Understanding Multiple Myeloma

A Patient's Guide to Biomarkers, Precision Medicine, and Clinical Trials

*Created in collaboration with **Tigerlily Foundation** and **Bristol Myers Squibb***

What is Multiple Myeloma?

Multiple myeloma is a type of blood cancer that starts in plasma cells, which are white blood cells found in the bone marrow. Because it develops in the bone marrow, multiple myeloma is sometimes referred to as bone marrow cancer.

Healthy plasma cells help protect the body from infection by producing antibodies. In multiple myeloma, abnormal plasma cells grow out of control and crowd out healthy blood cells.

Over time, multiple myeloma may affect:

Bones	**Kidneys**	**The Immune System**	**Blood Cell Production**	**Energy Levels**

Multiple myeloma is considered chronic but treatable cancer for many people. While there is currently no cure for most patients, advances in research have led to new treatments that may help people live longer and maintain a good quality of life.

Who May Be Affected?

Multiple myeloma can affect anyone, but it is more common in:

Older Adults

Black Communities

Men

Individuals with a family history of blood cancers

Researchers continue studying why multiple myeloma occurs more often in Black individuals. Current evidence suggests the difference is likely due to a combination of genetic, biological, environmental, and healthcare factors, not race alone.

Common Signs and Symptoms

Symptoms often develop gradually and may be mistaken for other health conditions.

Common symptoms may include:

- **Bone Pain, especially in the back, ribs, or hips**
- **Fatigue**
- **Weakness**
- **Frequent Infections**
- **Shortness of Breath**
- **Unexplained Weight Loss**
- **Numbness or Tingling**
- **Kidney Problems**
- **Fractures or Weakened Bones**

Some people have no symptoms at the time of diagnosis.
Persistent or unusual symptoms should be discussed with a healthcare provider.

How Multiple Myeloma is Diagnosed

Diagnosing multiple myeloma typically involves several tests that help healthcare teams understand the disease and develop a treatment plan.

Testing may include:

- Blood tests
- Bone marrow biopsy
- Imaging scans
- Biomarker testing
- Genetic testing
- Urine tests
- Blood chemistry tests to evaluate organ function

Healthcare teams may also evaluate:

- Abnormal proteins
- Chromosome changes
- Genetic abnormalities
- Bone damage
- Kidney function

Your care team may include hematologists, oncologists, pathologists, radiologists, nurse navigators, and other specialists who work together to support your care.

Why is Multiple Myeloma Research Important?

Researchers continue to learn that multiple myelomas can behave differently from person to person. Advances in research have helped healthcare teams better understand the genetic, molecular, and immune system factors that may influence how the disease develops, progresses, and responds to treatment.

This growing understanding is helping move multiple myeloma care toward a more personalized approach—one that considers the unique characteristics of a person's disease in addition to their symptoms, overall health, and treatment goals.

Understanding Biomarkers and Precision Medicine

Biomarkers and genetic testing help healthcare teams better understand the unique characteristics of multiple myeloma and guide treatment decisions.

Because multiple myeloma can change over time, biomarker and genetic testing may be repeated if the disease returns or stops responding to treatment. Updated testing can help guide future treatment decisions.

Testing may help:

- Understand disease risk
- Identify treatment options
- Monitor disease progression
- Evaluate treatment response
- Determine clinical trial eligibility

Examples of testing may include:

- Cytogenetic testing
- Genomic testing
- Fluorescence in situ hybridization (FISH) testing
- Molecular profiling
- Minimal Residual Disease (MRD) testing

The information gathered through these tests may help healthcare teams personalize care based on a person's individual disease characteristics.

Questions to Ask About Testing

- ☐ Have I received genetic or biomarker testing?
- ☐ What tests were performed, and what do they measure?
- ☐ What do my results mean?
- ☐ Is my disease considered standard-risk or high-risk?
- ☐ Should I receive Minimal Residual Disease (MRD) testing?
- ☐ How might these results affect my treatment plan?
- ☐ Am I eligible for a clinical trial?

Understanding Risk, Prognosis, and Staging

Multiple myeloma often develops slowly over time. Some people are first diagnosed with MGUS (Monoclonal Gammopathy of Undetermined Significance), a condition in which an abnormal protein is found in the blood. Most people with MGUS may never develop multiple myeloma, but regular checkups may be recommended.

Another condition called Smoldering Multiple Myeloma (SMM) is an early form of the disease. People with smoldering multiple myeloma usually do not have symptoms and may not need treatment right away. Instead, their healthcare team monitors them closely because the disease can become active over time.

When multiple myeloma becomes active, healthcare providers use staging and other tests to learn more about the disease and help guide treatment decisions.

Two commonly used staging systems are the International Staging System (ISS) and the Revised International Staging System (R-ISS). These systems combine information from blood tests, genetic testing, and other laboratory results to estimate how the disease may behave and help guide treatment planning.

Healthcare providers also look at other factors, including:

- Genetic changes in myeloma cells,
- Kidney function,
- Overall health, age,
- and how well the disease responds to treatment.

Together, this information helps healthcare teams better understand a person's risk, prognosis, and the most appropriate treatment options.

What does "prognosis" mean?

A prognosis is an estimate of how a disease may behave over time. It is based on many factors, including the stage of the disease, laboratory results, biomarkers, overall health, and how well the disease responds to treatment. A prognosis is not a prediction of exactly what will happen, and it may change as new information becomes available.

Because every person's experience with multiple myeloma is unique, staging is only one part of the overall picture. Your healthcare team can help you understand what your test results mean and how they may affect your treatment plan.

Treatment Options May Include

Treatment plans are personalized and may be influenced by:

- Biomarker results
- Age
- Overall health
- Symptoms
- Treatment goals
- Previous therapies

Treatment options may include:

- Targeted therapy
- Immunotherapy
- Chemotherapy
- Corticosteroids
- Stem cell transplant
- CAR T-cell therapy
- Bispecific antibodies
- Supportive care
- Clinical trials
- Maintenance Therapy

Some therapies are designed to target specific proteins, pathways, or immune system responses associated with multiple myeloma.

Healthcare teams balance treatment effectiveness with quality of life when developing a care plan.

Treatment often occurs in phases and may include induction therapy, stem cell transplant (for eligible patients), consolidation, and maintenance therapy. Your healthcare team will recommend a plan based on your individual situation.

Multiple Myeloma Research and Clinical Trials

Clinical trials continue to advance the understanding and treatment of multiple myeloma. Researchers are studying new approaches to improve outcomes, reduce side effects, and personalize care for people living with the disease.

Current areas of research include:

- CAR T-cell therapies
- Bispecific antibodies
- Targeted therapies
- New treatment combinations
- Immunotherapies
- Biomarker-guided treatment approaches
- Minimal Residual Disease (MRD)-guided treatment strategies
- Improving quality of life and symptom management

Clinical trials are available for people at many stages of multiple myeloma, including those who are newly diagnosed, have relapsed disease, or have treatment-resistant disease. Participation is always voluntary, and every study has specific eligibility requirements.

Bliss COLLECTIVE

If you would like to learn more about clinical trials or whether one may be right for you, speak with your healthcare team.

Additional information is available in the **Understanding Clinical Trials** and **Mental Health resources.**

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