MULTIPLE MYELOMA Research Foundation

Multiple Myeloma 101 & MMRF Overview

Presented by The Patient Navigation Center (PNC) - Brittany Hartmann, RN-BSN, ONN-CG

PREPARED FOR CENTRAL NJ SUPPORT GROUP

5/6/26

Mission, Vision & Strategic Objectives

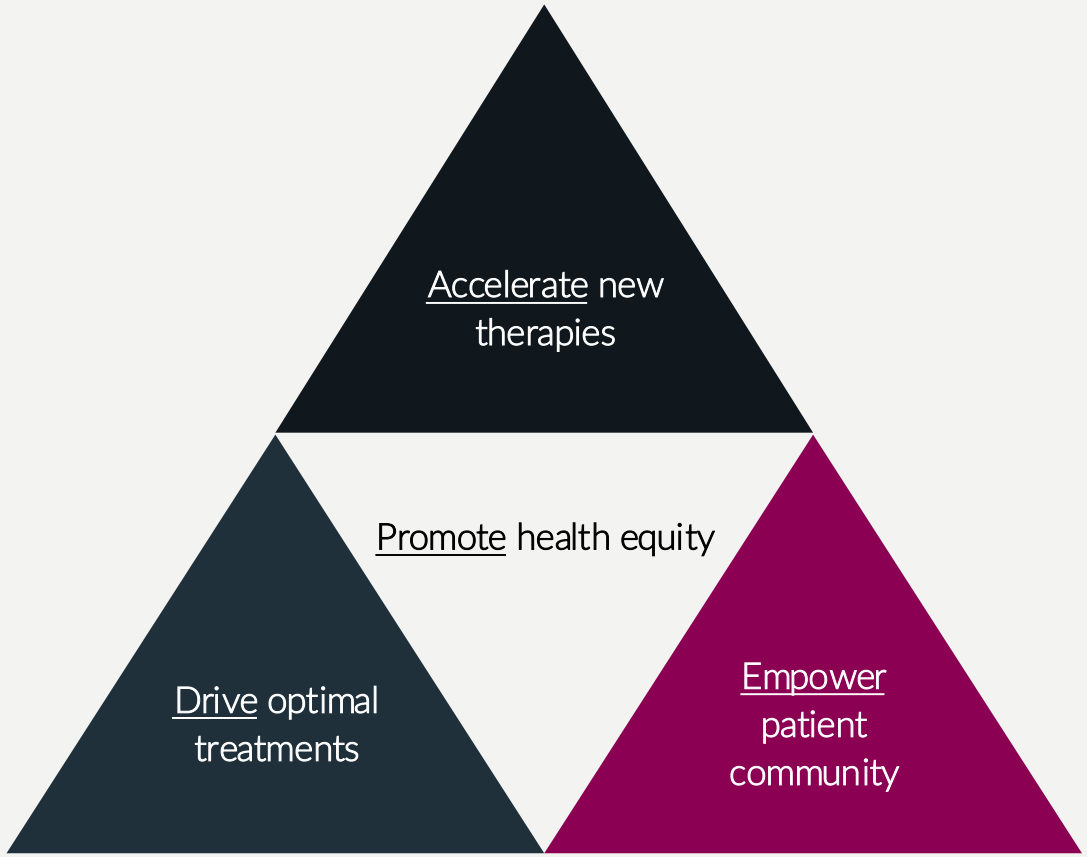
Our Mission

To accelerate a cure for each and every multiple myeloma patient.

Our Vision

A world free of multiple myeloma.

Our Strategic Objectives



Delivering On Our Mission

The MMRF acts with urgency to ensure that patients have effective, more personalized treatments available and the resources necessary to increase their survival and improve their quality of life.

Accelerate the Development of Novel Therapies

- Venture philanthropy
- Clinical trials

Drive More Personalized, Optimal Treatment Approaches

- Multi-institutional data generation initiatives
- Open data sharing platform

Empower Patients and the Entire Community

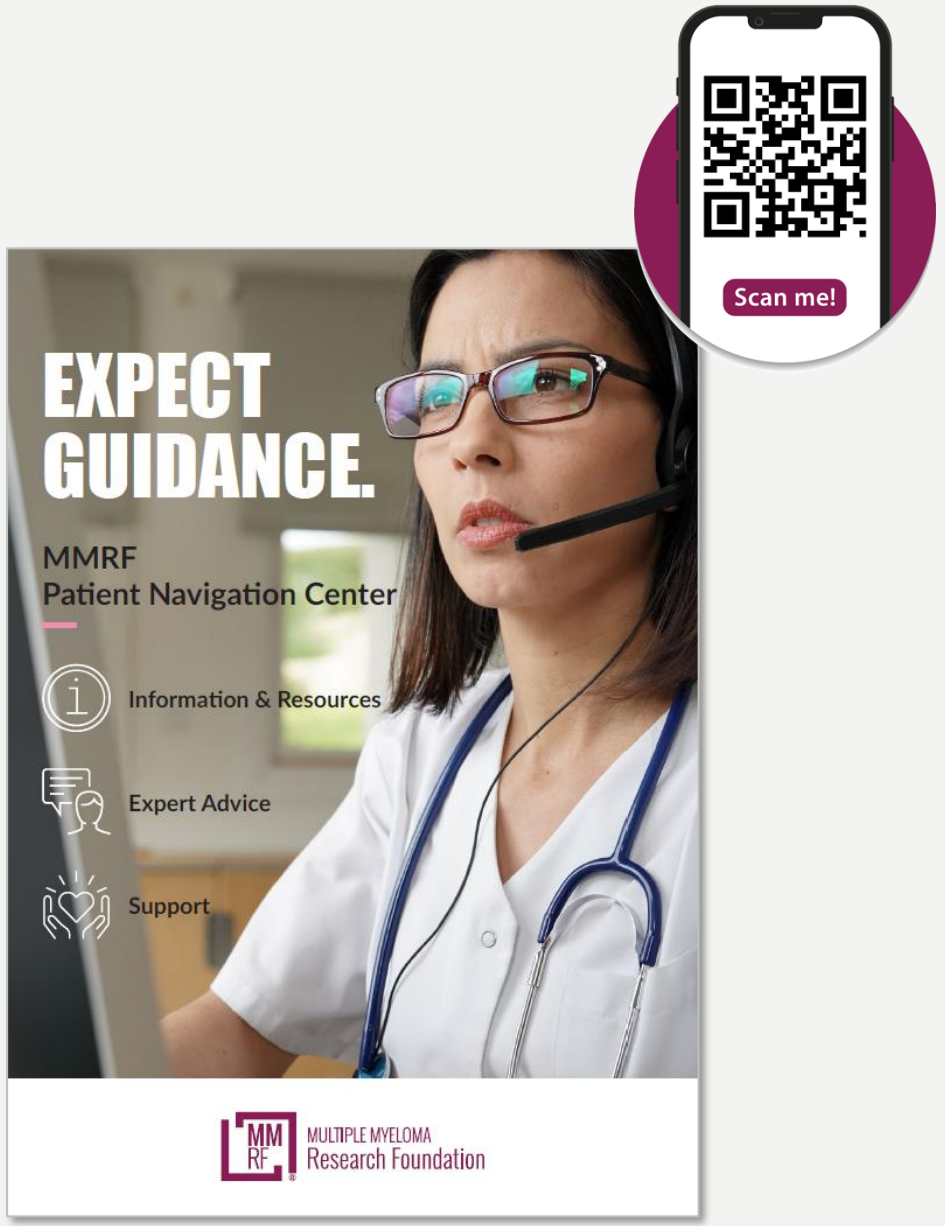
- Educational programming and patient navigation
- Grants to increase researcher and clinician diversity

MMRF Patient Navigation Center

Get support through every step of your multiple myeloma journey.

Give the Patient Navigation Center
a call Monday—Friday, 9 AM-7 PM ET

1-888-841-6673 to learn more.



Nurse Staffed Patient Navigation Center

Grace Allison
RN, BSN, OCN, LIONS

Grace has over 30 years of experience as a myeloma nurse and is very dedicated to navigating patients. She was nominated for the CURE Extraordinary Healer award in 2022 and earned her American Cancer Society Leadership in Oncology Navigation (ACS LIONS) certification in 2025.

Brittany Hartmann
RN-BSN, ONN-CG

Brittany has great experience with myeloma patient's concerns after working in a busy top myeloma center. She is wonderful resource for empowering patients. She achieved her Oncology Nurse Navigator-Certified Generalist (ONN-CG) certification in 2025 through the Academy of Oncology Nurse & Patient Navigators (AONN+).

Erin Mensching
RN, BSN, BA, OCN

Erin began with the PNC in 2019 after working for several years on an acute oncology/palliative care floor at Norwalk Hospital. She is passionate about understanding patients' needs holistically and uncovering how to navigate them with the best resources and tools that are available.

How does the Navigation Center help myeloma patients and families?

Locate a specialist

Provide myeloma education

Offer emotional support

Connect with support groups

Navigate financial options

Recommend trustworthy resources

Find a clinical trial

Contact Patient Navigation Center

Monday to Friday | 9 am to 7 pm ET

1-888-841-MMRF(6673)

patientnavigator@themmrf.org

Or find us on the website here:

TheMMRF.org/resources/patient-navigator-center/

The MMRF Myeloma Mentors Program

Myeloma Mentors are trained patient mentors living with myeloma, who share resources and personal experiences to help inform, empower, and support other patients and caregivers.

- The phone-based program connects you one-on-one with a trained mentor
- Patient mentors are living with multiple myeloma in various stages and classifications, and they have undergone a variety of treatments

Patient Education Programs 2026

Multi-channel offerings

Patient Summits

Patient Webinars

Myeloma Matters Podcasts

FB Livestreams

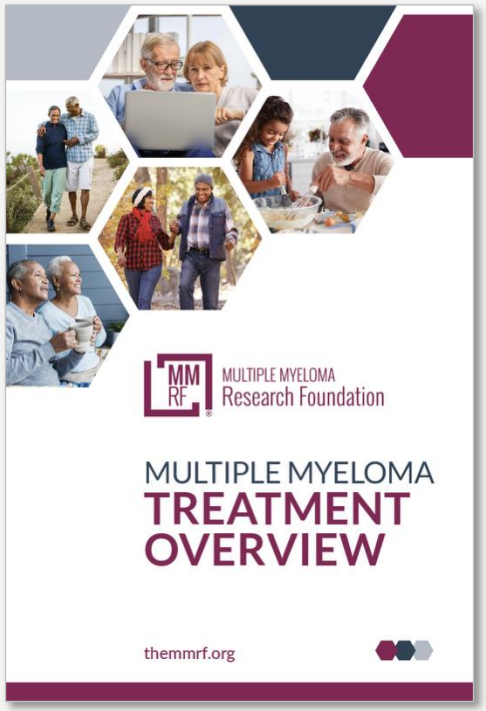
Conference Highlights

Nursing Fireside Chats

The MMRF Patient Toolkit

High Impact Topic Videos

Fast Facts in Myeloma Infographics



Join the MMRF Community!

Walk Program

Spring Events:

Tampa | 4.25.26

San Francisco | 5.2.26

Dallas | 5.9.26

Detroit | 5.16.26

Charlotte | 6.6.26

Fall Events:

Twin Cities| 9.19.26

Boston | 9.19.26

Washington D.C | 9.26.26

NYC | 10.10.26

Philadelphia | 10.17.26

Chicago | 10.24.26

LA | 11.14.26

Scottsdale | 12.12.26

- **Atlanta Virtual**
- **Houston Virtual**
- **National Virtual**

Half & Full Marathons

- **NYC Half Marathon** | 3.15.26
- **Paris Marathon** | 4.12.26
- **Boston Marathon** | 4.20.26
- **London Marathon** | 4.26.26
- **Cape Town Marathon** | 5.24.26
- **Sydney Marathon** | 8.30.26
- **Berlin Marathon** | 9.27.26
- **Chicago Marathon** |10.11.26
- **Marine Corps Marathon** | 10.26.26
- **NYC Marathon** | 11.01.26
- **runDisney 5K, 10K, Half, Full and Goofy** | Jan 2027

Endurance Program

MM4MM Kilimanjaro Hike | 8/22-9/1

- **Five Boro Bike Tour** | 5/03
- **Road to Victories** | Sept 2026

Create Your Own Fundraiser

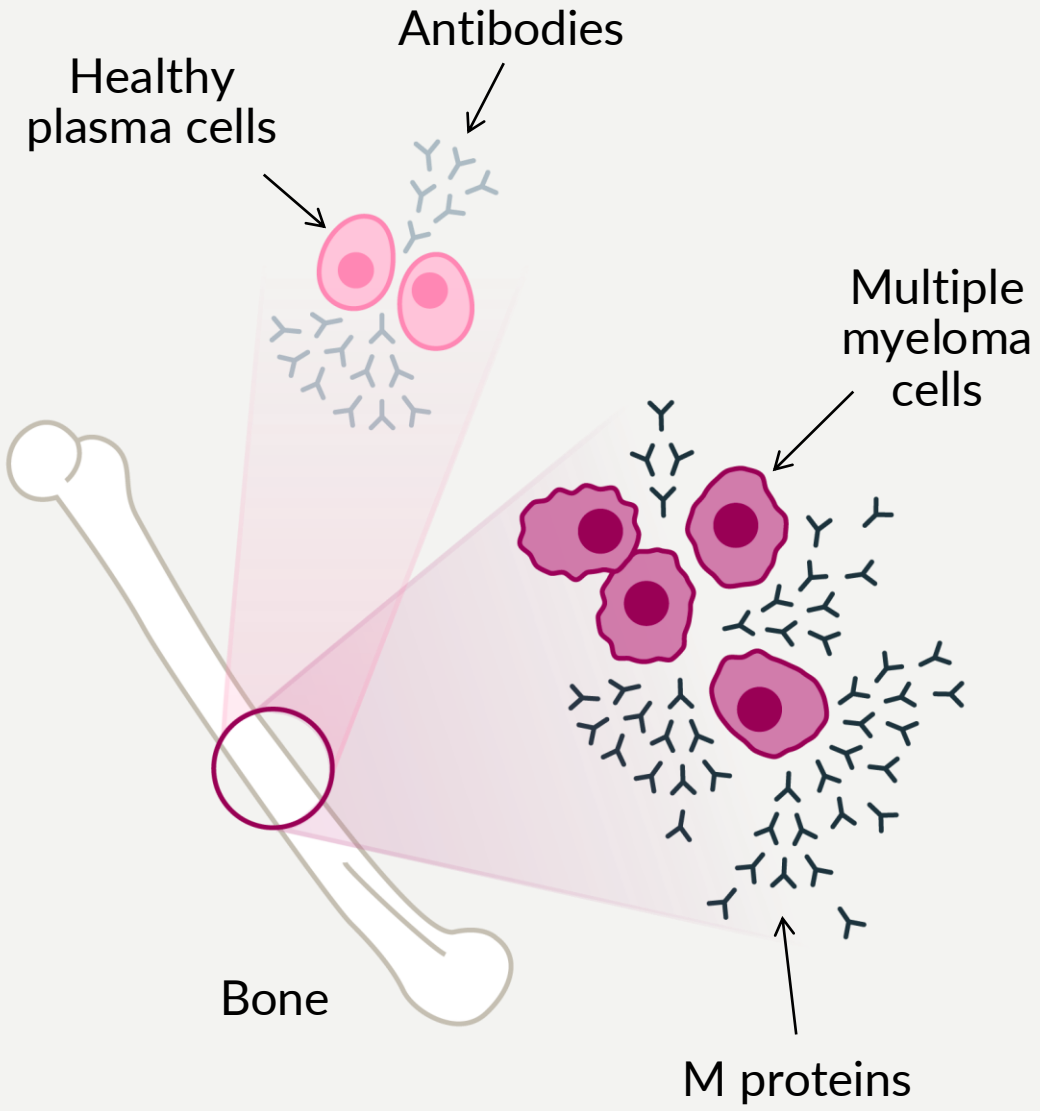
- Scan Now to Join!

About the Multiple Myeloma Disease Spectrum

Multiple myeloma (and precursor conditions, such as MGUS) are disorders of the plasma cells

Plasma cells are cells in the bone marrow that make antibodies.

- Healthy plasma cells help your body fight infections
- Abnormal plasma cells (myeloma cells) make antibodies called monoclonal proteins (M proteins)



Myeloma cells crowd out healthy blood cells in the bone marrow

As myeloma cells grow and multiply in the bone marrow, they reduce your body's ability to make healthy blood cells. This can cause:

Symptom	Effects
 **Anemia (low red blood cells)**	• Fatigue • Shortness of breath • Feeling weak
 **Infections**	• Fever • Fatigue • Pain • Swelling
 **Weakened bones**	• Pain • Fractures • Bone loss
 **Kidney problems**	• Fatigue • Swelling in the legs and ankles • Feeling of needing to pee more or less than usual

What determines active myeloma?

Your lab results show where you are in the multiple myeloma disease spectrum and can help you understand your health.

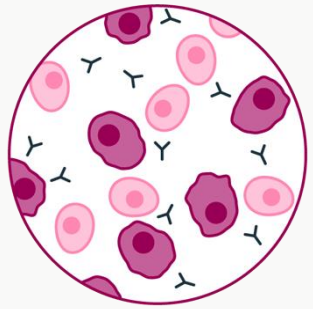
Monoclonal gammopathy of undetermined significance

MGUS

M protein level
<3 g/dL
AND
Myeloma cells in bone marrow
<10%

Smoldering multiple myeloma

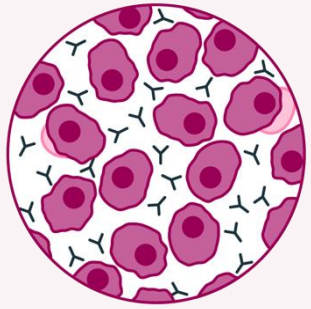
SMM



M protein level
≥3 g/dL
OR
Myeloma cells in bone marrow
≥10%-60%

Multiple myeloma

MM



M Protein level: ≥3 g/dL
OR
Myeloma cells in bone marrow: ≥60%
SLiM CRAB criteria:
How myeloma is affecting the bone marrow, blood, bones, and kidneys

Tests to Diagnose and Monitor Multiple Myeloma

Many tests are used to diagnose and monitor multiple myeloma

Test	Purpose
Blood tests	Specific tests, such as a Complete Blood Count (CBC), can detect multiple myeloma and monitor the effects of treatment
Urine tests	High protein levels in the urine might show kidney damage caused by multiple myeloma
Bone marrow biopsy	A bone marrow biopsy measures the percentage of myeloma cells in the bone marrow, helping to diagnose and monitor myeloma
Imaging	X-rays, MRIs, CT scans, and PET scans can show damage to bones caused by multiple myeloma and potential spread

Blood Tests

Blood tests help diagnose myeloma and monitor treatment

Blood Test	Purpose
Serum protein electrophoresis (SPEP)	Looks for the presence of M proteins, which can help confirm if you have multiple myeloma
Complete blood count (CBC)	Measures the numbers of red blood cells, white blood cells, and platelets to see how myeloma cells in the bone marrow are affecting healthy blood cells
Complete metabolic panel	Looks at levels of creatinine and sodium to measure kidney function and electrolyte balance
Free light chain test	Looks for a higher level of certain proteins, including kappa or lambda light chains, which can be a sign of multiple myeloma
Additional blood markers	Looks at levels of Beta 2 microglobulin and lactate dehydrogenase (LDH) to determine how aggressive your disease might be

Monitoring multiple myeloma with SPEP

What is M protein

- M protein (also known as myeloma protein, monoclonal protein, or paraprotein) is an antibody made by myeloma cells
- Doctors use a blood test called serum protein electrophoresis (SPEP) to look at M protein levels to diagnose and monitor myeloma

Why is M protein important?

- Your M protein level, also called an M spike, can help doctors understand how much cancer is in your body and if your treatment is working

M spike will usually be its own section on a lab report

Monitoring free-light chain myeloma

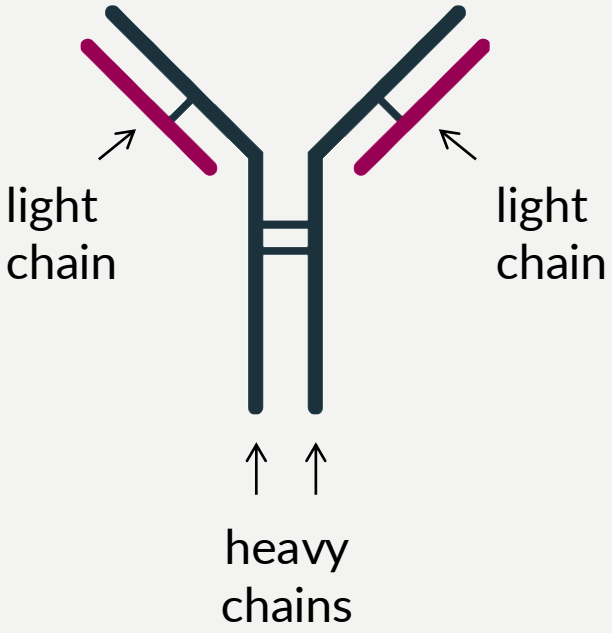
Free-light chain myeloma

- Myeloma patients with free-light chain myeloma only makes a part of the M protein called light chains
- Light chains in the blood (called free-light chains) can be measured in these patients instead of the M spike to monitor myeloma

What is the kappa/lambda ratio?

- Compares two types of light chains (kappa and lambda)
- A kappa/lambda ratio outside of the normal range can indicate:
  - **Active disease:** High levels of one type of light chain can suggest active myeloma
  - **Treatment response:** Decreasing levels of light chains indicate a positive response to treatment

M Protein Made by Myeloma Cells



Complete blood count (CBC) tests look for signs of MM and overall health

Feature	Details
What is it?	Measures the number and quality of blood cells to diagnose multiple myeloma and side effects of treatment: • **Red blood cells (RBCs),** which carry oxygen to body tissues • **White blood cells (WBCs),** which help fight infection • **Platelets,** which help prevent bleeding
What is it for?	If too many myeloma cells are in the bone marrow some of these blood cell levels can be low, which can cause complications: • **Anemia:** A condition caused by low numbers of red blood cells • **Bleeding:** Low numbers of platelets in your blood can cause bleeding • **Infections:** Low white blood cells put you at risk of developing an infection

Urine Tests

Urine tests can help confirm multiple myeloma diagnosis, but blood tests are more common

Feature	Details	
	Urine Protein Electrophoresis (UPEP)	**24-Hour Urine Test**
What is it?	• Checks urine for M protein, a protein produced by myeloma cells, to diagnose multiple myeloma or monitor response to treatment • Often used in clinical trials	• Detects light chains in the urine (also called Bence Jones proteins) • Now often replaced by blood free light chain tests, which are easier and give faster results
What is it for?	Measuring M protein or free light chains helps determine how much multiple myeloma is in your body	

Bone Marrow Biopsy

Bone marrow biopsies and multiple myeloma

Feature	Details
What is it?	A sample of bone marrow is taken from the lower hip bone (lower back area) to see if myeloma cells are in the bone
What is it for?	A bone marrow biopsy can be used to: • Confirm a myeloma diagnosis • Identify chromosomal features that may help predict your prognosis • Determine if you have high-risk or standard-risk disease • Track your response to therapy
How is a biopsy done?	• A bone marrow biopsy can be done in a clinic, hospital, or doctor's office • Local anesthetic (numbing medicine) is used to numb the area, but you may still feel pressure and brief pain during the procedure • Ask your doctor whether mild sedation is an option to help you feel more comfortable

Genetic changes in multiple myeloma

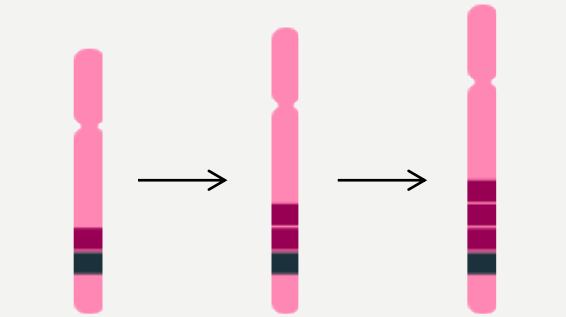
Normal chromosomes:

- Chromosomes have two sections, called arms: a short arm (“p”) and a long arm (“q”)

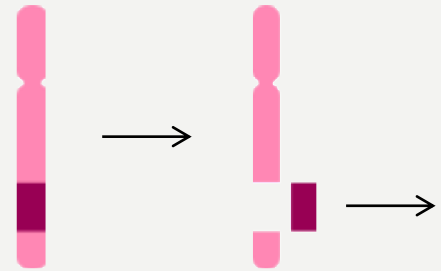
Abnormal chromosome features:

- **Gain or amplification is having extra copies of one or more chromosome pieces**
  - Example: a 1q21 gain occurs when there is an extra copy of a piece of chromosome
- **Deletion is the loss of a chromosome piece**
  - Example: a 14q deletion occurs when a portion of the "q" arm of chromosome 14 is missing
- **Translocation is when pieces from two different chromosomes swap places**
  - Example: t(4;14) occurs when parts of chromosome 4 and 14 swap places

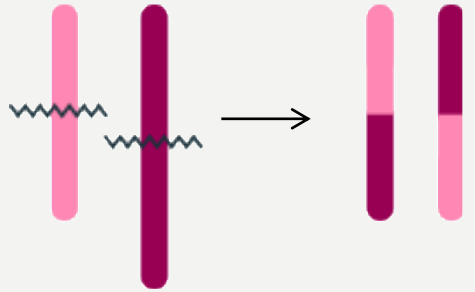
Gain or amplification



Deletion



Translocation



Bone marrow biopsies can also identify minimal residual disease (MRD)

MRD is the tiny number of myeloma cells that may remain after treatment and could cause relapse. When myeloma cells are undetectable, a patient is MRD-negative

How is MRD measured?

- MRD can be detected by a bone marrow biopsy
- MRD testing is more sensitive than routine blood tests and can detect even very small numbers of myeloma cells
- MRD is sometimes used in clinical trials as an endpoint (a way to measure treatment effectiveness) to see how deeply treatment has worked

Why MRD matters

- Some data show that patients who are MRD-negative after a stem cell transplant and therapy completion may be able to safely stop treatment, with ongoing monitoring
- Being MRD-negative over time (sustained MRD-negative) is linked with longer remission and better outcomes

Imaging Tests

Imaging tests for multiple myeloma

Feature	Details
What is it?	X-ray, MRI, CT scan, and PET scans look inside your body
What is it for?	• **MRI:** Checks bone marrow involvement or disease spread • **CT scan:** Looks at bone lesions and other structural changes • **PET scan:** Checks the metabolic activity of myeloma cells and detects active cancer
How is it done?	• **MRI**: Magnets and radio waves create detailed images of your bones and soft tissues • **CT scan**: Detailed cross-sectional images of your body are taken using X-rays • **PET scan**: Areas of high metabolic activity detected after injection
How often is it done?	• **MRI**: At diagnosis and as needed to monitor disease spread • **CT scan**: At diagnosis and periodically to assess bone lesions • **PET scan**: At diagnosis and periodically to monitor treatment response

Monitoring Myeloma Over Time

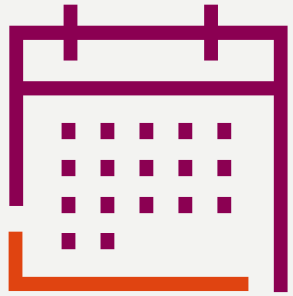
Setting up a monitoring schedule

What determines your monitoring schedule?

- **How often you need tests can vary patient to patient**
- **Key factors include:**
  - **Type of treatment:** different treatments may require different monitoring frequencies
  - **Your doctor's recommendation**
  - **Myeloma status:** the stage and characteristics of your multiple myeloma can influence how often tests are needed

Can I get my tests done locally?

- **Yes. Even if your specialist is located farther away, you can have your tests done near your home**



Your treatment team will help set up a monitoring schedule based on the tests you need

Tips for tracking your test results

- **Try to get your lab tests done at the same place** since tests may be reported differently from one lab to another
- **Understand that test results can change over time**; it's important to look at trends, not one-time readings
- **Everyone's lab results are different.** Your normal results may not be the same as someone else's
- **Ask your doctor which results are the most important for you**

Key Takeaways

Key takeaways

Knowing what tests are important and being able to understand their results can help you feel empowered to make decisions about your treatment.

- Blood and urine tests are essential throughout your journey to diagnose multiple myeloma, monitor the disease, and assess your response to treatments
- Understanding your bone marrow biopsy results can confirm your diagnosis, track your therapy response, and analyze the chromosomal features involved in your myeloma
- Detecting certain chromosomal features can help determine your treatment plan
- MRD testing can help monitor disease after treatment. Patients can live with complications even if they are not MRD-negative

Thank you! Any questions?