Enhanced Recovery After Whipple Procedure (Pancreaticoduodenectomy)

Your Path to Healing

DukeHealth
This expert team is an important part of the Pancreatic Surgery Program at Duke and works together to give you the best care available. Based on your situation, you may see doctors from many specialties including surgery, radiation oncology, and medical oncology.

**Surgeons**
do the surgery and watch over all aspects of your care.

**Anesthesiologists/Nurse Anesthetists**
are specially trained doctors and nurses who take care of your pain and medical needs before and during surgery.

**Nurse Practitioners/Physician Assistants**
help with all aspects of your care, including your symptom management. They are available during office hours to answer your questions.

**Registered Nurses (RN)**
will take care of you while you are in the hospital and at your postoperative clinic visits. Registered nurses will be available to help you with any questions you may have once you are home.

**You**

**Case Manager**
will be available to help with special needs you may have when you leave the hospital such as home health care, special equipment, or rehab.

**Resident Physicians/Surgical Fellows**
are doctors who have finished medical school and are getting advanced training in general surgery or to become specialists in liver and pancreas surgery. They help with your care during your hospital stay as well as at your follow-up clinic visits.
Your **pancreas** is located in your upper abdomen. Its job is to make **digestive juices** to help break down food and to make **insulin** to help manage your blood sugar levels.

The **Whipple procedure**, or pancreaticoduodenectomy, is a surgery most often performed to remove tumors located in the **head** of the pancreas.

During the procedure, your surgeon may also remove the gallbladder, common bile duct, part of the stomach, and part of the small intestine. Your surgeon then reconnects the small intestine to the remaining bile duct, pancreas, and stomach.

The length of the surgery depends on each patient. Most surgeries are **5-7 hours** but may be longer.

After removing part of the pancreas, the remaining part continues to make digestive juices and insulin, but it may need some help. It is possible you will need to start taking enzyme pills to help digest your food or medicine to help control your blood sugar after surgery.

**Step 1.** Your surgeon removes the head of the pancreas, the gallbladder, the common bile duct, part of the stomach, and part of the small intestine.

**Step 2.** Your surgeon reconnects the small intestine to the remaining bile duct, pancreas, and stomach.
What is Enhanced Recovery After Surgery?

Enhanced Recovery After Surgery (ERAS) is a plan to help reduce the stress of surgery on your body. It is designed to help you heal more quickly and return to your normal routine as soon as possible. It is built from the very beginning to involve you in your surgical plan so you will know what you need to do to help your recovery. ERAS is safe surgical care based on research findings.

What are the principles of ERAS?

- **Be ready for surgery.** Learn about your surgery. Understand how you can prepare for surgery and what to expect as you recover.

- **Pain control plan.** Develop a plan with your surgeon and hospital team to make sure you get the right medicine for you to keep you comfortable after surgery.

- **Early walking after surgery.** Get out of bed as soon as the day of surgery and start walking in the hallways every day.

- **Early drinking and eating after surgery.**

How do I prepare for surgery?

- **Diet.** Eat a healthy, well-balanced diet before your surgery. We recommend you drink a nutritional supplement which has added nutrients to boost your immune system and help your body recover quicker. **Drink 1 box, 3 times per day, for 5 days before your surgery.** This drink is available in the Duke Cancer Center pharmacy.

- **Exercise.** Exercise will help you to be fit before your surgery. We suggest you do some type of activity every day and possibly increase a little each day. This will help you to get well quicker and make it easier to move around after surgery. Walking is great exercise.

- **Smoking/nicotine use.** Stop smoking and the use of all nicotine products (gums, patches, e-cigs, chewing tobacco, etc.) at least 1-2 months before surgery. This will help with wound healing and can help prevent breathing problems after surgery.

- **Alcohol.** Limit how much alcohol you drink to no more than one drink per day the week before your surgery. No alcohol the day before surgery.

- **Medications.** Do not take any aspirin products or Non-Steroidal Anti-Inflammatory medicines (NSAIDs), such as ibuprofen or naproxen, for 7 days before surgery unless approved by your doctor. These medicines can increase your risk of bleeding. Your doctor will tell you when you can restart these medicines.
Things To Do: Week(s) Before Your Surgery

Pre-Anesthesia Clinic
You will be scheduled for an appointment in the Duke Pre-Anesthesia Clinic for your pre-operative anesthesia clearance and screening. You will be seen by a Nurse Practitioner (NP) or Physician Assistant (PA). At this appointment, you will have a health history review and discuss your pre-surgery instructions. You will also get these important items:

- **Special drink.** You will be given a special carbohydrate drink for you to have on the morning of your surgery. This drink will help make you less thirsty, control your blood sugar, and maintain your muscle strength during the operation.

- **Medicated soap.** You will be given two sponges with medicine on them to use when you shower. You will use these to shower the night before surgery and the morning of surgery.

Check medications
Bring a list of all of your medicines to your appointment at the Pre-Anesthesia Clinic. Be prepared to talk about all of the medicines you are taking. You may be given special instructions for the day of your surgery at this appointment.

Review brochure
You will be given a brochure at your Pre-Anesthesia Clinic appointment that will include pre-operative instructions, a list of things to bring with you, a map with directions to the hospital and where to check in.

Further testing
You may be scheduled to have an X-ray, blood work or an electrocardiogram (EKG).
Things To Do: Day Before Your Surgery

A nurse will call you the business day before surgery to tell you when and where to arrive at the hospital. Write the information below.

Date of Surgery:

Time to Arrive: Time for Special Drink:

Address of Hospital:

Pack a bag

The brochure you will be given provides a list of things to bring with you to the hospital. Among those things, be sure to include:

- Photo ID.
- Medical and Prescription Insurance cards.
- Chewing gum. You will be encouraged to chew gum after your surgery to help your stomach and bowels start to work. Bring enough gum to the hospital with you so you can chew gum 2-3 times a day.

Medicated soap shower (1 of 2)

You will be given two sponges with medicine on them to use when you shower. You will use one of these to shower the night before surgery.

No eating after midnight

You may eat food up until midnight the night before your surgery.
Medicated soap shower (2 of 2)
You will be given two sponges with medicine on them to use when you shower. You will use one of these to shower the morning of surgery.

No food for breakfast
You may not eat anything after midnight the night before your surgery, but you may drink clear liquids (water, clear tea, black coffee without milk or cream) until 1 hour before you arrive at the hospital.

Drink special drink at __________
You will be given a special carbohydrate drink to have on the morning of your surgery. This drink will help make you less thirsty, control your blood sugar, and maintain your muscle strength during the operation. Drink this 1 hour before arriving at the hospital. It is very important to do this.

Arrive at the hospital
When you come to the hospital, you will fill out the admission paperwork. Then you will be taken to the Preoperative Holding Area to get ready for your surgery:

- You will be given some medicines to take by mouth. These medicines will help prevent nausea and pain after your surgery. You will also take these medicines after surgery.

- An IV will be started in your hand or arm. The IV will be used to give you fluids, pain medicine and other medicines that you may need.

- You will meet with your anesthesiologist who will discuss pain management during and after your surgery. For this operation, most patients are given pain medication through a tiny tube placed in their backs. This is called an epidural catheter. You will also be given a calming medicine for the procedure.

- Your surgeon will mark the areas on your body where he/she will be operating.

- When it is time for your surgery, you will be taken by stretcher to the operating room.
Once you are fully asleep, the procedure will begin. Your surgeon may start by making small cuts for special cameras and instruments. This is called **laparoscopy**. Your surgeon will look at the pancreas and surrounding area, and will decide if the operation can be done this way or will need a larger incision. If your surgeon finds that the disease has spread, surgery may be stopped at this point.

The operation usually takes about **5 to 7 hours**, depending upon each patient.

During surgery, periodic updates will be shared with friends and family. When the procedure is done, your surgeon will give a final update to your loved ones.

**What will happen after surgery?**

After surgery you will be taken to the recovery room, called the **PACU (Post Anesthesia Care Unit)**. While in the PACU:

- Nurses will closely watch your heart rate, and check your blood pressure often.
- You will have compression wraps (SCDs) on your legs. These wraps inflate and deflate to help blood flow and prevent blood clots in your legs. You will wear these while you are in bed after surgery.
- When you are awake, the nurse will ask you about your pain level on a scale of 0-10 (0 = no pain and 10 = the worst pain you can imagine). You may still have the epidural catheter in your back with medicine running through it. It may remain for 2 to 4 days after surgery to help control your pain.
- Your nurse will also ask you to take deep breaths often to help clear the anesthesia and prevent pneumonia.
What should I expect while I am in the hospital?

- You may have a **nasogastric (NG) tube** in your nose. This tube will collect drainage from your stomach to help it heal. The drainage will be dark green in color. The NG tube may cause some discomfort in your throat. It may be removed after 1 day.

- You may have 1 or 2 **Jackson-Pratt (JP) drainage tubes** in your abdomen to drain fluid from the surgery area. The JP drain is joined to a container shaped like a bulb. It will be emptied regularly by your nurse. The drains may be removed in a few days based on how much drainage there is. It is possible that drain(s) may need to stay for several weeks, but you can go home with them in place.

- You will have a urinary catheter to drain your urine. This may be removed in 1 to 2 days after surgery.

- Your blood sugar level will be checked by finger prick every 6 hours for at least one day after surgery. It is common for blood sugar levels to go up or down after surgery, and it will be treated when needed.

- It is important to take very deep breaths after your surgery to prevent pneumonia. You will be taught how to use an **Incentive Spirometer**. You will be asked to take 10 breaths with the incentive spirometer every 1-2 hours while you are awake.

- During your recovery, you are at a high risk for getting a blood clot in your legs because you are not as active as you usually are. You will be given a blood thinner shot, and will continue to take these shots every day after you go home for a total of 4 weeks after surgery.

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**Your Hospital Stay**

You will be in the hospital for **at least 4 nights**.

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**Nasogastric (NG) tube and Jackson-Pratt (JP) drain**

**Incentive Spirometer**
When can I eat and drink while in the hospital?

- Nutrition is very important to help with healing.
- Your appetite may change due to nausea, pain or stress from the surgery.
- Your diet will be increased slowly, beginning with liquids and the nutritional supplement drinks.
- You will be encouraged to chew gum 2-3 times a day. This helps your stomach and bowels work after surgery.
- If you have nausea after surgery, let your nurse know. There will be medicines available to give relief.

How will my pain be controlled?

Pain control is very important after surgery. When your pain is well controlled you will be able to breathe, move, sleep, eat and walk more easily. Your nurse will often ask you about your pain level on a scale of 0-10 (0 = no pain, 10 = the worst pain you can imagine). Our nurses and doctors who are specially trained in taking care of pain may check on you after surgery, and they are available to you and your surgery team. When you are drinking, you will be given many different types of medicines to help manage your pain in addition to the epidural catheter in your back. Be sure to let your nurse know if your pain is not controlled. **However, it is normal to have some pain and discomfort even while taking pain medicine.**

When will I begin walking?

You will be expected to be out of bed or sitting on the side of the bed on the day of your surgery. You should start walking in the hallways on the day after surgery. The goal is to be out of bed for all meals and for at least 6 hours during the day. You will need to walk at least 4 times each day. Movement helps to prevent blood clots, breathing problems and constipation.
What are the possible complications of the surgery?

**Fistula (leak)**
A fistula or leak can happen where the pancreas now joins the small intestine. If this happens, your drain(s) may need to stay in place for days to weeks longer. The fistula usually gets better with time.

**Weight Loss**
It is normal to have decreased appetite after surgery. As a result, weight loss of 10-15 pounds can occur. You will regain some weight as you recover from surgery and your appetite returns.

**Diabetes**
Your pancreas helps control your blood sugar levels. Removing part of your pancreas can lead to diabetes. If you already have diabetes, you may need more medicine and/or insulin to manage your blood sugar levels.

**Pancreatic Enzyme Insufficiency**
After surgery, your pancreas may not make enough pancreatic enzymes. You may experience upper stomach pain, gas, and/or diarrhea. You may need pancreatic enzyme pills to relieve these symptoms.

**Delayed Gastric Emptying**
After surgery, your stomach may take longer to empty food or liquids. This may cause symptoms of nausea, vomiting, and feeling full. This usually gets better with time, but you may need medication or possibly a nasogastric (NG) tube.

**Constipation**
Constipation is common after surgery due to pain medicine, inactivity, and decreased fluid intake. You should take a stool softener daily. If you continue to be constipated, notify your surgeon’s office for additional advice. If you have severe abdominal pain, bloating, cramping, and/or vomiting, call your doctor immediately, as this could be a sign for blockage of your bowel.
Going Home

What to expect after leaving the hospital:

Change in Diet
You may notice a loss of appetite, and it is normal if you cannot eat a full-sized meal at usual meal times. Your nurse and/or nutritionist may review your diet suggestions before you leave the hospital. You should eat small meals often during the day. It is important to try to drink at least 3 large glasses of water each day.

Medications
You will be given prescriptions for your medications including blood thinner shots, pain medicines, anti-nausea medicine, stool softeners. You may also get a prescription for pancreatic enzymes to help digest food and medicine to decrease stomach acid. You or your caregiver may want to fill these prescriptions at the outpatient pharmacy before you leave the hospital.

Pain
Pain after surgery is common and will improve with time. It is important that you take your pain medication only as prescribed. You should be taking less medication as your pain improves.

Incision Care
Your incision site should be kept clean and dry. If staples are present, they will be removed at your follow-up visit. It is normal to have a little bit of tenderness and drainage from the incision site. It will heal over time.

Activity
Walk, walk, and walk! You should stay active once you are at home. You should walk short distances daily. You should not drive a car until your doctor or nurse gives you the okay to do so. If you are taking pain medications, you should not drive a car.

When can I leave?
You will be able to leave the hospital and go home once:

☐ You are able to drink enough to stay hydrated and start eating
☐ Your pain is controlled with pain medicine taken by mouth
☐ You are up and walking around without help
☐ You or a family member has learned to give yourself the blood thinner shots

If you are not able to do these things, you may be discharged to a rehabilitation or skilled nursing facility to help manage your recovery.

When will I see my surgery team again?
You will have a follow-up appointment with your surgery team within 1-2 weeks after leaving the hospital. Your discharge sheet will have the time, place and office phone number for this appointment. Your pathology results will be available at the time of this appointment.
How to Contact Us

Appointments
Call the appointment center at 919-668-6688.

Medical questions, problems, and prescriptions
Call your doctor’s office – OR – Duke Cancer Center Nurse Triage Line at 919-668-6608.

After 5:00pm, weekends, and holidays
Call 919-684-8111 and ask for the general surgery resident on call.

When do I call my doctor?

- Fever of 101°F or higher
- Increased drainage or foul odor drainage from your incision site
- Increased pain or redness at your incision site
- Any opening of your incision
- Pain, nausea, vomiting that is increased or not controlled by your medications
- Diarrhea or constipation that is not controlled by your medication
- Shortness of breath or swelling in your legs

Go to the emergency room or call 911 if:

- You suddenly have trouble breathing or start having chest pain.
- You develop severe pain in your abdomen or chest.
- Have a change in your level of consciousness or loss of vision.

Enhanced Recovery After Whipple Procedure
DUHS PFEGC Approved 10/6/2016 - Flesch-Kincaid 7.4
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