Patient and caregiver guide
Preparing for open heart surgery
Thank you for choosing University of Colorado Hospital for your cardiac care. We understand that just the thought of having surgery is stressful. We want to help you get ready for this experience. We have designed this book to provide answers to questions you may not have thought to ask. Our goal is to help you become more comfortable and informed about the process while getting ready for surgery.

Here at UCH, we have an expert team of cardiothoracic surgeons with much experience in cardiac disorders. A skilled team surrounds these surgeons. The team members pride themselves on giving kind and personalized care to each patient.

UCH is a state-of-the-art facility that has more caregivers per patient than any other hospital in the area. This means that we can respond to your needs quickly, which is important as you heal from your surgery.
INTRODUCTION TO YOUR HEALTH CARE TEAM

PHYSICIANS

Anesthesiologist: Your anesthesiologist will provide the medications needed to keep you asleep throughout surgery. He or she will also monitor your vital signs during surgery for your safety.

Attending surgeon: A doctor that is specially trained in cardiothoracic surgery (CTS). Your surgeon cares for complex heart problems. He or she will oversee your care throughout your stay.

Cardiologist: A doctor with special training and skill in finding, treating and preventing diseases of the heart and blood vessels. He or she works together with your surgeon and other care team members.

CTS fellow: A surgeon completing a three-year program to specialize in complex heart problems. He or she will work closely with your attending surgeon.

Intensivist: A doctor with special training and experience in treating complex patients in the intensive care unit (ICU).

Primary care provider (PCP): A primary care doctor who oversees your overall health care. Information about your surgical care and discharge will be sent directly to your PCP.

Resident: A medical doctor (MD) who has completed medical school and is in training.
CLINICIANS

Advance practice practitioner/provider: A physician assistant (PA) or nurse practitioner (NP). They are very involved in your care and work with your surgeon during your entire surgical experience.

Case manager: A case manager is there to make sure you have smooth admission and movement to the correct areas in the hospital.

Certified nursing assistant (CNA)/advanced care partner (ACP): Your CNA/ACP will assist you with personal care activities, such as bathing, changing clothes or getting to and from the bathroom.

Chaplain: A chaplain serves your spiritual needs upon your request, as well as those of your family. They understand all religious choices.

Dietitian: Your dietitian teaches you about nutrition during your stay and can help you make healthy food choices.

Exercise physiologist or cardiac rehab nurse: Cardiac rehab staff is trained to help you with walking and planning home exercise. They also provide education on your condition and risk factors.

Medical assistant (MA): You will meet an MA during your outpatient follow-up appointments. Your MA will greet you and prepare you to be seen by your surgeon or advance practice practitioner.

Occupational therapist (OT): Your OT is trained to help you learn activities of daily living (ADLs). They may teach you to use special equipment to help you protect your breast bone.

Pharmacist: A pharmacist will work with your surgical team to manage your medications during your stay. They are trained to catch any problems with drugs interacting with one another.

Physical therapist (PT): Your PT is trained to help you walk after surgery. They will teach you proper ways to protect your sternum (breast bone) in the weeks to come at home.

Registered nurse (RN): Much of your care will be given by an RN while you are in the hospital. Your RN works with all team members and gives care, as set up by your surgeon.

Social worker: Your social worker will offer assistance with many aspects of your care, including counseling, care planning, financial assistance and general advocacy.
Outside of the heart
Looking at the outside of the heart, you can see the heart is made of muscle. The strong muscular walls contract (squeeze), pumping blood to the aorta and out to the body. Your coronary arteries supply oxygen-rich blood to your heart.

Inside of the heart
The inside of your heart is divided into four chambers. The left and right sides are divided in two parts.
- The upper chambers are called the left and right atria.
- The lower chambers are called the left and right ventricles.

Heart valves open and close with each heartbeat. They keep the blood in your heart moving in the right direction. You have four heart valves:
- Right side
  - Tricuspid valve
  - Pulmonary valve
- Left side
  - Mitral valve
  - Aortic valve

Conduction system
Your heart also has an electrical conduction system. This powers your heart’s pumping system. A group of special cells sends an electrical impulse through your heart muscle causing it to contract (squeeze) about 60 to 100 times per minute.
**PROBLEMS WITH YOUR HEART**

**Coronary artery disease**

Coronary artery disease (CAD) occurs when the arteries of your heart become damaged or diseased. The common cause of CAD is a buildup of fatty deposits of cholesterol in your arteries over time (plaque).

When plaque builds up, it narrows your arteries. This causes your heart to get less blood flow. Over time, the decreased blood flow may cause symptoms such as:

» Pressure or tightness in your chest
» Shortness of breath
» Tiredness

A total blockage can cause a heart attack.

One treatment for CAD is coronary artery bypass graft (CABG) surgery. This helps more blood get to your heart. Your surgeon takes a blood vessel from your leg or chest wall and connects the graft past the blocked artery. This makes a new path for blood to move around the blockage. The actual blockage is not removed.

**Heart valve disorders**

Any heart valve can have a problem. Aortic and mitral valve problems are the most common. Valves can develop two main problems.

» **Stenosis**: When a valve becomes narrowed, it stops blood from flowing forward the correct way. This makes your heart work harder to force blood to flow through a smaller opening.

» **Insufficiency or regurgitation**: This occurs when a valve does not completely close. It lets the blood leak backwards. This makes your heart work harder.

**Heart valve replacement/repair**

Your surgeon will remove your damaged valve and replace it with an artificial one. The two main types of valves are:

» **Tissue valve (bioprosthetic)**: These are made from animal valves or animal tissue. You likely won’t need to take long-term blood thinning medication other than aspirin. A tissue valve may need to be replaced in the future as it may develop stenosis.

» **Mechanical valve**: These are made from strong and durable material (carbon or titanium). They are made to last many years. Blood tends to stick to these valves and create blood clots. You will need to take blood thinning medicines to prevent this for the rest of your life.

Your surgeon may want to repair — not replace — your valve. This means your normal tissue will stay in place with a complete or partial ring placed around the rim of the valve.

**Aortic aneurysm**

The aorta is the largest artery in your body. It carries oxygenated blood away from your heart to the rest of the body. If an area of the aortic wall is weakened, it expands or bulges as the blood is pumped through it. This causes an aneurysm. An aneurysm can lead to a tear in the aorta wall or a rupture that can cause life-threatening bleeding.

Your surgeon will remove the aneurysm and sew in a fabric tube (graft) onto both ends to replace the removed portion of the aorta. If the aneurysm is too close to the aortic valve, you may also need a valve sparing aortic root replacement (David procedure), or a valve replaced during surgery.
SURGICAL RISKS

There are risks to every invasive procedure. Your surgeon will discuss the risks versus the benefits of the surgery that is being recommended to treat your condition. Your surgeon will talk about specific risks of your surgery with you, but there are certain risks that are associated with all heart surgeries. These include but are not limited to:

» Bleeding
» Infection
» Stroke
» Organ failure
» Heart failure
» Renal failure
» Paralysis
» Heart dysrhythmia
» Need for pacemaker
» Need for future operations
» Death
WHAT TO EXPECT: PLANNING FOR YOUR SURGICAL EXPERIENCE

Health care decisions
» Before your surgery, choose someone to make medical decisions for you in case you are not able to make your own decisions. To help you do this, we have copies of the “5 Wishes” book available and “Your Right to Make Healthcare Decisions.” This book is a Living Will. This lets you state clearly the decisions you have already made. These decisions include:
   – Your medical treatment
   – Comfort care
   – Power of attorney
   – Any other information regarding your health that you want your loved ones to know
» If you already have a living will, power of attorney, or advance directive, please be sure to bring a copy with you to the hospital on the day of surgery.

Insurance coverage
» Please contact your insurance company at least a week prior to your surgery to check your benefits based on the type of surgery you are having. This includes:
   – Co-pays
   – Deductibles
   – Co-insurance

Medications
» Always follow your doctor’s instructions about your medicines. Your surgery team will tell you which medicines you should and should not take before surgery.
» Ask your doctor when you should stop taking:
   – Aspirin
   – Warfarin (Coumadin*)
   – Clopidogrel (Plavix*)
   – Other blood thinners
» Make sure your doctor knows all vitamins and supplements you are taking and include them on your medication list. List all herbal supplements you take also.
» Please bring a detailed list of your medications with you to the hospital. It is important your doctor knows the dose of your pain medicines and how often you take them. We want to control your pain after surgery. Do not bring your actual medications to the hospital. They could get lost.

Hospital rooms
» After surgery, we will transfer you to the cardiothoracic intensive care unit (CT ICU). Once stabilized, we will take you to a progressive care unit. Your cardiothoracic surgery team follows you throughout your stay with us.

Visitation
» Your family can wait in the surgical waiting room until you are out of the operating room.
» Once you are settled in your room, family can visit you. There is a three-guest limit during the day, and one guest can stay overnight in the CTICU (cardio thoracic ICU).
» Please note that we do not have visitor meals or personal hygiene items for guests.
» UCH has relationships with local lodging hotels and motels that offer friends and family discounts. You can find more information at uchealth.org.
» UCH cannot find places for your family to stay while you are in the hospital. You are encouraged to look into places to stay that meet your family’s needs before surgery.

Transportation
» You will not be able to drive yourself home. Please make sure another responsible adult is here to drive you home from the hospital.
» Your doctor will give you instructions about when you can drive after your surgery. This is most often four to six weeks from the date of your heart surgery.

At home
» Arrange your home items (kitchen utensils, clothing, toiletries, etc.) so that most frequently used items may be reached easily. Remember: No lifting more than 10 pounds. See sternal precautions, page 25.
» Remove throw rugs and other tripping hazards from your floors.
» Arrange for child care and pet care if needed while you are in the hospital.
» You may want to prepare and freeze meals ahead of time.
» Someone should stay with the you to help for two weeks after you return home from the hospital.
Your visit before surgery
» You will be instructed to call the pre-admit line to get check-in time and instructions.
» We will take blood for testing and determine your blood type.
» You will have the chance to ask questions about what to expect with your surgery.
» We will read over the surgery consent with you.
» You will go to radiology for a chest X-ray.
» You will receive Hibiclens soap, a prescription for nasal ointment and an incentive spirometer.
» We will review your medical history.
» We will review your current medication list.

After your pre-surgery visit
» Go to the outpatient radiology department located on the first floor of Anschutz Outpatient Pavilion for a chest X-ray.
» Go to the outpatient pharmacy located on the first floor of Anschutz Outpatient Pavilion to pick up your nasal ointment. You may need to pick up additional medications.

The day before your surgery: pre-surgery instructions
» Please call 720.848.6070 the business day (Monday through Friday) before surgery between 2 - 4 p.m. for check-in time and pre-surgery instructions.
» You will need to take two showers before surgery – one the night before surgery, and one the morning of surgery – using antibacterial soap that was given to you at your preoperative appointment. For shower instructions refer to page 15.
» You can reduce the chance of getting an infection by using a medication ointment (Mupirocin) in your nose. Please apply nasal ointment into each nostril the night before and the morning of surgery.
» Do breathing exercises with an incentive spirometer 10 times every hour while awake each day until your surgery. Refer to page 15 for instructions.
» You will need to take a heart medicine called a beta blocker before your surgery.
  – If you already take this medication, continue to take as prescribed, including the morning of surgery.
  – If you are not already taking this, you need a new prescription:
    – Take metoprolol 12.5 mg (1/2 tablet) the night before and the morning of surgery.
» Stop these medications: __________________________________________________________

Shower instructions
You will need to take two showers before surgery: one the night before surgery and the other the morning of surgery. Use the antibacterial soap that was given to you at your preoperative visit. Use a clean towel for each shower.
» Wash the area that is shaded in black in the picture for a total of five minutes.
» Avoid getting antibacterial scrub in your eyes, ears, or mouth.
» After using the antibacterial scrub, do not use:
  – Skin lotions
  – Oils
  – Powders
  – Perfumes
  – Deodorant

How to use an incentive spirometer
Sit up and hold the incentive spirometer.
» Place the mouthpiece of the incentive spirometer in your mouth.
» Breathe in (inhale) slowly. This will cause the large blue plastic piece to rise.
There is a smaller piece that looks like a ball or disc on the right.
» Your goal is to keep the ball between the two arrows while you breathe in.
WHAT TO EXPECT: SURGERY CHECKLIST

Packing for the hospital
Your family will need to keep these for you:
- Comfortable, loose-fitting clothes
- Socks and shoes that are easy to put on
- Cell phone and charger
- Your insurance card and ID
- Your Patient and Caregiver Guide Book
- Your medication list – including how much and how often you take them.

Personal hygiene items, please bring these with you:
- Your dentures and their case
- Hearing aids
- If you use an assistive device, such as a walker, put your name on it and bring it with you
- Glasses
- Your CPAP mask if you use one at home (bring your settings)

Do not bring
- Cane
- Cash
- Jewelry
- Medicines
- Valuables

Night before surgery
- If you have not been called by the pre-operative team by 2 p.m. the day before your surgery, please call 720.848.6070 before 4 p.m. that day. They will be able to confirm your arrival and surgery times.
- Shower as instructed, see page 15.
- Use the nasal ointment, see page 14.
- Change your bed linens so that they are clean when you return home.
- Eat a normal dinner.
- Do not drink alcohol.
- Do not eat or drink anything after midnight unless otherwise instructed by your doctor.

Morning of surgery
- Your doctor will advise you which medications you should and should not take the day of surgery.
- Pills may be taken with very small sips of water.
- You will need to take a heart medicine called a beta blocker prior to your surgery. This will be prescribed for you.
- Follow shower instructions, see page 15.
- Use the nasal ointment, see page 14.
- Do not wear:
  - Lotions
  - Deodorant
  - Makeup
  - Cologne
- Do not chew gum or suck on hard candy.
- You can park in front of Anschutz Inpatient Pavilion 2 (AIP 2). UCH also offers free valet parking between 7 a.m.-8 p.m.
- Come at the instructed time to the surgery check-in center. This is found on the second floor in the Anschutz Inpatient Pavilion 2, using the E elevators.
WHAT TO EXPECT: AT THE HOSPITAL THE DAY OF SURGERY

Where to go day of surgery
Enter the Anschutz Inpatient Pavilion. Once inside, follow the signs to AIP 2, or you can ask the information desk for directions. Take Elevator E to the 2nd floor. Exit the elevator lobby and go to room 2604.

Pre-operative care
Your surgery team includes:
» Your surgeon
» Anesthesiologist or certified registered nurse anesthetist
» Nurses
» Operating room technicians
» Residents or physician assistants and nurse practitioners who will be assisting during your surgery
  – We will review your surgery consent form with you, if needed.
  – We will mark your surgery site.
  – We will review your anesthesia consent form with you and have you sign it.
  – We will ask you to change into a hospital gown.
  – We will place an armband on your wrist.
  – We will ask you for your name and birth date, regularly.
  – We will assess your fall risk and provide you with non-slip socks.
  – We will place an IV in your arm or hand.
  – We will place compression stockings on your legs to prevent blood clots.
  – We will identify where your family will be and who will notify them when surgery is over. Your family and friends can wait in the surgical waiting room until you are out of the operating room.

Operating room
We will connect you to many monitors so that your anesthesiologist can begin to give you pain medicine and medicines to make you sleepy for your surgery. Your surgical team will prepare you and place drapes to keep a sterile environment.

Your surgeon will be able to give you an estimated time that your surgery will begin and how long your surgery will take. Although every effort is made to keep surgeries on schedule, there are sometimes delays that keep us from starting on time. Your surgical team will update your family members or friends about any delays.

Post-Operative Care
After the surgery, you will be taken from the operating room to the cardiothoracic intensive care unit (CTICU). We will closely monitor your vital signs, heart numbers, respiratory status and comfort level. We will progress your mobility as soon as it is safe to do.
WHAT TO EXPECT: PAIN MANAGEMENT

Pain after surgery can be from your incision, swelling and/or muscle tension. Our goal is to reduce your pain so that you can work with physical and occupational therapy to regain your mobility and independence.

We will ask you often to rate and describe your pain. We use a zero to 10 rating scale: zero is no pain, and 10 is the worst pain you could ever have.

To describe your pain, you may hear words like:

- Aching
- Burning
- Dull throbbing
- Shooting

**IV narcotics**

- There are at least two ways we give pain medicines. One way is to give it through your IV as you need them. The other way uses a pump. This is called a PCA (patient controlled analgesia). The PCA lets you press a button and a dose of narcotic is given through the IV. The PCA has a set dose of narcotic and a set interval between doses. We will teach your family not to use the button for you.

- We use continuous telemetry and a pulse oximeter to monitor your heart rate and oxygen levels in your blood.

**Common IV pain medications**

- Hydromorphone (dilaudid)
- Fentanyl
- Morphine

**Our goal is to transition you to oral pain medications as soon as possible and get you on a good plan to manage your pain at home.**

**Oral narcotics**

- Once you are able to eat a little without nausea, we will give you pain medicines by mouth. These tend to control your pain for longer periods.

**Common oral medications:**

- Oxycodone/acetaminophen (Percocet)
- Hydrocodone/acetaminophen (Norco)
- Oxycodone (Roxicodone®)
- Tramadol (Ultram)
- Acetaminophen (Tylenol)

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**WHAT TO EXPECT: PAIN MANAGEMENT**

**Side Effects Of Narcotics**

Everyone responds differently to narcotics. Common side effects and treatment include:

- **Constipation**
  - Limit narcotics to just what is necessary to control your pain.
  - Take stool softeners and laxatives, such as Colace and Senna, before becoming constipated.
  - Drink plenty of water.
  - Eat high fiber fruits and vegetables.
  - Get out of bed and walk as soon as you are able to.

- **Shallow breathing**
  - Use your incentive spirometer as instructed by your nurse to prevent pneumonia.
  - You will be asked to take deep breaths and cough to clear out any mucus in the lungs.

- **Nausea**
  - Take oral medications with food.
  - Eat bland foods at first; avoid spicy or heavy foods.

- **Itching**
  - Medications like Benadryl can help relieve itching. If this doesn’t work, we may need to adjust your medications.

- **Sleepiness**
  - If you become too sleepy with pain medications, we will need to decrease the amount of medication you are taking.

**Non-narcotic pain medications**

- Please note that medications are ordered on an individual basis and not everyone will be prescribed all types of medications. These may include:
  - Tylenol or acetaminophen. You should not take more than 3,000 mg of acetaminophen per day.
  - Note: We typically avoid ibuprofen (i.e., Advil, Motrin) or other non-steroidal, antiinflammatory medicines in the weeks after surgery (except aspirin). They may increase bleeding and can stop bone healing from taking place.

**Other treatments that can help you manage pain**

- Changing positions and early walking can help prevent muscle spasms.
- Relaxation techniques, such as deep breathing, meditation and imagery, can be helpful.
- You may also have a sore throat after surgery. Drinking water and using throat lozenges may help.
- Distraction techniques, such as listening to music or watching TV, can help take your mind off of your pain.

**Oral narcotics**

- Once you are able to eat a little without nausea, we will give you pain medicines by mouth. These tend to control your pain for longer periods.

**Common oral medications:**

- Oxycodone/acetaminophen (Percocet)
- Hydrocondone/acetaminophen (Norco)
- Oxycodone (Roxicodone®)
- Tramadol (Ultram)
- Acetaminophen (Tylenol)
WHAT TO EXPECT: THE NEXT DAYS AFTER SURGERY

Early walking (mobilization)
» Unless told something else by your doctor, you will either sit on the side of the bed or get out of bed the evening of surgery. Moving around and getting out of bed is important to prevent blood clots and pneumonia. It also helps you heal. A nurse or physical therapist will assist you.
» Leg pumps or sequential compression devices (SCDs) may be on your legs at all times while you are in bed. These are to prevent blood clots in your legs.

Physical and occupational therapy
» Your doctor will order physical and occupational therapy. They will also explain sternal precautions and how to protect your sternum (breast bone) when you begin moving around. The therapists will also help you learn how to complete activities of daily living (ADLs) while following your sternal precautions. They will also evaluate you and recommend any assistive devices or adaptive equipment that might help you with ADLs.
» Your therapists will teach you on more specifics after your surgery and will give you additional written instructions for you to take home if needed.

Diet
» Your diet will begin with ice chips and slowly advance to a clear liquid diet. Your doctor will advance your diet once you have met certain goals (passing gas, no nausea/vomiting). We will give you a menu and you can order what you like, according to your diet.
» Patients having aortic surgeries may have a harder time with swallowing after surgery. A speech therapist may see you to assess how well you are swallowing.

Bowel function
» Many people experience constipation after cardiac surgery and when taking narcotics.
  - Drink plenty of fluids
  - Take stool softeners and laxatives as needed
  - Eat plenty of fruits and vegetables
  - Get out of bed as soon as you can

Bladder function
» You will have a urinary catheter inserted into your bladder in the operating room. We will take this out as soon as you are able to move around. Urinary catheters can allow bacteria into your bladder, so we want to get it out as soon as we safely can.
» In some cases, people have problems urinating freely after removing their catheter. We will monitor the amount of urine in your bladder and drain urine with a catheter if needed. Rarely, people have to go home with a catheter until they are able to urinate on their own.

Lung function
» You will arrive in the CTICU with an endotracheal (breathing) tube in your mouth, on a ventilator. When you are awake enough to breathe on your own, we take out the breathing tube. You will receive oxygen through a nasal cannula (tube) until you can keep oxygen levels up on your own. A probe taped to your finger monitors your oxygen level.
» At times, patients need to stay on oxygen at home. If needed, we will make sure your home oxygen therapy is arranged before you leave the hospital.

Incision care/chest tubes
» Your nurse will assess your dressing and incision often. Your doctor will give details about when your dressing can be removed.
» You will have a few drains coming from your chest after surgery. These will drain fluid from the operative area into a small container. Your nurse will care for these drains. The surgical team will take them out in the days after surgery.

Equipment in the room
» Chest tubes: These tubes drain fluid from your chest after surgery. Once the drainage decreases, they are removed.
» External pacing wires: These wires are used after open-heart surgery; sometimes the heart needs electrical support to keep your heart rate at a level to improve the function of the heart. Once your heart recovers, the surgical team removes these wires.
» Heart monitor catheter (pulmonary artery catheter and central line): This catheter will be in place to allow the surgical team to closely monitor your heart’s recovery after surgery, and how to adjust the IV medication you receive until the heart recovers.
» Heart pillow: Your new best friend! You will use your pillow to stabilize your sternal incision when coughing or breathing deeply.
» Incentive spirometer: This is a tool to help prevent pneumonia by keeping your lungs active and clear. Your nurse will teach you how to use it. You will use this every hour while you are awake.
» IV (intravenous catheter): This stays in place until you go home. You will receive IV fluids and medicines through an IV pump until you are able to eat and drink normally.
» Leg pumps: You will need to wear these compression sleeves while in bed to prevent blood clots in the legs.
» Oxygen: We administer oxygen until you can keep your oxygen levels up on your own.
» Telemetry: During your entire stay, you will have heart monitoring wires attached to your chest to monitor your heart’s rhythm as you recover from surgery.
» Urinary catheter: This drains urine from your bladder. This will be removed when you are able to get out of bed.
WHAT TO EXPECT: DISCHARGE INFORMATION

Most patients will return home after surgery, and that is always our goal. Rarely, patients require additional care elsewhere before going home. Our case managers and social workers are available to help with discharge planning and will work with your insurance company. Insurance coverage is different for everyone, so please be aware of your insurance benefits regarding:

- Home health
- Acute rehabilitation
- Outpatient therapy
- Skilled nursing facilities

Goals for discharge:

- Be able to get in and out of bed
- Walk in the hallway by yourself or with a walker
- Be able to perform personal hygiene
- Tolerate eating and drinking
- Urinate after removal of the urinary catheter
- Have a bowel movement
- Manage pain with oral medications
- Be able to walk up and down stairs if you have stairs in your home

You will not be allowed to drive yourself home. A family member or friend will need to arrive at your hospital room the morning of your discharge and be ready to take you home.

- We will give you typed discharge instructions. Your nurse will go over these with you.
- We have a discharge lounge if you need to wait for your ride after discharge.
- We encourage you to have your prescriptions filled at University of Colorado Hospital’s pharmacy, or we can send them to a pharmacy of your choice. If you choose not to use the UCH pharmacy, please know the phone number and address of your preferred pharmacy.
- You will need to follow up with your surgeon’s office in one to two weeks
- You will need to follow up with your primary care provider within one month.
- You will need to follow up with your cardiologist within one month.

Additional discharge instructions:

- Wound care:
  - Carefully wash the wound with soap and water.
  - Pat the area dry.
  - Put on new clean bandages as directed if indicated. Change your bandages when they get wet or dirty.
  - Do not take baths or use hot tubs until incision is completely healed. This can take approximately one month.
  - If you have stitches or staples, these will be removed at your clinic visit.

- Cardiac rehabilitation: We recommend that you participate in cardiac rehab after surgery. This is a program run by specialists who will help you safely strengthen your heart and prevent more heart disease. The plan includes individualized, supervised exercise where your blood pressure, EKG and physical response to exercise will be monitored. Cardiac rehab will also teach you about your condition and risk factor modification (i.e., stress management, heart healthy diet). Caregivers will also check to make sure any medicines you take are working as desired. The plan may also include instructions for when you can drive, return to work, and do other normal daily activities. Please call the University of Colorado cardiac rehab at 720.848.7547 with any questions or concerns.

- Dental care: Please tell your dentist if you have had a heart valve replacement surgery. You will need antibiotics before dental cleanings and procedures.

- Sternal incision guidelines: To make sure your sternum and incision heal properly, follow these guidelines for approximately six weeks after surgery.
  - Do brace your sternal incision using a pillow or towel roll when coughing.
  - Do not bring your arms behind you at the same time.
  - Do not lift more than 10 pounds. (A full gallon of milk weights about nine pounds.) Hold objects close to your body when you lift them.
  - If you experience significantly increased pain with any activity, stop the activity.
  - Talk to your doctor before resuming sexual activity or driving a vehicle.

If you have any questions regarding your sternal incision, please contact cardiothoracic surgery at 303.724.2799.
Shortness of breath and general weakness: During your recovery from heart surgery, there are normal and abnormal physical and emotional responses. In order to assist you with a comfortable recovery, the events most commonly experienced are described below.

**NOTE: All activities should be performed using standard precautions.**

- **Difficulty sleeping:** This is a common complaint and is partly due to the inability of beds at home to adjust as they did in the hospital. When lying down, you may experience shortness of breath. This is usually due to increased swelling in the chest caused by surgery itself. The inflammation presses down on the lungs and makes it uncomfortable to breathe deeply. For the first two weeks, we encourage you to try lying on your back. If, while lying on your back, you feel tightness in your chest, you may need to sleep with extra pillows under your head. Those with a recliner often find they sleep for longer and more comfortable periods of time sitting in a semi-upright position for the first few weeks. However, remember that you will not be able to pull on the recliner’s release as that will put too much pressure on your sternum.

- **Loss of appetite:** You have been through an ordeal, and food may not taste good to you right now. Eating small meals more often may help. Remember that you are on a regular diet for the first month so you can get more nutrition for healing. Eat foods that are rich in nutrients, and do not concern yourself with low cholesterol or low saturated fat (unless directed otherwise by your physician) until you have been out of surgery one full month. Keep sodium between 2,000 to 30,000 mg per day. If you have high blood pressure, your sodium level should be towards the lower end of the range. Cook with salt, but do not add any salt at the table. After the one-month mark, keep your cholesterol intake to 300 mg a day and your fat intake to 20% of your daily calories. Diet education is a must.

- **Swelling in the leg, ankle or foot:** Swelling usually occurs in the leg where the saphenous vein has been removed for bypasses. It will come and go, depending on your activity, for up to two months after surgery. Raising the extremity above the heart level is often enough to temporarily reduce the swelling. If the swelling increases significantly and is accompanied by weight gain, report this to your cardiologist (or the nurses in cardiac rehab) for evaluation and treatment. It will return, depending on your activity, for up to two months after surgery. Raising the extremity above the heart level is often enough to temporarily reduce the swelling. If the swelling increases significantly and is accompanied by weight gain, report this to your cardiologist (or the nurses in cardiac rehab) for evaluation and treatment.

- **Swelling causes an increase in the pressure on the leg incision and may result in some redness or irritation. If you see redness, please have the cardiac rehab nurses check this. Most redness is a sign of healing, but it can sometimes be a sign of irritation or infection. The internal sutures may sometimes work their way out of the wound and cause redness and clear, golden liquid drainage. Any thick white or yellow drainage is not normal. Have this checked immediately. This is especially important if the drainage is coming from the chest incision.

- **Emotional lability (mood swings):** For the first two months after surgery, your body chemistry is changing. Hormones are off balance and fluids are shifting in and out of the general circulation. This causes a few side effects that you may find alarming. You may experience a sudden onset of depression, anger and/or frustration with the slowness of recovery. Realize these are completely normal feelings. They should be gone by the end of two months. Please talk about this with your provider if you feel you are having a hard time coping with feelings or mood swings.

- **Memory loss/visual disturbances:** These seem to bother people the most. For two months after surgery, it is not uncommon to experience some noticeable short-term memory loss. Over time, this does get better, but it may take up to three months for you to feel like you are back to normal. Challenge your mind as much as possible and that may help improve things sooner. Blurred vision may also happen. This can manifest in different ways for different people. We tell people who wear glasses that they should not have their prescription changed for up to three months after surgery.

**Medications**

- Your doctor will tell you which medications you should stay on after you go home. Take your medicines as instructed. Remember, some medicines are taken only as needed. We will give you prescriptions for medicines to help with pain and discomfort. The discomfort will slowly get better over the next few weeks. This will allow you to take less pain narcotics each day. You should be able to switch to acetaminophen (Tylenol), 500 to 1,000 mg every six hours, as needed. Do not take more than 3,000 mg of acetaminophen in one day. Please be aware that some medications, such as Percocet and Vicodin, already contain Tylenol.

- Do not operate heavy machinery or drive while on narcotic medications and muscle relaxants. They can alter your level of alertness.

- Avoid NSAIDs (non-steroidal anti-inflammatory drugs) after surgery, such as:
  - Ibuprofen (Advil)
  - Naproxen (Aleve)
  - Celecoxib (Celebrex)

**Diet/nutrition**

- To promote healing, you should eat a well-balanced diet. If you were on a special diet before surgery, you should go back to it one month after surgery.

- Do not drink alcohol. Alcohol will interact with your pain medication(s) and lead to more side effects.

- To prevent constipation:
  - Drink more fluids
  - Eat more fiber
  - Eat more fruits and vegetables
  - Do more activities

- If you still have problems, you can take multiple over-the-counter items. These include:
  - Prune juice
  - Colace
  - MiraLax

- Talk to your health care practitioner for more recommendations if you still have problems.

**Smoking**

- Smoking disrupts the normal function of the body’s systems, which can affect bone growth.

- Patients who smoke have a higher risk of developing an infection after surgery. If you need smoking cessation resources, go to coquitline.org or call the Colorado Quit Line at 1.800.639.0UJT. Also, UCH offers a free smoking cessation program called DIMENSIONS. For more information, call 303.724.8077.

**Driving**

- Most importantly, you should not drive while taking narcotics because these can impair your thinking and reaction time. Generally speaking, you may begin driving four to six weeks after cardiac surgery. You must feel safe to turn look without twisting and be able to brake quickly if needed.

- You should arrange with your friends and family to be available for your transportation needs. This includes getting home from the hospital, as well as during the estimated length of time you will not be able to drive.

- Your surgeon may give you other driving restrictions following your surgery. Please talk about this with the surgery team before, as well as after, your surgery. Be sure to follow these specific instructions.
WHEN TO CONTACT YOUR HEALTH CARE PROVIDER:

Call your health care provider immediately if you, or your caregiver, notice any of the following:

» Temperature greater than 101.5° F (38° C) that lasts more than 24 hours
» Worsening pain in your chest, especially when you cough or take a deep breath
» Difficulty breathing or swallowing
» Thick, dark yellow or foul smelling drainage around your incision
» Pain and redness around your incision
» Confusion, unusual changes in behavior, or increased headaches
» Problems controlling your bowels or bladder
» New or increased focal weakness
» New or increased focal numbness/tingling
» New or increased difficulty walking
» New or increased hand clumsiness
» Pain, redness, or swelling in your calf

My Health Connection

My Health Connection gives you online access to your medical record. No matter where you are, you can:
» See test results.
» Send or get messages from your doctor.
» See your key medical information.
» Ask for an appointment.

Sign up today, and get connected to your health. myhealthconnection.uchealth.org

Have an iPhone or Android phone? Download the free "MyChart" app and select the University of Colorado Health and our "My Health Connection" from the list.
FAQS: FREQUENTLY ASKED QUESTIONS

Will I set off metal detectors?
Most patients do not have a problem with this. Rarely, when a security wand is waved over the location of hardware, an alarm may result. You can show the surgical scar for explanation.

When can I return to work?
This is very individualized to you and the type of work you do. Discuss this with your surgeon. In general, most patients require about six weeks off work.

Will I begin outpatient physical therapy after surgery?
The best activity for your heart is walking. You should do this both before and after surgery. After your surgery, you will slowly increase the time and distance you walk. It is highly recommended that you take part in an outpatient cardiac rehab program.

What if I have no help after surgery?
You will not be discharged from the hospital unless there is a proper care plan in place that will allow you to remain safe. Many times, you can pick the day of your surgery. This lets you plan and have someone in place to help when you go home.
IMPORTANT CONTACT INFORMATION

Important phone numbers
Division of cardiothoracic surgery 303.724.2799
Surgery scheduler 303.724.2809
            303.724.8762
CVC center 720.848.5300
Main hospital 720.848.0000
Radiology 720.848.1160
Cardiac rehab 720.848.7547

Additional information can be found on the following websites
myhealthconnection.uchealth.org
coquitline.org
national-med.com
http://www.ucdenver.edu/academics/colleges/medicalschool/departments/surgery/divisions/cardiothoracicsurgery
CARDIAC AND VASCULAR CENTER

720.848.5300

Anschutz Inpatient Pavilion 2
12505 E. 16th Ave., Aurora, CO 80045
uchealth.org