



The WBMT Global Survey

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WBMT meeting

Riyadh 2017

Worldwide Network for Blood and Marrow Transplantation
NGO in official relations with World Health Organization

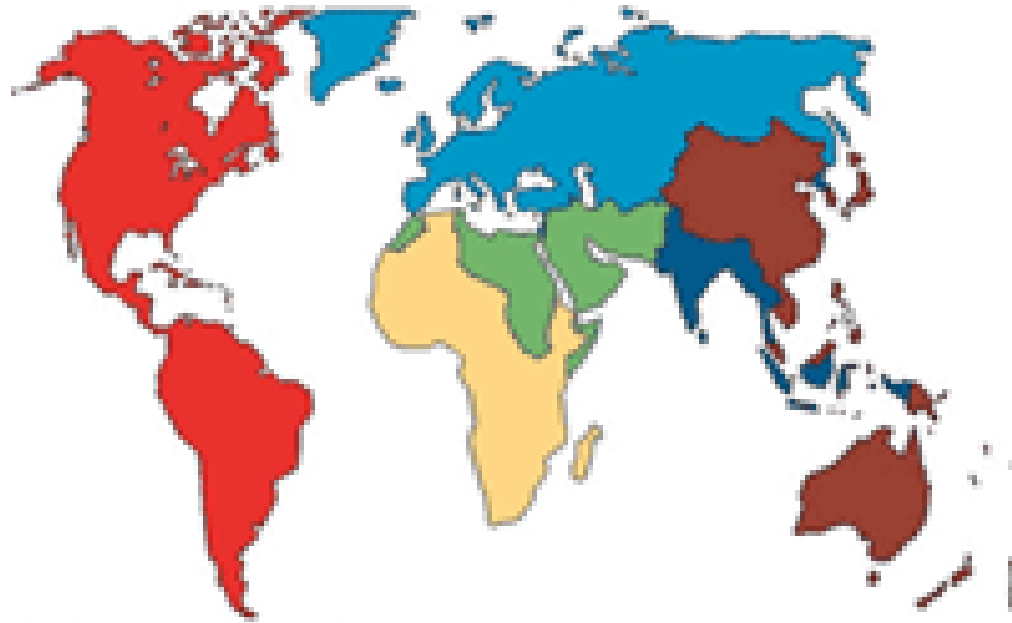
What is the WBMT Global Survey?

- A single sheet survey reporting annual activity
- Data reported either by centre or scientific organizations.
- Disease, donor type, stem cell source
- Provides us with a rapid overview of the most recent HSCT activity
- Most recent data: 2013

Country/Hospital:		WBMT Global Transplant Activity 2014														
Contact E mail:		PLEASE REPORT THE NUMBER OF PATIENTS RECEIVING THEIR FIRST TRANSPLANT ONLY FOR THE YEAR 2014 SEPARATELY ON EACH SURVEY SHEET														
No. Teams reporting:																
No. Teams known to transplant but do not report:																
Indication	WBMT	NUMBER OF PATIENTS RECEIVING FIRST TRANSPLANTS ONLY														
		Allogeneic						Unrelated donor			Autologous			Total		
		HLA-identical			Family member donor											
		BM	PBSC	Cord	BM	PBSC	Cord	BM	PBSC	Cord	BM	PBSC	Cord	ALLO	AUTO	TOTAL
ALL tct CR																
ALL non tct CR																
ALL tct CR																
ALL non tct CR																
CML tct cP																
CML non tct cP																
MDS or MDS/MPH																
MPN (old MPN)																
CLL incl. PLL																
Other Leukemia																
PCD - Myeloma																
PCD - other																
HD																
NHL																
Other LPD																
Neuroblastoma																
Germ cell tumor																
Breast Cancer																
Esling																
Other solid tumor																
BMF - SAA																
BMF - other																
Hemoglobinopathy																
Primary Immune Deficiency																
Inherited Dis of Metabolism																
Auto Immune Disease																
Other Non Malignant Disease																
Other (incl. Histiocytosis)																
TOTAL PATIENTS (tct, HSCT)																

TOTAL NUMBER OF TRANSPLANTS PERFORMED THIS YEAR: including tct, ALLO:	AUTO:	TOTAL:
EBMT CIO No. / CIBMTR Code / APBMT (if member):		

WHO WBMT Continental Regions



4 Continental regions used for the WBMT Global Analysis

- AMR/PAH: The Americas
- EUR: Europe
- EMR/AFR: Eastern Mediterranean/African Region
- SEAR/WPR: South-East Asia/Western Pacific Region



Origin of Global Data: Countries and participating institutions

- 1 570 reporting transplant teams in 2013
- 78 of 79 'known to be active' countries currently reporting
- AMR/PAH
 - United States: **CIBMTR** Canada: **CBMTG**
 - Argentina, Chile, Colombia, Costa Rica, Ecuador, Mexico, Panama, Paraguay, Peru, Uruguay, Venezuela: **NATIONAL - LABMT**
 - Brazil: **SBMTO**
- EUR
 - 40 European countries: **EBMT**
- EMR/AFR
 - Algeria, Egypt, Iran, Jordan, Lebanon, Morocco, Oman, Pakistan, Saudi Arabia, Tunisia: **EMBM.T**.
Nigeria, South Africa: **AFBMT**
- SEAR/WPR
 - China, Hong Kong, India, Japan, Malaysia, Philippines, Singapore, South Korea, Taiwan, Thailand, Vietnam: **APBMT**. Australia, New Zealand: **ABMTRR**



WBMT Publications

Since the first survey in 2006, the WBMT has produced several manuscripts.



Bone Marrow Transplantation (2016) 51, 778–785
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www.nature.com/bmt

ORIGINAL ARTICLE

Hematopoietic stem cell transplantation activity worldwide in 2012 and a SWOT analysis of the Worldwide Network for Blood and Marrow Transplantation Group including the global survey

D Niederwieser^{1,2}, H Baldomero¹, J Szer³, M Gratwohl⁴, M Aljurf⁵, Y Atsuta⁶, LF Bouzas⁷, D Confer⁸, H Greinix⁹, M Horowitz¹⁰, M Iida¹¹, J Lipton¹², M Mohty¹³, N Novitzky¹⁴, J Nunez¹⁵, J Passweg¹, MC Pasquini¹⁰, Y Kodera¹⁶, J Apperley¹⁷, A Seber¹⁸ and A Gratwohl¹ for the Worldwide Network of Blood and Marrow Transplantation (WBMT)

JAMA. 2016 Jan 12;315(2):198-200. doi: 10.1001/jama.2015.13706.

Global Use of Peripheral Blood vs Bone Marrow as Source of Stem Cells for Allogeneic Transplantation in Patients With Bone Marrow Failure.

Yoshimi A¹, Baldomero H², Horowitz M³, Szer J⁴, Niederwieser D⁵, Gratwohl A², Kodera Y⁶; Worldwide Network of Blood and Marrow Transplantation (WBMT).

Lancet Haematol. 2015 Mar;2(3):e91-100. doi: 10.1016/S2352-3026(15)00028-9. Epub 2015 Feb 27.

One million haemopoietic stem-cell transplants: a retrospective observational study.

Gratwohl A¹, Pasquini MC², Aljurf M³, Atsuta Y⁴, Baldomero H¹, Foeken L⁵, Gratwohl M⁶, Bouzas LF⁷, Confer D⁸, Frauendorfer K⁶, Gluckman E⁹, Greinix H¹⁰, Horowitz M², Iida M¹¹, Lipton J¹², Madrigal A¹³, Mohty M¹⁴, Noel L¹⁵, Novitzky N¹⁶, Nunez J¹⁵, Oudshoorn M⁵, Passweg J¹, van Rood J¹⁷, Szer J¹⁸, Blume K¹⁹, Appelbaum FR²⁰, Kodera Y²¹, Niederwieser D²²; Worldwide Network for Blood and Marrow Transplantation (WBMT).

Haematologica. 2013 Aug;98(8):1282-90. doi: 10.3324/haematol.2012.076349. Epub 2013 Mar 18.

Quantitative and qualitative differences in use and trends of hematopoietic stem cell transplantation: a Global Observational Study.

Gratwohl A¹, Baldomero H, Gratwohl M, Aljurf M, Bouzas LF, Horowitz M, Kodera Y, Lipton J, Iida M, Pasquini MC, Passweg J, Szer J, Madrigal A, Frauendorfer K, Niederwieser D; Worldwide Network of Blood and Marrow Transplantation (WBMT).

JAMA. 2010 Apr 28;303(16):1617-24. doi: 10.1001/jama.2010.491.

Hematopoietic stem cell transplantation: a global perspective.

Gratwohl A¹, Baldomero H, Aljurf M, Pasquini MC, Bouzas LF, Yoshimi A, Szer J, Lipton J, Schwendener A, Gratwohl M, Frauendorfer K, Niederwieser D, Horowitz M, Kodera Y; Worldwide Network of Blood and Marrow Transplantation.

*Worldwide Network for Blood and Marrow Transplantation
NGO in official relations with World Health Organization*

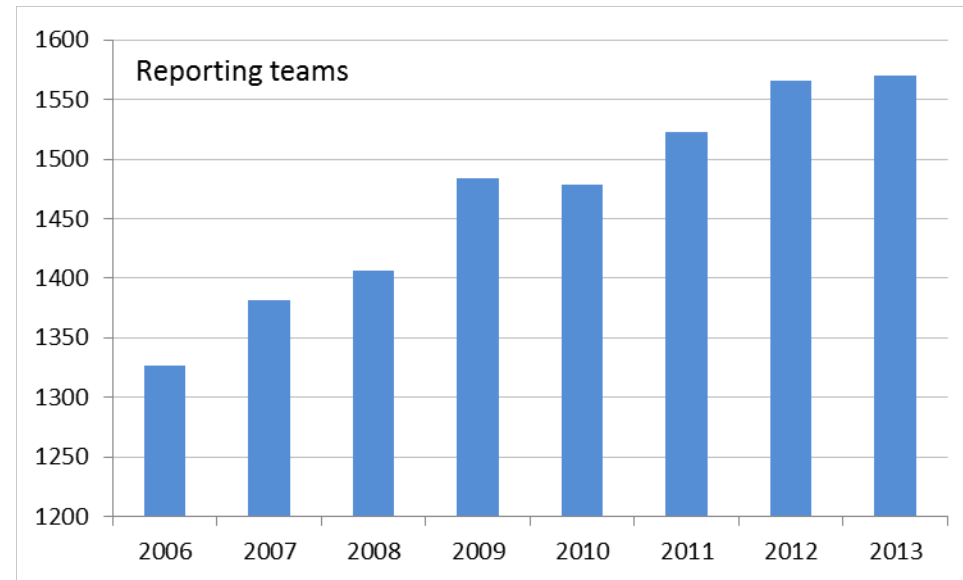
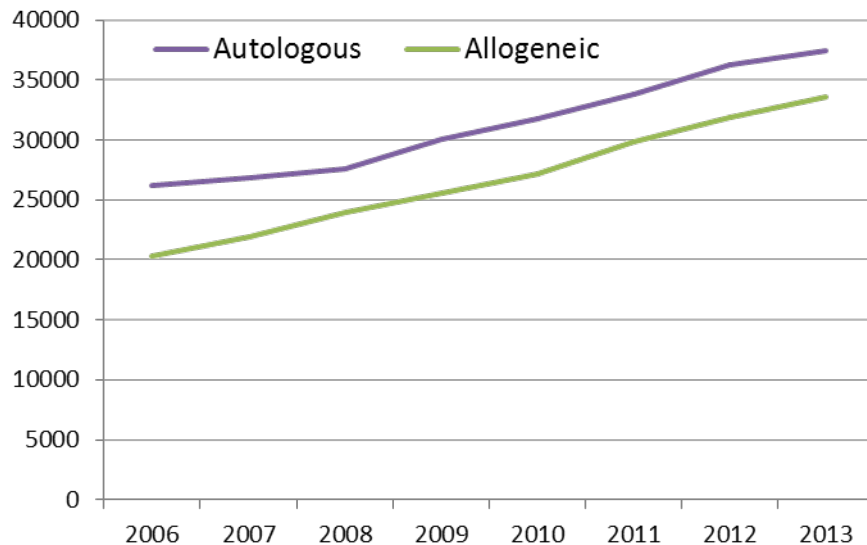


Global Survey 2013 data

WHO Regions	4
Countries	78 reporting
Teams	1 570
Year of Transplant	2013
Patients	71 036 33 572 allogeneic (47%) 37 464 autologous (53%)
Donor type	16 305 family (49%) 12 475 <i>sibling/twin</i> 3 830 <i>haplo-identical relative (23%)</i> 17 267 unrelated (51%) 2 787 <i>cord blood</i>

WBMT Global Survey 2006-2013

Increase in the numbers of transplants and reporting teams



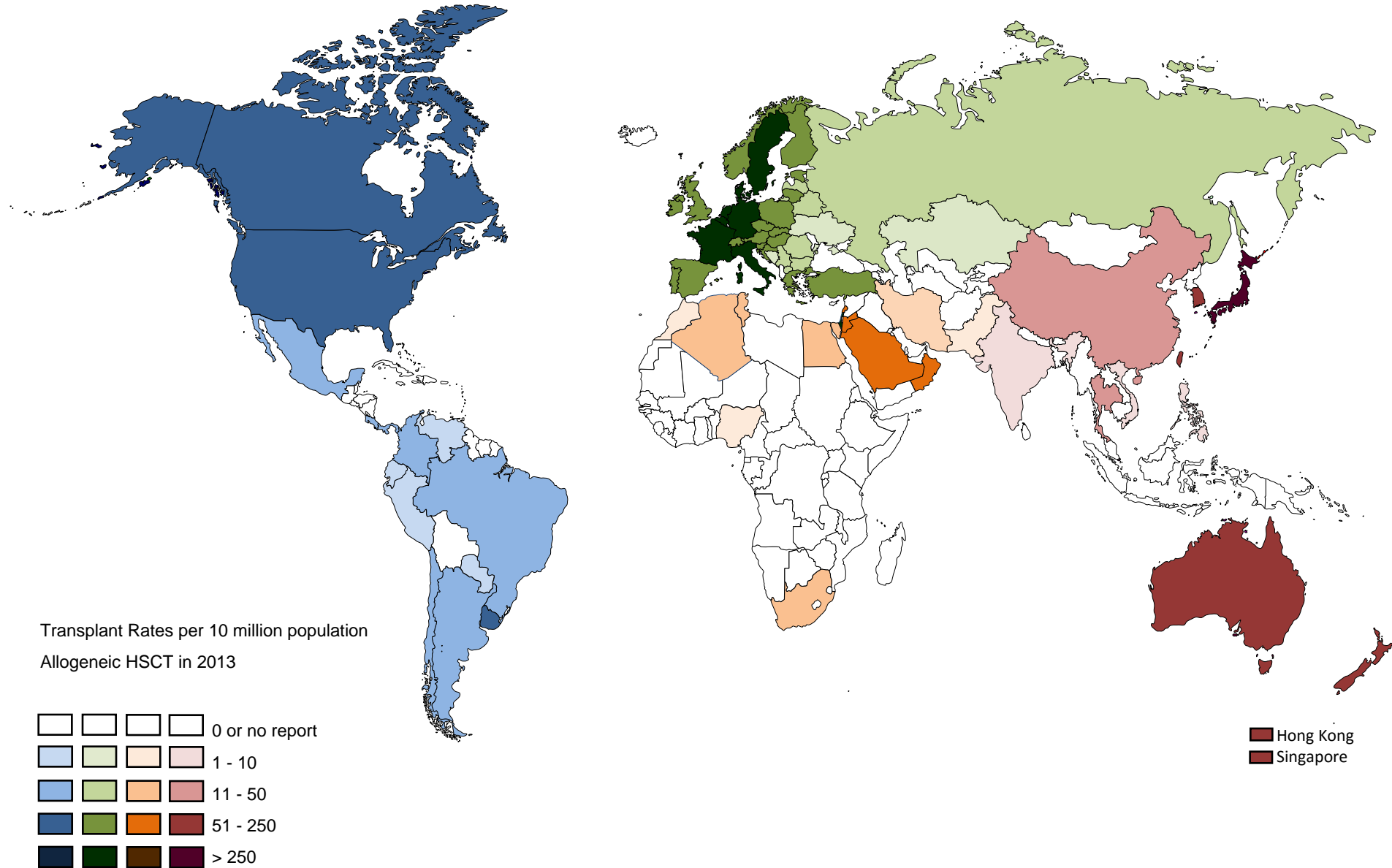
1327 teams
67 countries

1570 teams
78 countries

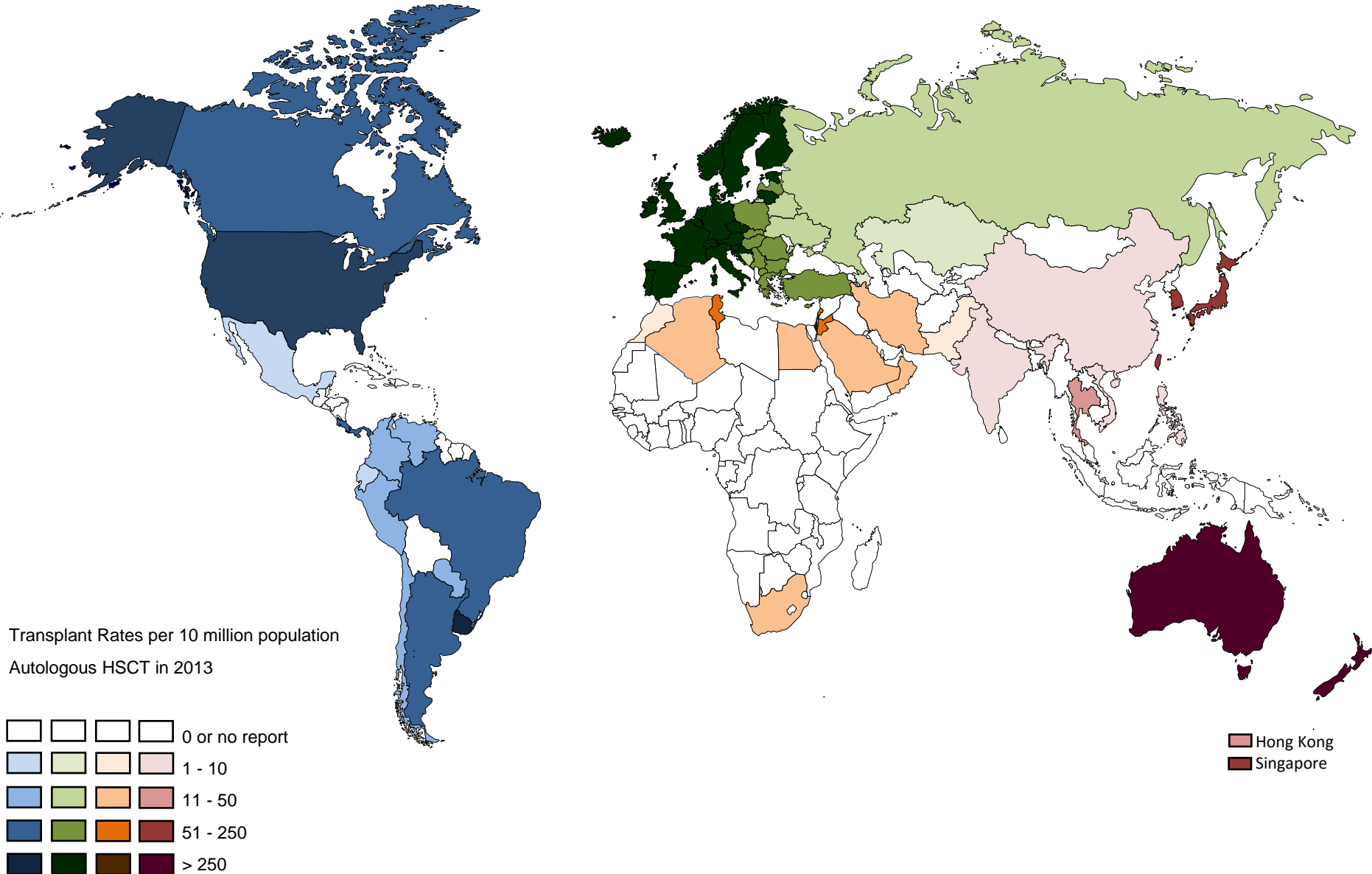
Median No. TX per team
2006 = 29

2013= 41

WBMT Global Survey 2013



WBMT Global Survey 2013



Worldwide Network for Blood and Marrow Transplantation
NGO in official relations with World Health Organization

Global Activity Survey: 2006 – 2013

Allogeneic	2006	2013		
Acute Leuk/other leuk/MDS/MPS	12 502	22 512	↑	70%
Chronic Leuk	1 890	1 824	↓	
Lymphoproliferative disorders	3 219	4 582	↑	42%
Solid Tumors	150	130	-	
Non Malignant disorders	2 360	4 380	↑	86%
BMF	1 292	2 082	↑	61%
Others	212	144	↓	
Total	20 333	33 572	↑	65%
Autologous				
Leukemias	1 726	910	↓	89%
PCD	10 675	18 766	↑	75%
Lymphomas	10 980	14 681	↑	34%
Solid Tumors	2 560	2 779	↑	9%
Non Malignant disorders	193	290	↑	50%
Others	96	38	↓	
Total	26 230	37 464	↑	38%
Total	46 563	71 036	↑	46%

Transplant Type by Region: 2013

Main indication	Allogeneic HSCT	Autologous HSCT	Total
Europe	13 971	19 138	33 109 (47%)
The Americas	9 447	11 811	21 258 (30%)
South East Asia / Western Pacific	8 800	5 538	14 338 (20%)
Eastern Mediterranean / Africa	1 354	977	2 331 (3%)
Total	33 572 (47%)	37 464	71 036

78 (of 79) reporting countries
1 570 contributing teams

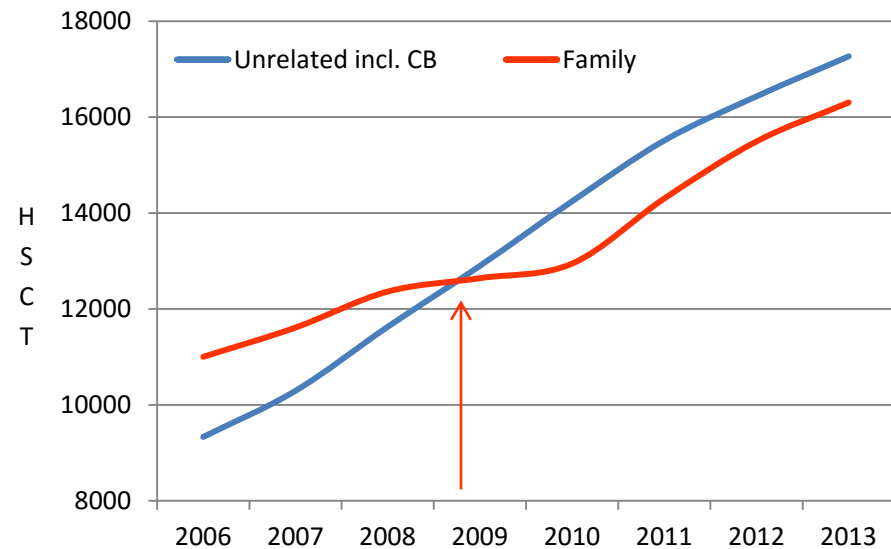
Disease type by Region: 2013

Allogeneic	Americas	Asias	Europe	EMRO/Africa	Total
Leukemias	6 947	6 571	10 098	720	24 336
Lymphoproliferative disorders	1 378	922	2 222	60	4 582
Solid Tumors	13	57	60	0	130
Non Malignant disorders	1 097	1 225	1 489	569	4 380
Others	12	25	102	5	144
Total	9 447	8 800	13 971	1 354	33 572
Autologous					
Leukemias	141	262	473	34	910
Lymphoproliferative disorders	10 847	4 728	17 032	840	33 447
Solid Tumors	749	496	1 433	101	2 779
Non Malignant disorders	66	44	178	2	290
Others	8	8	22	0	38
Total	11 811	5 538	19 138	977	37 464
Total	21 258	14 338	33 109	2 331	71 036

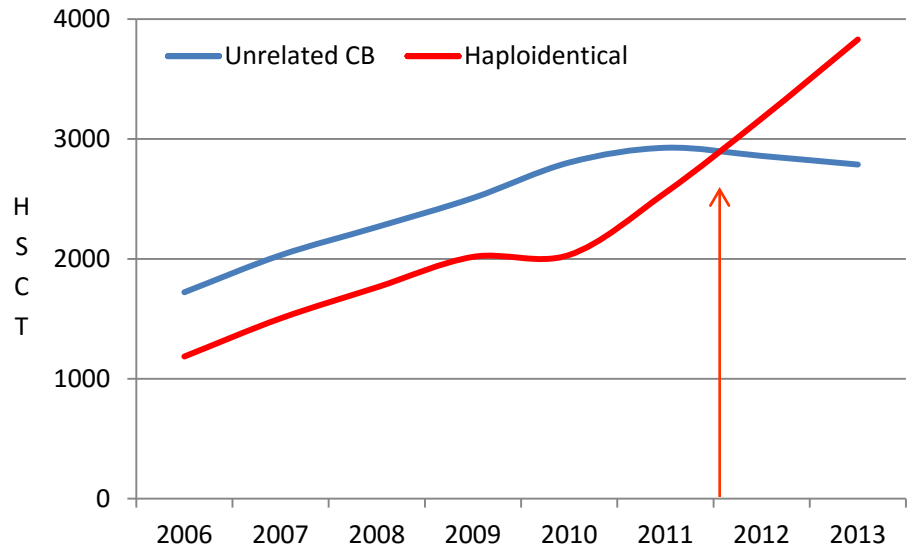
WBMT Global Survey 2006-2013

Changes in donor choice

Unrelated vs Family donor

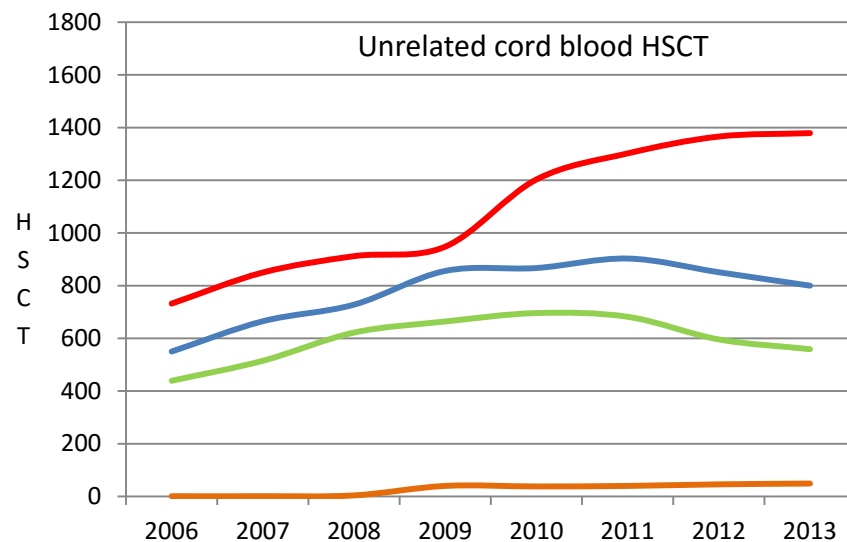
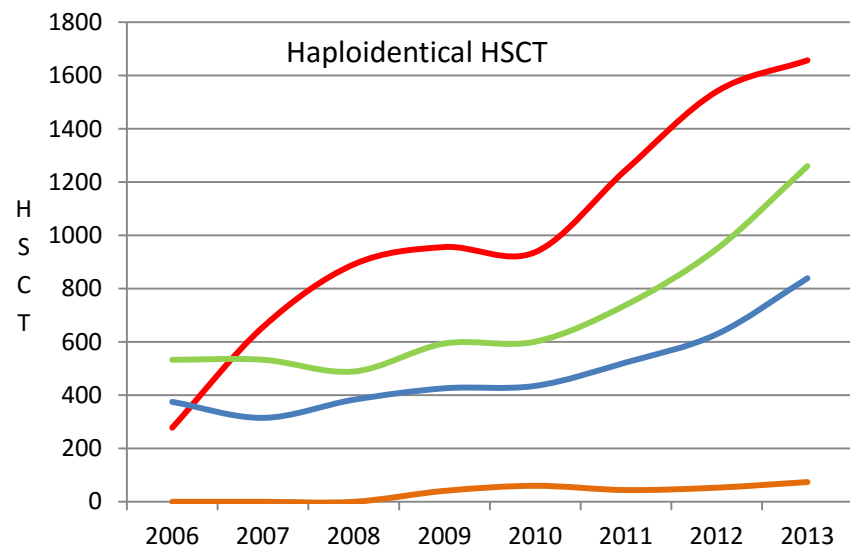


Cord blood vs haploidentical donor



WBMT Global Survey 2006-2013

Changes in donor choice: haplo-identical VS unrelated CB HSCT










SEAR/WPR
EUR
AMR/PAH
EMR/AFR

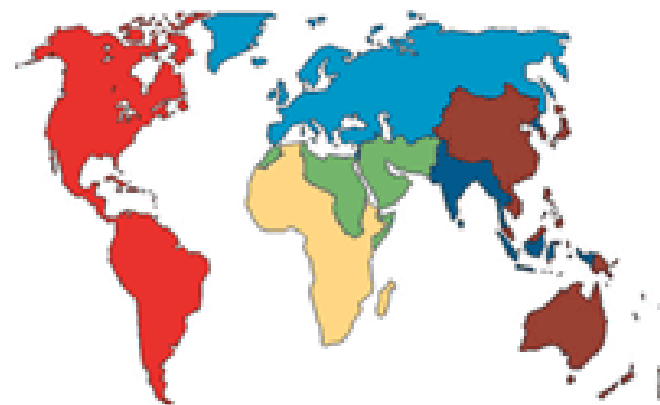


EMR/AFR Survey 2006 - 2013

Worldwide Network for Blood and Marrow Transplantation
NGO in official relations with World Health Organization

WBMT: EMR/AFR Region

-  EMR/AFR: Eastern Mediterranean/African WHO region
-  Data currently reported to the WBMT via the EMBMT or AFBMT
-  29 reporting teams from 12 countries in 2013
 -  Algeria, Egypt, Iran, Jordan, Lebanon, Morocco, Nigeria, Oman, Pakistan, Saudi Arabia, South Africa and Tunisia
-  Total transplants in 2013:
 -  Allogeneic: 1354 patients
 -  Autologous: 977 patients

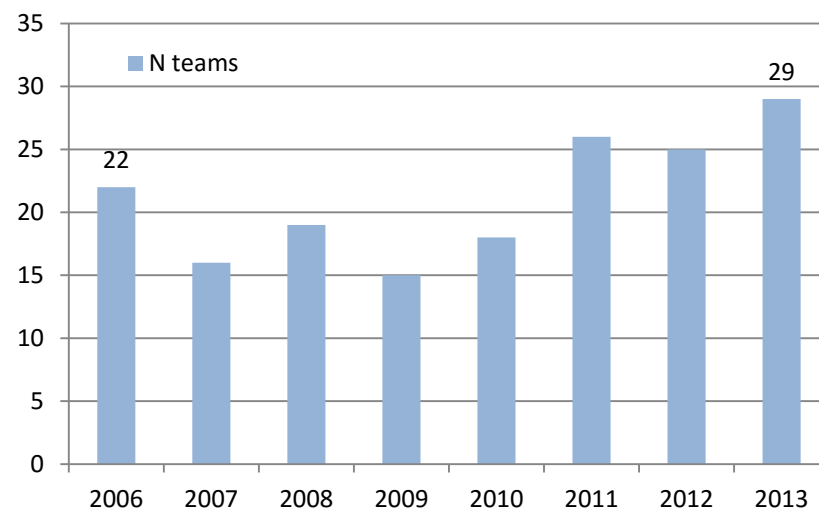
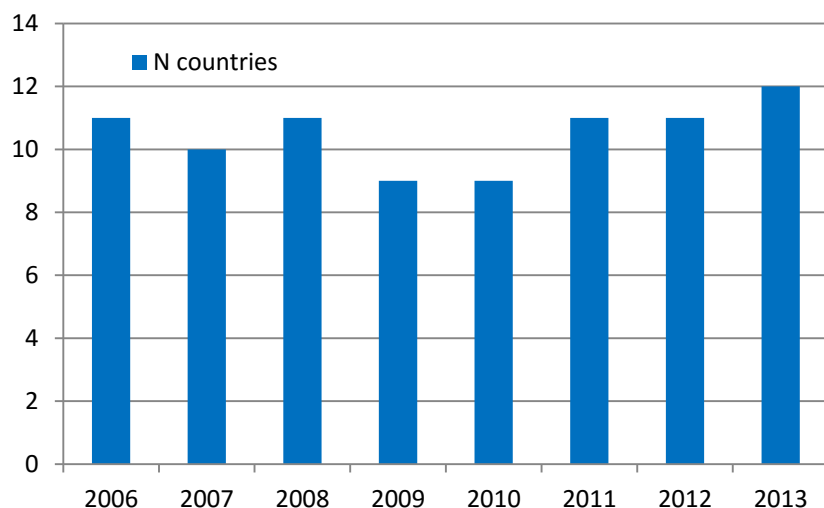


Data source: EMBMT database



WBMT Global Survey: EMR/AFR 2006-2013

Increase in the numbers of reporting countries and teams
in the EMR/AFR region

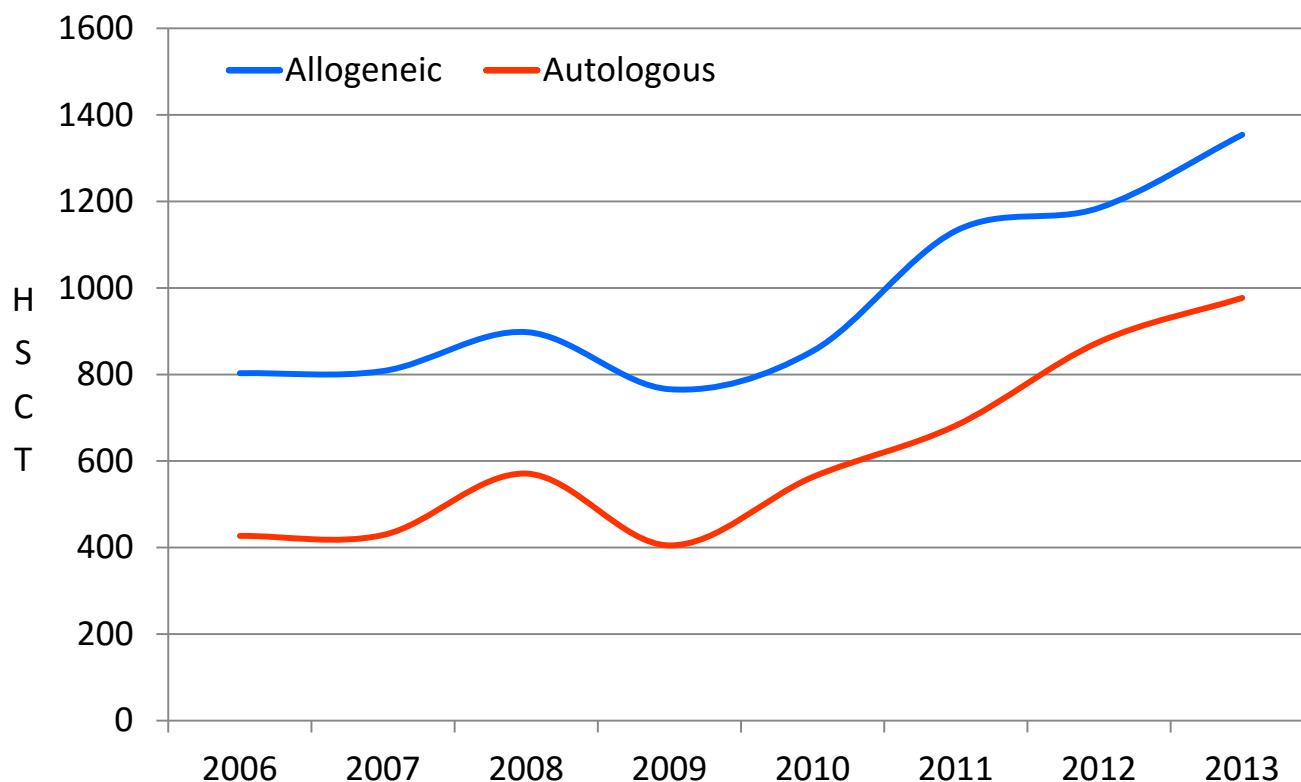


Median No. TX per team
2006 = 54

2013= 66

WBMT Global Survey: EMR/AFR 2006-2013

Increase in the numbers of transplants
in the EMR/AFR region





Global Survey 2013: EMR/AFR overview

WHO Region	EMR/AFR	
Countries	12	
Teams	29	
Year of Transplant	2013	
Patients	2 331 1 354 allogeneic (58%) 977 autologous (42%)	
Donor type	1 257 family (93%) 97 unrelated	
Stem cell source	Allogeneic BM 414 (30%) PBSC 885 (65%) Targeted CB 6 (0.4%) Unrelated CB 49 (3.6%)	Autologous 7 959 11
Median No. HSCT per team	66	

Global Activity Survey: EMR/AFR 2006 – 2013

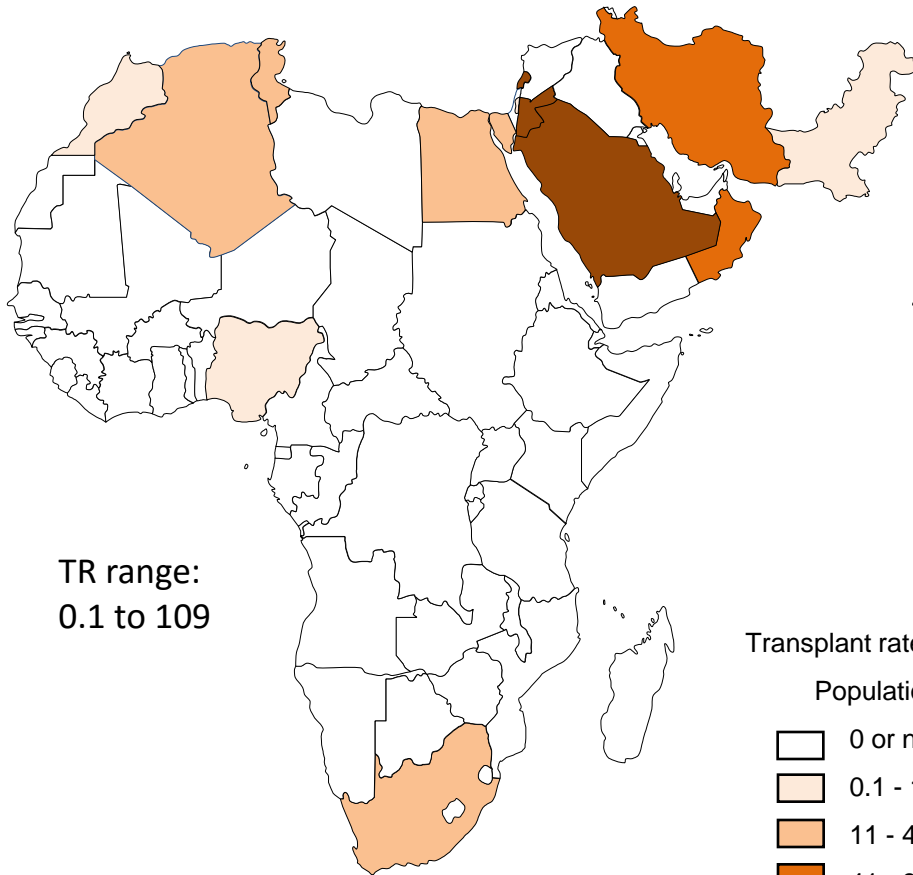
Allogeneic	2006	2013		
Acute Leuk/other leuk/MDS/MPS	351	662	↑	87%
Chronic Leukemias	141	58	↓	142%
Lymphoproliferative disorders	28	60	↑	114%
Solid Tumors	1	0	-	
Non Malignant disorders	277	569	↑	105%
BMF	154	242	↑	57%
Others	5	5	-	
Total	803	1 354	↑	69%
Autologous				
Leukemias	58	34	↓	41%
PCD	127	404	↑	218%
Lymphomas	211	436	↑	106%
Solid Tumors	29	101	↑	25%
Non Malignant disorders	2	2	-	
Others	0	0	-	
Total	427	977	↑	128%
Total	1 230	2 331	↑	90%

WBMT: EMR/AFR 2013

Transplant rates per 10 million population

Allogeneic HSCT

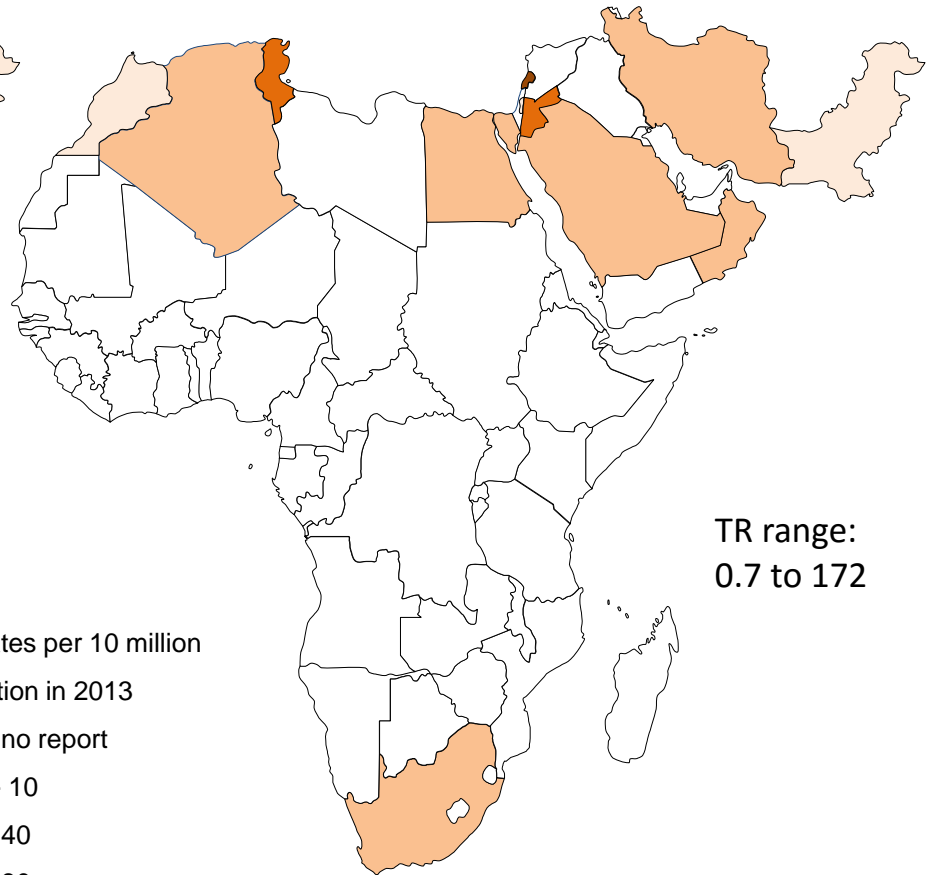
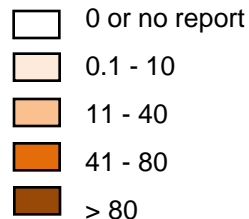
Autologous HSCT



TR range:
0.1 to 109

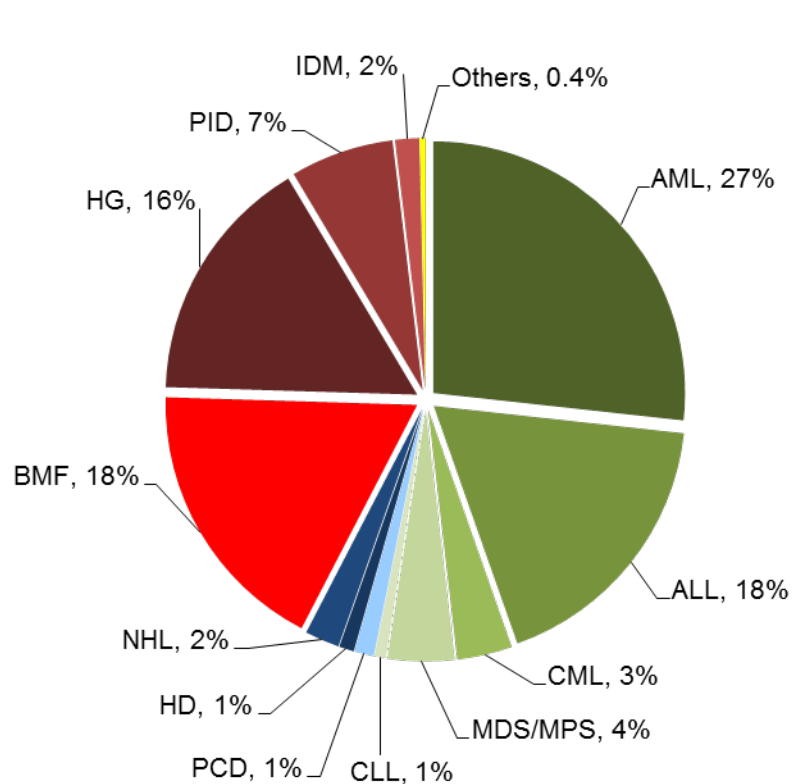
Transplant rates per 10 million

Population in 2013

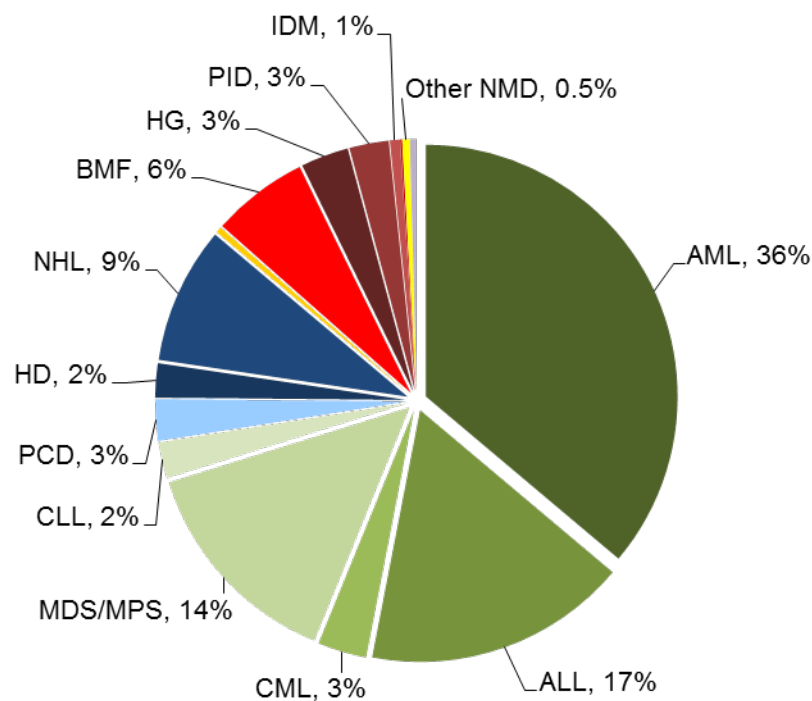


TR range:
0.7 to 172

EMR/AFR: Main Indication: allogeneic HSCT



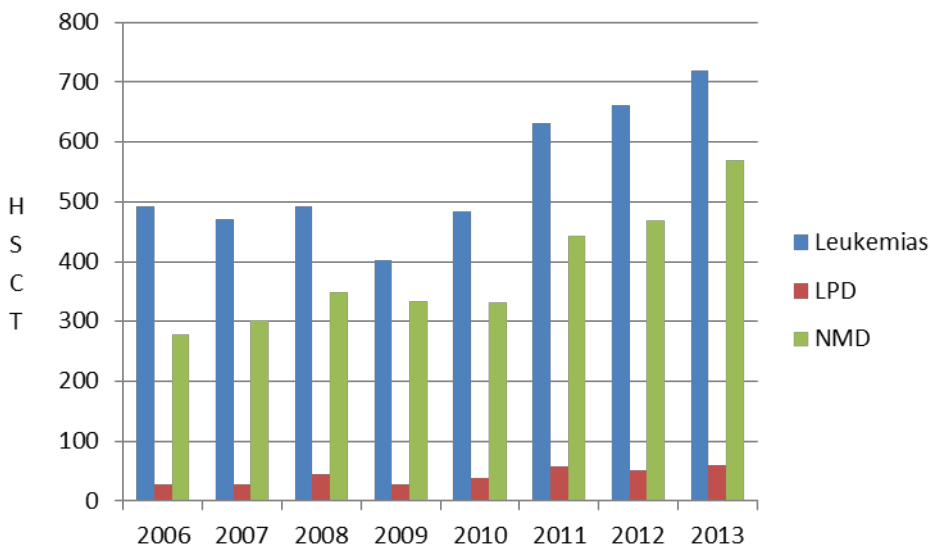
EMR/AFR 2013



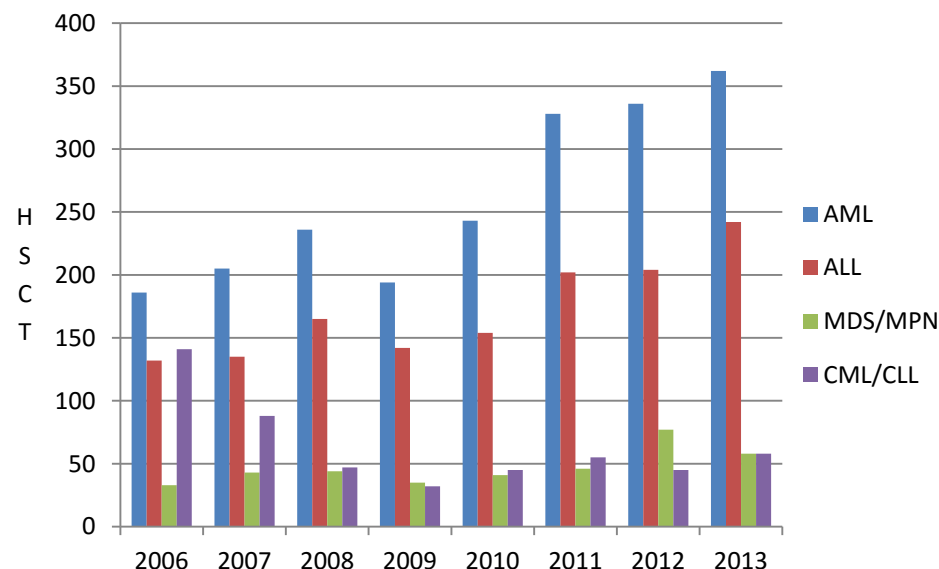
Global 2013

EMR/AFR: Main Indication: Allogeneic HSCT

Main disease indication



Leukemias

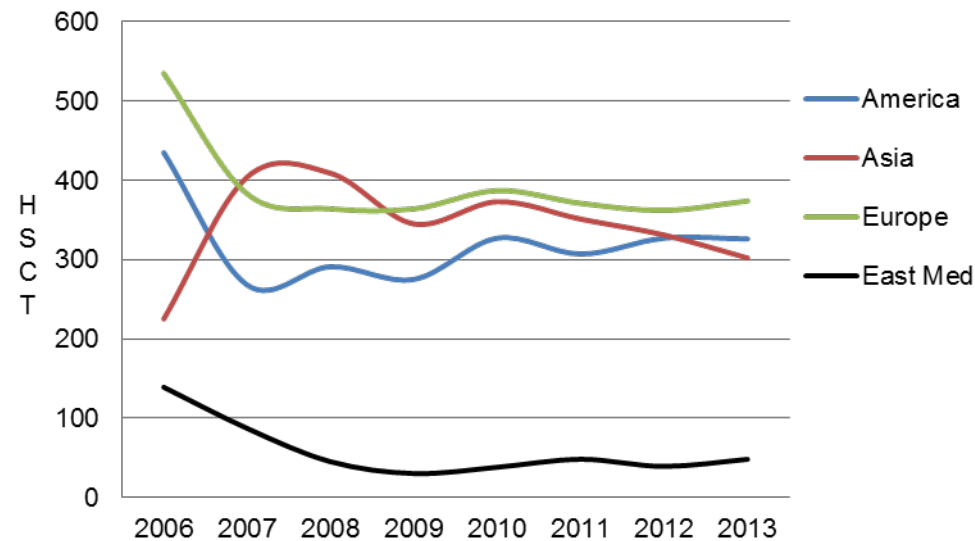


Increase in AML 1st. CR and ALL in both early and late stage

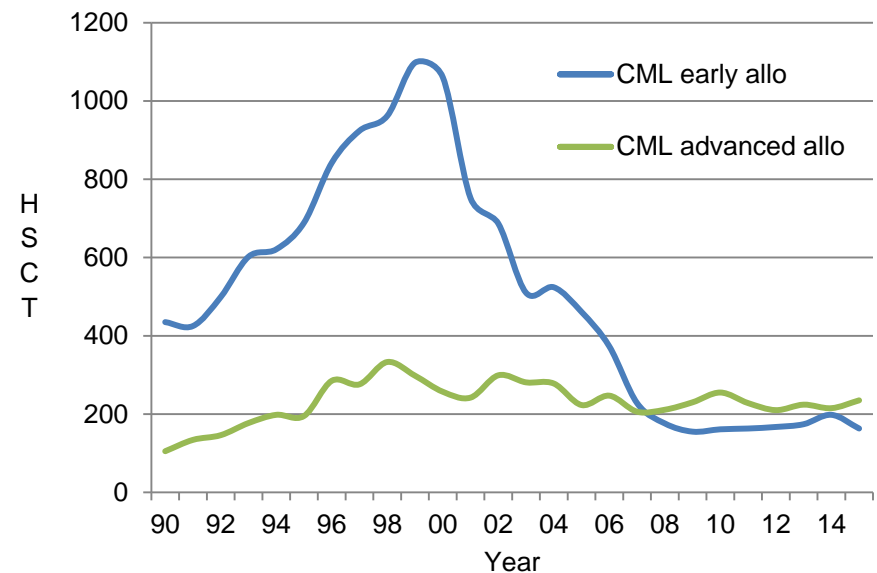
Continued decrease in CML

Indication: CML allogeneic HSCT

By WBMT region

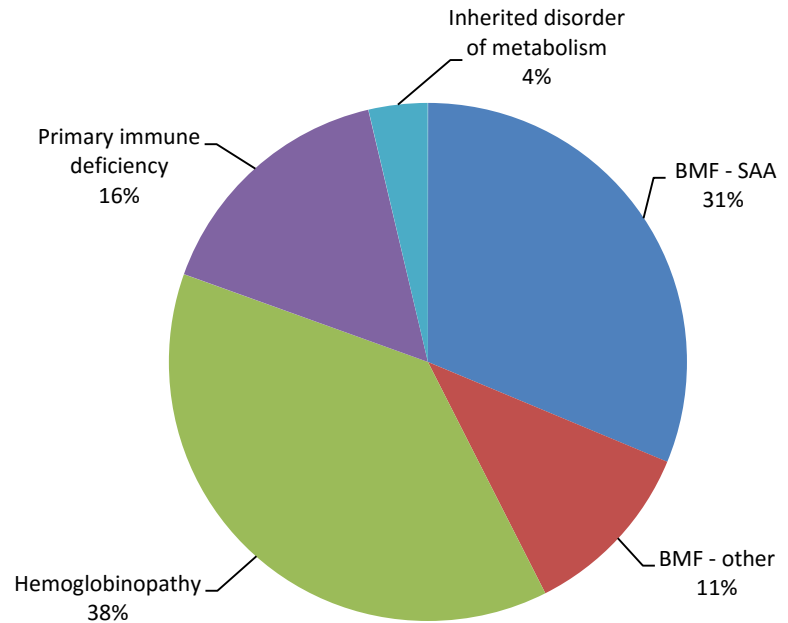
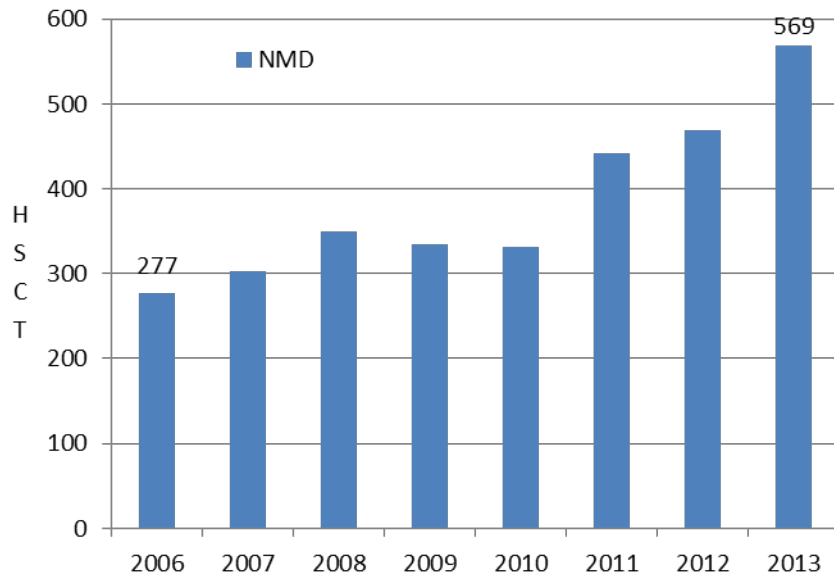


Europe 1990 - 2015



EMR/AFR: non malignant disorders: Allo HSCT

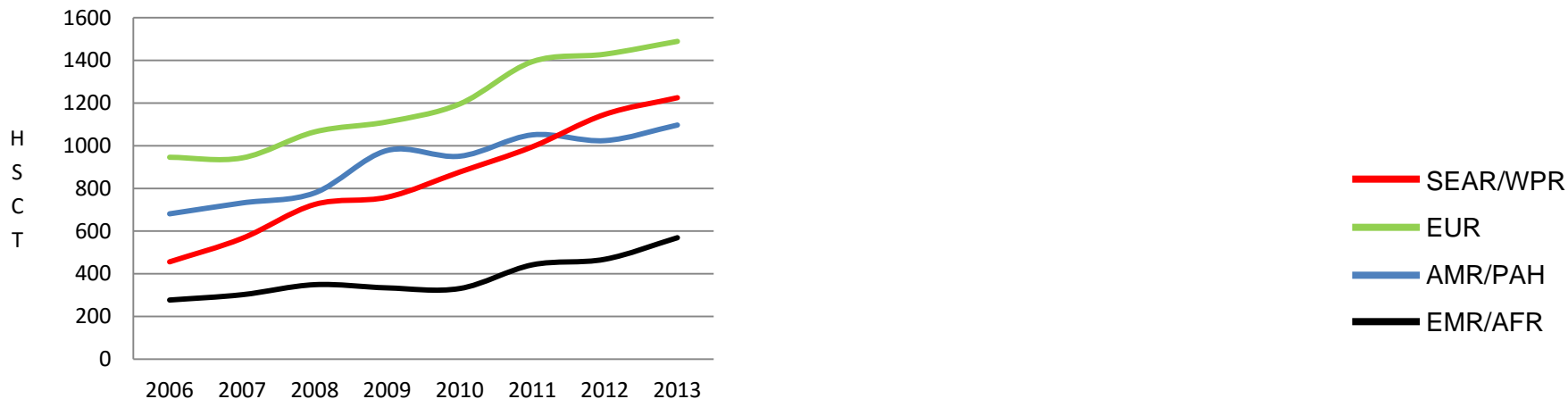
Non malignant disorders



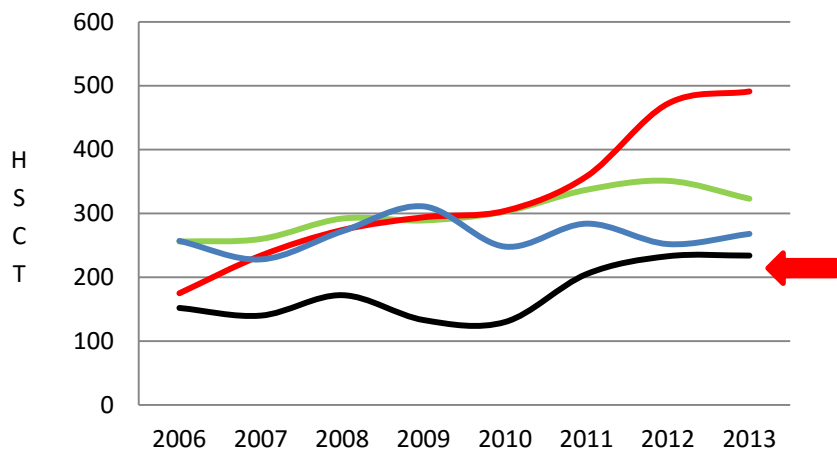
2013

EMR/AFR: non malignant disorders: Family donor HSCT

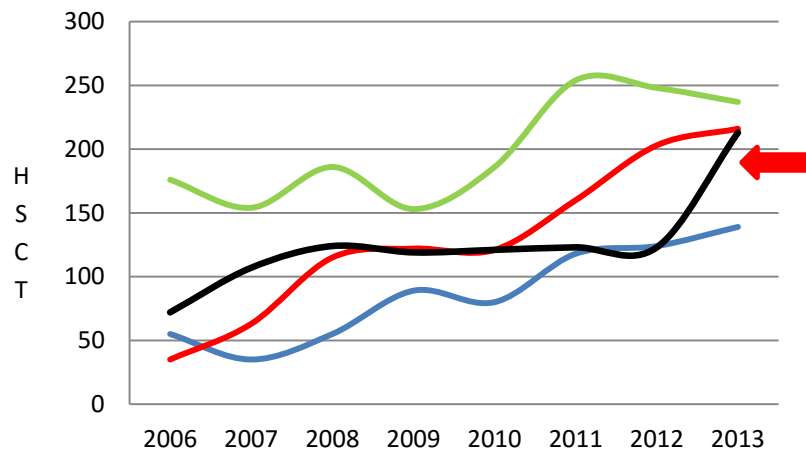
NMD



BMF

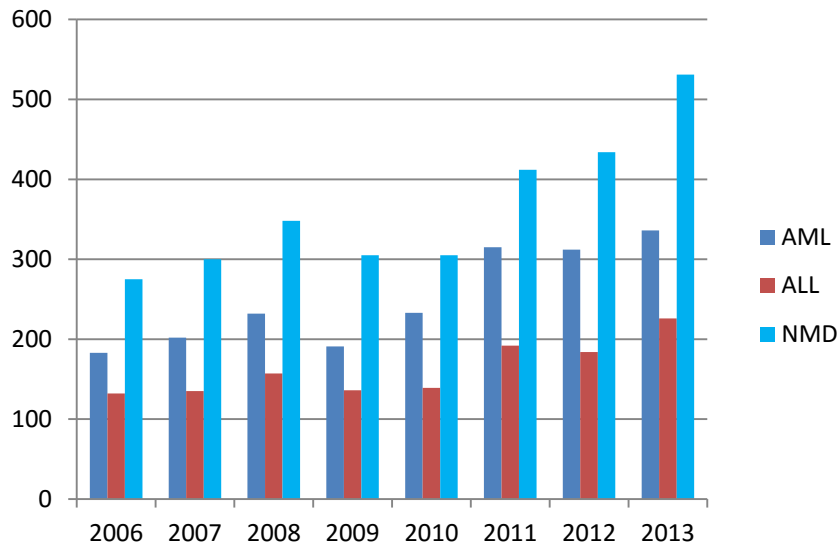


Hemoglobinopathy

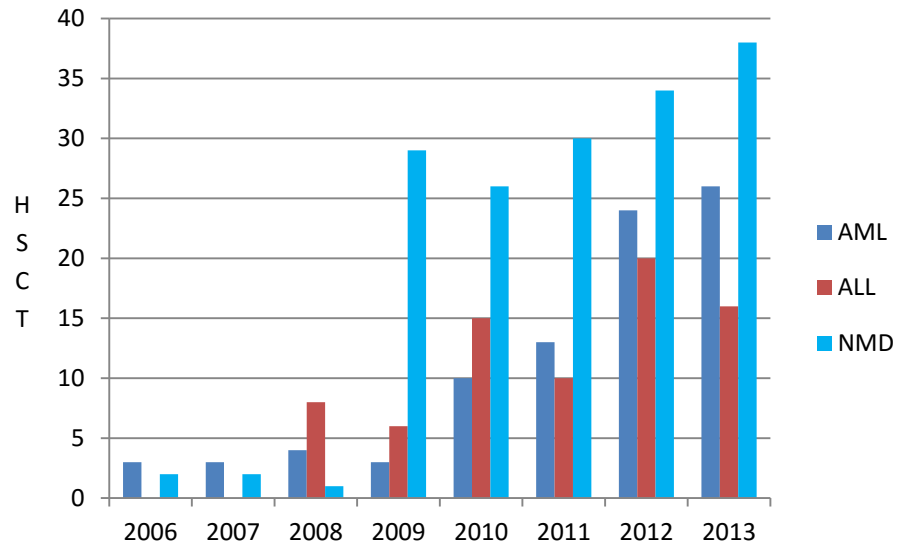


EMR/AFR: Main Indication – donor choice

Distribution of disease by donor type
Family

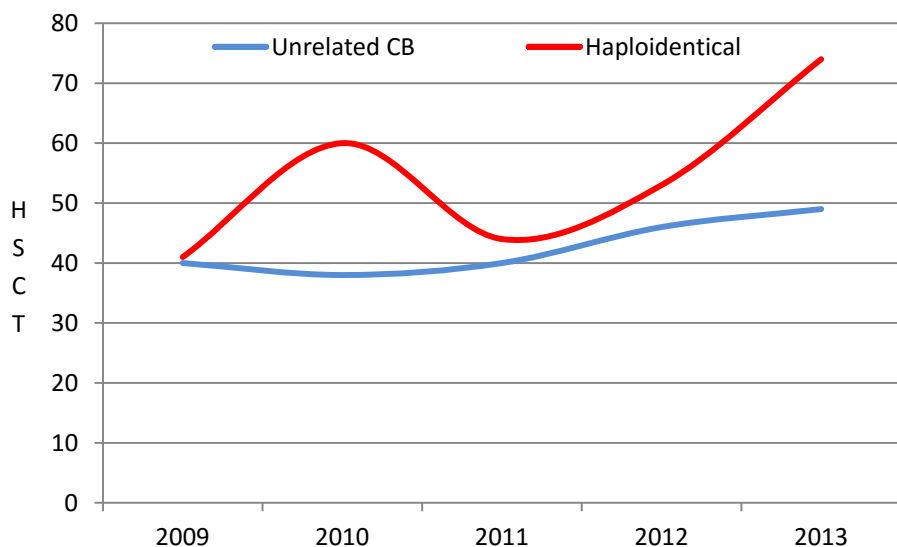


Unrelated

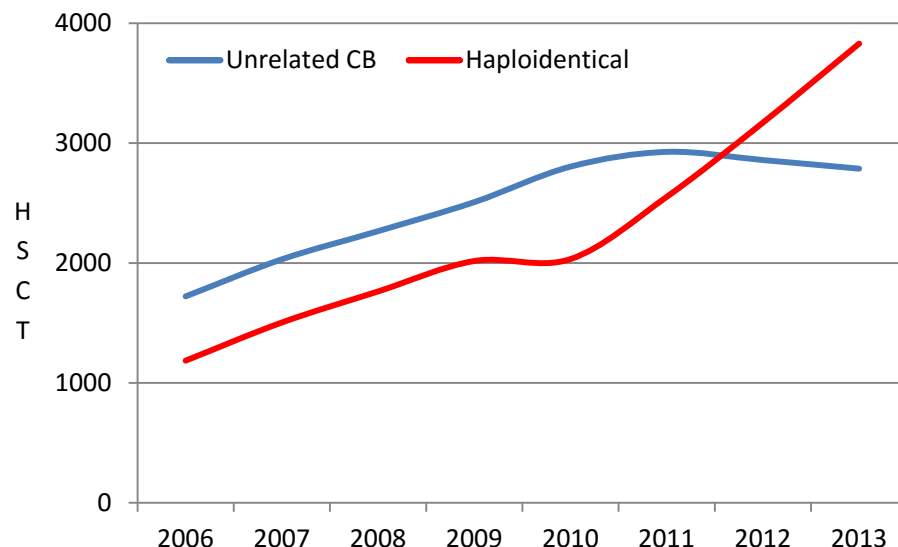


WBMT Global Survey: EMR/AFR 2006-2013

Changes in donor choice: haploidentical vs cord blood



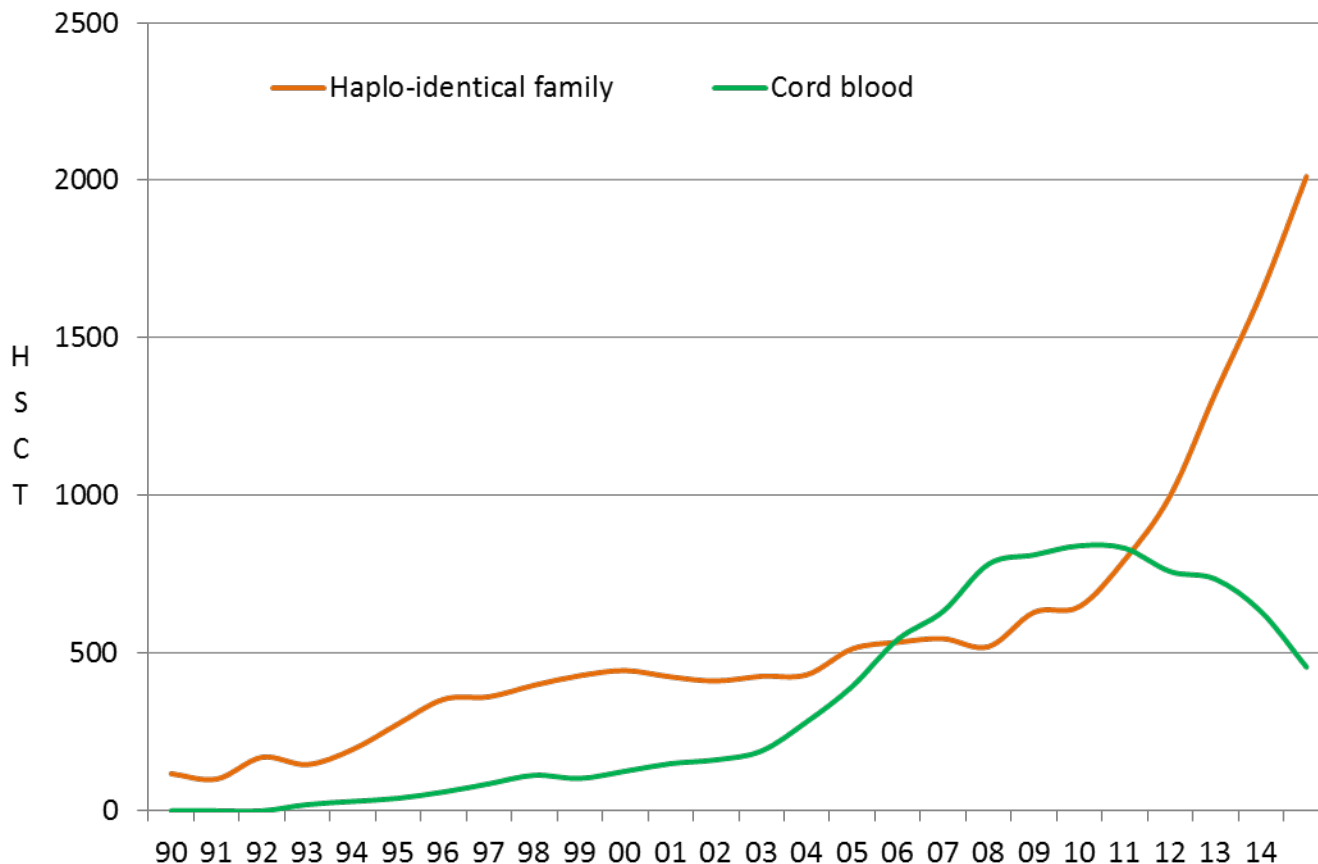
EMR/AFR



Global

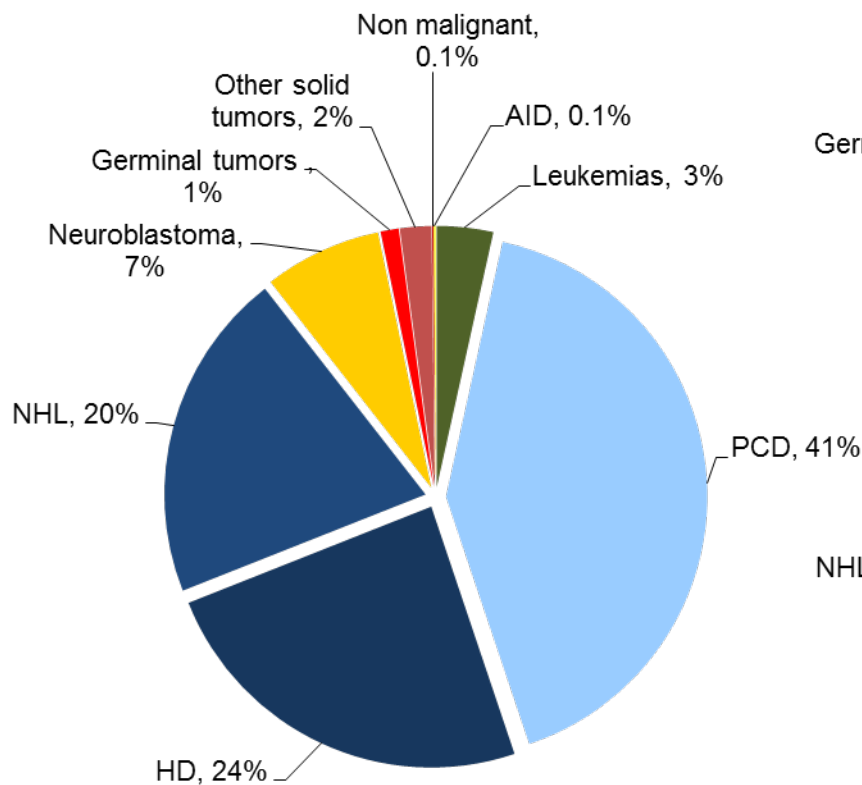
HSCT Activity in Europe 1990-2015:

Cord blood vs haplo-identical family donor 1st HSCT

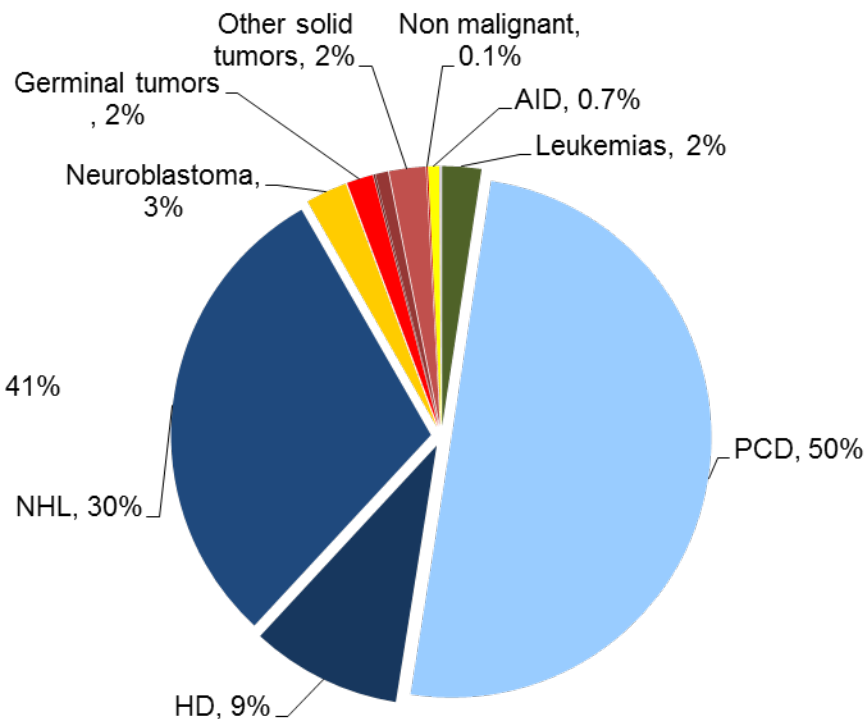


BMT; J. Passweg et al. in press

EMRO: Main Indication: autologous HSCT



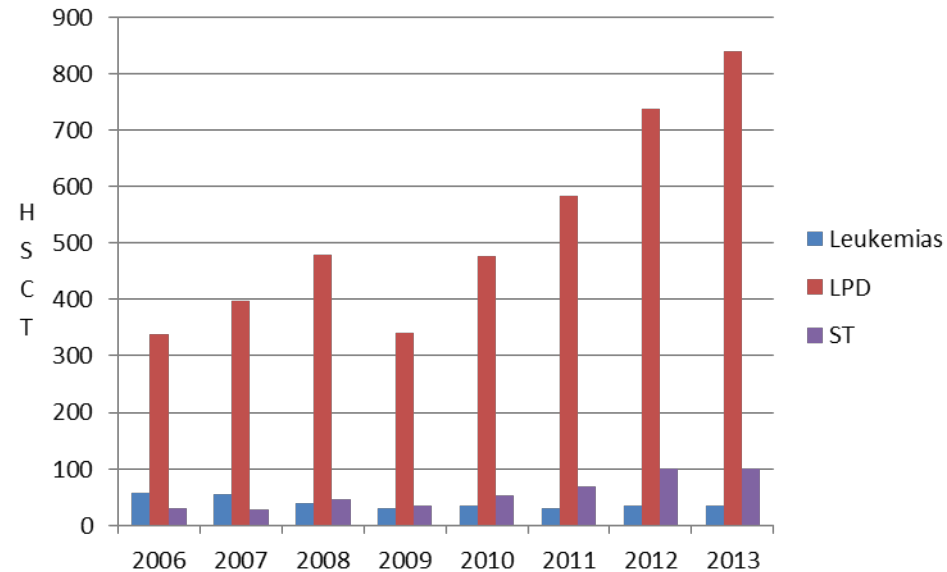
EMRO 2013



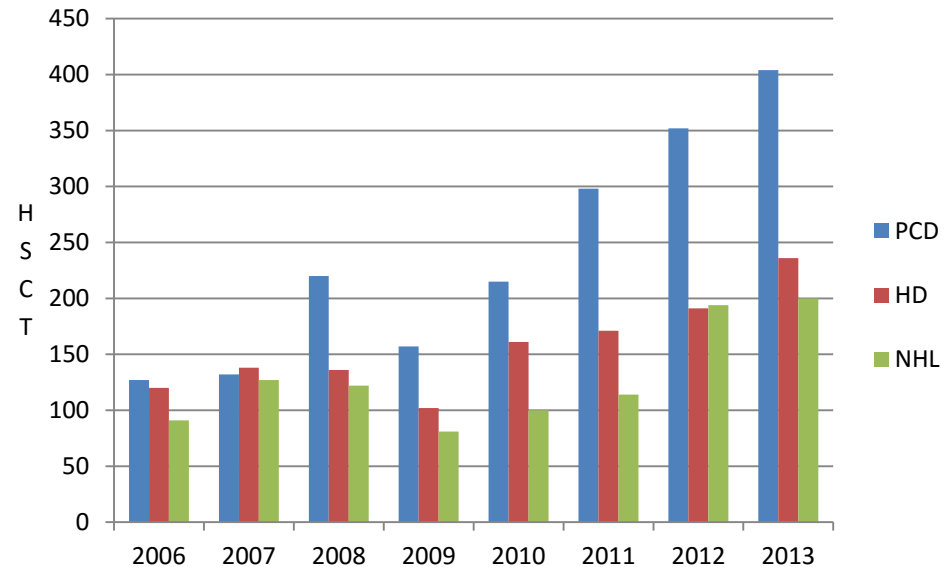
Global 2013

EMR/AFR: Main Indication: Auto HSCT

Main disease indication



Lymphoproliferative disorders



Conclusion

- ❖ Data reflect status in 2013 and trends 2006 – 2013. It provides a rapid overview of transplant activity worldwide
 - ❖ By country, WHO region, main indication, donor type and stem cell source
- ❖ Data illustrate deficiencies and needs
 - ❖ Missing data, incomplete data
- ❖ Data illustrate major differences between regions, countries
- ❖ Data provide a basis for further studies
- ❖ Information on transplant activity is essential for patients, donors, physicians, healthcare providers and competent authorities.
- ❖ Need for outcome data on WBMT level
- ❖ Future projects.....cellular therapies

Survey on Cellular Therapy and Regenerative Medicine in Europe 2015

	ALLO	AUTO	TOTAL
Cardiovascular	140	318	458
Musculoskeletal/Rheumatological	93	1098	1191
Neurological	47	103	150
Gastrointestinal	16	0	6
Miscellaneous(skin, ST, cornea, other)	157	993	1150
Hematological (GvHD, graftenhance.)	422	0	422
Total	872	2512	3384

101 teams

21 countries



Thank you

Worldwide Network for Blood and Marrow Transplantation