

# Bone Marrow Transplant Adjudication Guideline

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## **1. Abstract**

### **1.1 For Members**

A bone marrow transplant is a medical treatment that replaces bone marrow with healthy cells. The replacement cells can either come from your own body or from a donor.

A bone marrow transplant is also called a stem cell transplant or, more specifically, a hematopoietic stem cell transplant. Transplantation can be used to treat certain types of cancer, such as leukaemia, myeloma, and lymphoma, and other blood and immune system diseases that affect the bone marrow.

### **1.2 For Medical Professionals**

A stem cell or bone marrow transplant replaces damaged blood cells with healthy ones. It can be used to treat conditions affecting the blood cells, such as leukaemia and lymphoma.

## **2. Scope**

The scope of this adjudication rule is to highlight the medical criteria, patient eligibility criteria and coverage details for Bone marrow transplant procedures for plans administered by Daman, subject to policy terms and conditions.

### 3. Adjudication Policy

#### 3.1 Eligibility / Coverage Criteria

**Indications:**

**Adults:**

Malignant disorder	Non-malignant disorders
<ul style="list-style-type: none"> <li>• <u>Acute Myeloid Leukemia</u></li> <li>• <u>Acute Promyelocytic Anemia</u></li> <li>• <u>Acute Lymphoblastic Leukemia</u></li> <li>• <u>Chronic Myeloid Leukemia</u></li> <li>• <u>Myelodysplastic Syndrome</u></li> <li>• <u>Myelofibrosis and Myelofibrotic disease</u></li> <li>• <u>Plasma cell disorders</u></li> <li>• <u>Myeloma</u></li> <li>• <u>Light chain amyloidosis</u></li> <li>• <u>POEMS Syndrome</u></li> <li>• <u>Replase after autologous transplant</u></li> <li>• <u>Hodgkin's Lymphoma</u></li> <li>• <u>High Grade B Cell Lymphoma</u></li> <li>• <u>Primary Nervous system lymphoma</u></li> <li>• <u>Lymphoma</u></li> <li>• <u>Waldenström macroglobinemia</u></li> <li>• <u>Germ cell tumors and Ewing's Sarcoma</u></li> </ul>	<ul style="list-style-type: none"> <li>• <u>Severe Aplastic Anemia</u></li> <li>• <u>Sickle cell disease</u></li> <li>• <u>Hemophagocytic disorders</u></li> <li>• <u>Multiple and Systemic Sclerosis</u></li> <li>• <u>Wiskott Aldrich Syndrome</u></li> </ul>

**Paediatric:**

Malignant disorder	Non-malignant disorders
<ul style="list-style-type: none"> <li>• <u>Acute Myeloid Leukemia</u></li> <li>• <u>Acute Lymphoblastic Leukemia</u></li> <li>• <u>Chronic Myeloid Leukemia</u></li> <li>• <u>Myelodysplastic Syndrome</u></li> <li>• <u>T cell Non-Hodgkin's lymphoma</u></li> <li>• <u>Burkitt's Lymphoma</u></li> <li>• <u>Hodgkin's Lymphoma</u></li> <li>• <u>Ewing's Sarcoma</u></li> <li>• <u>Neuroblastoma</u></li> <li>• <u>Wilms Tumor</u></li> <li>• <u>Osteosarcoma</u></li> <li>• <u>Medulloblastoma</u></li> <li>• <u>Other Malignant Brain tumors</u></li> </ul>	<ul style="list-style-type: none"> <li>• <u>Severe Aplastic Anemia</u></li> <li>• <u>Sickle cell disease</u></li> <li>• <u>Thalassemia</u></li> <li>• <u>Hemophagocytic disorders</u></li> </ul>

## **Timings for referral:**

### **Adult Leukemias and Myelodysplasia:**

Acute Lymphoblastic Leukemia (ALL): Adult defined as greater than or equal to 40 years. High-resolution HLA typing is recommended at diagnosis for all patients. HSCT consultation should take place early after initial diagnosis for all patients with ALL, including:

- Primary induction failure
- Measurable (also known as minimal) residual disease after initial therapy.
- First relapse
- CR1
- CR2 and beyond, if not previously evaluated

Myelodysplastic Syndromes (MDS): High-resolution HLA typing is recommended at diagnosis for all patients. Any intermediate or high IPSS or IPSS-R score Any MDS with poor prognostic features, including:

- Treatment-related MDS
- Refractory cytopenias
- Adverse cytogenetics and molecular features
- Transfusion dependence
- Failure of hypomethylating agents or chemotherapy
- Moderate to severe marrow fibrosis

### **Chronic Myeloid Leukemia (CML):**

- Inadequate hematologic or cytogenetic/molecular response to tyrosine kinase inhibitor (TKI) therapies
- Disease progression
- Intolerance to TKI therapies
- Accelerated phase.
- Blast crisis (myeloid or lymphoid)
- T315I mutation

Myeloproliferative Neoplasms (MPN): High-resolution HLA typing is recommended at diagnosis for all patients. Intermediate- or high-risk disease, including:

- High-risk cytogenetics
- Poor initial response or at progression

### Myelofibrosis (MF):

- DIPSS Intermediate-2 (INT-2) and high-risk disease
- DIPSS Intermediate-1 (INT-1) with low platelet counts, refractory, red blood cell transfusion dependent, circulating blast cells > 2%, complex cytogenetics.
- High risk driver mutations (ASXL1, EZH2, TET2, IDH1, IDH2, SRSF2, and TP53) or triple negative (lack of a driver mutation such as JAK2, MPL, or CALR) should be considered in decision making.

### Chronic Lymphocytic Leukemia (CLL):

- Resistance or intolerance to BTK inhibitors and/or BCL2 inhibitors

### **Pediatric Acute Leukemias and Myelodysplasia:**

Acute Myeloid Leukemia (AML): High-resolution HLA typing is recommended at diagnosis for all patients. Early after initial diagnosis, all patients with AML including:

- Age < 2 years at diagnosis
- Primary induction failure
- Measurable (also known as minimal) residual disease after initial therapy.
- CR1 — except favorable risk AML [defined as: t(8;21)(q22;q22.1); RUNX1- RUNX1T1, inv(16)(p13.1q22) or t(16;16)(p13.1;q22); CBFβ-MYH11, mutated NPM1 without FLT3-ITD or with FLT3-ITD low, biallelic mutated CEBPA]
- Monosomy 5 or 7
- Treatment-related leukemia
- First relapse
- CR2 and beyond, if not previously evaluated

### Acute Lymphoblastic Leukemia (ALL) (age < 15 years):

- Infant at diagnosis, unfavorable genetics, age < 3 months with any White Blood Cell Count (WBC), or < 6 months with WBC > 300,000 at presentation
- Primary induction failure
- Presence of measurable (also known as minimal) residual disease after initial therapy
- High/very high-risk CR1, including:
  - o Philadelphia chromosome positive slow-TKI responders or with Ikaros Zinc Finger 1 (IKZF1) deletions;
  - o Philadelphia-like
  - o Intrachromosomal amplification of chromosome 21 (iAMP21)
  - o 11q23 rearrangement
- First relapse
- CR2 and beyond, if not previously evaluated
- Chimeric Antigen Receptor Therapy (CAR-T)

Acute Lymphoblastic Leukemia (ALL): (adolescent and young adults aged 15-39 years) High-resolution HLA typing is recommended at diagnosis for all patients.

- Primary induction failure
- Presence of measurable (also known minimal) residual disease after initial therapy
- High/very high-risk CR1, including:
  - o Philadelphia chromosome positive or Philadelphia-like
  - o iAMP21
  - o 11q23 rearrangement
  - o B-cell with poor-risk cytogenetics
- First relapse
- CR2 and beyond, if not previously evaluated

Myelodysplastic Syndromes (MDS)

- At diagnosis for all subtypes

Juvenile Myelomonocytic Leukemia (JMML)

- At diagnosis

## **Plasma Cell Disorders:**

1- Multiple Myeloma

- At diagnosis
- At progression and/or relapse

2- Light Chain Amyloidosis

- At diagnosis
- At progression and/or relapse

3- POEMS Syndrome (Osteosclerotic Myeloma)

- At diagnosis

## **A. Lymphomas:**

- Hodgkin Lymphoma
- Non-Hodgkin Lymphoma

## **B. Other Malignant Diseases**

- Germ Cell Tumors
- Neuroblastoma
- Ewing Family of Tumors



- Medulloblastoma

### C. Non-Malignant Disorders

- Immune Deficiency Diseases
- Inherited Metabolic Disorders
- Hemoglobinopathies
  - Sickle Cell Disease
  - Transfusion-Dependent Thalassemia
- Hemophagocytic Lymphohistiocytosis (HLH)
- Severe Aplastic Anemia and Other Marrow Failure Syndromes
- Systemic Sclerosis
- Multiple Sclerosis (MS)

### 3.2 Requirements for Coverage

- The service codes for Bundle codes 22-01, 22-04, 22-05 and 22-08 are reported with Encounter type = 1 , Bundle codes 22-02, 22-03, 22-06 and 22-07 are reported with Encounter type = 3
- Pre-authorization is required for all service codes and excluded medication mentioned within this adjudication at the start of the treatment.
- Drugs Plerixafor and defibrotide, or an equivalent should be administered under strict medical supervision at the medical facility, with SRVC code for "Short stay observation" as per medical necessity when requested between the bundles.
- Providers shall only claim the rate set for the respective service code and any excluded services.
- In line with DOH Circular 106/2023, Department of Health has designated Abu Dhabi Stem Cell Center & Yas Clinic Khalifa City as the Center of Excellence (COE) for HSCT in the Emirate of Abu Dhabi
- The added indication are to be followed as per "HSCT Indications and Timing of Referral for Adult and Pediatric" Guidelines published at DoH Website with the Reference No. DOH/GD/HFS/HSCT ITRAP/V1/2024
- For the services that are included in the service code providers are required to report the proper codes as activity line but keep charges at a value of zero as a prerequisite for reimbursement. Excluded services such as drugs/labs and other activities are defined in BMT reimbursement packages.

### 3.3 Non-Coverage

- Missing services/benefits – Reporting activity items included in each bundle is a prerequisite for payment. The claim has to be submitted after completing the bundle to allow reporting all expected and performed services.
- The BMT bundle codes are eligible to be billed for Thiqa and ABM policies.

### 3.4 Payment and Coding Rules

- Please apply regulator payment rules and regulations and relevant coding manuals for ICD, CPT, etc. Kindly code the ICD-10 and the CPT codes to the highest level of specificity.

## BUNDLES

Code	Code Description	Details
22-01	Bundled reimbursement for Bone Marrow Pre-transplantation work-up (Autologous)	<p>The bundle reimbursement for Bone Marrow pretransplantation work-up includes all procedures necessary for the pre-transplant work-up, extensive examination, Laboratory testing, Radiological and imaging analysis, Multidisciplinary team consultation.</p> <p><b>Excluded Services from this bundle payment are:</b></p> <ul style="list-style-type: none"> <li>• Medications plerixafor and defibrotide, or an equivalent, will be reimbursed in accordance with FDA label indication and require prior authorization.</li> <li>• Any additional cost pertaining to complications (excluding Potentially Preventable Complications of BMT transplant procedure).</li> <li>• List of CPT codes, see appendix 1, will be reimbursed outside the bundle based on medical</li> </ul>
22-02	Bundled reimbursement for Preparation (Autologous)	<p>The bundle reimbursement for Bone Marrow preparation includes all procedures necessary for the preparation, Evaluation and Management, laboratory testing and radiological analysis, Mobilization and Apheresis procedures and patient specific conditioning protocol.</p> <p>Excluded Activities:</p> <ul style="list-style-type: none"> <li>• Medications plerixafor and defibrotide, or an equivalent, will be reimbursed in accordance with FDA label indication and require prior authorization</li> <li>• Any additional cost pertaining to complications (excluding Potentially Preventable Complications of BMT transplant procedure).</li> </ul>
22-03	Bundled reimbursement for bone marrow transplant (Autologous)	<p>The bundle reimbursement for Bone Marrow transplantation includes all inpatient procedures necessary for the Bone Marrow Transplantation to the day of discharge.</p> <p>Excluded Activities:</p>

		<ul style="list-style-type: none"> <li>• Medications plerixafor and defibrotide, or an equivalent, will be reimbursed in accordance with FDA label indication and require prior authorization</li> <li>• Any additional cost pertaining to complications (excluding Potentially Preventable Complications of BMT transplant procedure).</li> </ul>
<b>22-04</b>	Bundled reimbursement for post-transplant follow-up (Autologous)	<p>The bundle reimbursement for Bone Marrow post-transplant follow-up includes all procedures necessary for the post-transplant follow-up (four months from discharge date), Evaluation and Management, laboratory testing and radiological analysis, medication up to 7 days, vaccination cost and cryopreservation for 6 months.</p> <p>Excluded Activities:</p> <ul style="list-style-type: none"> <li>• Medications plerixafor and defibrotide, or an equivalent, will be reimbursed in accordance with FDA label indication and require prior authorization</li> <li>• Any additional cost pertaining to complications (excluding Potentially Preventable Complications of BMT transplant procedure).</li> </ul>
<b>22-05</b>	Bundled reimbursement for Pre-transplantation work-up (Allogenic)	<p>The bundle reimbursement for Bone Marrow Pre-transplant work-up includes all procedures necessary for the pre-transplant work-up (Donor and recipient), extensive examination prior to transplantation, laboratory testing, radiological analysis, and multidisciplinary team consultation.</p> <p>Excluded Activities:</p> <ul style="list-style-type: none"> <li>• Medications plerixafor and defibrotide, or an equivalent, will be reimbursed in accordance with FDA label indication and require prior authorization</li> <li>• Any additional cost pertaining to complications (excluding Potentially Preventable Complications of BMT transplant procedure).</li> </ul>
<b>22-06</b>	Bundled reimbursement for Preparation (Allogenic)	<p>The bundle reimbursement for Bone Marrow preparation includes all procedures necessary for the preparation, Evaluation and Management, laboratory testing and radiological analysis, Mobilization and Apheresis procedures and patient specific conditioning protocol.</p> <p>Excluded Activities:</p> <ul style="list-style-type: none"> <li>• Medications plerixafor and defibrotide, or an equivalent, will be reimbursed in accordance with FDA label indication and require prior authorization</li> <li>• Any additional cost pertaining to complications (excluding Potentially Preventable Complications of BMT transplant procedure).</li> </ul>

<b>22-07</b>	Bundled reimbursement for bone marrow transplant (Allogenic)	<p>The bundle reimbursement for Bone Marrow transplantation includes all inpatient procedures necessary for the Bone Marrow Transplantation to the day of discharge.</p> <p>Excluded Activities:</p> <ul style="list-style-type: none"> <li>• Medications plerixafor and defibrotide, or an equivalent, will be reimbursed in accordance with FDA label indication and require prior authorization</li> <li>• Any additional cost pertaining to complications (excluding Potentially Preventable Complications of BMT transplant procedure).</li> </ul>
<b>22-08</b>	Bundled reimbursement for post-transplant follow-up (Allogenic)	<p>The bundle reimbursement for Bone Marrow post-transplant includes all procedures necessary for the post-transplant follow-up (four months from discharge date), Evaluation and Management, laboratory testing and radiological analysis, discharge medication up to 7 days, vaccination cost and cryopreservation for 6 months.</p> <p>Excluded Activities:</p> <ul style="list-style-type: none"> <li>• Medications plerixafor and defibrotide, or an equivalent, will be reimbursed in accordance with FDA label indication and require prior authorization</li> <li>• Any additional cost pertaining to complications (excluding Potentially Preventable Complications of BMT transplant procedure).</li> </ul>

## 4. Denial Codes

Code	Code Description
CODE-012	Encounter type inconsistent with service(s) / diagnosis
MNEC-005	Service/supply may be appropriate, but too frequent
AUTH-001	Prior approval is required and was not obtained
PRCE-002	Payment is included in the allowance for another service
CLAI-016	Incorrect billing regime

## 5. Appendices

### 5.1 Reference

#### Appendix 1: Excluded codes from the bundle:

Activity	Code	Description
FLOW CYTOMETRY	88182	Flow cytometry, cell cycle or DNA analysis
	88184	Flow cytometry, cell surface, cytoplasmic, or nuclear marker, technical component only; first marker
	88185	Flow cytometry, cell surface, cytoplasmic, or nuclear marker, technical component only; each additional marker (List separately in addition to code for the first marker)
	88187	Flow cytometry, interpretation; 2 to 8 markers
	88188	Flow cytometry, interpretation; 9 to 15 markers
	88189	Flow cytometry, interpretation; 16 or more markers
DURACLONE T REG	88184	Flow cytometry, cell surface, cytoplasmic, or nuclear marker, technical component only; first marker
	88185 x7	Flow cytometry, cell surface, cytoplasmic, or nuclear marker, technical component only; each additional marker (List separately in addition to code for the first marker)
	88187	Flow cytometry, interpretation; 2 to 8 markers
MAXPAR DIRECT IMMUNE PROFILING ASSAY	88184	Flow cytometry, cell surface, cytoplasmic, or nuclear marker, technical component only; first marker
	88185 x29	Flow cytometry, cell surface, cytoplasmic, or nuclear marker, technical component only; each additional marker (List separately in addition to code for the first marker)
	88189	Flow cytometry, interpretation; 16 or more markers
MINIMAL RESIDUAL DISEASE	Code will depend on target gene and methodology used.	
STEM CELL KIT	86367	
TCR ALFA/BETA	86356 x2	
CD 19 SELECTION	86152	Cell enumeration using immunologic selection and identification in fluid specimen (e.g., circulating tumor cells in blood);

	86153	Cell enumeration using immunologic selection and identification in fluid specimen (e.g., circulating tumor cells in blood); physician interpretation and report, when required
CD 34+ SELECTION	86152	Cell enumeration using immunologic selection and identification in fluid specimen (e.g., circulating tumor cells in blood);
	86153	Cell enumeration using immunologic selection and identification in fluid specimen (e.g., circulating tumor cells in blood); physician interpretation and report, when required
BUSULFAN TEST	80375	
CHIMERISM	81267	Chimerism (engraftment) analysis, post transplantation specimen (e.g., hematopoietic stem cell), includes comparison to previously performed baseline analyses; without cell selection
	81268	Chimerism (engraftment) analysis, post transplantation specimen (e.g., hematopoietic stem cell), includes comparison to previously performed baseline analyses; with cell selection (eg, CD3, CD33), each cell typ

• **Excluded Paediatric BMT services :**

Whole Genome Sequencing for Recipient	81425	Genome (eg, unexplained syndrome); sequence analysis constitutional or heritable disorder or Whole Genome Sequencing for Donor
Whole Genome Sequencing for Donor	81425	Genome (eg, unexplained constitutional or heritable disorder or syndrome); sequence analysis Tests for donor-recipient compatibility apart from HLA
Panel-Reactive Antibodies (PRA)	86830	Antibody to human leukocyte antigens (HLA), solid phase assays (eg, microspheres or beads, ELISA, Flow cytometry); antibody identification by qualitative panel using complete HLA phenotypes, HLA Class I
	86831	Antibody to human leukocyte antigens (HLA), solid phase assays (eg, microspheres or beads, ELISA, Flow cytometry); antibody
Donor-Specific Antibodies (DSA)	86832	Antibody to human leukocyte antigens (HLA), solid phase assays (eg, microspheres or beads, ELISA, Flow cytometry); semi-quantitative panel (eg, titer), HLA Class I
	86833	Antibody to human leukocyte antigens (HLA), solid phase assays (eg, microspheres or beads, ELISA, Flow cytometry); semi-quantitative panel (eg, titer), HLA Class II
MRI T2* for Liver and Heart in patients with iron overload	74181	Magnetic resonance (eg, proton) imaging, abdomen; without contrast material(s)
	75557	Cardiac magnetic resonance imaging for morphology and function without contrast material;
	76377	3D rendering with interpretation and reporting of computed tomography, magnetic resonance imaging, ultrasound, or other tomographic modality with image postprocessing under concurrent supervision; requiring image postprocessing on an independent workstation
RBC Genotyping in selected patients	81403	Molecular pathology procedure, Level
Caregiver's Stay	Service Code 26	Per diem - Companion Accommodation Daily Rate. Per day room and board charges in hospital / treating facility for (1) a person accompanying a registered inpatient insured, of any age that is critically ill, or (2) parent accompanying a child under 10 years of age



- <https://www.doh.gov.ae/-/media/2EEB17C27F4C48598C9F9328F415DF3B.ashx>
- [https://www.doh.gov.ae/-/media/Feature/shafifya/Prices/Adjudication-Rules/Addendum-36-to-DOH-claims-Adjudication-Rules\\_-Bone-Marrow-Transplant.ashx](https://www.doh.gov.ae/-/media/Feature/shafifya/Prices/Adjudication-Rules/Addendum-36-to-DOH-claims-Adjudication-Rules_-Bone-Marrow-Transplant.ashx)
- [https://www.uptodate.com/contents/determining-eligibility-for-allogeneic-hematopoietic-cell-transplantation?search=bone%20marrow%20transplant&source=search\\_result&selectedTitle=2~150&usage\\_type=default&display\\_rank=2](https://www.uptodate.com/contents/determining-eligibility-for-allogeneic-hematopoietic-cell-transplantation?search=bone%20marrow%20transplant&source=search_result&selectedTitle=2~150&usage_type=default&display_rank=2)
- <https://www.dynamed.com/procedure/hematopoietic-stem-cell-transplantation-hsct-considerations>
- <https://www.cancer.org/cancer/managing-cancer/treatment-types/stem-cell-transplant/process.html>
- Relapse after Allogeneic Stem Cell Transplantation of Acute Myelogenous Leukemia and Myelodysplastic Syndrome and the Importance of Second Cellular Therapy - Transplantation and Cellular Therapy, Official Publication of the American Society for Transplantation and Cellular Therapy (astctjournal.org)

## 5.2 Revision History

Date	Change(s)
28/05/2024	Creation of Adjudication Guideline-External Instruction Template.
31/07/2025	V2.0 General Content Review

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