

Having a VQ scan or CTPA scan in pregnancy to check for a blood clot in your lungs

Radiology Department

Information for Patients

Last reviewed: February 2026

Next review: February 2029

Leaflet number: 93 Version: 3

Introduction

This leaflet tells you about 2 types of lung scans that check for blood clots in your lungs. It talks about the benefits of having a scan, and the risks to you and your unborn baby.

Why do I need a lung scan?

Your doctor has asked for a scan to check for a blood clot in your lungs. A blood clot in the lung is called a pulmonary embolism (PE). It happens when all or part of a blood clot blocks the blood flow to part of your lung.

Having a PE can be very serious. The scan will help doctors decide if you need treatment, and what treatment is best. There are 2 types of scan that we can do to look at your lungs:

1. **Ventilation perfusion scan (VQ scan).** This is done in the Nuclear Medicine Department. A VQ scan looks at the air flow and blood flow in your lungs. It uses a small amount of radioactivity. If part of your lung has air but no blood flow, it may be caused by a PE.
2. **CT pulmonary angiogram (CTPA).** This is done in the Radiology Department. We inject a dye (contrast) into a vein in your arm. We then do a CT scan to look at the blood vessels in your lungs. It uses X-rays to make detailed images of the inside of your body.

You can read more about these scans in the following 2 leaflets:

- **Leaflet 1235** Having a scan to look for a pulmonary embolism. This tells you more about both the scans above.
- **Leaflet 858** Having a lung VQ scan.

You can find these leaflets on the internet at: yourhealth.leicestershospitals.nhs.uk/

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Which scan will I have?

The scan you have depends on

- your medical history,
- the results of your chest X-ray and
- how far along you are in your pregnancy.

The CTPA scan and the VQ scan both use ionising radiation:

- the CTPA scan uses **X-rays**.
- the VQ scan uses **air with mildly radioactive particles** and a **small, mildly radioactive injection**.

Your doctor and a doctor who specialises in X-rays and scans (a Radiologist) will decide which scan you should have.

You may have both scans. It depends on the results of the first scan.

The benefits and risks of scans that use ionising radiation

Scans that use ionising radiation are only done when really needed. This means the benefits to you (and your unborn child) of having the scan outweigh the risks of not having it.

We will keep you informed of the risks and benefits of having the scan. Doctors choose the most suitable test for you by balancing the benefits for your diagnosis against the risks at that point in time. We do the test in a way that keeps the radiation dose to you and your baby as low as possible.

What are the benefits of having the scan?

Your doctor has asked for you to have a lung scan because your symptoms could be caused by a blood clot (PE) in your lung.

Having a lung scan is the best way to find out if you have a blood clot, or if your symptoms are caused by another problem. The scan results help doctors decide the best treatment for you.

What are the risks of not having the scan?

If you do not have a lung scan, there are risks to you and your baby:

- If you have a blood clot in your lungs but it is not found or treated, it could lead to serious conditions such as:
 - high blood pressure in the lungs (pulmonary hypertension) which can damage the heart
 - stroke or even death.
- You may be given medicine to treat a blood clot when you do not need it. This can mean having injections 1 or 2 times a day for up to 3 months. If you have a lung scan and it shows you do not have a blood clot, this treatment may be stopped.

- You may have another problem that is causing your symptoms. This might go undiagnosed if you do not have the scan.

What are the risks to me from exposure to radiation?

The amount of ionising radiation used is small. Ionising radiation can cause cell damage. There is a very small increase in the chance of getting cancer many years or even decades after the scan.

In the UK, about 1 in 2 people (50%) get cancer at some point in their life. [1].

Having a CTPA scan or VQ scan adds only a very small extra risk of getting cancer. This extra risk is between 1 in 10,000 people and 1 in 1000 people. This is classed as low risk. The risk of not finding a serious problem, such as a PE, is often much greater than the risk from the scan.

The CTPA scan gives a higher dose of radiation to the breasts than the VQ scan. It is believed that during pregnancy breast tissue may be more sensitive to ionising radiation than at other times. This may slightly increase the risk of breast cancer later in life.

What are the risks to my baby from exposure to radiation?

The risks to your unborn baby from the small amount of radiation are extremely low.

In the UK, about 1 in 500 children (0.2%) get cancer by the age of 14 years. [2].

If you have a CTPA scan whilst pregnant, the extra risk of your unborn baby getting cancer in childhood is between 1 in 1,000,000 and 1 in 100,000. This is classed as minimal risk [3].

If you have a VQ scan whilst pregnant, the extra risk of your unborn baby getting cancer in childhood is between 1 in 100,000 and 1 in 10,000. This is classed as very low risk.

A **VQ scan** gives a higher dose of radiation to the unborn baby than the CTPA scan.

Can I breastfeed after a VQ scan?

If you are breastfeeding, a small amount of the radiation will come out in your breast milk for a short time after a VQ scan. **Please tell us straight away if you are breastfeeding.** You may want to start expressing milk while the doctors decide which scan you may have. If you have a VQ scan, you will need to stop breastfeeding until it is safe to start again. The Nuclear Medicine department will give you advice and an information leaflet about this before your scan.

Is one test better than the other?

Both tests can show if there is a blood clot on your lungs. They each have advantages and disadvantages. Your doctor will think about these when they decide which test you will have.

VQ scans are often preferred during pregnancy because they give a lower radiation dose to your breast tissue (which is believed to be more sensitive than usual to radiation during pregnancy).

However, VQ scans are not suitable for everyone. If you have other problems with your chest it might make the VQ scan difficult to interpret. In this case, a CTPA scan may be recommended.



CTPA scans are not suitable for everyone. They scan may be less suitable for you if:

- you have had a reaction to X-ray contrast dye before
- you are allergic to iodine
- your kidneys are not working well (poor kidney function)

What if I need to talk to someone?

If you have more questions about your health problem or treatment you can ask the medical and nursing staff looking after you.

If you want to ask questions about the scan itself, or about the radiation risks, ask a member of the medical or nursing staff to contact:

- the Nuclear Medicine Department (for VQ scans).
- the Radiology Department (for CTPA scans).

A member of staff from these departments will be happy to come and talk to you.

You may also get another leaflet that gives more information about the scan you are to have.

References

[1] Cancer Research UK, www.cancerresearchuk.org/health-professional/cancer-statistics/risk/lifetime-risk#ref, Accessed January 2026.

[2] Cancer Research UK, www.cancerresearchuk.org/health-professional/cancer-statistics/childrens-cancers/incidence#ref-16, Accessed December 2020.

[3] Health Protection Agency Report, Protection of Pregnant Patients during Diagnostic Medical Exposures to Ionising Radiation, HPA, RCR, SCoR, March 2009.

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