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Memorial Sloan Kettering
Cancer Center

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Hematologist Peter Maslak, chief of MSK's Immunology Laboratory Service, is part of our team of experts in myelodysplastic syndromes.

What Is Myelodysplastic Syndrome (MDS)?

Myelodysplastic syndromes (MDSs) are a group of similar blood diseases that start in the bone marrow. There are many kinds of myelodysplastic syndrome (MY-eh-loh-dis-PLAS-tik SIN-drome). It's a type of blood cancer where there are abnormal (not normal) cells. Your bone marrow also makes fewer blood cells.

About 15,000 to 20,000 people are diagnosed with MDS in the United States each year. People often are diagnosed around age 70, but people of any age can get the disease.

MDS causes your bone marrow to make fewer blood cells. Bone marrow is the soft tissue in the spaces in the center your bones. It's mostly found in the

larger bones in your body.

MDS is caused by problems with hematopoietic stem cells (hee-MA-toh-poy-EH-tik stem sels). These are the immature cells that grow into all the blood cells in your body.

Your stem cells are always dividing and changing into the different types of blood cells. They are red blood cells (carry oxygen), white blood cells (fight infection), and platelets (prevent or stop bleeding).

Therapy-Related Myelodysplastic Syndrome and Preleukemia

Therapy-related MDS is a type of MDS. It's caused by cancer treatment with chemotherapy or radiation therapy. Some people with MDS get acute [leukemia](#) later, as a complication of MDS. Therapy-related MDS is still sometimes called preleukemia, but most people with MDS never get acute leukemia.

There's a rising number of new cases of MDS and therapy-related MDS in the United States. This is because people are living longer after treatment for cancer.

How Myelodysplastic Syndrome Starts

Hematopoietic stem cells are made in the bone marrow. That's where they become blood cells. MDS starts when one of the stem cells becomes a cancer cell. This cancer cell starts to make copies of itself, sometimes called dysplastic clones. These clones may not be able to make blood cells very well. Or, the blood cells they make may die early.

As a result, people with MDS often have low blood counts. They can get anemia when the number of healthy cells falls. Anemia is when there are not enough oxygen-carrying red blood cells.

People with MDS also get infections. They do not have enough white blood cells that fight infections. They can bruise and bleed because they have a low level of platelets. They also may have abnormal blood cells that raise their chances of bleeding and infections.

Over time, the number of very immature bone marrow cells can grow. These are called blasts. They can fill up the bone marrow, with no room for the normal blood cells and platelets made there. When this growth of blasts is very bad, it's called acute leukemia.

MSK's Experts in Treating MDS

MSK's Hematology Disease Management team cares for more than 125 people diagnosed with MDS each year. [Our experts in MDS](#) run research studies, also known as [clinical trials](#), to evaluate the latest treatments. We lecture at major conferences and institutions around the world. MSK has been named a Center of Excellence by the Myelodysplastic Syndromes Foundation.

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Call [800-525-2225](tel:800-525-2225)

Available Monday through Friday, 8 a.m. to 6 p.m. (Eastern time)

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