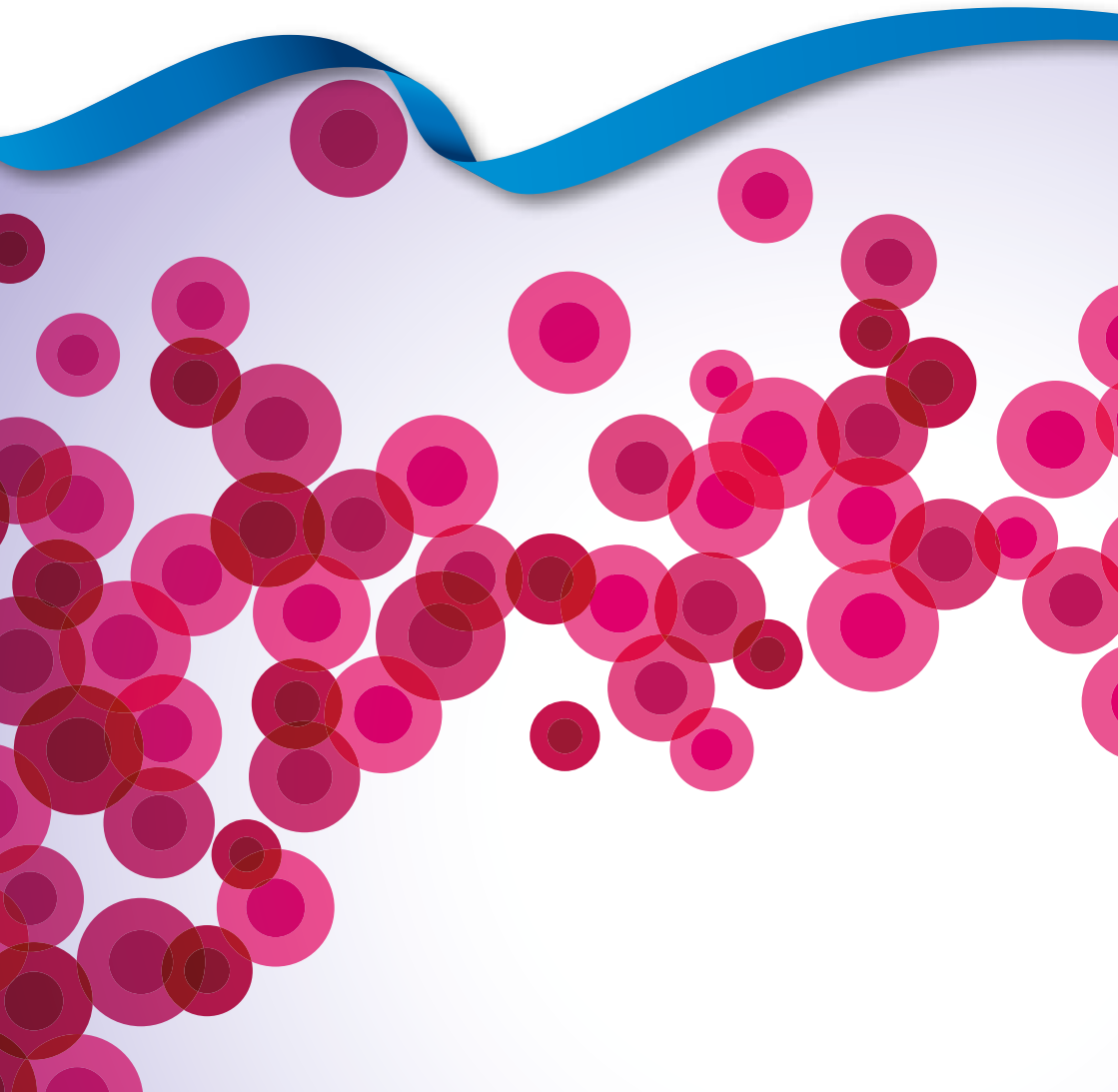
NHS
Blood and Transplant

Anaemia

Patient information



What is anaemia?

Anaemia is the result of either not having enough red cells to take oxygen around the body, or having faulty red cells that are unable to carry enough oxygen. It is measured in the blood by the level of haemoglobin, sometimes called 'Hb'.

Blood is a complex fluid containing lots of proteins and a number of different types of cell to help our body to function correctly. These cells include white cells to help fight infection, platelets to help form clots when we bleed and red cells to carry oxygen. Oxygen is carried by the red cells to all our organs, such as the brain, heart, kidneys, liver and tissues such as muscle, to convert food into energy for the body to work. Red blood cells last about 120 days so the body has to constantly make new ones in the bone marrow to replace them.

What are the signs and symptoms of anaemia?

The following can be features of anaemia:

- Fatigue/tiredness
- Shortness of breath
- Dizziness
- Fast or irregular heartbeat
- Pounding or "whooshing" in your ears
- Headache
- Cold hands or feet
- Pale or yellow skin
- Chest pain
- Lack of concentration.

Are there different types of anaemia?

Yes, there are many different types of anaemia and they require different treatments. Some of the commonest types are listed below.

Anaemia due to an under-production of red cells can have different causes including:

- **A shortage of iron or vitamins:** Iron deficiency anaemia is common. It is caused by a lack of iron in the body. There might be a problem with not having enough iron in your diet or in absorbing it from your diet or you might have used it all up during pregnancy, surgery or because of bleeding
- **Vitamin B12 or Folate deficiency:** this is usually as a result of inadequate intake in food or more commonly the inability of the body to absorb it. Examples of the latter include pernicious anaemia and coeliac disease
- **Anaemia of chronic illness:** this is also sometimes called 'functional iron deficiency'. In this case the body has plenty of iron in stores but inflammation caused by chronic illnesses or infections can block access to the iron, so that the bone marrow does not have enough iron available to produce good quality red blood cells. This is more common as we get older.

Anaemia due to a problem in the bone marrow, where red cells are made: this can be caused by many different diseases, for example:

- Patients with kidney failure may be unable to produce the hormone erythropoietin which is the messenger telling the bone marrow to produce more red cells
- Cancer may invade the bone marrow or some drugs such as chemotherapy may also slow down the rate at which red cells are made

- There are other types of bone marrow disease that can cause anaemia such as myelodysplastic syndrome or aplastic anaemia
- Infections can also reduce red cell production.

Anaemia due to inherited disorders: these can affect haemoglobin production, for example thalassaemia.

Anaemia due to excessive destruction of red cells which occurs in immune haemolytic anaemia and inherited disorders such as sickle cell anaemia and sometimes an adverse reaction to certain medications.

Anaemia due to bleeding: this can be severe and sudden such as bleeding from a gastric ulcer or blood loss may be at a slower rate such as due to heavy periods or hidden blood loss from the bowel. When blood loss is slow, the anaemia develops gradually and is often associated with a shortage of iron as the iron is lost from the body.

Am I at risk of anaemia?

Anaemia can be caused in many ways. You are at a higher risk if you are young and have not built up a store of iron, essential vitamins and minerals, have a diet lacking in iron, essential vitamins and minerals, or suffer from certain diseases such as inflammatory bowel disease, bone marrow disorders, chronic illnesses such as rheumatoid arthritis, heart disease, chronic liver diseases or severe infections.

You would also be at risk if you have bowel cancer or have recently had major surgery.

Girls and women having periods can also become anaemic. Pregnant women may become anaemic as the developing fetus takes essential iron for their own development from their mother.

The risk of anaemia also increases with age as our stores of vitamins and minerals decrease.

What tests are done to see if I am anaemic?

Blood Tests

- Full Blood Count – checks the number and quality of red cells in your blood and also measures the haemoglobin
- Vitamin B12 and Folate levels – checks to see if you have enough vitamin B12 and folate in your body to help make red cells
- Ferritin and Iron Saturation levels – checks the amount of iron you have in store (Ferritin) and the amount available to use (Iron Saturation)
- Direct Antiglobulin Test (DAT) demonstrates whether the body's immune system might be breaking down its own red cells
- Blood chemistry tests to demonstrate whether organs such as the liver and kidneys are working well.

Bone marrow biopsy

- This is rarely required and will only be carried out by a specialist in a hospital.

Other investigations

These may include tests to see if there is bleeding somewhere for example:

- Bowel investigations such as colonoscopy (examination of the bowel)
- Endoscopy (examination of the gut)
- Gynaecological (female reproductive system)
- Urinary tract investigations such as cystoscopy (examination of the bladder).

What treatments are available?

There are two general approaches to the treatment of anaemia:

1. Replacement therapy: there are several different types of treatment available which might include oral iron tablets, intravenous iron, iron injections and blood transfusion.

2. Treatment of the underlying problem or disease: these treatments include:

- Drug therapy such as steroids or immunoglobulins to treat an immune problem
- Antibiotics for infections
- Surgery and/or chemotherapy for cancer
- Surgery for example to treat a bleeding problem.

You may wish to discuss which is the best treatment for you with your doctor, nurse or midwife.

Can I help myself?

There are several things you can do to help yourself. These include:

- Eat a healthy diet including fruit, vegetables, eggs, fish or meat and carbohydrates such as potatoes, pasta, rice or bread. NHSBT provide a Patient Information Leaflet called 'Iron in Your Diet' to assist you with this, it can be found at the web addresses below
- Talk to your doctor, nurse or midwife if you think you have any of the symptoms of anaemia listed in this leaflet or have noticed blood in your bowel motions or urine or have persistent heavy periods
- Always discuss any alternative medicine, herbal preparation or over the counter treatments for anaemia with a healthcare professional before taking them, as they may react with any prescribed medications.

Patient Blood Management (PBM)

PBM is a new standard of care that focuses on measures to reduce or avoid the need for a blood transfusion if possible. However, if a transfusion is needed, PBM makes sure that patients are given only what they really need and that the transfusion is given safely. There is a NHSBT PBM Patient Information Leaflet available that explains things in more detail so please ask your nurse or doctor for a copy.

Recent studies suggest that if PBM is followed and transfusion is reduced or avoided, patients have fewer complications, faster recoveries and shorter stays in hospital.

During your treatment, a transfusion of red cells or other blood component such as platelets may be required. If so, there are other patient information leaflets available from NHSBT such as "Will I need a blood transfusion?" that may help explain things for you. Please ask your doctor or nurse for a copy of the other leaflets that are suitable for your proposed treatment pathway.

Additional Information

As a precautionary measure to reduce the risk of transmitting variant Creutzfeldt-Jakob Disease (vCJD), people who have received a transfusion of blood or any blood component since 1980 are currently unable to donate blood or blood components.

You may also find the following websites useful:

NHS Choices
www.nhs.uk/Conditions/Blood-transfusion/Pages/Introduction.aspx

NHS Blood and Transplant
www.nhsbt.nhs.uk/what-we-do/blood-transfusion/

We would welcome your feedback and comments on this leaflet. You can contact us in the following ways:

By post to:
Customer Services, NHS Blood and Transplant, Part Academic Block – Level 2, John Radcliffe Hospital, Headley Way, Headington, Oxford OX3 9BQ

By email to: nhsbt.customerservice@nhsbt.nhs.uk

Or by phone: 01865 381010

This leaflet was prepared by NHS Blood and Transplant in collaboration with the National Blood Transfusion Committee. Further supplies can be obtained by accessing **https://hospital.nhsbtleaflets.co.uk**

Individual copies of this leaflet can be obtained by calling **01865 381010**.

NHS Blood and Transplant (NHSBT) is a Special Health Authority within the NHS and provides the blood that patients receive. In order to plan for future blood demands, information about which patients receive blood needs to be gathered. We may ask a hospital or GP to provide limited medical information on a sample of patients who have received blood transfusions.

Any information that is passed on to NHSBT is held securely and the rights of these patients are protected under the Data Protection Act (1998).

NHS Blood and Transplant

NHS Blood and Transplant (NHSBT) saves and improves lives by providing a safe and reliable supply of blood components, organs, stem cells, tissues and related services to the NHS and other UK health services.

We manage the UK-wide voluntary donation system for blood, tissues, organs and stem cells, and turn these donations into products that can be used safely to save lives or radically improve the quality of people's lives.

We rely on thousands of members of the public who voluntarily donate their blood, organs, tissues and stem cells. Their generosity means each year we're able to supply around 2 million units of blood to hospitals in England and 7,500 organ and tissue donations within the UK, which save or improve thousands more people's lives.

For more information
Visit nhsbt.nhs.uk
Email enquiries@nhsbt.nhs.uk
Call 0300 123 23 23

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