



York and Scarborough  
Teaching Hospitals  
NHS Foundation Trust

# **Pulmonary Embolism and Anticoagulants - A guide to your diagnosis and the choice of treatment**

Information for patients, relatives and carers

① For more information, please contact:  
Please see contact details on page 18

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# What is a pulmonary embolism?

Pulmonary embolism (**PE**) is part of a group of problems together known as venous thromboembolism (**VTE**).

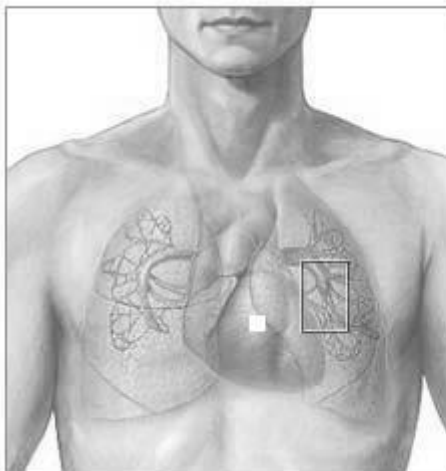
Venous means related to veins. A thrombosis is a blockage of a blood vessel by a thrombus (a blood clot). An embolism is when the blood clot dislodges from where it formed and travels in the blood until it becomes stuck in a narrower blood vessel, somewhere else in the body. The blood clot is then called an embolus.

A PE can be in an artery in the centre of the lung or one near the edge of the lung. The clot can be large or small and there can be more than one clot. If there are severe symptoms, which occur with a large clot near the centre of the lung, this is known as a massive PE, and is very serious.

# The cause of a PE

In almost all cases, the cause is a blood clot (thrombus) that has originally formed in a deep vein, known as a deep vein thrombosis (DVT) in the leg or pelvis. This clot travels through the circulation and eventually gets stuck in one of the arteries in the lung. Occasionally, a PE may come from a blood clot in an arm vein, or from a blood clot formed in the heart.

## Pulmonary Embolus



Embolus lodged  
in left pulmonary  
artery

# Why do they occur?

There are several factors that may contribute to a PE forming:

- Immobility causes your blood flow to slow down. Slow flowing blood is more likely to clot in other parts of your body such as your arms and legs
- Any illness or injury that leads to immobility (e.g. having a leg in a hard plaster cast after a fracture or being admitted to an intensive care unit).
- A surgical operation where you are asleep for more than 60 to 90 minutes is the most common cause of a blood clot in the leg that can lead to a PE.
- Long journeys by plane, train or coach/car may cause a slightly increased risk. This is because you are mostly sitting still and not moving around very much.
- Vein damage increases the risk of a clot forming. Some conditions such as vasculitis and some medicines such as chemotherapy can damage the vein wall.
- Thrombophilia is a condition that causes your blood to clot more easily than normal

- The contraceptive pill or hormone replacement therapy (HRT) that contains oestrogen can cause your blood to clot more easily. Women taking the pill or HRT have a small increased risk of blood clots.
- People with cancer or heart failure are at increased risk of blood clots forming.
- Older people (over 60 years of age) are more at risk of a blood clot, particularly if they have poor mobility or other long-term medical problems.
- Pregnancy - the increased risk remains for about six weeks after giving birth.
- Obesity
- Dehydration as a result of e.g. diarrhoea can make the blood become stickier and more liable to clot.
- A previous DVT or PE

## **What are the signs and symptoms of a PE?**

The symptoms will depend on how large or small the blood clot is. People who are frail or have existing illness are likely to have worse symptoms than someone who is fit and well. Symptoms often start suddenly.

## **A small PE may cause:**

- No symptoms at all (common)
- Breathlessness which is unusual for you
- Rapid breathing
- Chest pain which is worse when you breathe
- Coughing up blood
- A fast heart rate (this is known as a tachycardia)

## **A massive PE or multiple emboli (lots of clots), may cause:**

- Severe breathlessness
- Severe chest pain
- Feeling faint and unwell or a collapse
- Rarely, in extreme cases, a massive PE can cause cardiac arrest, where the heart stops pumping due to the clot

You may also experience signs and symptoms of a DVT, such as: pain at the back of the calf in the leg, tenderness of the calf muscles or swelling of a leg or foot. The swollen leg may also be warm and red.

## **How is PE treated?**

Most people will need anticoagulants to treat a PE and to help prevent further PE's. Anticoagulation is often referred to as 'thinning your blood'. An anticoagulant does not actually thin the blood but alters the blood clotting process to stop clots from forming so easily. This prevents an existing clot from growing bigger and stops new clots from forming.

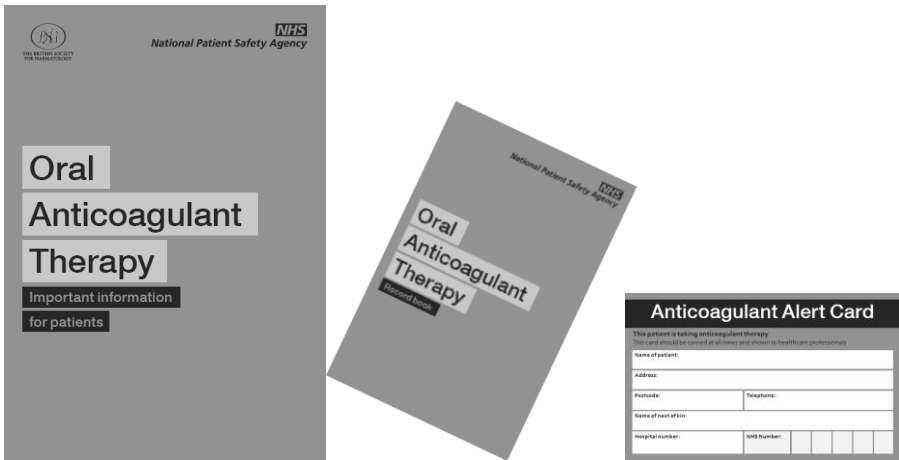
## **Which anticoagulant will I be taking?**

You will be treated with either warfarin or one of the newer oral anticoagulants which include; apixaban, rivaroxaban, dabigatran and edoxaban.



# Warfarin

When you are taking warfarin you will be given a yellow 'oral anticoagulation therapy' pack to provide you with more detailed information. It takes a few days before tablets start to work, therefore heparin injections are given in the first few days for immediate effect.



You will need regular INR blood tests during treatment with warfarin to ensure that your blood clotting is maintained within the correct range. You will need these frequently at first until the correct dose of warfarin has been established. Blood tests will then become less frequent.

In the first month, you may need to restart heparin injections if your INR blood test is too low. Illness, changes in diet and other medicines can alter the effects of warfarin. You must inform your GP if you become unwell or your medicines change.

## **Newer Oral Anticoagulants (DOACs)**

Rivaroxaban, apixaban, dabigatran and edoxaban are in a class of drugs called direct acting oral anticoagulants (commonly abbreviated to DOACs). These drugs work in a slightly different manner to warfarin, so there is no need for regular INR blood tests. Kidney and liver tests will be taken before treatment starts and then at least once a year thereafter, if you are on long term treatment.

### **How do I take DOACs?**

Each of the DOACs is taken in a different way therefore you should take the dose as directed by your doctor. You will also be given a separate information leaflet about your DOAC. If you are unsure how to take them you should discuss this with your GP, or pharmacist.

## **What if I miss a dose of my DOAC?**

The advice is different depending on which DOAC you are taking and at which stage of treatment you are at. You should follow the missed dose advice as directed in the patient information leaflet provided with your medicine. If you are unsure what to do about a missed a dose you should speak to your GP or pharmacist.

## **How long do I need to take anticoagulants for?**

The length of time depends on many factors. Your doctor will advise you about this. You will usually have treatment for three to six months depending on the location of the blood clot and your previous medical history. If you have had a blood clot before, you may have to continue taking anticoagulation for the rest of your life.

When you receive your anticoagulant you should be given an anticoagulation alert card. You should carry this alert card with you whilst you are taking your anticoagulant and show it to anyone treating you. It is important that you inform your doctor, dentist, surgeon, nurse, or pharmacist that you are taking an anticoagulant.

# **What are the possible side effects of the treatment?**

The DOACs and warfarin are anticoagulants that increase the risk of bleeding. If you experience any of the following, you must contact your GP immediately, or seek urgent medical advice.

- You are unable to stop any bleeding
- You suffer a major trauma or a significant blow to the head
- Blood in your bowel motions or urine
- Coughing or vomiting blood
- Heavy or persistent nose bleeds
- Unexplained visible bruising
- Severe headaches that are unusual for you
- Significantly heavier periods

# **If serious bleeding occurs, can it be reversed?**

With warfarin, if bleeding occurs the INR is checked and depending on the severity of the bleeding and the INR result, vitamin K and clotting factors can be given which reverses the effects of warfarin.

There is currently no specific antidote for the DOACs except for dabigatran, however, if urgent treatment is required, your anticoagulant will be stopped, clotting factors can be given and the bleeding symptoms will be treated directly.

## **Are there any other side effects?**

Warfarin may also cause nausea, hair loss and rarely diarrhoea. The DOACs may also cause headaches and dizziness, constipation, rash and general stomach upset and irritation.

If you develop any of these symptoms please see your doctor who if necessary could prescribe a different anticoagulant. A full list of side effects can be found in the patient information leaflet supplied with your medication. It is important to read this leaflet before you start taking your new medicine.

It should be noted that patients taking warfarin are closely monitored for the first few months until a stable dose is reached. With the DOACs there will be fewer follow up visits. This may be more convenient; however it will mean that there are fewer opportunities to discuss your treatment.

## **Allergic reactions**

Possible allergic reactions to anticoagulants include difficulty breathing, skin rash and itching. If you suspect that you are having an allergic reaction to your medication, you need to seek urgent medical attention from your GP or the emergency department.

## **Can I take other medicines with anticoagulants?**

Your current medicines have been reviewed by the doctor before starting anticoagulant treatment. It is important that you always check any changes in prescribed dose or new medicines with your doctor or pharmacist. Medicines bought over the counter including herbal supplements or alternative remedies may interact with anticoagulants and you must make sure they are safe to take with your anticoagulant treatment.

## **Pain relief**

Paracetamol is safe to take with anticoagulants. Non-steroidal anti-inflammatory drugs e.g. Aspirin and ibuprofen, should be avoided, unless under the guidance of your doctor.

## **Pregnancy**

Taking warfarin during pregnancy is known to be harmful to your developing baby, however the effects of the DOACs during pregnancy is unknown. If you are currently pregnant or considering becoming pregnant you should inform your doctor straight away so they can prescribe a different anticoagulant.

## How can I help to prevent a PE from recurring?

- **Avoid long periods of immobility** such as sitting in a chair for long periods of time or during long flights and train journeys. Try to walk around every so often or you can perform calf exercises whilst sitting down. These can be carried out by flexing the muscles in your legs occasionally, and keep moving your toes and ankles to help blood circulation.
- If you are advised to **wear a compression stocking**, ensure that you put it on every day whilst lying in bed before getting up. Try to rest the leg in the evenings with your leg raised. Wear the stocking for the whole day until you go to bed.
- If you go for any operation, anaesthetic or any in-patient hospital stay, **you must tell the surgical, medical and nursing staff that you have had a DVT or pulmonary embolism (PE)** in the past. This will ensure that staff will take precautions in preventing further episodes.

## Diet and alcohol

It is advisable to eat a healthy balanced diet, and to avoid excessive changes in your weight during your treatment.

Alcohol can interfere with your treatment. In line with national guidance, we recommend that you do not drink more than 14 units per week, spread evenly over three days or more. This applies to both men and women.

Here are some examples of the number of alcohol units in drinks:





## **Travel**

When you travel on long flights or train journeys, try to have short walks up and down the aisle and perform calf exercises whilst you are sitting down.

## **Driving**

You are able to continue to drive, if your symptoms allow, but ensure that you can perform an emergency stop. You should not drive if your ability to drive is impaired. If you have any further queries regarding travel, please consult you GP for advice.

## **Can I still play sport?**

You should try to lead as normal a life as possible but because of the risk of bleeding you should avoid contact sports that could lead to a head injury such as football, rugby and cricket. Martial arts and kickboxing must be avoided. You can continue to take part in non-contact sports such as running, athletics, cycling or racquet sports. Wear the right protective clothing such as a cycle helmet and knee padding.

For more information about PE, you can visit the following website: [www.patient.co.uk](http://www.patient.co.uk) or talk to your doctor.

## **For more information please contact:**

Anticoagulation Nurse Specialist

Telephone: 01904 26785

Lawrence Unit, Bridlington Hospital

Telephone: 01262 423022

Dales Unit, Scarborough Hospital

Telephone: 01723 342278

Or

## **Medicines Information**

York Hospital, Wigginton Road, York, YO31 8HE or  
telephone 01904 725960

## **References and further information**

Department of Health: [www.dh.gov.uk](http://www.dh.gov.uk)

NHS Website: [www.nhs.uk](http://www.nhs.uk)

Anticoagulation Europe [www.anticoagulation.org](http://www.anticoagulation.org)

## **Tell us what you think of this leaflet**

We hope that you found this leaflet helpful. If you would like to tell us what you think, please contact

## **Teaching, training and research**

Our Trust is committed to teaching, training and research to support the development of health and healthcare in our community. Healthcare students may observe consultations for this purpose. You can opt out if you do not want students to observe. We may also ask you if you would like to be involved in our research.

## **Patient Advice and Liaison Service (PALS)**

PALS offers impartial advice and assistance to patients, their relatives, friends and carers. We can listen to feedback (positive or negative), answer questions and help resolve any concerns about Trust services.

PALS can be contacted on 01904 726262, or email [yhs-tr.patientexperienceteam@nhs.net](mailto:yhs-tr.patientexperienceteam@nhs.net).

An answer phone is available out of hours.

# Leaflets in alternative languages or formats

If you would like this information in a different format, including braille or easy read, or translated into a different language, please speak to a member of staff in the ward or department providing your care.

Patient Information Leaflets can be accessed via the Trust's Patient Information Leaflet website:

[www.yorkhospitals.nhs.uk/your-visit/patient-information-leaflets/](http://www.yorkhospitals.nhs.uk/your-visit/patient-information-leaflets/)

Owner	Anisah Ahmad, Anticoagulant Pharmacist
Date first issued	March 2009
Review Date	February 2028
Version	7 (issued February 2025)
Approved by	VTE Committee
Document Reference	PIL 512 v7

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