

Tests on your blood



Medical fact file
Information for donors

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You may have noticed that each time you give a blood donation we also take blood samples. These samples are used to complete safety tests in our laboratory. The safety tests are mandatory, in other words we must carry them out on every single blood donation, whether this is your first donation or just one of the many you have given over the years.

Sometimes the tests cannot be done – for example, if you give an incomplete blood donation and no blood samples are obtained, or if we do not take a donation because we need to check your haemoglobin level for anaemia.

The tests play a very important role in ensuring that we provide a safe blood supply to patients. We test for your blood group, so that we can select the correct group for the patient. We also test for infections that can be passed from donor to patient via a blood transfusion. The tests are carried out by computer-



controlled, automated machines which can test many samples both quickly and easily, so helping us to get blood to the hospitals as fast as we can.

Any donation that has not passed the safety tests cannot be used.

If your blood gives a positive test result we will inform you and offer you appropriate advice. If the result is significant to your health you will be asked to discuss the results with one of our doctors and, with your permission, we will arrange a referral to your own doctor or a specialist.

If the test results show that you can no longer give blood, then you will be given specific advice.

As well as checking your blood group, we test for the following:

Syphilis: Syphilis is caused by an organism called *Treponema pallidum*. This organism belongs to a family of bacteria which also cause tropical diseases called yaws and pinta. Syphilis is usually a sexually transmitted infection which, if untreated, can cause serious disease. Yaws and pinta cause skin and joint problems. All three diseases are fully treatable with penicillin.

The tests we use look for antibodies, which remain in a person's blood many years after the infection has gone. A positive test for syphilis usually relates to an infection in the past, but we are not able to use blood as long as the test is positive.

Hepatitis B virus (HBV): Hepatitis is a general term meaning inflammation of the liver. Hepatitis B is one of several viruses which can cause inflammation of the liver, and sometimes liver damage. Hepatitis B is very common in some parts of the world, where it is often transmitted from mother to child at birth or in infancy. Most donors we identify have an association with these areas of the world and appear to have been infected since childhood or early life.

Our test looks for a substance called hepatitis B surface antigen, which is part of the 'coat' of the virus. If we find this substance in a donor's blood then further tests are performed to confirm the result. Most of the donors we identify have been infected with the virus for many years and feel completely well.

Very rarely, we find a donor with new (acute) hepatitis B infection. Most adults who catch hepatitis B have a short illness and overcome the infection.

Occasionally we get a positive result in our hepatitis B test because the donor has recently had an immunisation against hepatitis B and not because infection is present.

In some circumstances, such as skin piercing, we carry out extra tests to see if you have ever had hepatitis B infection.



Human immunodeficiency virus (HIV):

Once an individual becomes infected with HIV, the virus remains in the body. The body has no way of getting rid of the virus. Eventually the virus causes destruction of the immune system and Acquired Immune Deficiency Syndrome (AIDS). The HIV virus is transmitted sexually, can be passed from mother to baby, and by intravenous drug use. A person who has HIV does not necessarily have AIDS.

Our tests look both for antibodies to the virus and for the virus itself. Unlike with many other infections, the antibodies do not protect against the virus.

Hepatitis C virus (HCV): Like hepatitis B, this virus infects the liver and can cause inflammation and liver damage. The virus is commonly transmitted by intravenous drug use. Like HIV, HCV can persist in the body even when antibodies are present. We perform two tests: a test for antibodies and a test for the virus. The test for the virus is an extra safety test and can tell us whether a donor with antibodies is infected or not. Most of the donors we identify have had the virus for years and feel completely well.

Human T-lymphotropic virus (HTLV): This virus infects white cells called T-lymphocytes. Most people who are infected with the virus are perfectly well and never have any illness. Occasionally, it can cause a neurological disorder called Tropical Spastic Paraparesis (or HTLV Associated Myelopathy) or a blood disease called Adult T-cell Leukaemia. These diseases are very rare. The infection is found most commonly in people from Japan, the

West Indies and parts of the Middle East. The virus is commonly transmitted from mother to child by breast feeding, but is also passed on by sexual contact or by intravenous drug use.

We test for HTLV antibodies. A positive test means the individual is infected with the virus.

Additional tests

Some tests are not performed on every donation. We may need to carry out additional tests depending on the donor's individual circumstances, in particular with reference to travel or skin piercing. Extra tests are also done to provide specifically tested blood for particular types of patient.

Malaria: Malaria is caused by parasites which are transmitted by the bites of *Anopheles* mosquitoes. The infection causes fever and is a major cause of death in some parts of the world. We test for antibodies to the malaria parasite. A confirmed positive result does not necessarily mean that the individual has active malaria, merely that they have had malaria at some time.

T-cruzi: This is a parasite called *Trypanosoma cruzii*, found in certain parts of Central and South America. It is transmitted to humans by biting insects or from mother to baby at the time of birth or by blood transfusion. People infected with the parasite are at risk of illness (also called Chaga's Disease) after many years. The parasite can cause damage to the muscles in the heart and intestines. Not all infected people become ill.

Our tests look for antibodies to the infection. A donor's place of birth and travel history

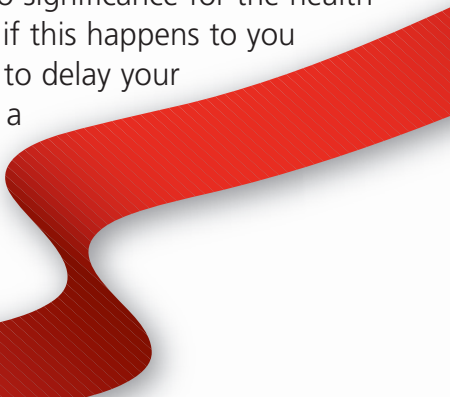
determine whether the test is required.

Cytomegalovirus (CMV): This is a very common virus which causes a mild 'flu-like' illness. Individuals in good health make a full recovery and are usually unaware of the infection.

We test for antibodies. A positive test indicates that the individual has had CMV infection and may still have the virus. Having antibodies to CMV is of no significance to the health of the donor. For patients with a poor immune system (bone marrow recipients or small babies), CMV can cause a life-threatening illness. Such patients need blood from donors who have never had CMV infection. CMV-positive blood is safe for all other patients, so donors are not informed of a positive result.

False reactive results

Any blood sample can produce a reaction in laboratory screening tests, which on further testing prove to be false. False reactive results are a recognised complication of all biological tests. We carry out very careful further testing so that we know when a result is truly positive and when it is a false reaction. False reactions are of no significance for the health of the donor, but if this happens to you you will be asked to delay your next donation for a short time.



Our donor helpline is open for general enquiries 24 hours a day, every day of the year. If you have a non-urgent medical enquiry, please try to contact us between 9am and 5pm, Monday to Friday.



If you have given blood and become unwell

If you have given blood and you become unwell (except for a cold or coldsore) in the two weeks following your donation, ring our donor helpline as soon as possible on 0845 7 711 711.

The National Blood Service is part of NHS Blood and Transplant, a Special Health Authority within the NHS.

www.blood.co.uk