What are white blood cells?
Blood contains three main cellular components – white blood cells, red blood cells and platelets. White blood cells (also known as leucocytes) are produced by the bone marrow and help to protect the body from infections. Malignancy or cancer of white blood cells is called leukaemia which means ‘white blood’ in Ancient Greek.

What types of white cell are there and what do they do?
Different types of white blood cells have different functions.

- **Granulocytes** – have distinctive granules in their cell fluid which help break down and digest absorbed particles. They include:
  - Neutrophils – often the first to arrive at the site of infection where they engulf and destroy foreign matter
  - Basophils – play a role in both parasitic infections and allergy and contain histamine which causes allergic symptoms
  - Eosinophils – attack parasites (particularly worms) and are active in allergic reactions and asthma.

- **Mononuclear cells** – granules are still present but are not distinctive. They include:
  - Lymphocytes – responsible for the specific recognition of foreign agents
  - Monocytes – help mount an immune response to infection and inflammation and move quickly to the site where they change into macrophages
  - Macrophages – highly-specialised in removing dead cells and debris they are phagocytes which means big eater – they ingest particles.

What happens to the white cells present in donated red cells and platelets?
Leucocytes present in donated blood may be a cause of adverse transfusion reactions (see our fact sheet *What Are Transfusion Adverse Events?* Vol. 5, No. 3). The Blood Service uses leucocyte filters to reduce the number of white cells in red cell and platelet components. The filters containing the trapped white cells are discarded.

Does the Blood Service collect white cell donations?
Not usually. White blood cells for transfusions are collected from specific donors at major hospitals using apheresis machines that remove whole blood, separate off the desired components and then return the rest of the blood to the donor (see our fact sheet *Plasma Donation: How Does an Apheresis Machine Work?* Vol. 4, No. 11).

Why would I need a white cell transfusion?
Some patients who are receiving chemotherapy treatment do not have enough white blood cells of their own to fight infections. If their serious infection is not responding to usual treatments such as antibiotics or fungal therapy they may need a white cell infusion to help fight the infection. In these situations, granulocytes are collected from the patient’s family and friends (if they are blood group compatible) and transfused to the patient. The granulocytes are irradiated prior to transfusion so they are unable to reproduce but can still function as required (see our fact sheet *I Need to Know About Irradiation*, Vol. 1, No. 8).

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**BLOOD FACT**
Pus is made up of dead white blood cells and bacteria that have been pushed together to be eliminated.