

# Anticoagulation

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Many people with congenital heart defects need to take anticoagulants (blood-thinners). Common reasons for this type of treatment include heart valve replacements, heart rhythm disorders or prior complicated surgeries such as the Fontan operation. Blood-thinning medicines slow blood clotting, preventing complications like blood clots forming on artificial valves, valve obstruction and blood clots traveling to the brain and causing stroke.

Anticoagulants are usually given by mouth. In some cases they're given by vein (intravenously) or by injecting them just under the skin (subcutaneously).

Bleeding may be a complication of taking these medications. Tell your doctor if you begin to bruise easily, or you notice unusual bleeding anywhere including gums or nosebleeds.

## Oral Medications

These mainly include aspirin or clopidogrel (Plavix) and warfarin (Coumadin). These medications decrease the clotting tendency by interfering with platelets or blocking the body's production of clotting substances. Your cardiologist will decide which one is right for you.

Aspirin tends to cause fewer bleeding complications than clopidogrel or warfarin, but it may not block clotting enough. It may also upset your stomach.

Clopidogrel doesn't require regular blood test monitoring, but it affects platelet function and bleeding times for up to 7–10 days. You may need to avoid elective dental work and elective operations while taking aspirin or clopidogrel due to risks of bleeding.

Warfarin increases your risk of serious bleeding problems, even when the dose is at the recommended level. Carefully and regularly monitoring the level of blood thinning by testing is required while on warfarin.

If you take warfarin, you may need to limit some physical activities to reduce the chance of injury, particularly a head injury.

Using warfarin during pregnancy also can cause malformations in an unborn child, so discuss the risks of blood thinners with your doctor *before* you get pregnant.

## Intravenous Medications

Intravenous heparin acts rapidly to thin the blood. When it's stopped, the effect also wears off

rapidly. Oral anticoagulants are longer-acting, so if you need elective surgery (including dental surgery), these medications may need to be stopped and intravenous or subcutaneous, shorter-acting heparin begun in the hospital before surgery often referred to as “bridging”. Your doctor will decide if bridging is necessary based on your heart condition.

### **Subcutaneous Medications**

There are two blood-thinning medications: heparin and low-molecular-weight heparin (Lovenox). Both can be injected just underneath the skin (subcutaneously). This is sometimes done if it’s required for a longer time (e.g., during pregnancy) and eliminates the need for an intravenous line long-term. Your cardiologist will determine which type of blood-thinning medication is best for you.

### **Medication Monitoring**

If you’re taking warfarin, your doctor will regularly monitor the blood-clotting level to be sure your dosage is correct. A value called the INR (international normalized ratio) tests how quickly your blood clots. Your warfarin dosage will be carefully adjusted to maintain an INR level appropriate for your heart condition. You must take your medicine exactly as prescribed. You also must have your blood tested regularly according to your doctor’s orders. If you need heparin or low-molecular-weight heparin, blood tests are also required to check that the dose is correct.

### **Medication and Diet Interactions with Warfarin**

Many over-the-counter or prescription medicines can interact with warfarin and change your INR, which can be hazardous. These medicines include most antibiotics, several pain medicines (e.g., non-steroidal anti-inflammatory drugs) and medications for acid reflux such as cimetidine (Tagamet).

If you’re taking warfarin and start a new prescription or over-the-counter medication, check with your doctor. It’s important to determine if this might affect the INR and if you need more frequent blood testing.

In general, avoid aspirin when you’re being treated with warfarin. If you have a mechanical heart valve, low-dose aspirin may be added to warfarin to help prevent blood clots from forming. Discuss this with your cardiologist.

Certain foods also interfere with how your body processes warfarin. Your cardiologist will discuss foods to avoid or eat regularly while taking warfarin. If you’re on warfarin, always ask your doctor about your diet and before taking any other medicines, including vitamins and herbal preparations.

### **Anticoagulation in Pregnancy**

Women who require anticoagulation and become pregnant need to take special precautions. Warfarin poses significant risk to the fetus, especially in the first trimester. Many women on warfarin are switched to heparin during the first weeks of pregnancy. Some may then stay on heparin throughout the pregnancy and delivery. Others may be started back on warfarin during the middle of the pregnancy, then switched back to heparin for the delivery.

It’s critical to discuss management of anticoagulation during pregnancy with your cardiologist and obstetrician. The care must be tailored for each woman.