Sentara Heart
Patient and Family Education Guide

SENTARA HEART®

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Sometimes *it's hard to think clearly about "matters of the heart." But it's important to have the facts and to make an informed decision. Because unfortunately, one in four people will have — or have had — a heart-related problem. For many, treatment will require hospital care. And while that's not a prospect that any of us would welcome, there is comfort in knowing that we live in a region that offers superior cardiac care, among the best results, or outcomes, of any program in the country.*

Sentara is the regional leader in cardiac care. Whether you need a simple exercise stress test or a brand new heart, you will get the best in cardiac care right here at home. Our program is one of the largest in Virginia, and one of the largest in the country. Our size and over 40 year history mark us as one of the most experienced and committed cardiac care programs available anywhere — and we have the data to prove it. We invite patients to review our track record when making the decision about cardiac care. We think you'll find that here in Hampton Roads, your heart is truly in the right place.

Sentara was the first in the region to offer patients electrophysiology, angioplasty, laser surgery, stents, drug-eluting stents, repairs of congenital holes within the heart chamber in adults, minimally invasive valve surgery, left ventricular assist device, and heart transplantation. And we remain at the leading edge, implementing new and promising treatments and techniques as soon as they become available. Many of these are pioneered right here, by cardiologists and cardiac surgeons who are nationally recognized for their participation in clinical trials that examine the most advanced technology and treatments for patients with heart disease.

If you have questions about cardiac treatment, ask your nurse or doctor. Your doctor will also work closely with you to review all procedure options and define the best course of treatment, and help you adopt a lifestyle that will not only improve the current state of your cardiac health, but help you avoid problems in the future. And remember — you are the most important member of the team in improving, protecting and preserving your cardiac health. The more you learn about your condition, the better your chances for a successful and speedy recovery.

This care guide has been designed to help patients and their families better understand heart disease and cardiovascular rehabilitation and treatment options, including surgery. It is not to be used in place of advice and treatment from a qualified medical professional.

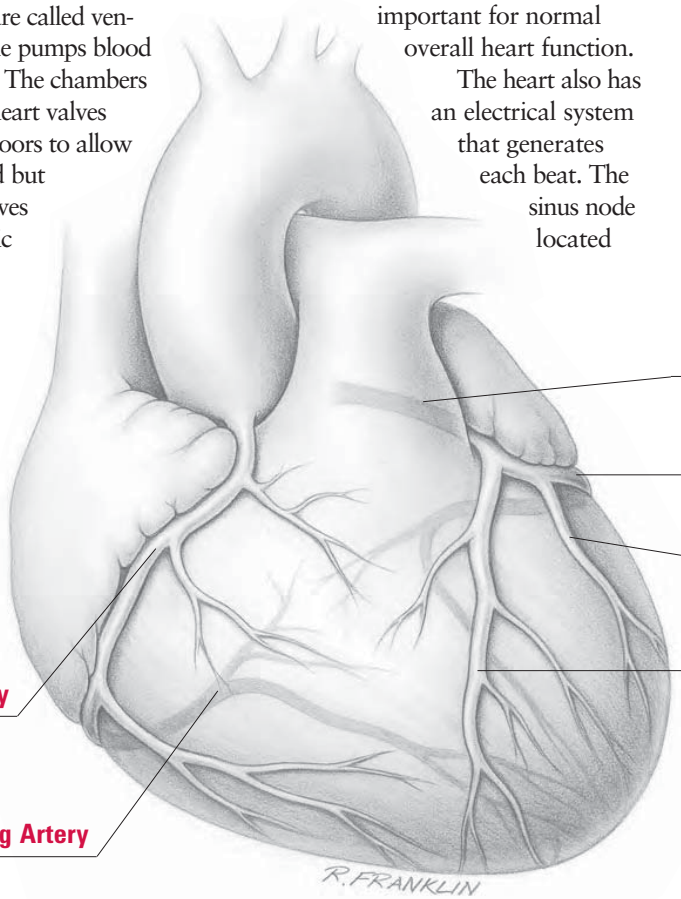
If you have additional questions, talk with your doctor or nurse or call **1-800-SENTARA.**

About Your Heart

The heart is the center of the circulatory system. This pear-shaped organ, slightly larger than a clenched fist, is very powerful. It receives oxygen-rich blood from the lungs and pumps it throughout the body at a rate of more than four quarts a minute. To keep up with the body's demands, the heart muscle needs its own healthy blood supply. The main coronary arteries that supply blood to the heart muscle are: the left main coronary artery, which includes the left anterior descending artery and the circumflex artery; and the right coronary artery.

The heart also has four chambers that hold blood as it moves through the heart. The upper chambers are called atria and the bottom chambers are called ventricles. The heart muscle pumps blood through each chamber. The chambers are separated by four heart valves that act like one-way doors to allow blood to move forward but not backward. The valves are the mitral and aortic (left side of the heart) and the tricuspid and pulmonic (right side of the heart). Proper functioning of these valves is important for normal overall heart function.

The heart also has an electrical system that generates each beat. The sinus node located near the top of the heart begins the electrical impulses that make the heart pump. These impulses are then carried through the atria and down through the ventricles. The heart responds to the stimulus, contracts, and pumps blood through the body. A normal heart rate is around 60-100 beats per minute. Your heart's rate and rhythm can be recorded through a testing process called an electrocardiogram or EKG.



Bless Your Heart! The heart is truly a miraculous part of the body. Did you know...

The heart of an average adult weighs between 8 and 12 ounces.

It beats an average of 72 times a minute.

During the average lifespan of 70 years, it will beat two and a half billion times and pump a total of more than 35 million gallons of blood.

How many interventional procedures (treating blockages in arteries) has your doctor performed?
How low is the mortality rate for interventional procedures at your hospital?
What is the interventional procedure success rate?

Coronary Artery Disease

Normally, the inner surface of the coronary arteries is smooth, allowing the blood to flow freely to reach the heart muscle. Over time, this surface may change and the arteries become partially or completely blocked by sticky, fatty deposits. As these deposits build up, the arteries narrow, limiting the blood supply to the heart muscle. This is what is known as coronary artery disease.

If you have coronary artery disease, you may experience symptoms such as chest pain (angina), chest pressure, or shortness of breath.

It is important to realize that coronary artery disease can lead to myocardial infarction, more commonly known as a heart attack.

Risk factors are certain conditions or habits that have been shown to contribute to the build-up of fatty deposits in the coronary arteries.

There are some risk factors for coronary artery disease that you cannot control such as family history, age and gender. The good news, however, is that you can do a great deal to reduce your risk through healthy lifestyle management.

Your doctor will give you detailed information on the best way to help reverse coronary artery disease as well as advice on regaining and maintaining a healthy lifestyle to prevent problems in the future.

Acute Myocardial Infarction or AMI

(Heart Attack)

A myocardial infarction (heart attack) occurs when a blockage created by a blood clot or ruptured plaque cuts off blood flow in a coronary artery. The process can occur as follows:

1) The artery wall becomes coated with a fatty, sticky substance over time and plaque develops—blood may not be flowing freely enough through the coronary artery to reach the heart muscle.

or

2) A blood clot develops suddenly on the ulcerated plaque, blocking blood flow so that oxygen cannot reach the heart muscle.

or

3) A plaque within the artery wall ruptures abruptly creating a blockage preventing blood rich in oxygen from reaching the heart muscle.

Once these things occur, the oxygen-starved muscle begins to die, resulting in pain and permanent damage. The damage may also cause an irregular heart rhythm, known as **arrhythmia**.

Heart Attack Warning Signs in Men and Women

- Chest pain with shortness of breath.
- Pain in one or both arms.
- Pain in your back, neck, jaw or stomach.

Additional Heart Attack Symptoms that may be Unique to Women

- Nausea or dizziness without chest pain.
- Shortness of breath or dizziness without chest pain.
- Unexplained anxiety, cold sweats or paleness.

Treating a Heart Attack

Physicians treat a heart attack by administering drugs (called thrombolytics or "clot busters") in the Emergency Department or by performing an immediate balloon angioplasty procedure *(see p. 10)*.

Evaluation may include electrocardiogram monitoring, echocardiogram or a stress test. The damaged area from the heart attack will eventually form a scar, a process that may take six weeks. Acute intervention (such as clot busters or angioplasty) should limit the amount of permanent scarring to the heart muscle.

If you think you're experiencing heart trouble of any kind, the most important thing to remember is that "time is muscle" — in other words, DON'T DELAY in seeking medical assistance. Even if you're not certain the problem is your heart (symptoms can be similar to indigestion), go to the emergency room right away. Immediate medical attention is critical to helping you avoid permanent, irreversible heart damage.

Also remember that sometimes heart attacks occur with very few symptoms; some may even generate such minimal pain that they are called "silent heart attacks." So take any warning sign seriously.

Using Nitroglycerin

Your doctor may have prescribed a medicine called nitroglycerin for you to place under your tongue if you have chest pain. Do not open the bottle until you need to use it (the drug loses strength four to six months after being opened). If you have pain or discomfort that you think is coming from your heart:

- Place one NTG (nitroglycerin) tablet under your tongue or use one spray dose.
- If you feel no relief after five minutes, repeat with second NTG dose.
- If you feel no relief after five minutes, repeat with third NTG dose.
- If chest pain or discomfort is not relieved after 15 minutes, call 911 or your doctor and go to the nearest emergency room.
- If the pain is relieved with rest and nitroglycerin, call your physician and describe the pain.

Following a Heart Attack

Time in the hospital after a heart attack varies depending on the severity of the MI (myocardial infarction), the number of complications you experience and the nature of the procedure. Once discharged from the hospital, please follow these guidelines to aid you in a full recovery:

- Do not drive until your cardiac doctor or rehab staff gives you permission.
- Avoid lifting, pulling or pushing heavy objects (10-20 pounds) until approved by your physician.
- Avoid straining to have a bowel movement. Your physician can prescribe a stool softener or laxative.
- Avoid very hot or very cold temperatures. In the summer, go outside during the cooler times of the day (early morning or evening). In the winter, go outside in the warmer part of the day, around noon. Check with your doctor before using steam rooms, saunas, hot tubs, etc.
- Avoid situations that cause you to become tense and upset. Stress makes the heart work harder and can have other damaging effects.
- Rest for 20-30 minutes twice a day.
- Avoid more than two servings a day of alcohol. A serving is equal to one beer, one glass of wine or one ounce of liquor. Greater quantities make the heart work harder.
- Most people may resume sexual activity three to six weeks after a heart attack; when you can climb two flights of stairs without pain or discomfort, that's a good gauge that you're ready. Don't rush or attempt sexual activity after a heavy meal or when you are already tired. If sexual activity brings on chest pain or angina, stop and rest. You may wish to wait for another time or vary your position. Remember, when the arms are supporting the body's weight, more stress is placed on the heart.
- Pace your activities; alternate hard tasks with easy ones. Avoid yard work and heavy housework (e.g., vacuuming) until your doctor approves it.
- Get plenty of sleep.
- Check with your doctor before traveling outside the community.
- Eat three or four small meals a day rather than one large meal. Eat slowly.
- Modify your risk factors *(see p.18)*.

What is the success rate of those interventional procedures at your hospital compared to the published national average?

Electrophysiology and Arrhythmia Management

An electrophysiology study is a test to analyze your heart rhythm to determine the most effective treatment for your situation. Small wires are guided into the heart to record the impulse and to determine where the abnormal impulse starts and what effect the impulse has on the normal conduction process.

Sometimes a problem with the heart rhythm causes your heart rate to become too slow, fast or irregular. The changes in your heart rate and rhythm may cause such symptoms as:

- Dizziness
- Lightheadedness
- Shortness of breath
- Fainting
- Confusion
- Tiredness

Alternate rhythms can occur when a heart impulse comes prematurely from a place other than the sinus node. Each type of premature stimulus can produce a different rhythm; the alternate rhythm (and consequent rapid contractions and heart rate) occur when the impulse takes an abnormal path back up through the atria (two top chambers) rather than its normal path through the ventricles (two bottom chambers).

One common arrhythmia is called **atrial fibrillation** in which many impulses are expelled from the atria at a very rapid, disorganized rate. The heart's top chambers do not effectively empty into the ventricles and blood may collect or form clots.

Paroxysmal supraventricular tachycardia (PSVT) is a succession of rapid atrial contractions that can bring the heart rate up to 220 beats per minute.

A **ventricular arrhythmia** is a ventricular contraction that can occur in short bursts that can be either very fast or very slow. These are the most dangerous type of irregular heart beats and often result in immediate hospitalization and treatment.

Your physician may recommend a variety of treatment options including medications, cardioversion, pacemakers, implantable defibrillators and ablations.

Treatment Options

Medications are usually the first step in treating abnormal rhythms. There are a variety of different medications that can be prescribed based on the type of abnormal rhythm and your medical history.

A procedure called **electrical cardioversion** may be used to convert your heart back to a normal rhythm, after which anti-arrhythmic medication is prescribed to help your heart maintain its normal rhythm.

There are different types of ablation therapy used to treat arrhythmias including cryoablation and radiofrequency ablation. **Cryoablation** is the use of cold at the site of the abnormal rhythm to restore your normal heart rate and rhythm.

After the physician has identified the area in your heart that is causing the problem, a small wire or catheter will be passed from your groin to your heart. When the area has been located, **radiofrequency ablation** is applied via a special type of catheter. Radio waves are used to damage the abnormal cells in order to allow the normal conducting cells to again take control and restore your normal heart rate and rhythm.

If your heart's electrical system is not working correctly, you may need a **pacemaker**, commonly referred to as a "pacer." This small box (with wires that connect it to your heart) is surgically inserted into the chest. The pacemaker "senses" your heart's own function and only assists when you need it. If your heart is beating normally, the pacemaker does nothing. If your heart misses a beat the pacemaker provides the stimulus for a heartbeat. Some pacemakers can even change the rate of your heartbeat depending on your activity.

Sometimes for ventricular arrhythmias, your doctor may recommend **Implantable Cardioverter Defribrillators (ICD)**. This device, like a pacemaker, senses your own heart rhythm and may deliver low or high energy shocks to restore normal heart rhythm. Many devices also contain pacemaker capabilities as well.

For patients with heart failure, **Resynchronization Therapy (CRT)** may be recommended. These devices are being implanted to help with symptoms of heart failure by stimulating the left and right chambers of the heart to assist in the synchronized pumping action of the heart and improving the amount of blood delivered to the rest of the body.

Non-invasive Cardiac Testing

Many tests of cardiac function do not require an invasive procedure. Some of the more commonly administered include:

An **electrocardiogram (EKG)** is a recording of the electrical activity of the heart. Electrodes are placed on your arms, legs and chest to record a series of heartbeats that will help determine your diagnosis. It is completely painless.

A **holter monitor** is a device used to continuously monitor heart rhythm for an extended period of time. It can detect irregular heartbeats, and evaluate pacemaker performance and drug therapy effectiveness. The patient keeps a diary of activities and symptoms for the period the monitor is worn. This monitor often records the heart rhythm for 24 hours but can be kept in place for a longer period of time. The device is about the size of a small transistor radio, attached by either shoulder straps or a belt. It has multiple wires (called leads) which are taped to the patient's chest. The doctor will inform you when and where the monitor will be removed.

The **tilt table** test is used to assess fainting spells or dizziness, often called "syncope." The patient lies on a tilt table and wears a blood pressure cuff and a painless pulse oximeter. EKG leads are applied to the chest. The patient is monitored lying flat for 10-20 minutes, after which the table is tilted upright and the patient is monitored in that position for another 20-40 minutes. During this test, the patient informs the nurse of any symptoms, including nausea, dizziness, blurred vision, chest pain or a fainting feeling.

An **exercise stress exam** is ordered by your physician to test your heart's response to exercise. Using a treadmill you will walk at various speeds and elevations to see if you experience any symptoms or heart rhythm changes.

The **nuclear exercise stress exam** is a more specific test that will evaluate your heart's response to exercise as well as the amount of blood flow to your heart muscle at rest and at exercise. A small needle will be placed in your vein so that the special nuclear material can be administered to facilitate imaging of blood flow through your heart. You can expect to be scanned by the camera before and after exercise on the treadmill. Each scan takes about 30 minutes and the treadmill portion will usually take about 20-30 minutes.

Drug administered nuclear exam is used if a patient cannot exercise on a treadmill due to physical limitations. Various medications can be administered to simulate exercise so that the physician can see how your heart will respond.

The stress MUGA (multiple gate acquisition scan) evaluates congestive heart failure, recent heart attacks and the effects of medicine. It scans for information on how effectively the heart is pumping and the condition of the patient's valves. The test combines an injection of medication (technetium) and exercise (pedaling a bicycle while lying flat or walking on a treadmill), during which time the patient is monitored by a special camera. It takes about two hours.

An **echocardiogram** records the movement of blood through the chambers and valves of your heart. It is a painless procedure that takes about 30 minutes, during which gel and a small hand-held device are placed directly on the chest to take pictures of the heart.

A **stress echocardiogram** adds the component of exercise to the regular echocardiogram, monitoring how the heart performs before, during and after exercise. This procedure can take up to two hours.

A **transesophageal echocardiogram** takes pictures of the heart from within the esophagus. The throat is numbed with medication in order to enable the patient to swallow a tube with a tiny camera at its tip, allowing pictures of the heart and blood vessels from angles that would otherwise be impossible to view. It is uncomfortable but not painful and generally takes less than 30 minutes. You will receive some sedating medication to help you relax during the exam.

Cardiovascular CT or MRI non-invasive imaging offer extremely detailed views of the structure and function of the heart and major vessels. Using advanced imaging scanners such as the 64-slice CT or a specialized cardiac MRI, the results can provide fast, accurate diagnosis of cardiovascular disease, chest pain, stroke and other life-threatening illnesses of the heart and vascular system.

What is the success rate of those interventional procedures at your hospital compared to the published national average?

Congestive Heart Failure

(Heart Failure)

If you have been diagnosed with heart failure, your heart is not pumping as strongly as normal. It does not mean that your heart has stopped working. It means that your heart muscle is weaker, delivering less blood with each beat. Less blood means the body and its organs get less oxygen and nutrients. This may cause overall weakness and fatigue. The weakened heart also leads to an increase in pressure within the heart itself. This causes the body to retain salt and water. This "flooding" can lead to swelling in the legs, feet or abdomen. If the lungs start to fill with fluid then you may experience shortness of breath. These are the symptoms of heart failure.

For most patients, heart failure can be treated and managed, but not cured. In some cases, it results as a complication from another medical condition (such as blocked coronary arteries), and surgery can help.

The Most Common Causes of Heart Failure

- Coronary artery disease, usually complicated by a previous heart attack.
- Heart muscle disorder (cardiomyopathy).
- High blood pressure (hypertension).
- Heart valve disease.

When to call the doctor:

If you're experiencing any of the following symptoms, you should call your doctor right away:

- Sudden weight gain (two pounds in one day or five pounds in one week).
- Worsening shortness of breath.
- Noticeable swelling of ankles, feet or abdomen (edema).
- If you cannot sleep lying flat in bed, or start waking up at night because you cannot breathe.
- If you get up quite frequently at night to urinate.
- A cough that is getting worse.
- If you become sick to your stomach, or have vomiting or diarrhea that is not getting better.
- Dizziness that is getting worse or the sudden onset of dizziness.
- You become tired a lot faster.
- You begin to have tightness or pain in your chest, a racing, rapid heart (pulse), a loss of appetite or nausea.
- If you experience side effects from your medicines.

Call 911 if you experience:

- Chest pain or discomfort that does not get better with nitroglycerine.
- Loss of consciousness (you pass out).
- Shortness of breath that is getting worse quickly and you are unable to lie flat.
- Cough that is getting worse and expectorating large amounts of foamy mucous.
- A large, sudden increase in the swelling of the feet and ankles.

Taking Your Medicine

Medicines are the main way CHF is treated and prevented. Take all medicines as your doctor directs. Don't stop taking medications or change your dose unless your doctor tells you to.

Establish a routine for taking your pills at the same time each day. Ask your doctor or pharmacist which pills you might take with meals to help you remember them.

Don't run out of your pills!
And remember to carry them with you when you travel.

Keep a list of your pills. Show it to your doctor each visit and to your pharmacist before you buy any other prescription or over-the-counter medicine. Your pharmacist can tell you the combinations which may cause problems.

Use a medication record to help you take your medicine as directed.

The retail cost of medicines varies greatly among different pharmacies. If cost of medicines is a problem, let your health care provider know. There may be lower cost, acceptable "generic" forms of your medicine. Financial assistance may be available through social services. You may also qualify for help through programs established by drug companies.

Follow-Up Appointment

It is very important to follow-up with your physician after you have been discharged from the hospital. You may have an appointment scheduled for you before being sent home. If not, then you will need to schedule an appointment for yourself once you are home. This appointment should take place within the first 4-6 weeks once you are discharged.

Common Medicines for Treatment of Heart Failure

ACE inhibitors keep the body from creating too much angiotension, which helps to regulate blood pressure. These medicines lower blood pressure so that the heart doesn't work so hard.

> *If you feel weak and dizzy when taking these drugs, check with your doctor. Do not stop taking these medications without checking with your doctor.*

Beta Blockers are used to help improve the heart's pumping ability.

Vasodilators are used to help the blood vessels relax, putting less strain on the heart when it pumps blood to the body.

Digoxin or **Lanoxin** strengthen the heartbeat so more blood is pumped with each heartbeat.

> *If you experience loss of appetite, nausea or vomiting, bluish or yellowish vision, skipped heartbeats or rapid heartbeats, call your doctor immediately.*

Diuretics ("water pills") help your kidneys get rid of excess fluid by making more urine.

Potassium is important for heart rhythm. Diuretics may cause you to lose potassium through your urine. Leg cramps are common when potassium gets too low. Sometimes extra potassium is needed. Foods such as bananas, strawberries, oranges, beans and peas are high in potassium. In many cases, however, food does not contain the amount of potassium needed. Follow your doctor's instructions.

Managing Heart Failure

Remember to weigh yourself at the same time each day, wearing the same amount of clothes. The best time to do so is first thing in the morning after you urinate and before you eat breakfast. When checking your weight, think about how you have been eating. If you are eating less and losing weight, you might not notice the gain from fluid. Keep a record of your weight to show your doctor.

Get plenty of rest. Plan activity during the day and stop when you are tired. You may reduce nighttime anxiety with a nightlight or nerve pill (sedative).

Place commonly used items within easy reach to avoid over-extending yourself.

Avoid temperature extremes. Be careful outside in the winter when the temperature is less than 40 degrees and in the summer when the temperature is above 85 degrees.

Modify your risk factors.
(See page 18.)

Avoid salty foods and table salt. Too much salt or sodium makes your body retain water, and can trigger an attack or heart failure.

How much sodium am I allowed in a day? 2,000 to 2,400 mg of sodium is the general recommendation for people with Heart Failure. This means your goal for each meal should be about 600 mg sodium. Keep in mind that one teaspoon of salt has 2,300 mg sodium. So, avoid adding table salt to your food.

Avoid large crowds — the compromised circulatory status that occurs as a result of heart failure increases the risk of infection.

Get influenza vaccines annually to help avoid contracting the flu.

How low is the mortality rate for heart surgeries at your hospital compared to the published national average?

Cardiac Catheterization

If you have experienced signs and symptoms of heart disease, your doctor may recommend that you undergo a procedure called cardiac catheterization. This procedure allows your doctor to closely observe the pumping action of your heart and check the inner surface of the coronary arteries for signs of heart disease.

Cardiac Catheterization (cath) is performed by a cardiologist in an area of the hospital known as the cath lab. During the procedure, a long, flexible tube (a catheter) is inserted into an artery, usually through the groin area, and gently directed upward to the heart. The cardiologist uses x-ray equipment to track the movement of the catheter inside the body and to take pictures of the heart and coronary arteries. These pictures help the cardiologist identify any narrowing of the arteries or any other structural problems within the heart that are producing the signs and symptoms of heart disease. This procedure should provide your doctor with the information needed to recommend further tests or treatment for your condition.

The doctor may tell you that:

- Your coronary arteries appear healthy, without signs of blockage. In this case, further tests may be recommended to diagnose the source of your symptoms.

  or

- You have some degree of blockage in the arteries that requires the use of medication(s) at home to control your symptoms and prevent a heart attack.

  or

- You need immediate treatment to improve the blood flow to your heart. This treatment may be provided at the time of your cath procedure, or scheduled for another time.

  or

- You may need coronary artery bypass surgery.

Then, depending on the results of your cardiac catheterization, your cardiologist will discuss the plan of care for you and together a treatment procedure will be identified. If an intervention is the approach you choose to take, the cardiologist will tell you about the coronary intervention procedure and may refer to several types of interventional procedures that are outlined below:

Interventional Technologies

These are a group of procedures in which the narrowed artery is opened by various types of tools such as tiny balloons or cutting catheters. The goal is to open the artery to allow adequate blood flow. Depending on the type of blockage you have, the artery may narrow and restrict blood flow again which is called restenosis.

It is important to know that restenosis happens to only about one-third of newly opened arteries, and usually within the first six months. If it occurs, your doctor may recommend a repeat procedure or intervention.

Intracoronary Stent

This is a procedure in which a tiny metal coil (similar to the spring in a ballpoint pen) is inserted into a coronary artery via a balloon catheter. The stent provides reinforcement to the artery wall and prevents it from closing.

When stents are placed in the artery, the body often responds by increasing cell production creating a scar, which can lead to a problem called "in-stent restenosis."

Drug Eluting Stent (DES)

DES are stents coated with a medication that decreases cell growth within the artery lumen preventing the scarring around the stent coils.

Atrial Septal Defect (ASD)

Atrial Septal Defects are successfully repaired in the catheterization lab using a catheter, which will reduce the recovery time to 1- to 2 days versus a 4- to 6-week recovery with an open heart surgical approach.

Valvuloplasty

Valvuloplasty involves inserting a catheter with a balloon into the aortic or mitral valve, or both. The balloon is inflated across the valve to decrease obstruction within the valve.

If an emergency occurs or if an urgent problem is diagnosed during one of these procedures in the cath lab, it may be necessary for a cardiac surgeon to perform **coronary artery bypass surgery** in the operating room. Your cardiologist will discuss this with you in preparing for your catheterization procedure.

Atherectomy (DCA)

A technique in which a small mechanical cutter inserted through a catheter is used to gently shave away the deposits or plaque from the walls of the blocked artery, restoring blood flow throughout the artery to the heart muscle.

Preparing for an Invasive Procedure

Before your scheduled cath procedure, your physician may order some routine blood tests, x-rays or heart studies such as an EKG (electrocardiogram) or a stress test (echocardiogram). A cardiologist will review your medical history, perform a physical exam and discuss the risks and benefits of the cath procedure with you. This is an excellent time for you to ask specific questions about your condition and the procedure.

Be sure to tell the cardiologist if:

- You have ever had an allergic reaction to any medications or to x-ray dye (known as contrast).
- You suspect that you may be pregnant.
- You have diabetes or any other chronic medical condition.
- You are diabetic. (Note: if you are diabetic, it may affect the time of day that the cardiologist schedules the test in order to prevent a hypoglycemic reaction.)
- You have any type of infection.
- You are taking any type of blood-thinning medications (such as aspirin, coumadin or plavix).
- You cannot lay flat on your back for a long period of time.
- You have had any recent surgery, dental work or bleeding problems.

When your test is scheduled, you will be asked to sign consent forms authorizing the cardiologist to perform the test and allowing the hospital staff to provide treatment.

Do not eat or drink anything after midnight the night before your procedure. Your doctor may have you take your morning pills with a small sip of water.

What to bring:

You may wish to bring items that will make you feel more comfortable during your stay, such as a gown or pajamas, bedroom slippers, bathrobe, toiletries and a book.

Bring a list of medications you take at home, including the name of the drug, the dose/strength, and how often you take it.

You may wear items such as dentures, eyeglasses and hearing aids to the cath lab; your doctor and the staff will give you instructions regarding these items when you arrive.

What to leave at home:

We strongly suggest that you *do not* bring any jewelry, credit cards, large sums of money or other valuables. Sentara cannot assume responsibility for loss of personal items during your stay.

What to expect during your hospital stay:

If you are already an inpatient:

You will be prepared for your cath in your hospital room.

If you are arriving as an outpatient:

You will be directed to an outpatient holding area. Then:

- Someone will show you where to change your clothes and store your belongings. Your clothes will remain in that area during the procedure and will be sent to your assigned room with a member of your family or the hospital staff.
- To prevent infection, a member of the nursing staff will shave and cleanse the site where the catheter will be inserted.
- A small intravenous catheter (IV) will be placed in a vein in your arm to allow the staff to give you medications before, during and after the procedure.
- You will be asked to empty your bladder (a bedpan or urinal will be available during the procedure as well).
- You will receive some medication to help you relax before the test.
- Nurses will check your temperature, pulse and blood pressure and provide additional instructions.
- Your family is welcome to visit with you before you leave for the cath lab.

How long the procedure should take:

The cardiologist or your nurse will tell you what time your procedure is scheduled. Please note that emergencies sometimes occur, which can change or delay the schedule in the cath lab. If this should happen, the nursing staff will keep you informed. We appreciate your patience and understanding.

Cardiac cath procedures generally require about one hour to complete. If additional procedures are required (e.g., angioplasty, atherectomy, rotoablator or stent) the entire procedure may take up to two or three hours. Please remember, this is the time required to perform the actual procedure — it does not include additional time required to prepare you for the procedure or for you to recover after the procedure.

What to expect in the cath lab:

It is not necessary for you to be asleep for the cath procedure, but the cardiologist may order a sedative to help you relax. A local anesthetic (or numbing medicine) will be injected around the area where the catheter will be inserted. When the medicine takes effect, the physician inserts the catheter and the procedure begins.

As the catheter is advanced gently toward the heart, the cardiologist will inject x-ray dye, which allows the physician to examine the inner surface of the coronary vessels. Then x-ray pictures will be taken for further study, to determine the extent of any blockage discovered during the procedure. It is important that you remain as still as possible and avoid bending your legs during the procedure. *At times you may experience a sense of pressure, warmth or flushing as the catheter is advanced or the dye is injected. This is normal.* Your cardiologist will talk with you throughout the procedure, making sure you understand what is going on around you. *If you experience any discomfort, chest pain or shortness of breath at any time, please tell the cardiologist immediately.*

What happens after your procedure:

If you are going home following the procedure, you will move to the recovery area for additional post-procedure care. You will need to remain in bed for two to six hours after the procedure. If an additional procedure was performed, you may be transferred to an inpatient room after the recovery phase and may need to remain in bed for 8 hours.

The nursing staff will take your vital signs (temperature, pulse and blood pressure) frequently and check the cath site for any bleeding. *You will be instructed not to raise the head of your bed more than 30 degrees and to keep your leg straight at all times.* This is very important to support the healing process. If needed, a support device may be used to assist you in keeping the leg in the proper position. To change positions and make yourself more comfortable, you may turn on your side and put a pillow at your back with help from your nurse. Keep your nurse call bell close at hand and do not hesitate to call for any additional assistance you may need.

With the cardiologist's permission, our staff will serve you a meal. We encourage you to drink lots of water to help flush the dye from your system.

The cardiologist will determine when it is best to remove the catheter. A nurse or technician will remove the catheter and hold pressure over the area for approximately 30 minutes to prevent bleeding and excessive swelling or bruising at the site. Following removal of the catheter, six hours of bed rest is required for the artery or vein to heal. Some patients may require less bed rest due to a device used to close the puncture site in the artery wall. (Not all patients are appropriate candidates for closure devices.) As you recover, members of the cardiac rehabilitation team or nursing staff may assist you in gradually resuming normal activity. Upon discharge, your doctor may recommend that you attend an outpatient cardiac rehab program.

How long you may be in the hospital:

While each case is unique and individual courses of treatment vary, the following guidelines should give you an idea of the expected length of your hospital stay. Keep in mind that these guidelines are for patients who have not had a heart attack or other conditions that would extend the length of stay.

What are the heart attack warning signs?

Heart Attack Warning Signs in Men and Women:

- **Chest pain with shortness of breath**
- **Pain in one or both arms**
- **Pain in your back, neck, jaw or stomach**

Heart Attack Symptoms Unique to Women

- **Nausea or dizziness, without chest pain**
- **Shortness of breath or dizziness, without chest pain**
- **Unexplained anxiety, weakness or fatigue**
- **Heart palpitations, cold sweat or paleness**

- If you had a cath without any additional treatment procedures, you may expect to be discharged the same day, or early the following morning depending on the course of your recovery.

- If you had a coronary intervention, you might go home the following morning or afternoon, depending on your medication regiment.

- If coronary artery bypass surgery is required, you will most likely remain in the hospital four to five days after surgery.

Discharge planning assistance is available to help you and your family make plans for post-hospital care. If you have any special needs or concerns about planning your discharge, please discuss them with your nurse.

Important instructions following an invasive procedure:

When you return home following your cath procedure, please:

- Limit your activity for the first 24 hours. You may move about, but do not strain in any way or lift heavy objects (greater than 10 pounds).

- Follow your doctor's instructions carefully as you resume your daily activities and return to work.

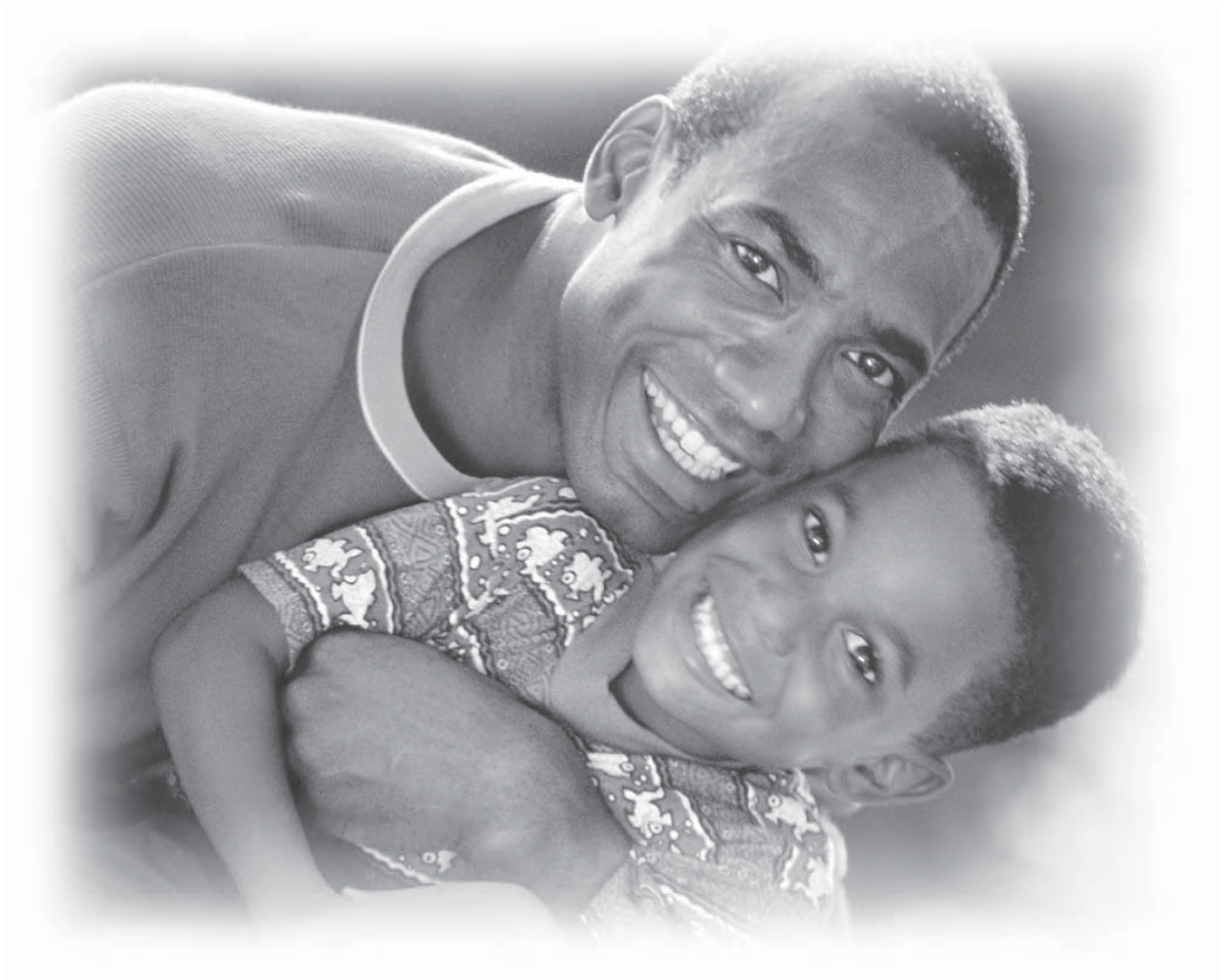
- Take any medications ordered by your physician exactly as prescribed. Read instructions carefully and avoid taking any over-the-counter medications or food products that may interfere with the action of the medication.

Call the doctor if:

- The catheter insertion site begins to bleed, is painful or pulsating, and/or you notice bruising or swelling. **If you do notice any bleeding or swelling at the puncture site, lie down immediately and apply pressure to it. Call 911 or your physician immediately. *Do not* make any additional attempts to control the bleeding without medical instruction.**

- You experience any chest pain or discomfort.

- The arm or leg in which the catheter was inserted feels cold or numb.



Open Heart Surgery

Your doctor may have determined that the best treatment for your coronary artery disease is surgery. Depending on the severity of your illness, this may mean coronary artery bypass grafting, heart valve surgery or heart transplantation.

Coronary Artery Bypass Grafting

The CABG procedure involves taking a section of a vein (generally from the leg area or the chest wall artery) and inserting it in your coronary artery to create an alternate route (bypass) for oxygen-rich blood to flow around a blocked or narrowed artery and therefore reach your heart muscle. The procedure is performed in the operating room by a cardiac surgeon who specializes in open heart surgery. Once the procedure is completed, the cardiac surgeon may use a new technology called SPY®—an intra-operative imaging system that allows the cardiac surgeon to check the blood flow of newly grafted arteries before the patient leaves the operating room as an additional assurance of a successful procedure.

Heart Valve Surgery (replacement and repair)

Your heart has four valves which ensure that your blood flows forward as your heart contracts and relaxes. When affected by disease, such as rheumatic fever or bacterial infections, as well as the aging process, these valves may become weak or harden.

Any problem with a heart valve greatly increases the work your heart must do. Some people may be able to lead normal lives, even with compromised valves, under careful medical supervision, but others may require an operation to repair or replace the damaged valve.

There are two key types of valve disease:

Stenosis occurs when a valve, having become stiff with calcium deposits, has a problem opening. This makes it difficult for the blood to flow from chamber to chamber.

Regurgitation or insufficiency occurs when a valve has problems closing properly, which may cause blood to leak back in the wrong direction.

Valve Surgery

During heart valve surgery one or more heart valves may be repaired or replaced.

In valve repair surgery, the surgeon will adjust your own valve to help it work better.

During valve replacement surgery, the doctor will replace the diseased valve with a new valve. It may be replaced with a mechanical (man-made) valve or a biological (tissue) valve. Replacement with a mechanical valve requires that you take a medicine called an anticoagulant for the rest of your life to prevent blood clots on or around the valve. Biological valves are taken from pig or human donors and do not last as long as mechanical valves. With biological valves, you do not need to take anticoagulants. You and your doctor will discuss which type of valve is best for you, based on a number of factors including the number of valves you need to have replaced.

Patients who have had valve surgery are more prone to a condition called bacterial endocarditis, which occurs when bacteria enter the blood stream and become lodged on the abnormal or damaged structure in the heart. Some of the symptoms of endocarditis include:

- Chills
- Profuse sweating
- Joint pain
- Poor appetite and weight loss
- Fatigue and weakness
- Temperature greater than 101 degrees F.

If you develop any of these symptoms, call your doctor immediately. Early diagnosis and treatment will decrease the chance of heart damage.

Minimally Invasive Heart Surgery

Minimally Invasive Heart Surgery – Performed without a sternotomy, this type of surgery greatly reduces surgical morbidity by decreasing recovery time, pain and infections and improves outcomes for selected patients. Examples of minimally invasive heart surgery include off-pump coronary artery bypass (OPCAB), minimally invasive valve surgery, and the use of minimally invasive techniques for vein harvesting.

Heart Transplantation

Sentara was the first health care organization in Hampton Roads (1989) to offer heart transplantation. If your physician feels you are a viable candidate for a heart transplant, he/she will make a referral to the transplant team. A transplant coordinator will then conduct a very thorough evaluation.

How to Prepare for Surgery

- Do not eat or drink anything after midnight the night before your surgery. Ask your doctor or nurse about whether or not you should take your heart medicines with a sip of water.
- The hospital may provide you with antiseptic soap with which to shower the night before and the morning of your surgery.
- Do not wear make-up, nail polish, jewelry or hair ornaments on the morning of your procedure.

What to bring:

- You may wish to bring items that will make you feel more comfortable during your stay, such as a gown or pajamas, bedroom slippers, bathrobe, toiletries and books.
- Bring a list of medications you take at home, including the names of the drugs, the dosage/strength, and how often you take them.
- Bring items such as dentures, eyeglasses and hearing aids only if necessary; you can give them to a staff or family member for safekeeping during the procedure and recovery.

What to leave at home:

We strongly recommend that you do not bring jewelry, credit cards, large sums of money or other valuables as the hospital cannot assume responsibility for loss of personal items.

What to expect during hospital stay:

Cardiac surgery generally lasts from three to six hours, after which you will be transferred to a cardiac surgery intensive care unit and then a cardiac stepdown unit. Patients generally remain in the hospital four to seven days following heart surgery.

Important instructions following surgery:

If you need help making the transition home, and/or want to arrange for post-hospital in-home care, please ask your nurse about discharge planning.

When to call the cardiac surgeon:

- Call the surgeon or nurse practitioner with any problems related to your incision such as redness, swelling, yellow or green drainage or increased warmth at the incision site.
- Call if your temperature goes above 100 degrees for more than 24 hours or if you suddenly have a temperature of 101 or greater.

Call the cardiologist or primary care physician if:

- You notice increasing shortness of breath, ankle swelling or fatigue.
- You experience increasing discomfort in your chest, shoulders or neck, and it becomes worse when lying down, taking deep breaths or coughing. You may require medication to decrease inflammation.
- You experience "heart attack pain" or discomfort. (You may continue to use nitroglycerin after cardiac surgery.)
- You experience shortness of breath that is unrelated to your activity, or an unexpectedly fast or slow heartbeat.
- You feel faint.

Emotional Adjustments

It is perfectly normal to experience some emotional changes during your recovery. These will improve as your recovery progresses. Symptoms may include:

- Trouble concentrating or remembering things.
- Feeling irritated, negative, depressed or embarrassed.

Activity/Exercise Guidelines

- Do not drive until your doctor or nurse practitioner gives you permission (which may be

as long as four to six weeks).

- Avoid lifting, pulling or pushing heavy objects (10-20 pounds) until approved by your physician.

- You may walk up and down a a full flight of steps once a day during the first week after discharge. Improve the frequency as you feel stronger.

- It takes about the same amount of of energy to resume sexual activity as it does to climb two flights of stairs. Don't rush it; and refrain from sex if you are tired or tense. Allow an hour after eating before any sexual activity and avoid positions that pull on your chest or cause discomfort. Do not resume Viagra until given permission.

- You will learn about post-operative exercises (what they are, how best to conduct them and how often) during cardiac rehabilitation which you may start once cleared by your doctor or nurse practitioner.

- Walking is the ideal exercise to aid in recovery. Most patients will be expected to walk twice a day, according to the guidelines provided by your nurse and/or the cardiac rehab staff. It is important to walk in safe temperatures and in safe areas.

Caring for an Incision

- Clean the incision at least once per day with soap and warm water. You will be limited to sponge baths immediately after surgery; you will be allowed to fully shower on the 5th day.

- Do not take a tub bath until the wound is completely healed.

- Call the surgeon if you experience any problems with the incision or if your temperature goes above 101 degrees for 24 hours.

- Do not use skin lotions or creams of any kind over the incision until it has completely healed.

Support Stockings

- You will be issued knee-high support hose (called "TEDS") which you will need to wear on your return home for approximately two weeks.

- You may take them off at night if you like, and for one hour a day while resting. (Remember when sitting to prop your feet up to aid circulation and reduce ankle swelling.)

Meals

- You may find that your appetite has decreased due in part to the medications you are taking, but get up and go to the table for each meal even if you are not hungry.

- Rest for about a half hour following each meal, and wait one hour before exercising or engaging in sexual activity.

- Carefully follow the diet your doctor has directed.

- Limit your daily alcohol intake to two ounces of liquor, seven ounces of wine or 17 ounces of beer. Refrain from any alcohol if you are taking tranquilizers or pain medication.

Other

- Take your blue incentive spirometer home with you and exercise your lungs to keep them clear for at least two weeks.

- Remember to take deep breaths and cough. Call your doctor if your mucus production increases or becomes yellow or greenish in color.

- Be sure to review the information you received about preventing bacterial endocarditis if you are a valve replacement patient.

- Remember to modify any risk factors that are under your control.

Rehabilitation/Recovery

Your doctor may recommend cardiac rehabilitation, home health or other services to aid in your recovery. The following programs can help you manage your own care and make lifestyle changes that may prevent future heart trouble.

Cardiac Rehabilitation

Cardiac rehabilitation is prescribed for all patients after heart surgery or a heart attack, and after an invasive cardiology procedure. Rehabilitation begins in the hospital and is continued in an outpatient program where we prepare you to return to work and resume your normal activities. Participation after discharge usually involves approximately 1½ hours, three days a week in the rehabilitation services department. The program is conducted by a registered nurse, an exercise physiologist and an exercise leader.

There are several Sentara Healthcare facilities located throughout Hampton Roads that offer cardiac rehabilitation. Refer to the sheet at the back of this brochure for more information on key phone numbers and locations.

Heart Clinics

Cardiac Surgery Clinic: Surgical patients at Sentara Heart Hospital are evaluated 10 days after their procedure by specialized nurse practitioners trained in postoperative treatment of open heart surgery to provide rehabilitation, patient education, and ongoing cardiac monitoring.

Heart Failure Clinic: The clinic offers either outpatient monitoring or telemanagement for patients. Outpatients make regular visits to nurse practitioners, who work collaboratively with the patient's primary care physician.

Coumadin Clinic: Under the supervision of the cardiology medical director, expertly trained registered nurses manage patient medication regimens at the Coumadin Clinic.

Pacemaker Clinic: Sentara offers a Pacemaker Clinic where expertly trained registered nurses assess and reprogram implantable pacemakers and ICDs in accordance with physician orders.

Lipid Clinic: Located at Sentara Virginia Beach General Hospital, the Lipid Clinic offers lipid profiles, treatment planning, and cholesterol monitoring to outpatients. Follow-up is provided by registered nurses and physician assistants, who monitor treatment efficacy to reduce risk of cardiac events.

Transplant Clinic at Sentara heart Hospital: Patient education, medication monitoring, organ rejection evaluations, and myocardial biopsies are provided at the transplant clinic by transplant physicians and expertly trained clinicians, who monitor heart transplant patients before and after transplantation.

Home Health Care

Throughout Northeastern North Carolina and Virginia, Sentara Home Care Services can offer you comprehensive and superior at-home medical care (including the rental or purchase of any necessary medical equipment). For more information on Sentara Home Care Services, call (757) 553-3000 or 1-888-461-5649. toll-free. If you would like a list of all home health care service providers available in your area, talk with your discharge planner.

Know your numbers: Keep your blood pressure under 120/80 and keep your cholesterol level under 200.

Living with Heart Disease

Reduce Your Risk Factors

The ultimate responsibility for caring for your heart rests with you. Learn how changing your habits can reduce or eliminate your risk factors, and make the change to a healthier lifestyle. You will learn more about "heart healthy habits" that will help you during your recovery and rehabilitation. In general, however, follow these guidelines:

- Enjoy a diet low in fat and cholesterol, limit your alcohol intake, and eliminate sodium from your diet as much as possible.
- Maintain your ideal body weight.
- If you smoke, quit, or ask your doctor for a smoking cessation plan.
- Exercise regularly, following a plan approved by your doctor.
- Take all medications exactly as prescribed.
- If you have diabetes, follow your treatment plan carefully to keep your blood sugar under control.
- Learn and practice stress management and relaxation techniques.
- Watch your cholesterol and blood pressure levels.

Ongoing Support and Education

Learning to live with heart disease is a continuous daily process. Sentara Healthcare offers a number of programs and services to support patients in improving and maintaining cardiac health. Ask your nurse or rehabilitation instructors for meeting locations to find those most convenient to you.

The Mended Hearts are a national organization of more than 30,000 members. These former cardiac patients hold regular support group meetings and visit cardiac patients in hospitals all across the country. For more information on when and where monthly meetings are held, visit **www.mendedhearts.org**, click on membership, click on chapter, click on Virginia and find the chapter close to you.

Heart Healthy Eating The heart healthy eating plan is based on sound nutritional information. Following a diet low in total fat, especially saturated fat, has been proven by extensive research to help reduce the risk of developing heart disease, and to prevent second cardiac events from occurring by lowering the body's cholesterol levels and helping you to maintain a healthy weight.

A Heart-Healthy diet encourages you to:

- **Limit your fat intake.** Our bodies require some fat for good health. Fat supplies energy in the form of calories, essential fatty acids and helps absorb fat-soluble vitamins. Eating a diet high in fat has been related to an increased risk of heart disease. Increase your intake of fruits and vegetables, whole grain foods, and dry beans. Eat meatless or meals with little portions of meat several times per week. Choose fat free and low-fat milk and dairy products, lean meats and skinless poultry and fish.

- **Reduce your saturated fats and trans-fats.** This type of fat raises our body's cholesterol levels more than any other part of our diet. Saturated fats are solid at room temperature; some sources are butter, stick margarine, shortening, palm oil, coconut oil, and fatty meats.

- **Use small amounts of unsaturated fats.** When fat must be used for food preparation, use unsaturated fats. Such as canola or olive oil, diet or fat-free margarine, non-stick spray, avocados, and nuts.

- **Eat less cholesterol.** Cholesterol is found only in foods of animal origin. As you reduce the total amount of animal fat in your diet, you will reduce your cholesterol intake.

- Eat more whole grain products, fruits and vegetables. Oatmeal, oat bran, dried beans, fresh apples, citrus fruit and pears have been found to help lower blood cholesterol.

- Maintain a healthy body weight and regular physical activity. If you are overweight, lose weight. A low-fat diet combined with regular exercise can also help you to lose and maintain a desired weight. Check with your doctor before starting any exercise program.

Remember, not smoking, getting regular exercise, and maintaining a normal blood pressure (have it checked regularly) can also lower your risk of heart or artery disease.

Pulse Taking

In the cardiac rehab program, you will be instructed on how to take your pulse. Use the chart below as you apply the following directions:

- Always check your pulse before, during and after activity. Check your pulse as quickly as possible after exercise, since it will begin to slow down when you stop.
- Find your pulse on your wrist (by placing the fingers of one hand on the thumb side of the opposite wrist — palm facing up); or on your neck (by pressing on one side only, next to the voice box).
- Count the number of beats you feel for 10 seconds. Multiply by six to get your pulse *(see chart)*.
- Your pulse should not increase more than 20 beats from the beginning of the activity to the end. If it increases more than 20 beats, slow down. Record your pulse rate on your at home chart.

Pulse-Taking Chart

Beats Per 10 Seconds	Beats Per 60 Seconds (One Minute)
8	48
9	54
10	60
11	66
12	72
13	78
14	84
15	90
16	96
17	102
18	108
19	114
20	120
21	126
22	132
23	138
24	144
25	150
26	156
27	162
28	168

Your Team

Cardiac care involves an entire team of dedicated professionals. From surgery through recovery and rehabilitation, your care may be followed by a physician, cardiac rehabilitation nurse, exercise physiologist, registered dietitian, and discharge planner through to support group leaders and home health care professionals (if needed). Remember that the patient and his or her family are the most critical partners in a successful recovery.

Guest Services

The Guest Services program is designed to assist travelers and their families when they are hospitalized during a visit to the Hampton Roads area (i.e., those living outside Norfolk, Chesapeake, Portsmouth or Virginia Beach). The program offers discounted overnight rooms for the patient's family so they can focus on helping their loved one heal, during what is often an overwhelming experience. The Guest Services program helps alleviate stress and provide comfort for families during a time of crisis caused by an unplanned hospital stay in an unfamiliar community.

Sentara Heart Hospital (SHH), on the campus of Sentara Norfolk General Hospital (SNGH), offers guest service accommodations on the 6th floor of SNGH. Family members can stay overnight for a low cost of $25 a night and enjoy the peace of mind of being close by. Guest service accommodations include two beds, a television, phone and restroom in each room, as well as, an on-site kitchen and free overnight video rental.

For Guest Services, call Sentara Norfolk General Hospital Guest Services at (757) 388-3118 or (800) 237-4822, ext. 3118
Monday – Friday from 7 a.m. to 9 p.m. and Saturday 8 a.m. to 4:30 p.m. After hours, or weekends and holidays, please contact the operator at (757) 388-3000 and page the Patient Care Supervisor to arrange accommodations.

Does your hospital have dedicated cardiac anesthesiologists who are uniquely trained to work in heart surgery?

Glossary

Angina pectoris
Chest discomfort that may spread to the jaws, arms or back. It occurs when the heart needs more blood than what the coronary arteries can provide. Angina is usually associated with increased activity or stress. It can be relieved by rest or nitroglycerin, and can last from two to ten minutes.

Angioplasty
This "balloon procedure" is used to widen narrow arteries. A catheter with a deflated balloon on its tip is passed into the narrow artery segment, the balloon is inflated and the narrow segment is widened.

Aorta
The main artery that receives blood from the main pumping chamber of the heart (the left venticle).

Arrhythmia
A disturbance in the electrical rhythm of the heart.

Arteriosclerosis
Commonly called "hardening of the arteries." It includes a variety of conditions that cause the artery walls to thicken and lose elasticity.

Artherectomy
Sometimes called the "roto-rooter" procedure, this shaves and captures the fatty plaque from the artery walls leaving wider arteries to carry blood to the heart.

Artery
Vessel that carries blood from the heart to various parts of the body.

Atrium
One of the upper chambers of the heart that receives blood from the lungs and the rest of the body.

Blood pressure
The force or pressure exerted by the heart in pumping blood; the pressure of blood in the arteries.

Catheterization
The process of examining the heart by introducing a thin tube (catheter) into a vein or artery and passing it into the heart. This procedure allows the physician to diagnose the nature of your cardiac condition.

Cholesterol
A fat-like substance found in animal tissue, produced by your body and contained in foods from those animal sources (i.e. milk, meat, eggs). It can cause fatty build-up in arteries.

Collateral circulation
The heart's own life-saving method in which a system of smaller blood vessels carry blood when a main vessel is blocked.

Congestive heart failure (or heart failure)
The inability of the heart to pump out all the blood that returns to it, resulting in the backing up of blood in the veins that lead to the heart. Sometimes this also causes fluid to accumulate in the lungs and other areas of the body.

Coronary artery disease
A disease process that involves the build-up of fatty plaque inside the arteries that feed the heart. This causes a narrowing of the coronary arteries so that blood flow to the heart is reduced or blocked.

Coronary occlusion
An obstructing or narrowing of one of the coronary arteries that hinders blood flow to some part of the heart muscle.

Defibrillator
An electronic device that stops an abnormal heart rhythm and may help re-establish a normal rhythm.

Diuretic
A drug that promotes the excretion of urine.

Echocardiography
A diagnostic method by which pulses of sound are transmitted into the body and the echoes returning from the surfaces of the heart are electronically plotted and recorded.

Edema
Swelling due to abnormally large amounts of fluid in the body tissue.

Electrophysiology
The study of the heart's electrical system (which sends the message to the muscle fibers telling them when to beat) and the way it works.

Heart attack
Myocardial infarction.

High blood pressure (hypertension)
A chronic increase in blood pressure above what is normal.

High-density lipoprotein
A carrier believed to transport cholesterol away from the tissues and to the liver where it can be excreted. (Also know as HDL or "good cholesterol").

Homograft
A graft of tissue taken from another person.

Ischemia
A local, usually temporary deficiency of oxygen in some part of the body, often caused by a constriction or an obstruction in the blood vessel supplying that part.

Low density lipoprotein
The main carrier of harmful cholesterol in the blood (also known as LDL or "bad cholesterol").

Lipid
A fatty substance.

Pacemaker
The natural pacemaker of the heart, called the sinus node, is a small mass of specialized cells in the top right atrium of the heart that start the electrical message that cause the heart to contract. An 'artificial pacemaker' sends this series of rhythmic messages to the heart when the natural pacemaker is not working.

Plaque
A deposit of fatty and other substances in the inner lining of an artery wall, characteristic of atherosclerosis. (Also called atheroma.)

Saturated fats
types of fat mostly found in food of animal origin (but also in coconut, palm and palm kernel oils). These fats are usually solid at room temperature.

Sodium
A mineral essential to life, but which can be harmful if consumed in excess. Table salt is approximately half sodium.

Stent
Bare Metal: Coil similar to the inside spring of an ink pen.

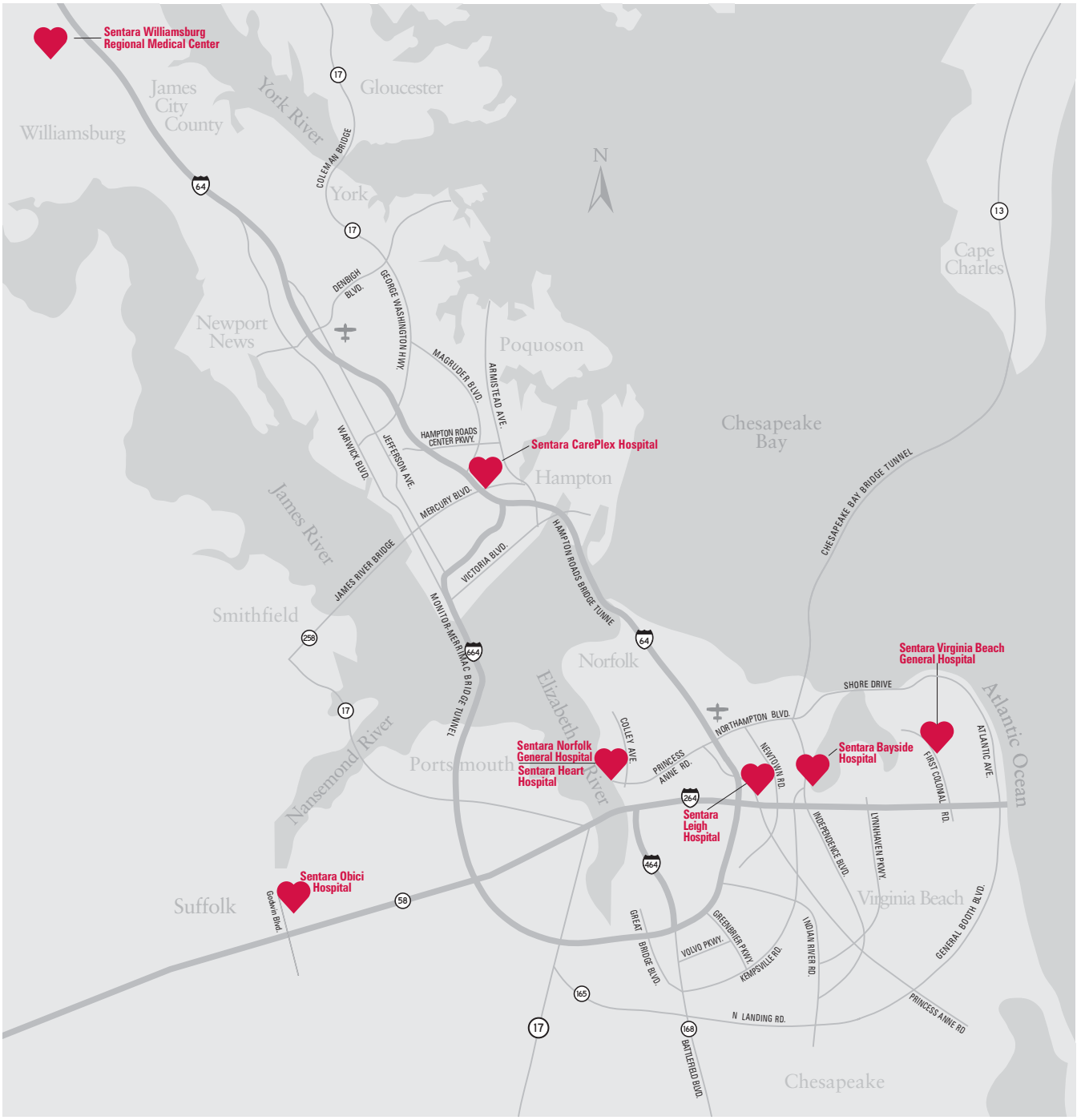
Drug Eluting: Coil similar to the inside spring of an ink pen coated with medicine to prevent in-stent restenosis.

Stroke
A blood supply impeded in traveling to some part of the brain.

Vascular
Pertaining to the blood vessels.

Vein
Any one of a series of vessels of the vascular system which carries blood from various parts of the body back to the heart.

Ventrical
One of the lower chambers of the heart.



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sentara.com/heart

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