

A Guide to Your VAD Evaluation

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What to expect at your VAD evaluation

Overview

The VAD evaluation is a series of tests that are done to see if a VAD is right for you. Evaluations can be done both in and out of the hospital.

Without a VAD, there is only a 1 in 4 chance of living for 1 year. With a VAD, 3 out of 4 patients will live for 2 years.

The VAD evaluation will help us find out if:

- you'll benefit from a VAD
- you're healthy enough to have a VAD
- you can care for yourself with a VAD
- you have caregivers and a support system
- you can afford the costs of a VAD.

During your evaluation, we'll let you know about your test results. After all the results are in, your health care team will decide if a VAD is right for you. It's important to remember that just because you get an evaluation doesn't mean you'll get a VAD.

This process can take a long time. It can be stressful for you and your family. We'll help you understand this process, and answer any questions or concerns you may have.

You'll need to sign a consent form

You'll need to sign a consent form for a VAD evaluation. If you and the VAD team decide a VAD is right for you, you'll need to sign another consent form for VAD surgery.

Devices offered at Vanderbilt

If you have VAD surgery at Vanderbilt, you'll get a HeartMate III LVAD. It's approved by the FDA for patients who need VAD therapy for life. It's also approved for patients who need VAD therapy while they wait for a transplant.

A total artificial heart (TAH) is used to replace your heart and is different from an LVAD. You'll get more information about this if we decide you need a TAH. This device is FDA approved only for Bridge to Transplant use. It's not currently approved for Destination Therapy.

Other therapy options

Heart transplant

During a transplant, a surgeon removes the diseased heart and replaces it with a healthy donor heart.

Heart failure management

If you have heart failure, your options may include the use of IV medicines or palliative care.

How we share your information

Vanderbilt University Medical Center may get and share your medical information as allowed by law and our policies. If you do get a VAD, information about you may be sent to agencies or companies as allowed or required by law. We can help answer any questions you may have about this.

Reasons why a VAD may be right for you

You have:

- signs of heart failure even when you rest or do light activity
- signs that other therapies do not help your heart failure
- test results that show your heart's left ventricle doesn't work the way it should.

The VAD team will consider other reasons as well.

Reasons why a VAD may not be right for you

You're:

- pregnant
- extremely overweight, with a BMI over 40
- extremely underweight, with a BMI under 20.

You cannot or will not:

- take blood thinners
- accept blood or blood products
- pay for treatment and aftercare
- find enough caregiver support
- use the pump safely
- follow your medical treatment plan.

You have:

- an active infection
- a cancer or malignancy with an expected survival of less than 2 years
- kidneys that don't work the way they should

- a liver that doesn't work the way it should
- advanced lung disease
- a disease that can't be treated and your survival rate is less than 2 years, which includes:
 - liver, kidney, or lung disease
 - right heart failure that can't be fixed
- a clot in your heart that can't be taken out during surgery
- severe hardening of the arteries or other cardiovascular disease
- an abdominal aneurysm (a weak spot in the artery in your stomach)
- recently had a stroke
- problems with your nervous system
- bleeding in your stomach
- diabetes that's hard to control or causes problems, such as damage to your eyes or feet
- HIV or AIDS
- active Hepatitis B or Hepatitis C infection
- an autoimmune disease (a disease caused by an overactive immune system)
- a disease that must be treated with immunosuppressants (drugs that weaken your immune system)
- other failing organs
- an active, untreated mental illness or substance abuse that keeps you from following your treatment plan.

The VAD team will consider other reasons as well.

Your VAD evaluation team

Your VAD coordinator

- is a registered nurse and an important part of your education and after-surgery care
- talks to you about your evaluation and what to expect
- teaches you and your caregivers how your VAD works and how to care for it.

Your VAD cardiologist (heart doctor)

- works with the VAD team to see if a VAD is right for you
- manages your care before and after surgery.

Your VAD surgeon

- specializes in VAD surgery
- talks to you before your surgery, and goes over risks and possible problems.

Your social worker

- is a licensed health care provider
- talks to you about the stress of getting a VAD
- checks to see if you can follow a strict treatment plan
- helps you find a support network
- helps you deal with alcohol or substance abuse, if needed.

Your dietitian

- talks to you about nutrition and healthy eating.

Your VAD financial coordinator

- looks at your insurance coverage and helps you understand how insurance works
- tells you and the VAD team about any insurance requirements needed
- can answer any questions or concerns you may have about your health care costs.

Your palliative (comfort) care specialist

- helps you plan for the kind of care you want
- talks to you about the need for a health care agent (someone who can make medical decisions for you if you aren't able to speak for yourself)
- meets with you and your family. They'll ask about your quality of life and your choices for medical treatment if, after surgery, things don't get better.

Other specialists

You may need to see other providers, if needed, such as:

- nephrologist (kidney)
- pulmonologist (lung)
- endocrinologist (diabetes)
- hepatologist (liver).

If you don't have a family doctor, now is a good time to get one. Check with your insurance company for a list of providers. If you need help, please talk with your social worker or VAD coordinator.

What happens during your evaluation

We'll do a medical evaluation

We'll give you a medical evaluation to see if it's safe for you to get a VAD.

- We'll give you a complete medical exam.
- We'll go over your full medical history. This includes past surgeries, allergies, transfusions, pregnancies, vaccinations, smoking and alcohol use, and any history of substance abuse.
- You'll meet with different members of the evaluation team.

We'll give you tests

Your tests are based on you and your health. Before each test, we'll talk with you about it.

If a test has risks, we'll tell you about them. Then we'll ask you to sign a consent form that shows you understand these risks.

Tests you may need

- blood tests to check for other organ damage
- electrocardiogram (EKG) to check your heart
- urine test
- cardiac catheterization on the right and left sides of your heart to check your heart filling pressures and look for heart disease
- breathing tests to check your lungs
- echocardiogram or MRI to check how well the right and left sides of your heart work
- ultrasound image of your stomach

- VO2 test to check how well your body uses oxygen
- CT scan to take a picture of your head, chest, stomach, and pelvis
- ultrasound image of the arteries in your neck
- Ankle-Brachial Index to check for artery disease
- x-ray to check for infection in your teeth

Depending on your medical history, your provider may ask for more tests. You may even need to go see another provider.

You may need to go to the dentist

You'll need to see your dentist if any disease or infection is found on your x-ray. You may need to have dental work done before you have VAD surgery.

Before you can have surgery, your VAD coordinator needs a written statement from your dentist about your dental health.



Understand your risks

Before you agree to a VAD evaluation, you need to understand the risks.

Possible risks during your evaluation

- some pain or discomfort when we take your blood
- bleeding or bruising from needle sticks
- blood clots or infection caused by blood draws, heart catheterization, or other procedures
- stress during the evaluation
- physical and mental health conditions that need treatment before you can have VAD surgery
- conditions that would make VAD surgery a poor choice for you:
 - mental
 - physical
 - financial
 - social

You can change your mind

At any point during your evaluation and up to the point of surgery, you can choose not to get a VAD.

If you change your mind again, you can choose to get a VAD in the future if you still qualify. If you become too sick for VAD therapy, you will not get a VAD.

If you decide you don't want a VAD, treatment for your heart disease will continue. However, without a VAD, your condition will likely get worse and your life may be shortened.



Get ready for VAD surgery

What you need to do now

Choose your caregivers

You cannot go through this surgery and recover by yourself. You must have one main caregiver and a second (backup) caregiver. These people will go to the evaluation with you and also care for you before and after surgery.

It can be stressful to be a caregiver—there are many challenges. Your caregivers may worry about possible problems with the device. This can make them feel depressed and anxious. Talk about any issues with them before you choose to have VAD therapy.



Once you're out of the intensive care unit, your caregivers must:

- learn about your medicines and their side effects, and be there when we give them to you each day
- learn how to check your blood sugar and give you insulin injections, if needed
- learn how to help you care for your VAD incision (cut) every day as it heals
- help you with personal care, such as bathing or shaving
- help you keep a medicine log once you leave the hospital
- take you to all your appointments
- talk about your condition and any issues with your health care provider
- learn (and help you learn) how to watch for signs of VAD complications, medicine side effects, or any other medical issues once you leave the hospital.

Advance directive (living will)

You'll need to talk with your health care agent, support person, and family about your health care wishes. You can also write down your wishes in an advance directive (also known as a living will).

Become a VAD expert

In order to become a VAD expert, you and your caregivers must:

- read and learn the steps in your device manuals
- show us that you understand how your VAD works
- participate in hands-on education
- talk about possible emergency situations and how to get help
- go to LVAD education classes—your VAD coordinator will schedule these classes for you and your caregiver.

Make your home safe for a VAD

You must decide where you'll plug in your VAD at home. The outlet you choose:

- cannot be operated by a switch
- must have electricity running through it at all times
- must be 3-pronged and grounded.

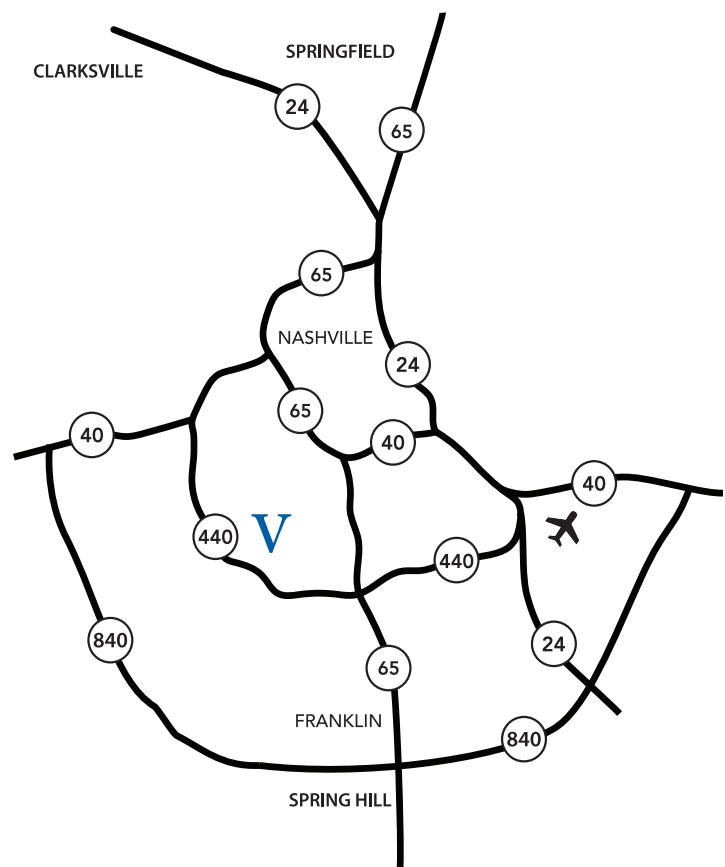
You may need to have an electrician make sure the outlet will work for a VAD.

You'll need to give us (in writing) the contact information for your local electric company, emergency medical services, and emergency room. We'll send them a letter to let them know that you have a VAD.

If you live more than 1 hour from Nashville

After you leave the hospital, you'll need to stay in the Nashville area for 4 to 6 weeks or longer, depending on your recovery.

If you live outside of Nashville, you'll need to find a place to stay in the area for as long as your provider thinks you should. Your social worker can help you with this.



At the hospital

The day of surgery

If your surgery is planned and not an emergency, and your heart failure is stable, you'll come to the hospital on the morning of surgery.

If your heart failure is not stable, you may have to come to the hospital a few days before your surgery. If there's an emergency, you may need surgery right away.

Some things to know before your surgery

- Your family can be with you before surgery.
- Your VAD coordinator and surgeon will talk to you about your VAD.
- Your anesthesiologist will talk to you about anesthesia (medicine to make you sleep during surgery).
- To prevent infection, we'll wash your skin with a special soap and give you an antibiotic medicine.

During surgery

How long it takes

VAD surgery usually takes about 4 to 8 hours. If you've had heart surgery or problems with bleeding in the past, it may take longer.

What happens during surgery

- Your anesthesiologist will give you medicine to make you sleep.

- We'll put you on a ventilator (a machine that helps you breathe) and a heart-lung bypass machine (takes over the work of your heart and lungs during surgery).
- We'll put tubes in your chest before you leave the operating room. These tubes will remove air and fluids from your chest to help you heal faster.
- Your surgery may be done a couple of ways. The surgeon will make:
 - two small incisions: one at the top of your chest and another under your left breast, or
 - one large incision that starts at the top of your chest and goes down to your stomach.
- After the incision, the VAD will be placed in or below your heart and connect to your aorta. This is a large blood vessel that carries blood from your heart to the rest of your body.
- A driveline (tube) will be placed through the skin of your stomach.
 - The driveline has the power cable to turn on the VAD. This power cable connects to a small monitor on the outside of your body that connects to a special power supply.
 - The power supply has either batteries or a power base unit plugged into a wall outlet.
- Once your VAD is in place, we'll stop the heart-lung bypass machine. Then the VAD, along with your heart, will begin to pump blood through your body.

After surgery

Intensive care unit

After surgery you'll be in the intensive care unit (ICU) for about 7 to 10 days, where we'll watch you closely.

What to expect in the ICU

- You'll be on a ventilator until you're fully awake and able to breathe on your own. Then we'll take out the breathing tube. Until we do, you won't be able to speak.
- There will be special compression boots around your legs to stop blood clots.
- There will be a special binder on your stomach to hold the driveline still. This stops the chance of infection around the driveline. This is very important because bacteria can move along the driveline directly into your heart.
- You'll have many tubes and drains in your body that will probably be taken out within a few days. They include:
 - tubes that were put in your chest during surgery
 - IVs to give you fluids and medicines
 - a tube to drain your stomach.
 - a urinary catheter to drain urine from your body.

Step down unit

Once you're stable and can breathe on your own, you'll go to the step down unit. How long you stay in the step down unit will depend on how quickly you recover. It's usually another 7 to 10 days. It depends on how sick you were before the surgery and whether you have any problems after surgery.

Pain after surgery

It's normal to have some pain after surgery. We'll watch your pain and do our best to keep you comfortable. At first, you'll get pain medicine through your IV. When you can eat again, you'll be able to take pain medicine by mouth.

- You may feel pain such as gas, a sore throat, body soreness, and backaches.
- You may have pain at your incision site.
- You may feel groggy.
- You may become confused for a short time because of your medicines.

How long you'll stay in the hospital

Patients are usually in the hospital for an average of 19 days after VAD surgery. However, you may be in the hospital longer, if needed.

How long you stay depends on how sick you were before surgery, or any problems you have during or after surgery.

You may need to go to a rehabilitation (rehab) or other care facility until you're able to be discharged from the hospital.

We'll teach you and your caregiver to:

- care for and operate your VAD
- change the bandage where the driveline comes out of your body—your caregiver must be able to do this before you leave the hospital
- know what to do in an emergency.

VAD training usually lasts for a week. Each day you'll have several small learning sessions.

At home after discharge

You'll get a 24-hour number to call in case of emergencies and questions. It's important for you to stay in touch with your VAD team. Follow-up care with the VAD team is required the entire time you have your VAD.

If you cannot care for and use your VAD by yourself at home, you must have a caregiver with you at all times to help you.

Your follow-up care

Your follow-up care includes doctor appointments, blood work, ECHOs, and right heart catheterization to check your heart and make sure your VAD is working correctly.

Timeline

- **For the first 4 to 6 weeks:**
we'll see you in clinic once a week.
- **For the next 1 to 2 months:**
we'll see you in clinic every 2 weeks, or more, if needed.
- **After your recovery (about 3 to 4 months):**
we'll see you in clinic once a month, or more, if needed.

If you're waiting for a heart transplant

We'll see you every 4 to 6 weeks in clinic until a new heart becomes available.

Cardiac rehab

You'll go to cardiac rehab, physical therapy, and occupational therapy while you're in the hospital. After you get home, you'll go to cardiac rehab 3 to 5 times a week until you graduate.

At rehab you'll:

- learn how to exercise with your VAD
- learn about a heart-healthy diet
- go to classes to quit smoking (if you use tobacco).

Blood thinners

Blood thinners (also known as anticoagulants) stop blood clots in your VAD. They also stop clots throughout your body. For this reason, even a minor injury can cause serious bleeding.

You'll need to have blood tests often to check how well your blood clots. Your provider will review the results of each blood test and change the dose of your blood thinners as needed.



VAD surgery risks

Life-threatening risks

Infection

You may get an infection. Infections can happen:

- where the driveline passes through your stomach and into your heart
- in the incisions the surgeon made in your chest to put in your VAD, or in your neck, underarm, or groin to connect the heart-lung bypass machine
- where tubes are put in to help you breathe, give you fluids or food, or watch your heart.

Bleeding or blood clots

- You may bleed during or after surgery. If it's serious, blood or blood products may be needed.
- Blood clots may form in your VAD or pump.
- Blood clots may form and go to your lungs, brain, or other parts of the body. This can cause the loss of an arm or leg, lung damage, stroke, brain injury, more surgery, or even death.
- Red blood cells can be damaged.
- There may be bleeding in your intestines.
- You could have a stroke.

Problems with your heart or VAD

The VAD pump or one of its parts may stop working. This is rare. Sometimes this can be fixed with another surgery or by an engineer, but other times it cannot be fixed.

- The VAD may not be able to support your heart and pump blood through your body.
- You may have a sudden heart attack.
- Sometimes the right side of the heart can fail. If this happens, you may need a right ventricular assist device (RVAD).
- Your heart may begin to beat irregularly or stop altogether.

Problems in other parts of your body

- Your respiratory system may fail. This means you'll need a breathing tube and machine to help you breathe. If this happens, you'll need to have a surgery to open your throat and put in the breathing tube.
- You may get pneumonia in your lungs.
- You may have liver problems.
- It may be hard to think or act normally.
- Your blood pressure may be too high or low.
- You may faint.
- You may get a blockage in your bowels.
- Your kidneys may get damaged or fail. If your kidneys fail after surgery, you may need dialysis.

Less serious risks

- You may have a longer hospital stay.
- You may need a second surgery.
- Your pain at the incision site is the same as other major heart surgeries.
- Your chest may get injured.
- You may get sores on your skin caused by how we position your body during and after surgery.
- You may get burns from the use of electrical equipment during surgery.
- There may be damage to arteries and veins.
- You may have a permanent scar at your chest incision site.

Other risks

Pregnancy risks

A growing baby can press against and move your VAD pump. This can cause pump failure, bleeding, or even death. And the medicines you take may hurt your fetus.

Anesthesia risks

This surgery will be done under general anesthesia. Anesthesia makes you sleep during surgery and keeps you from feeling pain. An anesthesiologist will talk to you about the risks of anesthesia. Before surgery you'll be asked to sign a separate consent for anesthesia.

Heart-lung bypass risks

You may be put on a cardiopulmonary bypass (heart-lung) machine during your surgery. It circulates and gives oxygen to your blood.

Blood transfusion risks

There's a chance you may need a blood transfusion during or after VAD surgery. Even though the blood is screened for disease, the risks of this include HIV, hepatitis, or other diseases you can get through the blood.

Mental and emotional risks

VAD therapy may cause anxiety, depression, or post traumatic stress disorder (PTSD). A VAD may cause problems when you try to go back to work, or if you try to get a job.

Financial risks

In addition to the cost of a VAD, there are long-term financial costs. These include:

- the cost of medicines, dressing change supplies, travel to appointments, and local housing (if needed)
- the chance that you could lose your health, disability, or life insurance at some point in the future
- the chance that future health issues related to your VAD may not be covered by your current insurance.

You're responsible for all your VAD costs. This includes any care and follow up after your VAD surgery. Our financial counselors can give you more information about other financial resources you may be able to use.

Patient responsibilities



Know how to contact us

Emergencies

(615) 906-9073 24 hours a day, 7 days a week

If you cannot reach a VAD coordinator during an emergency, call the VHVI Operator at (615) 322-2318. Ask for the LVAD heart transplant physician on call.

Non-emergencies

(615) 343-3892 Monday to Friday, 8 a.m. to 4 p.m.

Location

Medical Center East (MCE), South Tower
5th floor, Suite 5209
There's free valet parking in East Garage.

Find a local place to stay

You and your caregiver need to stay within a 1 hour distance to Vanderbilt for 4 to 6 weeks after you leave the hospital. You also need to have someone drive you to appointments.

VAD equipment

- Keep your backup controller and backup batteries with you at all times.
- If you go to the emergency room or you're admitted to the hospital, take your:
 - backup controller
 - batteries
 - battery charger
 - clips
 - wall adapter source.
- You can only shower once your driveline site is healed and your VAD team says it's okay. We'll teach you how to shower with a VAD. If infection, drainage, or other issues happen, you may not be able to shower.

Daily logs

- You must fill out your daily log sheets and record the following:
 - your LVAD numbers (2 times a day—once in the morning and once in the evening)
 - weight (1 time a day)
 - temperature (1 time a day)
 - exit site description (1 time a day).
- You must report changes in your numbers or any concerns to your VAD coordinator.
- Bring your LVAD binder with your logs to every appointment.

Clinic appointments

As a new VAD patient, you'll go to the VAD clinic once a week for at least 4 to 6 weeks. Your provider will decide when your appointments will be changed to every 2 to 8 weeks. This depends on your needs.

Get your lab work

While you're in the hospital you'll do labs every day, or as needed by your inpatient team. After you leave the hospital you'll do labs at every clinic visit, and as needed.

Your INR levels

- We'll do a blood test to check your INR level (short for *international normalized ratios*) 2 times a week after your surgery. This test measures how much time it takes for your blood to clot and will tell us if you're getting the right dose of Coumadin (blood thinner medicine).
- Once you're on a stable dose and seen by a VAD provider, you may only have to go 1 time each week.
- If your INR gets out of range, the Anticoagulation Clinic or your VAD provider may order more tests until your INR stabilizes.
- On the day of your INR test, an Anticoagulation Clinic nurse or your VAD Coordinator will call you with your results. They'll tell you how much warfarin (Coumadin) to take by 4:30 p.m. If you don't hear from someone by that time, call (615) 343-3892 or (615) 906-9073.

Medicines

- Before you leave the hospital, we'll give you a discharge letter and overview of your medicines.
- You must follow all instructions and take your medicines as prescribed.
- Never skip a dose of Coumadin.
- If you miss a dose of Coumadin, call the Anticoagulation Clinic at (615) 343-3824 or the VAD Office at (615) 343-3892.
- If you're female, you must agree to use a reliable form of birth control once you get a VAD.

Refills

- Check with your pharmacy to make sure you have no refills left on your prescription.
- Call the VAD office (615) 343-3892 for refills. *Open Monday to Friday, from 8 a.m. to 4 p.m.*
- Please call one week before you run out. Do **NOT** wait to call until you're completely out of medicine or only have one day left.

What to eat and drink

You'll follow a heart-healthy diet unless your VAD provider or coordinator tell you something different.

On this plan, you will:

- avoid salty foods
- only drink 2 liters of fluid each day
- avoid foods high in vitamin K, which is important when you take Coumadin.

Driveline dressings

- We'll teach your caregiver how to change your dressing before you leave the hospital. They'll practice a driveline dressing change on a dummy before they change your dressing.
- A dressing supply company will contact you and deliver your dressing change kits and supplies to either your local housing or your home.
- Your VAD cardiologist and VAD coordinator will decide the type of dressing change and how often it needs to be done.
- Dressing changes should ONLY be done by a trained caregiver.

Rehab and exercise

- After you leave the hospital, you'll go to outpatient cardiac rehab at the Vanderbilt Dayani Center.
- Sometimes you may need more rehab after discharge. If this is the case, you'll be referred to Stallworth Rehabilitation Hospital or another inpatient rehab facility that's trained on LVADs. Once you leave, you'll still need to go to outpatient rehab at Dayani.
- After you finish your cardiac rehab program, you must continue to stay active and exercise every day.
- Do not lift anything heavier than 10 pounds until your cardiologist says it is okay.

Turn off your VAD

You can turn it off

You always have the right to turn off your VAD. You also have the right to not replace the device if it breaks.

We can turn it off

Our goal is to support you from the time you're admitted through recovery so you can heal and return home. However, if despite all efforts, you have no reasonable chance of surviving, we may have to decide whether VAD support is still the right thing for you.

We'll stop your VAD if your health care team agrees that it cannot help you. We'll talk about this with you, or if you're too ill, with your health care agent.



About the Heartmate 3 LVAD

Main LVAD parts

1 - Pump

The pump connects to the left side of your heart and moves blood from your heart to the rest of your body.

2 - Driveline

The driveline carries power and information between the controller and the heart pump. This part is partially outside of your body.

3 - Controller

The controller powers and checks the pump and driveline. It uses alerts to tell you how the system is working.

4 - Batteries

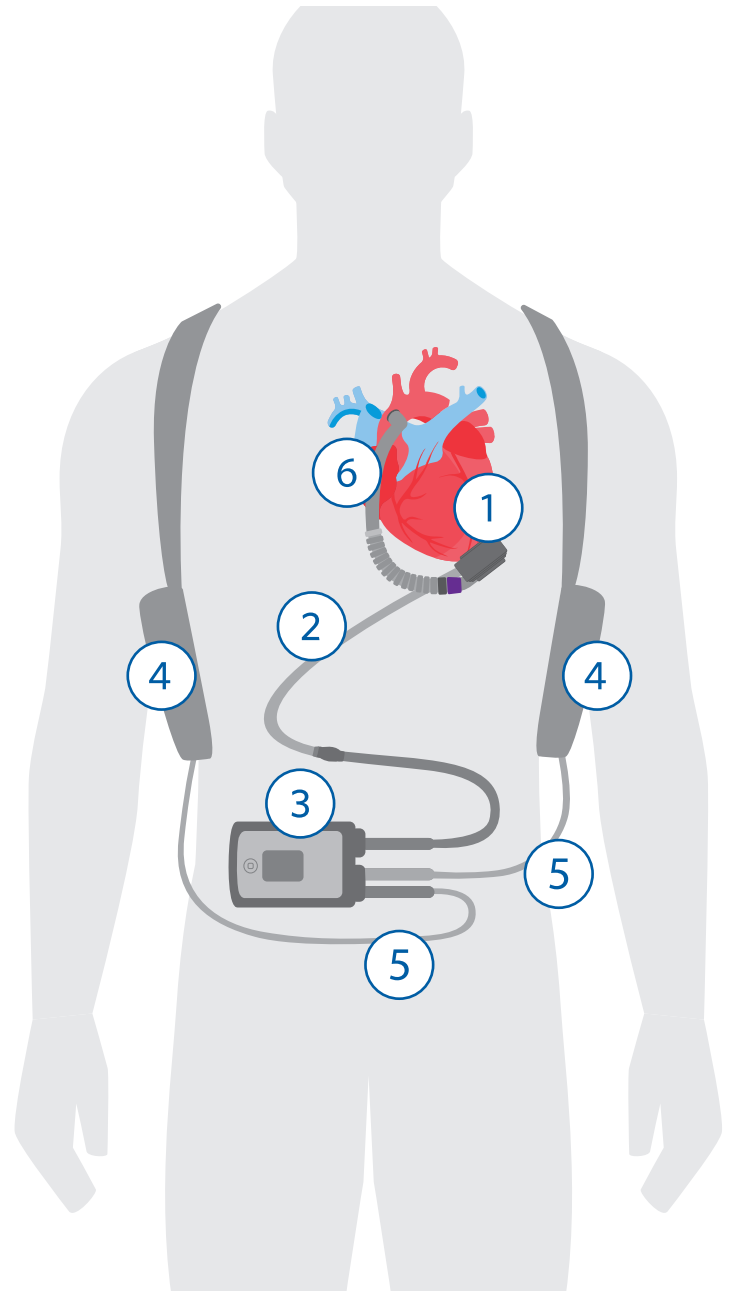
The batteries power the LVAD. Or the LVAD can connect to a device (a power base unit or power module) that sends power to the pump through a grounded wall outlet.

5 - Power cord

The power cord sends power to the pump from batteries or a device.

6 - Outflow graft

This tube connects the pump to your aorta. This is the large blood vessel that sends blood through the body.



Equipment overview

1 - Mobile power unit

The mobile power unit connects to an AC electrical outlet. It provides power to your LVAD. Always connect to the mobile power unit while you sleep. You can also connect to it when you rest.



2 - Battery charger

The battery charger charges and tests the batteries used to power your LVAD.



3 - Batteries and battery clips

Batteries provide power to the LVAD. These are 2 14-volt lithium-ion batteries.



4 - System controller

The controller is a small computer that controls and checks that the LVAD works the way it should. It connects the pump to power sources and can be worn at the waist on a belt or in a waist carrying case.



5 - Modular cable driveline

This is 1 of 2 cables that make up the driveline. One end of the modular cable connects to the pump cable that comes out of your stomach. The other end of the modular cable connects to the system controller.



6 - System monitor, power module, wall power, and patient cable

You'll only use this while you're in the hospital.



Life with a VAD

Stay safe at home

A VAD is a major commitment. You'll still be able to do many of your normal activities, but there are also many rules you need to follow as long as you have your VAD.

- Always keep your VAD plugged into a wall power outlet while you sleep.
- Keep a charged phone handy in case of an emergency.
- Do not use heavy machinery unless your provider says it's okay.
- Some patients have a generator for emergency backup. This isn't required, but it may help you feel safer.

Exercise

- Do not exercise too hard or play sports where you could get hit or tackled.
- You may walk and do other light exercise, but be careful on very cold or very hot days.

Water activities

- Never sit in a tub of water or a hot tub with your VAD.
- Never swim with your VAD.
- Do not take a shower unless your provider says it's okay and you've been taught how to protect the VAD equipment. You'll need a special shower kit to do this.

Travel

- Do not drive unless your provider says it's okay.
- Check with your provider before you travel.
- Keep your VAD emergency contact information with you at all times.
- If you travel a long distance, ask us for the locations of VAD centers where you're going. You need to do this 1 to 2 weeks before you leave.
- Do NOT check your VAD equipment, supplies, or medicines when you fly. Always carry them on the plane with you.

Travel checklist

- extra batteries
- backup system controller
- mobile power unit
- extra battery clips
- power base unit or power module
- universal battery charger
- medicines
- INR machine and supplies (or make a plan to have your INR checked on your trip)
- health insurance card

Tobacco

Avoid people who smoke. Do not use tobacco of any kind. This includes:

- cigarettes or cigars
- nicotine patches
- gum or dip (chewing tobacco)
- vape pens or e-cigarettes.

When you use tobacco, it:

- tightens your arteries and makes it harder for your VAD to pump blood
- lowers your ability to fight infection
- will make you unable to get a heart transplant.

Alcohol

If you drink more than 1 alcoholic drink per day (12 ounces of beer, 5 ounces of wine, or 1.5 ounces of distilled spirits), this can:

- make your heart failure worse
- cause your VAD to not work well
- lower your ability to respond to VAD alarms
- interfere with your medicines.

Patients who drink too much alcohol may be asked to:

- quit alcohol completely
- go to an alcohol rehabilitation program before being considered for a heart transplant
- take random urine or blood alcohol tests.

Nutrition

A VAD is not a cure. You still must follow a healthy lifestyle.

- Always eat a heart-healthy diet. A VAD dietitian can help you do this.
- A healthy diet can help you lose or keep off extra weight.
- Some foods may affect the way your blood thinners work. Your dietitian will give you a list of foods to avoid.
- Follow the fluid restriction guidelines given to you by your provider.

General health

It's your responsibility to share information with all of your health care providers, including your dentist. You must tell them that you have a VAD.

- Ask your provider if you should take an antibiotic before any medical or dental procedures.
- Do not have magnetic resonance imaging (MRI). MRIs use powerful magnets that can cause your pump to stop working.
- Ask your provider if it's okay to have sex.
- Ask your VAD team if it's okay to touch electronic equipment, such as TVs and computers. Static electricity may damage the electrical parts of the pump.
- Make sure you have a family doctor to help you with your general health. They will work with your VAD team to care for you.
- If you get a VAD, you'll need to keep all of your appointments, follow your care plan, and be active in your care.

Ventricular Assist Device (VAD) Behavior Guidelines

Patient Acknowledgement

You are being considered for a Ventricular Assist Device (VAD) at Vanderbilt University Medical Center. The process is often long and makes many demands on patients, families, and caregivers. Open communication between patients, caregivers, and the VAD team is very important.

You must be willing to follow a medical program that includes clinic visits, outpatient hospital procedures, exercise, good nutrition, and taking your medicines every day.

Please review the following agreement with your family or caregivers. If you have questions about the guidelines, please let us know before you sign the agreement.

I, _____, agree to take care of myself before and after my VAD surgery. I also agree to the following:

Please read the following sentences and check the box to verify you understand each statement:

- 1. I will follow the nutrition guidelines (Examples: low sodium diet, fluid restriction, heart healthy diet). I will let the team know about any questions or problems that I have with these nutrition guidelines.
- 2. I know that after I get my device, I will need help after I leave the hospital. This may include: help with activities of daily living (bathing and cooking) and transportation for **at least 6 weeks** after VAD surgery.
- 3. My caregiver and I will attend mandatory classes to prepare for surgery and living at home with the device. I will ask questions about anything I don't understand.
- 4. I know that I must **never** drink too much alcohol. Drinking too much alcohol can hurt my ability to understand and respond to system alarms. I also know that alcohol can affect some medicines and cause my body to lose fluid. There must be enough fluid in my blood for the VAD to work properly.
- 5. If abuse of alcohol or dependence on alcohol is a problem for me, I commit to **stop**.
- 6. I know that I must not use tobacco products. If I am using tobacco products of any kind, I will **stop**.
- 7. I will **never** take any recreational drugs or drugs not prescribed for me by my doctor. If I abuse or am dependent on a drug that has not been prescribed by my doctor, I will **stop**.
- 8. I agree to random urine or blood tests to check for drugs, nicotine, or alcohol. If I do not provide a sample, it will be assumed that I have used at least one of these substances.
- 9. If alcohol or drug abuse is an issue for me, I may be required to attend a rehab program and provide proof that I attended.
- 10. I will follow all instructions and the treatment plan that I get from the VAD team. I will keep my clinic appointments and take prescribed medicines as I am told.
- 11. I will go for labs and INR checks when the VAD team or Coumadin Clinic tells me to.

- 12. I will follow the guidelines to prevent infection, including care of my driveline site. I know that driveline infection can cause death. I know that my caregiver will need to help me with the care of my driveline site, especially for the first 3 months.
- 13. I will follow safe sex guidelines to prevent sexually transmitted diseases.
- a. If female, I will make sure that I use a safe method of birth control. I know that becoming pregnant is life-threatening for both mother and baby.
- 14. I am responsible for co-pays to my medical providers and any medical charges not covered by my insurance. My insurance may not cover all the medicine or dressing supplies I need. I am responsible to pay for these costs not covered by insurance.
- 15. I know that I must stay updated on my insurance coverage or changes in my insurance. It is my responsibility to know what is and what is not covered by insurance.
- 16. I will keep an active phone line. I will make sure my voicemail is not full so my providers can leave a message. I will return phone calls from the VAD team within 24 hours.
- 17. If there are any VAD emergencies, I will call the VAD emergency number first. I will speak with the VAD Coordinator on call and follow what the VAD team tells me.
- 18. I understand that I may be required to return to Nashville for admission to the hospital for urgent or life-threatening problems.
- 19. I will tell the VAD team about any change in my condition, new symptoms or new medicines, admissions to hospital, or any changes in my insurance, residence, caregiver, or my telephone number. I will do this in a timely way.
- 20. I will return to Vanderbilt University Medical Center as needed for any equipment problems as the VAD team tells me.
- 21. I am financially responsible for all costs associated with local housing, living, travel, and medical care. I know a social worker and financial advocate are available. I will work with them to make sure all my financial responsibilities are met.

I have read the guidelines. I agree to follow them. If at any time I do not feel I can follow these guidelines, I will tell the VAD team so that they can provide me with help and support.

Print name: _____

Sign name: _____ Relation: _____

[Person legally able to sign may sign if patient is not able or if patient is a minor] Date: _____ Time: _____

VAD staff member print name: _____

Sign name: _____ Date: _____ Time: _____

Vanderbilt University Medical Center
Ventricular Assist Device (VAD)
Caregiver Agreement
Patient Acknowledgment

You have been identified as a primary or secondary caregiver for _____, who is being considered for a Ventricular Assist Device (VAD) implantation at Vanderbilt University Medical Center. Living with a VAD has significant lifestyle changes and can be a long-term therapy, which requires mutual respect and partnership among the caregiver, the patient, and the VAD team. We expect our patient to secure a primary caregiver and recommend at least one backup caregiver who will provide assistance before, during, and after the VAD implant surgery. In our experience, excellent caregiver support significantly increases the odds that the patient will be successful adjusting to life with the VAD.

Please review this summary of caregiver expectations and sign this document if you can commit to undertaking these tasks for this patient.

I can fulfill the following responsibilities as a primary caregiver or I can delegate these tasks as necessary:

1. During the pre-surgery evaluation, I, and/or a secondary caregiver will accompany the patient to clinic appointments as requested by the VAD team.
2. During the hospitalization, I, and/or a secondary caregiver will be accessible to the VAD team by phone.
3. During hospitalization, I, and/or a secondary caregiver will be visiting to provide emotional support and will communicate any needs to appropriate persons. I understand that we are mutually responsible for communication about the patient's care, and that it may not be possible for a care team member to call me daily. If there are significant concerns or important decisions to be made by either the team or myself, a conference can be arranged with the team to formulate a plan to resolve the issues.
4. I understand that nursing units at Vanderbilt University Medical Center sometimes ask families to appoint a person to relay communication between the care team and other family members. This practice protects the patient's privacy and allows the bedside care team to focus on providing the patient with the best possible care.
5. I will make myself available to be at the hospital at least two to three days prior to goal discharge date to learn about the VAD care including: dressing changes, infection precautions, maintenance of the device, handling emergencies, and communication with the team.
6. In order to prepare the patient for living in the community with a VAD, I will be expected to participate in one in-hospital excursion with the patient prior to hospital discharge date.
7. I understand that the average hospital stay after a VAD implant is 17 days unless there are complicating factors.
8. I understand that after discharge from the hospital, the patient and caregiver(s) will be required to stay within 1 hour travel time of Nashville/VUMC for 4-6 weeks.
9. When the patient returns home, I, and/or a secondary caregiver will continue to be available to _____ for assistance with care as long as needed, which includes: assisting with sterile dressing changes, helping care and maintain the equipment, driving to and from clinic appointments, assisting with medications, assisting with showering (when instructed to do so), and dressing until the patient is able to do these activities independently.
10. I agree to observe infection prevention methods including washing hands, using separate eating and drinking utensils, use of sterile technique when performing dressing changes, and report any of my own symptoms of illness to the VAD team.

11. I understand I will need to assist with cooking, cleaning, and doing laundry for the patient during their recovery period if they are unable to do so themselves.
12. I understand that Vanderbilt University Medical Center's VAD team recommends that patients have a caregiver 24 hours a day for the first four weeks after discharge. In some instances, this need for supervision can be indefinite. While rare, care teams need to consider how they would want to handle this outcome. Referrals to other levels of care, such as skilled nursing facilities, rehab programs, and assisted living facilities are rarely possible or are severely limited for VAD patients.
13. I agree to transport and accompany the patient to and from the hospital, clinic, and lab, ensuring that the patient makes all of his/her appointments on time. I also understand that patients should not ride in a vehicle seat where an airbag would deploy. Lap belts and shoulder harnesses are recommended. I understand Vanderbilt University Medical Center will NOT provide any transportation.
14. I agree to monitor and/or administer medications in the outpatient setting. I understand I must be aware of side effects of the medications and communicate any medication concerns to the VAD team including missed doses. It is my responsibility to ensure prescriptions are filled in a timely manner and that the prescriptions never run out.
15. I understand I must monitor the patient's condition in the outpatient setting including temperature, GI issues, nutrition and fluid intake, and blood sugar levels if required. It is imperative I communicate any concerns to the VAD team immediately.
16. I understand that this agreement must be accepted and signed before the patient's evaluation can be considered complete and implant is scheduled.
17. I understand we will need to complete the "Home Electrical Safety Verification Form" and the "VAD discharge planning sheet" prior to discharge from the hospital.

Additional caregivers will be available to assist me and the patient with physical and/or emotional support as described in this agreement. Our back-up support plan is as follows:

(Please list names and phone numbers of additional caregivers who agree to participate in the patient's care):

Primary Caregiver:

Signature: _____

Relation: _____ Date: _____ Time: _____

Secondary Caregiver:

Signature: _____

Relation: _____ Date: _____ Time: _____

Witness:

Signature: _____ Date: _____ Time: _____

Consent: Evaluation for VAD (Ventricular Assist Device)

Consent - Non-Surgery/Non-Procedure
Evaluation for VAD (Ventricular Assist Device)

I have received information from the VAD team about all of the following:

- What a Ventricular Assist Device or VAD is and how it works.
- Why I might need a VAD.
- What VAD evaluation and surgery involves, including required tests, the surgical procedure, and the risks of surgery.
- What I can expect during recovery and rehab, how my daily life will be affected, and what I will need for long-term, follow-up care.
- The medical risks and benefits of getting a VAD, including possible outcomes, the quality of life I can expect, and how long I might be able to survive with a VAD.
- Other options for treatment I may have and what could happen if I changed my mind about getting a VAD.
- The potential psychosocial, financial, and insurance risks of getting a VAD.
- How a person is approved for VAD surgery, including the reasons a person might not be approved.
- The support I will need during VAD evaluation and before, during, and after surgery. This includes staying in the Nashville Area for 4-6 weeks at a minimum after discharge from the hospital following my VAD implantation.
- The importance of following my treatment plan and going to all of my follow-up appointments after surgery.
- What is required in the home environment (electrical/phone/water requirements, and safety concerns) for safe use of the VAD equipment.

I understand that any information discovered about my health during the evaluation is subject to the same laws as all health records and could reveal conditions that must be reported to local, state, or federal public health authorities.

I also understand that all my medical information will be kept private, unless required by law. Results of my evaluation will not be shared with anyone without my permission.

By signing on the next page, I agree that:

- I have received a copy of the following educational documents:
 - **“A guide to your VAD Evaluation”**
- My expectations for VAD therapy have been discussed.
- I have been given the opportunity to ask questions, and my questions have been addressed.

Vanderbilt University Medical Center
Ventricular Assist Device (VAD)
Home Safety Verification Form
Patient Acknowledgment

Vanderbilt Heart & Vascular Institute
Ventricular Assist Device Department (VAD)
1215 21st Avenue South
MCE 5th Floor, South Tower, Suite 5209
Nashville, TN 37232
615-343-3892

The Purpose of the Home Safety Verification Form is to assure the home environment is safe for the use of Ventricular Assist Device (VAD) equipment. Please read, sign, date and return to the Ventricular Assist Device team.

- Choose at least 2 dedicated outlets that are three pronged or grounded. These will be used as a “normal power source” for the Ventricular Assist Device equipment. For example, the patient’s bedroom and a living room/den are suggested.
- Do not choose an outlet that is controlled by a light switch.
- Each selected outlet should be a 3 pronged outlet and in good condition. You can purchase an outlet circuit tester (\$5-\$10) at any local hardware/department store to ensure the dedicated outlets are grounded.
- Do not use 3 prong to 2 prong adapter plugs (commonly called “cheater” plugs). This type of adapter compromises safety and can increase the chance for electrical shock.
- Do not use extension cords or surge protectors.
- When setting up the Ventricular Assist Device equipment, be aware of tripping hazards. i.e. Ventricular Assist Device cords. Remove all clutter or potential tripping or falling hazards (throw rugs, slippery floors)
- Keep household pets away from the Ventricular Assist Device equipment.
- Visually inspect patient area for any electrical hazards, i.e. bare or frayed wires.
- Identify sources of static electricity for patient such as carpeting, TVs, clothes dryer and computers.
- Identify and label circuit breakers for the Ventricular Assist Device equipment outlets in the electrical panel or breaker box for patient and family, and provide instruction on resetting the breakers or changing out the fuses.
- If you are uncomfortable testing your home’s electrical system, you may consider contacting an electrician to do it for you.
- Create a plan for emergency power in the case of a power outage.
- Verify that there is an operating phone land line or stable cell service at your home.
- Confirm that there is running, clean water at your home.

Patient/Legal Representative Signature: _____

Relation: _____ Date: _____ Time: _____

Family/Caregiver:

Signature: _____ Date: _____ Time: _____

Relationship to patient: _____

