

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

Department of Radiology

Information for Patients

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## Introduction

This leaflet gives you information about 2 types of lung scan. It tells you 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 see if there is 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 supply to your lungs.

Having a PE can be very serious. The scan will help doctors decide what treatment you need, if any. There are 2 types of scan that can be done to look at your lungs.

- **ventilation perfusion scan (VQ scan)** - this is done in the Nuclear Medicine Department. A ventilation scan measures the amount of air and the blood flow in your lungs. If there is a part of your lung with air in it but no blood supply, it may be the result of a PE
- **computed tomography pulmonary angiogram (CTPA)** - this is a type of CT scan done in the Radiology Department. A dye is injected into the blood vessels of your lungs and a CT scan is taken. A CT scan works by taking X-rays to create a highly detailed image of the inside of your body.

More details are available in leaflet 1235 [Having a scan to look for a pulmonary embolism](#), which tells you more about both the scans above, and leaflet 858 [Having a lung VQ scan](#). Both are available on YourHealth [yourhealth.leicestershospitals.nhs.uk/](http://yourhealth.leicestershospitals.nhs.uk/)

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## Which scan will I have?

Both of these scans use ionising radiation.

The CTPA scan uses X-rays.

The VQ scan uses air and an injection that have small radioactive particles. Your doctor and a doctor who specialises in X-rays and scans that use ionising radiation (a radiologist) will decide which type of scan you should have.

Which scan you have depends on

- your medical history,
- the results of your chest X-ray and
- the stage of your pregnancy.

Depending on the results of the first scan it is possible that you may go on to have the second type of 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 clinical benefit to you (and your unborn child) of having the scan outweighs the risks of not having it.

You will be fully informed of the risks and benefits involved with having the scan. The most suitable test is chosen, balancing the benefits for your diagnosis against the risks at that point in time. The test is then carried out 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 (a PE) in the lung. Having a lung scan is the best way find out if you have a blood clot, or if your symptoms are caused by another problem. The results of the lung scan will help doctors decide the best treatment for you.

## What are the risks of not having the scan?

**The risks (to you and your baby) of not having a lung scan are:**

- 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 blood vessels that supply the lungs (pulmonary hypertension) which can damage the heart
  - stroke
  - or even death.
- You may be given medication to treat a blood clot when you do not need to be treated.

Treatment for blood clots can involve 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 cancer occurring, many years or even decades after the examination.

It is estimated that the natural risk of a person in the UK being diagnosed with cancer in their lifetime is 1 in 2 people (50%) <sup>[1]</sup>.

Having a CTPA scan or VQ scan will increase the chance of getting cancer over a lifetime by between 1 in 10,000 people and 1 in 1000 people. This is considered low risk. Having one of these tests will add a very small additional chance of getting cancer over a lifetime. The risks from missing a serious disorder by not having this test may be much bigger.

The CTPA scan is associated with 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 and this may lead to an increased risk of breast cancer.

## 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.

It is estimated that the natural risk of a child in the UK being diagnosed with cancer by 14 years of age is 1 in 500 children (0.2%) <sup>[2]</sup>.

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

**If you have a VQ scan whilst pregnant,** the extra chance of your unborn baby getting cancer in childhood is between 1 in 100,000 and 1 in 10,000. A VQ scan is associated with a higher dose of radiation to the unborn baby than the CTPA scan. This is classed as very low risk.

## Is one test better than the other?

Although both tests can show if there is a blood clot on your lungs, they each have advantages and disadvantages. These will be taken into account when the doctor decides 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 more sensitive than usual to radiation during pregnancy). However, VQ scans are not suitable for everyone. If you currently 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. If you have previously had a reaction to X-ray contrast liquid, are allergic to iodine, or your kidneys are not working well (poor kidney function), a CTPA scan may be less suitable for you.

## What if I need to talk to someone?

If you have more questions about your condition 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 those 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

<sup>[1]</sup> Cancer Research UK, [www.cancerresearchuk.org/health-professional/cancer-statistics/risk/lifetime-risk#ref](http://www.cancerresearchuk.org/health-professional/cancer-statistics/risk/lifetime-risk#ref), Accessed December 2020.

<sup>[2]</sup> Cancer Research UK, [www.cancerresearchuk.org/health-professional/cancer-statistics/childrens-cancers/incidence#ref-16](http://www.cancerresearchuk.org/health-professional/cancer-statistics/childrens-cancers/incidence#ref-16), Accessed December 2020.

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

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