

Pacemaker

What is a pacemaker?

Every normal heartbeat starts in a group of special pacemaker cells in the upper right chamber of the heart. These cells send a regular electrical signal that causes the heart to contract (squeeze) and push blood into other parts of the heart and out to the body. When the heart cannot beat regularly because of a problem with the electrical signal or damage to the heart, a pacemaker may be needed. A pacemaker is a small device (machine) that uses wires (called leads) to deliver an electrical signal to the heart, causing the heart to beat and pump blood out to the body. The pacemaker leads are put into one or more chambers of the heart through a large vein in the upper chest. The leads are then connected to the battery operated pacemaker. The pacemaker is then placed under the skin of the chest or upper abdomen. Pacemaker batteries need to be changed about every 5 to 10 years.

How is a pacemaker insertion done?

Before the procedure:

- Your healthcare provider will ask you to sign a consent form for the procedure. The consent form will state the reason you are having the procedure, what happens during the procedure, and what you may expect afterward.
- Tell your healthcare provider if you are allergic to any medicines.
- Tell your healthcare provider if you are taking any medicines, including nonprescription drugs, herbal remedies, or illegal drugs (if any).
- You will have a small tube (IV catheter) inserted into a vein in your hand or arm. This will allow for medicine to be given directly into your blood and to give you fluids, if needed.

During the procedure:

- You will be given a sedative, which will help you to relax. This is usually given in your vein (IV).
- You will be given medicines to prevent pain during your surgery. These may include:
 - Local anesthesia: Numbs the area where the insertion will be done
 - General anesthesia: Relaxes your muscles and puts you to sleep. A breathing tube is usually put in your throat when you have general anesthesia.
- The surgeon will use a large needle to insert the pacemaker leads into a large blood vessel in your upper chest and then thread them into the heart. The provider will use a type of X-ray to see where the leads are in the heart.
- The surgeon will connect the leads to the pacemaker and test that the leads are placed well.
- The surgeon will make a cut in the upper chest or abdomen to insert the pacemaker just under the skin.

- The cut will be stitched closed.

After the procedure:

- You will be checked often by nursing staff.
- There will be a dressing on the pacemaker insertion site. The dressing will be checked and changed by your provider or the nursing staff as needed.
- Your provider may prescribe medicine to:
 - Treat pain
 - Treat or prevent an infection
 - Help prevent blood clots
 - Control cholesterol levels
 - Reduce fluid build-up and swelling in the body
- Your blood oxygen level may be monitored by a sensor that is attached to your finger or earlobe.
- A cardiac (heart) monitor will be used to keep track of your heart's rate and rhythm.

What can I do to help?

- You will need to tell your healthcare team if you have new or worsening:
 - Chest discomfort (pressure, fullness, squeezing or pain) that lasts more than a few minutes or goes away and comes back, or chest discomfort that goes to your arms, neck, jaw or back
 - Dizziness
 - Fast, slow, or irregular heartbeat
 - Signs of infection around your pacemaker insertion site. These include:
 - The area around your wound is more red or painful
 - The wound area is very warm to touch
 - You have blood, pus, or other fluid coming from your wound area
 - You have chills or muscle aches
 - Swelling of your legs, ankles, or feet
 - Trouble breathing
- Ask questions about any medicine, treatment, or information that you do not understand.

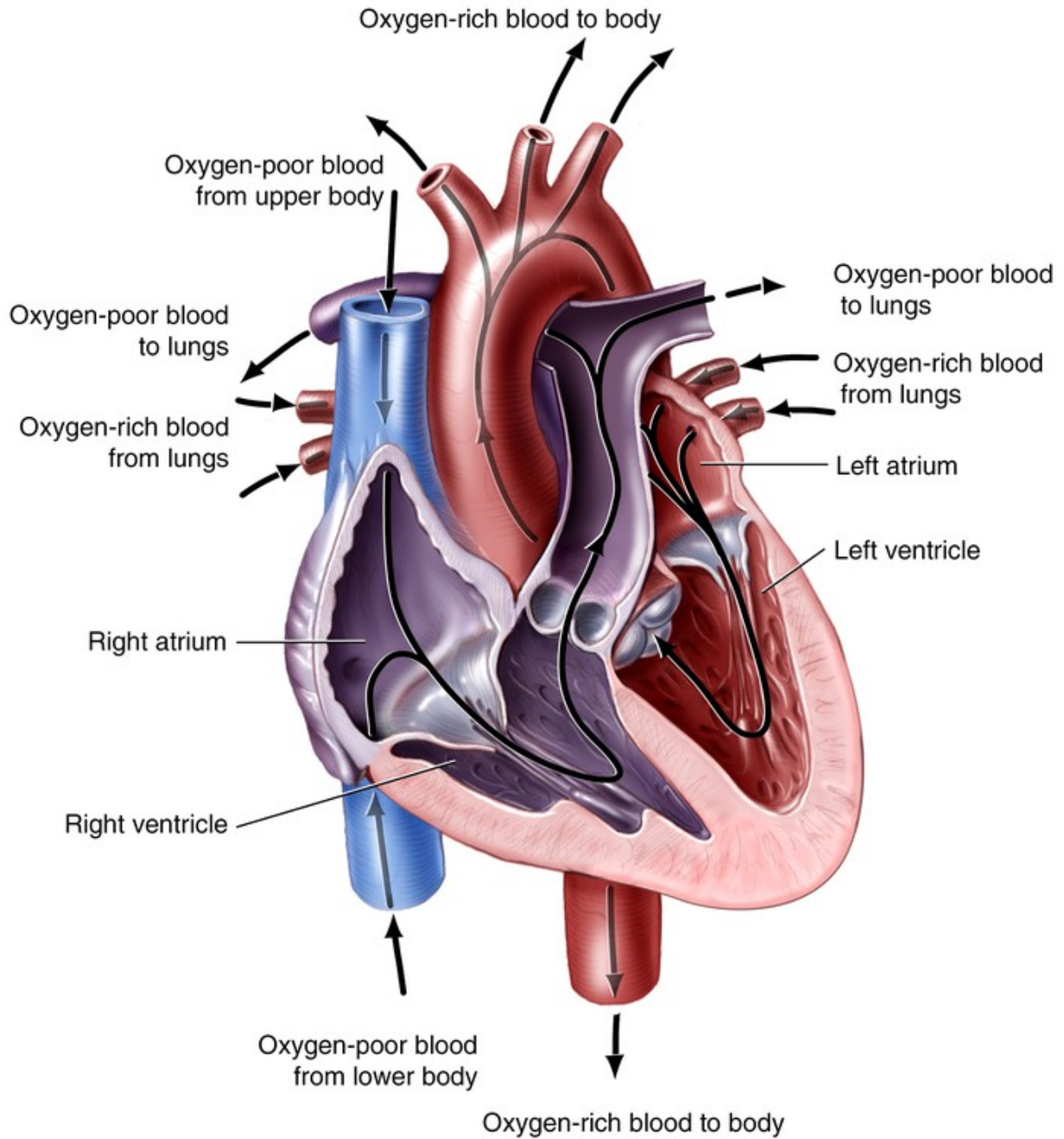
How long will I be in the hospital?

How long you stay in the hospital depends on many factors. The average amount of time to stay in the hospital for a pacemaker procedure is 4 to 5 days.

Developed by RelayHealth.

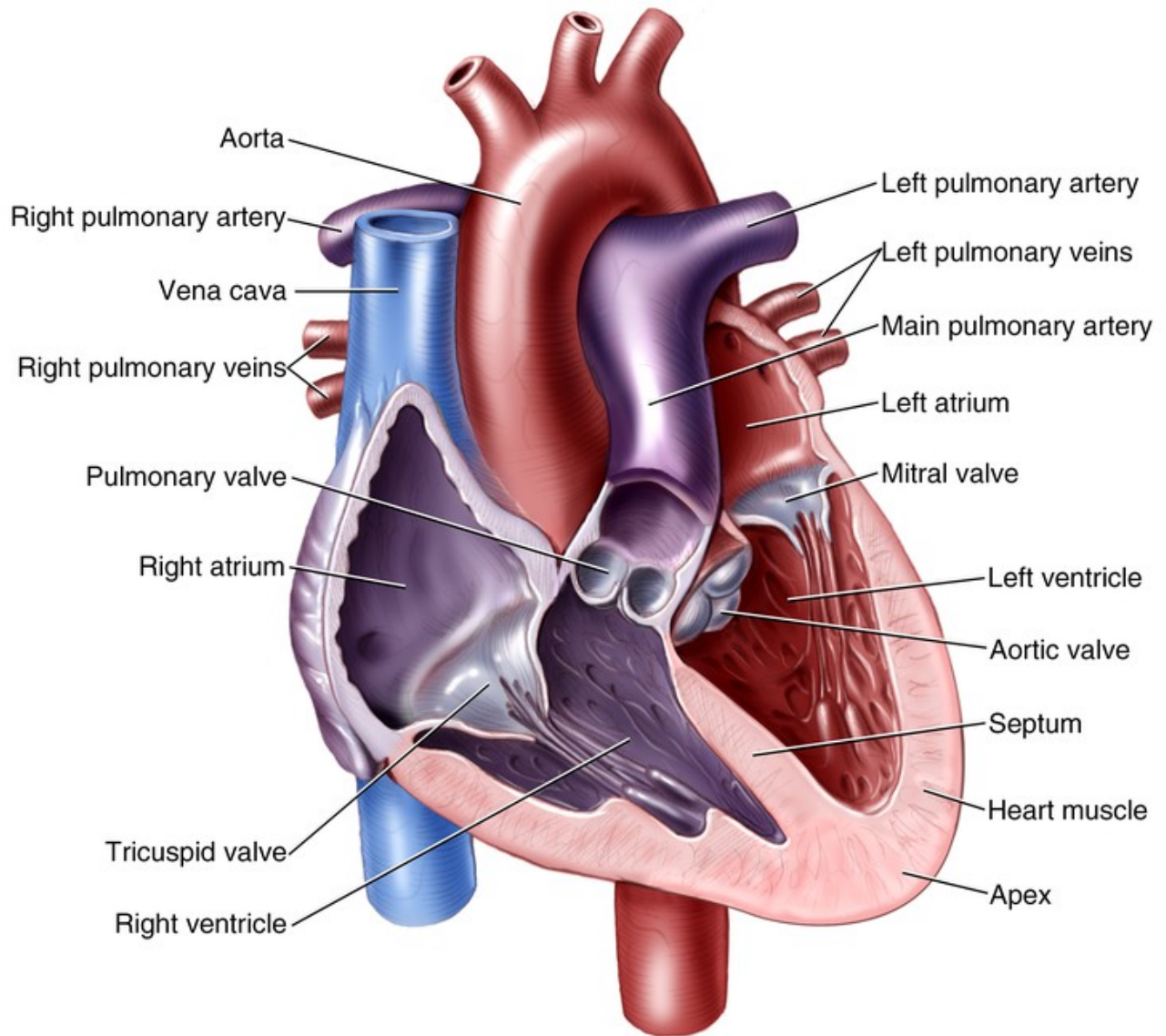
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Blood Flow in Heart



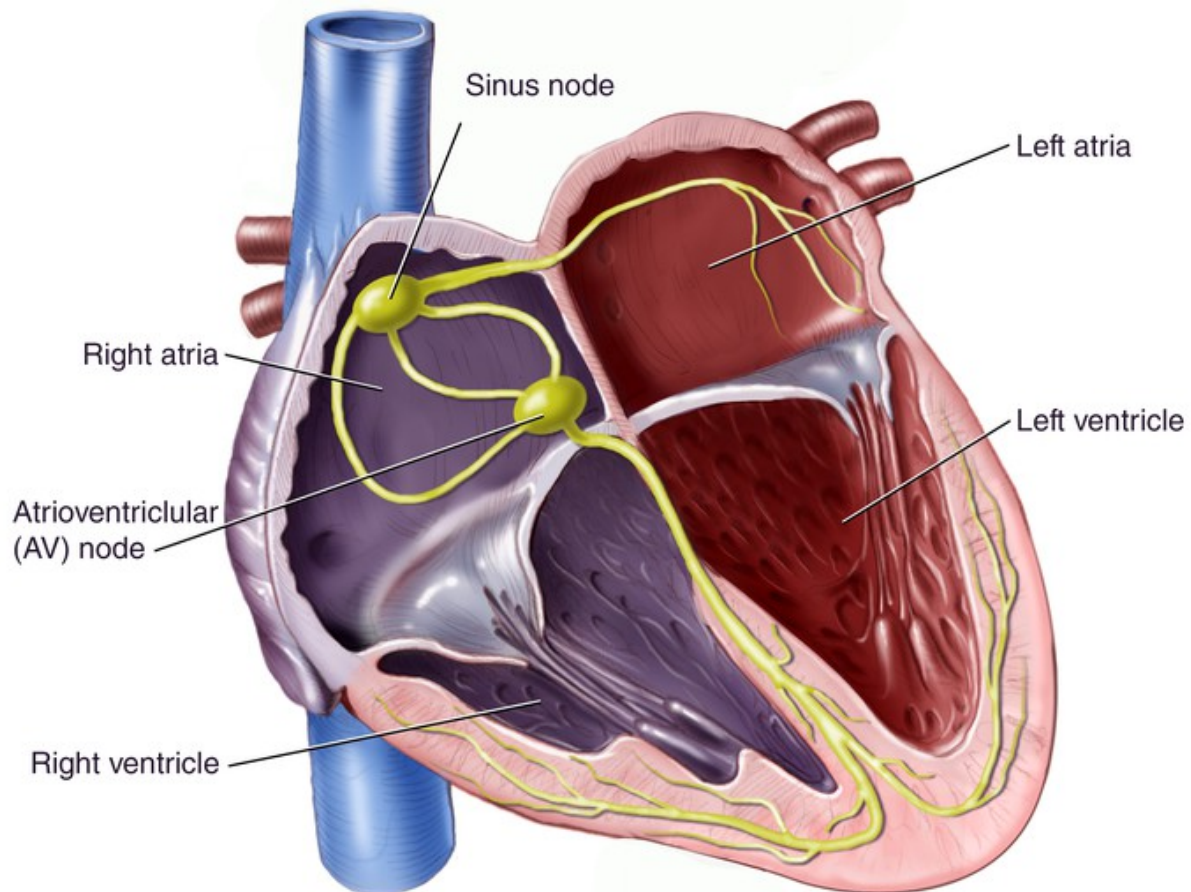
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Heart: Interior View



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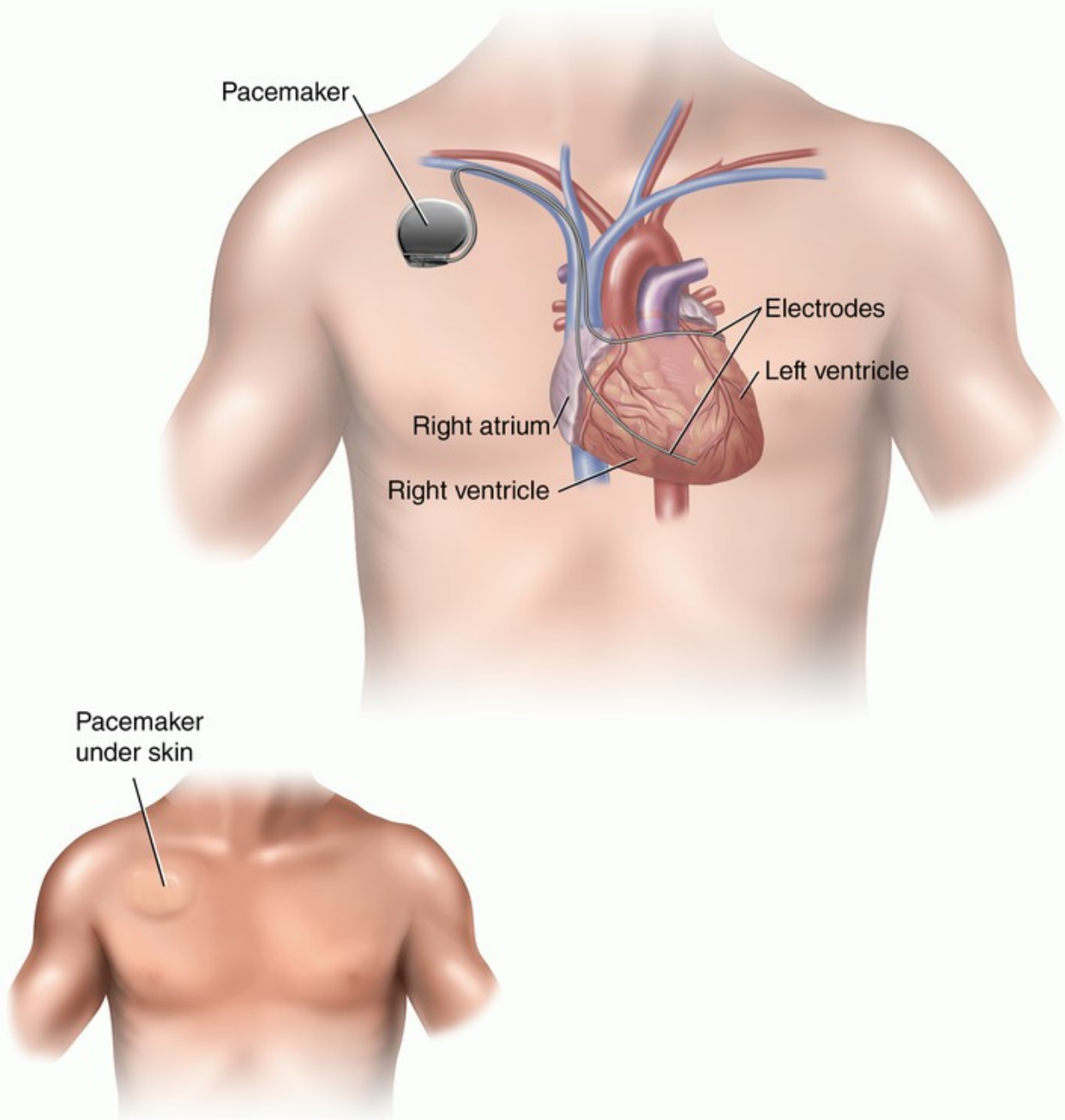
Nodes Responsible for Cardiac Rhythm



The electrical impulse starts in the sinus node. It travels to both atria, causing them to contract, and triggers the AV node. The impulse travels from the AV node, stimulating contraction of the ventricles.

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