

Preparing for TAVR

Transcatheter Aortic Valve Replacement





Our Structural Heart Program team

Structural Heart Interventional Cardiologists

Alex Vasquez, MD, FACC

Michael Butler, MD, FACC

Mihir Kanitkar, MD, FACC

Gautam Reddy, MD, FACC

Cardiothoracic Surgeons

Shaf Holden, MD, FACS

Frans van Wagenberg, MD, FACS

Andres Samayoa, MD

John Gallegos, MD

Program Manager

Jenna Abington, BSN, RN

Valve Program Coordinator

Kayla Guyette, CRNP

Structural Heart Nurse Practitioners

Karen Maddox, CRNP

Abby Mask, CRNP

Strategic Initiatives Lead

Christy Cantey, CRNP

TABLE OF CONTENTS

Welcome

The Structural Heart Program at Huntsville Hospital is one of the most experienced cardiac programs in the Southeast and the largest in North Alabama. Our top priority is to deliver safe, quality patient care with exceptional service.

This booklet will help you prepare for TAVR, plan your return to home and provide you with information to use after the procedure is performed.

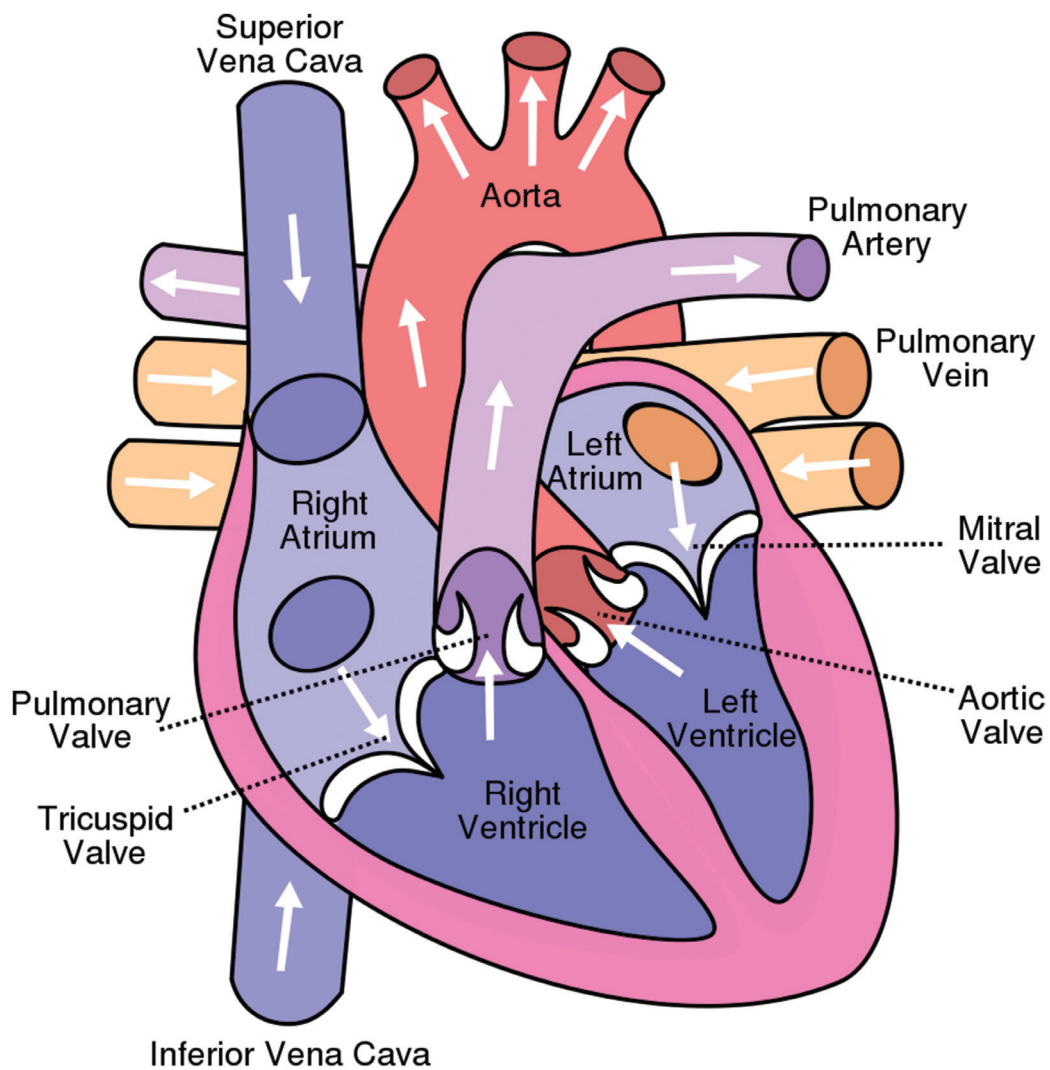
Please read and discuss it with your loved ones. We have included information about the different steps you will take along your TAVR journey.

Definitions.....	4
<i>Your heart</i>	
<i>What is Aortic Stenosis?</i>	
<i>What is Transcatheter Aortic Valve Replacement (TAVR)?</i>	
Waiting for TAVR.....	6
<i>While you are on the waitlist</i>	
Preparing for TAVR	7
Planning ahead.....	8
Valve clinic testing.....	9
Coming to Huntsville Hospital	10
<i>Scheduling</i>	
<i>The day of your procedure</i>	
Frequently asked questions	11
During your stay	12
Going home	13
Activity at home.....	13
You've had your TAVR...now what?.....	14
Follow-up appointments	15
Questions and important dates to remember.....	15
Blood Pressure Log	16
Huntsville Hospital campus.....	17
Inside Huntsville Hospital	18

Definitions

Your heart

Think of your heart like a two-story house with four rooms, or chambers, separated by strong walls. The rooms on the top are your atria and rooms on the bottom are your ventricles. Blood is pumped through these chambers aided by four heart valves that act like doors. These valves open in one direction to allow blood flow from the upper chamber into the lower chamber and close quickly to prevent blood from flowing backward. Heart valves can malfunction over time and lead to leaks (regurgitation) and/or narrowing (stenosis). Mitral valve leaking and aortic valve stenosis are the most common types of valvular disorders.



What is Aortic Stenosis?

Aortic stenosis is the second-most common valvular heart disease and affects more than 2.5 million people over the age of 75 in the United States.

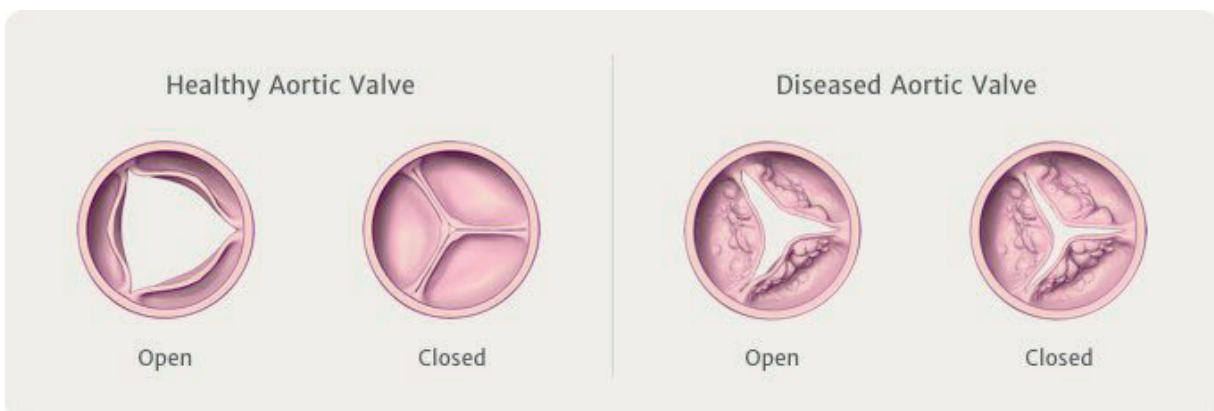
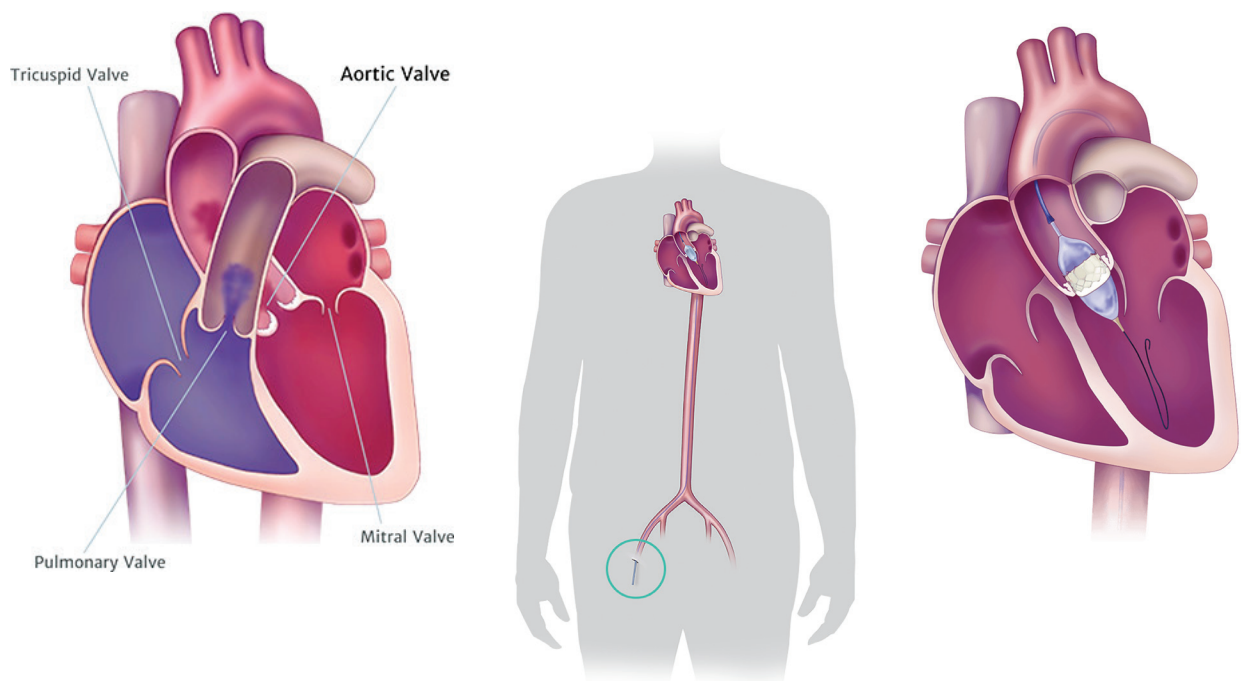
Aortic stenosis refers to gradual narrowing of the aortic valve that affects the outflow of blood from the left ventricle into the aorta. The most common cause for the narrowing is age-related degeneration, as a result of thickening, calcification and decreased mobility of the valve components.

Narrowing can also occur from birth defects, previous infections and radiation therapy.

In order to open the narrowed valve, the heart muscle needs to work harder. As a result, it becomes temporarily thicker and stronger. If the valve is not replaced, the heart will thin and weaken which can lead to congestive heart failure.

The typical symptoms of aortic stenosis are chest pain, shortness of breath, fatigue and dizziness.

Severe aortic stenosis is so serious that, if not treated soon after the onset of symptoms, about half of people diagnosed with it will die within an average of 2 years.



What is Transcatheter Aortic Valve Replacement (TAVR)?

Transcatheter Aortic Valve Replacement is a percutaneous (through a skin incision), minimally invasive procedure to replace a narrowed aortic valve.

Most of the time, it is performed through the femoral artery in the groin using guide wires, catheters and balloons, similar to a cardiac catheterization.

During the procedure, your physicians will advance a new valve (a metallic frame with either pig or cow tissue sewn inside it) across the diseased aortic valve.

The new valve, which can be self or balloon expandable, is deployed while the heart is beating and anchors itself on the old valve tissue.

Once delivered, the valve takes over the function of the old narrowed valve.



Waiting for TAVR

Our goal is to perform your TAVR no later than 30 days after all testing has been finalized. Our valve program coordinator will give you an estimated date, which can change depending on your overall health, degree of symptoms and scheduling availability.

While you are on the waitlist

Looking after your medical health

Your primary care physician (PCP) and general cardiologist continue to be responsible for your medical care while you are awaiting TAVR.

Our TAVR physicians will oversee your care when you come to the hospital for the procedure. After discharge, your PCP will address any non-TAVR related medical issues.

Health changes you should monitor

Over time, the aortic stiffens and the opening reduces in size, making it harder for the heart to pump blood through the narrowed valve. Any abrupt changes in your fatigue levels, worsening shortness of breath, chest pain or swelling should be reported to our office.

Preparing for TAVR

Here are some guidelines on what to do while awaiting TAVR.



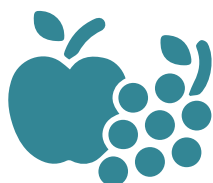
Keep active

Stay as active as you can. Try to exercise daily, even for a short period of time. Ask your doctor about what level of activity is best for you. Although exercise is important, don't overdo it. Slow down if you become faint, short of breath or develop chest pain.



Be careful driving

If you have symptoms of severe aortic stenosis (shortness of breath, chest pain, fainting, severe fatigue), we recommend that you do not drive until the valve is replaced. However, everyone is different. Talk to your doctor about whether or not it is safe for you to drive during this time.



Eat a healthy diet

It is important to eat as well as possible in anticipation of TAVR. If your doctor has restricted the amount of fluids and/or salt that you should have, make sure to continue following those orders.



Take your medicines

Continue to take the medicines your doctor has prescribed. If you are on blood thinners, the valve program coordinator will instruct you to make some changes before the procedure day.



See your dentist

Make an appointment with your dentist if you have your own teeth and have not had a check-up in the last six months. If you need dental work done, schedule it before your procedure date. Dental work done right after a new heart valve could cause the valve to become infected.

Planning ahead

For most patients, TAVR is a same-day procedure with an overnight hospital stay.

Our goal is for you to walk and perform basic activities (like eating, drinking, going to the bathroom) on the day of your procedure, and to go home the next day.

Planning for a safe and prompt return home from the hospital is one of the most important things you and your family can do to ensure the procedure is a success.

Your going-home plan should include the following:

Getting home

You must make your own arrangements for the trip home, including transportation.

Even if you came to the hospital by ambulance, you must arrange for your own departure. Ambulance services are not available to return people to their homes.

Arrange to have someone travel with you after discharge. If this is not possible, let the valve program coordinator know.

Help at home

You will need help when you first get home.

It is hard to predict how much help you will need and for how long. We recommend preparing to have all the help you may need, for at least one week.

After discharge, you should arrange for someone to stay with you for the first 48-72 hours of recovery. If you do not have family or friends to help you, speak to the valve program coordinator.

Recovering after TAVR

Most patients are fully recovered after the first month.



Valve clinic testing

You are being scheduled for:	Date of Test & Location:	Test	Description	Purpose
<input type="checkbox"/>		Cardiac catheterization	<ul style="list-style-type: none"> – A thin, flexible tube is inserted into your leg or arm that will go up to your heart vessels – Pressures inside your heart will be measured – You will be sedated for the test 	Detects blockages in your heart arteries and any valve changes
<input type="checkbox"/>		CT scan (CAT scan)	<ul style="list-style-type: none"> – You will lie on a table that is moved through a donut-shaped tube – Detailed X-ray pictures are taken of your heart and the blood vessels in your chest/abdomen/legs 	Measures the size of your arteries and heart structures
<input type="checkbox"/>		Echocardiogram (Echo)	<ul style="list-style-type: none"> – Ultrasound of your heart – There are two kinds: one uses a probe on the outside of your chest (TTE) and the other uses a device in the throat/esophagus (TEE) 	Provides detailed views of your valves and heart
<input type="checkbox"/>		Carotid ultrasound	<ul style="list-style-type: none"> – Ultrasound of your neck arteries 	Checks for blockages
<input type="checkbox"/>		Pulmonary function test (PFT)	<ul style="list-style-type: none"> – Breathing test 	Checks how well your lungs move air in and out
<input type="checkbox"/>		Laboratory test (Labs)	<ul style="list-style-type: none"> – Blood test 	Checks for kidney function and blood levels
<input type="checkbox"/>	Cardiothoracic Surgeon		<ul style="list-style-type: none"> – A cardiothoracic surgeon works with your cardiologist if you have a transcatheter valve procedure 	Discuss options for heart valve treatment
<input type="checkbox"/>	Dentist	Dental check-up	<ul style="list-style-type: none"> – If you have not had a dental check-up in the last six months, please schedule now 	Check for any issues or infection that can infect the new heart valve

Coming to Huntsville Hospital

Scheduling

The valve program coordinator will call to provide you the proposed date for your TAVR.

You will also receive a call from pre-registration. Our goal is to let you know early enough to allow you to plan ahead. However, we may call you on short notice if there is a change in our wait list. Keep in mind that some procedures occasionally have to be postponed due to other surgeries or emergencies.

The day of your procedure

Where to go

Your TAVR procedure will be performed at Huntsville Hospital's Heart Institute. On the day of your procedure, come to the Huntsville Hospital lobby and have your family member park in the Visitor Garage. You will check in directly on the third floor of the Heart Institute.

Additional instructions

Do not eat or drink anything after midnight the night before your procedure.

Take your usual medicines in the morning with a small sip of water.

If you take insulin, pills or injections for diabetes, blood thinners (such as Eliquis or Coumadin), we will give you specific use instructions prior to your procedure date.

While in the hospital, you might need the following:

- | | | | |
|-----------------------------|--------------------------------|--------------------------|---|
| • Toothbrush and toothpaste | • Slippers with non-slip soles | • Reading material | • Glasses |
| • Comb or brush | • Hearing aids | • Your home CPAP machine | • Walking aid, such as a cane or walker |

Bring only a few personal items and clothing. It is best if your family can keep your clothes until you are ready to leave the hospital. If you wear glasses, hearing aids or dentures, we encourage you to label them with your name.

Frequently asked questions

Is TAVR like anything else I have ever had?

TAVR is similar to an angiogram or cardiac catheterization done through the leg. The doctor makes a small opening in the groin and uses an X-ray camera and other monitors to guide the catheters and place the new valve. It is different from a usual angiogram because the opening in the artery is larger for the valve catheter. The doctor also places two other small catheters in the opposite groin.

What happens before the procedure?

You will be checked in after you arrive at the Heart Institute.

You will change into a hospital gown and will lay in a hospital bed. When you are ready to be moved to the procedure room, we suggest you give all your personal belongings (like dentures, glasses and wallet) to your support person to keep your belongings safe.

What equipment will I have?

We will start an intravenous line (IV) in your arm or hand and attach you to a cardiac monitor. Sometimes, the anesthesia team will place a small pressure monitor on your wrist to monitor your blood pressure.

Will I be completely asleep?

Most people sleep lightly during TAVR. Our goal is for you to be as comfortable as possible. The doctor injects “numbing” medicine (like at the dentist) with a small needle in both groin areas before the catheters are inserted. You will receive medications to help you relax, but you will not be completely out, like when under general anesthetic.

What will the TAVR doctor do?

- A small opening is made in the femoral artery in the groin.
- A catheter (small, flexible and hollow tube) is threaded through the artery and up into the heart.
- The doctor uses a special X-ray machine to guide the catheter.
- The new valve is placed across the diseased valve.
- We insert a small wire attached to a temporary pacemaker to control your heart rhythm while the valve is secured in place. This small wire is usually removed at the end of the procedure.
- Once the new valve is securely in place, the catheters are removed and the access sites are closed with stitches/closure devices.
- A dressing is placed over the skin opening in the groin.

How long does the procedure take?

TAVR takes a bit longer than a routine angiogram — on average about 60-90 minutes.

TAVR stands for Transcatheter Aortic Valve Replacement

Transcatheter means we use a small flexible and hollow tube called a catheter. The doctor makes a small opening in the leg artery (called the femoral artery). The doctor then threads the catheter and the new valve over a guidewire, up to the heart and across the diseased valve.

The **Aortic Valve** is one of four valves in the heart. It opens and closes to let blood flow out of the heart. The aortic valve controls the way oxygen-rich blood flows from the heart to the rest of the body.

The transcatheter valve then **Replaces** the diseased valve against the aorta, taking over its function.



During your stay

You will recover in our specialized Cardiac short stay unit or in a cardiac intensive care unit. Your support individual(s) will receive updates and have an opportunity to speak to your doctor after the procedure.

Recovery

- You will lie in bed for the first 3-4 hours after the procedure. The head of your bed will be raised for comfort after the first two hours.
- It is very important to keep your legs straight to prevent bleeding at the puncture sites in your groin. The nurses will frequently check this area as you recover.

Discomfort or pain

- Most patients who have TAVR do not have a lot of pain.
- If you have any pain, the nurses will provide you with pain medication.
- You will have a bruise in your groin area, which can be large, but will slowly go away in a week.

Activity

- Goal: 3-4 hours after your procedure, you will be helped out of bed into a chair.
- Goal: 4-6 hours after your procedure, you will take a short walk with assistance.
- It is important for you to be as active as possible to speed up recovery and prepare you to leave the hospital.
- You may eat and drink once the head of your bed is raised.

Tests after your TAVR

- Echocardiogram, which is an ultrasound of your heart
- Routine blood tests

Going home

Please follow these steps to remain as safe as possible during your recovery process:

- Check your groin incision every day.
 - Bruising is expected.
 - A small soft lump may be felt in the groin.
- If you feel the lump becoming larger or hard, this may mean you are bleeding:
 - Lie down.
 - Have someone press down hard on the area right above the puncture site on your groin.
 - If the bleeding does not stop after 15 minutes, call 911 for an ambulance.
 - Do NOT drive yourself to the hospital and do NOT ask anyone to drive you.
- Call your doctor immediately if you experience any of these problems:
 - Redness and warmth at your groin.
 - Yellow or green drainage from the puncture site.
 - Fever or chills.
 - Worsening numbness in your legs.
 - Pain in the puncture site, groin or back that is getting worse.
- Clean your puncture site with warm water and mild soap, and gently pat dry. No baths or submersion in a pool / hot tub until completely healed.
- If you have dental work in the future, antibiotics are required to prevent infection of your heart valve. Please notify your dentist about your prosthetic heart valve.
- Do not drive for one week after TAVR, unless directed otherwise by our Heart Team or your regular doctor.

Activity at home

Daily activity and exercise are an important part of your recovery. You can follow these steps to safely stay active and healthy once you go home:

- Do NOT lift, squat, push or pull anything that weighs more than 5 pounds for one week after TAVR. This includes NO house work like vacuuming, lifting groceries or strenuous gardening.
- Eat nutritious foods to help build up your strength, but know you may not have a strong appetite for a few weeks.
- Eat small, frequent meals while you recover. If you have fluid restrictions, you may need to continue them and should talk with our heart team if you are unsure.

You may benefit from cardiac rehabilitation to help you return to the daily activities and hobbies you enjoy.

You've had your TAVR...now what?

CALL US IF:

- You have bleeding, redness, swelling or foul-smelling drainage near your procedure site.
- You notice weight gain of 2-3 pounds overnight.
- You have worsening swelling and/or shortness of breath.
- You experience nausea, vomiting or diarrhea.
- You're concerned about your blood pressure being too high or low.
- You have ANY questions or concerns after your procedure.

DAY 1

You may feel tired, sore and anxious to get home. Remember to take it easy today!

- Remove the dressings from your legs once you get home. It's easiest to do it while showering or right after.
- Begin monitoring your blood pressure and heart rate twice a day. Record these numbers and bring them with you to our one-week visit.
- Review your discharge medication list and take all medicines as described. Call us if you have any questions.

DAYS 2-7

You should be noticing an improvement in your pre-TAVR symptoms, including shortness of breath, fatigue, dizziness and/or chest pain.

- Continue monitoring your blood pressure and heart rate (it's common for these numbers to fluctuate for the first few days after TAVR). Call the office if your blood pressure readings are consistently $>160/90$ or $<100/50$ or your heart rate is <50 or >100 .
- Increase your activity level each day.
- Do not drive until your one-week follow-up visit.
- Do not lift over 5 pounds until cleared by your provider.
- Don't forget to come to your follow-up visits at The Heart Center!

WEEKS 2-4

- You should be feeling better each day.
- Your 30-day follow-up visit with an echocardiogram should be scheduled.
- Talk to your physician about Cardiac Rehab.
- Celebrate each milestone you hit along the way!

DON'T FORGET

- Set activity goals for yourself daily.
- Shower each day and clean incision sites with mild soap and water. NO BATHS or hot tubs until your incisions have healed.
- Keep a blood pressure log.
- Wait six months before having routine dental procedures.
- Always take antibiotics prior to dental cleanings or other invasive procedures. If unsure, check with your doctor.
- Take all medicines as prescribed.
- Be patient with yourself – it takes time to get back to “normal.”

Follow-up appointments

1 week after TAVR

You will see a nurse practitioner at the Heart Center.

1 month after TAVR

You will see your TAVR doctor, have an echocardiogram (heart ultrasound) and blood work at the Heart Center.

1 year after TAVR

You will see your TAVR doctor or nurse practitioner, have an echocardiogram (heart ultrasound) and blood work at the Heart Center.

Questions and important dates to remember

Blood Pressure Log

- Take your blood pressure daily for _____ week(s).
- If you're on a blood pressure medication, take your blood pressure 1-2 hours after you take your medicine.
- Sit and relax 10-15 minutes before taking your blood pressure.
- Bring this log with you to your appointments at the Heart Center.
- Call your heart doctor if your blood pressure or pulse is too high or too low.

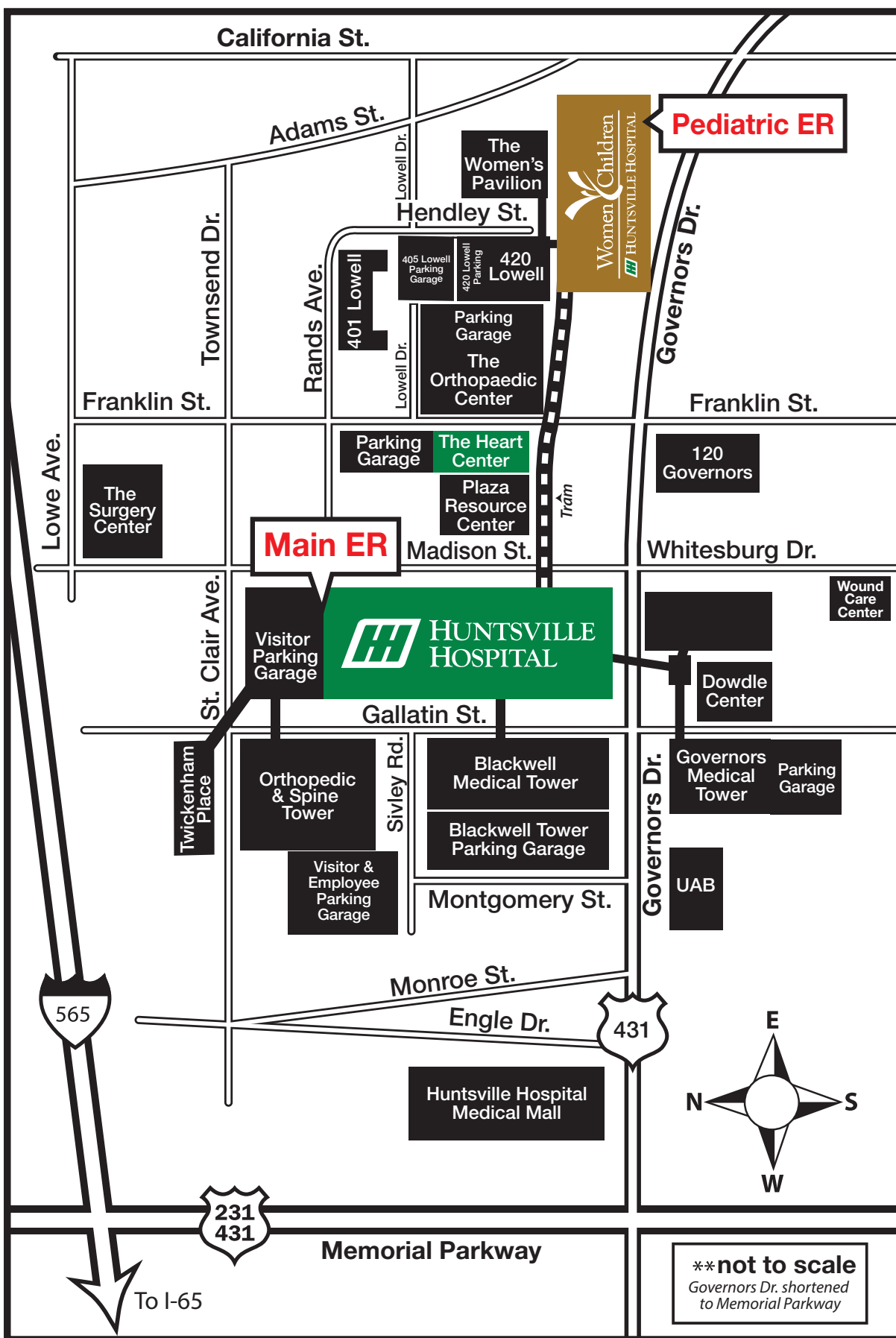
WEEK 1

DATE	BLOOD PRESSURE	PULSE
_____	_____/_____	_____
_____	_____/_____	_____
_____	_____/_____	_____
_____	_____/_____	_____
_____	_____/_____	_____
_____	_____/_____	_____
_____	_____/_____	_____

WEEK 2

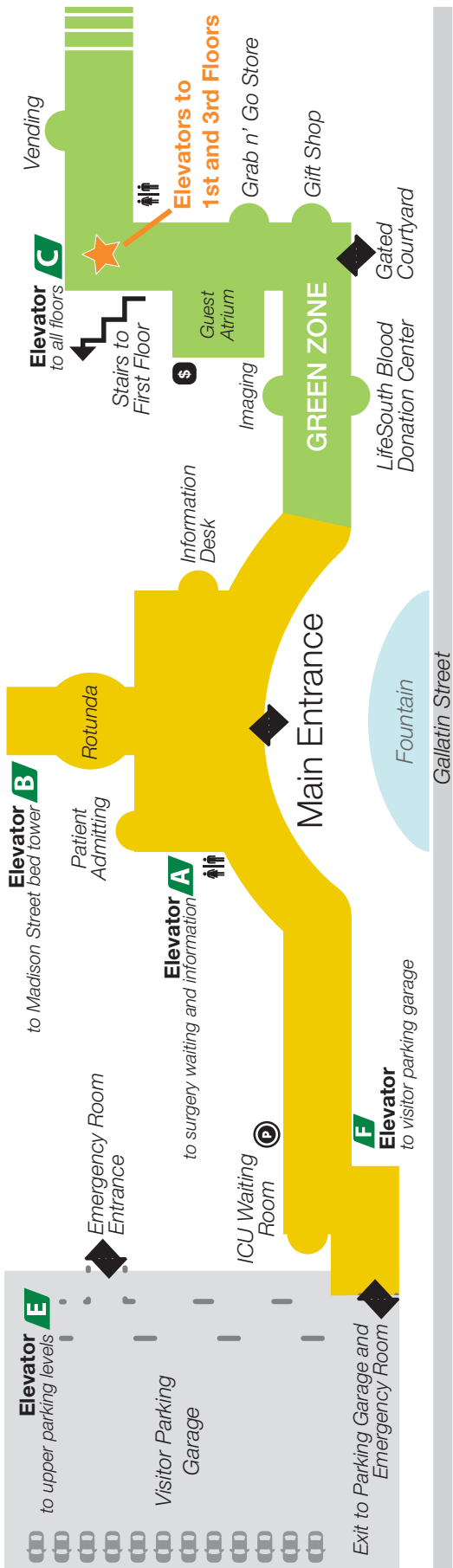
DATE	BLOOD PRESSURE	PULSE
_____	_____/_____	_____
_____	_____/_____	_____
_____	_____/_____	_____
_____	_____/_____	_____
_____	_____/_____	_____
_____	_____/_____	_____
_____	_____/_____	_____

Huntsville Hospital campus

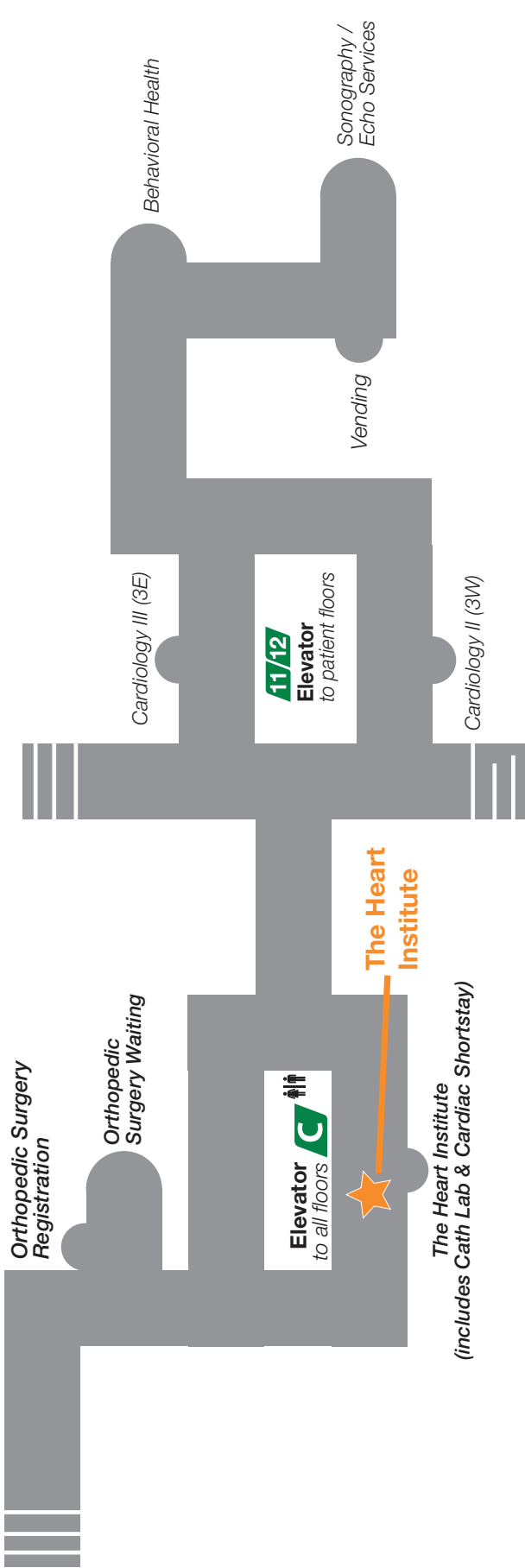


Inside Huntsville Hospital

FIRST Floor



THIRD Floor





**HEART BYPASS
SURGERY**



HEART FAILURE



HEART ATTACK

**Huntsville Hospital Heart Center
Structural Heart Program**

Valve Program Coordinator • (256) 801-6687

Huntsville Hospital

101 Sivley Road • Huntsville, AL 35801
huntsvillehospital.org • (256) 265-1000

Huntsville Hospital Heart Center

930 Franklin Street • Huntsville, AL 35801
theheartcenter.md • (256) 533-3388

