Twenty Five years of Experience on Stem Cell Transplantation in Iran

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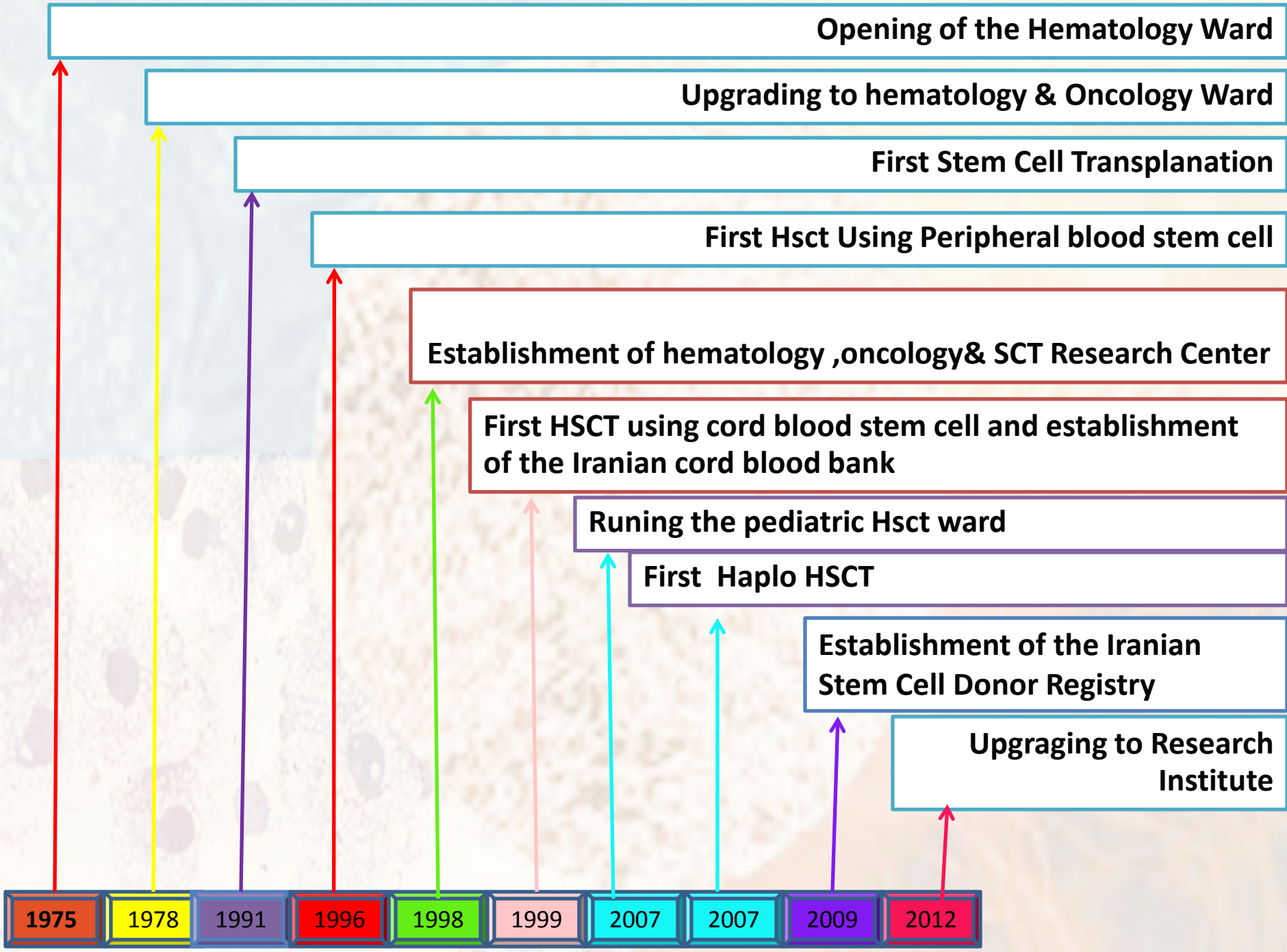
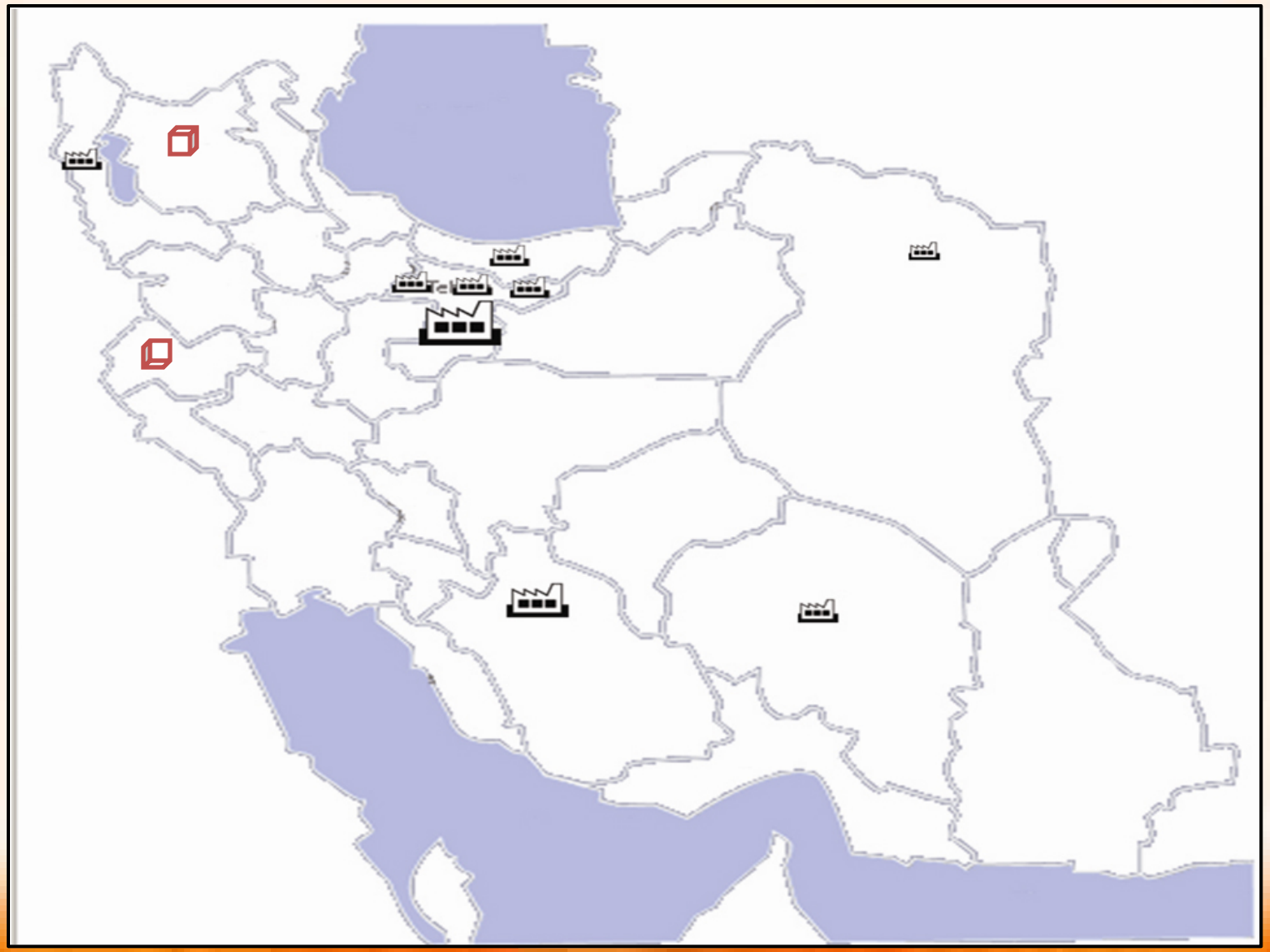
HEMATOLOGY
ONCOLOGY
&
B.M.T
RESEARCH
CENTER
مرکز پژوهشی
خون
و
پیوند مغز استخوان


Opening of the Hematology Ward
Upgrading to hematology & Oncology Ward
First Stem Cell Transplanation
First Hsct Using Peripheral blood stem cell
Establishment of hematology ,oncology& SCT Research Center
First HSCT using cord blood stem cell and establishment of the Iranian cord blood bank
Runing the pediatric Hsct ward
First Haplo HSCT
Establishment of the Iranian Stem Cell Donor Registry
Upgraging to Research Institute
1975
1978
1991
1996
1998
1999
2007
2007
2009
2012

Hsct Centers in Iran



HSCT Centers in Iran	Number of HSCT till 13,Sep, 2015
HORC-SCT, Shariati Hospital (Tehran)	5235
Namazi Hospital (Shiraz)	1018
Imam Khomeini Hospital (Tehran)	360
Afzali pour Hospital(Kerman)	141
Amir kola Hospital (Babol)	74
Imam Khomeini Hospital (Urmia)	24
Mahak Hospital (Tehran)	117
Montaserieh Hospital (Mashhad)	31
Shafa Hospital (Ahvaz)	6
Taleghani Hospital (Tehran)	?
Total	7006

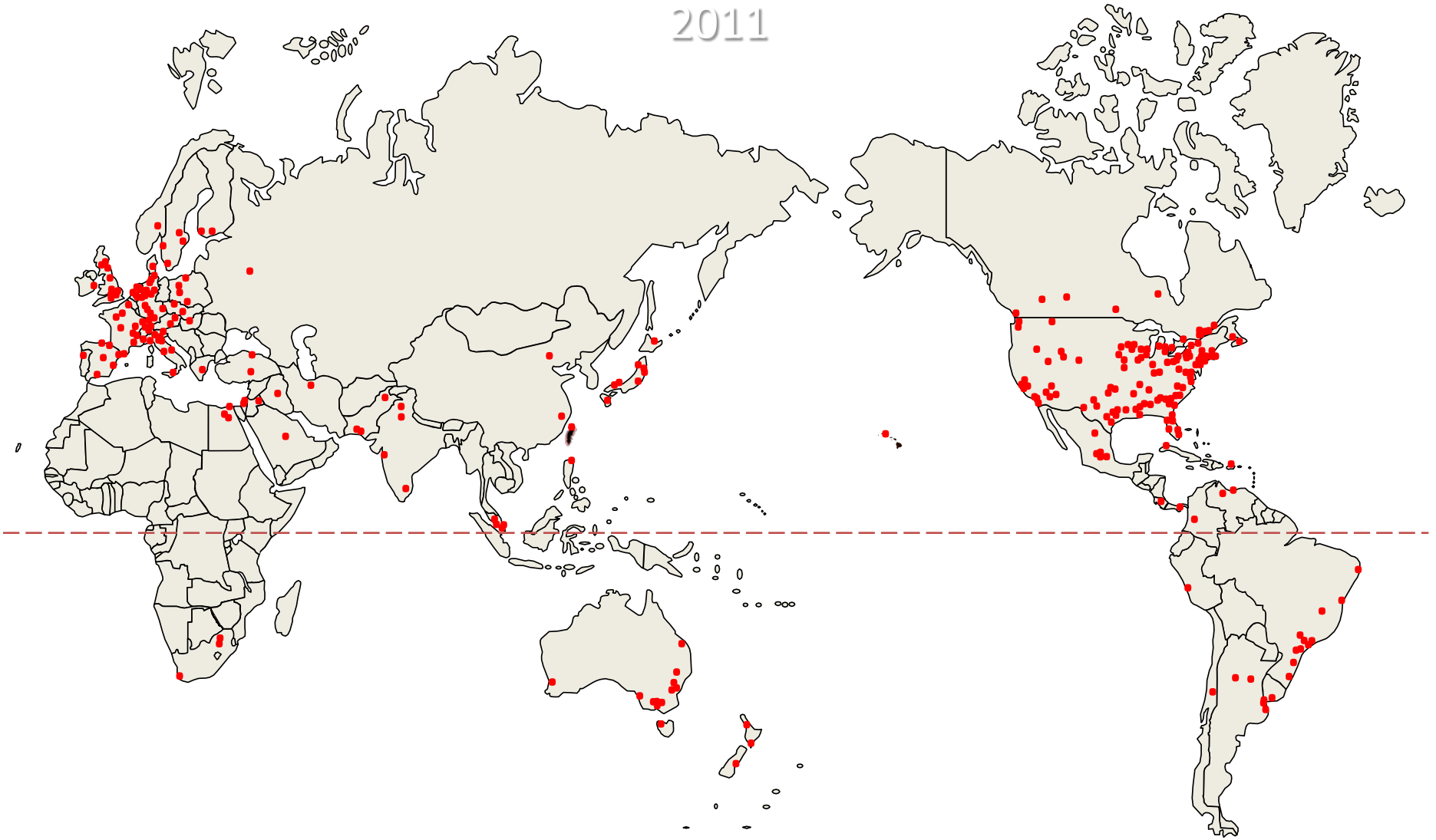

2012 10


2012 10 15

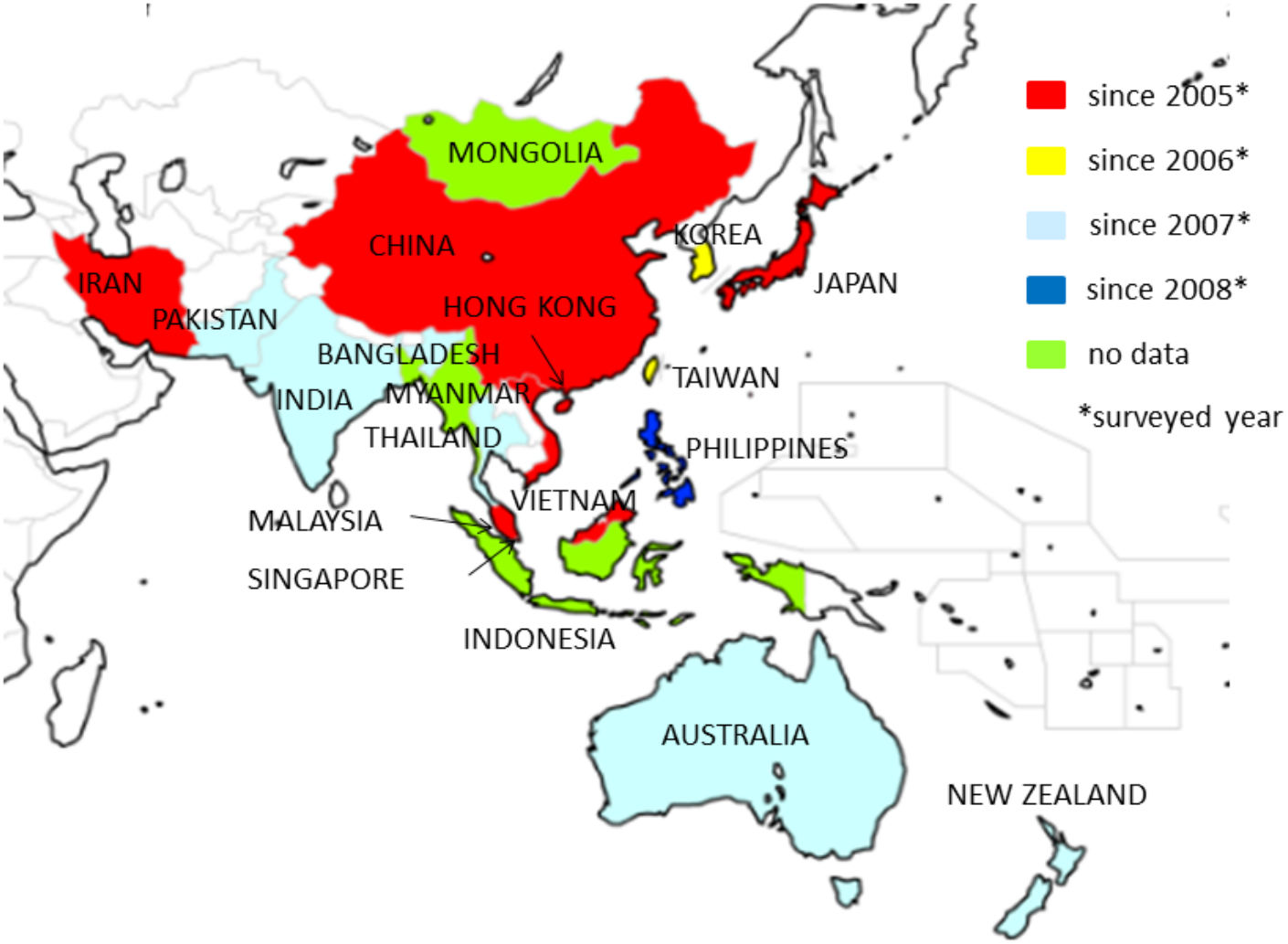

2012 10

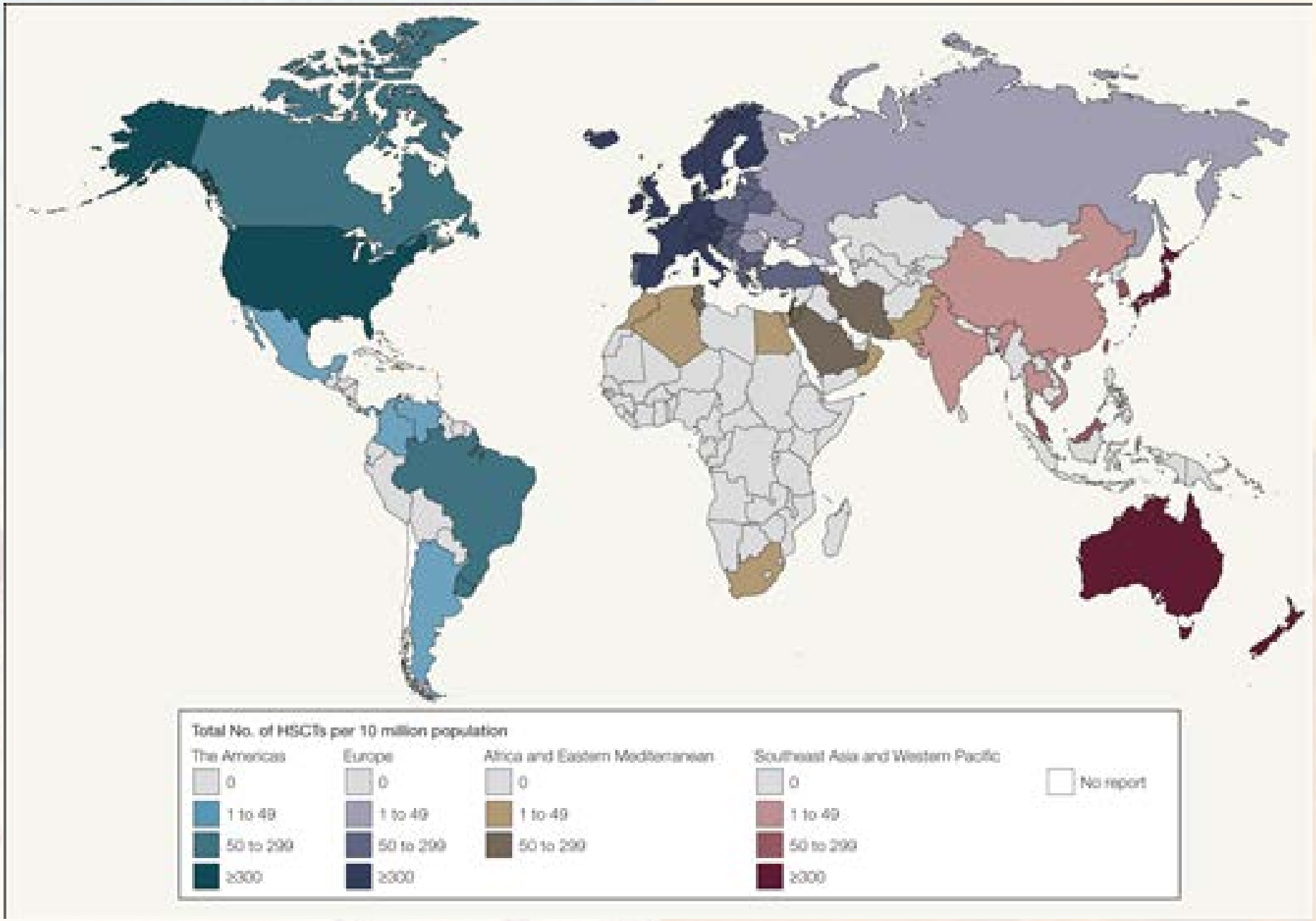

2012 10 10

Location of Centers participating in the CIBMTR 2011



Participating Countries for Activity Survey




Total No. of HSCTs per 10 million population
The Americas
0
1 to 49
50 to 299
≥300
Europe
0
1 to 49
50 to 299
≥300
Africa and Eastern Mediterranean
0
1 to 49
50 to 299
Southeast Asia and Western Pacific
0
1 to 49
50 to 299
≥300
No report

Stem Cell Transplantation Indication

- 1- Hemoglobinopathies

2- Anemias (Severe Aplastic Anemia, Fanconi Anemia,..)

3- Disorders of Immune System (LAD, SCID, WAS, Kostmann, Job, Griscelli,…)

4- Metabolic and Storage Disease (Hurler, Gaucher,…)

5- Hematological Malignancies (AML , ALL , CML , MM , Lymphoma,…)

6- Myelofibrosis

7- Autoimmune diseases (RA, SLE, MS, Scleroderma,…)

Stem Cell Transplantation Indication

•8- Solid tumors: Breast cancer, Ovary, Testis, Ewing Sarcoma , Osteosarcoma, Neuroblastoma

9- Cell Therapy:

Post Infarction (CABG, Angioplasty)

Multiple Sclerosis

Cirrhosis

Avascular Necrosis of Femoral Head

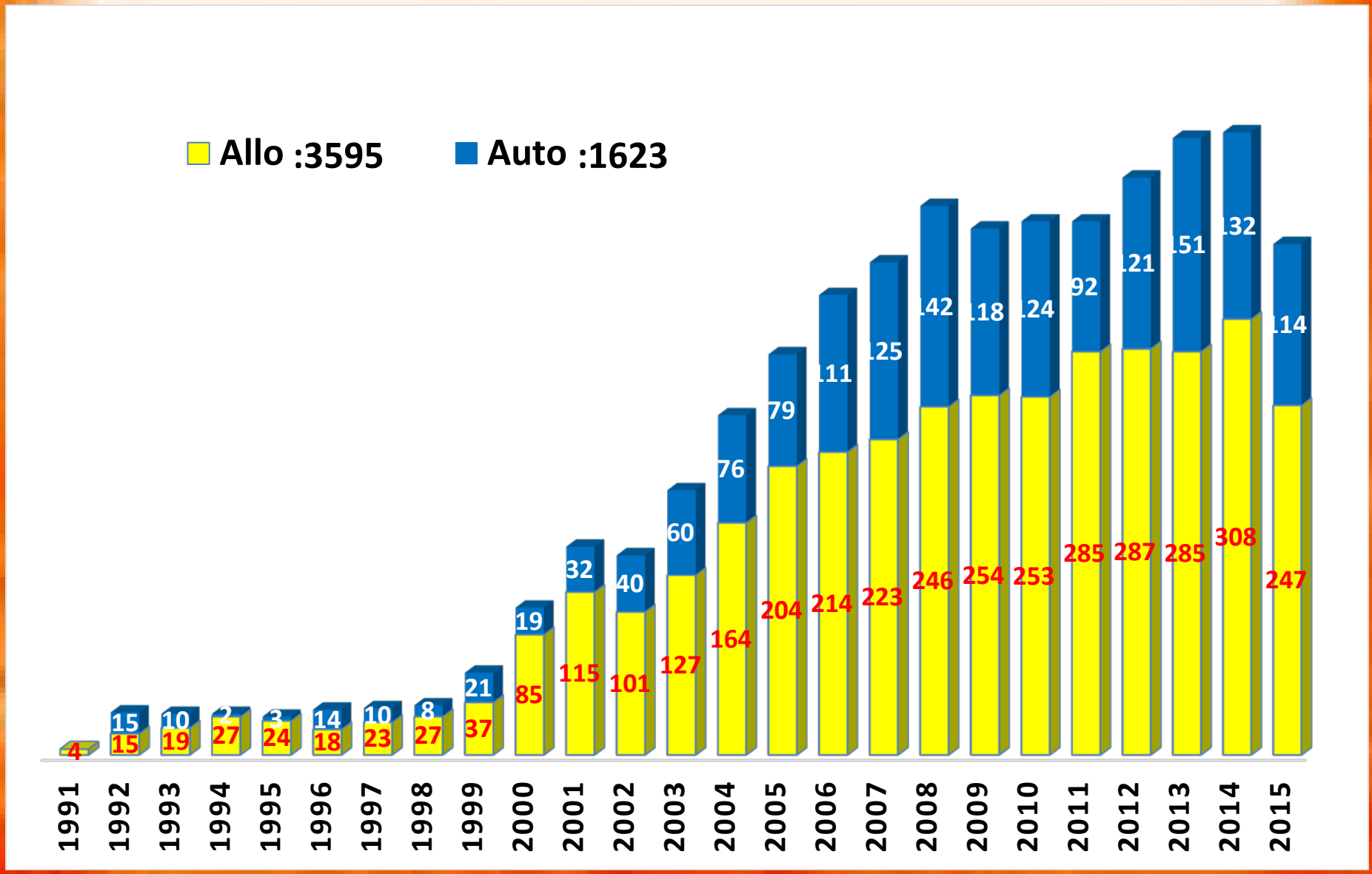
Diabetes Mellitus II

GvHD treatment

Systematic Lupus Erythematosus

Thalassemia

HSCT 1991- 1st Nov. 2015



Stem Cell Transplantation Report (March 1991-Nov. 2015)

Leukemias	2335
Acute Myelogenous Leukemia	1296
Acute Lymphoblastic Leukemia	761
Chronic Myelogenous Leukemia	258
Chronic Lymphoblastic Leukemia	7
Other Leukemias	13

Lymphomas	685
Hodgkin Disease	363
Non –Hodgkin Lymphoma	322

Inherited Abnormalities of RBC	911
Thalassemia	742
Fanconi Anemia	148
Diamond- Blackfan Anemia	11
Sickle- Cell Thalassemia	5
Sickle Cell Disease	5

MDS / MPS	96
Myelodysplastic Disorders	80
Myeloproliferative Disorders	16

Severe Aplastic Anemia	266
Aplastic Anemia	253
PNH	13

Plasma Cell Disorders	700
Multiple Myeloma	671
Amyloidosis	10
Plasma Cell Leukemia	8
Solitary Plasmacytoma	9
Multiple Plasmacytoma	2

Autoimmune Diseases	5
Systemic Sclerosis (Scleroderma)	4
Multiple Sclerosis	1

Stem Cell Transplantation Report (March 1991-Nov 2015)

Disorders of Immune System	73
LADs	24
Wiskott- Aldrich Syndrome	11
SCID	18
Chediak – Higashi Syndrome	9
Griscelli Syndrome	7
Hyper IgE Syndrome	2
Idiopathic CD4 Lymphocytopenia	1
Congenital Neutropenia (Kostmann)	1

Histiocytic Disorders	10
Familial Erythrohemophagocytic Lymphohistiocytosis (FELH)	8
Histiocytosis- X	2

Inherited Disorders of Metabolism	46
Osteopetrosis	27
Hurler Syndrome	5
Mucolipidosis (Niemann- Pick Disease)	7
Maroteaux- Lamy Syndrome	3
Mitochondrial Neurogastrointestinal Encephalomyopathy	1
Metachromatic Leukodystrophy	2
Adrenoleukodystrophy	1

Solid Tumors	109
Neuroblastoma	41
Breast Cancer	13
Ewing Sarcoma	11
Testicular Tumors	9
Germ Cell Tumors	7
Wilm's Tumor	5
Medulloblastoma	6
Ovarian Tumors	3
Renal Cell Carcinoma	2
Bone Sarcoma	2
Soft Tissue Sarcoma of Kidney	3
Rhabdomyosarcoma	2
Neuroendocrine Tumor	1
PNET	1
Clear cell sarcoma of Kidney	1
Pancreatoblastoma	1
Nasopharyngeal Carcinoma	1

Patients characteristics

Total no of our patients	5373
HSCT	5237
Retransplantation	71
Cell therapy	239
Allogeneic	3595
HLA- identical sibling	3112
HLA- matched other relatives	215
mismatched sibling/other related	139
unrelated	125
haploidentical	80
Autologous	1623
Syngeneic	19

Sources of HSCT

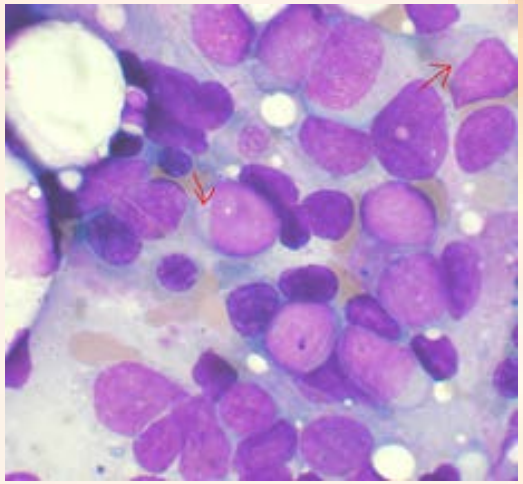
Sources	No
PB	4504
PB+ Mesenchymal	66
BM	539
BM+ Mesenchymal	38
CB	65
BM + PB	19
BM + PB+ Mesenchymal	3

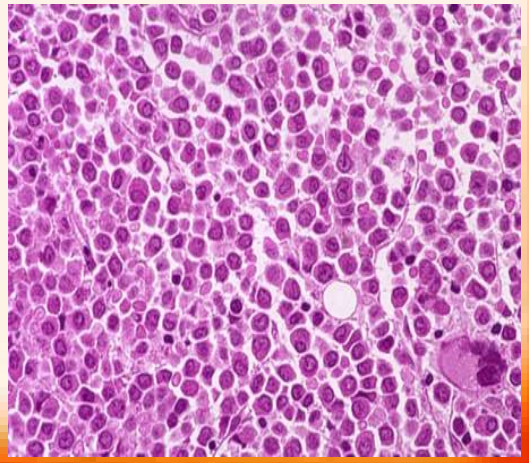
Cell therapies

Diseases	No
Thalassemia Major	103
Post MI	52
Cirrhosis	30
Diabetes Mellitus	21
Head of femur necrosis	13
Multiple sclerosis	11
GvHD treatment	9
Total	239

AML

Total	1296
Allogeneic	1031
Autologous	260
Syngeneic	5
Alive	800 (63.8 %)





AML

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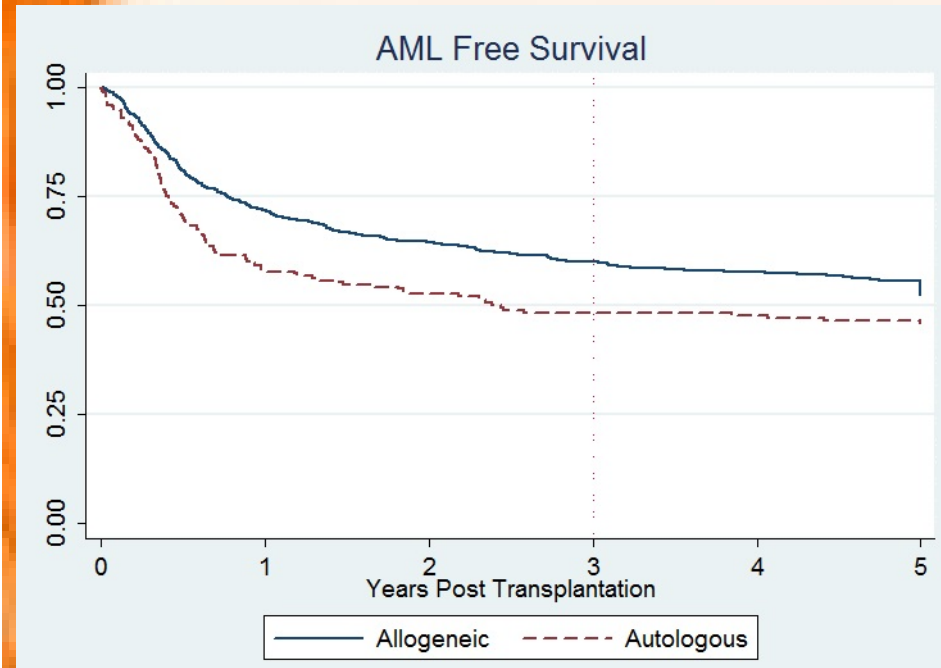

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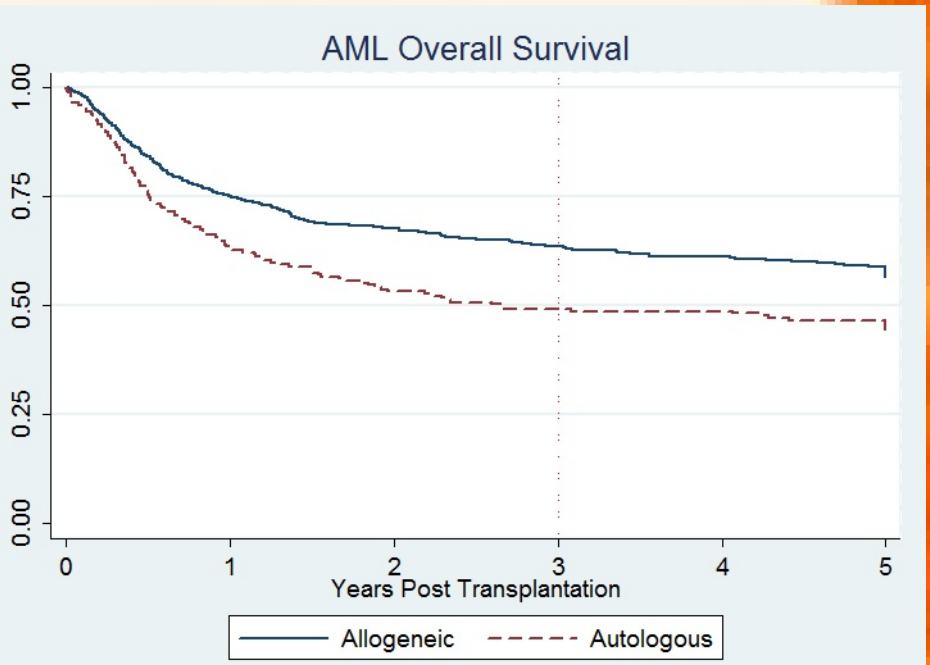

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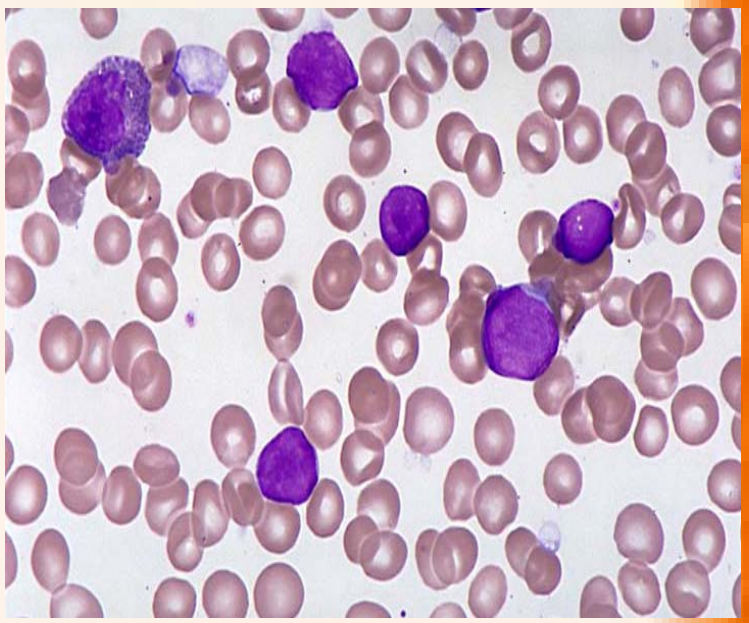
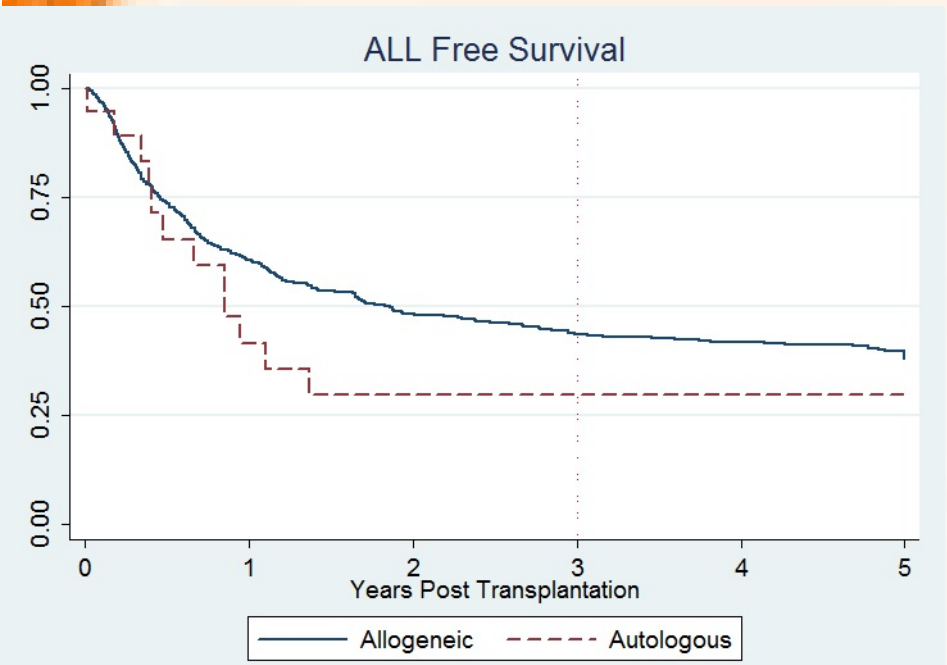
ALL

Total	761
Allogeneic	725
Autologous	26
Syngeneic	10
Alive	414 (54.4%)



ALL

DFS



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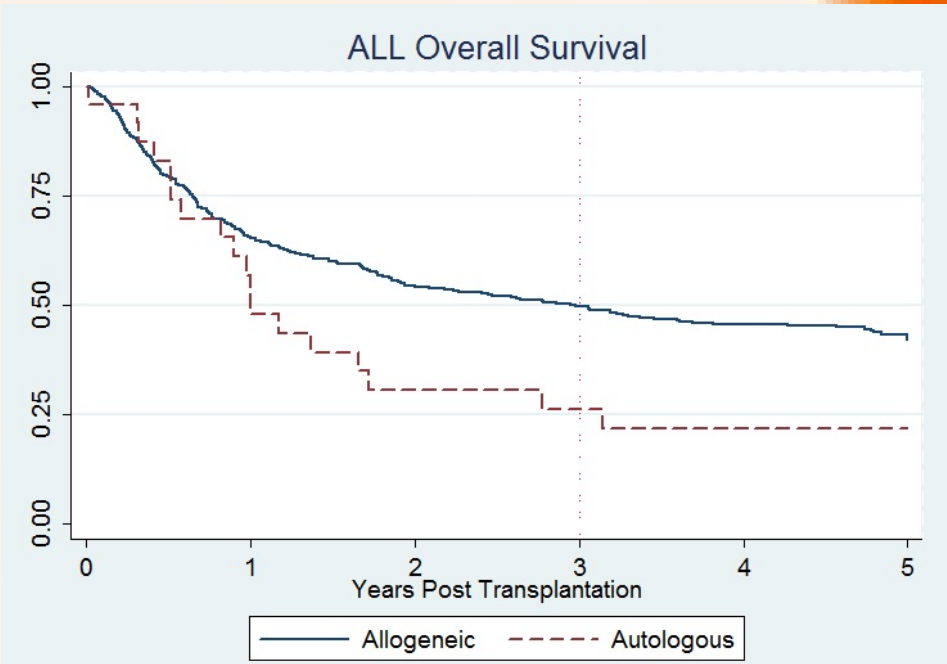

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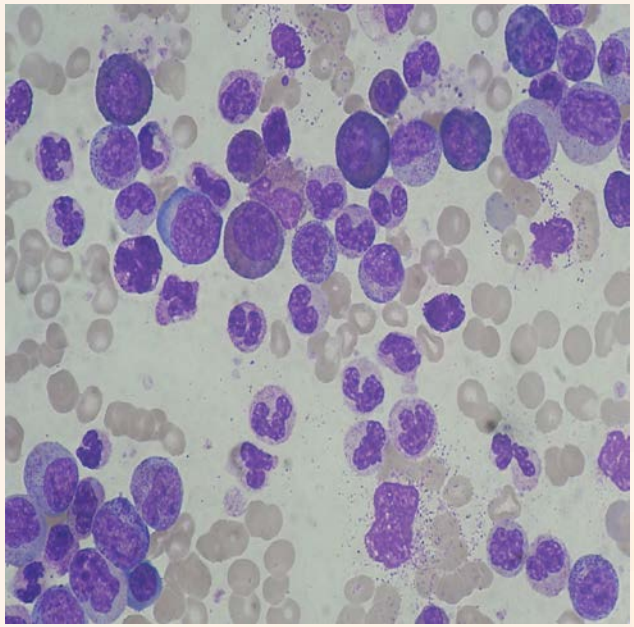
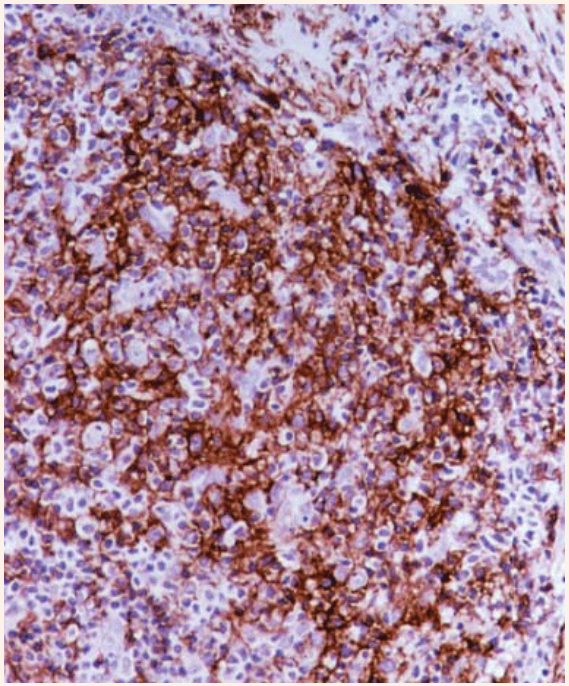
CML

Total Allogeneic	258
Peripheral Blood	228
Bone Marrow	30
Alive	175(67.8%)



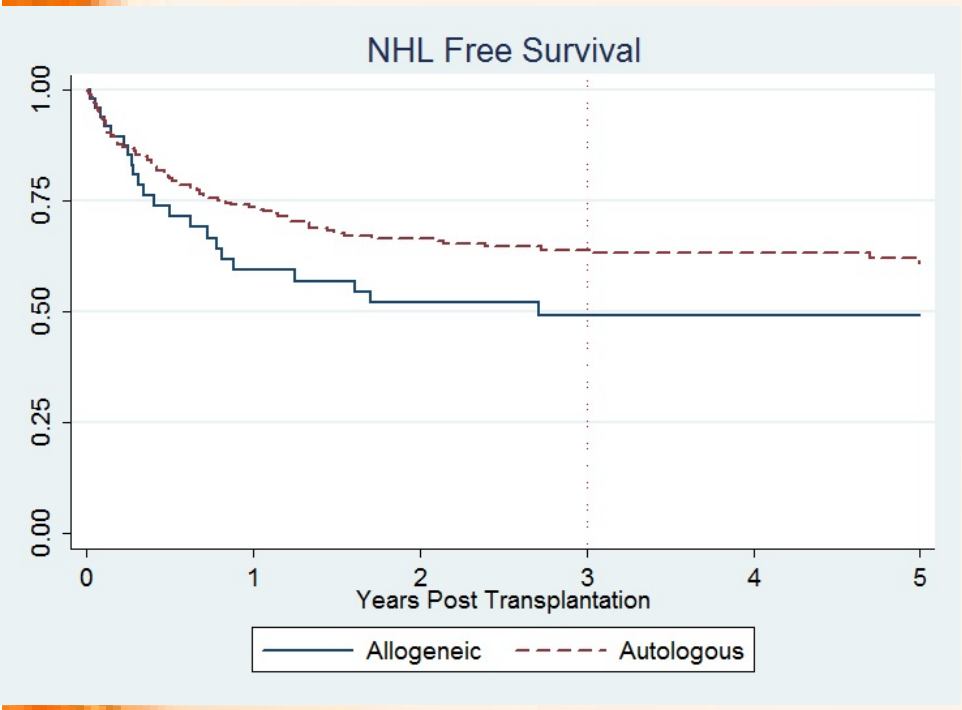
Non- Hodgkin Lymphoma

Total	322
Autologous	268
Allogeneic	53
Syngeneic	1
Alive	244 (75.7%)



Non- Hodgkin Lymphoma

DFS



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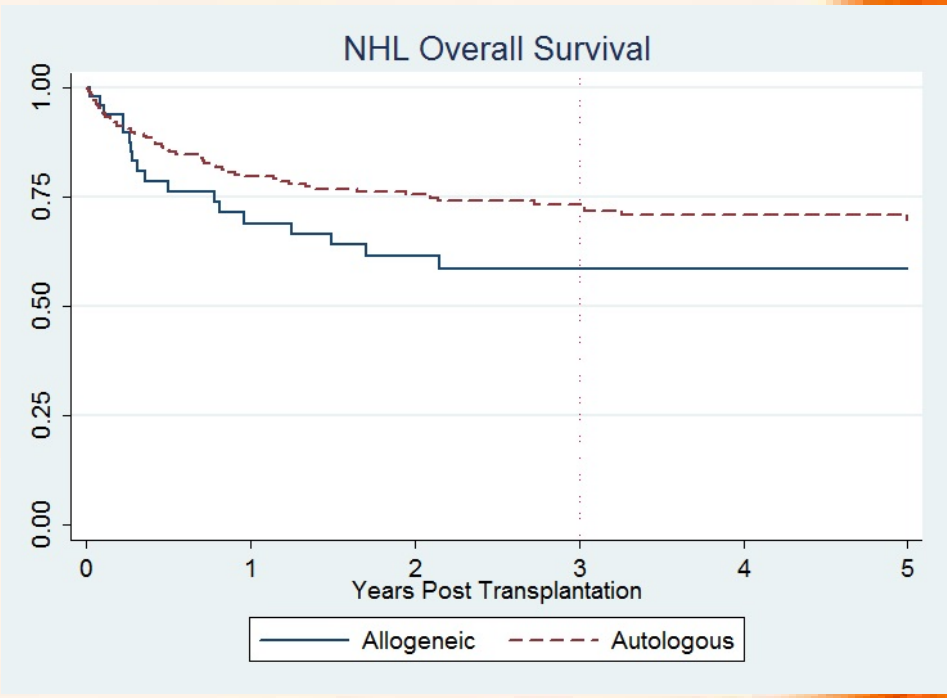

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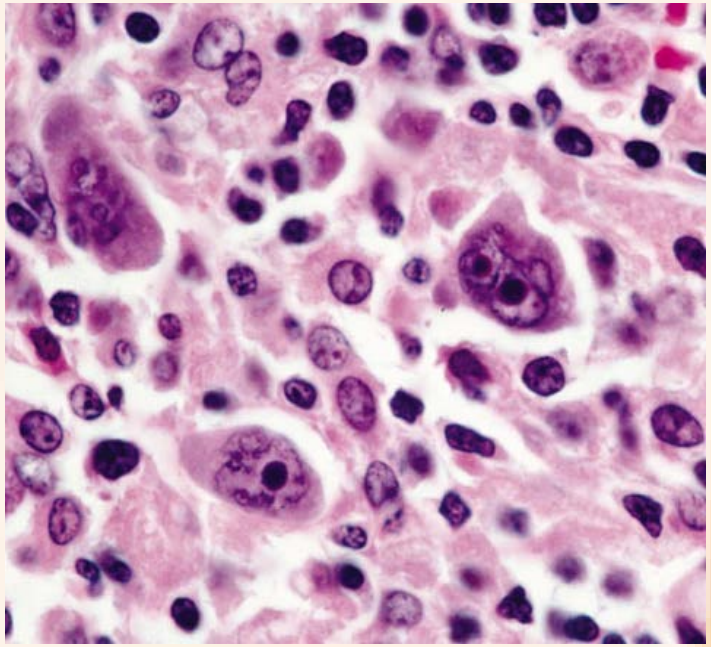
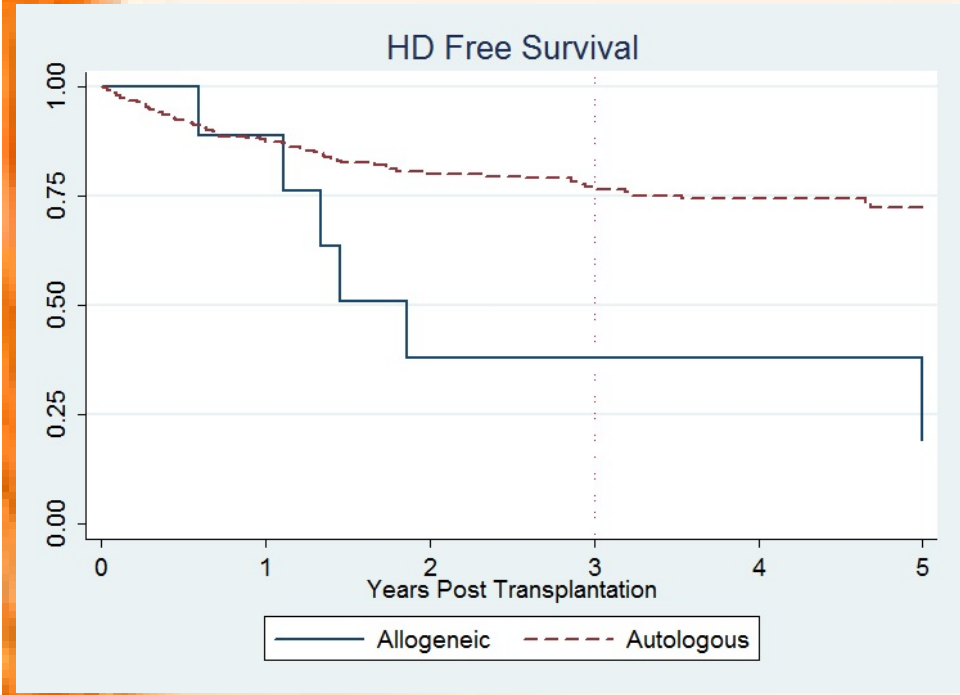
Hodgkin Disease

Total	363
Autologous	352
Allogeneic	11
Alive	320 (88.1%)



Hodgkin Disease

DFS



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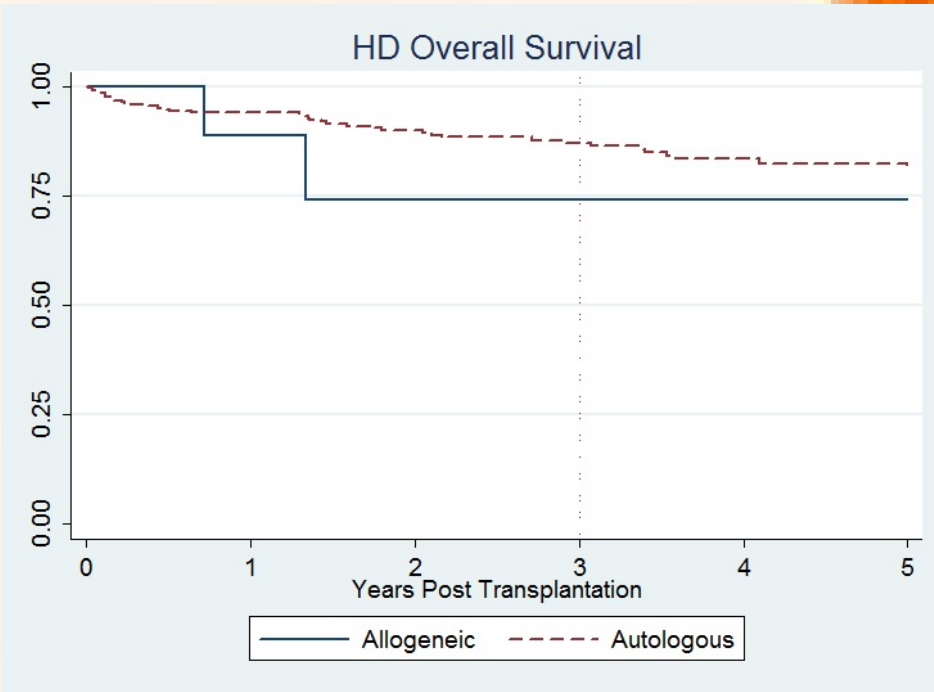

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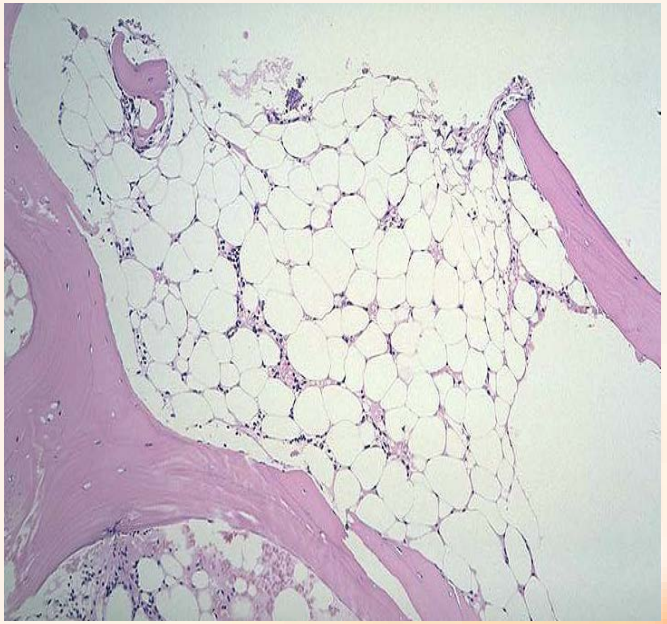
Aplastic Anemia & PNH

Total Allogeneic AA	253
Peripheral Blood	193
Bone Marrow	55
PB + BM	3
Cord Blood	2
Alive	198 (78.2%)

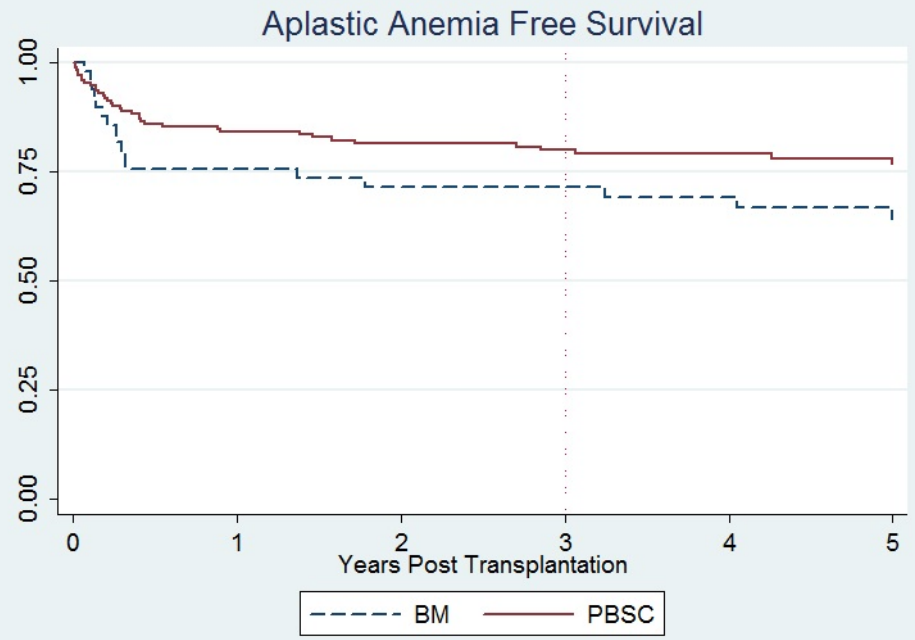
Total Allogeneic PNH	13
Alive	10 (77%)



Aplastic Anemia & PNH

PB vs. BM

DFS



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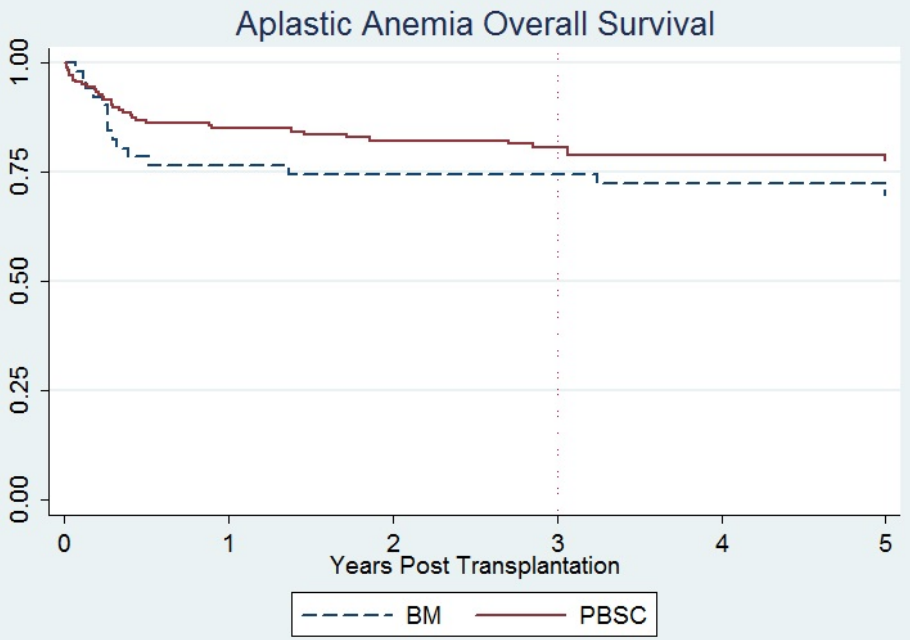

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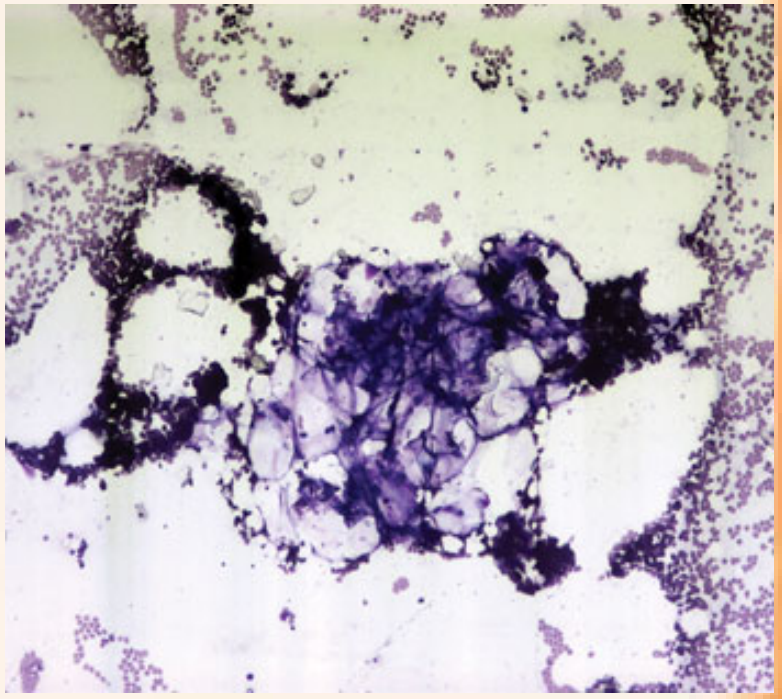
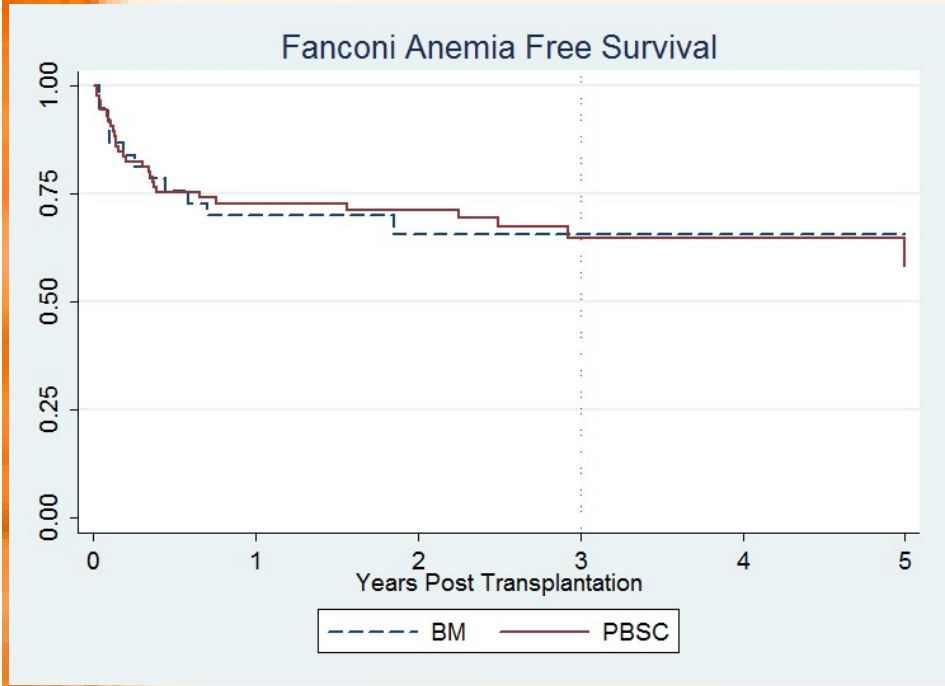
Fanconi Anemia

Total	148
Peripheral Blood	99
Bone Marrow	42
Cord Blood	6
PB + BM	1
Alive	102 (68.9%)



Fanconi Anemia

DFS



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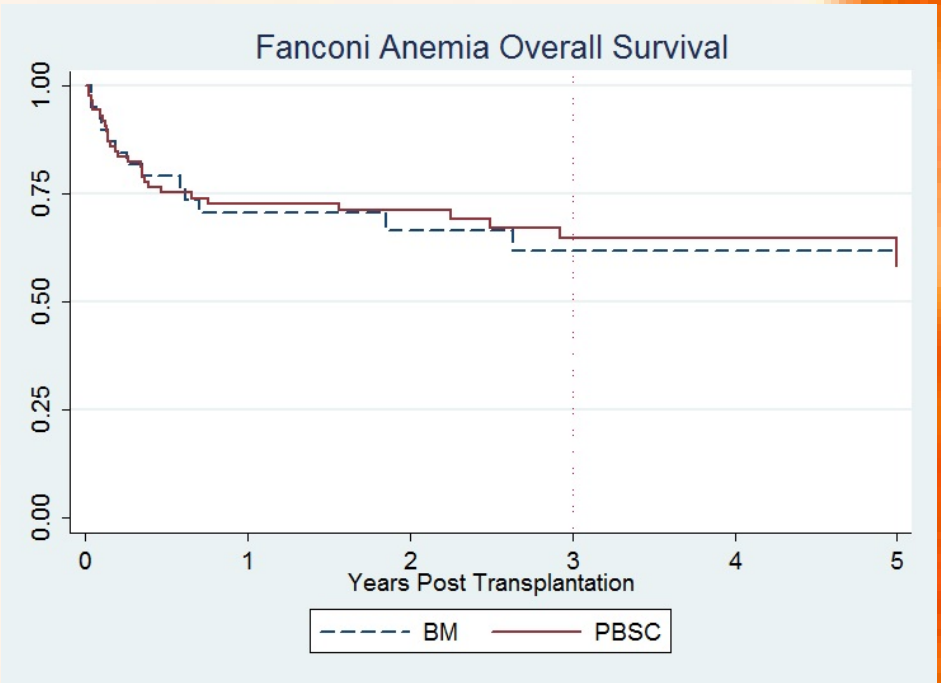

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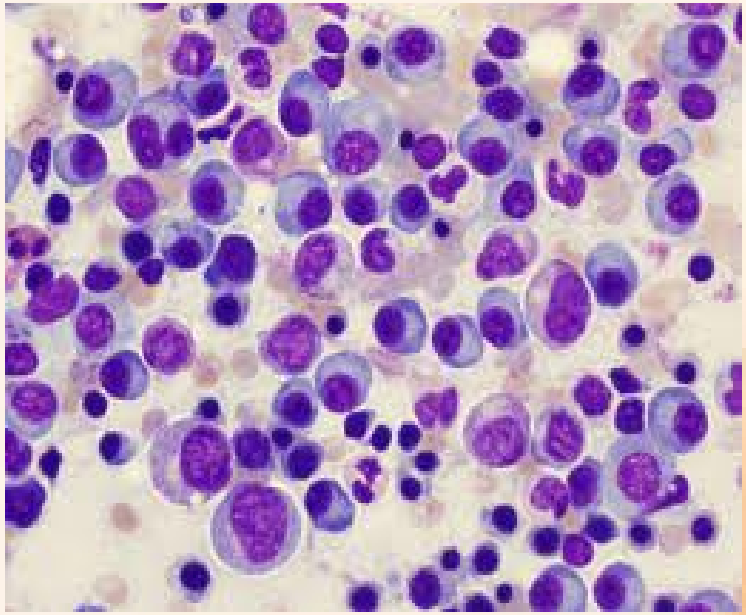
Plasma cell disorders

Total	700
Multiple Myeloma	671
Amyloidosis	10
Plasmacytoma	11
Plasma cell leukemia (PCL)	8

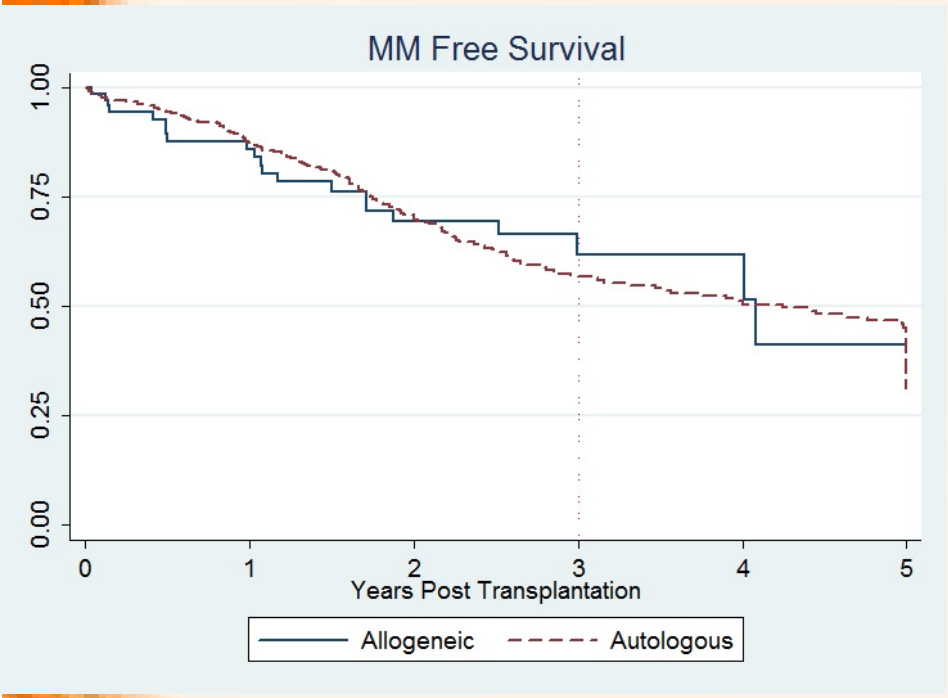
Multiple Myeloma

Total	671
Autologous	583
Allogeneic	88
Alive	510 (83%)



Multiple Myeloma

DFS



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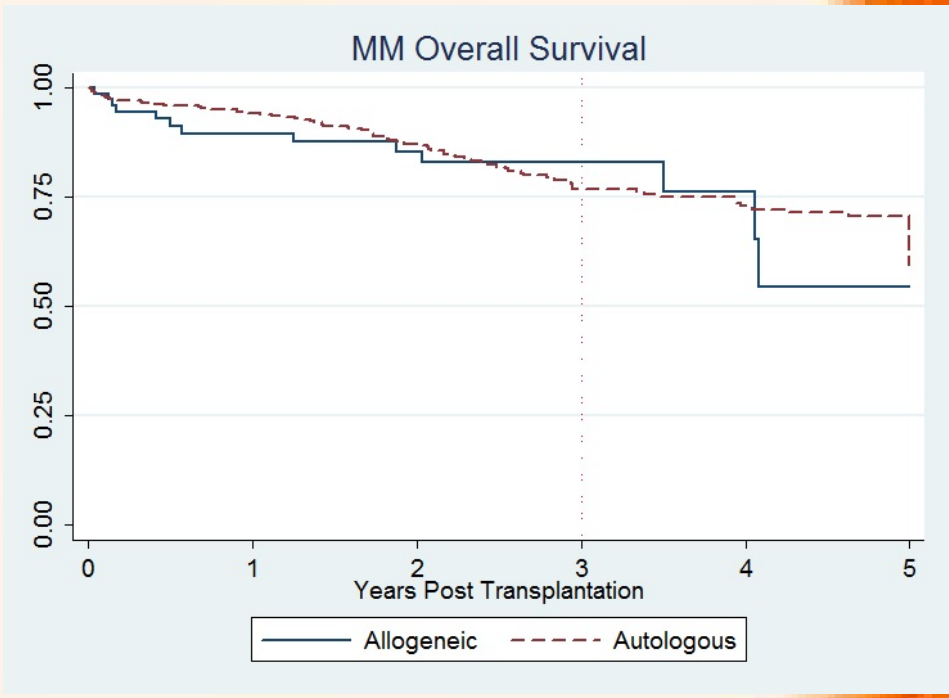

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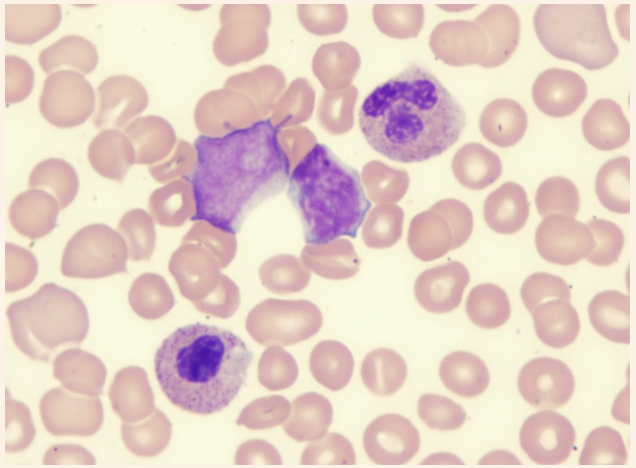
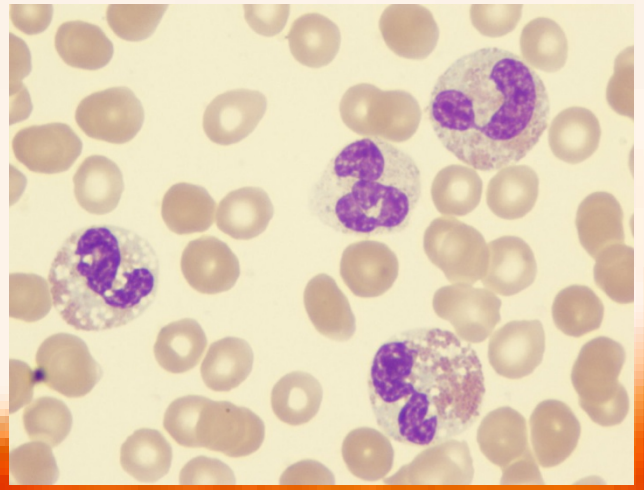
Myelodysplasia (MDS)

Total	80
PB	77
BM	2
CB	1
Alive	52 (65%)





Solid Tumors

Total	113
Autologous	105
Allogeneic	8
Alive	79 (69.9%)

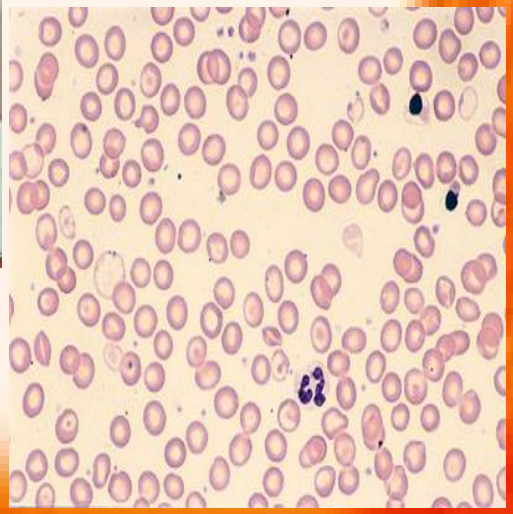
Solid Tumors

Total			113	
Breast Cancer	13		Pancreatoblastoma	1
Testicular Tumors	9		Rhabdomyosarcoma	2
Ewing Sarcoma	11		Wilm s Tumor	6
Germ Cell Tumors	7		Head& Neak Tumors	1
Neuroblastoma	44		Bone Sarcoma	2
Medulloblastoma	6		NeroEndocrine tumor	1
Ovarian Tumors	3		Extea-osseous include PNET	1
Renal Cell Carcinoma	2		CNS tumors(including CNS PNET)	1
Clear Cell Sarcoma of Kidney	1		Soft Tissue Sarcoma	2

Major Beta- Thalassemia

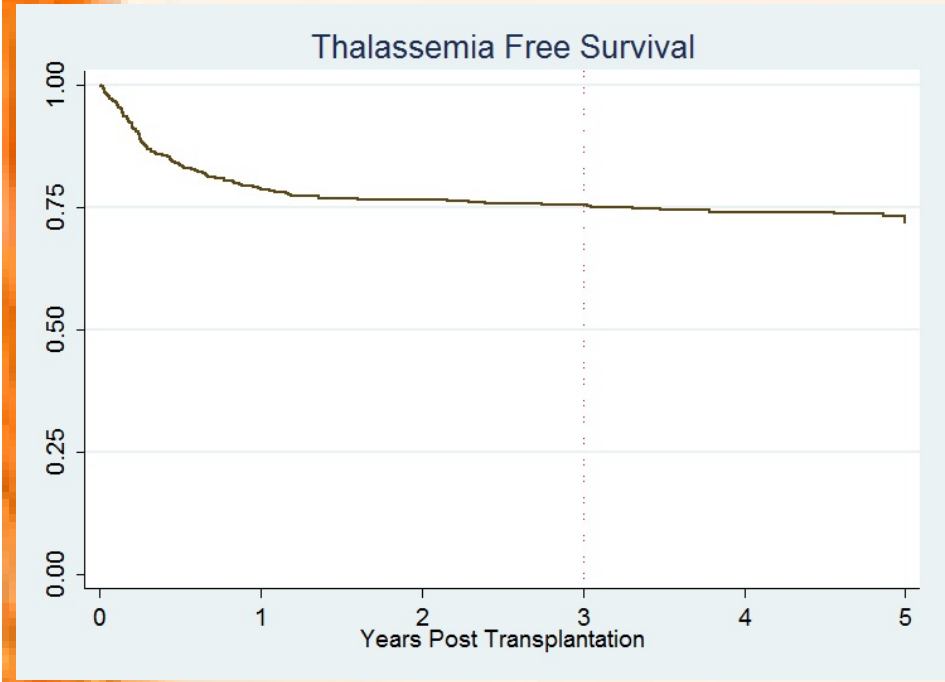
Total	724
PB	385
BM	220
CB	13
PB+ Mesenchymal	64
BM + Mesenchymal	36
PB + BM + Mesenchymal	3
PB + BM	3
Classification	
Class I	175
Class II	283
Class III	265

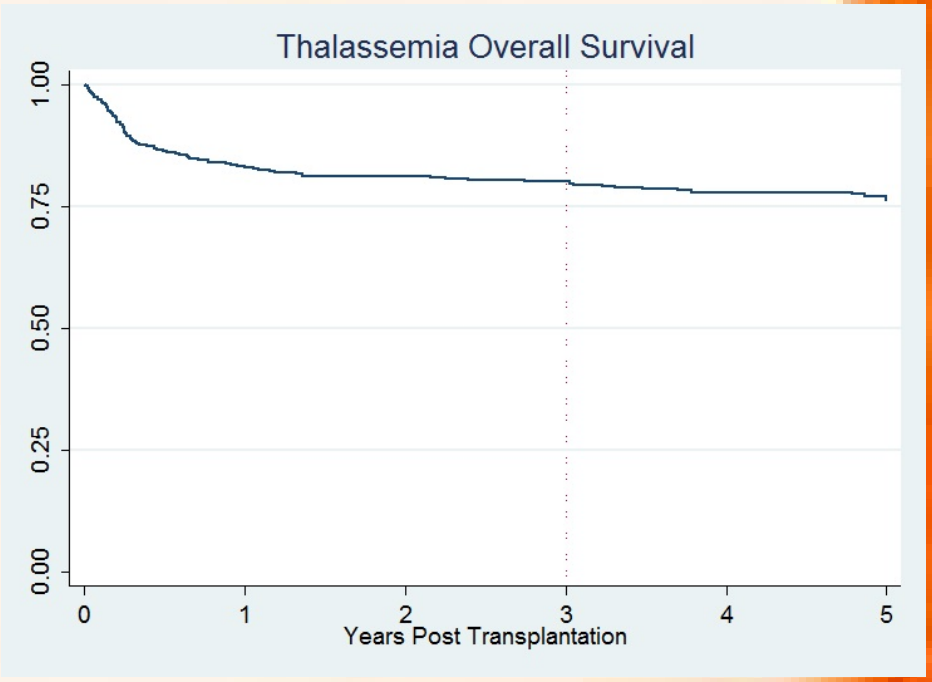
Thalassemia	724
Sickle cell thalassemia	5
Sickle cell disease	5



Major Beta- Thalassemia

DFS & OS

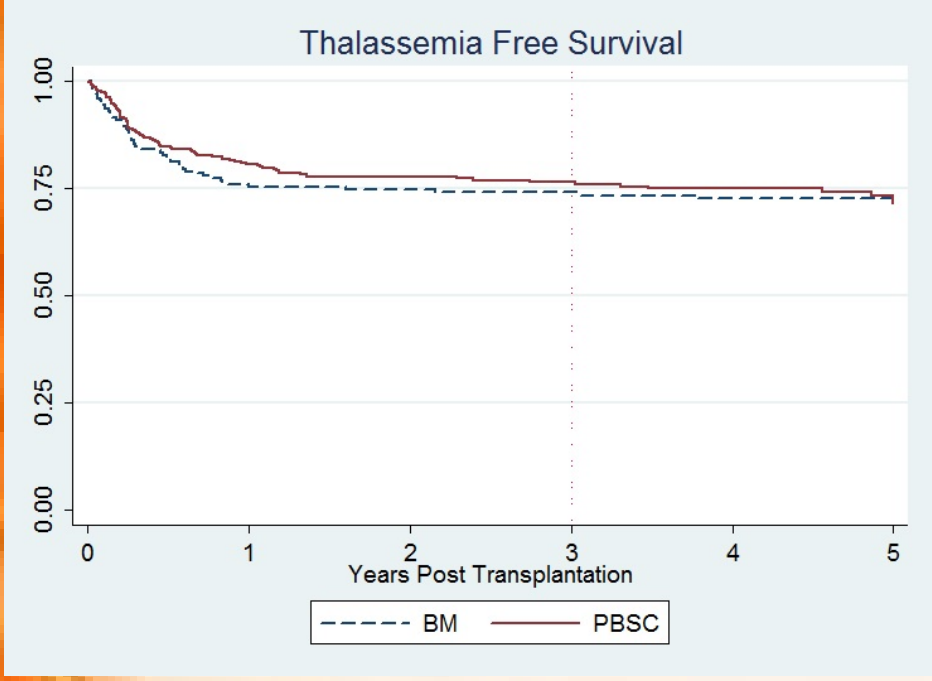




Major Beta- Thalassemia

BM vs. PB

DFS



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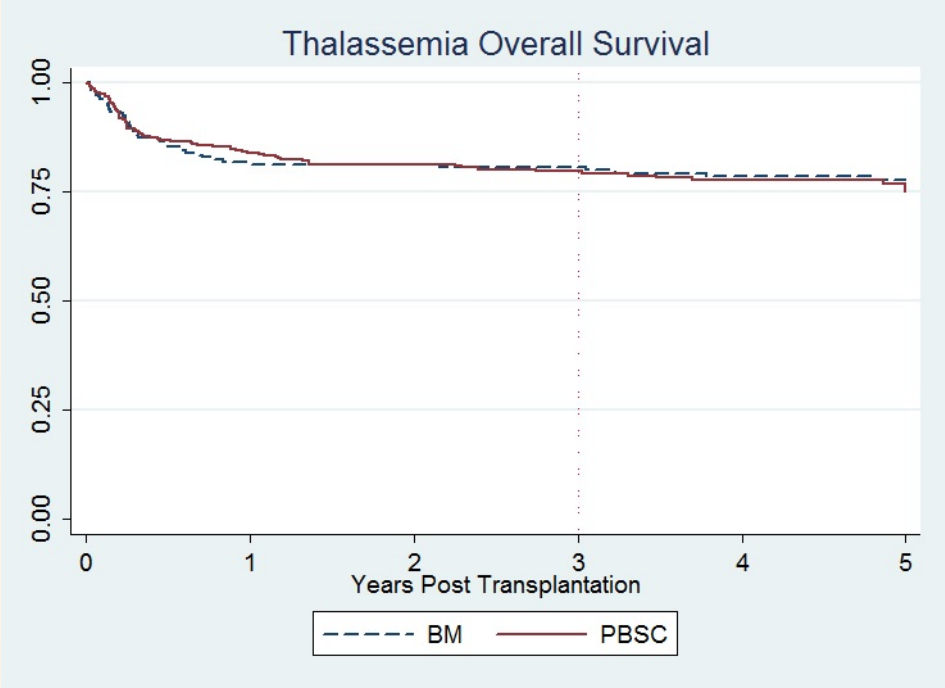

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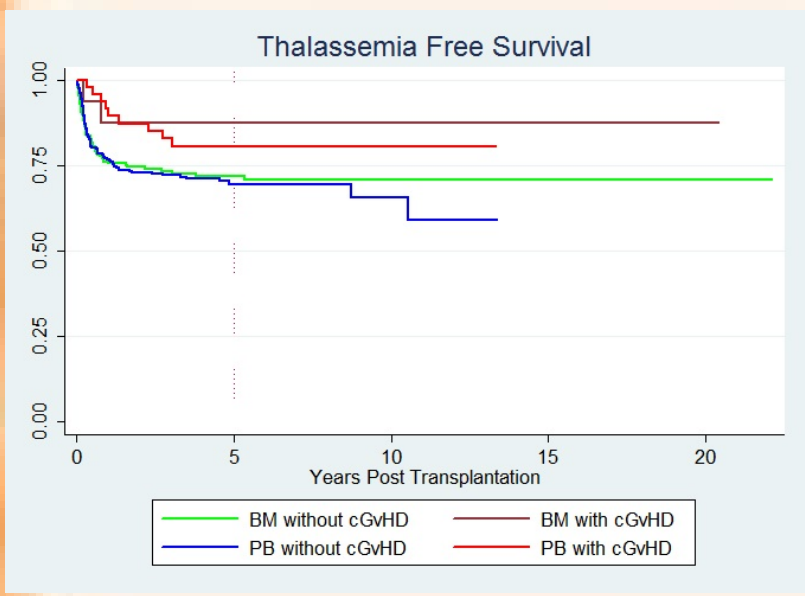
Major Beta- Thalassemia

BM Vs. PB Regarding GvHD

DFS



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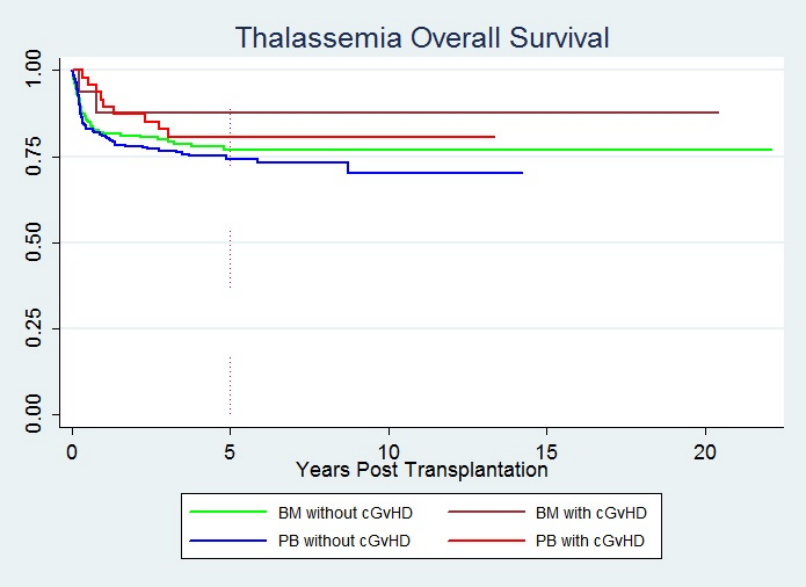


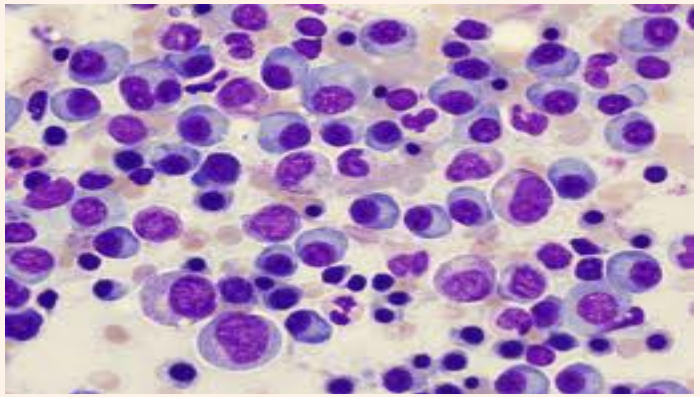
BM withouth cGvHD: 5 Years OS= 76.38%
BM with cGvHD: 5 Years OS= 87.5%
PB withouth cGvHD: 5 Years OS= 73.64%
PB with cGvHD: 5 Years OS= 80.13%

BM withouth cGvHD: 5 Years DFS= 71.48%
BM with cGvHD: 5 Years DFS= 87.5%
PB withouth cGvHD: 5 Years DFS= 68.95%
PB with cGvHD: 5 Years DFS= 80.13%

Outpatients ward

First transplantation was done in Dec 2005
All of the were Autologous PB

Diseases	No
Multiple Myeloma	99
Hodgkin	24
NHL	10
AML	6
Total	139

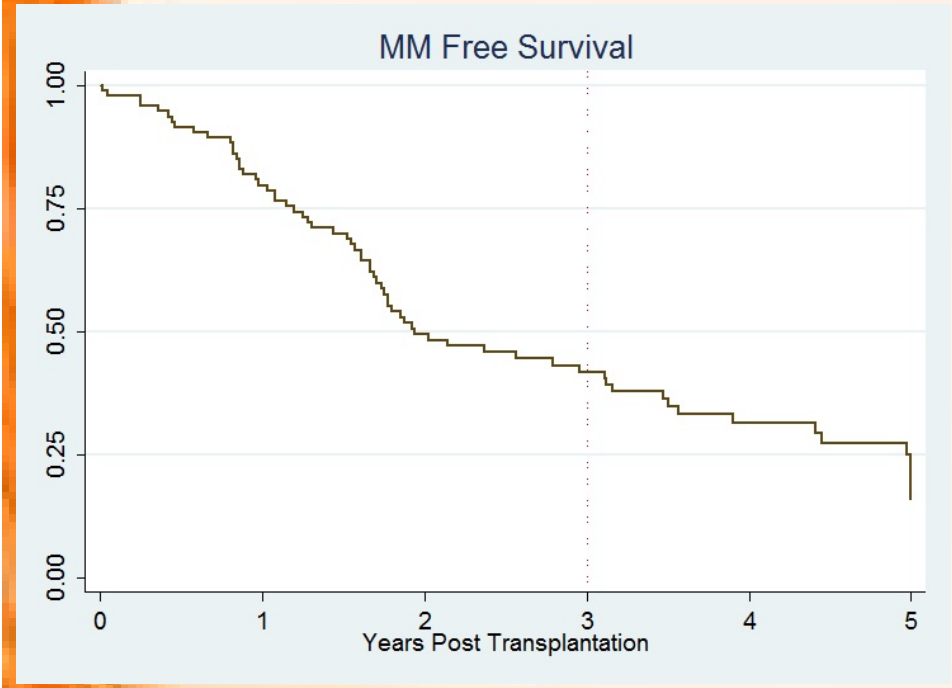


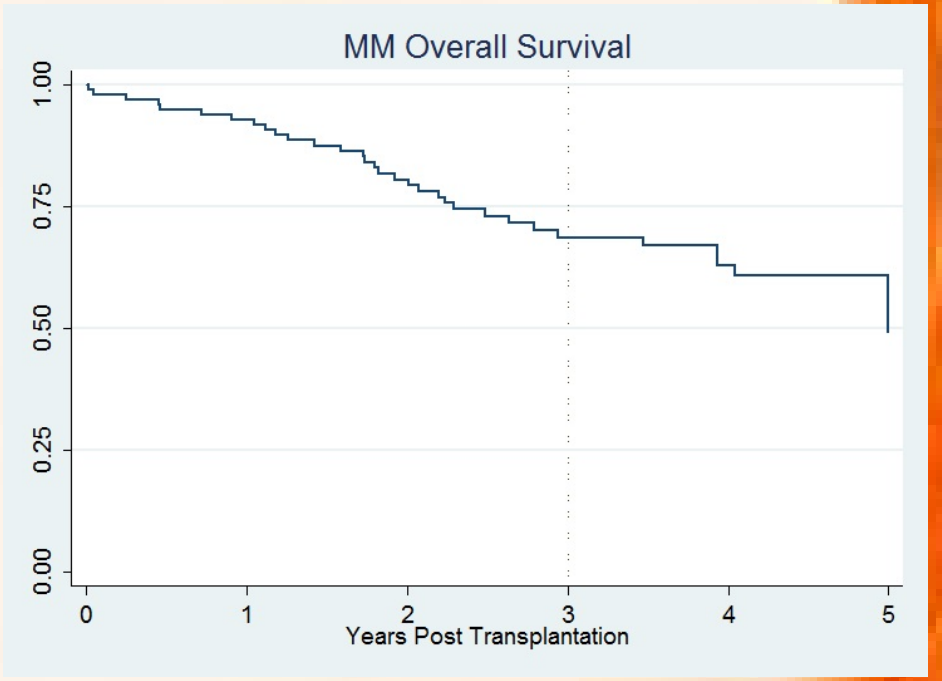
Relapse	84 (58%)
Alive	96 (65.75%)

Causes of death	No
Relapse	41
infection	4
Other	5

Multiple Myeloma Outpatients

DFS & OS





Haploidentical

Start :2007

to May,2, 2015: 80 (patients)

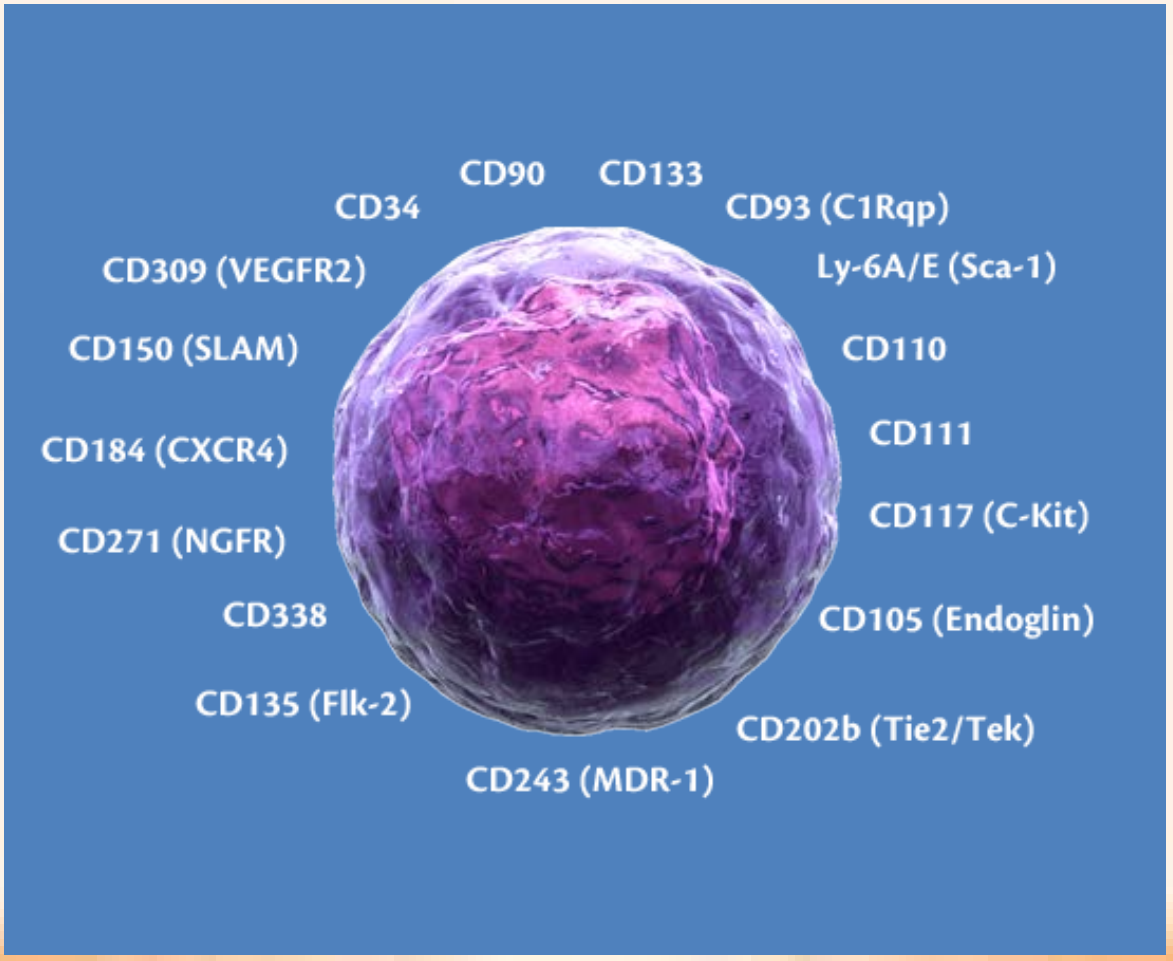
Alive: 67/5% 54

Mortality: 32.4% 26

Studies in Progress

- Unrelated transplantation
- Haploidentical HSCT
- Cord Blood & double Cord Blood HSCT
- Use of Mesenchymal stem cells

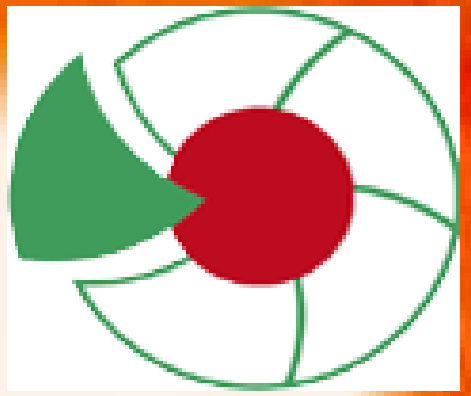
Hematopoietic stem cell



Cord blood Bank

- First Iranian public cord blood bank
- Established at 2002
- Gathering cord blood cells from multiple Gynecology/ Obstetric centers
- First CB transplantation was done at 1998
- 66 Cord blood transplantations done
- Development of bank and new methods of storage and tests
- **3254 stored (3224 HLA-typed)**

HLA- Bank



- Iranian stem cell donor program
  (بانک داوطلبان دهنده سلولهای بنیادی)–
- First in Middle - East
- At 1999 joined to BMDW and WMDA
- Search for matched donors all over the world
- It is growing day to day with increasing number of volunteers
- **7589 HLA-typed**
- **21807 direct registered**

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18th anniversary of stem cell transplantation in Iran- 2007