NEWLY DIAGNOSED
MULTIPLE MYELOMA

themmrf.org
ABOUT THE MMRF

The Multiple Myeloma Research Foundation (MMRF) is the largest nonprofit in the world solely focused on accelerating a cure for each and every multiple myeloma patient. We drive the development and delivery of next-generation therapies, leverage data to identify optimal and more personalized treatment approaches, and empower myeloma patients and the broader community with information and resources to extend their lives.

Central to our mission is our commitment to advancing health equity so that all myeloma patients can benefit from the scientific and clinical advances we pursue. Since our inception, the MMRF has committed over $500 million for research, opened nearly 100 clinical trials, and helped bring 15+ FDA-approved therapies to market, which have tripled the life expectancy of myeloma patients.

To learn more about the MMRF, visit themmrf.org.

To speak to a patient navigator at the Patient Navigation Center, call 1-888-841-6673 or email patientnavigator@themmrf.org.
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INTRODUCTION

A multiple myeloma diagnosis can be overwhelming, but the treatment landscape for patients has more options than ever, and there are many paths forward from a multiple myeloma diagnosis. Multiple myeloma can be a highly manageable disease.

This booklet describes some of the first steps you will want to take after receiving a myeloma diagnosis, as well as what you can expect from your treatment team. Words that may be unfamiliar are bolded and defined in the Glossary (page 17).

The information in this booklet is not intended to replace the services or advice of trained health care professionals. Please consult with your health care provider regarding specific questions relating to your health, especially questions about myeloma diagnosis or treatment.

STEPS AFTER DIAGNOSIS—GETTING ON THE RIGHT TRACK

To ensure the best possible outcome, newly diagnosed myeloma patients need to take a number of steps, including finding the right doctor or treatment center, getting the right tests, and working with the doctor to determine the right treatment plan.

Key steps for the best possible care for myeloma patients.

THE RIGHT TRACK

Right Team
Access experts and centers that have extensive experience treating multiple myeloma

Right Tests
Get the information, tests and precise diagnoses to make the right treatment decisions

Right Treatment
Work with your team to decide on the best treatment plan and identify clinical trials that are right for you

Share at Every Step
You can help yourself while helping others.
THE RIGHT TEAM

For diseases like multiple myeloma that are uncommon or complicated, finding a doctor that specializes in that disease is important. When considering potential doctors, don’t be afraid to ask about their experience treating multiple myeloma. A hematologist or hematologist-oncologist who focuses on multiple myeloma is the doctor most likely to be aware of the latest research and newest treatment options.

If seeing a hematologist or hematologist-oncologist is not possible, you can be treated by another specialist, such as a medical oncologist, who may consult with a hematologist.

Often, specialists work out of specialized cancer treatment centers. Treatment centers that frequently see myeloma patients have been shown to produce better outcomes than those that see fewer myeloma patients.

You may not live close enough to a myeloma specialist to see them frequently. Nevertheless, consulting with a specialist at important times, such as at diagnosis or relapse, may help to ensure that you receive the best care possible.

During treatment, several members of the health care team will be involved in your care. The hematologist, hematologist-oncologist, or myeloma specialist takes the lead in making treatment decisions. However, treatment decisions are ultimately based not only on this doctor’s recommendations but on your treatment goals and preferences.

A nurse practitioner and/or a physician assistant may serve as an extension of the doctor; one or more of these individuals may meet with you during office visits, and any of them can answer your questions.

A clinical research nurse or an infusion nurse usually administers your treatment, and a nurse coordinator relays any concerns you have to the team and can also treat some disease symptoms or treatment side effects.

A social worker is an excellent resource and can help connect you with extra social support. For example, a social worker can provide information about caring for young children at home, dealing with aging parents, housing and transportation needs during treatment, or accessing financial support to cover the costs of treatment.
You may experience dietary issues during treatment and recovery. A certified dietitian or nutritionist can help plan your diet and answer questions regarding decreased appetite, weight loss/gain, dry/sore mouth, or nausea or vomiting.

Even if the doctor who manages your myeloma is a specialist, the MMRF strongly encourages everyone with a myeloma diagnosis to get a second opinion from a different multiple myeloma specialist at the start of treatment and when making changes to your treatment plan.

To be an effective member of the treatment team, try to educate yourself about myeloma. As an informed patient, you can better participate in discussions with your treatment team about your results as well as which treatments to pursue. There are numerous sources of information available, including the resources on the MMRF website. Many clinics and hospitals treating myeloma patients have patient portals that allow you to review your results in advance of any appointments. To make the most of your visits with your care team, it is helpful to bring a list of questions and concerns about your treatment, results, and any side effects, to your appointments.

The myeloma treatment team.
THE RIGHT TESTS

You will undergo blood and urine tests, imaging, as well as a bone marrow biopsy, to confirm your myeloma diagnosis, to assess the extent of your disease, and to monitor progress once you start treatment.

Genomic tests are conducted by analyzing DNA from myeloma cells from the bone marrow taken during your biopsy. As with other testing, genomic tests are conducted as part of your initial diagnosis and may be repeated periodically. Additionally, imaging tests may be ordered. Minimal (measurable) residual disease (MRD) testing can also be helpful in determining how well you responded to your treatment. It is important for you to have all the appropriate tests done, as the results will help your doctor choose the best treatment options and determine your prognosis.

For more information about multiple myeloma testing and results, refer to the companion booklet *Multiple Myeloma Learn Your Labs* and the MMRF website, themmrf.org.

Lab and imaging tests.
Blood and Urine Tests

Once you are diagnosed with multiple myeloma, you may find that giving blood and urine samples is a common occurrence when you meet with your health care team. There are a number of tests that can be run on these samples that are extremely useful to selecting, guiding, and monitoring your treatment.

Blood tests include a **complete blood count**, **comprehensive metabolic profile**, **beta-2 microglobulin (β2M)**, **quantitative immunoglobulins**, serum protein **electrophoresis**, **immunofixation** electrophoresis, and serum **free light chain** assay.

Urine tests may include urinalysis, spot urine testing, 24-hour urine collection, and urine protein electrophoresis and immunofixation.

Bone Marrow Biopsy

In a bone marrow biopsy, your doctor will remove a small piece of bone that contains marrow—the spongy tissue that is found inside bones. For a bone marrow aspiration, your doctor will remove a small amount of liquid bone marrow, which contains marrow cells. Both of these samples are usually taken from the back of the pelvic (hip) bone using a large needle.

These tests are important for several reasons. First, they can be used to determine the number and percentage of myeloma cells in the bone marrow. Second, myeloma cells that are collected from your bone marrow can be used to perform **cytogenetic testing** and DNA sequencing, which is vital in identifying the genomic alterations or features of your disease. It may also help the doctor in determining how likely it is that your myeloma will or will not respond to certain treatments or will progress quickly, which are important factors in selecting what treatment you receive.

Bone marrow biopsy testing is always done at the time of diagnosis and might be repeated when the myeloma **relapses**.
Bone marrow biopsy testing

Genomic Testing

There are a number of genetic tests that may be performed, including karyotyping, fluorescence in situ hybridization (FISH), and DNA sequencing. Karyotyping and FISH check for changes in your chromosomes (the structures in your cells that contain your genetic information).

Certain changes in the chromosomes are associated with the development of myeloma. Changes associated with multiple myeloma include chromosomal translocations, which is when pieces of different chromosomes swap places; chromosomal deletions, which is when a piece of a chromosome is missing; and hyperdiploidy, which is when the number of chromosomes is higher than normal. When portions of a chromosome are duplicated, it is referred to as a chromosomal amplification or gain.

Genomic (DNA) sequencing looks closer at the DNA to determine whether any changes (mutations) are present. Results of this analysis can help predict how long you will remain in remission—that is, in a state of disease where the level
of myeloma cells and/or **monoclonal (M) protein** in your body is very low—before your myeloma gets worse or relapses. It can also help your doctor select the best treatment for your myeloma.

**Imaging**

As multiple myeloma progresses, it causes small holes (**osteolytic lesions**) to develop in your bones. A number of imaging tests are used to locate and measure these lesions, including bone (skeletal) survey, x-ray, **magnetic resonance imaging (MRI)**, **computed tomography (CT)**, and **positron emission tomography (PET)**. These tests assess changes in the bone structure. Higher levels of bone changes suggest the presence of multiple myeloma. Some of these tests can also detect multiple myeloma that is outside the bone marrow (**extramedullary** myeloma).

**Types of imaging used to detect multiple myeloma.**

Assess changes in the bone structure and determine the number and size of tumors in the bone

<table>
<thead>
<tr>
<th>X-ray</th>
<th>MRI</th>
<th>CT scan</th>
<th>PET scan</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.png" alt="X-ray Image" /></td>
<td><img src="image2.png" alt="MRI Image" /></td>
<td><img src="image3.png" alt="CT Scan Image" /></td>
<td><img src="image4.png" alt="PET Scan Image" /></td>
</tr>
</tbody>
</table>

MRI, magnetic resonance imaging; CT, computed tomography; PET, positron emission tomography

**Risk and Prognosis**

Symptoms, age, classification, and the stage of your disease are some of the important factors contributing to your multiple myeloma prognosis. Key clinical and laboratory findings also help determine how fast the myeloma is growing, the extent of disease, the biological makeup of the tumor, the response to therapy, and your overall health status. These findings are your prognostic indicators.

Determining your prognostic indicators early in the course of your disease is important, as it provides a baseline against which disease progression and your response to therapy can be measured.
Many of the tests that determine your **prognostic indicators** are performed multiple times throughout your treatment. This enables your health care team to assess how well your treatment is working and which treatment should be used next.

**Measuring your prognosis.**

<table>
<thead>
<tr>
<th>Test</th>
<th>Indication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beta 2-microglobulin (ß2-microglobulin or ß2-M)</td>
<td>Higher levels reflect more extensive disease and poor kidney function.</td>
</tr>
<tr>
<td><strong>Albumin</strong> level</td>
<td>Lower than normal levels can indicate poor prognosis</td>
</tr>
<tr>
<td><strong>Lactate dehydrogenase (LDH) level</strong></td>
<td>Higher levels indicate tissue damage from an injury, disease, or infection. In the case of myeloma, it could mean that myeloma cells are rapidly dividing—a sign of aggressive disease.</td>
</tr>
<tr>
<td>Freelite® serum free light chain assay</td>
<td>Abnormal results may indicate poor prognosis (also indicates risk of progression of MGUS or asymptomatic myeloma to symptomatic myeloma).</td>
</tr>
<tr>
<td>Chromosome analysis (cytogenetic testing by either karyotyping or FISH)</td>
<td>Presence of specific abnormalities may indicate poor prognosis</td>
</tr>
<tr>
<td>Genomic tests</td>
<td>Presence of specific group of genes can predict low or high risk of early relapse.</td>
</tr>
</tbody>
</table>

**THE RIGHT TREATMENT**

The treatment options for patients with newly diagnosed multiple myeloma are more plentiful and varied than ever before.

The goal of therapy is to induce a remission as quickly as possible to minimize the risk of organ damage, improve your quality of life (reduce pain, lessen fatigue), and minimize the occurrence and/or severity of side effects.
Goals of myeloma therapy.

- Reduce the amount of M protein (as measured by serum protein electrophoresis) or light chains (as measured via the free light chain test) to the lowest level possible.
- Eliminate myeloma cells from the bone marrow (as measured via minimal residual disease [MRD] testing).
- Improve quality of life with as few treatment side effects as possible.
- Provide the longest possible period of response before first relapse.
- Prolong overall survival.

The standard of care for you as a newly diagnosed myeloma patient is **induction therapy**, followed by (if you are eligible) an **autologous stem cell transplant (ASCT)** and **maintenance therapy**; collectively, these are considered one line of therapy.

**Induction Therapy**

Preferred treatments for induction therapy (the first in a series of treatments used to treat multiple myeloma, also referred to as **frontline therapy**) typically consist of three-drug (triplets) or four-drug (quadruplets) regimens given over three to six cycles, each of which typically lasts 3 or 4 weeks. Doublets (two-drug combinations) may be considered in cases where side effects are of particular concern.

The choice of your initial treatment depends on many factors, including the features of your myeloma, the risk of side effects, your preferences, and the familiarity of the doctor with the given regimen.

One of the first questions that must be answered, by both you and your doctor, is whether you are a candidate for ASCT. If you are, you may choose to have a transplant after three to six cycles of induction therapy or you may decide to complete induction therapy and consider transplant later.
For more information about multiple myeloma treatments and their side effects, refer to the companion booklet *Multiple Myeloma Treatment Overview* and the MMRF website, themmrf.org.

**Triplet Regimens**

Because they involve combinations of three myeloma drugs, triplet regimens offer the promise of greater effectiveness and are the standard for treating newly diagnosed multiple myeloma patients.

Velcade or Kyprolis plus Revlimid and dexamethasone (written as VRD or KRD) is the triplet therapy most commonly given to patients with newly diagnosed multiple myeloma. It is also the backbone of most quadruplet therapies. In certain situations (for example, patients with kidney impairment), cyclophosphamide may be used in place of Revlimid. This combination is referred to as CyBorD.

**Quadruplet Regimens**

Like triplet regimens, quadruplet regimens offer the promise of greater effectiveness, with deeper responses and higher rates of MRD negativity, at the risk of increased side effects. Quadruplet regimens typically add an anti-CD38 monoclonal antibody (Darzalex or Sarclisa) to triplet therapies like the VRD and KRD regimens described above and are rapidly becoming a standard of care for newly diagnosed patients.

**High-Dose Chemotherapy and Autologous Stem Cell Transplantation (ASCT)**

High-dose chemotherapy (usually melphalan) with ASCT is a standard treatment for eligible myeloma patients. Though effective in killing myeloma cells, high-dose chemotherapy also destroys normal blood-forming cells (called hematopoietic stem cells) in the bone marrow. ASCT replaces these important cells. Results of this approach to myeloma therapy have improved with the release of several newer drugs.

A variety of factors such as fitness and frailty influence whether you are eligible for ASCT. For example, the presence of multiple comorbidities and your activity level can affect your response to, adherence to, and tolerance of treatments, including ASCT. It is important that treatment decisions for you consider not just your age but also your clinical and functional status.
Guidelines for patient eligibility may vary between cancer centers; therefore, you should discuss with a myeloma specialist your eligibility for ASCT, as well as the risks and benefits and—if ASCT is an option—when it should be included in your treatment plan.

If you are eligible for transplant, you are encouraged to have stem cells collected so that the cells are available if you choose to undergo the process at some point during the course of your disease.

The ASCT process.

You can undergo ASCT as an inpatient (you stay in the hospital before, during, and immediately after the transplant) or an outpatient (you make daily visits to a clinic) procedure. Typically, you can expect to be in the hospital or outpatient clinic for an average of 2 to 3 weeks for the administration of the melphalan, stem cell infusion, and initial stages of engraftment and recovery.
OPTIONS FOR TRANSPLANT-INELIGIBLE PATIENTS

If you are not eligible for a transplant, you will go directly from induction therapy to maintenance therapy, depending on your response to induction therapy.

MAINTENANCE THERAPY

After induction and ASCT (if eligible), you will undergo maintenance (continuous) therapy. Maintenance therapy is given after induction therapy to help keep the myeloma from returning. Maintenance therapy increases the length of time you are in remission and improves survival, but it is also associated with treatment side effects. It is important to discuss the potential benefits and risks with your doctor.

Treatment of newly diagnosed multiple myeloma.

![Flowchart of treatment options](image)

- **Induction**: 3–6 cycles of triplet or quadruplet therapy
  - Are you a candidate for ASCT?
  - Yes: 3–6 cycles of triplet or quadruplet therapy
  - No: continue induction therapy

- **Consolidation**: Stem cell collection → ASCT (can be followed by additional cycles of treatment) → Continue induction therapy

- **Maintenance**:†
  - Single-agent Revlimid
  - Single-agent Revlimid

*If you have high-risk markers, additional agents may be given with Revlimid; if you cannot tolerate Revlimid, another treatment (for example, a proteasome inhibitor) may be given.
†In the U.S., maintenance is typically given until progression, but studies are evaluating stopping treatments for patients with deep responses. If you have little or no evidence of disease but are experiencing side effects, discuss with your doctor whether to continue until progression. Dose adjustments are also options.
‡Supportive care is given throughout treatment.

Discuss treatment goals with your health care team and be sure you are familiar with all the treatment options at every stage of the disease.
LIFE AFTER TREATMENT: LIVING WITH MYELOMA

There are challenges to managing the everyday realities of living with multiple myeloma. It is important to remember that certain risks, like infection, are higher when you have multiple myeloma.

RISK OF INFECTION

Although multiple myeloma leads to increased antibody levels in the body, the antibodies produced by myeloma cells are ineffective. Also, myeloma cells crowd out the healthy cells that produce functional, disease-fighting antibodies. By impairing your immune system in these ways, multiple myeloma reduces your body's ability to prevent or fight off infections.

In addition, many myeloma treatments also increase the risk of infection because they can decrease blood cell counts—specifically white blood cells, which help fight infection.

As a result of this impaired immune function, you are more susceptible to infections. In fact, you are about 15 times more likely to get an infection than people without multiple myeloma.

Types of infections you may get include urinary tract infections, pneumonia (an infection of the lungs), septicemia (blood infection), fungal infections, and viral infections such as influenza, varicella zoster (shingles), and COVID-19.

IMPORTANCE OF INFECTION CONTROL

There are steps you can take to reduce your risk of infection:

- Wash your hands
- Wash fruits and vegetables
- Avoid contact with people who show signs of being sick
- Protect the skin from scrapes and cuts
- Keep current with recommended vaccines such as flu, COVID, pneumonia, and shingles
To manage this infection risk, preventive strategies (called prophylaxis) are recommended. If you have a recurrent life-threatening infection, you should receive prophylaxis. Strategies for prophylaxis include intravenous antibody therapy, antifungal medications, colony-stimulating factors, and preventive shingles treatments or antibiotics.

Tell your doctor right away if you have any symptoms of infection, such as a fever over 100.5°F, chills or sweating, muscle aches, coughing/shortness of breath, sore throat, pain while urinating, pain/redness at the site of an open cut, fatigue, or diarrhea.

**DISEASE MONITORING AND RELAPSE**

During and after treatment, doctors monitor symptoms and may also perform some of the same tests that were done when you were initially diagnosed with myeloma. The results of these tests show how well the treatment is working and may detect side effects. These tests also help determine if, after an initial response to treatment, the myeloma relapses.

For more information about measuring response to multiple myeloma therapy, relapse, and multiple myeloma diagnostic testing and results, refer to the companion booklets *Multiple Myeloma Treatment Overview* and *Multiple Myeloma Learn your Labs* and the MMRF website, themmrf.org.

The MMRF would like to thank Joshua Richter, MD, Associate Professor of Medicine, Hematology and Oncology, in the Myeloma Division at the Tisch Cancer Institute at the Icahn School of Medicine at Mount Sinai and the Director of Myeloma at the Blavatnik Family Chelsea Medical Center at Mount Sinai and our patient advocate Andrew Gordon of Harrisburg, Pennsylvania, for their contributions to this booklet.
MMRF PATIENT SUPPORT AND RESOURCES

The MMRF is dedicated to supporting the myeloma community by providing a broad range of resources for myeloma patients and their family members and caregivers. The MMRF is available to help guide you through your multiple myeloma journey every step of the way.

YOUR QUESTIONS ANSWERED

Speak to an MMRF patient navigator at the Patient Navigation Center for answers to your questions about disease management, treatments, clinical trials, and assistance with finding financial and other available resources.

Telephone: 1-888-841-6673
Monday–Friday, 9:00 AM to 7:00 PM ET
Email: patientnavigator@themmrf.org

Connect with an MMRF Myeloma Mentor™:
themmrf.org/resources/myeloma-mentors

This is a phone-based program offering the opportunity for patients and/or caregivers to connect one-on-one with a trained patient and/or caregiver mentor to share their patient journeys and experiences.

FIND AND PARTICIPATE IN A CLINICAL TRIAL

Search for a clinical trial in your area or let an MMRF patient navigator help guide you through the process.

Clinical Trial Finder: themmrf.org/resources/clinical-trial-finder

The MMRF has partnered with Lazarex Cancer Foundation to help patients access clinical trials by helping with travel expenses. Patients who qualify will be reimbursed for out-of-pocket travel expenses for themselves and a travel companion. To learn more about this program, contact the MMRF Patient Navigation Center (1-888-841-6673 or patientnavigator@themmrf.org).

SUPPORT THE MMRF

Help support the MMRF’s efforts to accelerate research and find a cure! Participate in an event or donate today.

Telephone: 1-203-229-0464
Donate now/Take action: Visit themmrf.org/get-involved
GLOSSARY

**albumin** Major protein found in the blood; albumin level can indicate a person's overall health and nutritional status

**antibody** Protein produced by plasma cells that helps protect the body from infection and disease (also called immunoglobulin)

**autologous stem cell transplant (ASCT)** Procedure in which stem cells collected from a patient are transplanted back into that patient; the most common type of transplant performed in myeloma

**beta-2 microglobulin (ß2M)** Protein normally found on the surface of various cells in the body; levels of ß2M in the blood are elevated in inflammatory conditions and in certain blood cell disorders, such as myeloma

**bone marrow** Soft, spongy tissue found in the center of many bones and site of blood cell production

**bone marrow biopsy** Removal of a sample of bone marrow for examination; performed using a needle

**chemotherapy** The use of drugs to kill rapidly dividing cancer cells

**chromosomal amplification/gain** Chromosomal abnormality in which a section of a chromosome is added; 1q+ is an example of a chromosomal amplification

**chromosomal deletion** Chromosomal abnormality in which a segment of a chromosome is missing; del(17p) is an example of a chromosomal deletion

**chromosomal translocation** Chromosomal abnormality in which segments of two chromosomes switch positions; t(4;14) and t(11;14) are examples of chromosomal translocations

**chromosome** Thread-like structure in a living cell that contains DNA (genetic information)

**colony-stimulating factor (CSF)** Growth factor that stimulates the bone marrow to produce white blood cells

**comorbidity** Medical condition that is present at the same time as another condition
**complete blood count** Blood test that measures the number of red blood cells, white blood cells, and platelets in the blood and the relative proportions of the various types of white blood cells.

**comprehensive metabolic panel** Blood test that measures levels of albumin, calcium, lactate dehydrogenase (LDH), blood urea nitrogen (BUN), and creatinine to assess bone status, the extent of disease, and the function of the kidneys and liver (also known as *chemistry profile*).

**computed tomography (CT)** Imaging technique that uses a computer to generate three-dimensional x-ray pictures (also referred to as *computerized axial tomography [CAT]*)

**CRAB** Acronym for the following group of clinical indicators of organ damage: increased calcium level, renal (kidney) failure, anemia, bone lesions; the presence of one or more of these indicators can help establish a diagnosis of multiple myeloma.

**cytogenetic testing (chromosome analysis)** Laboratory test that measures the number and structure of chromosomes (see *karyotyping*).

**DNA** Genetic material of the cell located in the chromosomes.

**electrophoresis** Laboratory test used to measure the levels of proteins in the blood or urine; uses an electrical current to sort proteins by their charge.

**engraftment** Process by which stem cells that have been infused into the body start to grow and make new blood cells.

**extramedullary** Located or occurring in places outside the bone marrow.

**fluorescence in situ hybridization (FISH)** Laboratory technique used to measure the number of copies of a specific DNA segment in a cell and the structure of chromosomes.

**free light chain** Short protein (immunoglobulin light chain) that is produced by myeloma cells and found in the blood.

**frontline therapy** The first multiple myeloma treatments received.

**genomic tests** Study of the DNA of myeloma cells to detect mutations and to see how DNA changes over time.
**hematologist** Doctor who specializes in diagnosing and treating blood diseases

**hematologist-oncologist** Doctor who specializes in diagnosing and treating cancers of the blood

**hematopoietic stem cells** Cells found in blood and bone marrow that can develop and divide into any type of blood cell

**hyperdiploidy** Extra copies of one or more chromosomes

**immunofixation** Test to identify immunoglobulins in blood

**immunoglobulin** Protein that helps protect the body from infection (also called antibody)

**induction therapy** The first treatment a patient receives for myeloma; also refers to the use of anti-myeloma drugs prior to high-dose chemotherapy and stem cell transplant (see also *frontline therapy*)

**intravenous** Administration of a drug directly into a vein

**karyotyping** Test that looks at the number and structure of a patient’s chromosomes to identify genetic problems

**lactate dehydrogenase (LDH)** Enzyme found in body tissues; elevated levels in the blood indicate tissue damage and may occur in myeloma

**magnetic resonance imaging (MRI)** Scanning technique that uses magnetic energy to provide detailed images of bone and soft tissue

**maintenance therapy** Treatment that is given to patients following a response to induction therapy over a long period of time to reduce the risk of relapse

**minimal (measurable) residual disease (MRD)** Presence of small numbers of myeloma cells in the bone marrow during or after treatment, even when the patient shows no symptoms or signs of disease

**monoclonal antibody** Antibody that is produced in a laboratory and used to diagnose and treat some diseases

**monoclonal (M) protein** Abnormal antibody found in large quantities in the blood and urine of individuals with myeloma
**multiple myeloma** Disease in which the percentage of plasma cells in the bone marrow is greater than 10% and in which the patient shows one or more CRAB symptoms (see definition at CRAB)

**mutation** A defect or error in a gene

**osteolytic lesion** Soft spot in the bone where bone tissue has been destroyed; appears as a hole on a standard x-ray

**plasma cell** Antibody-secreting immune cell that develops from a B cell; in myeloma, it is this cell that has become cancerous or abnormal

**platelets** Small cell fragments in the blood that help it to clot

**positron emission tomography (PET)** Imaging technique in which radioactive glucose (sugar) is used to highlight cancer cells

**prognosis** Prediction of the course and outcome of a disease

**prognostic indicator** Any of several factors that help predict the course and outcome of a patient’s disease, such as symptoms, age, and disease stage

**red blood cell** Blood cell that carries oxygen

**relapse** Progression of myeloma after an initial response to therapy

**remission** A reduction in plasma cells and/or M protein to a very low level

**supportive care** The physical, psychological, social, and spiritual support for patients and their caregivers

**white blood cell** One of the major cell types in the blood; attacks infection and cancer cells as part of the immune system
Attend a Multiple Myeloma Patient Summit
Learn about standard and emerging therapies, including stem cell transplants, promising clinical trials, and more for optimal disease management. Attend a complimentary symposium for all the information you need to make well-informed decisions about your treatment and care.

To register or to view the complete calendar, visit: themmrf.org/resources/education-programs

View Past Programs on Demand
Access our archive of recorded Patient Summits and webcasts. Hear expert perspectives on key clinical research and the rapidly evolving myeloma treatment landscape.

All available online, and free, at: themmrf.org/resources/education-programs

Find a Clinical Trial Near You
Clinical trials are critically important to developing new myeloma treatments and better understanding the biology of the disease. The more people who enroll, the faster we can find answers. Patients who enroll in clinical trials have the opportunity to be among the first to receive the newest drugs or drug combinations in development and receive close monitoring.

To find a clinical trial near you, visit: themmrf.org/resources/clinical-trial-finder
Don’t miss out on the latest myeloma updates! Sign up today to receive news updates and notice of educational programs.

Name: 
Address: 
City: State: ZIP: 
Telephone: Mobile: 
Email: 

Or sign up at themmrf.org

I AM A:
☐ Myeloma Patient
☐ Myeloma Patient Caregiver
☐ Myeloma Patient Family Member (non-caregiver)
☐ Health Care Professional or Researcher
☐ Biopharma, Medical Device, or Health Care Technology Industry Professional

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1-888-841-6673

Hours: Mon–Fri, 9 AM–7 PM ET
Email: patientnavigator@themmrf.org