You may want to have a say in this decision, or you may simply want to follow your doctor's recommendation. Either way, this information will help you understand what your choices are so that you can talk to your doctor about them.

Heart Failure: Should I Get an Implantable Cardioverter-Defibrillator (ICD)?

Here's a record of your answers. You can use it to talk with your doctor or loved ones about your decision.

1. Get the facts
2. Compare your options
3. What matters most to you?
4. Where are you leaning now?
5. What else do you need to make your decision?

1. Get the Facts

Your options

- Get an ICD.
- Don't get an ICD.

An ICD is often placed in people who have survived an abnormal heart rhythm that could cause sudden death. This decision aid focuses on whether to get an ICD if you have **not** had a heart rhythm that could be deadly but are at risk for one.

Key points to remember

- Your doctor may suggest an ICD if you are at risk of having an abnormal heart rhythm that could cause sudden death. Tests can show if you are at risk.
- Many medical facts play a role in whether an ICD might help you. For example, the amount of blood your heart pumps (ejection fraction) helps your doctor decide if an ICD is right for you. Your doctor also will consider other health problems you may have.
- The shock from an ICD hurts briefly. It's been described as feeling like a punch in the chest. But the shock is a sign that the ICD is doing its job to keep your heart beating. The ICD also can use painless electrical pulses to fix a heart rate that is too fast or too slow.

- Your doctor may also advise you to take medicine to reduce your chance of having a deadly abnormal heart rhythm.

FAQs

How can heart failure affect heart rhythm?

When you have heart failure, the lower chambers of your heart (See figure 1 in appendix) (the ventricles) aren't able to pump as much oxygen-rich blood as the body needs. Some people who have heart failure also may have abnormal heart rhythms that can cause sudden death.

The heart may beat so fast that the ventricles don't have time to fill with blood. This type of abnormal rhythm is called ventricular tachycardia (say "ven-TRICK-yuh-ler tack-ih-KAR-dee-uh"). Some types of ventricular tachycardia may lead to ventricular fibrillation (say "ven-TRICK-yuh-ler fib-ruh-LAY-shun"). With ventricular fibrillation, the heart quivers, or flutters, and stops pumping blood. Then, if the heart stops beating, this is called cardiac arrest. Cardiac arrest causes sudden death.

How can an ICD help?

An implantable cardioverter-defibrillator (ICD) (See figure 2 in appendix) is a battery-powered device that can fix an abnormal heart rhythm and prevent sudden death. The ICD is placed under the skin of your chest. It's attached to one or two wires (called leads). Most of the time, these leads go into the heart through a vein. The lead is sometimes placed under the skin so it lies near your heart.

An ICD is always checking your heart rate and rhythm. If the ICD detects a life-threatening rapid heart rhythm, it tries to slow the rhythm back to normal using electrical pulses. If the dangerous rhythm does not stop, the ICD sends an electric shock to the heart to restore a normal rhythm. The device then goes back to its watchful mode.

Some ICDs also can fix a heart rate that is too slow without using a shock. The ICD can send out electrical pulses to speed up a heart rate that is too slow.

Before putting the ICD in your chest, your doctor will program it to send electrical pulses or a shock when needed. Whether you get pulses or a shock depends on the type of problem that you have and how the doctor programs the ICD to respond to it.

In some people who have heart failure, the ventricles don't beat at the same time. If these people also have a risk for abnormal heart rhythms, they may get a device that combines an ICD and a biventricular (say "by-ven-TRICK-yuh-ler") pacemaker. This pacemaker is also called cardiac resynchronization therapy (CRT). This type of pacemaker uses electrical pulses to make the ventricles pump at the same time. The ICD part of the device can give a shock to fix an abnormal heart rhythm.

How is the ICD placed?

Your doctor will put the ICD in your chest during minor surgery. You will not have open-chest surgery. You probably will have local anesthesia. This means that you will be awake but feel no pain. You also will likely have medicine to make you feel relaxed and sleepy.

Your doctor makes a small cut (incision) in your upper chest. Your doctor puts the ICD leads through the cut. For one type of ICD, your doctor puts one or two leads (wires) in a large blood vessel and threads them into the heart. For another type, the lead is placed under the skin so that it lies near your heart. Your doctor places the ICD under the skin of your chest. He or she attaches the leads to the ICD. Then the cut will be closed with stitches. Your doctor also programs the ICD.

In some cases, the doctor may be able to put the ICD in another place in the chest so that you don't have a scar on your upper chest. This would allow you to wear clothing with a lower neckline and still keep the scar covered.

Most people spend the night in the hospital, just to make sure that the device is working and that there are no problems from the surgery.

You may be able to see a little bump under the skin where the ICD is placed.

How does it feel to get a shock from an ICD?

The shock from an ICD hurts briefly. It's been described as feeling like a punch in the chest. But the shock is a sign that the ICD is doing its job to keep your heart beating. You won't feel any pain if the ICD uses electrical pulses to fix a heart rate that is too fast or too slow.

There's no way to know how often a shock might occur. It might never happen.

It's possible that the ICD could shock your heart when it shouldn't. If that were to happen, you would have pain. The shock could make you fall out of bed, and that could injure you. You also might be afraid or worried about when the ICD might shock you again.

In rare cases, the shock could cause ventricular fibrillation. If this happened, the ICD would shock your heart again to stop the abnormal rhythm.

Many people say that they have a good quality of life with an ICD. But shocks—and the fear of shocks—can make some people worry too much. They may be afraid all the time that the ICD might shock them. This worry can reduce a person's quality of life.

Who might want an ICD?

An ICD often is placed in people with heart failure who have survived a dangerous abnormal rhythm. The ICD would protect them if they get another abnormal heart rhythm.

But it also may be offered to people with heart failure who haven't had an abnormal heart rhythm but are at risk for one.

You will have tests to see whether you are at risk for abnormal heart rhythms. These may include an electrocardiogram (EKG, ECG), an echocardiogram, or an electrophysiology study.

Your doctor will use these test results and your medical history to figure out if an ICD could help you. Your doctor also will rely on guidelines that help find out who might benefit from an ICD.[1, 2] You and your doctor can work together to decide whether you want to get an ICD.

Many medical facts play a role in whether you should get an ICD. Your doctor will look at whether:

- You're taking medicine to treat heart failure and to prevent abnormal heart rhythms.
- You're expected to live more than 1 year.
- Your ejection fraction is lower than normal.
- You have passed out from previous abnormal heart rhythms.
- You have had a heart attack.
- You have class II or III heart failure. This means that you have some trouble doing everyday activities because of your heart failure symptoms.

Talk with your doctor about the possibility of turning off the ICD at the end of life. Many people consider turning off the ICD when their health goals change from living longer to getting the most comfort possible at the end of life. Turning off your ICD is legal. It isn't considered suicide. The decision to leave on or turn off your ICD is a medical decision that you make based on your values.

Who might not want an ICD?

Sometimes an ICD is **not recommended**.[2, 1] You and your doctor may decide against an ICD if any of the following apply to you:

- You're expected to live less than 1 year.
- You have frequent abnormal heart rhythms (ventricular tachycardia) that can't be controlled with medicines. An ICD would shock you repeatedly.
- You have class IV heart failure and heart transplant surgery is not an option. People who have class IV heart failure can't do any physical activity without symptoms. An ICD probably wouldn't help you live longer.
- You have an abnormal heart rhythm that can be fixed with catheter ablation. This is a procedure that destroys some heart tissue where the abnormal rhythm starts.

Based on personal feelings, some people decide not to get an ICD. For example, they might worry a lot about getting a shock, they may not want to have the surgery to implant the ICD, or they don't want to have a device inside of them.

What are the benefits of an ICD?

An ICD can prevent sudden death from an abnormal heart rhythm. ICDs may also help certain people who have heart failure live longer.[1] How much an ICD might help you depends on a few things, including your overall health.

- ICDs can help lower the risk of dying suddenly from a heart problem. In studies, ICDs lowered the number of people who died because of a heart problem from about 16 out of 100 people to about 7 out of 100 people.[3]
- ICDs might also help lower the risk of death from causes other than sudden cardiac death. In studies, ICDs lowered the number of people who died from any reason from about 30 out of 100 to about 20 out of 100.[3]

- An ICD combined with a pacemaker (cardiac resynchronization therapy, or CRT) can also help people live longer and stay out of the hospital.[4]

What are the risks of an ICD?

There are several risks to getting an ICD. But the risks are different for each person. The risk for problems associated with the implant procedure might be higher for people who are 80 years or older. The risks also depend on the type of ICD that you get.

During the procedure. If problems happen during the procedure, doctors likely can fix them right away.

- Serious bleeding could occur after placement of the ICD. This happens from 1 to 6 times out of 100. Serious bleeding doesn't happen 94 to 99 times out of 100.[3, 5]
- A lung could collapse (pneumothorax) from a buildup of air in the space between the lung and the chest wall. But a pneumothorax can be treated and people recover well. This happens less than 1 time out of 100. This doesn't happen 99 times out of 100.[5]
- In the hospital, serious problems, such as heart injury or stroke, happen less than 1 time out of 100. Serious problems don't happen 99 times out of 100.[6]

After the procedure. Problems after the procedure can be minor, like mild pain, or serious, like an infection. But your doctor can solve most of these problems. And most people do not have long-term problems.

- Pain, bleeding, or bruising soon after the procedure.
- The leads that attach to the heart may break or stop working right. This can happen between 2 and 15 times out of 100 after 5 years of having the ICD. So it does not happen about 85 to 98 times out of 100.[3, 7] But the risk of a lead breaking or not working right appears to increase over time. One long-term study found that, after 10 years, 20 out of 100 leads had problems. This also means that 80 out of 100 leads didn't have problems.[8] If a lead does break or does not work anymore, you would need surgery. The surgery would be more complex than that needed to replace an ICD battery.
- You could get an infection where the ICD is placed. This happens about 1 to 2 times out of 100. So there is no infection about 98 to 99 times out of 100.[9]
- The ICD could shock the heart when it shouldn't. There is no way to know if or when this could happen. It might never happen. In studies, these shocks happened to 3 to 21 out of 100 people over 1 to 5 years. This means that these shocks didn't happen in 79 to 97 people out of 100.[6] Your doctor will program your ICD to lower the risk of one of these shocks.
- There also is a chance that a manufacturer may recall an ICD for a problem. If this were to happen, you might need surgery to take out the ICD and leads.

Daily precautions. You'll need to take steps to safely use electric devices. Some electric devices have a strong electromagnetic field. This field can keep your ICD from working right for a short time. Check with your doctor about what you need to avoid and what you need to keep a short distance away from your ICD. Many household and office electronics do not affect your ICD.

What follow-up do you need after getting an ICD?

You will need regular monitoring and checkups with your doctor to make sure that the ICD is working.

It's important to keep taking your medicines for heart failure. You'll also need to follow a healthy lifestyle to treat heart failure. This may include watching how much fluid you drink, eating healthy foods that are low in salt, and not smoking.

If the ICD gives you a lot of shocks, your doctor may prescribe the rhythm-control medicine amiodarone. This medicine helps prevent abnormal heart rhythms and may keep the ICD from sending shocks too often. Your doctor also could suggest catheter ablation to lower the number of times the ICD shocks you. Catheter ablation can lower the chance of some abnormal heart rhythms, such as atrial fibrillation or ventricular tachycardia. These rhythms can cause the ICD to shock you.

ICDs run on a battery that lasts from 5 to 8 years. To replace the battery, you will need minor surgery.

2. Compare your options

	Get an ICD	Don't get an ICD
What is usually involved?	▪ Your doctor will numb the area with local anesthesia. ▪ You probably will spend the night in the hospital, just to make sure that there are no problems. ▪ You would need to have minor surgery to replace the battery after 5 to 8 years. ▪ You keep taking your heart failure medicine and following a healthy lifestyle.	▪ You keep taking your heart failure medicine and following a healthy lifestyle. ▪ You may take a rhythm-control medicine to prevent abnormal heart rhythms.
What are the benefits?	▪ An ICD may lower the risk of sudden death in some people who have heart failure. ▪ An ICD can fix a heart rate that is too fast or too slow without using a shock. ▪ You may have peace of mind that a dangerous heart rhythm could be fixed right away.	▪ You avoid the risks of surgery. ▪ You won't worry about when the ICD might shock you.
What are the risks and side effects?	▪ Problems can happen during or soon after the procedure to place the ICD. Examples include a lead tearing the heart or a lung collapsing. ▪ The manufacturer could recall an ICD for a problem. If this were to happen, you might need surgery to take out the ICD and leads. ▪ The shock from an ICD hurts briefly. ▪ If the ICD gives you too many shocks, you also may need to take a rhythm-control medicine or have catheter ablation.	▪ You could have an abnormal heart rhythm that could cause sudden death.

Personal stories

Personal stories about getting an ICD for heart failure

These stories are based on information gathered from health professionals and consumers. They may be helpful as you make important health decisions.

"I have class II heart failure. I have some shortness of breath when I go for walks. My doctor said that I could have a risk of a really bad heart rhythm that could make my heart stop. We talked about an ICD. I'm a little nervous about getting shocked. But if it could save my life, it's worth it, so I'm going to get one."

— Juan, age 62

"I've had heart failure for a while now. My ejection fraction is 40%. It's not great. But my doctor says it's not low enough for me to think about getting an ICD. I'm taking my heart failure medicine, eating a low-salt diet, and doing everything my doctor says to do. If my ejection fraction gets lower, I will think about getting an ICD."

— Marie, age 71

"About 6 months ago I had a heart attack. It affected my heart's ability to pump. So I have heart failure. I've had some trouble just going shopping and taking walks. My doctor and I agreed that I should get an ICD. The type I'm going to get combines a pacemaker for heart failure and an ICD."

— Lucy, age 55

"My doctor said I could get an ICD. We talked about how it could help me. But I don't want a device like that inside my body. So I'm not going to get one."

— Martin, age 75

3. What matters most to you?

Your personal feelings are just as important as the medical facts. Think about what matters most to you in this decision, and show how you feel about the following statements.

Reasons to get an ICD						**Reasons not to get an ICD**
I want to do everything I can to prevent a deadly heart rhythm.						**I would rather use only medicine to lower my chance of a deadly heart rhythm.**
More important			Equally important			More important

I'm not worried that the ICD might shock me.						I would worry all the time that the ICD might shock me.
More important			Equally important			More important

I don't mind having a device inside my body.						I don't like the idea of having a device inside my body.
More important			Equally important			More important

I'm not worried about the small risks of surgery.						I'm concerned that something could go wrong with the surgery.
More important			Equally important			More important

I'm not concerned that the ICD or the leads could break.						I'm concerned that the ICD or leads will break and I'll need another surgery.
More important			Equally important			More important

My other important reasons:						My other important reasons:
More important			Equally important			More important

4. Where are you leaning now?

Now that you've thought about the facts and your feelings, you may have a general idea of where you stand

on this decision. Show which way you are leaning right now.

Getting an ICD						**NOT getting an ICD**
Leaning toward			Undecided			Leaning toward

5. What else do you need to make your decision?

Check the facts

1. I need to have an ICD if I have heart failure.

   True
   False
   I'm not sure

You're right. Not everyone who has heart failure needs an ICD. Your doctor may suggest an ICD if you are at risk of having an abnormal heart rhythm that could cause sudden death.

2. I'll feel a painful shock if an ICD fixes a heart rhythm that could cause sudden death.

   True
   False
   I'm not sure

You're right. The shock from an ICD hurts briefly. But the shock is a sign that a possibly deadly heart rhythm has been fixed. An ICD also can use painless pulses to fix a fast or slow heart rate.

3. I might need surgery again someday if the ICD breaks or if it needs a new battery.

   True
   False
   I'm not sure

That's right. The ICD or the wires that attach to it could break. If that happens, you might need surgery to fix the problem. You also will need surgery to replace the battery, which lasts 5 to 8 years.

Decide what's next

1. Do you understand the options available to you?

   Yes
   No

2. Are you clear about which benefits and side effects matter most to you?

Yes

No

3. Do you have enough support and advice from others to make a choice?

Yes

No

Certainty

1. How sure do you feel right now about your decision?

Not sure at all		Somewhat sure		Very sure

2. Check what you need to do before you make this decision.

I'm ready to take action.

I want to discuss the options with others.

I want to learn more about my options.

Use the following space to list questions, concerns, and next steps.

Credits

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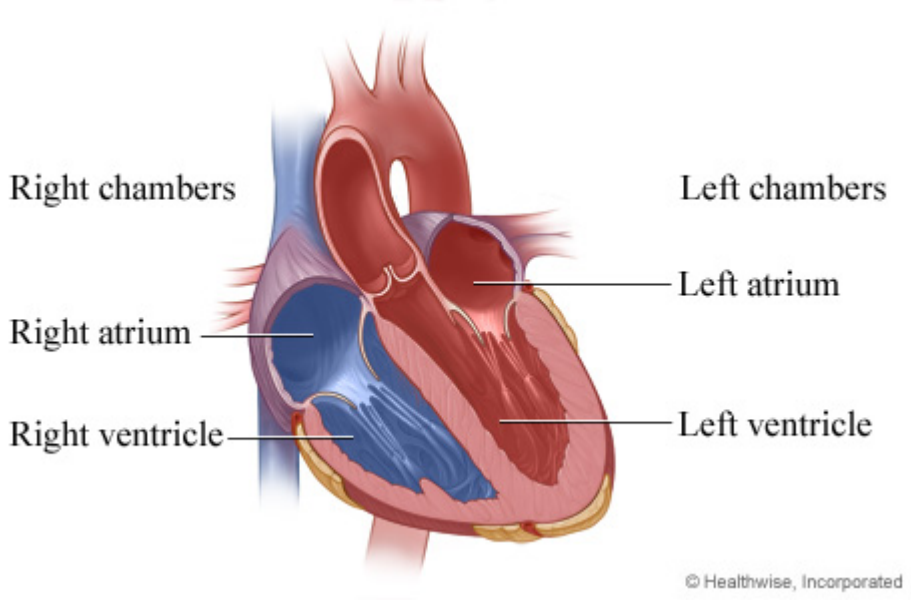
Appendix

Topic Images

Figure 1

Chambers of the heart

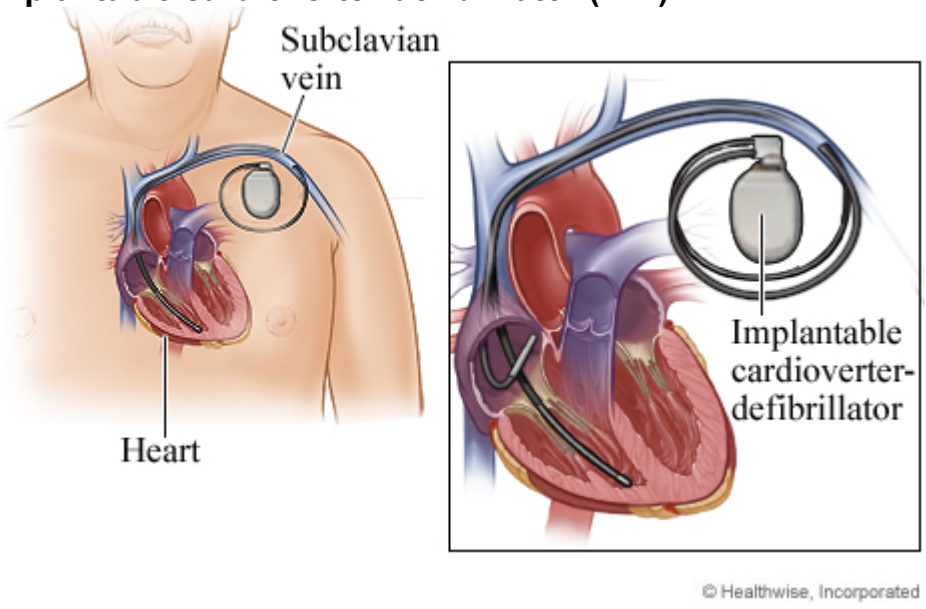


The heart has four chambers: two atria and two ventricles.

- The right atrium receives oxygen-poor blood from the body and pumps it to the right ventricle.
- The right ventricle pumps the oxygen-poor blood to the lungs.
- The left atrium receives oxygen-rich blood from the lungs and pumps it to the left ventricle.
- The left ventricle pumps the oxygen-rich blood to the body.

Figure 2

Implantable cardioverter-defibrillator (ICD)



A doctor places an implantable cardioverter-defibrillator (also called an ICD) in the chest. The ICD has one or two wires called leads. These leads go into the heart through the subclavian vein (transvenous). Some ICDs have a lead that is placed under the skin so that it lies near your heart (subcutaneous). The ICD checks the heartbeat for an abnormal rhythm. If the ICD senses an abnormal heart rhythm, it sends out either electrical

pulses or a shock to fix it.