

## WHAT IS MULTIPLE MYELOMA?



Multiple myeloma is a rare disease and represents approximately **1% of all diagnosed cancers worldwide**<sup>\*17</sup>



**Approximately 176,000 new cases** diagnosed globally per year<sup>\*17</sup>



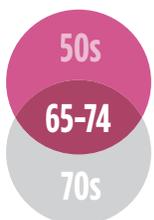
**Third most common** type of blood cancer<sup>\*17</sup>



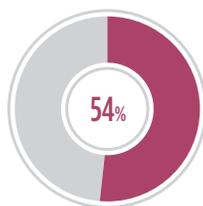
**More than 450,000 people** around the world are **living with multiple myeloma**<sup>\*17</sup>

- In multiple myeloma, normal plasma cells become cancerous through a complex multi-step process leading them to multiply and grow in the bone marrow. As the myeloma cells grow in excess in the bone marrow, it can result in numerous health complications.<sup>1</sup>
- Complications occur due to myeloma cell growth and excessive protein production in the bone marrow. The most common serious health problems that occur due to myeloma will affect the bones, immune system, kidneys and blood cell count, with some of the more common symptoms including bone pain and fatigue.
  - While in the bone marrow, myeloma cells contribute to bone destruction and can result in lytic lesions. As the myeloma cells grow in the bone marrow, there can be progressive bone damage leading to compression fractures and pain.<sup>1</sup>
- Multiple myeloma can evolve from an asymptomatic stage to a more active form.<sup>4</sup>
- Despite therapeutic advances over the last two decades, multiple myeloma remains an incurable cancer.<sup>3,5</sup>

## MM FACTS TO KNOW



Multiple Myeloma is most often diagnosed among people **aged 65-74** and a risk factor for the disease is age. It occurs more in men vs women and in certain racial groups, such as African American populations<sup>18</sup>



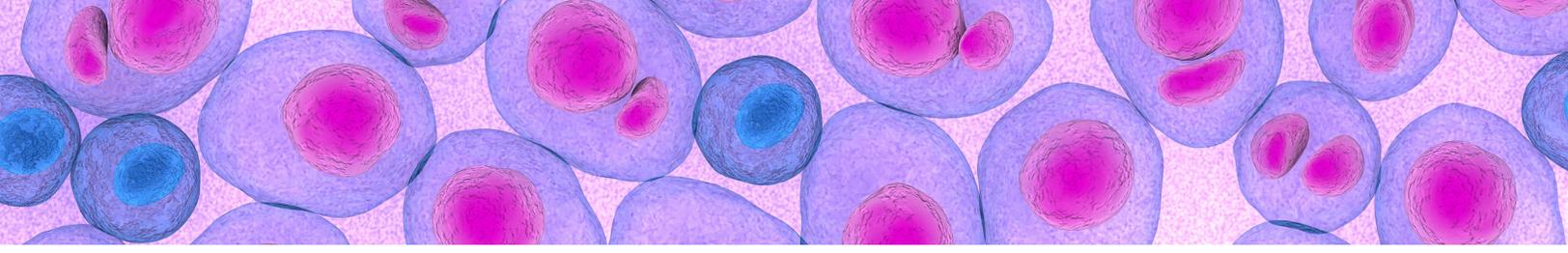
The **five year survival-rate** for patients with multiple myeloma is **about 54%**<sup>\*19</sup>



In 2021, an **estimated 34,920** (19,320 men and 15,600 women) in the United States will be **diagnosed with multiple myeloma**<sup>\*20</sup>



An **estimated 12,410 deaths** (6,840 in men and 5,570 in women) from multiple myeloma **will occur in the United States**<sup>\*20</sup>



## TREATMENT PLANNING

- A treatment plan is designed for each patient individually, based on multiple factors such as:



**Age<sup>6</sup>**



**General Health<sup>6</sup>**



**Blood and Bone  
Marrow Test Results<sup>6</sup>**



**Symptoms<sup>6</sup>**

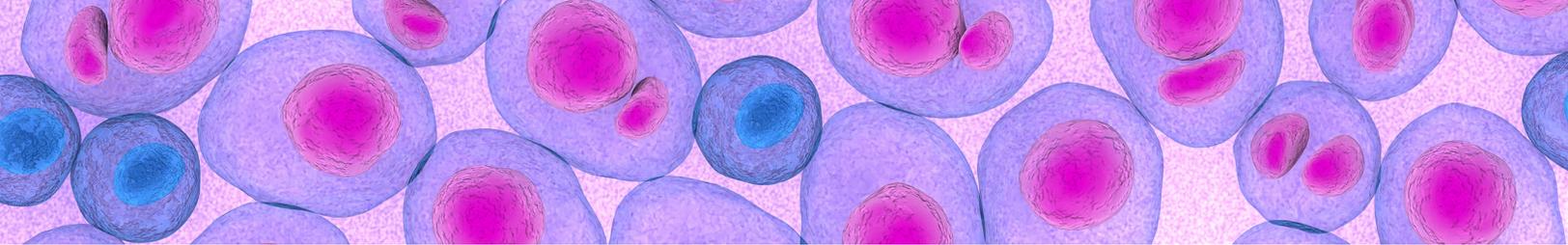


**Prior Myeloma  
Treatment<sup>6</sup>**



**A Patient's Quality of Life  
and Personal Preferences<sup>6</sup>**

- Sustained treatment may allow patients to live longer. Today, novel therapies are helping patients experience longer progression-free survival than ever.<sup>7</sup>
- Previously untreated multiple myeloma patients usually start on induction therapy to reduce the tumor burden. Patients are closely monitored for toxicity and response by frequent assessment and blood work. Treatment may also include a stem cell transplant, based on a patient's health status.<sup>4</sup>
- Patients may be prescribed maintenance treatment in an attempt to delay the disease from returning or relapsing.<sup>4</sup>
- Relapse occurs to the majority of patients, and may occur one or multiple times.<sup>8</sup> Some considerations for treatment in relapse include individual patient characteristics, as well as the duration and response to previous therapies, type and aggressiveness of the relapse and treatment tolerance.<sup>9,10</sup>
- It is important that patients and health care providers discuss treatment regimens tailored to the patient's needs, as well as the prescribing information and clinical guidelines of available therapy options.<sup>9</sup>



## CURRENT TREATMENT LANDSCAPE

- There are multiple drug classes available for the treatment of multiple myeloma including immunomodulatory drugs (IMiDs), proteasome inhibitors (PIs), monoclonal antibodies, steroids, histone deacetylase (HDAC), alkylating agents and chimeric antigen receptor T cell (CAR-T) therapy. These treatments are often used in doublet (two drug) and triplet (three drug) combinations. Combination regimens may allow for better patient outcomes.<sup>12</sup>
  - In the modern era of multiple myeloma therapeutics, PIs and IMiDs have replaced chemotherapy regimens for newly diagnosed multiple myeloma patients.<sup>5</sup>
  - In vitro data suggest PIs act by blocking, or inhibiting, proteasomes from breaking down proteins. This causes a buildup of proteins in the cell which can result in myeloma cell death.<sup>13</sup>
  - IMiDs may inhibit a number of different pathways in myeloma cells, as well as impact the immune system.<sup>14</sup> IMiDs modulate many of the interactions between myeloma cells and the bone marrow microenvironment, leading to decreased myeloma cell growth and survival.<sup>15</sup> These exact mechanisms are still being researched.
  - Monoclonal antibodies are a type of therapy designed to target a specific antigen expressed on the surface of multiple myeloma cells. Monoclonal antibodies work by attaching themselves to proteins on cancer cells and killing them via a number of mechanisms, including the host's immune system and/or by promoting apoptosis.<sup>4,16</sup>

<sup>1</sup> Multiple Myeloma Research Foundation. What Is Multiple Myeloma. Accessible on: <http://www.themmr.org/multiple-myeloma/what-is-multiple-myeloma/>. Accessed April 5, 2021.

<sup>2</sup> Multiple Myeloma Research Foundation. Multiple Myeloma Symptoms. Accessible on: <http://www.themmr.org/multiple-myeloma/symptoms/>. Accessed April 5, 2021.

<sup>3</sup> Everyday Health. What Is Multiple Myeloma? <http://www.everydayhealth.com/multiple-myeloma/guide/>. Accessed April 5, 2021.

<sup>4</sup> National Comprehensive Cancer Network. Multiple Myeloma: NCCN Guidelines for Patients. <http://www.nccn.com>. Accessed April 5, 2021.

<sup>5</sup> Ntanasis-Stathopoulos I, Terpos E, Dimopoulos MA. Optimizing Immunomodulatory Drug With Proteasome Inhibitor Combinations in Newly Diagnosed Multiple Myeloma. *Cancer J*. 2019;25:10. Accessed April 5, 2021.

<sup>6</sup> Multiple Myeloma Research Foundation. Multiple Myeloma Treatment. Accessible on: <http://www.themmr.org/multiple-myeloma/multiple-myeloma-treatment-options/>. Accessed April 5, 2021.

<sup>7</sup> Palumbo A, Gay F, Cavallo F et al. Continuous Therapy Versus Fixed Duration of Therapy in Patients With Newly Diagnosed Multiple Myeloma. *Journal of Clinical Oncology*. 2015;60:2466.

<sup>8</sup> Lonial S. Relapsed Multiple Myeloma. *Hematology Am Soc Hematol Educ Program*. 2010;2010:1303-309.

<sup>9</sup> San Miguel JF. Relapse/Refractory Myeloma Patient: Potential Treatment Guidelines. *Journal of Clinical Oncology*. 2009;24:3683.

<sup>10</sup> Sonneveld, Pieter. "Management of multiple myeloma in the relapsed/refractory patient." *Hematology. American Society of Hematology. Education Program vol. 2017,1 (2017): 508-517.*

<sup>11</sup> Multiple Myeloma Research Foundation. Multiple Myeloma Drug Therapies. Accessible on: <http://www.themmr.org/multiple-myeloma/multiple-myeloma-treatment-options/myeloma-drugs/>. Accessed April 5, 2021.

<sup>12</sup> Lonial S, Kaufman JL. The Era of Combination Therapy in Myeloma. *Journal of Clinical Oncology*. 2012;30:2434-2436.

<sup>13</sup> Prescribing Information for VELCADE. Millennium Pharmaceuticals, Inc., Cambridge, MA; 2014.

<sup>14</sup> Quach H, Ritchie D, Stewart AK et al. Mechanism of Action of Immunomodulatory Drugs (IMiDs) in Multiple Myeloma. *Leukemia*. 2010;24:22-32.

<sup>15</sup> Andhavarapu S, Roy V. Immunomodulatory Drugs in Multiple Myeloma. *Expert Rev Hematol*. 2013;6(1):69-82.

<sup>16</sup> Lonial S, Durie B, Palumbo A et al. Monoclonal antibodies in the treatment of multiple myeloma: current status and future perspectives. *Leukemia*. 2016;30:526-535.

<sup>17</sup> International Agency for Research on Cancer. World Health Organization. All cancers. 2020. Accessible on: <https://gco.iarc.fr/today/data/factsheets/populations/900-world-fact-sheets.pdf>. Accessed April 5, 2021.

<sup>18</sup> National Institute of Health. Cancer Stat Facts: Myeloma. Accessible on: <https://seer.cancer.gov/statfacts/html/mulmy.html>. Accessed April 5, 2021.

<sup>19</sup> American Cancer Society. Early Detection, Diagnosis, and Staging. Accessible on: <https://www.cancer.org/cancer/multiple-myeloma/detection-diagnosis-staging/survival-rates.html>. Accessed on April 6, 2021.

<sup>20</sup> American Cancer Society. Key Statistics For Multiple Myeloma. Accessible on: <https://www.cancer.org/cancer/multiple-myeloma/about/key-statistics.html>. Accessed on April 5, 2021.



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C-ANPROM/INT/NINL/0059 8/21