

A woman with short dark hair, wearing a beige cardigan over a green top and a gold necklace with a green pendant, is smiling and holding a white sign with the handwritten number "2.3". The background is a bright room with bookshelves and a window.

“I know my value”

*Be an active part of your anticoagulation therapy
with INR self-monitoring*

INR self-monitoring
needs only
a drop of blood,
is easy, fast
and decreases
the possibility
of complications,
such as clots
or bleeding*

*International Normalized Ratio (see page 10 for additional information)

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Be involved in your anticoagulation therapy

Find out more

Anticoagulant treatment

Have you just found out from your doctor that you need to start taking an oral anticoagulant? Or are you already taking an oral anticoagulant but would like to have more information?

Anticoagulants are drugs which make your blood “thinner”

- Some may refer to this as “thinning the blood” but they actually increase the time it takes your blood to clot¹. For example after an injury it will take longer for the bleeding to stop than for someone that does not take an anticoagulant
- They are taken by millions of people worldwide every day²

Anticoagulants are commonly prescribed for the following conditions⁹:

- Atrial fibrillation
- Mechanical heart valves
- Venous thromboembolism

This booklet will give you background information about these conditions and how they are usually managed.



**“With warfarin and monitoring
I reduce my risk of stroke”**

Currently available anticoagulants include:

Warfarin

- Given as a tablet
- The most widely used anticoagulant in the world³
- Needs monitoring⁴

Aspirin

- Given as a tablet
- Not as effective as Warfarin⁵

Heparin

- Has to be given as an injection or in a drip⁶
- Usually not used long-term

Other oral anticoagulants

- Given as a tablet
- Regular monitoring not required⁷
- Not suitable for all patients⁸

Atrial fibrillation

You are not alone

Atrial fibrillation (AF) is common

- More than 2.5 million people in the US and 6 million in the EU are affected by this condition¹⁰
- AF is especially common in older people, affecting nearly 10% of people over 80 years of age¹¹

What is AF?

- AF occurs when the electrical impulses which control the heartbeat become disorganised¹²
- This causes the upper chambers of your heart (the atria) to contract rapidly and irregularly¹²
- As a result, your heart will not pump blood around the body as effectively as it should do¹²
- AF can occur in short episodes or can be permanent¹³

What are the symptoms of AF¹⁴?

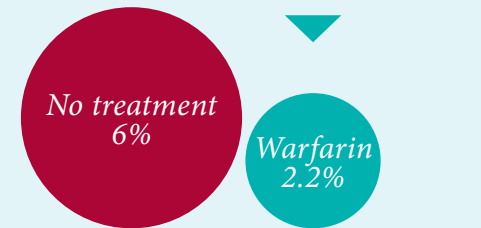
- An irregular heartbeat
- Dizziness
- Tiredness
- Breathlessness
- Chest pain



Fig 1 (above): Electrocardiogram tracing of a normal heart rhythm.

(below): In atrial fibrillation, the tracing shows tiny, irregular «fibrillation» waves between heartbeats. The rhythm is irregular and erratic.

Percentage of AF patients who have a stroke each year



*Warfarin
reduces your
risk of stroke*

Fig 2: Warfarin reduces the risk of stroke in AF
(Adapted from Hart et al, 2007)⁵

What are the treatment options for AF¹⁵?

- Medications to normalize the heart rhythm
- Cardioversion (electric pulse to try to restore a normal rhythm)
- Catheter ablation (radiowaves applied to the diseased tissue of the heart)
- Pacemaker device fitted to control the heart rhythm

If you have AF, then you have an increased risk of stroke

- If you have been diagnosed with AF, you are up to five times more likely to have a stroke than people who do not have AF¹⁶
- Furthermore, people with AF tend to have more severe strokes than people without AF¹⁷

What causes a stroke in AF?

- If you have AF, blood tends to travel more slowly through your heart¹⁷
- This slow-moving blood can pool in the heart and start to form clots¹⁸
- Clots can then leave the heart and can travel to the brain¹⁸
- If a clot prevents fresh blood from reaching a certain area of the brain, brain cells will eventually start to die, causing a stroke¹⁹

How can the risk be reduced?

- Taking an oral anticoagulant will significantly reduce your risk of stroke⁵
- Warfarin is the most widely used oral anticoagulant for the prevention of stroke²⁰
- With your doctor you can decide what is the best treatment option for you

Heart valve replacement

A common treatment for heart valve disease

What is heart valve disease and how can it be treated?

- Heart valves ensure that blood flows in only one direction through your heart²¹
- However, some people are born with faulty heart valves or have damaged valves as a result of disease or ageing²¹
- If heart valve disease cannot be treated by medication or surgical repair, then the only option is to replace it with an artificial (mechanical) or a tissue valve²²

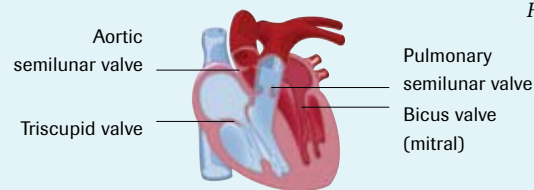


Fig 3: Cardiac chambers and heart valves

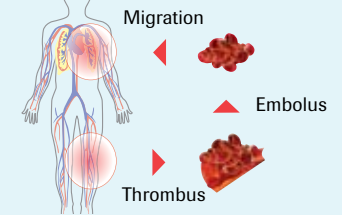
Heart valve replacement is a common treatment, but it can cause clot formation

- More than a million mechanical heart valves have been implanted in the past 50 years²³
- However, they can trigger blood clot formation, potentially causing a heart attack or stroke²⁴
- If you have a mechanical heart valve then you will need to take anticoagulants for the rest of your life²⁵
- Warfarin is currently the anticoagulant of choice for patients with mechanical heart valves²⁴

Venous thromboembolism

Deep vein thrombosis and pulmonary embolism

Fig 4: A venous thrombosis forms within a vein



Who is at risk of venous thromboembolism?

- If you have just had major surgery or a total hip or knee replacement, your doctor has probably prescribed you anticoagulants to prevent the formation of harmful blood clots²⁶
- Other risk factors for venous thromboembolism include pregnancy, obesity, older age, a sedentary lifestyle and inherited conditions which make blood more likely to clot²⁶

What is a venous thromboembolism?

- The medical term venous thromboembolism includes the conditions deep vein thrombosis and pulmonary embolism²⁷
- A deep vein thrombosis is a blood clot which forms in a deep vein, often in the legs²⁸
- Pulmonary embolism is a complication of deep vein thrombosis which arises when a blood clot breaks away and travels to the lungs²⁸

What are the consequences of a pulmonary embolism?

- In mild cases, it causes chest pain and breathlessness²⁸, in severe cases however, it can cause sudden death²⁹
- Without treatment, 5-15% of deep vein thrombosis sufferers may die from a pulmonary embolism³⁰

The main treatment for venous thromboembolism is anticoagulant therapy

- Usually an oral anticoagulant such as warfarin is given for at least 3 months²⁷
- If you are affected by recurrent deep vein thrombosis, an oral anticoagulant may be given for longer, sometimes for life²⁷

Ensuring effective warfarin therapy

Knowing your INR value

Effective warfarin treatment requires monitoring

- Taking the correct dose is crucial for efficient anticoagulation treatment.
- The correct dose is established by measuring how long it takes your blood to clot. This is called the International Normalized Ratio (INR)³
 - An INR of 1 is normal and is found in people who are not taking warfarin³¹
 - An INR of 2 means that your blood takes twice as long to clot as normal³²
 - An INR of 3 means that your blood takes three times as long to clot as normal³²



Fig 5: Not enough warfarin (e.g. too low INR) is associated with a risk for blood clots, while too much warfarin (e.g. too high INR) can lead to bleeding complications. The optimal INR depends on your condition; for atrial fibrillation it is between 2 and 3¹⁰.

- Your doctor will provide you with a target INR range, depending on your indication. Within this therapeutic range you are at the lowest risk of stroke or embolism³¹
- As your response to treatment may be affected by several factors, such as the food you eat and medications you take³³, it is important to monitor regularly to check your INR value

*Monitoring is
the safest way
to know that your
anticoagulation
therapy is working
effectively*

Taking the correct dose is crucial to prevent complications⁴

- If you are not taking enough warfarin (i.e. your INR value is too low), you are at risk of:
 - Developing harmful blood clots (which can, depending on the condition you have been diagnosed with, cause stroke, heart attack or venous thromboembolism)
- If you are taking too much warfarin (i.e. your INR value is too high), you are at risk of:
 - Bleeding or bruising
 - Excessive blood loss in response to injury
 - Brain hemorrhage

Self-monitoring
can help you
achieve
independence,
whilst
having the
reassurance
of knowing
your INR
value,
anywhere,
anytime

INR monitoring

Your time is important

Patient self-monitoring at home



Capillary
sample
drawn with
fingerstick



INR value on
CoaguChek®
XS system



Possible dose
change by
HCP

Patient self-managing at home



Capillary
sample
drawn with
fingerstick



INR value on
CoaguChek®
XS system



Possible dose
change by
patient

INR test in surgery



Clinic
appointment
needed



Patient
record
reviewed



Capillary
sample
drawn with
fingerstick



INR value on
CoaguChek®
XS Pro
system



Possible dose
adjusted and
documented
by HCP

INR test in the hospital



HCP takes
venous
blood
sample



Courier
transports
blood
sample
to lab



INR
result lab
performs
test



Lab
communi-
cates result
to HCP



Results
reviewed by
HCP



HCP communi-
cates INR
result to
patient



Possible dose
adjusted and
documented
by HCP

Patient self-monitoring

Increase your safety and independence

Be involved with your anticoagulation management

- Have the peace of mind that you know your INR value when needed, home or away
- Self-monitoring only requires a drop of blood and results are available within a minute
- Results can either be reported to your doctor or nurse who will adjust your warfarin dose for you, or you can learn how to adjust the dose yourself

Self-monitoring can increase your safety on warfarin

- Self-monitoring with CoaguChek gives an accurate result³⁴
- With self-testing you can monitor your INR more frequently
- This can increase the amount of time your INR is within therapeutic range³⁵
- Without increased risk for serious bleeding³⁶

Self-monitoring gives you the freedom and independence to monitor your anticoagulation therapy

- Regular INR testing at the doctor's office or hospital can be inconvenient for some people due to:
 - Work or family commitments
 - Transport difficulties
 - Other illnesses
 - Holiday plans

*Self-monitoring
reduces your risk
of blood clots*

Percentage of warfarin patients who had a major blood clot



Fig 6: Self-monitoring reduces the risk of major blood clots (Adapted from Bloomfield et al, 2011)³⁶

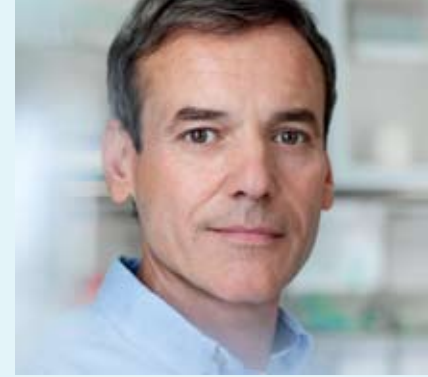


Worldwide more than a quarter of a million people now use patient self-monitoring to monitor their warfarin therapy

With self-monitoring you can test your INR whenever and wherever you like

- No more time consuming trips to the hospital or to your local surgery
- Don't worry about holidays – you can take your INR meter with you
- You no longer need to take time off work to attend hospital or GP appointments

**“With self-monitoring,
I feel completely in control of my
anticoagulation therapy”**



**“With self-monitoring,
I stay within my
therapeutic range”**



**“With self-monitoring,
I no longer need to take
the time to attend
regular clinic appointments”**



Thanks to CoaguChek® you have the reassurance and peace of mind of always knowing your INR value when needed.

Patient self-monitoring enables more regular checks and dosage adjustment if necessary, therefore improving the time spent within your therapeutic range.³⁸

You can manage your anticoagulation therapy wherever you are, whatever you do. There's no need to change your routine to fit in clinic appointments.

If you want to make sure you are in complete control of your anticoagulation therapy, start patient self-monitoring to make this a reality.

- 1 http://www.stoptheclot.org/learn_more/blood_clot_treatment.htm last accessed June 2012
- 2 <http://www.ismaap.org/> last accessed June 2012
- 3 Wardrop D et al (2008) Br J Haematol 141:757-763
- 4 Fiumara K et al (2009) Circulation 119:e220-e222
- 5 Hart R et al (2007) Ann Intern Med 146:857-867
- 6 <http://www.nhs.uk/Conditions/Anticoagulant-medicines/Pages/How-does-it-work.aspx> last accessed June 2012
- 7 Moualla H et al (2011) Thromb Res 128:210-215
- 8 Wan J Y et al (2011) J Am Coll Cardiol 57:1330-1337
- 9 Ryan J et al (2008) J Clin Pharm Therap 33:581-590
- 10 Levi M et al (2009) Semin Thromb Hemost 35:527-542
- 11 Kannel & Benjamin (2009) Cardiol Clin 27(1):13-24
- 12 <http://www.nlm.nih.gov/medlineplus/ency/article/000184.htm> last accessed June 2012
- 13 <http://www.nhs.uk/conditions/Atrial-fibrillation/Pages/Introduction.aspx> last accessed June 2012
- 14 <http://www.nhs.uk/Conditions/Atrial-fibrillation/Pages/Symptoms.aspx> last accessed June 2012
- 15 <http://www.nhs.uk/Conditions/Atrial-fibrillation/Pages/Treatment.aspx> last accessed June 2012
- 16 Cannon C P et al (2010) Am J Manag Care 16:S273-S277
- 17 Medi C et al (2010) Stroke 41:2705-2713
- 18 Shea J B et al (2008) Circulation 117:e340-e343
- 19 <http://www.stroke.org/site/PageServer?pagename=stroke> last accessed June 2012
- 20 Schulman S (2012) J R Coll Physicians Edinb 42:51-5
- 21 <http://www.bhf.org.uk/heart-health/conditions/heart-valve-disease.aspx> last accessed June 2012
- 22 Maganti K et al (2010) Mayo Clin Proc 85:483-500
- 23 Bloomfield P et al (2002) Heart 87:583-589
- 24 Keeling DM et al (2011) Br J Haematol 154:311-324
- 25 <http://www.anticoagulation.com.au/AboutWarfarin/WhyTakeWarfarin/ArtificialHeartValves/tabid/102/Default.aspx> last accessed June 2012
- 26 Anderson FA (2003). Circulation 107:9-16
- 27 Kearon C et al (2008) Chest 133:454S-545S
- 28 Galson SK et al (2008) Public Health Rep 123:420-421
- 29 Sadeghi A et al (2005) Tex Heart Inst J 32:430-433
- 30 McManus RA et al (2010) Clin Evid (online) Mar 8;2011. pii: 0208
- 31 <http://www.anticoagulation.com.au/AboutWarfarin/INREssentials/WhatistheINR/tabid/106/Default.aspx> last accessed June 2012
- 32 Atrial Fibrillation Association Australia Warfarin Therapy Fact Sheet
- 33 Hirsch J et al (2001) Chest 119:8S-21S
- 34 Murray E et al (2004) Br J Haematol 127:373-378
- 35 Heneghan C et al (2012) Lancet 379:322-334
- 36 Bloomfield HE et al (2011) Ann Int Med 154:472-482
- 37 Bernardo A. (2000) Optimising long-term anticoagulation by patient self-management and management by specialist anticoagulation clinic. A randomised cross over comparison. Lancet 356:97-102



Are you interested in monitoring your INR at home?
Ask your doctor about more information on patient self-monitoring or
visit www.coaguchek.com

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Roche Diagnostics International Ltd.
CH-6343 Rotkreuz
Switzerland
www.coaguchek.com

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