A guide to anticoagulation management and self-testing
Understanding anticoagulation

If you’re reading this, you, or someone you care about, may be on oral anticoagulation therapy, usually treated with a vitamin K antagonist (VKA).

VKAs, such as warfarin, are “blood thinners” used to prevent unwanted blood clots. While blood clotting is important to prevent excessive bleeding, unwanted blood clots can be harmful to your health.

A clot may ‘break off’ and move to another part of the body where it can cause a blockage and further damage, such as a stroke.

The main conditions that would lead to you being on VKAs such as warfarin or phenprocoumon include:1–3

- Mechanical (prosthetic) heart valves
- Atrial fibrillation
- Venous thromboembolism (VTE) i.e. deep vein thrombosis and pulmonary embolism
- Heart attack
Striking the balance

VKAs such as warfarin like most drugs, have a **therapeutic range**, which means there is a window where the drug is most beneficial.\(^1\)

Because anticoagulants prevent your blood from clotting, patients taking warfarin must be mindful of their increased susceptibility for bleeding. Additionally, some lifestyle factors may interact with your warfarin, such as your diet, or other prescription medications.\(^1\)

Patients require close monitoring of their condition to maintain the **optimal degree of anticoagulation**.\(^1\)

For more information about factors that affect your anticoagulation status, please visit [insert local site]
Anticoagulation status

To understand if you have the optimal degree of anticoagulation, you need to know your anticoagulation status. This is determined by Prothrombin Time (PT) and International Normalized Ratio (INR), which is measured through periodic blood testing or monitoring at a coagulation lab, clinic or at home.

- **Prothrombin Time** is the time it takes for a clot to form in a sample of your blood when tested using a specific assay.

- **International Normalized Ratio** is a calculation that is used to account for the differences that may occur between assays and lab materials.

Together, these are known as your **PT/INR value**.
Staying in therapeutic range

As each person is different, your doctor will set a range of PT/INR values that are best for you, where warfarin is most effective. This is called your therapeutic range.

Because warfarin may be impacted by your diet and lifestyle, your PT/INR may fluctuate. For all patients, the goal is to lengthen the amount of time that your PT/INR is within this therapeutic range. This is called your time in therapeutic range (TTR). This maximizes the benefits of the anticoagulation therapy, while minimizing any risks.

When you are outside of your therapeutic range (your PT/INR is too high or too low), you may need to consult your doctor for a dose adjustment to change the amount of warfarin you are taking to bring you back in range.

There is also a risk for other embolic events, such as VTEs.
Regular monitoring

Regular testing of your PT/INR is required to understand your anticoagulation status. Your doctor may ask you to go to the coagulation lab or clinic for blood testing to do this. You may be asked to go monthly, weekly, or even more frequently. The coagulation lab or clinic will send your results to your doctor, and your doctor will manage your warfarin prescription.

There is also the option of testing your PT/INR levels at home, called **patient self-testing**. Patient self-testing is a simple 4-step process for monitoring your warfarin therapy. With a portable, hand-held device called a **coagulation meter**, you can test your PT/INR levels and send your results to your doctor. Your doctor receives and reviews your results, and then can make an immediate decision on whether a dose adjustment is needed.3
The benefits of self-testing at home

Because the simple 4-step process can be done at any time, if you need a warfarin dose adjustment, you’ll know sooner, maximizing your time in therapeutic range and minimizing the number of appointments needed with your doctor. This can reduce your risk of adverse events and improve your outcomes and quality of life.6, 10–11

To learn more, talk to your doctor about self-testing, or visit CoaguChek.com
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Glossary

Anticoagulation therapy
A prescription medication used to prolong the time it takes for blood to clot, used to reduce the risk of excessive or unwanted blood clots in the body.

Acute ischemic stroke
Commonly called a “stroke”, this occurs when blood flow to the brain is blocked i.e. by a blood clot, causing damage to brain cells. Strokes can be caused by medical conditions such as atrial fibrillation.

Adverse events
Incidents that result in undesirable outcomes for a patient receiving treatment. With anticoagulation therapy, an adverse event could be excessive bleeding or formation of unwanted blood clots.

Atrial fibrillation (AF)
A disorder that affects the heart rhythm, with periods of very low or very high heart rate. AF can increase the risk of a blood clot forming inside the heart. If the clot travels to the brain, it can lead to a stroke.

Anticoagulation status
A patient’s level of blood coagulation while taking anticoagulation therapy. This may be referred to as “bleed time” or “blood clotting time”.

Blood clot
Blood clotting, also called coagulation, is a process in the body that prevents excessive bleeding when a blood vessel is injured by creating a clot over the injury.

Blood monitoring, blood testing
When taking anticoagulation therapy, blood monitoring or testing is the assessment of blood anticoagulation status. Monitoring is important to ensure the anticoagulation medication dosage is effectively reducing the risk of unwanted blood clots, without putting the patient at risk for excessive bleeding.

Bleeding (excessive)
If the blood clots too slowly then prolonged or excessive bleeding can occur. Excessive bleeding can be a side effect of anticoagulation therapy that is not well managed.

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Coagulation clinic, coagulation lab
A dedicated center specializing in the care of patients on anticoagulants, including testing to determine blood anticoagulation status.

Coagulation meter
A portable device used for testing the anticoagulation status of the blood.

Deep vein thrombosis (DVT)
A blood clot that is formed in a vein such as in the calf muscle, the thigh or other deep-lying veins in the body. When the clot breaks away from the deep vein and is carried to the lungs in the blood stream, it can lead to a pulmonary embolism.

Degree of anticoagulation (optimal)
When a patient’s blood is within the ideal range of coagulation; the blood does not take too much or too little time to clot. Having the optimal degree of anticoagulation prevents adverse events such as excessive bleeding or unwanted clots.

Dose adjustment
The process of increasing or decreasing a patient’s anticoagulation medication dosage to find the best level of anticoagulant for them.

International normalized ratio (INR)
A unit of measurement of the status of an individual’s blood coagulation. The INR is a way of ensuring that all PT values are calibrated to a standard comparison, i.e. the time taken for a blood to clot in a healthy person. The longer the patient’s coagulation time, the higher the INR. For example, if someone’s INR is 2, the blood is taking twice as long as normal to clot.

Mechanical (prosthetic) heart valves
Synthetic valves to replace damaged heart valves so that the heart can efficiently pump blood to the lungs and the rest of the body. Mechanical heart valves pose an increased risk of clot formation, so patients who have had a mechanical heart transplant often require anticoagulation therapy.
Myocardial infarction
Commonly known as a heart attack, a myocardial infarction occurs when a portion of the heart is starved of oxygen, i.e. through a blockage from a blood clot, and the surrounding tissue dies.

Oral anticoagulation therapy
Prescription medication such as vitamin K antagonists (VKAs) or warfarin, which is taken by mouth, to prolong the time it takes for blood to clot. Oral anticoagulants work against vitamin K enzymes, which usually speed up the blood clotting process. By inhibiting these enzymes, blood clots take longer to form.

Outcomes (patient outcomes)
The degree by which a patient is responding to treatment.

Patient self-testing (PST)
When on anticoagulation therapy, PST allows a patient to conduct their own blood monitoring with a portable coagulation meter and send their results to their doctor for immediate treatment decisions, as opposed to visiting a lab or coagulation clinic for blood testing.

Prothrombin time (PT)
The time (in seconds) it takes for a blood clot to form when a biological marker called thromboplastin is added to a blood sample to activate coagulation. This unit of measurement indicates how well a patient is responding to anticoagulation therapy.

PT/INR (value)
A calculation that is used to determine anticoagulation status. PT values are calibrated with the INR to ensure that readings are standardized against the time taken for a blood to clot in a healthy person. The longer the patient’s coagulation time, the higher the value. For example, if someone’s value is 2, the blood is taking twice as long as normal to clot.

Pulmonary embolism (PE)
When a blood clot that was previously in a deep vein i.e. in the calf or thigh has been dislodged and travels to the pulmonary artery, which carries blood from the heart to the lungs. PE’s are treated with anticoagulants to prevent the clot from growing while it is reabsorbed by the body, allowing blood to reach the lungs.
Glossary

**Quality of life**
Quality of life is an important consideration in medical care and refers to a patient’s perceived satisfaction of every day life.

**Therapeutic range**
The range of PT/INR values, unique to each patient, where anticoagulation therapy is most effective. Normal therapeutic range for someone on anticoagulants is usually between 2 and 3, but can vary according to a doctor’s clinical guidance.

**Time in therapeutic range (TTR)**
The time that a patient’s PT/INR level is within their unique range, as discussed with their doctor. Increased time in therapeutic range is associated with better management of anticoagulation therapy and fewer adverse events.

**Venous thromboembolism (VTE)**
A blood clot that has become dislodged and traveled to another part of the body where it can block the blood flow.

**Vitamin K antagonists (VKA)**
A group of oral anticoagulants such as warfarin and phenprocoumon that reduce blood clotting in the body by reducing the action of vitamin K.

**Warfarin**
A prescription oral anticoagulant that prolongs the time it takes for blood to clot, reducing the risk of unwanted blood clots.
References


