Guide to Cardiology Care at Scripps

"Cardiology" is the word in health care associated with heart, but the body's vascular system is also an important part of heart care. Your body has more than 60,000 miles of vessels that carry blood to and from your heart and throughout the body.

"Cardiovascular" is the word in health care associated with the heart and vascular system.

A Starting Point
This guide is intended as a starting point for anyone looking to learn more about heart and vascular care at Scripps.

But no guide can ever be a substitute for medical advice, consultations or care by a physician, nurse or other licensed medical professional. If you may be experiencing symptoms of a heart attack or other health-related emergency, please call 911 immediately.

The more common symptoms of a heart attack can include:

- Severe chest pain or tightness.
- Upper body pain in arms, left shoulder, back, neck jaw or stomach.
- Shortness of breath or dizziness.
- Sweating for no known reason.

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Heart Basics

The human heart can beat a few billion times over the average lifetime. Taking good care of yours can help it take care of you.

A normal human heart has four chambers. The two upper chambers are called atria. The two lower chambers are called ventricles.

From the heart's left ventricle oxygenated blood (from the lungs) is pumped into the aorta, the body's largest artery, and onward into a series of smaller arteries, vessels and capillaries.

Besides four chambers, the heart has valves, walls, an electrical system and a complex maze of tiny blood vessels.

Structurally, the heart is like a house—with walls, rooms, plumbing, an electrical panel and wiring.

The heart and vascular system work to provide oxygen-rich blood and nutrients to your body. When they are compromised, your body can be compromised or irreversibly damaged.

Things can go wrong with a heart. Unfortunately, some are beyond a person's control (such as congenital heart defects).

Other heart problems can be traced to certain behaviors such as tobacco use, lack of physical activity or eating a diet heavy in saturated fats.

Making "heart health" a lifetime habit can reduce your risk of heart disease.

Most Common Heart Problems

Arrhythmia: a term that describes an irregular heart rhythm. There are several types of arrhythmias where the heart may beat too rapidly or too slowly.

Cardiomyopathy: a term used to describe a type of disease specifically of the heart's muscle tissue is when the heart muscle becomes enlarged or its walls become thick or rigid, which can cause pumping problems and lead to arrhythmia or heart failure.

Congenital heart defects: these are present at birth and may require lifelong monitoring and treatment. Examples include a hole in a heart wall or major artery, faulty valve(s), narrowed artery (or arteries) and several other types of structural issues that can limit the heart's performance.

Heart attack: this is when one or more coronary arteries leading to the heart become blocked, due to a blood clot or plaque buildup. This prevents blood from flowing to the heart, which can permanently damage heart muscle and be fatal.

Heart disease: a term that describes the leading cause of death in the US for both women and men, and is usually associated with one or more: high blood pressure, high cholesterol, tobacco smoking, obesity, type 2 diabetes, family history of heart disease, heart attack or stroke.

Heart failure: this describes the heart's inability to pump blood properly to deliver enough oxygen to the body. Not to be confused with heart attack, heart failure can be caused by coronary artery disease and cardiomyopathy, as well as other conditions such as high blood pressure and heart valve disease that make the heart work harder than it should.

Heart valve disease: term used to describe abnormal functioning of heart valves that may be caused by illness, injury or congenital birth defect.

Peripheral artery disease: this occurs when arteries in the legs, arms, kidneys, or neck become narrowed due to the buildup of fatty deposits and calcium. These narrowed arteries restrict blood flow, which often causes feelings of heaviness and discomfort in the legs. Over time, walking may become difficult.

Structural heart disease: occurs when the valves, chambers, or walls that direct blood flow through the heart become diseased or damaged.

Diagnosing Heart Problems

Potential heart problems are often flagged by primary care physicians during routine physical exams. When this happens, patients are typically referred to a general cardiologist.

Treating Heart Problems

Caring for heart patients at Scripps involves a team-based approach. The team's size depends on severity and type of heart or vascular problem(s). Sometimes, drug therapies are recommended first.

Medications to restore normal blood flow to the heart or prevent further damage can include:

- **Aspirin** to reduce blood clotting and help maintain blood flow through the affected artery.
- **Thrombolytics** known as clotbusters to help dissolve a blood clot that's blocking blood flow.
- **Antiplatelet agents** to help control blood clots and prevent new ones from forming.
- **Blood thinners** to reduce the formation of new clots.
- **Nitroglycerin** to widen the blood vessels.
- **ACE inhibitors** to block the action of an enzyme that causes blood vessels to narrow, resulting in a reduction of the heart's workload, lower blood pressure and reduced swelling.
- **Angiotensin II receptor blockers (ARBs)** to block the action of chemicals that narrow blood vessels and may be prescribed for patients who cannot tolerate an ACE inhibitor.
- **Beta-blockers** that can slow heart rate and reduce blood pressure rates.

Types of Heart Doctors

General Cardiologists are physicians who specialize in the diagnosis and medical management of a variety of heart diseases. General cardiologists:

- Order cardiac tests and diagnose heart disease
- Prescribe medications to manage a heart condition
- Help you make lifestyle changes to improve your heart health
- Manage risk factors that could lead to new or worsening heart conditions
- Some cardiologists may perform diagnostic catheterizations and/ or implant devices such as pacemakers and defibrillators

An appointment with a general cardiologist can include one or more of these:

Medical history including family history and review of medications.

Physical exam including heart rate, blood pressure, weight, lungs and breathing, and any noticeable signs of swelling in the legs or belly region.

Blood tests to detect other undiagnosed risk factors such as diabetes, and to check if the kidneys and liver have been affected.

Electrocardiogram (EKG or ECG) that records the heart's electrical functions such as heart rate, heartbeat rhythm, and strength and timing of electrical signals as they pass through each part of the heart.

Stress EKG, a physical test typically involving a treadmill, that can detect reduced blood flow to the heart.

Chest X-ray to provide a picture of the heart, lungs and major blood vessels.

Echocardiogram (ECHO) that uses sound waves to create moving pictures of the heart — particularly its chambers and valves — and can detect possible blood clots, fluid buildup in the sac around the heart or problems with the heart's aorta, the main artery through which oxygen-rich blood flows to the rest of the body.

Cardiac blood pool scan (also called nuclear ventriculography) that shows how well the heart pumps blood to the rest of the body.

Cardiac catheterization that involves the insertion of a long, thin flexible tube called a catheter to check the blood vessels that supply the heart with blood. The procedure is performed through a blood vessel in the arm, upper thigh or neck.

Speciality Heart Doctors

A general cardiologist may refer a patient to other heart doctors who specialize in certain heart care and procedures. Most specialty cardiologists focus on a specific area or heart function. Examples of specialty cardiologists include:

Electrophysiologists are heart doctors who act as "electricians" for the heart. They specialize in treating and correcting abnormal heart rhythms — known as arrhythmias — caused by a disturbance in the electrical impulses that make the heart beat. Among other things, electrophysiologists:

- Diagnose an arrhythmia.
- Implant devices such as advanced pacemakers and defibrillators to help the heart beat normally.
- Perform cardiac ablations to reroute the electrical impulses that are causing the arrhythmia

Heart Failure Specialists are doctors who have received specialized training in taking care of people with advanced heart failure. Heart failure specialists are familiar with and have access to the most advanced therapies for heart failure, including experimental treatments.

Interventional Cardiologists are physicians who act as the "plumbers" of the heart. They perform procedures that help open clogged arteries in the heart and surrounding blood vessels, including:

- Heart catheterizations — the insertion of a thin tube through the blood vessels to the heart or a clogged artery
- Angioplasty or stent implantations to open hardened, blocked or partially blocked arteries to improve blood flow
- Some interventional cardiologists also perform transcatheter aortic value replacement (TAVR) and/or peripheral vascular procedures to open narrowed or clogged arteries in the legs, kidneys and neck

Cardiovascular Surgeons (also called heart surgeons, cardiac surgeons, or cardiothoracic surgeons) are physicians who use surgical methods to correct a variety of heart conditions. These heart specialists perform procedures, such as:

- Replacing or repairing faulty heart valves
- Repairing holes in the heart
- Removing damaged sections of the heart
- Performing coronary artery bypass grafts (CABG), a surgery that adds new routes around blocked arteries
- Implanting mechanical circulatory support devices, such as left ventricular assist devices (LVAD), for patients with chronic heart failure

Heart Procedures and Surgeries

Advances in technology have made it possible for more minimally-invasive procedures and a decreasing need for traditional surgeries performed through multiple-inch incisions in the chest.

Many inpatient and outpatient heart procedures today involve a thin tube that is inserted through blood vessels in the patient's upper thigh or wrist and allows a doctor to replace or repair heart valves, unblock arteries, treat electrical circuitry, close holes and more. These types of tubes are called catheters. A "Cath Lab" is the name for a medical suite where catheter-based procedures are performed.

More advanced heart problems may require a traditional heart surgery in an operating room with conventional entry into the chest cavity or a robotic surgery where a doctor performs a complex procedure with the aid of an FDA-approved robotic device that acts as a miniaturized extension of the surgeon's hands and fingers who controls all movements and activities with her/his actual touch.

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