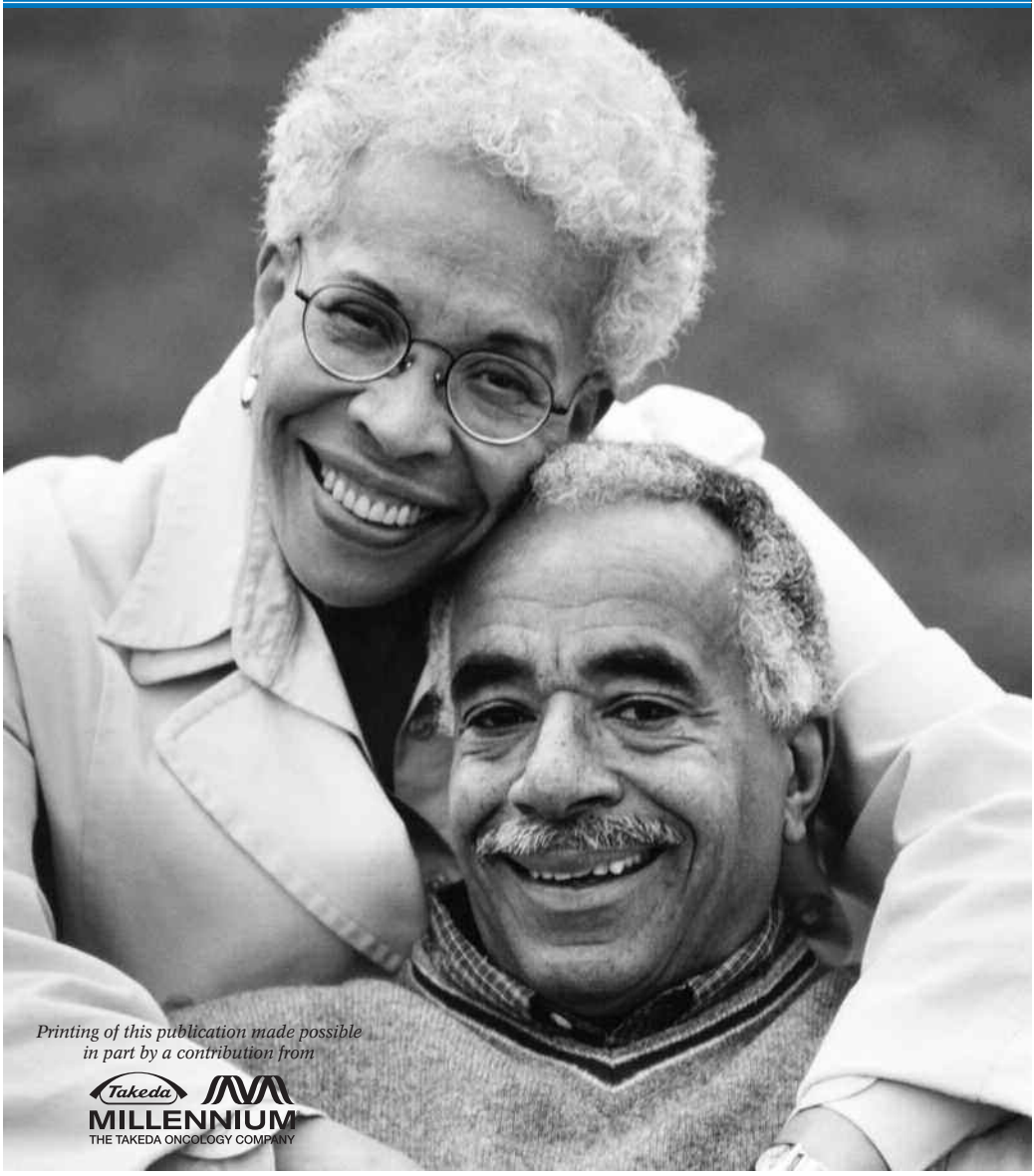
The Leukemia & Lymphoma Society®

Fighting Blood Cancers

The Myeloma Guide

Information for Patients and Caregivers

LEUKEMIA | LYMPHOMA | MYELOMA



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A Message from John Walter
President and CEO of The Leukemia & Lymphoma Society

The Leukemia & Lymphoma Society (LLS) is committed to bringing you the most up-to-date blood cancer information. We know how important it is for you to have an accurate understanding of your diagnosis, treatment and support options. With this knowledge, you can work with members of your oncology team to move forward with the hope of remission and recovery.

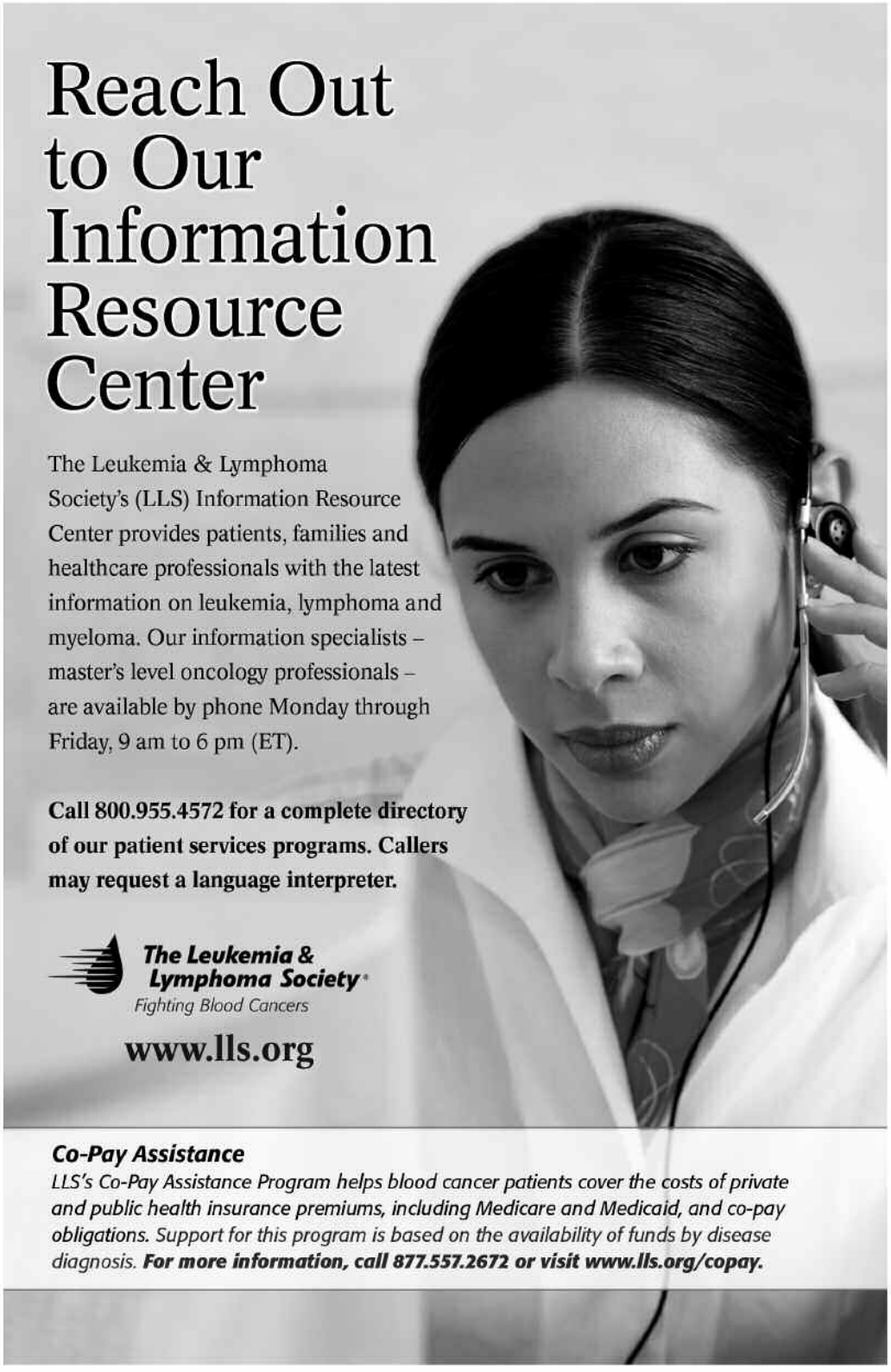
Our vision is that one day the great majority of people who have been diagnosed with myeloma will be cured or they will be able to manage their illness with good quality of life. We hope that the information in this booklet will help you along your journey.

LLS is the world's largest voluntary health organization dedicated to funding blood cancer research, education and patient services. Since its founding in 1949, LLS has invested more than $600 million in research specifically targeting blood cancers. We will continue to invest in research for cures and programs and services that improve the quality of life of patients and their families.

We wish you well.

John Walter
President and CEO

Reach Out to Our Information Resource Center



The Leukemia & Lymphoma Society's (LLS) Information Resource Center provides patients, families and healthcare professionals with the latest information on leukemia, lymphoma and myeloma. Our information specialists – master's level oncology professionals – are available by phone Monday through Friday, 9 am to 6 pm (ET).

Call 800.955.4572 for a complete directory of our patient services programs. Callers may request a language interpreter.

The Leukemia & Lymphoma Society®
Fighting Blood Cancers

www.lls.org

Co-Pay Assistance

LLS's Co-Pay Assistance Program helps blood cancer patients cover the costs of private and public health insurance premiums, including Medicare and Medicaid, and co-pay obligations. Support for this program is based on the availability of funds by disease diagnosis. ***For more information, call 877.557.2672 or visit www.lls.org/copay.***

Introduction

Myeloma is a type of cancer. This is a hopeful time for myeloma patients. Progress toward a cure is under way. New myeloma drugs have been approved in the last few years. And other possible new treatments are being studied. Many patients live good-quality lives for years with medical treatment.

> Survival in people with myeloma is much improved since the 1960s.
>
> In 2009, about 66,529 people in the United States are living with myeloma or are in remission.

The Myeloma Guide is for people with myeloma and others who want basic information. Many people find that it helps to know the questions to ask about choosing a specialist and about treatment. The *Guide* includes suggested questions to ask your healthcare providers (see the pocket on the inside back cover). For a list of other Healthcare Question Guides you can print, go to www.LLS.org/whattoask and click on "Healthcare Question Guides." Or contact the Information Resource Center for copies.

Tell Us What You Think. We hope the information helps you. Please tell us what you think at www.LLS.org/publicationfeedback. Click on "Disease & Treatment Publications - Survey for Patients, Family and Friends" on the Web page.

LLS Has Other Free Materials. You may want to learn more about myeloma after reading the *Guide*. Free LLS disease, treatment and support materials are available in print and at www.LLS.org/freematerials. Materials that may be of interest to you are listed in the *Guide* next to this icon:

Inside This Guide

Some words in the *Guide* may be new to you. Check *Medical Terms* beginning on page 24. Or call the Information Resource Center at (800) 955-4572.

This LLS guide about myeloma is for information only. LLS does not give medical advice or provide medical services.

Part 1 – Understanding Myeloma

About Marrow, Blood and Blood Cells

The information on this page about normal blood and marrow may help you understand the myeloma information in the rest of the *Guide*.

Marrow is the spongy center inside of bones where blood cells and immune cells are made.

Blood cells are made in the marrow. They begin as stem cells. Stem cells become red cells, white cells and platelets in the marrow. Then the platelets, red cells and white cells enter the blood.

Platelets prevent bleeding and form plugs that help stop bleeding at the site of an injury.

Red cells carry oxygen around the body. When the number of red cells is below normal it is called "anemia." Anemia may make you feel tired or short of breath. It may make your skin look pale.

White cells fight infection in the body. There are two major types of white cells: germ-eating cells (neutrophils and monocytes) and lymphocytes (B cells and T cells).

Plasma cells are made from B cells in the marrow. Plasma cells make proteins called "antibodies" that help to fight infection.

Plasma is the liquid part of the blood. It is mostly water. It also has some vitamins, minerals, proteins, hormones and other natural chemicals in it.

About Myeloma

Myeloma is a type of cancer that begins in the bone marrow. It is a cancer of plasma cells.

Plasma cells are part of the body's immune system. Plasma cells make antibodies that help fight infection. Myeloma cells cannot help the body fight infection.

Doctors do not know why some people get myeloma and others do not. There is no way to prevent it. You cannot catch myeloma from someone who has it.

Most people with myeloma are 50 years or older. It is not a common disease in people younger than 40 years.

African Americans get myeloma about twice as often as Americans of European descent. People of Asian and Hispanic descent have lower rates of myeloma. The reason for these different rates is not yet known.

Some patients have myeloma that grows slowly, called "indolent myeloma." This is sometimes called "smoldering myeloma." Some patients with indolent myeloma do not need treatment right away. But treatment is needed at some point for most patients. Information about treatment begins on page 10.

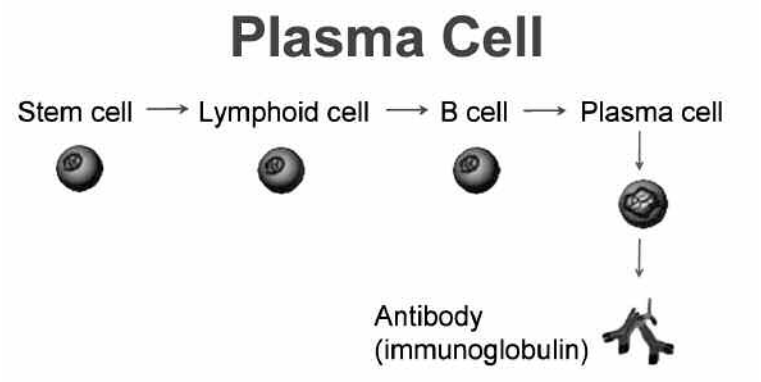
Myeloma that is found in the marrow of many bones in the body is often called "multiple myeloma." Most patients with myeloma have this form of the disease.

A mass of myeloma cells may be called a "plasmacytoma." A plasmacytoma can form in the bone, skin, muscle, lungs or almost any other part of the body. A plasmacytoma that is outside of the marrow is called an "extramedullary plasmacytoma."

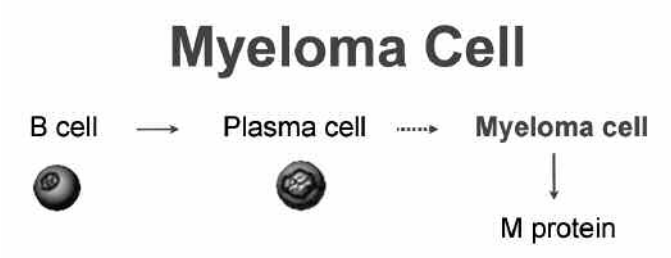
A single plasmacytoma is not common. It is a "myeloma-related" condition. Patients who have treatment for a single plasmacytoma may not develop any other sites of myeloma.

Myeloma starts with a change to a single B cell. As the myeloma cells grow in the marrow, they crowd out the normal plasma cells. They also crowd out normal white cells and red cells.

Normally, some B cells become plasma cells that fight infection.



With myeloma, the change in the B cell causes it to become a **myeloma cell** instead of a normal plasma cell.



Questions? Contact the **Information Resource Center** at **www.LLS.org** or **(800) 955-4572**.

Signs and Symptoms

A *sign* is a change in the body that the doctor sees in an exam or a lab test result. A *symptom* is a change in the body that a patient can see or feel.

Some patients have no symptoms of myeloma. These patients may find out they have myeloma after a regular medical checkup shows changes in the blood and/or urine.

More often, patients have bone pain, or bone fractures with no known cause, or many infections.

Diagnosis

When a person has signs and symptoms of myeloma the doctor does special tests to find out the cause.

Tests for Myeloma

- Bone marrow aspiration and biopsy
- Lab tests
  - Blood tests
  - Urine tests
- Imaging tests
  - X-rays (skeletal surveys)
  - CT scans
  - MRIs
  - PET scans

Bone marrow tests are done to see if there are myeloma cells in the patient's marrow. A bone marrow aspiration is done by removing a sample of cells from the marrow.

A bone marrow biopsy is done by removing a very small amount of bone filled with marrow cells.

Both bone marrow tests are done with a special needle. Some patients are awake for the procedure. They get medication first to numb the part of the body that will be used to get the sample of cells. This is usually the patient's hip bone. Some patients are sedated (asleep) for the procedure.

Blood and marrow tests may be done in the doctor's office or in a hospital. A bone marrow aspiration and biopsy are almost always done together.

Lab tests are done to see if a protein called "M protein" is in the patient's blood and urine. M protein is short for "monoclonal protein," an antibody found in large amounts in the blood or urine of people with myeloma. Measuring the amount of M protein is one way to tell the stage (amount) of the myeloma.

For a blood test, usually a small amount of blood is taken from the patient's arm with a needle. The blood is collected in tubes and sent to a lab.

Another protein called "light chains" can be found in the myeloma patient's urine. This is also called "Bence Jones protein."

There is a newer, special test to check for light chains. The test is called "serum-free light chains."

Other tests to find myeloma are called "imaging tests," such as: X-rays of areas of bone pain, x-rays of the skull, spine and ribs (skeletal survey), CT scans, MRIs and PET scans. X-rays and CT scans are used to see if there are any holes, breaks or thinning in the bones. MRIs and PET scans look for changes to marrow and pockets of myeloma cells.

A test called "FISH" and other tests are used to see if there are changes to the chromosomes of the myeloma cells. FISH is short for "fluorescence in situ hybridization."

Lab and imaging tests are also done to measure the extent of myeloma. These are listed on page 12.

Tracking Your Myeloma Tests

These tips may help you save time and know more about your health:

- Ask your doctor why certain tests are being done and what to expect.
- Discuss test results with your doctor.
- Ask for and keep copies of lab reports in a file folder or three-ring binder. Organize the reports in date order.
- Find out if and when follow-up tests are needed.
- Mark appointments that are coming up on your calendar.

You can view, print or order the free LLS booklet *Understanding Lab and Imaging Tests* to learn more about lab tests and what to expect. Go to www.LLS.org/freematerials or contact the Information Resource Center for a copy.

Myeloma patients may have problems with

Infections. Myeloma patients may have more infections. This is because myeloma cells do not make antibodies to fight infection. Patients should follow the doctor's advice about how to reduce their risk. The doctor may give antibiotics to treat infections.

Bone pain. Myeloma may cause bone pain. Drugs called bisphosphonates (Aredia® or Zometa®) may help. Bisphosphonates work by blocking the myeloma cells from making the bones weak.

Kidney problems. Myeloma patients have a protein called light chains or Bence Jones protein. Myeloma patients may also have high levels of calcium in their blood. Each of these can damage the kidneys. The doctor will check the patient's kidneys.

Acute myelogenous leukemia (AML). A small number of patients with myeloma develop AML.

Part 2 – Treatment

Choosing a Specialist

Choose a doctor who specializes in treating myeloma and knows about the most up-to-date treatments. This type of specialist is usually called a "hematology oncologist." Or your local cancer specialist can work with a myeloma specialist.

Ways to Find a Myeloma Specialist

- Ask your primary care physician
- Contact your community cancer center
- Call your local medical society
- Reach out to physician and/or health plan referral services
- Call LLS for a list of cancer centers or go to www.LLS.org and click on "Cancer Centers"
- Use online physician-finder resources, such as
  - The American Medical Association's (AMA) "DoctorFinder"
  - The American Society of Hematology's (ASH) "Find a Hematologist"

See *Choosing a Blood Cancer Specialist or Treatment Center* for information on how to contact these organizations and others.

You can view, print or order the free LLS fact sheet *Choosing a Blood Cancer Specialist or Treatment Center* at www.LLS.org/freematerials. Or contact the Information Resource Center for a copy.

Goals of Treatment

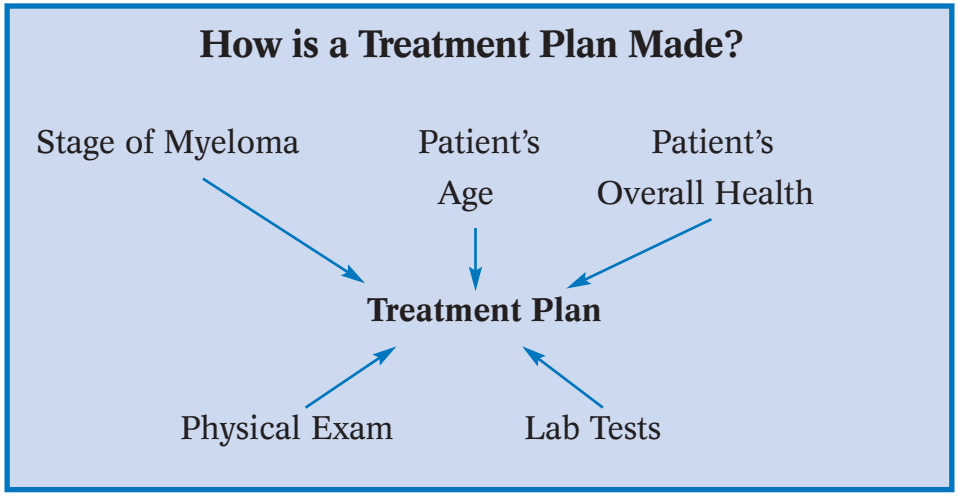
The goals of myeloma treatment are to

- Slow the growth of the myeloma cells
- Help patients to feel better if they have bone pain, fatigue or other symptoms
- Provide long periods of remission (when there are no signs of myeloma and/or the myeloma is not causing health problems).

Treatment Planning and Staging

The treatment plan for a patient depends on

- The type and stage of myeloma
- The patient's age
- The patient's overall health.



Questions? Contact the **Information Resource Center** at **www.LLS.org** or **(800) 955-4572**.

Lab and imaging tests are done to measure the extent of the patient's myeloma. This is called "staging."

The doctor checks:

- Blood counts of red and white cells. These may be lower than normal with myeloma.
- The amount of M protein found in the blood and urine. M protein is made by the myeloma cells.
- The calcium level in the blood. This may be higher than normal with myeloma.
- The beta 2-microglobulin level in the blood. This level may be higher than normal with myeloma.
- The albumin level in the blood. This level may be lower than normal with myeloma.
- How many parts of the bones the myeloma has affected.

Treatments for myeloma include

- Single or combination drug therapy
- Supportive care
- High-dose chemotherapy and autologous stem cell transplantation
- Radiation therapy for patients who have only a single mass of myeloma cells (a "plasmacytoma")
- Treatment in a clinical trial.

Questions to Ask Your Myeloma Doctor

Talk with the doctor about myeloma and how the doctor plans to treat the disease. This will help you to know more about the disease and treatment. It will help you to be involved and make decisions.

The *Guide* includes questions to ask your doctor about treatment and questions to help you choose a specialist (see the back inside cover).

It may be helpful to write down the answers to your questions and review them later. You may want to bring a caregiver, a family member or a friend with you to the doctor. The person can listen, take notes and offer support. Some patients find it easier to tape-record information from the doctor and listen to the tape at home.

Patients and their families or caregivers who are unsure about treatment may want to get a second opinion.

For a list of Healthcare Question Guides about second opinions and other topics you can print, go to www.LLS.org/whattoask and click on "Healthcare Question Guides." Or contact the Information Resource Center for copies.

Drugs to Treat Myeloma

Drug therapy to kill myeloma cells is the main therapy for myeloma patients who need treatment. Some patients are also treated with an "autologous stem cell transplant." More information about transplants begins on page 16.

Drugs to treat myeloma include

Melphalan (Alkeran®) is a type of chemotherapy used to treat some myeloma patients. Melphalan may be combined with other drugs such as Velcade®, Thalomid® or Revlimid®.

Bortezomib (Velcade) is given by injection. It is used to treat some myeloma patients. Velcade is also being studied in clinical trials in combination with other drugs such as Revlimid.

Thalidomide (Thalomid) is given by mouth. Thalidomide is used with dexamethasone to treat newly diagnosed myeloma patients. It is also being studied together with other drugs.

Lenalidomide (Revlimid) is a drug like thalidomide. It may be safer and work better for myeloma patients. Revlimid is used with dexamethasone to treat myeloma patients who have already had at least one other type of treatment.

Erythropoietin or "EPO" (Procrit® and Aranesp®) These are drugs that can increase red cells and may help with anemia. They can decrease the need for blood transfusions. The benefit of EPO to treat people with different types of cancer is under study. Talk to your doctor about the benefits and risks.

Some Drugs Used to Treat Myeloma

Generic Name	Brand Name
Bortezomib	Velcade®
Carmustine	BiCNU®
Cyclophosphamide	Cytoxan®
Dexamethasone	Decadron®
Doxorubicin	Adriamycin®
Lenalidomide	Revlimid®
Melphalan	Alkeran®
Pamidronate	Aredia®
Pegylated liposomal doxorubicin	Doxil®
Prednisone	(Many brands)
Thalidomide	Thalomid®
Vincristine	Oncovin®
Zoledronic acid	Zometa®

Some Drug Combinations for Myeloma Treatment

Revlimid, dexamethasone

Revlimid, dexamethasone, Velcade

Revlimid, melphalan and prednisone

Revlimid, Velcade

Thalomid, dexamethasone

Thalomid, dexamethasone, melphalan, Velcade

Thalomid, melphalan, prednisone

Thalomid, Velcade

Velcade, Doxil

Most patients get two or more drugs that are used together.

Check **Medical Terms** for words that are new to you. Or contact the **Information Resource Center** at **www.LLS.org** or **800-955-4572**.

Autologous Stem Cell Transplantation

Some myeloma patients are treated with drug therapy and "autologous stem cell transplantation." The goal of the autologous stem cell transplantation is to help the body to start a new supply of blood cells after high-dose chemotherapy. With an autologous transplant

- The patient's own stem cells are collected from the patient's blood or marrow and stored after the first cycles of drug therapy are completed.
- Then the patient is given high-dose chemotherapy to kill the myeloma cells. This treatment also kills normal stem cells in the marrow.
- The next step is to infuse the stem cells back to the patient through a central line.

The decision to have an autologous transplant depends on a number of things, such as:

- What other good treatment choices the patient has
- The patient's physical ability to have a stem cell transplant.

Autologous stem cell transplantation is not a cure. It can give patients longer disease-free periods than other standard myeloma therapies. This treatment is not a good choice for all myeloma patients. There are a growing number of treatment choices for older or sicker patients who may not have the physical ability to have a transplant.

Radiation Therapy

Radiation therapy (treatment with x-rays or other high energy rays) may be used to treat patients with a single area of myeloma, called a "plasmacytoma."

A small number of patients have bone pain that is not helped by chemotherapy. These patients may receive radiation therapy.

Clinical Trials

Doctors are testing new drugs and new combinations of drugs to treat myeloma. "Clinical trials" are used to study new drugs, new treatments or new uses for approved drugs or treatments. A growing number of clinical trials include older adults.

There are clinical trials for

- Newly diagnosed myeloma patients
- Patients who do not get a good response to treatment
- Patients who relapse after treatment
- Patients who continue treatment after remission (maintenance).

Some clinical trials test new ways to use drugs that are already approved. For example, changing the amount of the drug or giving the drug along with another type of treatment might be better. The more people who take part in clinical trials, the faster we will find better ways to treat myeloma. Ask your doctor if treatment in a clinical trial is right for you. You can also call the Information Resource Center for information about clinical trials; or use our free clinical trials service at www.LLS.org/clinicaltrials.

You can view, print or order the free LLS booklet *Understanding Clinical Trials for Blood Cancers* at www.LLS.org/freematerials or contact the Information Resource Center for a copy. You can also watch the free LLS Web video *My Clinical Trials Journey* at www.LLS.org/journeys.

Stem Cell Transplants are also under study in clinical trials. An "allogeneic stem cell transplant" is one type of stem cell transplant used to treat some diseases. With this type, stem cells from a donor are used. The donor can be a brother or sister. Or the donor can be another person with stem cells that "match" the patient's. For myeloma patients, an allogeneic transplant is usually done as part of a clinical trial. It may be a good treatment for a patient younger than age 55 who is not doing well with other treatments. An allogeneic stem cell transplant is a high-risk procedure.

Doctors are working to make allogeneic stem cell transplants safer. A type of transplant called a "reduced-intensity transplant" is under study. A reduced-intensity transplant uses lower doses of chemotherapy than a standard allogeneic stem cell transplant. This treatment is also called a "nonmyeloablative" transplant. Older and sicker patients may be helped by this treatment.

Some patients may benefit from having two stem cell transplants. Studies are under way to see if it helps myeloma patients to have an autologous transplant and a reduced-intensity allogeneic stem cell transplant.

Side Effects of Myeloma Treatment

Myeloma patients should talk with their doctors about side effects before they begin any type of treatment. The main effect of treatment for myeloma is myeloma cell death. The term "side effect" is used to describe how treatment affects healthy cells.

Patients react to treatments in different ways. Sometimes there are very mild side effects. Other side effects may be serious and last a long time.

Some side effects of myeloma treatment may include

- Upset stomach and vomiting
- Mouth sores
- Constipation
- Extreme tiredness
- Infections
- Low red cell count (anemia)
- Low white cell count
- Low platelet count
- Achy feeling
- Numb feeling in arms, hands, legs or feet.

Talk to your doctor about the possible side effects of your treatment. You can also call the Information Resource Center.

You can view, print or order the free LLS booklet *Understanding Drug Therapy and Managing Side Effects* for more information. Or contact the Information Resource Center for a copy.

Measuring Treatment Response

Your doctor does tests to see if treatment is working. The test results help the doctor to decide if changes to treatment are needed.

Blood and **urine tests** are done to check blood cell counts, kidney function and growth of myeloma cells.

A bone marrow biopsy is used to look at the number and pattern of myeloma cells in the marrow.

Imaging tests (x-rays, CT scans, MRIs and PET scans) are used to look at the bones and marrow. X-rays and CT scans are used to see if there are any holes, breaks or thinning in the bones. MRIs and PET scans look for changes to the marrow and for pockets of myeloma cells.

Responses to Treatment

The doctor may use these terms to talk about a patient's response to treatment.

Remission. No sign of disease; sometimes the terms "complete remission" (or response) or "partial remission" (or response) are used

Complete remission or response. No sign of M protein in the blood and urine; normal percentage of plasma cells or no sign of myeloma cells in the marrow

Partial remission or **response**. More than a 50 percent decrease in M protein in the blood

Complete molecular remission or **response**. No sign of myeloma cells in the marrow using very sensitive tests

Minimal response. Less than a 50 percent decrease in M protein in the blood

Progressive disease. At least a 25 percent increase in M protein in the blood, new areas of bone damage or a new mass of myeloma cells

Check **Medical Terms** for words that are new to you. Or contact the **Information Resource Center** at **www.LLS.org** or **800-955-4572**.

Take Care of Yourself

- Keep all appointments with the doctor.
- Discuss how you feel with the health care team at each visit.
- Follow the doctor's advice for preventing infection.
- Eat healthy foods each day. It is okay to eat four or five smaller meals instead of three bigger ones.
- Contact the doctor about tiredness or other symptoms.
- Do not smoke. Patients who smoke should get help to quit.
- Get enough rest and exercise. Talk with your doctor before starting an exercise program.
- Keep a health care file with copies of lab reports and treatment records.
- See the family doctor to keep up with other healthcare needs.
- Talk with family and friends about how you feel. When family and friends know about myeloma and its treatment, they may worry less.
- Seek medical advice if your mood does not improve over time. For example, if you feel sad or depressed every day for a two-week period, seek help. Depression is an illness. It should be treated even when a person is being treated for myeloma. Treatment for depression has benefits for people living with cancer.
- Remember that the outlook for myeloma patients is improving. New treatments and cures for more patients are on the horizon.

We're Here to Help

The Leukemia & Lymphoma Society (LLS) has chapters around the nation. LLS chapters offer support groups and can also arrange for a myeloma patient to talk with another person who has myeloma. To find the chapter in your area, call (800) 955-4572. Or visit the Web site at www.LLS.org.

You can view, print or order the free LLS booklets *Each New Day: Ideas for Coping with Blood Cancer* and *Financial Health Matters* for more information and support. Or you can contact the Information Resource Center to order copies.

Information for Veterans. Veterans with myeloma who were exposed to Agent Orange while serving in Vietnam may be able to get help from the United States Department of Veterans Affairs. For more information call the Department of Veterans Affairs at (800) 827-1000 or visit www1.va.gov/AgentOrange.

Language Services. Members of your healthcare team want you to understand the information they are giving you. Let your doctor know if you want a professional healthcare interpreter who speaks your native language or uses sign language. Many times, this is a free service. Contact a patient advocate if you are not sure. For more information, contact the Information Resource Center (IRC) at (800) 955-4572. Language services are available for IRC calls.

Medical Terms

Albumin. A protein that can be measured in the blood.

Antibiotics. Drugs that are used to treat infections caused by bacteria and fungi. Penicillin is one type of antibiotic.

Antibodies. Proteins made by plasma cells. Antibodies help to fight infection in the body.

Bence Jones protein. A protein made by myeloma cells. It is found in the urine of many patients with myeloma. It is also called "light chains" protein.

Beta 2-microglobulin. Beta 2-microglobulin is a protein found on the surface of plasma cells and some other cells. This protein enters the plasma and the amount of beta 2-microglobulin can be measured. It is used to estimate the extent of the patient's myeloma. A very low level is better than a very high level.

Bone marrow aspiration. A procedure to remove marrow cells and examine them to see if they are normal. A liquid sample of cells is taken from the marrow and the cells are looked at under a microscope.

Bone marrow biopsy. A procedure to remove marrow cells and examine them to see if they are normal. A very small amount of bone filled with marrow cells is taken from the marrow and the cells are looked at under a microscope.

Chemotherapy or drug therapy. Treatment with chemical agents to treat myeloma and other diseases.

Chromosomes. Any of the 23 pairs of certain basic structures in human cells. The chromosomes are made up of genes. Genes give the instructions that tell each cell what to do. The number or shape of chromosomes may be changed in blood cancer cells.

Clinical trials. Careful studies done by doctors to test new drugs or treatments, or new uses for approved drugs or treatments. The goal of clinical trials for blood cancers is to improve treatment and quality of life and to find cures.

Combination chemotherapy or drug therapy. The use of two or more drugs together to treat myeloma and other diseases.

Extramedullary. Outside the marrow. For example, "extramedullary plasmacytoma" is the name for a cluster of myeloma cells that are found in the body outside of the marrow.

FDA. The short name for the United States Food and Drug Administration. Part of the FDA's job is to assure the safety, and security of drugs, medical devices, and the U.S. food supply.

FISH. The short name for a test called "fluorescence in situ hybridization." This is a test to measure the presence in cells of a specific chromosome or gene. This test can be used to plan treatment and to measure the results of treatment.

Hematologist. A doctor who treats blood cell diseases.

Immune response. The reaction of the body to foreign material. Examples of foreign material are an infection-causing microorganism, a vaccine or the cells of another person used for an allogeneic stem cell transplant.

Immune system. Cells and proteins in the body that defend it against infection.

Immunoglobulins. Proteins that fight infection.

Indolent myeloma. Slow-growing myeloma. Sometimes called "smoldering myeloma."

Light chains. Parts of the monoclonal (M) protein in myeloma.

Lymphocyte. A type of white cell. Some lymphocytes become plasma cells. Plasma cells make antibodies to fight infection. Myeloma is a cancer of new plasma cells.

Marrow. The spongy material in the center of bones where blood cells are made.

Monoclonal antibody therapy. A type of therapy that targets and kills cancer cells. Monoclonal antibodies are immune proteins made in the laboratory. They are designed to attack a specific blood cancer cell. They produce less toxic effects on normal tissues than chemotherapy does.

M protein. Monoclonal immunoglobulin, a protein made by myeloma cells. This protein, also called "M protein," enters the blood. The amount of M protein in the blood can be measured. It is used to estimate the extent of the myeloma.

Oncologist. A doctor who treats patients with cancer.

Pathologist. A doctor who identifies diseases by studying cells and tissues under a microscope.

Plasma. The liquid part of the blood.

Platelet. A type of blood cell that helps prevent bleeding. Platelets cause plugs to form in the blood vessels at the site of an injury.

Red cell. A type of blood cell that carries oxygen to all parts of the body. In healthy people, red cells make up almost half of the blood.

Refractory myeloma. Myeloma that has not responded to initial treatment. Refractory disease may be disease that is getting worse or staying the same.

Relapsed myeloma. Myeloma that responded to treatment but then returns.

Remission. No sign of the disease and/or a period of time when the disease is not causing any health problems for the patient.

Stem cell. A type of cell found in marrow that makes red cells, white cells and platelets.

White cell. A type of blood cell that helps the body fight infection.

Want More Information?

You can view, print or order the free LLS booklets *Myeloma* and *Blood and Marrow Stem Cell Transplantation* for more information. Or contact the Information Resource Center for copies.

Pocket folder

For more information, please contact:

or:

Home Office

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Information Resource Center (IRC) 800.955.4572 (Language interpreters available upon request.)

www.LLS.org

Our Mission: Cure leukemia, lymphoma, Hodgkin's disease and myeloma, and improve the quality of life of patients and their families.

The Society is a nonprofit organization that relies on the generosity of corporate, individual and foundation contributions to advance its mission.

The Leukemia & Lymphoma Society®

Fighting Blood Cancers

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