



MULTIPLE MYELOMA  
Research Foundation

# NEWLY DIAGNOSED MULTIPLE MYELOMA **YOUR NEXT STEPS**

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## 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 access for all so that every myeloma patient can benefit from the scientific and clinical advances we pursue. Since our inception, the MMRF has raised over \$600 million for research, opened over 100 clinical trials, and helped bring more than 15 FDA-approved therapies to market, which have tripled the life expectancy of myeloma patients.

To learn more about the MMRF, visit [themmrf.org](https://themmrf.org).

To speak to a patient navigator at the Patient Navigation Center, call **1-888-841-6673** or email [patientnavigator@themmrf.org](mailto:patientnavigator@themmrf.org).

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# INTRODUCTION

**Multiple myeloma** is a cancer of the blood cells (specifically, **plasma cells**, which produce **antibodies** that help protect your body from foreign invaders such as bacteria and viruses). Occasionally, myeloma cells form lumps or tumors called **plasmacytomas**.

A multiple myeloma diagnosis can be overwhelming, but patients today have more treatment options than ever. There are many paths forward from a multiple myeloma diagnosis. Multiple myeloma can be a highly manageable disease.

This booklet describes some of the steps you'll want to take after receiving a myeloma diagnosis, as well as what you can expect from your treatment. Words that may be unfamiliar are **bolded** and defined in the Glossary (page 18).

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

## GETTING ON THE RIGHT TRACK

Following The Right Track—the MMRF's framework for helping myeloma patients achieve long-term survival and the best possible quality of life—is key to managing multiple myeloma.

To ensure the best possible outcome, you'll need to take a number of steps after you're diagnosed with myeloma:

- Finding the right doctor or treatment center
- Getting the right tests
- Working with the doctor to determine the right treatment plan

## Key steps for the best possible care for myeloma patients.

**THE RIGHT TRACK**

 <b>Right Team</b> Access experts and centers that have extensive experience treating multiple myeloma	 <b>Right Tests</b> Get the information, tests, and precise diagnoses to make the right treatment decisions	 <b>Right Treatment</b> Work with your team to decide on the best treatment plan and identify clinical trials that are right for you
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### THE RIGHT TEAM

For diseases like multiple myeloma that are rare or complex, finding a doctor who specializes in that disease is essential.

There are several options when it comes to finding a doctor:

- A **hematologist-oncologist** who focuses on multiple myeloma (that is, a myeloma specialist) is the best option, as these doctors are most likely to be aware of the latest research and newest treatment options
- If seeing a myeloma specialist regularly is not possible, you can see a general hematologist-oncologist or medical oncologist

Often, myeloma specialists work out of specialized cancer treatment centers. Myeloma patients treated at specialized centers have been shown to have better outcomes, including longer overall survival.

If you aren't able to see a myeloma specialist regularly, it's a good idea to consult with one at particularly important points of your journey, such as diagnosis or **relapse**. This can typically be done by either in-person or telehealth appointments.

If care is overseen by a hematologist-oncologist or medical oncologist, they may consult with a myeloma specialist to help you receive the best care possible.

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**Even if the doctor who manages your myeloma is a specialist, the MMRF strongly encourages getting a second opinion from a different myeloma specialist at the start of your treatment and when making changes to your treatment.**

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For pointers on how to talk to your care team, see the *How to Talk to Your Care Team High-Impact Topic* video.

[bit.ly/TalkToCareTeam\\_HIT](https://bit.ly/TalkToCareTeam_HIT)

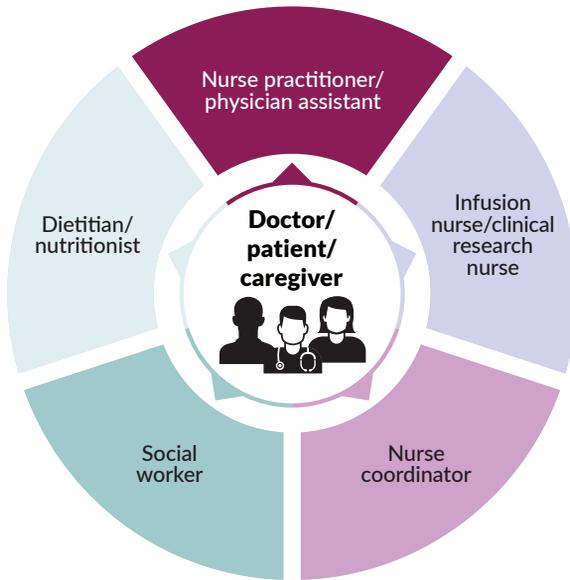


When looking for doctors, be sure to ask about their experience treating multiple myeloma.

There are several members of the care team that will be involved in providing your care and offering support:

- The doctor takes the lead in making treatment decisions, but these decisions will also be based on your treatment goals and preferences
- A nurse practitioner and/or a physician assistant may meet with you during office visits and can answer questions
- An infusion nurse (or possibly a clinical research nurse if you're in a clinical trial) usually administers your treatment
- A nurse coordinator relays concerns to the care team and can also treat some symptoms or treatment side effects
- A social worker can help connect you with extra support on such things as caring for children at home, housing and transportation needs during treatment, or accessing financial support to cover treatment costs
- A certified dietitian or nutritionist can help plan your diet and answer questions about any dietary issues that arise during your treatment and recovery (for example, decreased appetite, weight loss/gain, or nausea or vomiting)

## The myeloma treatment team.



## THE RIGHT TESTS

You'll undergo several tests that allow the care team to monitor your disease and guide treatment:

- Blood tests
  - o Measure levels of **M protein** (an abnormal antibody produced by myeloma cells that is found in the blood and urine of people with myeloma) and assess kidney function, blood cell levels, and other markers of myeloma activity
- **Bone marrow** tests
  - o Measure how many myeloma cells are present
  - o **Genomic tests** analyze **DNA** from myeloma cells in your bone marrow
- Imaging tests
  - o Find areas of bone damage or plasmacytomas

Many of these tests are repeated regularly to help your doctor choose the best treatment, check how well treatment is working, watch for changes in the disease, and determine your **prognosis**.

## Blood and Urine Tests

Once you're diagnosed with myeloma, you'll give blood and urine samples when you meet with your care team. There are a number of tests that can be run on these samples that are useful to selecting, guiding, and monitoring your treatment.

### Examples of blood tests.

Test	What's it for?
<b>Complete blood count</b>	Measures <b>red blood cells</b> , <b>white blood cells</b> , and <b>platelets</b> to see how well the bone marrow is making healthy blood cells and to check for problems like low levels of blood cells or platelets that can affect safety of your treatment
<b>Comprehensive metabolic panel</b>	Measures levels of substances in the blood to check how well the kidneys and liver are working and to monitor for side effects or organ damage from the disease or its treatment
<b>Lactate dehydrogenase</b>	Measures when cells (including myeloma cells) are damaged or turning over quickly to show how active or aggressive myeloma is and to help your doctor stage your myeloma (that is, determine your risk level) and determine your prognosis (that is, predict the course and outcome of your myeloma)
<b>Beta-2 microglobulin</b>	Measuring the level of this protein shows how much myeloma is in the body and how severe or aggressive it is; this measurement is a key part of staging and is often checked over time to see how well treatment is working
M protein	Serum protein <b>electrophoresis</b> measures levels of M protein and normal antibodies, which helps diagnose myeloma, see how active it is, and track how well treatment is working over time <b>Immunofixation</b> electrophoresis identifies which antibodies (IgG, IgA, IgM, etc.) make up the M protein, allowing myeloma to be classified by determining the type of abnormal antibody produced

Other blood tests may include quantitative **immunoglobulins** and serum **free light chain** assay.

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For more information about multiple myeloma testing and results, refer to the companion booklet ***Multiple Myeloma Understanding Your Test Results*** and the MMRF website, [themmr.org](http://themmr.org).

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## Bone Marrow Biopsy

In a **bone marrow biopsy**, your doctor removes a small piece of bone that contains marrow, which is the spongy tissue found inside bones.

For a bone marrow aspiration, your doctor will remove a small amount of liquid bone marrow, which contains marrow cells.

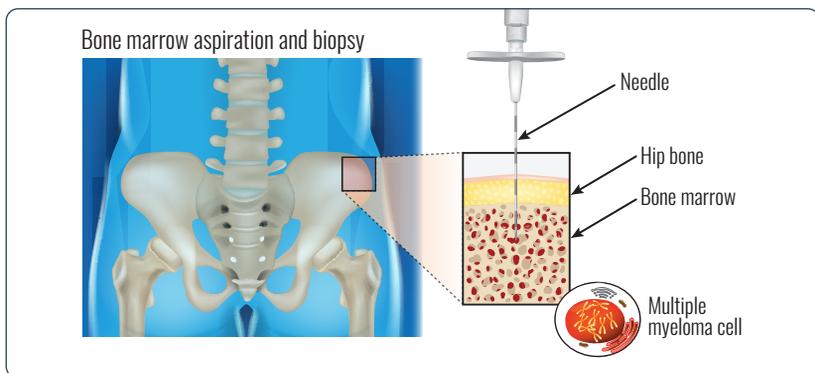
These samples are usually taken from the back of the pelvic (hip) bone using a large needle. You'll first receive a local anesthetic to numb the area on your hip where the needle is inserted.

Bone marrow tests are important for several reasons:

- They can measure the amount of myeloma cells in the bone marrow, which can be used to monitor **minimal residual disease**
- Myeloma cells collected from your bone marrow can be used for **cytogenetic testing** (lab tests that measures the number and structure of **chromosomes**) and **genomic sequencing**, which identify the genomic alterations or features of your myeloma and can help the doctor determine how likely it is that your myeloma will respond to certain treatments or progress quickly

Bone marrow biopsy testing is always done at the time of diagnosis and might be repeated when the myeloma relapses. It may also be done as part of a clinical trial to see if the treatment is working.

### Bone marrow biopsy testing.



## Genomic Testing

Myeloma can cause changes in the DNA of your plasma cells. Doctors use genetic tests to look for these changes. Different tests look for different types of changes, which can help predict how your myeloma may behave and respond to treatment.

### Genomic tests.

Test	What it measures	What it tells us
<b>DNA sequencing</b> (sometimes called <b>next-generation sequencing</b> )	Examines the <b>genome</b> for <b>mutations</b> , extra or missing genes, structural rearrangements, and other DNA alterations unique to your myeloma cells	Provides the DNA sequence of myeloma cells to better understand how your tumor grows, how it's trying to avoid detection by the immune system, and even how it might respond to specific therapies
<b>Fluorescence in situ hybridization (FISH)</b>	Uses fluorescent probes to detect changes in chromosomes, including swaps of parts of different chromosomes ( <b>translocation</b> ), missing pieces of chromosomes ( <b>deletion</b> ), extra copies of a chromosome ( <b>hyperdiploidy</b> ), or duplications of portions of chromosomes ( <b>amplification/gain</b> )	Provides information about the number and structure of your chromosomes that helps your care team understand how aggressive your disease is, predict outcomes, and choose the best treatment plan
<b>Karyotyping</b>	Stains chromosomes during cell division and takes photos to count and examine their size, shape, and number	Identifies problems which guides treatment and predicts how the disease might behave

For an overview of how doctors use genomic information to tailor treatment, see the **Genomics High-Impact Topic** video.

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## Imaging

As multiple myeloma progresses, it can cause small holes (**osteolytic lesions**) in your bones.

A number of imaging tests are used to locate and measure these lesions:

- X-ray
- **Magnetic resonance imaging**
- **Computed tomography**
- **Positron emission tomography**

When these tests find higher levels of bone changes, it suggests the presence of multiple myeloma.

Some of these tests can also detect multiple myeloma that is outside the bone marrow (**extramedullary** myeloma).

Osteolytic lesions in myeloma are different from bone metastases seen with solid tumors (like breast or lung cancer) that sometimes spread to bones to form new masses of cancer cells in the bone, even though both can weaken the bones.

## Risk and Prognosis

Several factors contribute to your multiple myeloma prognosis:

- Symptoms
- Age
- Genetic risk
- Disease stage
- Presence or absence of extramedullary disease

Clinical and laboratory tests help determine how fast your myeloma is growing, the extent of disease, the biological makeup of the myeloma cells (which may influence how aggressive your disease is), the response to therapy, and your overall health. These findings can determine your prognosis (how your disease might progress).

Determining your prognosis 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.

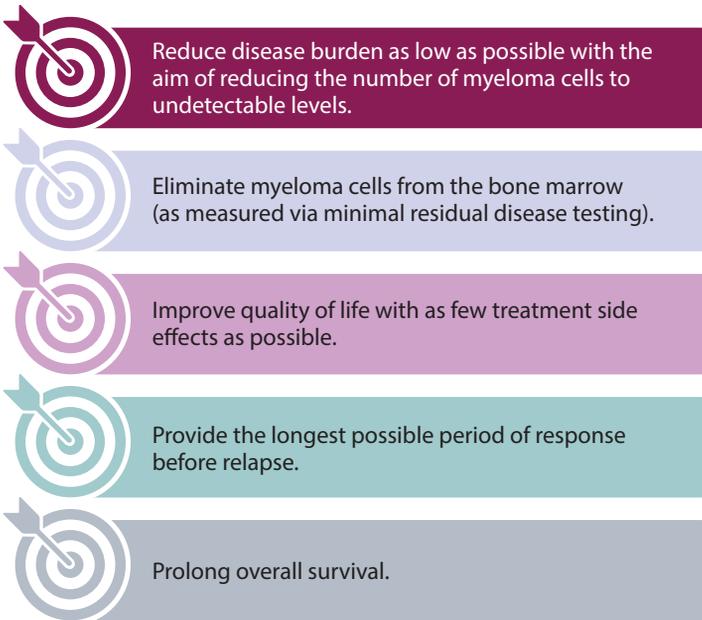
Many of the tests that determine your prognosis are performed multiple times throughout your treatment. This enables your care team to assess how well your treatment is working and which treatment should be used next.

## THE RIGHT TREATMENT

There are more treatment options than ever for patients with newly diagnosed multiple myeloma.

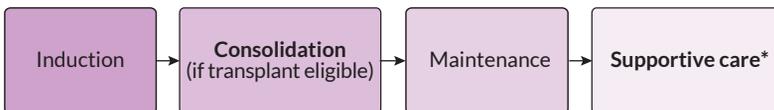
When you're first diagnosed with multiple myeloma, the goal of treatment is to provide symptom relief and reduce the number of myeloma cells in your body as quickly and safely as possible. This is important, as reducing the number of myeloma cells can reduce the risk of organ damage, improve quality of life (reduce pain, lessen fatigue), and minimize the severity of side effects and symptoms.

### Goals of myeloma therapy.



The standard of care for newly diagnosed myeloma is induction therapy, followed by (if you're a candidate) an **autologous stem cell transplant (ASCT)** and **maintenance therapy**. Collectively, these are considered one line of therapy.

### Treatment of newly diagnosed multiple myeloma.



\*Supportive care (care for the prevention and management of treatment side effects) is given throughout treatment.

## Induction Therapy

In the United States, the standard **induction therapy** (the first in a series of treatments used to treat multiple myeloma) consists of a four-drug (**quadruplet**) regimen, though some patients (for example, those with **comorbidities**) may be treated with a three-drug (**triplet**) regimen. The choice of induction therapy depends on many factors:

- Features of your myeloma
- Risk of side effects
- Your preferences
- Familiarity of the doctor with the given regimen

Some treatments require more frequent visits, so transportation and other factors (for example, childcare and travel expenses) may need to be considered.

One of the first questions that must be answered, by both you and your doctor, is whether you are a candidate for high-dose chemotherapy and ASCT, as that can affect what induction therapy you receive. Once that is determined, you can discuss whether you'll get a transplant immediately after stem cells are collected, whether you'd prefer to delay the transplant, or not get a transplant at all. If you're a candidate for transplant, you're encouraged to have your 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.

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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](http://themmrf.org).

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Induction treatment typically consists of combinations of myeloma drugs that work differently. Treatment is given over four to six **cycles**. Each cycle typically lasts 3 or 4 weeks.

Most patients in the United States begin with a quadruplet induction therapy regimen that typically consists of the following:

- Anti-CD38 **monoclonal antibody**: for example, Darzalex (daratumumab) or Sarclisa (isatuximab)
- **Proteasome inhibitor**: for example, Kyprolis (carfilzomib) or Velcade (bortezomib)
- **Immunomodulatory drug**: for example, Revlimid (lenalidomide)
- Steroid: for example, dexamethasone

Some patients may instead receive a triplet regimen. Triplets are still very effective and may be used for older patients, patients with other health concerns, or when side effects are a particular concern.

Doctors may refer to quadruplet or triplet therapies by an abbreviation—for example, D-VRd or Dara-VRd for daratumumab, Velcade, Revlimid, and dexamethasone or VRd for Velcade, Revlimid, and dexamethasone—when discussing induction treatment for multiple myeloma. These medications may be administered as injections under the skin (**subcutaneous**), given directly into a vein (**intravenous**), or by mouth (orally).

### High-Dose Chemotherapy and ASCT

High-dose **chemotherapy** (usually melphalan) with ASCT is a standard treatment for myeloma patients who are appropriate candidates.

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 cells. Results of this approach to myeloma therapy have improved with the release of several newer drugs.

Several factors influence whether you're a candidate for ASCT:

- Whether you have comorbidities (medical conditions that are present at the same time as another condition)
- Your activity level

It's important that treatment decisions for you consider not just your age but also your overall health and ability to perform daily activities.

Guidelines for identifying candidates for ASCT may vary between cancer centers. You should discuss with a myeloma specialist whether you're a candidate for ASCT. If you are, your discussions should address the risks and benefits of the procedure, as well as when it should be included in your treatment plan.

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.

### Maintenance Therapy

Maintenance (continuous) therapy follows induction and ASCT. It's given to help increase how long you're in **remission**. It also improves survival, but it's associated with side effects. It's important to discuss the potential benefits and risks with your doctor.

As patients experience longer and deeper remissions with induction therapy followed by high-dose chemotherapy and ASCT and/or maintenance therapy, some doctors may choose to lower doses of treatment or stop treatment altogether after several years of remission.

### Options for Patients Who Are Not Transplant Candidates

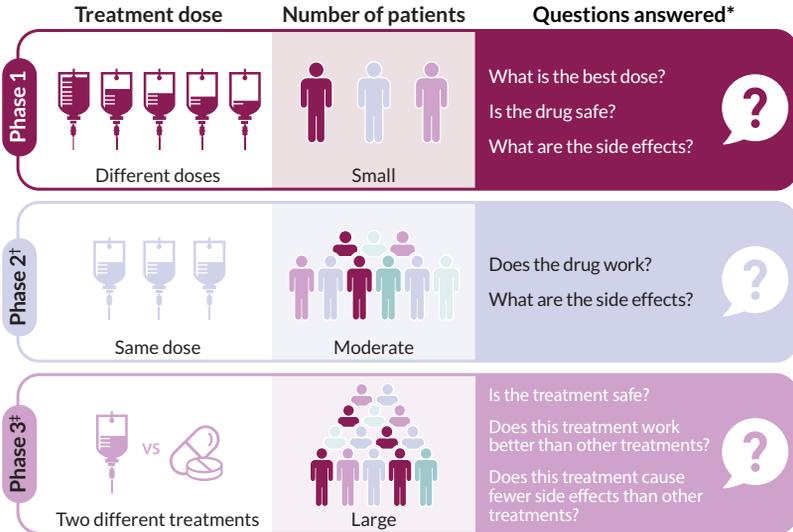
If you are not a candidate for transplant, you'll go directly from induction therapy to maintenance therapy, depending on your response to induction therapy.

### Clinical Trials

#### *What is a clinical trial?*

Clinical trials are essential to the development of new treatments, providing new options for myeloma patients at all stages of the disease and with different types of myeloma. They are also able to improve how currently available treatments are used.

## Different types of clinical trials.



\*The FDA approves treatments that are safe, effective, and shown to be better than the standard treatments available. †When no standard treatment is available, the FDA may approve drugs based on study results of phase 2 studies. ‡Conducted to receive FDA approval of new drugs, in most cases.

### What are the benefits of participating in a clinical trial?

Clinical trials have led to the approval of safe and effective drugs that help many myeloma patients live longer.

Clinical trials may offer access to newer treatments that are only approved for use in patients with more advanced disease. These treatments may or may not work better than the current standard treatment for your current stage of myeloma.

Important information about clinical trials:

- Before you enroll in a clinical trial, all details of the treatment are explained, and you must consent to participate
- If you agree to participate in a clinical trial, you're free to withdraw at any time
- You should discuss with your doctor whether a clinical trial is the best treatment option for you

### *How do I find a clinical trial?*

Clinical trials take place at cancer centers, hospitals, clinics, or doctors' offices. Ask your doctor about any available clinical trials or check with any academic medical centers close to your home.

Search for clinical studies in your area or let an MMRF Patient Navigator guide you through the process at [themmr.org/resources/clinical-trial-finder](https://themmr.org/resources/clinical-trial-finder).

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**Discuss treatment goals with your care team and be sure you're familiar with all the treatment options at every stage of the disease.**

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## LIVING WITH MYELOMA

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

It may help to speak to another patient or caregiver who has been through the same experience. Myeloma Mentors allows patients and caregivers the opportunity to connect with trained mentors. This is a phone-based program offering an opportunity for a patient and/or caregiver to connect one-on-one with a trained patient and/or caregiver mentor to share his or her journey and experience. Myeloma Mentors have insights and information that can be beneficial to both patients and their caregivers.

Contact the Patient Navigation Center at 888-841-6673 to be connected to a Myeloma Mentor or visit [themmr.org/support/myeloma-mentors](https://themmr.org/support/myeloma-mentors) to learn more.

### RISK OF INFECTION

Although multiple myeloma leads to increased antibody levels in the body, the antibodies produced by myeloma cells are ineffective and potentially harmful. 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 fight infections.

Many myeloma treatments also increase the risk of infection because they can decrease blood cell counts. This includes white blood cells, which help fight infection.

As a result of this impaired immune function, 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
- Viral infections such as influenza (flu), varicella zoster (shingles), and COVID-19

## PREVENTING INFECTION

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

### Infection prevention.



- Wash your hands
- Wash fruits and vegetables
- Avoid contact with people who show signs of being sick
- Protect the skin from scrapes and cuts



Tell your doctor right away if you have any symptoms of infection:

- Fever over 100.4°F
- Chills or sweating
- Muscle aches
- Coughing or shortness of breath
- Sore throat
- Pain while urinating
- Pain or redness at the site of an open cut
- Fatigue
- Diarrhea



To manage 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
- Oral antibiotics
- Antifungal medications
- **Colony-stimulating factors**
- Preventive shingles treatments or antibiotics
- Keep current with recommended vaccines such as flu, COVID, pneumonia, and shingles

## 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.

Nearly all patients with myeloma relapse after **frontline therapy**, as current treatments do not cure the disease. However, if you relapse, there are many effective options your doctor can use, with new options continually under investigation.

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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 Understanding Your Test Results*, as well as the MMRF website, [themmrf.org](http://themmrf.org).

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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 Director of Myeloma at the Blavatnik Family Chelsea Medical Center at Mount Sinai and our patient advocate, Laura Timberman of Salem, New Jersey, for their contributions to this booklet.

# GLOSSARY

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

**amplification/gain** Chromosomal abnormality in which a section of a chromosome is added to another chromosome

**antibodies** Proteins produced by plasma cells that help protect the body from infection and disease (also called *immunoglobulins*)

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

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

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

**chemotherapy** Use of drugs to kill rapidly dividing cells, such as cancer cells

**chromosomes** Thread-like structures in a living cell that contain DNA (genetic information)

**colony-stimulating factors** *Growth factors* that stimulate the bone marrow to produce white blood cells

**comorbidities** Diseases that are present at the same time as another disease

**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, 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** Imaging technique that uses a computer to generate three-dimensional x-ray pictures

**consolidation** Short-term treatment given to a patient after initial treatment to target remaining cancer cells

**creatinine** Product of muscle energy metabolism that is normally filtered out of the blood and found in the urine; elevated levels in the blood can indicate decreased kidney function

**cycles** Rounds of treatment that are followed by a period of rest (no treatment)

**cytogenetic testing** Lab testing that measures the number and structure of chromosomes (see *karyotyping*)

**deletion** Chromosomal abnormality in which a segment of a chromosome is missing

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

**DNA sequencing** Lab test used to analyze chromosomes and DNA

**electrophoresis** Lab technique that uses an electrical current to measure protein levels in the blood or urine

**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 outside the bone marrow

**fluorescence in situ hybridization (FISH)** Lab test used to measure if there are extra or missing chromosomes, or if any parts of chromosomes are missing, duplicated, or rearranged

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

**frontline therapy** Initial treatment given to a newly diagnosed patient (also known as *induction therapy* and *first-line therapy*)

**genome** The complete set of DNA in an organism

**genomic sequencing** Study of the DNA of myeloma cells to detect mutations and to see how that DNA changes over time

**genomic tests** Tests that analyze and identify the structure of a person's genetic code (see also *genomic sequencing*)

**growth factors** Substances that stimulate cells to multiply

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

**hematopoietic stem cells** Cells that grow and divide to produce red blood cells, white blood cells, or platelets; found in bone marrow and blood

**hyperdiploidy** Presence of extra copies of one or more chromosomes

**immunofixation** Lab test that identifies immunoglobulins in the blood

**immunoglobulins** Proteins that help protect the body from infection (also called *antibodies*)

**immunomodulatory drug** Drug that fights cancer by boosting the immune system; examples include Thalomid, Revlimid, and Pomalyst

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

**intravenous** Into a vein

**karyotyping** Test that looks at the number and structure of chromosomes

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

**M protein** Abnormal antibody produced by myeloma cells that is found in large quantities in the blood and urine of people with myeloma

**magnetic resonance imaging** Imaging technique that uses magnetic energy to produce detailed images of bone and soft tissue

**maintenance therapy** Treatment given over a long period of time to patients in remission to reduce the risk of *relapse*

**minimal residual disease** 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 produced in a lab that is used to diagnose and treat some diseases

**multiple myeloma** Blood cancer that develops in the bone marrow as a result of plasma cells transforming into myeloma cells

**mutations** Defects or errors in a gene

**next-generation sequencing** Test that uses genomic assessment of bone marrow samples to detect minimal residual disease

**osteolytic lesion** Area of bone destruction appearing as holes on x-ray

**phase 1** The first round of a clinical trial, conducted with a small number of participants to assess a drug's safety and non-toxic dosage levels

**phase 2** The second stage of a clinical trial, conducted with a larger number of participants to assess a drug's effectiveness and further evaluate its safety

**phase 3** The most advanced stage of drug development, conducted with a large number of participants to confirm a drug's effectiveness, identify and monitor its side effects, compare it to commonly used treatments, and collect information that will allow the drug to be used safely; usually required for FDA approval of drugs

**plasma cells** Antibody-secreting immune cells that develop from B cells; in myeloma, it is these cells that have become cancerous or abnormal

**plasmacytomas** Tumors made up of myeloma cells

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

**positron emission tomography** Imaging technique that uses radioactive glucose to highlight cancer cells

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

**proteasome inhibitor** Drug that slows myeloma cell growth and kills myeloma cells by disrupting cell function; examples include Velcade, Ninlaro, and Kyprolis

**quadruplet** Combination of four drugs used to treat a disease

**red blood cells** Blood cells that carry oxygen

**relapse** Progression of disease that initially responded to therapy

**remission** Period when the signs and symptoms of a disease lessen or disappear

**subcutaneous** Under the skin

**supportive care** Treatment that addresses the symptoms and complications of a disease rather than the disease itself

**translocation** Chromosomal abnormality in which segments of two chromosomes switch positions

**triplet** Combination of three drugs used to treat a disease

**white blood cells** One of the major cell types in the blood; attacks infection and cancer cells as part of the immune system

## NOTES

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# MMRF PATIENT SUPPORT AND RESOURCES

The MMRF supports 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

The Patient Navigation Center is available to answer your questions about disease management and treatments, help you find clinical trials, and connect you with financial and other resources.

Telephone: 1-888-841-6673

Monday—Friday, 9:00 AM to 7:00 PM ET

Email: [patientnavigator@themmrf.org](mailto:patientnavigator@themmrf.org)

[themmrf.org/support/patient-navigation-center](https://themmrf.org/support/patient-navigation-center)

## CONNECT WITH AN MMRF MYELOMA MENTOR

Connect one-on-one with a trained patient and/or caregiver mentor that can share their patient journeys and experiences.

[themmrf.org/support/myeloma-mentors](https://themmrf.org/support/myeloma-mentors)



## FIND A CLINICAL TRIAL

The MMRF Clinical Trial Finder lets you search for a clinical trial in your area.

[themmrf.org/diagnosis-and-treatment/clinical-trials-and-emerging-therapies/clinical-trial-finder/](https://themmrf.org/diagnosis-and-treatment/clinical-trials-and-emerging-therapies/clinical-trial-finder/)

## 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.

[themmrf.org/educational-resources](https://themmrf.org/educational-resources)



## 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: [themmrf.org/get-involved](https://themmrf.org/get-involved)

## ATTEND A MULTIPLE MYELOMA PATIENT SUMMIT

Available in-person and virtually, MMRF Patient Summits discuss new treatments, promising clinical trials, and all the information you need to make well-informed decisions about your treatment and care.

[themmrf.org/educational-resources](https://themmrf.org/educational-resources)



# 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](http://themmrf.org)

I AM A:

- |   |   |
|---|---|
| <input type="checkbox"/> Myeloma Patient                                  | <input type="checkbox"/> Healthcare Professional<br>or Researcher                                     |
| <input type="checkbox"/> Myeloma Patient Caregiver                        | <input type="checkbox"/> Biopharma, Medical Device, or Healthcare<br>Technology Industry Professional |
| <input type="checkbox"/> Myeloma Patient Family Member<br>(non-caregiver) | <input type="checkbox"/> None of the Above  |
| <input type="checkbox"/> Family/Friend of Deceased Myeloma<br>Patient     |   |

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MULTIPLE MYELOMA  
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383 Main Avenue, 7th Floor  
Norwalk, CT 06851

Contact one of our  
patient navigators at the  
Patient Navigation Center

**1-888-841-6673**

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Hours: **Mon-Fri, 9 AM-7 PM ET**

Email: **[patientnavigator@themmrf.org](mailto:patientnavigator@themmrf.org)**



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