

# Ultrasound-enhanced, catheter-directed thrombolysis for deep vein thrombosis

Information for the public

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[www.nice.org.uk](http://www.nice.org.uk)

## What has NICE said?

The procedure raises no major safety concerns but there is not much good evidence about how well it works compared with catheter-directed thrombolysis without ultrasound. It should only be used if extra steps are put in place to record and review what happens.

### What does this mean for me?

Your health professional should fully explain what is involved in having this procedure and discuss the possible benefits and risks with you. In particular, they should explain the uncertainty about the evidence on how likely it is to improve your symptoms. You should also be told how to find more information about the procedure. You should only be asked if you want this procedure after having this discussion. Your health professional should ask you if details of your procedure can be collected.

NICE also noted that this procedure could reduce the dose of thrombolytic drug and the

treatment time, compared with catheter-directed thrombolysis alone.

## The condition

When a blood clot forms in one of the deep veins in the leg, thigh, pelvis or arm it is called a deep vein thrombosis. If the clot comes loose it may travel through the bloodstream and block a blood vessel in the lungs. Even if the blood clot does not come loose it can cause long-term damage to the vein leading to pain and swelling of the limb.

The usual treatments for a deep vein thrombosis are drugs such as heparin. There are also methods that physically break up the clot (mechanical thrombectomy) or dissolve the clot with drugs (catheter-directed thrombolysis), using a tube inserted into the vein.

NICE has looked at using ultrasound-enhanced, catheter-directed thrombolysis as another treatment option.

NHS Choices ([www.nhs.uk](http://www.nhs.uk)) may be a good place to find out more.

## The procedure

Ultrasound-enhanced, catheter-directed thrombolysis is done using local anaesthesia. Ultrasound waves and a drug are used to break up the clot. The purpose of the ultrasound waves is to help the drug to penetrate into the clot. A small tube (catheter) is inserted into the vein and used to deliver the drug and the ultrasound waves to the clot. Imaging techniques such as X-rays are used to make sure that the treatment is delivered to the correct place. Treatment continues for 12 to 24 hours, with the tube in place. More imaging is done at regular intervals to check progress before treatment is stopped and standard anticoagulation therapy is started.

## Benefits and risks

When NICE looked at the evidence, it decided that there was not enough evidence to know how well this procedure works. The 10 studies that NICE looked at involved a total of 384 patients.

A few studies showed that the procedure may be a bit better at removing clots than the

other methods it was compared to. But other studies did not find any benefit in using this procedure compared with other methods. The studies did not all show that using ultrasound makes the treatment quicker, or reduces the dose of drug or the long-term problems caused by deep vein thrombosis, compared with catheter-directed thrombolysis alone.

The studies showed that the risks of the procedure included:

- problems during the procedure, including bleeding. Bleeding was not serious in most cases, but 1 patient needed a blood transfusion
- problems after the procedure including infection and fever, which was successfully treated with antibiotics
- 1 patient had a pulmonary embolism (a clot in the lung) several weeks after the procedure
- 1 patient had temporary nerve damage affecting their foot after the procedure, which got better with time.

If you want to know more about the studies, see the [guidance](#). Ask your health professional to explain anything you don't understand.

## Questions to ask your health professional

- What does the procedure involve?
- What are the benefits I might get?
- How good are my chances of getting those benefits? Could having the procedure make me feel worse?
- Are there alternative procedures?
- What are the risks of the procedure?
- Are the risks minor or serious? How likely are they to happen?
- What care will I need after the procedure?
- What happens if something goes wrong?

- What may happen if I don't have the procedure?

## About this information

NICE [interventional procedures guidance](#) advises the NHS on the safety of a procedure and how well it works.

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## Accreditation

