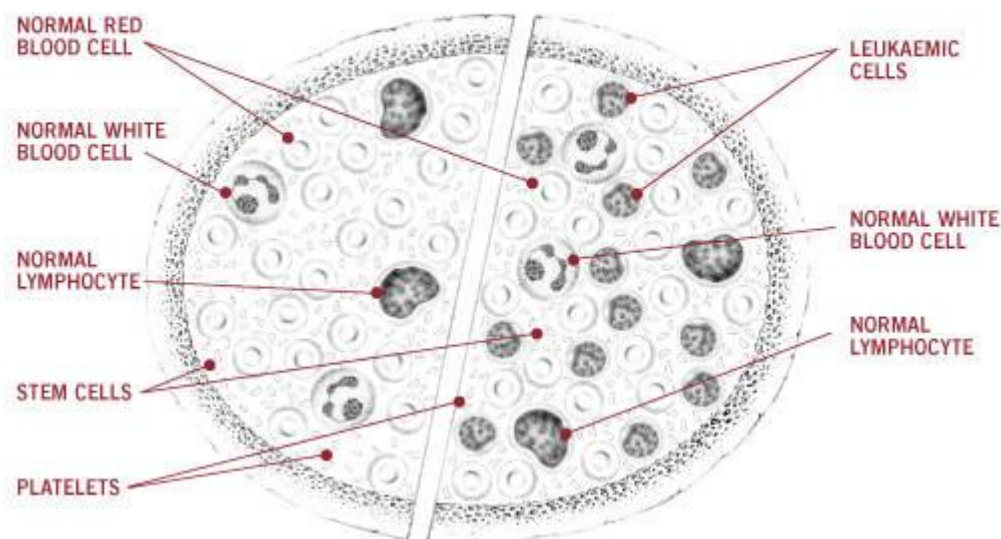


## Leukaemia (prepared September, 2007)

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## NORMAL AND LEUKAEMIC CELLS IN BONE MARROW



Leukaemia is cancer of blood-forming cells. Leukaemia usually causes large numbers of white blood cells to be made.

These abnormal cells usually can't carry out the normal functions of white blood cells. They crowd the bone marrow and spill into the blood and may then spread into organs such as the liver, spleen, lungs and kidneys. Sometimes, they may also spread into the fluid around the brain and spinal cord.

Because there are so many abnormal white cells crowded into the bone marrow, the marrow sometimes can't make enough normal red blood cells, white blood cells and platelets.

### Types of leukaemia

There are several types of Leukaemia. Some types appear suddenly and progress rapidly over days to weeks. Others are less apparent and progress slowly over months to years. In general, but not always, acute leukaemias develop more rapidly and chronic leukaemias develop more slowly.

Leukaemias are named according to the type of blood cells involved. The myeloid leukaemias are those which involve the granulocytes, red blood cells, platelets and monocytes; the lymphocytic leukaemias are those which involve the lymphocytes.

### Acute lymphocytic leukaemia (ALL)

Acute lymphocytic leukaemia is most common in children. However some adults develop this type of leukaemia.

Normal lymphocytes fight infection: when the body is attacked by bacteria or viruses, lymphocytes respond by producing antibodies or special killer cells. When you have acute lymphocytic leukaemia, the lymphocytes cannot function properly, and you may develop a serious infection. The disease also causes many abnormal lymphocytes to be produced, crowding out the normal red blood cells and platelets.

This is sometimes called 'lymphoblastic' leukaemia.

### **Chronic lymphocytic leukaemia (CLL)**

This leukaemia also affects the lymphocytes, but usually develops much more slowly than acute lymphocytic leukaemia.

This disease affects adults and does not occur in children.

The disease progresses slowly, so the normal cells are not crowded out as rapidly as in the acute type of the disease. If you have chronic lymphocytic leukaemia, you may not feel any symptoms until the later stages of the disease. In some cases, symptoms never occur because the disease progresses so slowly.

There are some very rare forms of chronic lymphocytic leukaemia called prolymphocytic leukaemia and hairy cell leukaemia. In addition, there is a form of non-Hodgkin lymphoma which, when it affects the blood, can mimic chronic lymphocytic leukaemia and is called mantle cell lymphoma.

### **Acute myeloid leukaemia (AML)**

This leukaemia mainly affects adults, but can occur in children and adolescents.

Acute myeloid leukaemia mainly affects the myeloid cells known as granulocytes, but also red blood cells, platelets and monocytes. The disease creates too many young myeloid cells and not enough mature myeloid cells. The young myeloid cells can block blood vessels.

### **Chronic myeloid leukaemia (CML)**

Chronic myeloid leukaemia can occur at any age, but is uncommon below the age of 20 years.

Too many myeloid cells are present. Chronic myeloid leukaemia occurs in two stages: first, there is a slow multiplication of abnormal cells. Then, it can quickly change into an acute stage.

### **Causes of leukaemia**

The causes of leukaemia are not known. Some risk factors appear to influence its development. These risk factors only explain a very small number of leukaemia cases. Having one or more of these factors does not mean that you will definitely develop leukaemia. Talk to your doctor if you are concerned about any of these factors.

Genetic factors: Down syndrome children and children born with some other rare gene changes have an increased risk of acute leukaemia.

Genetic factors may play a role in chronic lymphocytic leukaemia-it is more common in men and seems to run in families.

Radiation: leukaemia occurs at higher than average rates among people exposed to intense radiation. These include survivors of atomic bomb explosions in Japan, people exposed to radiation after the Chernobyl nuclear plant disaster, and people who received large amounts of radiation for treatment of some medical conditions in the past. No leukaemia has been linked to radiation from x-rays and CT scans.

Chemicals: workers exposed to benzene have an increased risk of acute myeloid leukaemia. Smoking appears to increase the risk of acute myeloid leukaemia.

Country of origin: in certain areas of the world, such as south-west Japan, parts of Africa and the Caribbean, a particular type of leukaemia can be spread among local residents by a virus known as HTLV (human T-cell leukaemia/lymphoma virus).

### **How common is leukaemia?**

In Victoria, over 600 people are diagnosed with leukaemia each year.