Treating Multiple Myeloma

If you've been diagnosed with multiple myeloma, your cancer care team will discuss your treatment options with you. It's important that you think carefully about each of your choices. Weigh the benefits of each treatment option against the possible risks and side effects.

Local treatments

Local treatments affect a specific part of the body, without affecting the rest of the body. These treatments are more likely to be useful for less advanced cancers (including solitary plasmacytomas), although they might also be used in some other situations.

- Surgery for Multiple Myeloma
- Radiation Therapy for Multiple Myeloma

Systemic treatments

Systemic treatments can reach cancer cells anywhere in the body. These treatments, including medicines and stem cell transplants, are the main ones used to treat multiple myeloma.

- Drug Therapy for Multiple Myeloma
- Stem Cell Transplant for Multiple Myeloma
- CAR T-cell Therapy for Multiple Myeloma
- Supportive Treatments for People with Multiple Myeloma

Common treatment approaches

Depending on the stage of the myeloma, whether or not you are a candidate for a stem cell transplant, and other factors, different types of treatment may be combined at the same time or used after one another.

- Treatment Options for Multiple Myeloma and Other Plasma Cell Disorders

Who treats multiple myeloma?

Based on your treatment options, you might have different types of doctors on your treatment team. These doctors could include:

- An **orthopedic surgeon:** a doctor who uses surgery to treat diseases of the bones
- A **radiation oncologist:** a doctor who treats cancer with radiation therapy
- A **medical oncologist:** a doctor who treats cancer with medicines such as chemotherapy or targeted therapy
- A **stem cell transplant (bone marrow transplant) specialist:** a cancer doctor who specializes in doing stem cell transplants

You might have many other specialists on your treatment team as well, including physician assistants (PAs), nurse practitioners (NPs), nurses, psychologists, nutritionists, social workers, and other health professionals.

- Health Professionals Who Are Part of a Cancer Care Team

Making treatment decisions

It’s important to discuss all of your treatment options, including their goals and possible side effects, with your doctors to help make the decision that best fits your needs. It’s also very important to ask questions if there's anything you’re not sure about.

If time allows, it's often a good idea to get a second opinion. A second opinion can give you more information and help you feel more confident about the treatment plan you choose.

- Questions to Ask About Multiple Myeloma

Clinical trials are carefully controlled research studies that are done to get a closer look at promising new treatments or procedures. Clinical trials are one way to get state-of-the art cancer treatment. In some cases they may be the only way to get access to newer treatments. They are also the best way for doctors to learn better methods to treat cancer.

If you would like to learn more about clinical trials that might be right for you, start by asking your doctor if your clinic or hospital conducts clinical trials.

- Clinical Trials

Considering complementary and alternative methods

You may hear about alternative or complementary methods to relieve symptoms or treat important part of your care. These might include nursing or social work services, financial aid, nutritional advice, rehab, or spiritual help.

The American Cancer Society also has programs and services - including rides to treatment, lodging, and more - to help you get through treatment. Call our Cancer Knowledge Hub at 1-800-227-2345 and speak with one of our caring, trained cancer helpline specialists. Or, if you prefer, you can use our chat feature on cancer.org to connect with one of our specialists.

- Palliative Care
- Programs & Services

Choosing to stop treatment or choosing no treatment at all

For some people, when treatments have been tried and are no longer controlling the

Drug Therapy for Multiple Myeloma

Drugs are the main type of treatment for nearly everyone with mulitple myeloma.

Although a single drug might sometimes be used to treat multiple myeloma, most often 2 to 4 different kinds of drugs are combined, because the cancer tends to respond better. The choice of which drugs to use depends on many factors, including:

- The traits of the myeloma (including if it's considered high risk or standard risk)
- A person's age, kidney function, and overall health
- If the person might get a stem cell transplant as part of their treatment

For more on some of the combinations of drugs that might be used, see Treatment Options for Multiple Myeloma and Other Plasma Cell Disorders.

- Chemotherapy
- Corticosteroids (steroids)
- Immunomodulatory drugs (IMiDs)
- Proteasome inhibitors
- Monoclonal antibodies
- Bispecific T cell engagers (BiTEs)
- Nuclear export inhibitor
- Bisphosphonates and other drugs for bone disease

Chemotherapy

Chemotherapy (chemo) is the use of certain kinds of drugs that destroy or control the growth of cancer cells. These drugs can be taken by mouth or given in a vein or a muscle. They enter the bloodstream and reach almost all areas of the body.

At one time, chemo was often part of the main treatment for multiple myeloma. As newer types of drugs have become available in recent years, chemo has become less important in treating myeloma, although it still might be used in some situations.

Chemo drugs that can be used to treat multiple myeloma include:

- Cyclophosphamide
- Etoposide (VP-16)
- Doxorubicin (Adriamycin)
- Liposomal doxorubicin (Doxil)
- Melphalan

- Bendamustine

Often one of these drugs is combined with other types of drugs like corticosteroids and immunomodulating drugs (see below). If a stem cell transplant is planned as part of a person's treatment, most doctors avoid using certain chemo drugs, like melphalan, that can damage bone marrow.

Chemo side effects

Chemo drugs kill cancer cells but also can damage normal cells, which can lead to side effects[1]. These side effects depend on the type and dose of drugs given and how long they are taken. Common side effects of chemo include:

- Hair loss
- Mouth sores
- Loss of appetite
- Nausea and vomiting
- Diarrhea or constipation

Chemotherapy often leads to low blood counts[2], which can cause:

- An increased risk of serious infection[3] (from having too few white blood cells)
- Easy bruising or bleeding[4] (from having too few blood platelets)
- Feeling tired or short of breath (from having too few red blood cells[5])

Most side effects go away after treatment is finished.

If you have side effects, your cancer care team can suggest steps to ease them. For example, drugs can be given along with the chemo to prevent or reduce nausea and vomiting.

Along with these short-term side effects, some chemo drugs can cause long-term damage to certain organs such as the heart or kidneys. The possible risks of these drugs are carefully balanced against their benefits, and the function of these organs is carefully monitored during treatment.

For more information about chemo and its side effects, see Chemotherapy[6].

Corticosteroids (steroids)

Corticosteroids, such as **dexamethasone** and **prednisone**, are an important part of the treatment of multiple myeloma. They can be used alone or combined with other drugs as a part of treatment. Corticosteroids can also be used to help reduce the nausea and vomiting that chemo might cause.

Side effects of corticosteroids

Common side effects of these drugs can include:

- High blood sugar
- Increased appetite and weight gain
- Problems sleeping
- Changes in mood, such as becoming irritable or “hyper”

When used for a long time, corticosteroids can also suppress the immune system, which increases the risk of serious infections. Steroids can also weaken bones.

Most of these side effects go away over time after the drug is stopped.

Immunomodulatory drugs (IMiDs)

Immunomodulatory drugs (IMiDs) affect the immune system, although exactly how they do this isn’t entirely clear. These drugs are often helpful in treating multiple myeloma.

These drugs are taken daily as pills, with breaks from treatment on certain days each month.

The IMiDs might cause severe birth defects when taken during pregnancy, so they can only be obtained through a special program run by the drug company that makes them.

Because these drugs can increase the risk of serious blood clots, they are often given along with aspirin or a blood thinner.

Thalidomide (Thalomid)

Thalidomidewas first IMiD used to treat multiple myeloma.

Side effects of thalidomide can include drowsiness, fatigue, severe constipation, and painful nerve damage (neuropathy[7]). The neuropathy can be severe, and it might not go away after the drug is stopped. There is also an increased risk of serious blood clots that start in the leg and can travel to the lungs.

Lenalidomide (Revlimid)

Lenalidomide is similar to thalidomide, although it tends to have less severe side effects. This is often the first IMiD used in treating multiple myeloma.

The most common **side effects of lenalidomide** are thrombocytopenia (low blood platelet counts) and low white blood cell counts. It can also cause painful nerve damage. The risk of blood clots is not as high as that seen with thalidomide, but it is still increased.

Pomalidomide (Pomalyst)

Pomalidomidecan also be used to treat multiple myeloma, most often after other treatments have been tried.

Some common **side effects of pomalidomide** include low red blood cell counts (anemia) and low white blood cell counts. The risk of nerve damage is not as severe as drug is given under the skin. Some people develop shingles (herpes zoster) while taking this drug. To help prevent this, your doctor may have you take an anti-viral medicine (like acyclovir) while you take bortezomib.

Carfilzomib (Kyprolis)

Carfilzomib is a newer proteasome inhibitor that can be used to treat multiple myeloma, typically after other drugs have been tried. It’s given as an injection into a vein (IV), often in a 4-week cycle. To help prevent problems like allergic reactions during the infusion, the steroid drug dexamethasone is often given before each dose in the first system attack them.

Daratumumab (Darzalex and Darzalex Faspro)

Daratumumab is a monoclonal antibody that attaches to the CD38 protein. This drug is used mainly in combination with other types of drugs, although it can also be used by itself in people who have already had several other treatments for myeloma.

This drug is often given as an infusion into a vein (IV). A newer form of the drug, known as **daratumumab and hyaluronidase (Darzalex Faspro)**, can be given as a subcutaneous (under the skin) injection, typically in the belly area over a few minutes.

Either form of this drug can cause a reaction in some people while it is being given or within several hours afterward, which can sometimes be severe. Symptoms can include coughing, wheezing, trouble breathing, tightness in the throat, a runny or stuffy nose, feeling dizzy or lightheaded, headache, rash, and nausea.

Other side effects can include fatigue, nausea, back pain, fever, and cough. This drug can also lower blood cell counts, which can increase the risk of infections and bleeding or bruising. Darzalex Faspro can also cause reactions at the injection site, such as swelling, itching, and redness.

Isatuximab (Sarclisa)

Isatuximab is another monoclonal antibody that attaches to the CD38 protein on myeloma cells. This drug is used along with other types of myeloma drugs, typically after at least 2 other treatments have been tried. It’s given as an infusion into a vein (IV).

This drug can cause a reaction in some people while it is being given or within a few hours afterward, which can sometimes be severe. Symptoms can include coughing, wheezing, trouble breathing, tightness in the throat, chills, fess in the throat, chills, frk 322.61 Tm 0 0 0

This drug might also increase your risk of developing a second cancer.

Antibodies against SLAMF7

SLAMF7 is another protein found on myeloma cells. Antibodies that target this protein can help the immune system attack the cancer cells.

Elotuzumab (Empliciti)

Elotuzumab is a monoclonal antibody that attaches to the SLAMF7 protein. This drug is used mainly in people who have already had other treatments for their myeloma. It’s given as an infusion into a vein (IV).

This drug can cause a reaction in some people while it is being given or within several hours afterward, which can sometimes be severe. Symptoms can include fever, chills, feeling dizzy or lightheaded, rash, wheezing, trouble breathing, tightness in the throat, or a runny or stuffy nose.

Other common side effects with this drug include fatigue, fever, loss of appetite, diarrhea, constipation, cough, nerve damage resulting in weakness or numbness in the hands and feet (peripheral neuropathy), upper respiratory tract infections, and pneumonia.

injection under the skin (subcutaneously), typically once every few days for the first week, then once a week. After several months, it can also be given once every 2 weeks.

Elrenatamab (Elrexfio)

Elrenatamab also attaches to the BCMA protein on myeloma cells. This drug is given as an injection under the skin (subcutaneously), typically once every few days for the first week, then once a week for several months, and then once every 2 weeks.

Talquetamab (Talvey)

Talquetamab attaches to the GPRC5D protein on myeloma cells (and some other cells). This drug is given as an injection under the skin (subcutaneously), typically once every few days for the first week, then either once a week or once every other week.

Side effects of BiTEs

Because these medicines can cause serious side effects when you first get them (see below), you will be started on a low dose, and you might be given other medicines to help lower the risk of side effects. You might need to stay in the hospital for a day or two after the first few doses.

Common side effects of these medicines include:

- Fever
- Feeling very tired
- Headache
- Nausea
- Diarrhea
- Muscle and joint pain
- Respiratory infections (including pneumonia)
- Low blood cell counts
- Skin rash
- Liver problems

These drugs can also cause **more serious side effects**, including:

Cytokine release syndrome (CRS): This is a serious side effect in which T cells in the body release chemicals (cytokines) that ramp up the immune system. This happens most often within the first day after treatment, and it can sometimes be life-threatening.

Symptoms can include high fever and chills, feeling dizzy or lightheaded, trouble breathing, low blood pressure, headache, and a very fast heartbeat.

Nervous system problems: These drugs might affect the nervous system, which could lead to symptoms such as headaches, numbness or tingling in the hands or feet, feeling dizzy or confused, trouble speaking or understanding things, memory loss, abnormal sleep patterns, tremors, or seizures.

Your health care team will watch you closely for possible signs of CRS and nervous system problems, especially during and after the first few treatments. Be sure to contact your health care team right away if you have any of the symptoms above.

These drugs might also cause other symptoms. Ask your health care team what you should look out for.

Nuclear export inhibitor

The nucleus of a cell holds most of the cell's genetic material (DNA) needed to make the proteins the cell uses to function and stay alive. A protein called XPO1 helps carry other proteins from the nucleus to other parts of the cell.

Selinexor (Xpovio)

Selinexor is a drug known as a **nuclear export inhibitor**. It works by blocking the XPO1 protein. When the myeloma cell cannot transport proteins from its nucleus, the cell dies.

This drug can be used, along with the steroid dexamethasone:

- For people whose myeloma is no longer responding to other myeloma drugs, OR
- Along with bortezomib for people whose myeloma has grown on at least one other drug therapy

This drug is a pill that can be taken on the first and third day of each week or weekly.

Common **side effects of selinexor** include low platelet counts, low white blood cell counts, diarrhea, nausea, vomiting, not feeling hungry, weight loss, low blood sodium levels, and infections like bronchitis or pneumonia.

Bisphosphonates and other drugs for bone disease

Myeloma cells can weaken and even break bones. Drugs that affect bone cells can help bones stay strong by slowing down this process. They can also help reduce pain in the weakened bone(s). Sometimes, pain medicines such as NSAIDs or opioids will be given along with one of these medicines to help control or lessen pain from the bones.

The drugs used most often for treating bone problems in people with myeloma are the bisphosphonates **pamidronate (Aredia)** and **zoledronic acid (Zometa)** and the drug **denosumab (Xgeva, other brand names[8])**. These drugs are given intravenously (IV or into a vein) or subcutaneously (under the skin). Most people are treated once a month at first, but they may be able to be treated less often later on if they are doing well.

Treatment with one of these drugs helps prevent further bone damage and events related to weakened bones such as fractures, hypercalcemia (high blood calcium levels), and spinal cord compression[9] in people with multiple myeloma.

Side effects of bone medicines

Side effects of bisphosphonates can include flu-like symptoms and bone or joint pain. These drugs can also cause kidney problems, so people with poor kidney function might not be able to be treated with these medicines.

Common **side effects of denosumab** can include nausea, diarrhea, and feeling weak or tired.

All of these medicines can have a rare but serious side effect called **osteonecrosis of the jaw (ONJ)**, in which part of the jaw bone loses its blood supply and dies. This can lead to an open sore that doesn’t heal. It can also lead to tooth loss in that area. The jaw bone can also become infected.

Doctors aren’t sure why this happens or how best to prevent it, but having jaw surgery or having a tooth removed can sometimes trigger this problem, so it's important to avoid these procedures while you are taking any of these medicines. One way to avoid these procedures is to maintain good oral hygiene by flossing, brushing, making sure that dentures fit properly, and having regular dental checkups. Any tooth or gum infections should be treated right away. (Dental fillings, root canal procedures, and tooth crowns do not seem to lead to ONJ.) If ONJ does occur, the doctor will stop the bone medicine.

Your doctor might recommend that you have a dental checkup before starting

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1. www.cancer.org/cancer/managing-cancer/side-effects.html
2. www.cancer.org/cancer/managing-cancer/side-effects/low-blood-counts.html
3. www.cancer.org/cancer/managing-cancer/side-effects/infections.html
4. www.cancer.org/cancer/managing-cancer/side-effects/low-blood-counts/bleeding.html
5. www.cancer.org/cancer/managing-cancer/side-effects/low-blood-counts/anemia.html
6. www.cancer.org/cancer/managing-cancer/treatment-types/chemotherapy.html
7. www.cancer.org/cancer/managing-cancer/side-effects/pain/peripheral-neuropathy.html
8. www.cancer.org/cancer/managing-cancer/treatment-types/biosimilar-drugs/list.html
9. www.cancer.org/cancer/types/multiple-myeloma/detection-diagnosis-staging/signs-symptoms.html

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Last Revised: August 28, 2024

Radiation Therapy for Multiple Myeloma

Radiation therapy uses high-energy rays or particles to kill cancer cells.

symptoms.html
2. www.cancer.org/cancer/managing-cancer/treatment-types/radiation.html
3. www.cancer.org/cancer/managing-cancer/side-effects.html

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Surgery for Multiple Myeloma

Surgery is not a common treatment for multiple myeloma, although it's sometimes used to remove single plasmacytomas (plasma cell tumors).

There are a few situations where surgery might be used for someone with myeloma. For example:

- Emergency surgery might be needed to stabilize the spinal cord if someone has spinal cord compression[1]

The type of surgery done, and the possible risks and side effects, will depend largely on the reason it's being done. If your doctor is recommending surgery, ask about the goal of the surgery and its possible side effects.

Hyperlinks

1. www.cancer.org/cancer/types/multiple-myeloma/detection-diagnosis-staging/signs-symptoms.html

References

National Cancer Institute. Plasma Cell Neoplasms (Including Multiple Myeloma) Treatment (PDQ®)–Health Professional Version. 2024. Accessed at https://www.cancer.gov/types/myeloma/hp/myeloma-treatment-pdq on August 9, 2024.

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Stem Cell Transplant for Multiple Myeloma

In a stem cell transplant, a person gets high-dose chemotherapy to kill the cells in their bone marrow (where new blood cells, including myeloma cells, are made). Then the person gets an infusion of new, healthy blood-forming stem cells to replace the ones that were killed.

When stem cell transplants were first developed decades ago, the new stem cells were taken from the bone marrow, so this was known as a **bone marrow transplant (BMT)**. Now, stem cells are more often collected from blood (known as a **peripheral blood stem cell transplant (PBSCT)**). These stem cells are likely to start working faster, and they're less likely than bone marrow cells to be contaminated with a person's myeloma cells.

- Who can get a stem cell transplant?
- Types of stem cell transplants
- Side effects of stem cell transplants
- More information about stem cell transplant

Who can get a stem cell transplant?

A stem cell transplant (SCT) is a common treatment for multiple myeloma, especially in people who are younger and otherwise fairly healthy. It can often help people live longer than if they get just get drug treatments alone.

There aren't strict criteria for who can get a stem cell transplant. But in general, people might be able to get a transplant if they're in fairly good health, are able to do most daily activites on their own, and don't have serious liver or heart disease.

People generally get at least several months of treatment with medicines before getting a SCT. This can help lower the number of myeloma cells in the bone marrow and blood, help with a person's symptoms, and help organs recover from damage the myeloma might have done.

Some people might have the option to either get the transplant at this point (**early SCT**), or continue to be treated with medicines and wait until the myeloma progresses before getting the transplant (**late or delayed SCT**). In general, early transplants are more likely to be helpful in the short term, although it's not clear that they help people live longer than delayed transplants.

Several factors are taken into account when deciding which approach might be best, a person is older.

Types of stem cell transplants

A stem cell transplant can be either autologous or allogeneic, depending on who is donating the stem cells for the transplant.

Autologous stem cell transplant

For an autologous SCT, the person’s own stem cells are removed from the bone marrow or peripheral blood before the transplant. The cells are frozen and stored until they are needed for the transplant. At the time of the transplant, the person gets treatment with high-dose chemotherapy to kill the myeloma cells. When this is complete, their stored stem cells are given back to them as an infusion into their blood through a vein. The stem cells then travel to the bone marrow and start making new blood cells.

This is by far the most common type of transplant used for multiple myeloma.

Allogeneic transplants might be better at fighting the cancer than autologous transplants, but they are much riskier. In studies of people with multiple myeloma, those who got allogeneic transplants have often done worse in the short term than those who got autologous transplants.

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CAR T-cell Therapy for Multiple Myeloma

Chimeric antigen receptor (CAR) T-cell therapy is a type of cancer immunotherapy[1]. It helps the body's own immune system find and attack cancer cells. CAR T-cell therapy is also sometimes talked about as a type of **cell-based gene therapy**, because it involves altering the genes inside certain immune cells to help them attack the cancer.

Some CAR T-cell therapies can be used to treat multiple myeloma.

How is CAR T-cell therapy done?

can include:

- High fever and chills
- Trouble breathing
- Severe nausea, vomiting, and/or diarrhea
- Feeling dizzy or lightheaded
- Headaches
- Fast heartbeat
- Feeling very tired

Nervous system problems: This treatment can sometimes have serious effects on the nervous system, which can result in symptoms such as:

- Headaches
- Changes in consciousness
- Confusion or agitation
- Seizures
- Shaking or twitching (tremors)
- Trouble speaking and understanding
- Loss of balance

Because of the risk of these side effects, you'll be advised not to drive, operate heavy machinery, or do any other potentially dangerous activities for at least 8 weeks after you get your treatment.

Other serious side effects: Other possible serious side effects can include:

- Allergic reactions during the infusion
- A weakened immune system
- An increased risk of serious infections
- Low blood cell counts, which can increase the risk of infections, fatigue, and bruising or bleeding

Your health care team will watch you closely for several weeks after you get the CAR T cells. It's very important to report any side effects to your health care team right away, as there are often medicines that can help treat them.

To learn more about this type of treatment, see CAR T-cell Therapy and Its Side Effects[2].

Hyperlinks

1. www.cancer.org/cancer/managing-cancer/treatment-types/immunotherapy.html
2. www.cancer.org/cancer/managing-cancer/treatment-types/immunotherapy/car-t-cell1.html

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Supportive Treatments for People with Multiple Myeloma

Supportive treatment is aimed at preventing or relieving symptoms, instead of treating the cancer directly. You might also hear supportive care referred to as palliative care[1], symptom management, or comfort care.

This type of treatment is given to improve a person's comfort and quality of life, no matter what the cancer stage or the goal of treatment might be.

People with multiple myeloma can often be helped by supportive care, regardless of what other treatments they might be getting. Some of the more common types of supportive care are discussed below.

- Prevention and treatment of bone problems
- Prevention and treatment of infections
- Treatment for low red blood cell counts
- Treating hyperviscosity
- More information about palliative care

Prevention and treatment of bone problems

Multiple myeloma often affects the bones, which can lead to bone pain, weakened bones, and and increased risk of fractures, as well as other problems such as high calcium levels in the blood (hypercalcemia).

Bone problems from multiple myeloma can be prevented or treated in a number of ways, depending on the situation, including:

- Bone medicines such as bisphosphonates (pamidronate or zoledronic acid) or denosumab
- Pain medicines[2] to help with bone pain
- Radiation therapy to areas of damaged bone
- Surgery to help prevent or treat fractures in bones weakened by myeloma

Prevention and treatment of infections

People with multiple myeloma often have low levels of the normal antibodies (immunoglobulins) needed to fight infection[3]. This can lead to a weakened immune system and lung and/or sinus infections that keep coming back.

The level of antibodies in a person’s blood can be tested, and if it’s low, antibodies from donors can be given into a vein (IV) to raise the levels and help prevent infections. These antibodies are called **intravenous immunoglobulin (IVIG)**. IVIG is often given once a month at first, but it may be given less often based on blood tests of antibody levels.

Antibiotics are often given during the first few months of treatment, either to help prevent infections or to treat existing infections.

Certain vaccines[4] are also often recommended to help lower the risk of some types of infections in people with multiple myeloma.

Treatment for low red blood cell counts

Some people develop low red blood cell counts (anemia[5]) from multiple myeloma or its treatment. They might feel tired, lightheaded, or short of breath, especially when active. Anemia that’s causing symptoms can be treated with ________________

To learn about some of the side effects of cancer or treatment and how to manage them, see Managing Cancer-related Side Effects[10].

Hyperlinks

1. www.cancer.org/cancer/managing-cancer/palliative-care.html
2. www.cancer.org/cancer/managing-cancer/side-effects/pain/cancer-pain.html
3. www.cancer.org/cancer/managing-cancer/side-effects/infections.html
4. www.cancer.org/cancer/managing-cancer/side-effects/infections/vaccination-during-cancer-treatment.html
5. www.cancer.org/cancer/managing-cancer/side-effects/low-blood-counts/anemia.html
6. www.cancer.org/cancer/managing-cancer/treatment-types/blood-transfusion-and-donation.html
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8. www.cancer.org/cancer/types/multiple-myeloma/detection-diagnosis-staging/signs-symptoms.html
9. www.cancer.org/cancer/managing-cancer/palliative-care.html
10. www.cancer.org/cancer/managing-cancer/side-effects.html

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Treatment Options for Multiple Myeloma and Other Plasma Cell Disorders

Treatment options for plasma cell neoplasms, including multiple myeloma, depend on a number of factors, including a person's age, overall health, and preferences, as well as the characteristics of the disease itself.

- Treating solitary plasmacytomas
- Treating smoldering multiple myeloma
- Treating active (symptomatic) multiple myeloma

Treating solitary plasmacytomas

Solitary plasmacytomas are single plasma cell tumors. Most often they develop in a bone, but they can also start in other body tissues (such as the lungs or other organs), where they are called solitary **extramedullary (or extraosseous) plasmacytomas**.

These tumors are most often treated with radiation therapy. Sometimes the tumor might be removed with surgery first, as part of the testing to determine what it is. But even then, radiation therapy is often given to the area afterward, especially if the tumor is in a bone. Surgery might also be needed to stabilize a bone that has been weakened by a tumor.

Medicines aren't usually part of the treatment for a plasmacytoma, unless it progresses at some point to multiple myeloma.

Treating smoldering multiple myeloma

Smoldering myeloma[1] has some features of active multiple myeloma, but it doesn't cause symptoms.

People with smoldering myeloma are generally grouped based on their risk of the disease progressing to active myeloma. This is based on the results of the bone marrow biopsy and certain lab tests[2].

People in the low-risk group often do well for years without treatment, so they're typically watched closely without starting treatment right away. They usually have regular doctor visits and tests to check if the disease has progressed to active myeloma. These are typically done every 3 to 6 months for a while, but the time between visits and tests might be extended over time. If the disease does progress to active myeloma at some point, treatment (as described below) can be started at that time.

For people with **high-risk smoldering myeloma**, options might include close monitoring (similar to what's done with low-risk disease) or treatment with medicines, such as lenalidomide, with or without dexamethasone. This can help lower the risk of the disease progressing to active myeloma and can help prevent organ damage in some people. If the myeloma does progress at some point, treatment options would be the same as those for active myeloma (as described below).

Treating active (symptomatic) multiple myeloma

Medicines are the main type of treatment for multiple myeloma. Usually different types of medicines are used together, as this offers a better chance to keep the myeloma under control. The choice of medicines depends on many factors, including:

- Which **risk group** the myeloma is in (high risk or standard risk), which is based mainly on certain gene or chromosome changes in the myeloma cells
- If a person is eligible for (and is considering) a **stem cell transplant**
- A person's age, overall health, and preferences

Initial treatment for active multiple myeloma

The first treatment for nearly all people with myeloma is several months of medicines. This is sometimes referred to as **induction therapy**, as the goal is to induce a remission of the myeloma.

Most often, 3 or 4 different types of drugs are given. Many combinations of drugs can be

While 4 drugs might keep the myeloma under control for longer than 3 drugs, it's also likely to result in more side effects. Regimens that contain 4 drugs are more likely to be used for people with high-risk myeloma and who are otherwise fairly healthy.

People with multiple myeloma typically get a medicine to help keep the bones strong as well, such as a bisphosphonate (pamidronate or zoledronic acid) or denosumab. People might also get other types of supportive treatments to help prevent or treat symptoms from the myeloma.

Treatment options for standard-risk myeloma

After several months of induction treatment, stem cells are usually collected from the patient's blood, if they might get a stem cell transplant at some point.

At this point, the options for people with standard-risk myeloma might include:

- Having an autologous stem cell transplant, (for people who are eligible, known as an **early stem cell transplant**)
- Continuing to get the same medicines, for up to about a year or until the myeloma progresses, and then getting a stem cell transplant (known as a **delayed or late stem cell transplant**)
- Continuing to get the same medicines, for up to about a year in total or until the myeloma progresses, for people who can't get or don't want a stem cell transplant

After any of these approaches, long-term **maintenance therapy**, most often with a single drug such as lenalidomide, might be recommended.

Treatment options for high-risk myeloma

People with high-risk myeloma are more likely to get a 4-drug regimen for their induction treatment. After several months of this, stem cells are usually collected from their blood, if they might get a stem cell transplant at some point.

Because of the higher risk of the myeloma progressing, doctors often advise doing a stem cell transplant at this time, if a person can have it. This is usually an autologous transplant (either a single transplant or a tandem/double transplant, in which two transplants are done, typically 3 to 6 months apart). Less often, an allogeneic transplant might be considered for some people.

For people who can't get a stem cell transplant, treatment with the same medicines is usually continued as long as it's effective, for up to about a year in total.

After either of these approaches, long-term **maintenance therapy**, most often with lenalidomide and/or bortezomib, is typically recommended.

If the myeloma doesn't respond or stops responding to treatment

While multiple myeloma is very hard to cure, medicines are often very good at keeping it under control or even shrinking it for long periods of time. Still, sometimes myeloma might not respond well to treatment, or it might start growing again during treatment (or after treatment).

If this happens, other options can be tried. There are many types of medicines to treat myeloma. Which treatment is best depends on many of the same factors used to decide on the first treatment, as well as others, such as:

- Which medicines have been used to treat the myeloma before
- How well the myeloma responded to the medicines
- If the myeloma is likely to respond to the same medicines again
- When in the course of treatment the myeloma progresses or comes back
- If a stem cell transplant is now an option

Usually if the myeloma progresses during the inital (induction) treatment, other combinations of medicines can be tried. A stem cell transplant might be another option.

Newer medicines and treatments, such as bispecific T-cell engagers (BiTEs) and CAR T-cell therapy, might also be options at some point. While these are usually reserved for later lines of treatment (after others have been tried), doctors are now studying their use earlier in the course of treatment as well.

Myeloma tends to get harder to treat as more lines of treatment have been tried. At any time, taking part in a clinical trial[3] studying a newer treatment might be a good option for some people.

Regardless of which treatments are being used, people with myeloma can often be helped by getting supportive treatments as well.

Hyperlinks

1. www.cancer.org/cancer/types/multiple-myeloma/about/what-is-multiple-myeloma.html
2. www.cancer.org/cancer/types/multiple-myeloma/detection-diagnosis-staging/testing.html
3. www.cancer.org/cancer/managing-cancer/making-treatment-decisions/clinical-trials.html

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