



PATIENT EDUCATION

Oral Anticoagulant Therapy:
Warfarin

learning **EDUCATION** EXCELLENCE
HEALTHY LIVING CARING INTERACTION

BARBARA WOODWARD LIPS
PATIENT EDUCATION CENTER

What's Inside...

Blood Clotting and Anticoagulants	2
Factors That Affect Oral Anticoagulant Therapy	7
When to Contact Your Health Care Provider	12
When to Seek Emergency Care	14
Health and Safety	15
Anticoagulation Records	17

This information is meant to help you understand anticoagulant medication and treatment with warfarin (Jantoven). Your warfarin treatment is managed by a team of health care providers.

You are the most important member of your health care team; the success of your oral anticoagulant program depends on you. Talk with the health care provider who manages your warfarin if you have questions about the medication or the information in this resource.

You may regularly have appointments with health care providers for other health problems unrelated to taking warfarin. Throughout this resource, however, the terms health care provider and health care team refer to the providers who manage your anticoagulant medication.

Blood Clotting and Anticoagulants

Blood clotting

Blood clotting, also called coagulation, is your body's way of preventing too much bleeding. Your body goes through several steps to form blood clots in order to prevent too much bleeding. If these steps do not happen in the right way, your blood might not clot quickly enough and you could lose too much blood from a skin cut or injury. However, if your blood clots too quickly, harmful clots could form inside your blood vessels.

Anticoagulants

Anticoagulants are medications that work against clotting or coagulation. They are sometimes called blood thinners. They do not actually thin the blood, but they cause the blood to take longer to form clots.

Anticoagulants may be taken:

- By mouth.
- By injection into a vein.
- By injection into the fatty layer under the skin.

Anticoagulants for treatment and prevention

The dosage and/or type of anticoagulant medication your health care provider prescribes depends on whether the goal is to treat or prevent a blood clot.

An anticoagulant treatment example

Getting warfarin prescribed if you were diagnosed with a blood clot in the veins of your leg.

An anticoagulant prevention example

Being prescribed medications to prevent a blood clot from forming after surgery.

Anticoagulants may be used to treat or prevent abnormal clotting in several types of conditions. The following are the most common reasons:

- Abnormal heart rhythm.
- Blood clot in a vein, including veins deep within a leg or arm, which is often accompanied by inflammation of the vein.
- Blood clot in the lung.
- Inherited conditions that cause the blood to clot abnormally.
- Heart valve replacement with an artificial valve.
- Joint replacement.
- Severe heart failure or pulmonary hypertension.
- Blood clot in an artery of the brain, which includes stroke and transient ischemic attack (TIA).

Ask your health care provider for more information about the reason you are taking anticoagulant medication.

Warfarin

Warfarin is the generic name of the oral anticoagulant that is most commonly used in North America. Brand names of warfarin include Jantoven. Different people need different amounts of warfarin. Your dosage is prescribed just for you.

When you receive your prescription, you may notice the strength in milligrams (mg) and the name of the company or the medication stamped on one side of the tablet. One side also may have an indented line in the middle so the tablet can be broken in half. Your medication may look like one of the tablets shown in Figure 1.



Figure 1. Sample warfarin tablets. The strength of these tablets is 5 mg. The tablets can be broken in half at the indented line.

- If you get tablets that differ in color or shape or size from your previous supply, contact your pharmacy or health care provider.
- Use tablets from the same company because switching brands or switching generic medications may affect how your blood clots. If you get a different brand or generic, contact your health care provider the next business day.
- If you change brands or generic medications, you may need blood tests very soon to ensure you receive the proper dose.
- Take your medication at the same time each day. Take it at the time your health care provider has said is the best time for you.
- If you miss a dose and you are scheduled to take your anticoagulant every 24 hours, take the missed dose as soon as possible, even if at the scheduled dose and time. If more than 24 hours have passed and two doses are missed, contact your health care provider. See “Examples of Missed Warfarin Doses.” Different instructions may be recommended based on your situation.

Examples of Missed Warfarin Doses Prescribed To Be Taken Once Daily at 6:00 p.m.	
Scenario	Patient Action
<p>One missed dose: You realize before bed or right away the following morning you missed your dose.</p>	<p>Take the missed dose now.</p> <p>Return to dosing instructions provided at last visit.</p>
<p>One missed dose: You realize at 6:00 p.m. today that you missed yesterday's dose.</p>	<p>Take yesterday's missed dose and today's scheduled dose now.</p> <p>You do NOT need to call your health care provider if you have no other concerns.</p> <p>Return to dosing instructions provided at last visit.</p>
<p>One missed dose and one late dose: It is 10:00 p.m. You are late taking today's dose and you realize that you missed yesterday's dose.</p>	<p>Take ONLY today's dose.</p> <p>Contact your health care provider as soon as possible.</p>
<p>Two missed doses: You realize today you missed the last two scheduled doses.</p>	<p>Call your health care provider to determine dosing instructions.</p> <p>If you are unable to contact your health care provider, return to the dosing instructions provided at last visit and contact health care provider as soon as possible.</p>

What blood tests are necessary?

You have regular blood tests to measure the blood-clotting factors in your blood. Your medication dosage is adjusted according to the results of a blood test most commonly called the INR (international normalized ratio).

A normal INR for a person not taking warfarin is 1.0. When a person takes warfarin, a common INR range may be from 2.0 to 3.0. However, in some situations, your health care provider may recommend a different INR range. Ask your health care provider about your desired INR range.

My INR range is _____.

When you start warfarin, your health care provider may repeat the INR often to determine your dosage. Once the dosage has been established, this test usually is needed less frequently. Your health care provider determines how often the test is needed. The test is done as often as once per week but can be as far apart as every eight weeks. It varies from person to person and as other factors change.

Testing

Contact your health care provider to learn your test results. It is very important you complete a brief assessment and discuss your results with your health care provider on the day your INR is checked.

The health care provider who ordered your tests is _____.

Your health care provider can be reached at _____.

Depending on your situation, you may have the option of having a machine at home to measure your INR. Talk to your health care provider to see if this may work for you.

- Ask your health care provider how often you should have your INR (international normalized ratio) checked. It should be done regularly.
- Contact the health care provider who ordered your INR to ask for your results the same day they are drawn.
- Know the target INR range suggested by your health care provider.
- Keep a record of your INR results and anticoagulant dosages. See “Anticoagulation Records.”

Genetic testing

Your health care provider may order genetic testing. This test may also help your health care provider decide your correct dosage. However, there are many factors involved with determining the dosage that works best for you.

Factors That Affect Oral Anticoagulant Therapy

The following factors may change the effectiveness of your oral anticoagulant therapy:

- Diet
- Tobacco use
- Alcohol use
- Other medications
- Illness

Diet

Vitamin K and your INR

Vitamin K helps your blood to clot. Your body makes some vitamin K naturally, but you get most of it from what you eat and drink. Typically, if you eat a balanced diet, your body adjusts to the amount of vitamin K you eat from day to day, so your blood can clot normally.

This is not the case when you are taking warfarin.

While taking warfarin, a large change in your vitamin K intake — either too little or too much — can result in a large, and sometimes dangerous, change in your INR.

Action	Effect on INR	Result
Eating too much vitamin K	Lowers your INR	Can cause unwanted clotting
Not eating enough vitamin K	Increases your INR	Can cause bleeding
Eating varying amounts of vitamin K	Makes INR unstable (goes up or down)	Can cause unwanted clotting or bleeding

The key to keeping your INR at a steady level is eating about the same amount of vitamin K every day. Be consistent. Do not binge.

Some people avoid vitamin K; that's not good either. It is OK to eat more as long as you consistently eat the same amount.

Ask your health care provider for more information about foods and their vitamin K content.

If you have a dramatic change in your diet — such as during the summer when more fresh vegetables are available — contact your health care provider. Your INR may need to be checked and your warfarin dosage adjusted.

Use caution with some foods

Some foods can cause a dangerous change in your INR. Do not drink:

- **Green tea or any products containing green tea.**
- **Teas made with herbs such as sweet clover, sweet woodruff, tonka beans or other herbs.**

Talk to your health care provider before eating or drinking:

- Cranberry juice.
- Nutritional supplements, protein drinks or herbal supplements.
- Vitamins and minerals.

Alcohol

Action	Effect on INR	Result
Drinking too much alcohol	Makes your INR too high	Can cause bleeding

You should have no more than 1 drink per day. 1 drink = 1 beer (12 ounces) **or** 1 glass of wine (4 ounces) **or** 1½ ounces of 80-proof alcohol.

Do not drink alcohol if your health care provider has asked you not to.

Tobacco use

Action	Effect on INR	Result
Chewing tobacco	Contains vitamin K and may make your INR too low	Can cause unwanted clotting
Smoking cigarettes	Causes your body to process warfarin more rapidly	Can cause unwanted clotting
Using nicotine replacement products	Has minimal effect, but your health care provider needs to know you are using these products	

- Do not use chewing tobacco or other tobacco products. They may harm you in many ways, including increasing your risk of developing cancers and life-threatening heart and blood vessel problems.
- If you choose to continue to use chewing tobacco or other tobacco products, tell your health care provider.
- If you make changes in your alcohol or tobacco use, tell your health care provider.
- Ask about programs that are available to help you quit.

Marijuana

Using marijuana or consuming products that contain cannabis compounds, also known as cannabinoids, can impact your INR. This includes products that contain THC (tetrahydrocannabinol) and CBD (cannabidiol). Discuss the use of these products with a member of your health care team.

Other medications

Many medications, especially antibiotics and acetaminophen (Tylenol), can affect your INR. Before starting or stopping any medication, talk with your health care provider about drug interactions. Have all your prescriptions filled at one pharmacy so the pharmacist also may alert you to any possible drug interactions with warfarin.

Over-the-counter medications

Ask your health care provider or pharmacist before you take any over-the-counter drugs including acetaminophen, cold or cough preparations, cough drops with menthol, antacids, laxatives, fiber supplements and vitamins.

If you start taking any medication to relieve pain, talk with a member of your health care team who manages your warfarin therapy within 1 to 2 days.

Action	Effect on INR	Result
Taking aspirin	No effect on INR directly, but affects bleeding	Can cause bleeding
Taking nonsteroidal anti-inflammatory medication such as ibuprofen, naproxen or diclofenac sodium	No effect on INR directly, but affects bleeding	Can cause bleeding
Taking more than 2000 mg acetaminophen each day (if you take more than 2000 mg each day for several days, contact your health care provider)	Increases your INR	Can cause bleeding

Read the labels of medications carefully. A complete list of medications that may interact with warfarin and complicate your treatment would be too long to include here.

- Tell all your health care providers that you are taking an anticoagulant.
- Avoid aspirin and medications containing aspirin or anti-inflammatory medications unless prescribed by your health care provider.
- Tell your health care provider if you stop or start taking any prescription or over-the-counter medications or if you change dosages. Any change in your medications can change your clotting times (INR) and both the effectiveness and safety of warfarin.
- Changing medications or dosages may temporarily require checking the INR more frequently.
- It is best to have all your prescriptions filled at one pharmacy so that the pharmacist can tell you about drug interactions.
- Discuss all of your medications, including over-the-counter medications, herbal supplements or dietary supplements, including protein drinks, with your health care provider, so your warfarin therapy is effective and safe.

Illness

If you have an illness that lasts more than three days in a row:

- Tell your health care provider if you become ill, especially if you are not eating normally.
- Your INR may need to be monitored more often and your warfarin dosage may need to be changed.



When to Contact Your Health Care Provider

Contact your health care provider about your warfarin dosage for the following reasons.

Medication

- Your medication regimen changes in ANY way. For example, you begin taking a new medication, you stop taking one, the dosage changes or the brand changes. This includes changes in prescription and over-the-counter medication and herbal supplements.
- You missed two or more doses.

Diet

- You have major changes in your diet, such as you are eating significantly more or less of any one food.

Smoking

- You decide to stop or start using tobacco or marijuana.

Activity

- Your activity level changes, such as you are starting a new walking program.

Pregnancy

- You are pregnant or plan to become pregnant.

Surgery and procedures

- Before any surgical procedures including tooth extractions and certain non-surgical procedures (for example, colonoscopies or joint injections).

Illness

- You have a fever or you have diarrhea or vomiting that lasts longer than 24 hours.
- You have an illness that lasts more than three days in a row, especially if you are not eating normally.

Bleeding

- You notice a change in how you bleed.
- You notice dark or bright-red stools or blood in your urine.

See “When to Seek Emergency Care” for symptoms of obvious and less obvious bleeding.

Leg changes

- You have a painful or swollen leg.

While you are taking warfarin, it is important to watch for symptoms of bleeding and clotting.



When to Seek Emergency Care

If you notice any of the following symptoms, seek emergency medical attention by calling 911 or having someone take you to an emergency room:

- Chest pain
- Shortness of breath
- Vomiting and coughing up blood
- Large amounts of rectal bleeding
- Symptoms of **stroke**
 - Sudden numbness, weakness or paralysis — the inability to move a body part — of the face, arm or leg, usually on one side of the body
 - Difficulty speaking or trouble understanding others
 - Sudden blurred or decreased vision, or sudden double vision
 - Dizziness, loss of balance or loss of coordination
 - Sudden, severe headache

When to contact your health care provider

The following symptoms indicate that either bleeding or clotting is or may be present. Contact your health care provider if you notice any of the following symptoms:

Symptoms of obvious bleeding

- Prolonged bleeding from a cut that does not stop after applying 10 minutes of constant pressure and/or ice. Keep the pressure/ice on; do not let up on the pressure to see if bleeding has stopped.
- Prolonged bleeding from the gums and nose.
- Unusually heavy menstrual flow or vaginal bleeding.
- Bleeding from the rectum (such as blood on the toilet paper).

Symptoms of less obvious bleeding

- Dizziness or weakness
- Red or black stools
- Red or dark brown urine
- Unusually prolonged headaches, severe stomach pain or back pain
- Unexplained bruising or purple areas in your skin

Symptom of clotting

- Pain and/or swelling in an arm or leg

If you fall and hit your head or suffer a blow to the head, contact your provider. If needed, seek emergency treatment.

Health and Safety

Generally, people on warfarin continue to have normal lives and work schedules. However, it is important to remember that while you are taking warfarin, you are at increased risk for prolonged bleeding. You must be aware of things that increase this risk and of activities to avoid and precautions you should take. Think about the chances of bleeding **before** you do an activity. During activities, protect yourself from falling or cutting your skin.

Risky activities

- Use caution handling scissors, knives and other sharp objects.
- Wear a helmet when you ride a bicycle or do other activities where you might injure your head.
- Avoid contact sports or other activities with a high risk of injury. Activities with low risk of injury, such as walking or bicycling, are good forms of exercise.

When your health care provider tells you to stop taking warfarin, your clotting usually returns to normal in about a week. During that time, use the same precautions that you used while you were taking the warfarin.

Pregnancy

If you are planning to get pregnant, talk with your health care provider first. Oral anticoagulants can cause birth defects, particularly during the first trimester. Your health care provider may prescribe a different anticoagulant.

Surgery, procedures or dental procedures

- Carry or wear identification that shows that you take an anticoagulant.
- Tell all of your health care providers that you are taking an anticoagulant before you have a surgical or dental procedure.
- Tell the health care provider who manages your warfarin treatment a minimum of 5 to 7 days before you have a surgical or dental procedure.

If your dentist tells you to not take your medication before a dental procedure, contact the health care provider who prescribes your medications. You usually don't have to stop medications for routine dental procedures.

Restrictions

Generally, unless your health care provider tells you otherwise, there are no restrictions when on anticoagulant therapy. Many people continue their normal work schedules, depending on the types of activities they do at work. Discuss specific restrictions with your health care provider.

Traveling

If you plan to travel for more than two or three days, follow these guidelines:

- Consult with your health care provider before your trip. Ask your health care provider for the proper target range of the INR and when to have INR tests done. Decide who will manage your anticoagulation treatment while you are traveling.
- If you are going to be somewhere longer than one month, talk to your regular health care provider about finding a provider in the area you are visiting. If you cannot find a provider in the area you are visiting, be sure your INR results are faxed within 24 hours of having the test to the provider who normally manages your anticoagulant therapy.
- Take your medications as close to the same time as possible each day. Ask your health care provider when to take your anticoagulant if you will be traveling through different time zones.
- Carry enough of your anticoagulant with you to last the entire trip.
- Put your medications in your carry-on baggage, instead of packing them in your checked luggage.
- Eat a consistent diet. This can be challenging when you are traveling; planning ahead can help.
- If you need medical or dental care while traveling, tell all health care team members caring for you that you are taking an anticoagulant.

Follow-up care

If you have questions about this information contact your health care provider. If you cannot reach your health care provider and you need medical care, contact a local emergency room.

Physician: _____

Telephone: _____

Anticoagulation Records

Prescribed warfarin doses and INR results can be found in your patient portal. It is important to keep a record of warfarin doses you take and your blood test results for the INR. You may use a calendar or a different tracking method to record your information. You may make copies of the calendar in this resource.

Use your anticoagulation record to indicate the dose (mg) of medicine you take each day, including the strength (mg) of the tablet and whether your dose is a half or whole tablet. Also record your blood test results (INR). Mark the dates for your future visits with your health care team. This may include visits in person, over the phone or by video. You may also want to write down questions to ask at your next visit. Always have your anticoagulation record available during your visits.

Month						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Dose: _____ mg INR _____	Dose: _____ mg INR _____	Dose: _____ mg INR _____	Dose: _____ mg INR _____	Dose: _____ mg INR _____	Dose: _____ mg INR _____	Dose: _____ mg INR _____
Dose: _____ mg INR _____	Dose: _____ mg INR _____	Dose: _____ mg INR _____	Dose: _____ mg INR _____	Dose: _____ mg INR _____	Dose: _____ mg INR _____	Dose: _____ mg INR _____
Dose: _____ mg INR _____	Dose: _____ mg INR _____	Dose: _____ mg INR _____	Dose: _____ mg INR _____	Dose: _____ mg INR _____	Dose: _____ mg INR _____	Dose: _____ mg INR _____
Dose: _____ mg INR _____	Dose: _____ mg INR _____	Dose: _____ mg INR _____	Dose: _____ mg INR _____	Dose: _____ mg INR _____	Dose: _____ mg INR _____	Dose: _____ mg INR _____
Dose: _____ mg INR _____	Dose: _____ mg INR _____	Dose: _____ mg INR _____	Dose: _____ mg INR _____	Dose: _____ mg INR _____	Dose: _____ mg INR _____	Dose: _____ mg INR _____

Notes

Notes

BARBARA WOODWARD LIPS PATIENT EDUCATION CENTER

Mrs. Lips, a resident of San Antonio, Texas, was a loyal patient of Mayo Clinic for more than 40 years. She was a self-made business leader who significantly expanded her family's activities in oil, gas and ranching, even as she assembled a museum-quality collection of antiques and fine art. She was best known by Mayo staff for her patient advocacy and support.

Upon her death in 1995, Mrs. Lips paid the ultimate compliment by leaving her entire estate to Mayo Clinic. Mrs. Lips had a profound appreciation for the care she received at Mayo Clinic. By naming the Barbara Woodward Lips Patient Education Center, Mayo honors her generosity, her love of learning, her belief in patient empowerment and her dedication to high-quality care.