/vitamin C), is helpful for people with kidney stones. It stops stone formation and breaks up small stones that are beginning to form. Citric acid is in citrus fruits and juices.

- ☑ Eat 5 or more fruits and vegetables daily. Lemons and limes provide the most citric acid.
- ☑ Squeeze fresh lemon or lime juice directly into your beverages.
- ☑ Use lemon juice or lemonade daily.
    - Dilute 2 ounces lemon juice with 6 ounces of water.
    - Drink twice a day – once in the morning and once in the evening – to reach the goal of 4 ounces of lemon juice per day.

- To make homemade lemonade, squeeze a cup of fresh lemon juice into a pitcher of cold water; bottled lemon juice may also be used. You can add sugar or sugar substitute if you prefer.
- If you use premade lemonade, we strongly recommend low-calorie lemonades and lemonade mixes (such as Minute Maid Light, Tropicana Light, or Crystal Light). These are high in citric acid but have little sugar and few calories.
- Read the label. Choose products that are high in citric acid. Some lemon-lime sodas, for example, are high in citric acid. If you drink soda, consider switching to one that is high in citric acid.

Reduce Sodium

Most of the sodium (salt) in our diet comes from packaged and restaurant food (not the saltshaker) and is a result of food processing. Even foods that may not taste salty can be major sources of sodium.

- ☑ Limit salt intake to 2 grams (1 teaspoon) per day. Use limited amounts when cooking, and don't add salt at the table.
- ☑ Fast foods, processed and canned foods are usually high in salt. Try to avoid these. When available, buy low sodium, lower sodium, reduced sodium, or "no salt added" versions of products.
- ☑ Use spices and salt-free seasonings to flavor your food.
- ☑ Ask for no salt added when eating out.

Food Recommendations

- ☑ Limit protein to 80g per day
- ☑ Eat a normal amount of calcium per day. The recommended
- ☑ daily amount is around 1000-1200 mg/day. Talk to your primary care doctor if you are taking calcium supplements.
- ☑ If you take vitamin C as a supplement, don't take more than 500 mg a day.
- ☑ Avoid dark sodas that contain phosphoric acid. Diet clear sodas (like Diet 7UP and Diet Sprite) are OK to drink.

Other Resources:

Kidney Stone Diet: Eat to Prevent Kidney Stones
by Kristie Leong M.D. (Author), Apollo Leong M.D. (Author)
Amazon Ebook Kidney Stone Diet

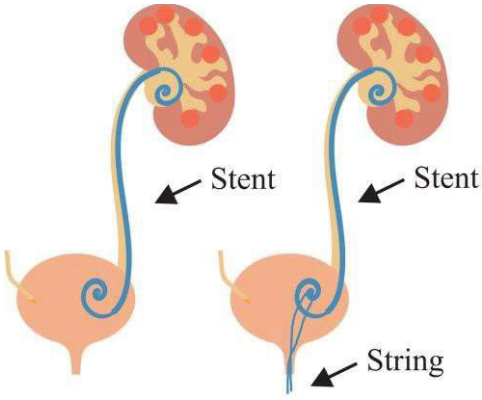
Wound Care

- ☑ For the first 1-2 weeks following surgery, your wound may be slightly red and uncomfortable. If your wound is inflamed, painful, or swollen, please contact us.
- ☑ Some drainage from your incision is expected for the next few days, up to 2 weeks. The drainage should decrease a little every day. You can keep a dry clean dressing on the incision. Once the wound is no longer draining, you may leave it open to air.
- ☑ You may shower 48 hours after surgery and let the soapy water wash over your incision.
- ☑ The wound may be mildly pink and have a thick firm ridge underneath it, this is normal, and is referred to as a healing ridge The wound will "soften up" in several months.

Things to Avoid

- ☒ Stay out of the sunlight and do not use tanning lamps for at least one year after surgery. You will need to wear sunscreen on your scar line for the first year.
- ☒ Avoid soaking in the tub, or submerging in any type of water (for example bath, pool, hot tub, lake, ocean) for at least 4 weeks or until your abdominal wound is completely healed.

Stents after PCNL



https://musicurology.com/

What are ureteral stents?

A thin, straw-like, flexible tube with a curl on each end. Stents can be left in with or without a string.

When is a stent needed?

Stents are placed to help with urine drainage from the kidney.

What can I expect with a stent?

Most patients have some of the symptoms listed below, but they usually go away once the stent is removed. You may:

- Rush to urinate
- Pass urine more often
- Have burning or pain in your lower back during urination
- Have blood in the urine (pink or red color)
- Feel like you are unable to empty your bladder fully
- Discomfort, pain or cramps in the bladder, lower abdomen and/or lower back

How can side effect symptoms be managed?

- Increase the amount of water intake to about 6-8 cups a day
- Avoid sugary drinks, caffeine, and alcohol
- Take prescribed medications to reduce bladder spasms and cramps
- Use a warm bath or heating pad to relieve pain
- Try lying in a reclined position with knees bent
- Eat a high fiber diet and use stool softeners for constipation

Are there any activity modifications?

You may restart your normal physical routine. If you have increased blood in your urine when you become more active, then rest and drink plenty of fluids. Having a stent should not affect work activities, social life, or travel. If you have a stent with a string coming outside the body through the urethra, sexual activities should be avoided until the stent is removed.

How and when is the stent removed?

If there is a string on the stent, you may be able to remove it at home or at your urologist's office in as short as 3 days. Drink plenty or water and take some pain medication. Stent is removed by pulling on the string until a long plastic tube with 2 curls is entirely removed.

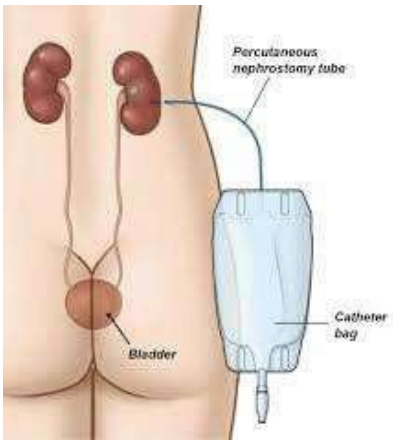
If there is no string on the stent, it maybe removed in the operating room (if an additional procedure is needed) or in the office with a small flexible camera inserted in the urethra (pee tube). This procedure is called a cystoscopy. This usually happens 7-10 days after surgery, but may be tailored to your particular case.

What can I expect after the stent is removed?

While most patients do not experience any symptoms after the stent is removed, some patients experience cramping due to bladder spasms which may lead to feelings of nausea or voiding more urgently or frequently. This is common and will pass with time. Continue to drink a lot of liquids and keep taking your pain medication as directed.

Date of stent removal: _____

Nephrostomy Tube after PNCL



A nephrostomy tube is a plastic tube inserted through the skin of the back to drain the kidney.

What can I expect with a nephrostomy tube?

After placement, you will see blood in the urine. Drinking fluids will clear the blood. If it continues after a week, or at any time if you have decreased urinary output, call your doctor.

It s important to avoid pulling the tube or removing the suture that is in place. Avoid stretching and exertion. The tube needs to remain dry. Activities like swimming and baths should be avoided. Showers are okay if the tube remains dry.

Your urologist may want a scan before deciding when it should be removed.

How do I care for my nephrostomy tube?

Good hygiene is very important when you have a nephrostomy tube. Follow the reminders below to care for your tube:

- ☑ You will change the nephrostomy tube dressing every day for the first 2 weeks. After 2 weeks, you will change the dressing twice a week, unless it becomes soiled. It is very important to avoid tugging at the suture. If the suture is accidentally removed, contact your doctor immediately.
- ☑ You should clean your hands with soap and water before you touch your tube. Use soap and water to clean around the tube site. Do not use alcohol to clean.
- ☑ You should have someone look at your incision site frequently. Increased redness, swelling, foul smelling odor, or pus at the site could indicate infection.
- ☑ It is important to make sure there is no kinking along the tube.
- ☑ The drainage bag should be kept below the level of the kidney to keep flow opened.
- ☑ When the drainage bag becomes 2/3's full, it should be emptied.

Call your doctor if you start experiencing:

- Fevers, shaking chills
- Severe back or side pain
- Significantly decreased or no urine drainage
- Foul smelling urine
- Redness, swelling, pus at the skin insertion site
- Nephrostomy tube comes out

Returning to Normal Activities

You SHOULD:

- ☑ Plan to walk five times daily. Walking is encouraged from the day following your surgery.
- ☑ Be able to climb stairs from the time you are discharged.
- ☑ Return to hobbies and activities soon after your surgery. This will help you recover.

You should NOT:

- ☒ Do any heavy lifting for 4-6 weeks. (no more than a gallon of milk = 10 lbs.).
- ☒ Do any heavy exercise. You may slowly return to your exercise routine after 6 weeks.

Driving

You may drive when you are off narcotics for 24 hours and pain-free enough to react quickly. Your doctor will have to clear you before you drive.

Work

You should be able to return to work 7-10 days after your surgery. If your job is a heavy manual job, you should not perform heavy work until 6 weeks after your operation. You should check with your employer on the rules and policies of your workplace, which may be important for returning to work.

If you need a “Return to Work” form for your employer or disability papers, ask your employer to fax them to our office at 434.297.6555