Multiple Myeloma

Adapted from *NCCN Clinical Practice Guidelines in Oncology*

Initial Diagnostic Workup

- ❑ History and Physical Examination
- ❑ CBC, differential, platelet count
- ❑ BUN, creatinine, electrolytes
- ❑ LDH
- ❑ Calcium, albumin
- ❑ Beta-2 microglobulin
- ❑ Serum free light chain (FLC) assay
- ❑ Serum quantitative immunoglobulins
- ❑ Serum protein electrophoresis (SPEP)
- ❑ Serum immunofixation electrophoresis (SIFE)
- ❑ 24 hour urine for total protein
- ❑ Urine protein electrophoresis (UPEP)
- ❑ Urine immunofixation electrophoresis (UIFE)
- ❑ Skeletal survey
- ❑ Bone marrow biopsy: immunohistochemistry, flow cytometry
- ❑ Cytogenetics
- ❑ FISH: del13, del17p13, t(4;14), t(11;14), t(14;16), amp(1q21)

Optional Workup

- ❑ MRI
- ❑ CT scan (avoid contrast)
- ❑ PET/CT scan
- ❑ Tissue biopsy (for solitary plasmacytoma)
- ❑ Bone densitometry
- ❑ Plasma cell labeling index
- ❑ Staining of marrow and fat pad for amyloid
- ❑ Serum viscosity
- ❑ HLA typing

Solitary Plasmacytoma

Osseous → **RT ≥45 Gy to involved field**

Extraosseous → **RT ≥45 Gy to involved field and/or surgery**

Follow-up/Surveillance

- ❑ CBC
- ❑ Creatinine, calcium, albumin
- ❑ LDH as clinically indicated
- ❑ Beta-2 microglobulin
- ❑ Serum FLC assay
- ❑ Serum quantitative immunoglobulins, SPEP, SIFE
- ❑ 24 hour urine for total protein, UPEP, UIFE
- ❑ Bone marrow biopsy as clinically indicated or annually
- ❑ MRI and/or CT and/or PET/CT as clinically indicated

Primary progressive or response followed by progression → **Restage with myeloma workup** → **Proceed to therapy for active (symptomatic) myeloma**

Smoldering (Asymptomatic) → **Observe at 3– to 6–month intervals (category 1) or clinical trial** →

Follow-up/Surveillance

- ❑ CBC, differential, platelet count
- ❑ BUN, creatinine, calcium
- ❑ Bone survey annually or for symptoms
- ❑ Serum FLC assay as clinically indicated
- ❑ Serum/urine quantitative immunoglobulins and M protein
- ❑ Bone marrow biopsy as clinically indicated or annually
- ❑ MRI and PET/CT as clinically indicated
- ❑ Multi-parameter flow cytometry as clinically indicated

→ **Progression to symptomatic myeloma** → **Proceed to therapy for active (symptomatic) myeloma**

Active (Symptomatic) → **Myeloma therapy, bisphosphonates + adjunctive treatment as indicated** →

Follow-up/Surveillance

- ❑ CBC, differential, platelet count
- ❑ BUN, creatinine, calcium
- ❑ Bone survey annually or for symptoms
- ❑ Serum FLC assay as clinically indicated
- ❑ Serum/urine quantitative immunoglobulins and M protein
- ❑ Bone marrow biopsy as clinically indicated or annually
- ❑ MRI and PET/CT as clinically indicated

→ **Stem-cell harvest (adequate for 2 transplants), if candidate for transplantation (refer for evaluation by stem cell transplant center)**

Response

- **Allogeneic stem cell transplant in clinical trial** →

Follow-up/Surveillance

- ❑ CBC, differential, platelet count
- ❑ BUN, creatinine, calcium
- ❑ Bone survey annually or for symptoms
- ❑ Serum FLC assay as clinically indicated
- ❑ Quantitative immunoglobulins and M protein every 3 month
- ❑ Bone marrow biopsy as clinically indicated or annually
- ❑ MRI and PET/CT as clinically indicated

→ **Progressive disease** → **Salvage therapy *OR* Donor lymphocyte infusion**

→ **Response or stable disease** → **Maintenance therapy or observe** → **Progressive disease** → **Salvage therapy *OR* Donor lymphocyte infusion**

- **Autologous stem cell transplant (category 1)** →

Follow-up/Surveillance

- ❑ CBC, differential, platelet count
- ❑ BUN, creatinine, calcium
- ❑ Bone survey annually or for symptoms
- ❑ Serum FLC assay as clinically indicated
- ❑ Quantitative immunoglobulins and M protein every 3 month
- ❑ Bone marrow biopsy as clinically indicated or annually
- ❑ MRI and PET/CT as clinically indicated

→ **Progressive disease** → **Salvage therapy *OR* Allogeneic stem cell transplant (category 3)**

→ **Response or stable disease** → **Maintenance therapy or observe or second tandem transplant ± maintenance therapy** → **Progressive disease** → **Salvage therapy ± autologous stem cell transplant *OR* Allogeneic stem cell transplant**

- **Continue myeloma therapy until best response** → **Monitor as above and/or maintenance therapy** →

No response → **Monitor as above and/or maintenance therapy** →

Relapse or progressive disease

→ **Transplant candidate** → **Autologous stem cell transplant** → **Progressive disease** → **Salvage therapy *OR* Allogeneic stem cell transplant**

→ **Non-transplant candidate** → **Salvage therapy** → **Palliative care**