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What is anticoagulation?
What is anticoagulation?

- **Coumadin® (warfarin)** is an anticoagulant prescribed by your anticoagulation provider (doctor, nurse practitioner, physician assistant, nurse or pharmacist) that is a medication taken by mouth to reduce blood clots from forming.

- Patients sometimes call anticoagulants “blood thinners”. The blood is not actually any “thinner”, but it does take longer to clot when you take an anticoagulant, like **Coumadin® (warfarin)**.

- A number of anticoagulants are available:
  - **Coumadin® (warfarin)**,
  - **Eliquis® (apixaban)**,
  - **Pradaxa® (dabigatran)**,
  - **Xarelto® (rivaroxaban)**,
  - **Savaysa® (edoxaban)**

- **Coumadin® (warfarin)** is the most commonly used medication. At this time, this toolkit only addresses **Coumadin® (warfarin)**.
Why are anticoagulants prescribed?

- To prevent an existing blood clot from getting bigger.
- To prevent blood clots from forming in patients who are at risk.
Who takes an anticoagulant?

Patients who have been diagnosed with one of the following:

1. **Atrial fibrillation** (fast irregular heartbeat). Having atrial fibrillation is one of the most common reasons for taking an anticoagulant.

2. **Heart Valve Replacement** - mechanical valves can increase the chance of blood clots

3. **Mitral stenosis** (one of the valves in the heart does not fully open or close).

4. **Certain blood disorders** that affect how your blood clots

5. **After Orthopedic Surgery** (for example after hip or knee replacement surgery) you could be at increased risk for blood clots

6. **Deep Vein Thrombosis (DVT)** - blood clot in the leg

7. **Stroke**: (Cerebrovascular accident or CVA) blood clots in the brain

8. **Pulmonary Emboli (PE)** - blood clot in the lungs

*Coumadin® (warfarin) is sometimes used for purposes other than those listed above.*
How will my blood be monitored for anticoagulation activity?

- You will need to have your blood drawn regularly.
- The blood tests will check on how quickly your blood clots.
- The blood test is called INR (international normalized ratio) levels.
- If possible, try to have your blood drawn in the morning.
When do I take Coumadin® (warfarin)?

Your anticoagulation provider will advise you on how to take Coumadin® (warfarin) and if it affects any other medications that you take. For example, the following recommendations are commonly advised:

❖ You should take Coumadin® (warfarin) at the same time each day.

❖ If you think that you have taken too much warfarin by mistake, or have missed any doses, call your anticoagulation provider.
How long will I be taking Coumadin® (warfarin)?

❖ This depends on why you are taking Coumadin® (warfarin).

❖ Some patients take it only for a few weeks. Other patients take Coumadin® (warfarin) for life.

❖ Ask your anticoagulation provider for how long you will need to take the anticoagulation medication.
Where should I store my medication?

- Place your medicine bottle in a cool dry place. Keep it away from where children and pets can get to it.
How is Coumadin® (warfarin) monitored?

A. What is an INR (International Normalized Ratio)?
   - Video: A Journey to a Stable INR

B. How often should I get my INR checked?

C. Why is it important to get my INR checked as directed?

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What is an INR?

The International Normalized Ratio (INR) is a blood test used to monitor your body’s response to **Coumadin® (warfarin)**. The INR tells us how quickly your blood clots.

**Your Target (Therapeutic) Range**

* Your anticoagulation provider will determine a therapeutic (target) range for your INR.

* Before taking **Coumadin® (warfarin)**, most people have an INR of 1.0.

* Most people on warfarin have a target range from 2.0 to 3.0, but yours may be higher or lower depending on why you are on warfarin.

* If your INR is out of your target range (therapeutic range), you may be at risk for bleeding (INR too high) or clotting (INR too low).

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How often should I get my INR checked?

- When you first begin taking **Coumadin® (warfarin)**, you may need to get your blood tested 1-2 times a week.

- As your INR results become more consistent and your dose becomes more stable over time, the frequency of blood tests may be decreased to just once a month or longer.

- Changes in health, medications, or diet may require you to have more frequent INR checks.
**Why is it important to get my INR checked as directed?**

- **Coumadin® (warfarin)** can be a dangerous medication if not used appropriately.
- The INR test helps the Anticoagulation Service determine if you are taking the correct dose of warfarin to stay in your target range.
- Getting regular INR checks minimizes your risk of bleeding or clotting while taking **Coumadin® (warfarin)**.

**Notify your anticoagulation provider:**
- If you miss your INR or are unable to keep your blood draw appointment, call to reschedule as soon as possible.
- If you have changes in bruising, nose bleeding, or gum bleeding, you may need an INR sooner than your scheduled appointment.
How will diet affect **Coumadin® (warfarin)**?  

A. How will diet affect my **Coumadin® (warfarin)**?  

B. What does Vitamin K do?  

C. National Institutes of Health (NIH) Vitamin K Factsheets  

- [http://nih.gov/factsheets/list-all/VitaminK/](http://nih.gov/factsheets/list-all/VitaminK/)  
How will diet affect my **Coumadin® (warfarin)**?

While on **Coumadin® (warfarin)** you should eat a normal, balanced diet. Some elements of your diet may affect your INR:

* Foods high in vitamin K
* Alcoholic beverages
* Vitamins and nutritional supplements

**Notify your anticoagulation provider:**

* Before making major changes to eating or drinking habits.
* Before starting vitamins or nutrition supplements (for example **BOOST® Nutritional Drinks**, **Slim fast®**, **CARNATION® BREAKFAST ESSENTIALS™**, **Ensure®**).
* If you are unable to eat or have diarrhea or vomiting for more than 24 hours.

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Your body uses vitamin K to help with clotting, so eating large amounts of vitamin K can reduce the effects of warfarin.

Common foods high in vitamin K are leafy green vegetables, such as: kale, spinach, greens, Brussels sprouts, broccoli, and asparagus.

No, but it is important to stay consistent – eat the same amount of vitamin K foods from week to week.

- Eating more vitamin K than usual may cause LOW INR (greater clotting risk)
- Eating less vitamin K than usual may cause HIGH INR (greater bleeding risk)
How do other drugs affect warfarin?

A. Can I take medications, over the counter and prescriptions with Coumadin® (warfarin)?

B. Can I take vitamins, nutritional and herbal supplements with Coumadin® (warfarin)?

C. Can I continue to smoke and drink alcohol with Coumadin® (warfarin)?

D. What if I miss or take the incorrect dose?

E. What medications interact with Coumadin® (warfarin)?
Can I take medications, over the counter and prescriptions with Coumadin® (warfarin)?

**YES!** You can but you need to tell your anticoagulation provider of all the medication you are taking including the over the counter, herbal and dietary supplements, and medications.

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Can I take vitamins, nutritional and herbal supplements Coumadin®(warfarin)?

YES! You can take supplements but you MUST tell your anticoagulation provider since the effects can alter your INR results. Supplements that affect your INR include:

- Ensure®
- Green tea
- Gingko
- St. John’s Wort
- Garlic
- Ginseng
- Fish Oil
- Omega 3 Fatty Acids
- Kava Kava
- Danshen
- Vitamins for Eye Health

There are many more supplements that interact with Coumadin®(warfarin) therefore it is important to talk with your anticoagulation provider about the ones you are taking or thinking about starting. You may also need to have your INR levels drawn more frequently.

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Can I continue to smoke or drink alcohol while taking Coumadin® (warfarin)?

- Drinking alcohol, smoking tobacco products or medical marijuana can affect how you react to Coumadin® (warfarin).

- The best thing to do is to avoid alcohol and smoking. If you must, drink in moderation and keep the amount of smoking to a consistent level.

- Please notify your anticoagulation provider of any changes in your drinking or smoking.
What if I miss or take the incorrect dose of Coumadin®(warfarin) ?

If you think that you have taken too much Coumadin®(warfarin) by mistake, or have missed any doses, call your anticoagulation provider.
What medications interact with **Coumadin® (warfarin)**?

**Coumadin® (warfarin)** interacts with many other medications:

- Prescription medicines
- Over-the-counter medicines
- Vitamins
- Herbal and Diet supplements/products

Some medications can increase your risk of bleeding without increasing your INR or interacting with warfarin. Some examples are aspirin and other NSAIDs (ibuprofen, naproxen, etc.). Check with your anticoagulation provider. Common medications that may interact with **Coumadin® (warfarin)** include:

<table>
<thead>
<tr>
<th>Prescription</th>
<th>Over-the-counter</th>
<th>Vitamins</th>
<th>Herbal Supplements</th>
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<td>Pain relievers</td>
<td>Vitamin E</td>
<td>Ginseng</td>
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<tr>
<td>Anti inflammatory</td>
<td>Aspirin</td>
<td>Vitamin K</td>
<td>Garlic (capsules)</td>
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<tr>
<td>Heart medications</td>
<td>Ibuprofen</td>
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<td>Ginger (capsules)</td>
</tr>
<tr>
<td>Ulcer &amp; reflux medications</td>
<td>Cough and cold remedies</td>
<td></td>
<td>Ginkgo</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>St. John’s Wort</td>
</tr>
</tbody>
</table>

**AS SOON AS YOU START OR STOP ANY MEDICATIONS/HERBAL SUPPLEMENTS/VITAMINS.** Notify your anticoagulation provider. The healthcare provider may order more frequent INRs to check for interactions with **Coumadin® (warfarin)**.

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How can I reduce my risk of complications?

A. Do I have to limit my activities while taking Coumadin®(warfarin)?  
   Page 24

B. Does drinking alcohol affect therapy Coumadin®(warfarin)?  
   Page 25

C. What do I do if I am sick?  
   Page 26

D. What do I do if I become pregnant?  
   Page 27

E. What do I need to do if I have a medical procedure/surgery planned while I am taking Coumadin®(warfarin)?  
   Page 28

F. What should I do if I am going on vacation and need to get my blood drawn while out of town while I am taking Coumadin®(warfarin)?  
   Page 29

G. Wallet Card  
   Page 30

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Do I have to limit my activities while taking Coumadin® (warfarin)?

- Physical activities that are usually safe, such as walking, jogging, swimming, and gardening may be continued.

- Because Coumadin® (warfarin) increases your risk of bleeding, activities that place you at risk of injury (such as contact sports) should be avoided.

- Discuss your activities with your physician or the Anticoagulation Service to determine if they are safe to continue while taking warfarin.

Can changes in my activity level affect my INR?

- Yes, changes in your level of activity can change your body’s response to warfarin.

- Significant increases in exercise/activity may cause your INR to become too low (putting you at risk for clotting).

Notify Your Healthcare Provider before you make major changes in your activity level.
Does drinking alcohol affect Coumadin® (warfarin) therapy?

Yes! Alcohol can change the way your body metabolizes warfarin.

Why should I avoid excessive drinking while on Coumadin® (warfarin)?

- Drinking may raise your INR and greatly increase your risk of bleeding.

Notify Your Anticoagulation Provider before you make major changes in your drinking habits.

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What do I do if I am sick?

- Acute illness will change your body’s response to Coumadin® (warfarin).
- Some illnesses can dramatically increase your INR (putting you at risk for bleeding), including:
  - Episodes of heart failure
  - Liver disease
  - Nausea/vomiting
  - Diarrhea
  - Fever (over 101°F Fahrenheit)
  - Influenza
  - Viral/bacterial infection
- Medications you take to treat your illness may also interact with warfarin.
- Notify your anticoagulation provider
  - If you experience any of the above illnesses.
  - If you begin taking antibiotics or any other new medications to treat your illness.

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What do I do if I become pregnant?

- Coumadin® (warfarin) can cause birth defects.
- Most people should **NOT** take Coumadin® (warfarin) during your first trimester (3 months) of pregnancy. It is up to your doctor whether you can take warfarin during the later stages of pregnancy.
- If you think you have become pregnant while taking warfarin contact your physician and your anticoagulation provider immediately.

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What do I need to do if I have a medical procedure/ surgery planned while I am taking Coumadin®(warfarin) ?

* Call your anticoagulation provider, as soon as possible, to let them know the medical procedure/surgery you have scheduled.

* You also will need to tell the anticoagulation provider who is scheduling the medical procedure/surgery that you are taking Coumadin®(warfarin).

* The doctor or other anticoagulation provider may want you to stop taking Coumadin®(warfarin) a few days before the medical procedure/surgery.

* Ask you doctor when you can restart you Coumadin®(warfarin) after your scheduled medical procedure/surgery.

Notify Your Anticoagulation Provider as soon as your medical procedure/surgery is scheduled.
What should I do if I am going on vacation and need to get my blood drawn while I am out of town while taking Coumadin®(warfarin)?

- If you know you will be on vacation, contact your anticoagulation provider and let them know you will be gone and for how long.

- You might need to have your INR checked prior to you leaving.

- If you are going to need to have your INR checked while you are away, your anticoagulation provider might need to assist you in locating a laboratory so you can have your blood drawn. So, it is advisable to contact your anticoagulation provider to discuss those details.

- You should make sure that you have enough Coumadin®(warfarin) with you otherwise you might need to ask for a refill.

Notify Your Anticoagulation Provider as soon as your upcoming vacation plans.
**Keep this card in your wallet or purse.**

I am taking the prescription medication Warfarin/Coumadin®, which is a blood thinner.

Name:__________________________________________________Birthdate:__________________ Blood type:__________

GOAL INR:_________________________ Start date of Warfarin/Coumadin®:__________________________

**In an emergency, please notify:**

Name:_________________________ Relationship:_________________________ Phone:__________________________

Doctor:_________________________ Phone:__________________________

*Please immediately inform anyone that is providing medical care to me.*

<table>
<thead>
<tr>
<th>Medication</th>
<th>Why do you take this?</th>
<th>Dose</th>
<th>How often do you take it?</th>
<th>When do you take it?</th>
<th>When did you start?</th>
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<tr>
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Staying safe while on Coumadin® (warfarin)?

* Be very careful using knives and scissors.
* Use an electric razor.
* Use a soft toothbrush.
* Use waxed dental floss.
* Do not use toothpicks.
* Wear shoes or non-skid slippers in the house.
* Be careful when you trim your toenails.
* Do not trim corns or calluses yourself.
* Always wear shoes.
* Wear gloves when using sharp tools.
* Avoid activities and sports that can easily hurt you.
* Wear gardening gloves when doing yard work.
Do I need to wear a medical bracelet?

- Medical IDs can be worn by patients to help identify your diagnosis.

- Below are some websites you can refer to:
  - http://www.americanmedical-id.com
  - http://www.alert-1.com
  - http://www.identifyyourself.com
Call 911 or go to the ER

If you have any of the following symptoms:

- Blood in stool or urine
- Coughing or vomiting blood
- Uncontrolled bleeding or extensive bruising
- Serious fall, or hit on the head
- Sudden dizziness, changes in vision, or severe headache
- Numbness or weakness in a limb
- Slurred speech or difficulty speaking
- Chest pain or shortness of breath
- Redness, swelling, warmth, or pain in a limb.
- Other serious symptoms or changes in health
Notify Your Anticoagulation Service

of changes that can **raise or lower your INR** and put you at **risk for adverse events**:

- Medication changes (including over-the-counter and vitamins)
- Missed dose(s) of warfarin
- Changes in diet (especially Vitamin K foods such as green leafy vegetables)
- Major or minor bleeding
- Illness (vomiting, diarrhea, fever)
- Changes in exercise/activity level
- Heavy alcohol use
- Planned procedures or surgeries
- Change in laboratory used for INRs
- Need for warfarin refills

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QUICK REFERENCE GUIDE FOR PATIENTS

WHAT AFFECTS INR (International Normalized Ratio)?

HIGH INR (Blood too thin) may be due to:
- New Medications such as antibiotics or steroids
- Decrease in Vitamin K foods (green leafy vegetables by 2-3 servings per week)
- Poor appetite for more than 24 hours
- Illness (vomiting or diarrhea) for more than 24 hours
- Increase in alcohol use (2 or more drinks above usual within 24 hour period)

LOW INR (blood too thick) may be due to:
- Any missed doses of Coumadin® (warfarin)
- Stopped medications such as antibiotics or steroids
- Increase in Vitamin K foods (green leafy vegetables) by 2-3 servings
- Adding diet supplements (for example BOOST® Nutritional Drinks, Slim fast®, CARNATION® BREAKFAST ESSENTIALS™, Ensure®)
- Significant increase in exercise/activity

REMINDER: Call 911 for any emergencies

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## A patient’s guide to pill color, strength and size

<table>
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<tr>
<th>Strength (mg)</th>
<th>Pill Color</th>
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<tbody>
<tr>
<td>1</td>
<td>Pink</td>
</tr>
<tr>
<td>2</td>
<td>Purple</td>
</tr>
<tr>
<td>2.5</td>
<td>White</td>
</tr>
<tr>
<td>3</td>
<td>Orange</td>
</tr>
<tr>
<td>4</td>
<td>Blue</td>
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<td>5</td>
<td>Green</td>
</tr>
<tr>
<td>6</td>
<td>Gold</td>
</tr>
<tr>
<td>7.5</td>
<td>Brown</td>
</tr>
<tr>
<td>10</td>
<td>Black</td>
</tr>
</tbody>
</table>

*Pills do not reflect actual size.*
Tips to remember to take Coumadin® (warfarin)

1. Set your alarm on your watch, clock, phone or computer to remind you:
   - To take your Coumadin® (warfarin) and all your medications
   - To get your blood drawn

2. Put your pills in pill boxes. Separate the boxes into colors to identify them to take by morning, lunch, and evening medications

3. Take your medications when brushing your teeth in the morning and evening

4. Take your medications with morning coffee or vitamins

5. Take your medications during a favorite morning and evening TV show

6. Involve others to witness you taking the pills or to administer the medications

7. Place notes or other reminders in prominent places, such as on the bedside table or bathroom mirror

8. Wear an alarm watch that rings when it is time to take the pills.

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Smart Technology to remind you to take Coumadin® (warfarin)

1. Set up a Web Based System reminder
2. Setup an online medical app or pill reminder on your smartphone, tablet, iPod, iPad or computer to remind you:
   - To take your medications
   - To get your blood drawn
   - To remind you of your doctor’s appointments
3. “Smart” Medication Dispensers. These are high tech pill bottle covers that can be programmed to flash or sound an alarm when its time for the patient to take the medications.
4. Set up voice reminder systems which sends reminders via voice, text and email.

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## ON-LINE Resources for patients

<table>
<thead>
<tr>
<th>Resource</th>
<th>URL</th>
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</thead>
<tbody>
<tr>
<td>Learn about COUMADIN and read Important Safety Information</td>
<td><a href="http://packageinserts.bms.com">http://packageinserts.bms.com</a></td>
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<tr>
<td>Learn about Coumadin</td>
<td><a href="http://www.coumadin.com">http://www.coumadin.com</a></td>
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<tr>
<td>American Heart Association (AHA)</td>
<td><a href="http://www.heart.org">http://www.heart.org</a></td>
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<td>American Heart Association(AHA) Patients Guide to taking Warfarin.</td>
<td><a href="http://www.heart.org/HEARTORG">http://www.heart.org/HEARTORG</a></td>
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<td>American Venous Forum(AVF)</td>
<td><a href="http://www.veinforum.org">http://www.veinforum.org</a></td>
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<td>APS Foundation of America (Anti phospholipid Antibody Syndrome)</td>
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<td>American Society of Hematology (ASH)</td>
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<td><a href="http://www.vascularweb.org">http://www.vascularweb.org</a></td>
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On behalf of the **MAQI² (Michigan Anti-coagulation Quality Improvement Initiative)** consortium, we would like to thank the following individuals for their continuous dedication in preparing and developing the anticoagulation toolkit for patients. Funding is being provided by Blue Cross Blue Shield of Michigan and Blue Care Network.

<table>
<thead>
<tr>
<th>Hospital</th>
<th>City</th>
<th>Individuals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Henry Ford Hospital</td>
<td>Detroit, Michigan</td>
<td>Stacy Ellsworth, RN, MSN, CCRN&lt;br&gt;Helen Gikas, RN, BSN, CCRN&lt;br&gt;Noelle Ryan, PharmD</td>
</tr>
<tr>
<td>Huron Valley Hospital</td>
<td>Commerce Township, Michigan</td>
<td>Jay Kozlowski, MD, FACC&lt;br&gt;Renee Kozlowski, RN&lt;br&gt;Stephanie Watts, RN</td>
</tr>
<tr>
<td>West Michigan Heart</td>
<td>Grand Rapids, Michigan</td>
<td>Mary JoDeYoung, RN</td>
</tr>
<tr>
<td>William Beaumont Hospital</td>
<td>Royal Oak, Michigan</td>
<td>Steve Almany, MD&lt;br&gt;Nannette Gearhart, RN, MSN&lt;br&gt;Denise Pluhatsch, RN, BSN</td>
</tr>
<tr>
<td>University of Michigan Health Systems</td>
<td>Ann Arbor, Michigan</td>
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