Pulmonary Embolus (PE) Diagnosed

A pulmonary embolism (embolus) is a serious, potentially life-threatening condition. It is due to a blockage in a blood vessel in the lungs. A pulmonary embolism (PE) can cause symptoms such as chest pain or breathlessness but may have no symptoms and be hard to detect.

Venous thromboembolism

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 where the thrombus dislodges from where it formed and travels in the blood until it becomes stuck in a narrower blood vessel, elsewhere in the body. The thrombus is then called an ***embolus***.

A **deep vein thrombosis** (DVT) is the usual cause of a PE. DVT occurs in a vein in the leg. DVT is also part of VTE.

What is a pulmonary embolism?
A PE is a blockage in one of the arteries (blood vessels) in the lungs - usually due to a blood clot. 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.

What causes a pulmonary embolism?
In almost all cases, the cause is a blood clot (thrombus) that has originally formed in a deep vein (known as a DVT). This clot travels through the circulation and eventually gets stuck in one of the blood vessels in the lung. The thrombus that has broken away is now called an embolus (and can therefore cause an embolism). Most DVTs come from veins in the legs or pelvis. Occasionally, a PE may come from a blood clot in an arm vein, or from a blood clot formed in the heart.

Who gets a pulmonary embolism?
Nearly all cases of PE are caused by a DVT (see above). So, people more likely to get a PE are those prone to DVTs. The risk factors for DVT are explained in a separate leaflet called Deep Vein Thrombosis. Some important risk factors are immobility, other serious illnesses and major surgery (especially gynaecological surgery, and operations on the pelvis and legs). The risk of developing a DVT or PE in hospital can be greatly reduced by early mobilisation and medicine to help prevent a DVT or PE in those at particular risk.

How common is a pulmonary embolism?
It is estimated that about 1 in 1,000 people have a DVT each year in the UK. If untreated, about 1 in 10 people with a DVT will develop a PE. Half of all people with a PE develop it as a hospital inpatient. 25,000 deaths per year in England are due to blood clots (PEs that have happened after a DVT) that have developed whilst a person was in hospital.

What is the treatment for a pulmonary embolism?
The main treatments are anticoagulants and Oxygen given in the early stages to help with breathlessness and low oxygen levels.

Anticoagulant treatment
Anticoagulation is often called thinning the blood. However, it does not actually thin the blood. It alters certain chemicals in the blood to stop clots forming so easily. It doesn't dissolve the clot either (as some people incorrectly think). Anticoagulation prevents a PE from getting larger and prevents any new clots from forming. The body's own healing mechanisms can then get to work to break up the clot.

Anticoagulation treatment is usually started immediately (as soon as a PE is suspected) to prevent the clot worsening, while waiting for test results.

Anticoagulation medication comes in two forms: injections and tablets.
The injectable form is low molecular weight heparins (LMWH). LMWH is injected into the skin on the lower abdomen. There are different brands of heparin injection; the common ones you might see used are Clexane® and Fragmin®. Injections may be used when starting treatment, because they work immediately.

Once the injections are working and the diagnosis is confirmed, warfarin (a tablet) can be started. Warfarin takes a few days to work fully.

The tablets are a relatively new drug called Rivaroxaban which unlike other oral anticoagulants (eg.warfarin) do not require regular blood tests – see separate patient information sheet.

What are the complications of a pulmonary embolism?
Most people with a PE are treated successfully and do not get complications. However, there are some possible, serious complications and these include:

Collapse - due to the effects of the blood clot on the heart and circulation. This can cause a cardiac arrest where the heart stops, and may be fatal.

The PE can cause a strain on the heart. This may lead to a condition called heart failure, where the heart pumps less strongly than normal.

Blood clots can occur again later (known as a recurrent PE). Anticoagulant treatment helps to prevent this.

Complications due to treatment. The anticoagulant treatment can have side-effects. The main one is bleeding elsewhere in the body - for example, from a stomach ulcer. About 3 in 100 patients will get significant bleeding due to anticoagulant treatment for a PE. Usually, this type of bleeding can be treated successfully. Rarely, this type of bleeding can be fatal (in about 3 in 1,000 cases of PE). However, it is almost always safer to take the anti-clotting treatment than not to, so as to prevent another PE which could be serious. Rarely, if there are repeated small PEs, they may contribute to a condition called primary pulmonary hypertension (high pressure in the lung blood vessels).

What is the outlook (prognosis) for a pulmonary embolism?

If a PE is treated promptly, the outlook is good, and most people can make a full recovery.

The outlook is less good if there is an existing serious illness which helped to cause the embolism - for example, advanced cancer. A massive PE is more difficult to treat and is life-threatening. A PE is a serious condition and can be fatal. Without treatment, about 3 in 10 people would die from a PE. With treatment, the outlook is much better and about 5 in 100 people die from a PE. The most risky time for complications or death is in the first few hours after the embolism occurs. Also, there is a high risk of another PE occurring within six weeks of the first one. This is why treatment is needed immediately and is continued for about three months.

Patient Experience
We know that being admitted to hospital can be a difficult and unsettling time for you and your loved ones. If you have any questions or concerns, please do speak with a member of staff on the ward or in the relevant department who will do their best to answer your questions and reassure you.

Feedback

Feedback is really important and useful to us – it can tell us where we are working well and where improvements can be made. There are lots of ways you can share your experience with us including completing our Friends and Family Test – cards are available and can be posted on all wards, departments and clinics at our hospitals. We value your comments and feedback and thank you for taking the time to share this with us.

Patient Advice and Liaison Service (PALS)

If you have any concerns or questions about your care, we advise you to talk with the nurse in charge or the department manager in the first instance as they are best placed to answer any questions or resolve concerns quickly. If the relevant member of staff is unable to help resolve your concern, you can contact the PALS Team. We offer informal help, advice or support about any aspect of hospital services & experiences.
Our PALS team will liaise with the various departments in our hospitals on your behalf, if you feel unable to do so, to resolve your problems and where appropriate refer to outside help.
If you are still unhappy you can contact the Complaints Department, who can investigate your concerns. You can make a complaint orally, electronically or in writing and we can advise and guide you through the complaints procedure.

How to contact PALS:

Telephone Patient Services: 0300 123 1732 or via email at: wah-tr.PALS@nhs.net

Opening times:
The PALS telephone lines are open Monday to Friday from 8.30am to 4.00pm. Please be aware that you may need to leave a voicemail message, but we aim to return your call within one working day.
If you are unable to understand this leaflet, please communicate with a member of staff.

For additional medical advice, if your symptoms or condition worsens:

Contact your GP

NHS 111:	Telephone 111
Get help with your symptoms, NHS111:	https://111.nhs.uk/
Information to help you manage your health:	www.nhs.uk

In an emergency telephone 999

Emergency Department (A&E)
Alexandra Hospital
Woodrow Drive
Redditch B98 7UB

Tel: 01527 512030

Minor Injury Unit
Kidderminster Hospital
Bewdley Road
Kidderminster DY11 6RJ

Tel: 01562 513039

Emergency Department (A&E)
Worcestershire Royal Hospital
Charles Hastings Way
Worcester WR5 1DD

Tel: 01905 760743