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ADVANCING EQUITY

Multiple Myeloma Ambassador

Women of Color in Pharma

Professional Role

Last year, an estimated 34,920 adults in the United States were diagnosed with Multiple Myeloma.

Multiple Myeloma represents 1.8% of all new cancers in the United States.

African Americans and Hispanics are more likely to have Multiple Myeloma and more likely to be diagnosed younger.

From National Cancer Institute at the National Institutes of Health (cancer.gov)

NIH NATIONAL CANCER INSTITUTE

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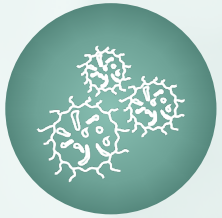
Contents

What is Multiple Myeloma?

MM

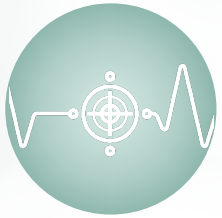
Multiple Myeloma is a **cancer of plasma cells**

Plasma cells help fight infections



Cancerous plasma cells **grow out of control**

Healthy blood cells are crowded out



Fewer healthy blood cells can cause complications

Tests and treatments are available

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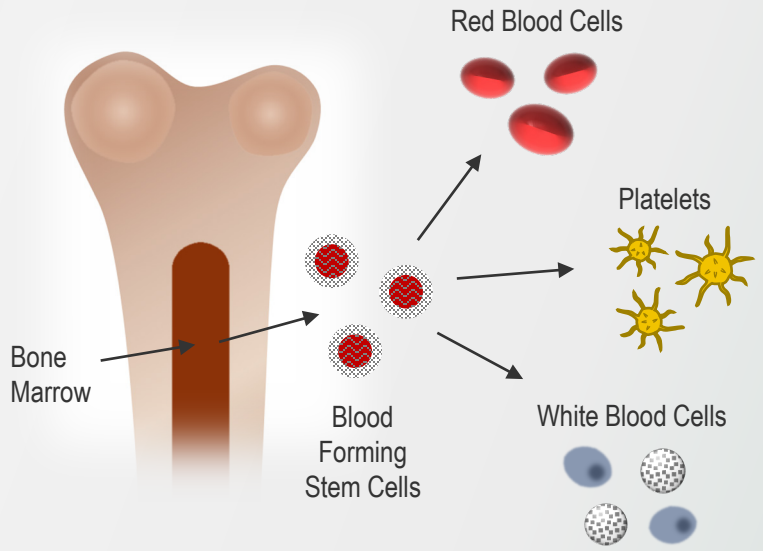
The Role of Blood Cells



Blood cells are made in the bone marrow

3 types of blood cells can grow in the bone marrow. Each blood cell type has a special function:

Red blood cells

Red blood cells **carry oxygen** from the lungs to the body

Platelets

Platelets help with **blood clotting**

White blood cells

White blood cells help **fight infections**

Plasma Cells and Your Immune System

NORMAL Plasma

Plasma

Plasma is a type of **white blood cell** that makes antibodies

Antibodies

Antibodies are proteins made by plasma cells to help fight disease

Healthy Immune Response

Antibodies help **fight disease** by recognizing and attacking germs

ABNORMAL Plasma

Cancerous Plasma Cells

Abnormal, cancerous plasma cells **multiply rapidly** and crowd out healthy blood cells in the bone marrow

Abnormal Antibodies

Cancerous plasma cells make **abnormal antibodies** called M proteins that do not work normally

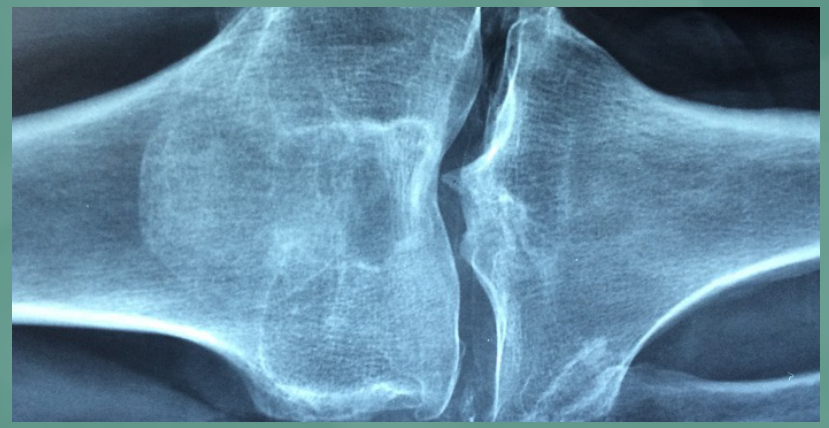
Complications

Less space for healthy blood cells plus large amounts of M proteins can cause **pain and complications**

Multiple Myeloma and Plasma Disorders

In Multiple Myeloma:

- cancerous plasma cells **multiply rapidly**
- there is **less room** for healthy red blood cells, platelets and white blood cells
- abnormal plasma cells make **abnormal antibodies** the body can't use
- **damage to bones** can occur which can cause bone pain and increased calcium in the blood



When cancerous plasma cells multiply:

- healthy blood cells in the bone marrow get crowded out
- fewer healthy blood cells can lead to anemia, excessive bleeding and poor ability to fight infections
- large amounts of abnormal antibodies called M protein are produced
- M proteins accumulate in the body and can cause damage to kidneys and other organs
- malignant tumors can form in the bone marrow
- when more than one mass of abnormal plasma cells forms, this is called Multiple Myeloma

About Multiple Myeloma

Causes and Risk Factors

For Black and Hispanic Communities

Disease Classifications

Signs and Symptoms

Causes of Multiple Myeloma

There is no clear cause of Multiple Myeloma.

There is no obvious risk to avoid, like avoiding smoking to prevent lung cancer.

Some known risk factors for Multiple Myeloma include:

Age

Most people diagnosed are **in their mid-60s**

Sex

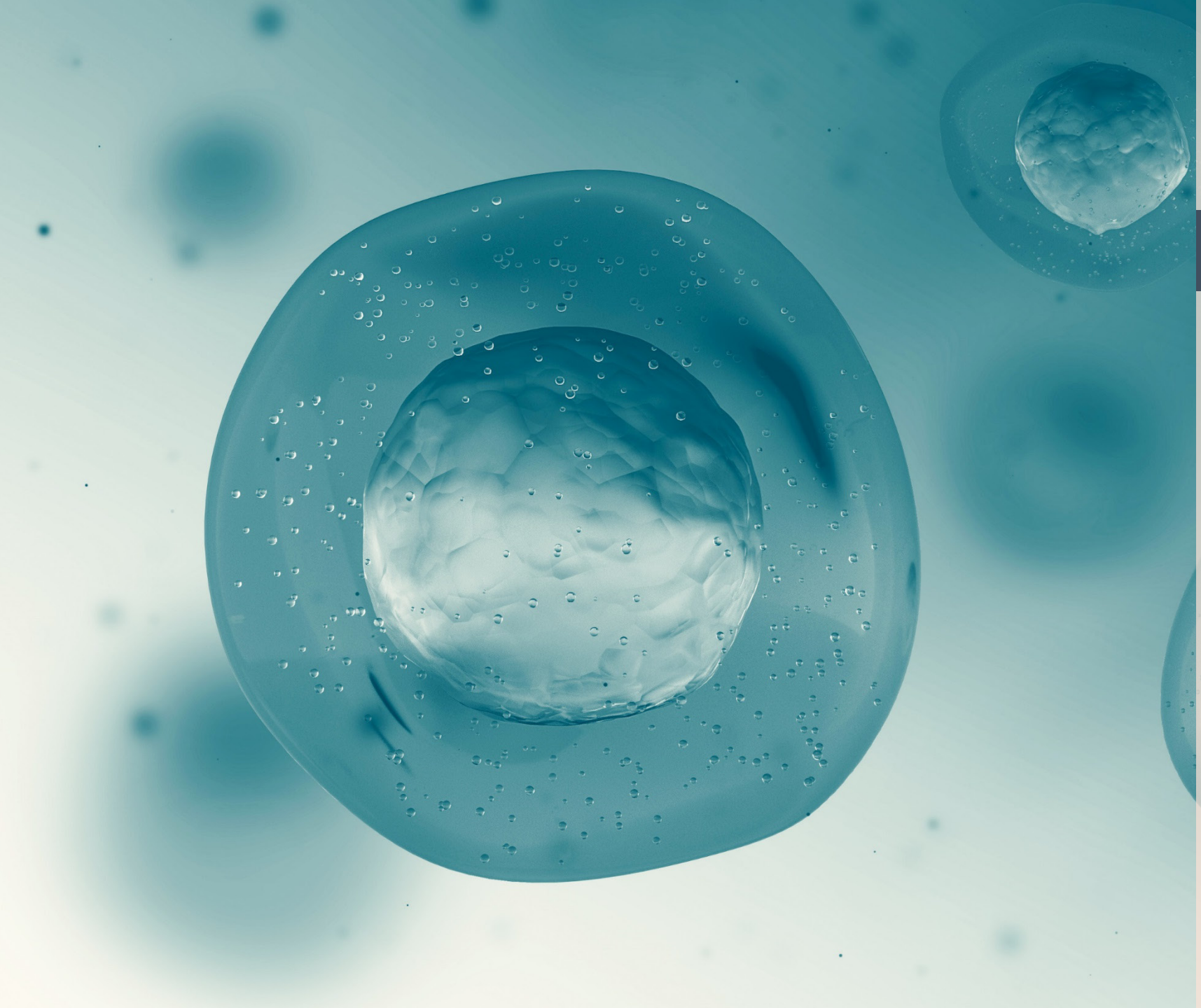
The risk of Multiple Myeloma is **higher in men**

Race

Multiple Myeloma is more common in **Blacks and Hispanics**

Family History

Multiple Myeloma risk is higher if found in **a close relative**



Living with Multiple Myeloma

Diagnosis

Prognosis

Treatments

What to do if Diagnosed

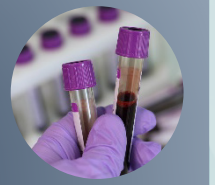
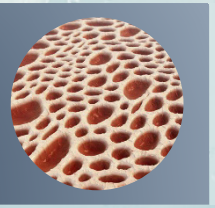
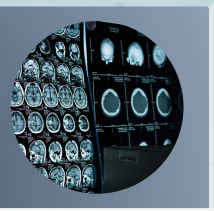
Diagnosis

Multiple Myeloma may have no symptoms until it is in an advanced stage.

Tests might be needed if your doctor thinks you may have Multiple Myeloma.

Multiple Myeloma is hard to diagnose early.

It is sometimes found accidentally when routine tests find high levels of M protein.

Blood Tests		Blood tests can look for M proteins. Blood tests also provide information about blood cell counts, kidney function, and calcium levels.
Urine Test		Urine tests can also look for M proteins. These are called Bence Jones proteins in urine tests.
Bone Marrow Exam		Your doctor may collect a bone marrow sample to examine in order to detect myeloma cells.
Imaging Tests		X-Ray, MRI CT or PET scans may be used to look for bone problems associated with Multiple Myeloma.

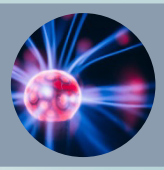
Treatments

Treatments continue to advance.

Many different treatment options are available depending on your diagnosis

- **Drug therapies**
- **Stem Cell transplants**
- **Clinical trial/experimental**
- **Supportive care**

The best treatment will depend on the stage of cancer and general overall health.

Targeted drug therapy		Drugs that target cancer cells can cause them to die and stop spreading
Immunotherapy		Cancer cells make proteins that make them seem normal to your body; immunotherapy drugs interfere with this which prompts your immune system to fight the cancer cells
Chemotherapy		Special drugs are used to kill cancer cells. Chemotherapy is used to kill diseased cells before a bone marrow transplant.
Radiation therapy		A high-powered energy beam is used to kill cancer cells in a specific area
Bone marrow transplant		Diseased bone marrow is replaced with healthy bone marrow cells. A bone marrow transplant may make sense depending on age, overall health, and how much the disease has progressed.

Your doctor may want to repeat or try a combination of treatments, if myeloma does not respond.

Your doctor may also have information about whether **clinical trials** could be a good option.

About Clinical Trials

Testing is required for safety and efficacy whenever new medicines, treatments or devices are developed.

This is typically done through a **Clinical Trial**.

Clinical Trials help researchers:

- **Learn** about new treatments and drugs
- **Ensure** safety
- **Detect** new diseases early
- **Manage** diseases that already exist

About Clinical Trials:

- *Benefits of Participating*
- *Importance of Diversity*
- *Patient Protections*
- *How to Find a Clinical Trial*

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References and Resources

Resource	Description	URL
Multiple Myeloma Research Foundation	World's largest nonprofit focused on accelerating a cure for multiple myeloma	themmrf.org
American Cancer Society	Funding and conducting research, and sharing information about cancer	cancer.org/cancer/multiple-myeloma
National Cancer Institute at the National Institutes of Health (NIH)	The federal government's principal agency for cancer research and training	cancer.gov/types/myeloma
Mayo Clinic	A nonprofit committed to contributing to health and well-being through clinical practice, education and research	mayoclinic.org/diseases-conditions/multiple-myeloma
MedlinePlus	A service of the National Library of Medicine (part of the NIH) providing an online health information resource	medlineplus.gov/multiplemyeloma
International Myeloma Foundation	The largest organization focusing specifically on multiple myeloma	myeloma.org
American Academy of Family Physician	Dedicated to strengthening family physicians and the communities they care for	aafp.org
When We Trial	Provides facts about diversity in clinical trials and Black breast cancer	whenwetrial.org