Patient and Family Education:

Managing Your Warfarin (Coumadin®) Therapy

For Oregon Medical Group Anti-Coagulation Clinic Patients

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Welcome to the Anti-Coagulation Clinic (ACC)

Oregon Medical Group's Anti-Coagulation Clinic, or ACC, is located on the 3rd floor of the Garden Way Medical Center Building at 330 South Garden Way, Suite 350. We consist of full-time and part-time Registered Nurses who care for patients who are taking the medication warfarin (Coumadin®). Overseen by Oregon Medical Group primary care physicians, the Registered Nurses assess patient's lab results, give dosing information, provide education, and routinely monitor over 1,000 OMG patients on warfarin (Coumadin®). In order to be seen at the ACC, you must have an OMG primary care physician.

This packet of information is designed to assist you in gaining the knowledge necessary for you to remain as safe as possible while on warfarin (Coumadin®). It will be used in conjunction with an educational appointment with one of our nurses that all new patients to the ACC must attend and should serve as a reference to you in the future. We request that you read the information in this packet and discuss any questions or concerns you may have with your nurse or healthcare provider.

Why am I here?

You are being seen at the ACC by the request of your OMG primary care provider. The nurses at the ACC clinic focus on warfarin (Coumadin®) patients and help to provide the safest therapy to you. We communicate with your provider regularly about your care and you will continue to see them for your routine visits.

What is Warfarin (Coumadin®)

Warfarin (Coumadin®) is an anticoagulant. "Anti" means against, coagulant refers to blood clotting. Warfarin reduces the body's ability to make blood clots. It is called a "blood thinner," but does not actually thin the blood or make it more watery. It does not make you bleed faster, it only delays how long it takes the blood to clot, making you bleed longer.

History of Warfarin (Coumadin®)

Warfarin was first discovered in 1939 after numerous cattle became ill in North Dakota and Canada after eating improperly cured feed made from common varieties of sweet clover. The causative compound was identified as dicumarol, a coumarin compound. Further investigation at the University of Wisconsin led to the discovery of compound 42 (warfarin sodium) which emerged as a rodenticide in the 1940's. Investigators began experimenting with warfarin in humans in the 1950's, but its widespread use did not occur until it was used to treat President Dwight D. Eisenhower after a heart attack in the mid 1950's. Subsequently, warfarin sodium (derived from the ***W***isconsin ***A***lumni ***R***esearch ***F***oundation which held the original patent on warfarin) rapidly became the major oral anticoagulant used in the United States and Canada. Warfarin is now the 14th largest selling prescription drug, with over two million people in the United States taking it.

How Does Warfarin (Coumadin) Work?

Warfarin (Coumadin®) partially blocks the re-use of vitamin K in your liver. Vitamin K is needed to make clotting factors that help the blood to clot and prevent bleeding. Vitamin K is found naturally in certain foods, such as green leafy vegetables. Warfarin (Coumadin®) reduces the body's ability to make blood clots. It can help stop harmful clots from forming and keeps existing clots from getting larger. Warfarin does not break up existing blood clots. Warfarin (Coumadin®) begins to reduce blood-clotting within 24 hours after taking the drug. The full effect may take 72 to 96 hours to occur. The anti-clotting effect of a single dose of warfarin lasts 2 to 5 days, but it is important for you to take your dose as prescribed by your healthcare provider.

Reasons People Take Warfarin:

Atrial fibrillation:

Irregular heart rhythms that occur in the upper chambers of the heart (the atria). The atria do not empty all of the blood, which can cause the leftover blood to form clots. If a clot goes into your circulation, it can cause a stroke.

Deep vein thrombosis (DVT):

A blood clot that occurs in a deep vein. They most often occur in the legs, but can occur in other parts of the body as well.

Pulmonary embolism (PE):

A blood clot in the lung. Most often, the blood clot starts in the leg, breaks off, and travels to the lung.

Artificial heart valves:

Blood clots can form on the mechanical heart valve. If a clot forms on the valve, it can prevent the valve from functioning, or if the clot breaks off into your circulation, it can cause a stroke. People with mechanical heart valve replacements must be on warfarin therapy for life. People with artificial tissue valves are also at higher risk of blood clots and are often kept on warfarin for life as well.

Altered clotting factors:

Some people have hereditary or congenital clotting abnormalities which cause their blood to clot faster than normal.

History of heart attack, stroke, or major cardiovascular surgery:

Sometimes warfarin is taken after a heart attack to lower the risk of death, lower the risk of another heart attack, and lower the risk of stroke. If a stroke is caused by a blood clot going to the brain, warfarin is used to prevent it from recurring. Some types of surgery, such as major heart surgery, place patients at a higher risk of developing a blood clot. They are treated with warfarin to help decrease the risk.

Major orthopedic surgery:

Some types of orthopedic surgery, such as a hip replacement, increase the risk of a person developing a blood clot. In these patients, warfarin is given for a period of time, for example 5 weeks, after surgery. The orthopedic surgeon will decide how long you must be on an anti-coagulant after surgery.

Other reasons:

Warfarin is sometimes given for reasons other than those listed. If you have any questions or don't understand the reason you are on warfarin (Coumadin®) please talk to your nurse or healthcare provider.

What Makes Warfarin (Coumadin®) Different?

Warfarin (Coumadin®) is different from other medications because:

- There is no standard way of estimating dosage. You are started on a dose by your healthcare provider and we then adjust your dose up or down until the right amount is reached.

- Individualized patient response and dosing. Doses are customized to each person. If you talk to a friend who takes more or less than you, don't worry. There is no "good" or "normal" amount of warfarin to take. The right amount is the amount that keeps you in your therapeutic target range.

- Many interactions with food, activity, medications, and alcohol. These interactions can seem overwhelming at first, but over time you will understand that consistency with these factors and communication with your nurse regarding changes that occur will keep you safely in your therapeutic target range.

- Frequent blood tests are needed to keep you at a safe level. At first, these tests will be more frequent, but will gradually decrease to once a month. You may later need more frequent blood tests again if changes to your health, medications, diet, etc. happen.

How is Warfarin (Coumadin®) Monitored and What Dose Will I Take?

Warfarin (Coumadin®) is monitored by a blood test called an INR (International Normalized Ratio). In the ACC, the blood test is performed using a finger stick, similar to the type done for blood sugar testing. The blood is placed on a small device and a result is obtained within 30 seconds.

Warfarin belongs to a category of drugs known as "narrow range of effectiveness" drugs. This means that there is a very narrow range where the drug is considered therapeutic. For most indications, the INR range is 2.0-3.0. For people with mechanical heart valve replacements and certain other conditions, the range is 2.5-3.5. These ranges are general recommendations. Your healthcare provider might prescribe a different range, depending on your particular condition.

When your INR falls within your range (for example, between 2.0-3.0), this means that your level is "therapeutic" or you are "in target." When your INR level goes below the range (for example, 1.5), this means your blood is "too thick," and places you at risk for blood clots. In this situation, your nurse will give you a higher dose of warfarin for you to take. If your INR goes above your range (for example, 4.5) this means your blood is "too thin," and places you at risk for bleeding. In this situation, your nurse will give you a lower dose of warfarin for you to take. Because warfarin affects each person differently, some people will be on small doses and some will be on very large doses. Some people will achieve their appropriate INR quickly and others more slowly. *The dose of warfarin you need is the one that keeps the INR in the therapeutic range for your condition*. Many factors affect your INR level including a change in diet, a change in medications, the onset of a new illness, alcohol use, activity or exercise level, or having to stop your warfarin for a procedure.

When a person first starts taking warfarin (Coumadin®) the INR level tends to fluctuate up and down until the correct dose of warfarin is found that keeps your INR level stable. It is therefore very important to get your INR level checked

frequently. In general, when you first start warfarin, you will need to get your INR level checked two to three times a week for the first two weeks, then one to two times a week for two weeks, then every other week, then once a month. This may vary depending on how your INR levels are. If the INR level becomes stable quickly, you will go for INR blood tests less often. If the INR level does not become stable, you will need to go for INR blood tests more often.

When your INR level is too high or too low, you often will not feel any symptoms. This is why it is so important to get your INR blood tests done regularly.

If you are tested in the Anti-Coagulation Clinic and the machine reads your number as being higher than 5.0, we will send you to the lab for a blood draw. This is necessary because our machines are not as reliable when your number is greater than 5.0 and we must have an accurate reading to properly dose you.

Warfarin (Coumadin®) Drug Interactions

Warfarin (Coumadin®) interacts with hundreds of drugs including prescription and non-prescription (over-the-counter or OTC) drugs. Drug interactions can cause your INR to go too high (placing you at risk for bleeding) or cause your INR to go too low (placing you at risk for blood clots). Examples of some drugs that interact with warfarin are given below. This list is not to be considered all inclusive. It is meant to give you an idea of the more common drugs that interact with warfarin. It is strongly recommended you check with your ACC nurse or healthcare provider before starting, changing, or stopping any drug, whether it is prescription or over-the-counter. If you need to be on a medicine that causes an interaction with warfarin, it does not mean that you cannot take it. It does mean that you will need to get your INR monitored more closely when you start the new medicine and during the course of treatment. It may also mean that your warfarin dose needs to be adjusted and that is why it is extremely important for you to contact your ACC nurse as soon as possible whenever these changes occur.

Commonly used drugs that interact with warfarin (Coumadin®): (Remember: these are just *SOME* examples. Always call your nurse to check if the med you are taking will interact)

Prescription Drugs (by class):	***Examples***:
Antibiotics	Cipro, Augmentin, Amoxicillin, Bactrim
Analgesics (pain medicines)	Percocet (oxycodone/acetaminophen), Vicodin (hydrocodone/acetaminophen), tramadol
Anticonvulsants	Depakote, Dilantin, Topamax
Antidepressants	Celexa, Lexapro, Zoloft, Paxil, Prozac, Cymbalta, Effexor
Antiplatelet drugs	Plavix, Aspirin
Diabetes drugs	Oral and injectable blood sugar medications
Gastrointestinal drugs	Prilosec (omeprazole), Nexium (esomeprazole), Protonix, Aciphex

Gout treatment drugs	Allopurinol, Prednisone, anti-inflammatories
Lipid-lowering drugs (cholesterol meds)	Lipitor, Zocor (simvastatin), Zetia
Steroids	Prednisone
Thyroid drugs	Levoxyl (levothyroxine), Synthroid
Antiarrhythmics	Pacerone (amiodarone), Multaq
Antifungal drugs	Ketoconazole, miconazole, Diflucan (fluconazole)

Warfarin (Coumadin®) and Over-the-Counter Medication Interactions

Common OTC medications that interact with warfarin (Coumadin®):

Aspirin
Advil or Motrin (ibuprofen)
Aleve (naprosyn/naproxen)
Cimetidine (Tagamet)
Coenzyme Q-10
Glucosamine & Chondroitin
Multivitamins containing Vitamin K
Pepto Bismol/Tums/Rolaids
Prilosec (omeprazole)
Ranitidine (Zantac)
Vitamin C
Vitmain E
Antifungals (Tinactin; yeast infection creams like Monistat)

Warfarin (Coumadin®) Herbal Medicine Interactions

Herbal medicines can also cause dangerous drug interaction with warfarin (Coumadin®). Keep in mind that just because an herbal product is advertised to be "all natural" does not mean it is *safe*. Below is a list of herbal products known to interact with warfarin. The list is not all inclusive. If you want to take an herbal supplement, it is *very important* that you contact your ACC nurse or healthcare provider before taking it.

Agrimony	Chamomile (German & Roman)	Parsley
Alfalfa	Dandelion	Passion Flower
Aloe Gel	Fenugreek	Pau d'arco
Aniseed Angelica (Dong Quai)	Feverfew	Policosanol
Arnica	Garlic	Poplar
Asa Foetida	Germal Sarsaparilla	Quassia
Aspen	Ginger	Red Clover
Bladder Wrack (Fucus)	Ginkgo Biloba	Senega
Black Cohosh	Goldenseal	St. John's Wort
Black Haw	Green Tea	Sweet Clover
Bogbean	Horseradish	Sweet Woodruff
Bromelain	Licorice	Tamarind
Buchu Boldo	Meadowsweet	Tonka Beans
Capsicum	Mistletoe	Wild Carrot
Cassia	Nettle	Wild Lettuce
Celery	Onion	Yarrow

What Diet Will I Be On While On Warfarin (Coumadin®)?

Warfarin (Coumadin®) interacts with Vitamin K in your diet. Vitamin K is necessary in the blood clotting process. Food sources with the highest amount of Vitamin K include dark green leafy vegetables. *This does not mean that you need to cut green leafy vegetables out of your diet*. These foods are heart healthy, they are high in lutein, which improves vision, and high in fiber, which is good for the gastrointestinal tract. The recommendation is to keep your diet consistent. This means that you should eat the same amount of vegetables from week to week. Do

not eat a lot of dark green leafy vegetables one week, then none the following week. As long as you maintain a consistent amount of Vitamin K in your diet, the warfarin will balance with it. If your Vitamin K intake fluctuates, your INR level will fluctuate. Remember, just because a vegetable is green does not mean it is high in Vitamin K. There are some foods, such as blueberries and blackberries, which are not green but do contain some Vitamin K. Please refer to the Vitamin K food list at the end of this packet for information regarding specific foods.

Other Dietary Considerations

Dietary supplements: Many dietary supplements contain Vitamin K. Examples of these products include Ensure, Boost, Greens to Go, and Carnation Instant Breakfast. The fact that these products contain Vitamin K does not mean you should not use them. As with diet, keep your Vitamin K intake consistent. If you have never used these products, but would like to start, contact your ACC nurse. You will need to get your INR level monitored more closely when you start them.

Vitamins: Below is a list of some of the most common vitamins and their effect on the INR level:

- B vitamins: no effect on the INR level
- Vitamin C: up to 500mg per day will have no effect on the INR. Doses greater than 500mg may lower the INR level
- Vitamin E: up to 400 IU per day will have no effect on the INR. Doses above 400 IU may increase the INR level
- Multivitamins: most multivitamins contain small amounts of Vitamin K. It is okay to take them, but as with diet, be consistent in taking them every day to prevent your Vitamin K intake from fluctuating. If you are not using multivitamins but would like to start, contact your ACC nurse. You will need to get your INR level monitored more closely when you start them.

Alcohol: alcohol in moderation (1 drink per day) will have little effect on the INR level. Excess alcohol intake will elevate the INR level because both the alcohol and the warfarin (Coumadin®) are metabolized through the liver. Consistency with

alcohol use is very important. **Binge drinking, or drinking 3 or more drinks, can raise your INR dangerously high and seriously increase your risk of bleeding problems. If you have a problem with excessive alcohol intake and are taking warfarin, please speak with your ACC nurse or primary healthcare provider. This combination may place you at serious risk of a bleeding event and could be lethal.**

Exercise While On Warfarin

Being consistent with how much and how often you exercise will help keep your INR's stable. Increased exercise can cause your INR to go lower; decreased exercise can cause your INR to go higher. Regular exercise is great for your health and you should exercise as much or as little as is desired or recommended by your physician, but please remember to always communicate changes in your activity level to your ACC nurse. Remember that while on anti-coagulants, you will experience longer bleeding times if you are injured while exercising. If you engage in sports or exercise where injuries may occur, always have appropriate first aid supplies available.

Illnesses Lasting Longer than Two Days

Fever, vomiting, and diarrhea can significantly affect your INR test results, usually raising your INR or causing an increased risk of bleeding. If you experience these for two days or longer, please call your ACC nurse to discuss.

Side Effects of Warfarin (Coumadin®)

The most serious side effect of warfarin (Coumadin®) is bleeding. To lower the risk of bleeding, be sure to get your INR monitored regularly. Monitor yourself for:

- Nosebleeds
- Bleeding of gums when you brush your teeth
- Vomiting blood
- Blood in your urine
- Bowel movements that look red or black
- Rectal bleeding
- Unusual bruising
- Cuts that take longer than 20 minutes to stop bleeding
- Excessive bleeding when you get your menstrual period or unexpected vaginal bleeding
- Headache, dizziness, or weakness
- Unusual pain or swelling

Never adjust your warfarin (Coumadin®) dose yourself. Not taking your dose or stopping your warfarin (Coumadin) could put you at risk of developing a blood clot or stroke. Always talk to your nurse or primary care provider first if you have any bleeding concerns.

If you develop *minor* bleeding (for example, a nosebleed or bleeding from the gums that stops within a few minutes) contact the Anticoagulation Clinic. You may need to get your INR level checked.

If you develop *major* bleeding (for example, vomiting blood or a nosebleed that won't stop) ***go to the nearest emergency room.*** This could be a sign of a serious problem.

If you are involved in any kind of ***traumatic accident*** (for example, a car accident or falling down and hitting your head on the pavement) ***go to the nearest emergency room and notify them you are on warfarin (Coumadin®).*** You will need to get checked for internal bleeding.

Other side effects:

- Hair loss: infrequent side effect of warfarin therapy is reversible
- Rash: if you develop a rash after starting warfarin therapy notify your physician

Other considerations:

- Pregnancy: if you become pregnant or are planning to become pregnant, notify your primary care provider. Warfarin (Coumadin®) is dangerous to the unborn baby and should not be taken during pregnancy.
- Avoid any activity or sport that may result in a traumatic injury.
- You may find that if you get a cut or scratch, it may bleed longer than when you were not taking warfarin. Just apply pressure to the area. If should stop within a few minutes. If bleeding lasts longer than 20 minutes, call your primary care provider.
- You may find that you bruise easier than when you were not on warfarin.

Frequently Asked Questions About Warfarin (Coumadin®)

- What is the best time to take warfarin (Coumadin®)?

  Always try to take it at about the same time each day. Ideally you should take it in the evening, but choose a time of day that you will remember to take it. On the days you are getting your INR level checked, do not take the warfarin before the blood test in case a change in your dosage needs to be made.

- Should I take warfarin (Coumadin®) with food or on an empty stomach?

  Warfarin (Coumadin®) can be taken with or without food.

- How long will I need to be on warfarin (Coumadin®)?

  It is up to your healthcare provider to determine how long you will need to be on warfarin. Warfarin is used to treat many different conditions. For some, you will only need to be on it temporarily, for others you may need to be on it for life

- What do I do if I travel?

  If necessary, we can make arrangements for you to have your INR level monitored while you are away. Please notify us as soon as possible when you know you will be out of town so we can prepare the lab slips you will need to take with you. Remember to try to keep your diet consistent and to avoid excessive alcohol intake while you are away.

- What if I miss a dose?

  If you miss a dose of warfarin and you remember within 12 hours, go ahead and take your dose. You should still take your next dose at the regular time. If you forget your dose for 24 hours or more, call your ACC nurse as soon as possible for special dosing instructions. Missing just one dose of warfarin can lower your INR by a full point, putting you at risk of having a blood clot.

- What happens if I need surgery, dental work, or some type of invasive procedure?

  Any time you are to have any type of procedure done, notify your ACC nurse. Depending on the procedure, the warfarin may need to be temporarily stopped, or you may need an alternative method of anticoagulation (bridging). Always check with your ACC nurse or primary care provider ***BEFORE*** stopping it for any reason. Stopping your warfarin (Coumadin®) may increase your risk of a blood clot.

- How much warfarin (Coumadin®) is too much?

  There is no limit on the dosage of warfarin. You will need to take whatever dose keeps your INR level in the therapeutic range. For

some people, it may be a very small dose, for others, it may be a large dose. If you hear from your friends or neighbors that they are taking a lower dose than you, don't let it upset you. Warfarin dosage is individualized to each particular patient.

In Summary: The Do's and Don'ts of Warfarin (Coumadin®) Therapy

Do's:

- Do strictly adhere to the warfarin dosage prescribed to you.
- Do get your INR level monitored on a regular basis.
- Do eat a normal, balanced diet maintaining consistent amount of Vitamin K.
- Do call your ACC nurse if you ever miss a dose of your warfarin.
- Do tell your healthcare provider about any other medicines you're taking (prescription and over-the-counter) as well as herbal/nutritional supplements. Also, talk to your healthcare provider or ACC nurse before you change, start, or stop any other medicines.
- Do monitor yourself for any signs of bleeding.
- Do tell anyone giving you medical or dental care that you are taking warfarin.
- Do wear a medical alert bracelet to identify yourself as being on warfarin.
- Do refill your prescriptions before you run out of pills.
- Do notify your healthcare provider immediately or report to the emergency room if you experience any signs of bleeding or unusual symptoms.
- Do take your warfarin at the same time each day, with or without food.
- Do speak to your healthcare provider about any concerns you may have about taking warfarin.

Don'ts:

- Don't take a double dose of warfarin unless directed to.
- Don't change your warfarin dosage without speaking to your ACC nurse or healthcare provider.

- Don’t change, start, or stop any medications or nutritional supplements without speaking to your healthcare provider.
- Don’t make any drastic changes in your diet without speaking to your healthcare provider.
- Don’t participate in any activity or sport that may cause a traumatic injury.
- Don’t drink excessive alcohol.
- Don’t take warfarin during pregnancy.
- Don’t hesitate to call us anytime you have a question at (541) 746-6816.

References:

“Managing your Warfarin (Coumadin®) Therapy: A Patient’s Guide.” Patient and Family Education/NYU Medical Center. March 2002.

Other Resources:

http://www.ptinr.com

American Heart Association Stroke Connection

1-800-553-6321 or www.americanheart.org

http://www.coumadin.com

Provides consumers with information on oral anticoagulants

http://www.warfarininfo.com

Provides consumers with information on oral anticoagulants

Increased Risk of Clots

(Low INR "Thick Blood")

Alcohol

Starting or changing medications

Starting or changing herbals, vitamins, or supplements

New multi vitamins with Vitamin K

High doses of Vit C or Vit A

Diet changes such as increased green vegetables, diet bars, diet supplements like Ensure/Boost, V8 juice, etc.

Chewing tobacco

Starting or increasing smoking

Increased activity/exercise

Missing a dose of Coumadin

Taking antacids at same time as Coumadin

Increased Risk of Bleeding

(High INR "Thin Blood")

Alcohol

Starting or changing medications especially antibiotics, antifungals, and steroids

Starting or changing herbals, vitamins, or supplements

Stopping or skipping multi vitamins

Diet changes such as decreased green vegetables, stopping diet supplements, stopping V8

Decreasing or stopping smoking

Cranberry juice, eating cranberry products, cranberry supplements

Not eating regularly

Quinine/Tonic Water

Diarrhea/illness

Edema (swollen ankles/legs)

Decreased activity or exercise

NSAID's (aspirin, ibuprofen, Motrin, Advil, Aleve, Naprosyn/naproxen)

High doses of Tylenol/acetaminophen (4 or more Extra Strength tablets per day)