Patient Version

The information in this pamphlet is for adults, who are not pregnant and have not had a blood clot before.

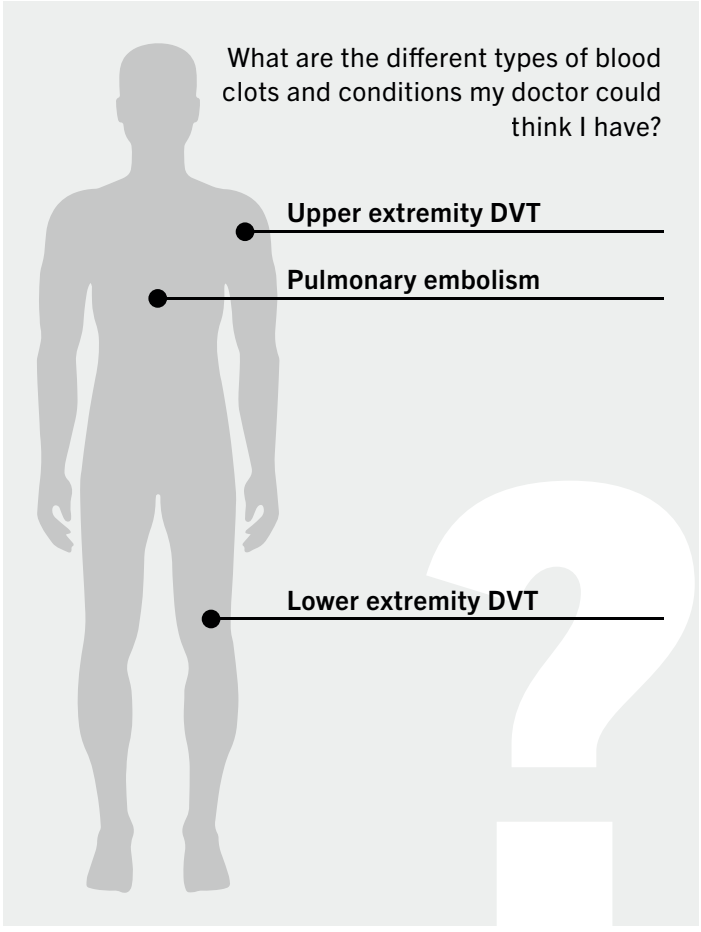
# Testing for blood clots

If your health care provider thinks you might have a blood clot, the health care provider will perform different tests to see if you have one. The tests you receive depend on what your risk of a blood clot is, what type of blood clot they think it is, and what tests are available.

## Why you might need testing for blood clots

Your health care provider may want to test for a blood clot, if you have symptoms, such as:

- chest pain
- breathing problems, such as shortness of breath
- fast heartbeat
- swelling or redness or pain in one leg




## What are blood clots?

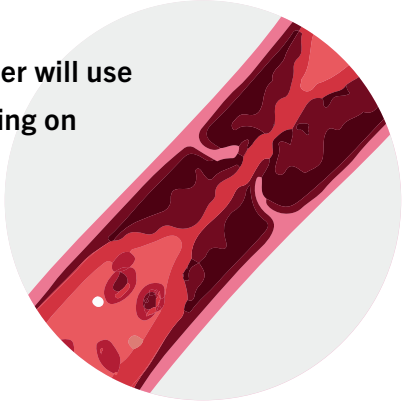
On the outside of the body, blood clots can be good. They stop the bleeding after an injury.
When a blood clot forms inside the body, it can sometimes block a blood vessel, such as a vein or artery. **If blocked, blood may not be able to flow and organs could be damaged.**

When a blood clot blocks a vein deep in the body, it may cause **deep vein thrombosis** (**DVT**).

DVT can occur in different veins in the body and cause pain or swelling in that area. **Upper extremity DVT** can occur in the veins in the upper part of the body - in your neck or arm veins. **Lower extremity DVT** can occur in the veins of the leg.

When a blood clot occurs in the lungs, it is called a **pulmonary embolism (PE)**. It happens when a clot in a leg vein separates and travels to the lungs. In the lungs, it becomes wedged, and can stop the blood flow. PE can be very dangerous.

**The health care provider will use different tests depending on where the clot may be.**



## What are the tests for blood clots?

### D-dimer test

A blood test to look for a small protein piece (D-dimer) that is formed when a blood clot dissolves in your body. A positive test means you may have a blood clot.

### VQ scan

Ventilation-perfusion scanning – lung scans in which a radioactive dye is injected or gas is breathed in to see how well air and blood are able to flow through your lungs

### CTPA

Computed tomography pulmonary angiography - CT scan to get a picture of pulmonary arteries (that transport blood to the lungs)

### Ultrasound

Compression or duplex ultrasound
An ultrasound makes images to look at the blood flow in the veins in your arms and legs

## There are pros and cons to each test:

Some tests have side effects. A VQ scan or CTPA can expose you to small amounts of radiation.

Some tests cost more

Some tests are easier to have and take less time


Some tests may not be available at your hospital

Some tests diagnose clots better

**Because there are pros and cons of each test, the American Society of Hematology has recommended what tests should be used and when.**

## The tests you have will depend on your risk of a blood clot:

Your risk of a blood clot can be low, intermediate, or high.

Your risk could be higher if you are older, had surgery recently, had a serious injury (such as breaking a bone), are taking hormones (such as birth control pills) or are male. But your health care provider will check your past health and ask you questions to decide on your risk.

## If your health care provider thinks you might have a PULMONARY EMBOLISM (PE)

### If you are at LOW RISK of PE

RECOMMENDATION 1A

D-dimer test is recommended first

If D-dimer is positive or not available, then a VQ scan or CTPA is suggested

### If you are at INTERMEDIATE RISK of PE

RECOMMENDATION 2A

D-dimer test is suggested first

If D-dimer is positive or not available, then a VQ scan or CTPA is suggested

### If you are at HIGH RISK of PE

RECOMMENDATION 2A

CTPA is suggested first

If CTPA is not available or possible (because of an allergy or kidney disease), a VQ scan is suggested first
If the CTPA is positive, then the D-dimer test, ultrasound or VQ scan is suggested

RECOMMENDATIONS 1B, 2B AND 3B

If you have a positive D-dimer test, your health care provider should not diagnose you with a blood clot right away and will need to do more tests. This is because about ½ of the people who have a positive D-dimer test may not actually have a clot, so another test is needed.

**If all your tests are positive, you probably have a pulmonary embolism (PE) and may need to be treated.**

## If your health care provider thinks you might have a DEEP VEIN THROMBOSIS (DVT) in the veins in your leg - lower extremity DVT

### LOW RISK of DVT in the lower body

RECOMMENDATION 5A

D-dimer test is recommended first

If the D-dimer test is positive or not available, then an ultrasound is recommended

### INTERMEDIATE or HIGH RISK of DVT in the lower body

RECOMMENDATION 6A AND 7A

Ultrasound is suggested (the ultrasound may be of the whole leg or the thigh)
If the whole leg ultrasound is negative, no more tests are needed.

If the ultrasound of the thigh is negative, another ultrasound is recommended if the reason for your symptoms is still not known

RECOMMENDATIONS 6B AND 7B

If you have a positive D-dimer test, your doctor should not diagnose you with a blood clot right away and will need to do more tests.

**If all your tests are positive, you probably have a DVT in your leg, and may need to be treated.**

## If your health care provider thinks you might have DEEP VEIN THROMBOSIS (DVT) in the upper part of the body - in the neck, or arm veins - upper extremity DVT

### LOW RISK of DVT in the upper body

RECOMMENDATION 9A

D-dimer test is suggested first

If the D-dimer test is positive or not available, then an ultrasound is suggested

### INTERMEDIATE or HIGH RISK of DVT in the upper body

RECOMMENDATION 10A

D-dimer test or ultrasound is suggested first

If the D-dimer test is positive or not available, then an ultrasound is suggested

RECOMMENDATION 9B AND 10B

If you have a positive D-dimer test, your health care provider should not diagnose you with a blood clot right away and will need to do more tests.

**If all your tests are positive, you probably have a DVT in the upper part of your body, and may need to be treated.**

## SPEAKING WITH YOUR HEALTH CARE PROVIDER

**To understand your tests for a blood clot, you can ask about:**

- the type of blood clot your health care provider thinks you might have
- whether you are at low, intermediate or high risk of the blood clot
- the tests you may have to take
- the side effects of the tests
- what will happen if you have a positive or negative test

Link to the guidelines for health care professionals:

American Society of Hematology 2018 guidelines for management of venous thromboembolism: diagnosis of venous thromboembolism

Wendy Lim, Grégoire Le Gal, Shannon M. Bates, Marc Righini, Linda B. Haramati, Eddy Lang, Jeffrey A. Kline, Sonja Chasteen, Marcia Snyder, Payal Patel, Meha Bhatt, Parth Patel, Cody Braun, Housne Begum, Wojtek Wiercioch, Holger J. Schünemann, Reem A. Mustafa; American Society of Hematology 2018 guidelines for management of venous thromboembolism: diagnosis of venous thromboembolism. Blood Adv 2018; 2 (22): 3226–3256.
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