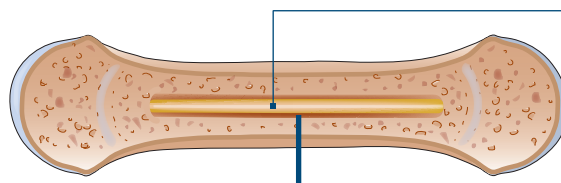
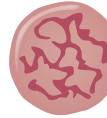


Myeloma: cancer of the immune system

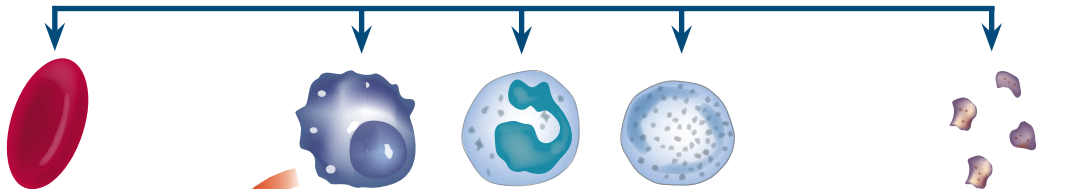
Myeloma is a cancer of the plasma cells, a type of white blood cell that resides in the bone marrow



Bone marrow is the spongy material inside larger bones such as your breast bone, spine, ribs, skull, hips and the long bones of your legs and arms



Stem cells in the bone marrow develop into different types of blood cell

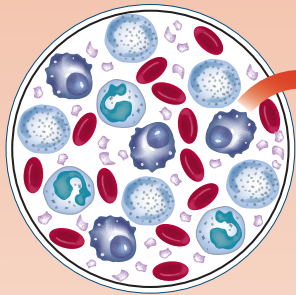


Red blood cells carry oxygen around your body

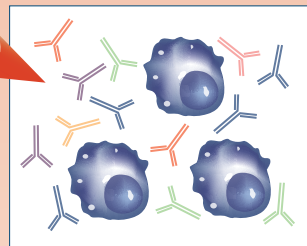
White blood cells fight infection; there are several different types, including plasma cells

Platelets help your blood to clot

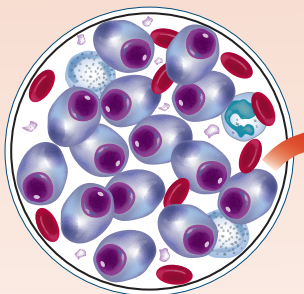
Myeloma affects plasma cells, a type of white blood cell



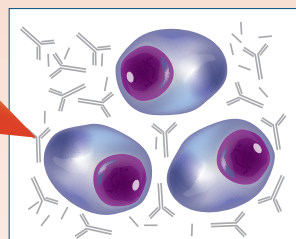
In healthy bone marrow, the number of plasma cells is tightly controlled



Normal plasma cells produce different types of antibodies (immunoglobulins) that fight infection

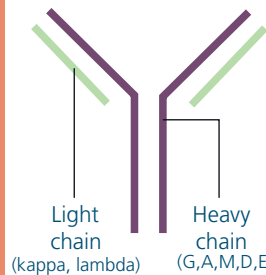


In myeloma, large numbers of abnormal plasma cells, called myeloma cells, reduce the production of normal blood cells



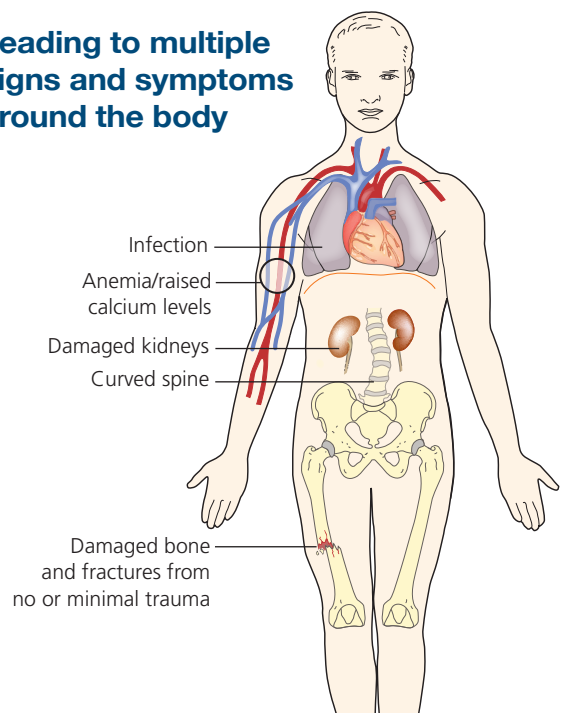
Myeloma cells produce an abnormal antibody (paraprotein) that has no function, and/or free light chains

Antibodies, also known as immunoglobulins (Ig), are large Y-shaped proteins. Different types of antibody have different heavy chains (G, A, M, D or E) and light chains (kappa or lambda).



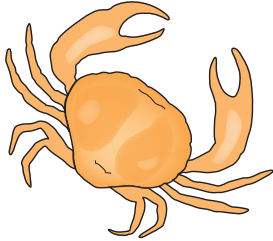
The type of myeloma you have depends on the type of abnormal antibody (paraprotein) and/or free light chains your myeloma cells produce: IgG, IgA, IgM, IgD, IgE myeloma, or kappa or lambda light chain myeloma.

Leading to multiple signs and symptoms around the body



How myeloma is treated

The signs and symptoms of myeloma are often referred to by the abbreviation 'SLiM CRAB'. If your myeloma is causing any of these, you will be offered treatment.



Sixty percent (60%) plasmacytosis (an unusually large proportion of plasma cells in tissues, exudates or blood)

Light chains – serum free light chain ratio is greater than 100

MRI – one or more focal lesions on an MRI scan

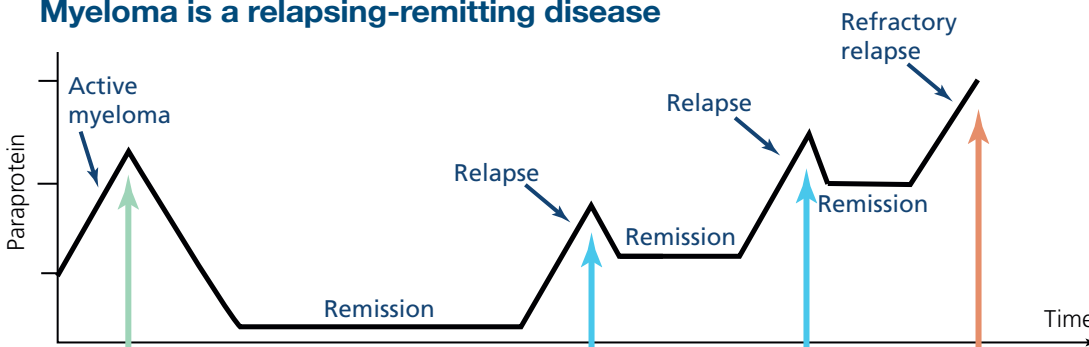
Calcium levels in the blood are raised, causing thirst, nausea, vomiting and/or confusion

Renal (kidney) damage, which can make you feel tired or listless

Anemia (fewer red blood cells), which may make you look pale and feel tired or listless

Bone damage can cause pain, fractures, a curved spine and/or nerve problems

Myeloma is a relapsing-remitting disease



Initial treatment
(2- or 3-drug combinations)

A steroid
(prednisolone or dexamethasone)
+/-

Chemotherapy
(cyclophosphamide or melphalan)
+/-

Targeted therapy
(thalidomide and/or bortezomib)

Consolidation with first transplant (melphalan) if suitable

Treatment for relapse
(2- or 3-drug combinations)

A steroid
(prednisolone or dexamethasone)
+/-

Chemotherapy
(cyclophosphamide or melphalan)
+/-

Targeted therapy
(thalidomide, lenalidomide or bortezomib)

Consolidation with second transplant (melphalan) if suitable

Treatment for refractory myeloma

Treatments you have not had before or not had recently, in 2- or 3-drug combinations, or clinical trials

Number of relapses before myeloma becomes refractory varies from patient to patient

Supportive care

treats the symptoms of myeloma and/or the side effects of treatment rather than the disease itself. Supportive care may include:

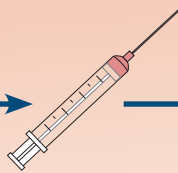
- Painkillers
- Anti-nausea drugs
- Fluids
- Vaccination against infection
- Radiotherapy
- Erythropoietin or blood transfusion (for anemia)
- Bisphosphonates (for bone strengthening)
- Specialist kidney care
- Platelet transfusion
- Preventative antibiotics

Autologous stem cell transplantation (ASCT)

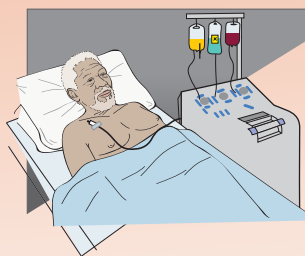
If you are fit enough, initial therapy may consist of a combination of chemotherapy and ASCT



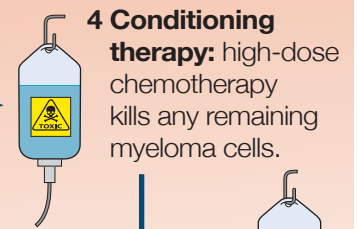
1 Induction therapy: tablets, an injection and/or intravenous infusion are given to reduce the number of myeloma cells in the bone marrow.



2 Stem cell mobilization: an injection before stem cell collection increases the number of stem cells.



3 Stem cell collection: your blood passes through a machine. The stem cells are collected and frozen.



4 Conditioning therapy: high-dose chemotherapy kills any remaining myeloma cells.



5 Stem cell reinfusion: the previously collected stem cells are thawed and returned to your blood.

9 – 12 months