**Tracking Disease Status for Multiple Myeloma**

This appendix is intended to provide additional resources when determining:

* Best response to line of therapy pre-transplant;
* Disease Status at the Last Evaluation Prior to the Preparative Regimen;
* Disease Assessment at the Time of Best Response to HSCT;
* Best response to line of therapy post-transplant;
* Disease relapse or progression; and
* Current disease status.

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| **Multiple Myeloma Disease Status Tracking** |
| **Monoclonal Protein:** |  | IgA IgD IgE IgG IgM | **Light Chain:** | Kappa(κ) Lambda(λ) |
|  | **Values** | **Yes/No** |
| Date | Immunofixation (Serum) | Immunofixation (Urine) | SPEP | UPEP | 24-Hour Urine | κ/λ ratio | % Plasma Cells in BM | Plasma-cytomas? | Lytic Lesions? |
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**Stringent Complete Remission (sCR):**

Follow criteria for CR, plus all of the following:

* Normal free light chain ratio,
* Absence of clonal cells in the bone marrow by immunohistochemistry or immunofluorescence (confirmation with repeat bone marrow biopsy not needed). (Presence and/or absence of clonal cells is based upon the κ/λ ratio. An abnormal κ/λ ratio by immunohistochemistry and/or immunofluorescence requires a minimum of 100 plasma cells for analysis. An abnormal ratio reflecting the presence of an abnormal clone is κ/λ of > 4:1 or < 1:2.)

sCR requires two consecutive assessments (of the same method) made at any time before the institution of any new therapy. If radiographic studies were performed, there must be no known evidence of progressive or new bone lesions. Radiographic studies are not required to satisfy sCR requirements.

**Complete Remission (CR):**

A treatment response where all of the following criteria are met:

* Negative immunofixation on serum and urine samples
* Disappearance of any soft tissue plasmacytomas
* < 5% plasma cells in the bone marrow (confirmation with repeat bone marrow biopsy not needed)

For recipients with light chain only myeloma, all of the following criteria must be met:

* Normal serum free light chain ratio
* Negative immunofixation on urine samples
* Disappearance of any soft tissue plasmacytomas
* < 5% plasma cells in the bone marrow (confirmation with repeat bone marrow biopsy not needed)

For recipients with non-secretory myeloma, all of the following criteria must be met:

* Disappearance of all soft tissue plasmacytomas
* < 5% plasma cells in the bone marrow (confirmation with repeat bone marrow biopsy not needed)

CR requires two consecutive assessments (of the same method) made at any time before the institution of any new therapy. If radiographic studies were performed, there must be no known evidence of progressive or new bone lesions. Radiographic studies are not required to satisfy CR requirements.

**Near Complete Remission (nCR):**

Serum and Urine M-Protein detectable by immuofixation (IFE), but not by protein electrophoresis (negative SPEP and UPEP), < 5% plasma cells in the bone marrow. nCR requires two consecutive assessments (of the same method) made at any time before the institution of any new therapy. If radiographic studies were performed, there must be no known evidence of progressive or new bone lesions. Radiographic studies are not required to satisfy nCR requirements.

**Very Good Partial Response (VGPR):**

One or more of the following must be present:

* Serum and urine M-protein detectable by immunofixation but not on electrophoresis
* ≥ 90% reduction in serum M-protein and urine M-protein level < 100 mg/24 hours.

VGPR requires two consecutive assessments (of the same method) made at any time before the institution of any new therapy. If radiographic studies were performed, there must be no known evidence of progressive or new bone lesions. Radiographic studies are not required to satisfy VGPR requirements.

**Partial Response (PR):**

Both of the following must be present:

* ≥ 50% reduction in serum M-protein
* Reduction in 24-hour urinary M-protein by ≥ 90% or to < 200 mg/24 hours.

If the serum and urine M-protein are not measurable (i.e., do not meet the following criteria):

* serum M-protein ≥ 1 g/dL,
* urine M-protein ≥ 200 mg/24 hours;

then a ≥ 50% decrease in the difference between involved and uninvolved free light chain levels is required in place of the M-protein criteria (provided the serum free light chain assay shows involved level > 10 mg/dL and the serum free light chain is abnormal).

If serum and urine M-protein and serum-free light assay are not measurable, a ≥ 50% reduction in bone marrow plasma cells is required in place of M-protein, provided the baseline bone marrow plasma cell percentage was ≥ 30%.

In addition to the above listed criteria, a ≥ 50% reduction in the size of soft tissue plasmacytomas is also required, if present at baseline. PR requires two consecutive assessments (of the same method) made at any time before the institution of any new therapy. If radiographic studies were performed, there must be no known evidence of progressive or new bone lesions. Radiographic studies are not required to satisfy PR requirements.

**Stable Disease (SD):**

Does not meet the criteria for CR, VGPR, PR, or PD.

SD requires two consecutive assessments (of the same method) made at any time before the institution of any new therapy. If radiographic studies were performed, there must be no known evidence of progressive or new bone lesions. Radiographic studies are not required to satisfy SD requirements.

**Progressive Disease (PD):**

Requires one or more of the following:

Increase of ≥ 25% from the lowest response value achieved in:

* Serum M-component with an absolute increase ≥ 0.5 g/dL (for progressive disease, serum M-component increases of ≥ 1 g/dL are sufficient if the starting M-component is ≥ 5 g/dL); and/or
* Urine M-component with an absolute increase ≥ 200 mg/24 hours; and/or
* For recipients without measurable serum and urine M-protein levels, the difference between involved and uninvolved free light chain levels with an absolute increase > 10 mg/dL; and/or
* Bone marrow plasma cell percentage with absolute percentage ≥ 10%; and/or
* Definite development of new bone lesions or soft tissue plasmacytomas, or definite increase in the size of any existing bone lesions or soft tissue plasmacytomas; and/or
* Development of hypercalcemia (corrected serum calcium > 11.5 mg/dL or 2.65 mmol) that can be attributed solely to the plasma cell proliferative disorder.

PD requires two consecutive assessments (of the same method) made at any time before classification as disease progression, and/or the institution of any new therapy.

**Relapse from CR:**

Requires one or more of the following:

* Reappearance of serum or urine M-protein by immunofixation or electrophoresis; and/or
* Development of ≥ 5% plasma cells in the bone marrow (relapse from CR has a 5% cutoff vs. 10% for other categories); and/or
* Appearance of any other sign of progression (e.g., new plasmacytoma, lytic bone lesion, hypercalcemia).

Relapse requires two consecutive assessments (of the same method) made at any time before classification as relapse, and/or the institution of any new therapy.

**At any response level, if some but not all criteria are met, the disease status should be downgraded to the next lower level of response.**

**The percentage of plasma cells in the bone marrow aspirate and/or biopsy may also be identified on a flow cytometry report. A flow cytometry report may not be used to confirm CR (e.g., < 5% plasma cells in the bone marrow).**

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| **Version Number** | **Date of Change** | **Type of Change (Add / Remove / Modify)** | **Description of Change** |
| 2.1 | 01/14/2015 | Modify | Updated to CIBMTR branding |
| 2.1 | 01/14/2015 | Add | Added Near CR criteria |
| 2.1 | 01/14/2015 | Modify | Reformatted Disease Status Definitions into columns from table format |