

Myelodysplastic syndromes

Myelodysplastic Syndromes (MDS) are a group of hematologic malignancies in which mutations prevent the bone marrow from properly making blood stem cells that form healthy blood cells.

About MDS

In healthy people, bone marrow is responsible for making blood stem cells, which eventually transform into healthy blood cells. Low blood cell counts, known as **cytopenias**, are known as a **defining feature of MDS**.

Three types of blood cells are needed for different functions in the body. All three are affected by MDS:



Red blood cells (RBCs) work to bring oxygen from the lungs to the rest of the body



White blood cells (WBCs) help the body fight off infections



Platelets help the blood clot after an injury

Incidence



Approximately **87,000** new cases of MDS are diagnosed globally every year



An estimated **20,000** people are diagnosed with MDS in the United States each year



Median age at diagnosis is approximately **77** years old



Overall incidence of MDS is slightly higher in **males** than in females

However, the incidence of MDS is considered to be underestimated due to lack of reporting and under-diagnosis

Prognosis and Survival

For the most severe forms of MDS:

~10 months

For lower-risk MDS (LR-MDS):

~5 years



For **40%** of patients with higher-risk MDS, their disease may rapidly progress to a blood cancer called **Acute Myeloid Leukemia**.

Symptoms

Many symptoms of MDS can be life-threatening:



Anemia (low RBC count) can cause fatigue, weakness and shortness of breath



Neutropenia (low WBC count) can cause recurring infections, fevers and mouth sores or mouth ulcers



Thrombocytopenia (low platelet count) can cause easy bruising, bleeding from the nose and mouth, and a rash of small red dots on the skin

Impact of anemia

Chronic anemia and transfusion dependency are the main clinical challenges of lower-risk MDS

Anemia occurs in up to **90%** of patients with MDS

50% of patients with MDS require regular RBC transfusions within 2 years of diagnosis

Transfusion dependence and low hemoglobin levels can negatively impact survival

Risk factors



Older age



Prior cancer treatment



Family history



History of smoking



Exposure to high dose radiation or workplace benzene

Treatment

Treatment options depend on the needs of the individual patient. Some treatment options include:



Supportive care, such as blood transfusions and treatment with an erythroid maturation agent or erythroid stimulating agent



Chemotherapy



Stem cell transplant



Immunosuppressive therapy

It is important for people with MDS to understand the symptoms of their disease and to talk to a healthcare professional about appropriate treatment options.