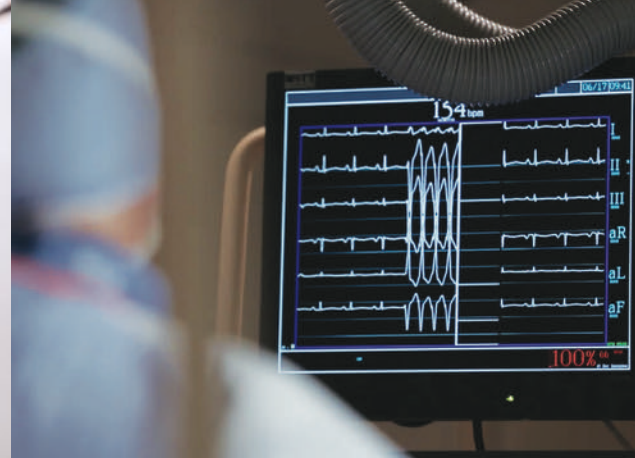




CAPE COD HEALTHCARE



Heart and Vascular Institute Patient Guide

Expert physicians. Quality hospitals. Superior care.

Welcome to the Heart & Vascular Institute

Exceptional Care Close to Home

Cape Cod Healthcare's Heart and Vascular Institute has a reputation for superior heart and vascular care. Our expert physicians and specialized clinical staff provide a comprehensive range of cardiovascular treatments using the latest in technology, including minimally invasive procedures, to achieve excellent outcomes. We provide the skill and experience of renowned cardiac specialists, trained at some of the country's leading institutions, to bring a high level of expertise to our community.

From diagnosis and treatment through rehabilitation and recovery, you'll find everything you need for your heart and circulatory system at Cape Cod Healthcare's Heart & Vascular Institute. Here you'll experience an unprecedented level of care, carefully coordinated by a renowned team of experts—who live and work on the Cape caring for friends and neighbors.

The Heart and Vascular Institute provides high-quality care measured against the best institutions, nationally:

- Board-certified cardiovascular physicians trained at some of the best medical centers in the country
- Advanced technology and innovative treatments you'd expect from an academic medical center, provided in a community setting
- Unparalleled, seamless heart attack care with one of the best door-to-angioplasty times in the state and are significantly better than national standards
- A cardiac surgery program affiliated with Brigham and Women's Hospital in Boston
- Comprehensive, patient-centered care delivered by a team of compassionate doctors, nurses, therapists and other cardiovascular professionals

Recognized for Heart Attack Response

Our interventional cardiology program, led by Richard Zelman, MD, FACC, is widely recognized for its consistently superior level of heart attack care. Our outcomes consistently surpass ACC guidelines: We not only save lives, but minimize damage to the heart muscle and preserve quality of life after an attack.

Cardiology: Expert Physicians, Expert Team

Cardiologists specialize in finding, treating and preventing disease of the heart and blood vessels. These physicians receive extensive education and training, and become certified in cardiology after completing a minimum of 10 years of educational and clinical preparation.

A primary care doctor may refer patients to a cardiologist if he or she suspects a significant heart-related condition. Symptoms that may indicate a heart condition include shortness of breath, chest pains or dizziness.



These symptoms may require special testing, such as:

- Echocardiogram
- Ambulatory ECG
- Exercise test
- Cardiac catheterization

A cardiologist will determine a personal care plan of tests and treatments and will counsel patients about the risks and prevention of heart disease.

Whether the cardiologist practices in the office or in the hospital, they will review a patient's medical history and perform a physical examination which may include checking blood pressure, weight, heart, lungs and blood vessels. Some issues may be diagnosed by symptoms at examination; others will require more specialized testing. Treatment may include lifestyle changes, medication or a procedure.

Other members of your cardiology care team may include:

- **Physician assistant** - a healthcare professional authorized by the state to practice medicine as part of a team with a physician or group of physicians. PAs deliver a broad range of medical and surgical services, including physical exams, diagnosing and treating illnesses, ordering tests assisting in procedures and prescribing medications.
- **Nurse practitioner** - a registered nurse who has advanced education and clinical training. NPs provide a wide range of preventive and acute healthcare services including physical exams, diagnosis and treatment of acute and chronic problems, interpretation of lab results and X-rays, prescribing and managing medications and referring patients to other healthcare personnel.
- **Registered nurse** - a nurse who has had the training and experience to provide and coordinate patient care, and educate patients about various health conditions. RNs perform physical exams, administer medications, interpret patient information and direct and supervise care delivered by other healthcare professionals.



Interventional Cardiology Services

Interventional cardiology is a branch of cardiology that uses catheters (thin, flexible tubes) to diagnose and repair damaged vessels and other heart structures, often eliminating the need for surgery. Patients benefit from less risk, pain and scarring, reduced infection rates and a quicker return to regular activities.

Interventional Radiology

Interventional radiologists use minimally invasive techniques to diagnose and treat many conditions that previously required surgery.

Specialists in interventional radiology use imaging to guide catheters and miniaturized instruments through the blood vessels instead of making large incisions in the body.

Patients with cardiovascular issues are provided a range of interventional procedures, including:

- Abdominal aortic aneurysms
- Angiography
- Angioplasty and stent placement
- Atherectomy
- Deep vein thrombosis
- Hypertension and end-stage renal disease
- Peripheral arterial disease
- Stroke and carotid artery disease
- Venous access catheters

Interventional Cardiology

The Heart and Vascular Institute's round-the-clock interventional cardiology services that are performed in our four leading-edge catheterization labs include:

- Cardioversion
- Cardiac Catheterization (diagnostic and interventional)
- Percutaneous coronary intervention (heart angioplasty)
- Transesophageal echocardiogram
- Vascular diagnosis and interventions



Cardiovascular Treatments

As one of only three community hospitals in Massachusetts licensed to perform cardiac surgery, the Cape Cod Hospital cardiac surgery program has served patients and their families on the Cape since 2002. Recognized for exceptional care by the American College of Cardiology, the cardiovascular surgical program is affiliated with Brigham and Women's Hospital, an internationally recognized cardiovascular surgery center in Boston, bringing continual advances to the Cape.

When cardiovascular care plan calls for surgery, the Heart and Vascular Institute provides superior surgical care close to home at the Cape Cod Healthcare Heart and Vascular Institute. Our highly skilled, board-certified cardiothoracic and vascular surgeons have performed thousands of surgeries, and procedures, including those typically offered only at large academic institutions. That's experience you can trust.

Heart Surgery

With a skilled cardiac care team, two dedicated open heart surgical suites equipped with the latest technology and one-on-one patient care following surgery, patients won't find better surgical care anywhere.

- Coronary artery bypass grafting (CABG)
- Aortic aneurysm repair or removal
- Aortic valve repair and replacement
- MAZE procedure for atrial fibrillation correction
- Mitral valve repair and replacement
- Repair of congenital defects
- Valve replacement and repair

Our cardiovascular intensive care nurses are highly trained and skilled in cardiovascular medicine, pre- and post-operative cardiac surgery and cardiac intervention care. They work cohesively and collaboratively with the medical staff to implement the care plan and provide hands-on patient treatment. This team-based approach provides patients exceptional care during the recovery process.

Transcatheter Aortic Valve Replacement (TAVR)

For intermediate, high or extreme risk patients and those who are not suitable for open-heart surgery, another option is now available- transcatheter aortic valve replacement (TAVR) - a less invasive procedure that does not require open-heart surgery.

TAVR, avoids the trauma of surgically opening the chest, dividing the breastbone and replacing the damaged aortic valve with a mechanical or biological one.

Interventionalists enter non-invasively through a small needle hole, usually at the upper leg. They place a sheath, which is a small hollow tube the diameter of a pencil, in the femoral artery.

Guided by X-ray and ultrasound technology, the doctors then insert a catheter tube with a balloon on its end across the diseased valve. They briefly inflate the balloon to make room for the new valve to be inserted and expanded inside the old one.



Mitral Valve Surgery and Minimally Invasive Mitral Valve Repair

A diagnosis of Mitral Valve Prolapse (MVP) may mean surgical intervention. Cape Cod Healthcare offers Minimally Invasive Mitral Valve Repair in addition to traditional Mitral Valve Replacement surgery when the effects of MVP require attention.

The mitral valve regulates blood flow in the left side of the heart. When the flaps of this valve fail to seal tightly due to a congenital condition, previous illness or wear and tear, blood flow can be impaired – causing a leak into the lower-left heart chamber or creating a backflow of blood called regurgitation.

Minimally Invasive Mitral Valve Repair is a surgical procedure which restores valve function through a surgery requiring only a two- to three-inch incision on the right side. This less-invasive approach allows for a shorter hospital stay and recovery time for those patients whose conditions allow this surgical intervention.

This new standard of care joins traditional Mitral Valve Replacement surgery, which requires a larger mid-chest incision and full replacement of the valve. Valve Replacement surgery requires a lengthened recovery time before which normal physical activity can resume.

Cape Cod Healthcare brought Minimally Invasive Mitral Valve Repair to our patients in 2015, with a team of expert physicians, nurses and medical professionals specially trained in this procedure to restore patients' healthy quickly and with minimal intervention.

Left Atrial Appendage Closure

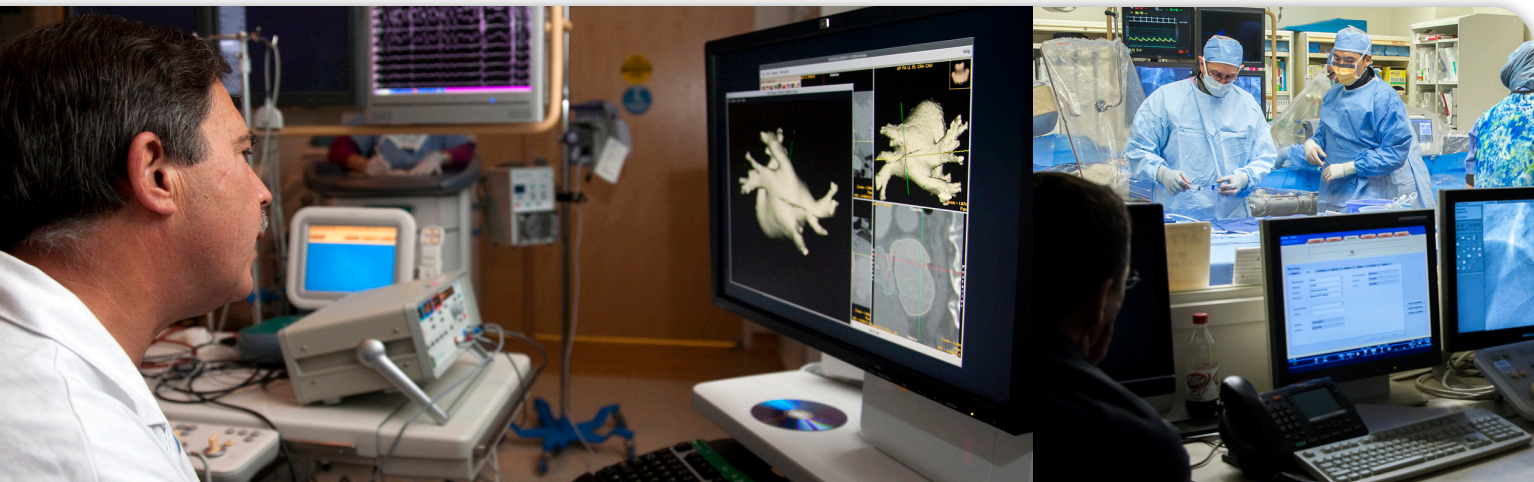
Left Atrial Appendage Closure is a minimally invasive treatment that can help some patients with atrial fibrillation.

Left Atrial Appendage Closure (LAAC) is a surgical implant designed to keep harmful blood clots from forming in the left atrial appendage, minimizing the risk of stroke and other clot-related conditions. The procedure can be a surgical alternative to blood thinning medication for some qualified patients.

The left atrial appendage is a thumb-sized pouch on the top of the heart. Blood clots can form in this area and break loose, traveling to the brain, lungs, and other parts of the body.

The closure device, implanted by our skilled surgical team, is about the size of a quarter and is delivered by catheter under general anesthesia. It is inserted through the groin into the femoral artery using radiologic and ultrasound technology. Implanting the LAAC is a one-time procedure – it does not have to be replaced and isn't visible outside the body.

With innovative procedures like Left Atrial Appendage Closure our Heart & Vascular teams provide patients with complex coronary disorders the opportunity to benefit from the most innovative therapies known to the medical field.



Micra Transcatheter Pacing System

The Micra® Transcatheter Pacing System is the world's smallest minimally invasive pacemaker, designed to restore the heart's normal rhythm in qualified patients who experience low or irregular heart rhythms.

At one-tenth the size of traditional pacemakers, this device is comparable to the size of a large vitamin, weighs about the same as a penny and has an estimated average 12-year battery life.

Delivered directly into the heart via a catheter inserted in the leg, insertion does not require a surgical incision, which eliminates the device's visibility under the skin, minimizing complications and speeding recovery time.

Electrophysiology

Electrophysiology is the study of the heart's electrical system—a cardiac specialty that provides crucial services to people with abnormal heart rhythms (arrhythmia.) At the Cape Cod Healthcare Heart & Vascular Institute, patients have access to highly skilled cardiologists who specialize in electrophysiology (EP) and are specially trained in the latest EP advances for diagnosing and treating heart arrhythmia.

When the heart beats too fast, too slowly or irregularly, specialized cardiac care is needed. The electrophysiologists at CCHC work closely with our cardiac surgeons and other members of the cardiac team to determine the best treatment for this specific condition.

Treatments used to diagnose and correct arrhythmia include:

- Ablation, including balloon cryoablation, for atrial fibrillation
- Artificial pacemakers, including the Micra™ transcatheter pacing system
- Diagnostic electrophysiology studies
- Implantable cardiac defibrillator (ICD)
- Patient-activated event recorder
- WATCHMAN device

Other procedures that may be used alone or in combination with these treatments include:

- Cardioversion
- MAZE surgical procedure
- Medication

Ablation is a minimally invasive catheter-based procedure used in cardiology to disable abnormal heart tissue that causes arrhythmias.

Electrophysiologists use two different types of ablation, depending on the type of arrhythmia and where the heart current is misfiring:

- Radio frequency ablation (burning)
- Cryoablation (freezing)

Our physicians are trained in balloon cryoablation, a new method of treating atrial fibrillation, the most common form of heart arrhythmia.



Vascular Center of Excellence

Our select team of board-certified vascular specialists is dedicated exclusively to vascular care and disease prevention in our community.

We take a comprehensive, multidisciplinary approach to your care, bringing together vascular surgeons, cardiologists, interventional radiologists, specialized nurses and others—all focused on the patient's specific needs and communicating closely with primary care physicians. The Heart and Vascular Institute provides a continuum of care beginning with the first visit and following a patient's progress after treatment and beyond.

Conditions Treated

We treat the full range of vascular conditions, including:

- Abdominal aortic aneurysms
- Aneurysm disease
- Atherosclerosis (hardening of the arteries)
- Carotid artery disease
- Deep vein thrombosis
- Lymphedema
- Peripheral artery disease
- Renal artery blockages
- Varicose veins

Vascular Services and Treatments

We provide the most advanced services and treatments, including:

- Endovascular aneurysm repair
- Carotid and aortic bypass surgery
- Carotid endarterectomy
- Stent-assisted carotid angioplasty
- Rehabilitation services
- Vascular screenings

Vascular Surgery

Cape Cod Healthcare's vascular surgeons and interventional radiologists offer a range of surgical services—emphasizing less-invasive procedures—to treat vascular disease and repair or clear blockages of the veins and arteries, including:

- Carotid angioplasty and stenting
- Endarterectomy of the head and neck vessels
- Endovascular aneurysm repair
- Peripheral vascular surgery
- Vascular shunt and bypass
- Carotid endarterectomy
- Open and endovascular aneurysm repair



Heart Failure Clinic

Monitoring and managing chronic heart conditions in a team-based approach, Cape Cod Healthcare's Heart Failure Clinic is dedicated to the personalized care that helps patients stay active and avoid hospitalization.

Heart failure is a serious diagnosis, but it does not mean that the heart has stopped beating. Heart failure means the heart muscle is not functioning as efficiently as it should.

Patients can be referred to this outpatient center for same-day or next-day treatment of heart failure symptoms. A personalized, team-based approach to managing symptoms provides coordinated care between the patient, clinic and their physician, to minimize hospital stays and to educate Heart Failure patients how to avoid developing symptoms of their condition.

Heart disease accounts for 1 in 7 deaths in the U.S., and 8.5 percent of those deaths are attributed to heart failure. A complex clinical syndrome, there is no diagnostic test for heart failure, no simple pass/fail determiner. As a result, it is largely a clinical diagnosis based upon a careful history, physical examination and tests.

Symptoms of heart failure may include:

- Sudden, severe shortness of breath
- Fatigue and weakness from very little effort
- Swelling in your legs, ankles, feet, or abdomen
- Rapid weight gain from fluid retention
- Rapid or irregular heartbeat
- Difficulty concentrating or decreased alertness
- Chest pain if your heart failure is caused by a heart attack

Once referred to the Heart Failure clinic, a team of professionals, including a cardiologist, a heart-failure certified nurse practitioner, nurses, pharmacologists, nutritionists and integrated care specialists provide treatment, offer patient education and inform physicians about the patient's condition.

Through the Heart Failure Clinic, Cape Cod Healthcare continues to provide access to high-quality, specialized medical care for our community.



Continuum of Cardiac Care

Following a heart attack or cardiovascular surgery, rehabilitation is often recommended to help patients get back to the activity of daily life. Cape Cod Healthcare's 12-week Cardiac Rehabilitation program is part of our continuum of care, from diagnosis through recovery. Our program is designed to help rebuild strength and provide education to manage heart health in the future. Many patients finish rehab at a higher level of performance than they had prior to surgery.

Cardiac Rehabilitation

The cardiac rehab program, led by our cardiac rehab specialists with guidance from cardiologist and cardiac nurses, includes:

- A customized exercise program that may involve walking on treadmills, riding stationary bikes and lifting weights
- Education classes to learn about medications, stress management and warning signs of future heart trouble
- Dietary guidance from a nutritionist
- Access to a psychologist in case of depression or anxiety

Throughout the rehab program, a patient's heart rhythm, heart rate and blood pressure are carefully monitored for irregularities. Our compassionate rehab professionals are here for support every step of the way. We also work with patients on strategies and life skills for healthy mind and body going forward.

Patients can receive rehab services at the cardiac rehabilitation centers at Falmouth Hospital and Cape Cod Hospital, at an outpatient facility elsewhere on the Cape or at home through the Visiting Nurse Association of Cape Cod.



Quality of Heart and Vascular Care

We provide highest-quality cardiovascular care in the region. Our commitment to comprehensive care, through our expert physicians, using the most advanced technology, leads to advanced care close to home.

The Cape Cod Healthcare Heart and Vascular Institute

- Recognized by the American College of Cardiology, the Massachusetts Department of Public Health and other agencies for excellence in lifesaving heart care
- Provides some of the fastest door to balloon times in the state and the nation (as short as 12 minutes), resulting in higher survival rates and less heart damage following a heart attack
- Is home to renowned surgeons trained at and affiliated with Brigham and Women's Hospital

We provide the skill and experience of renowned cardiac specialists, trained at some of the country's leading institutions, to bring a high level of expertise to our community.

From diagnosis and treatment through rehabilitation and recovery, you'll experience a sophisticated level of care and personalized treatment — right here on Cape Cod.

Explore More

To learn more about Cape Cod Healthcare's Heart and Vascular Institute please visit us at www.capecodhealthcare.org/heart

Cape Cod Healthcare
88 Lewis Bay Road
Hyannis, MA 02641

www.capecodhealth.org/heart



CAPE COD HEALTHCARE

Heart and Vascular Institute