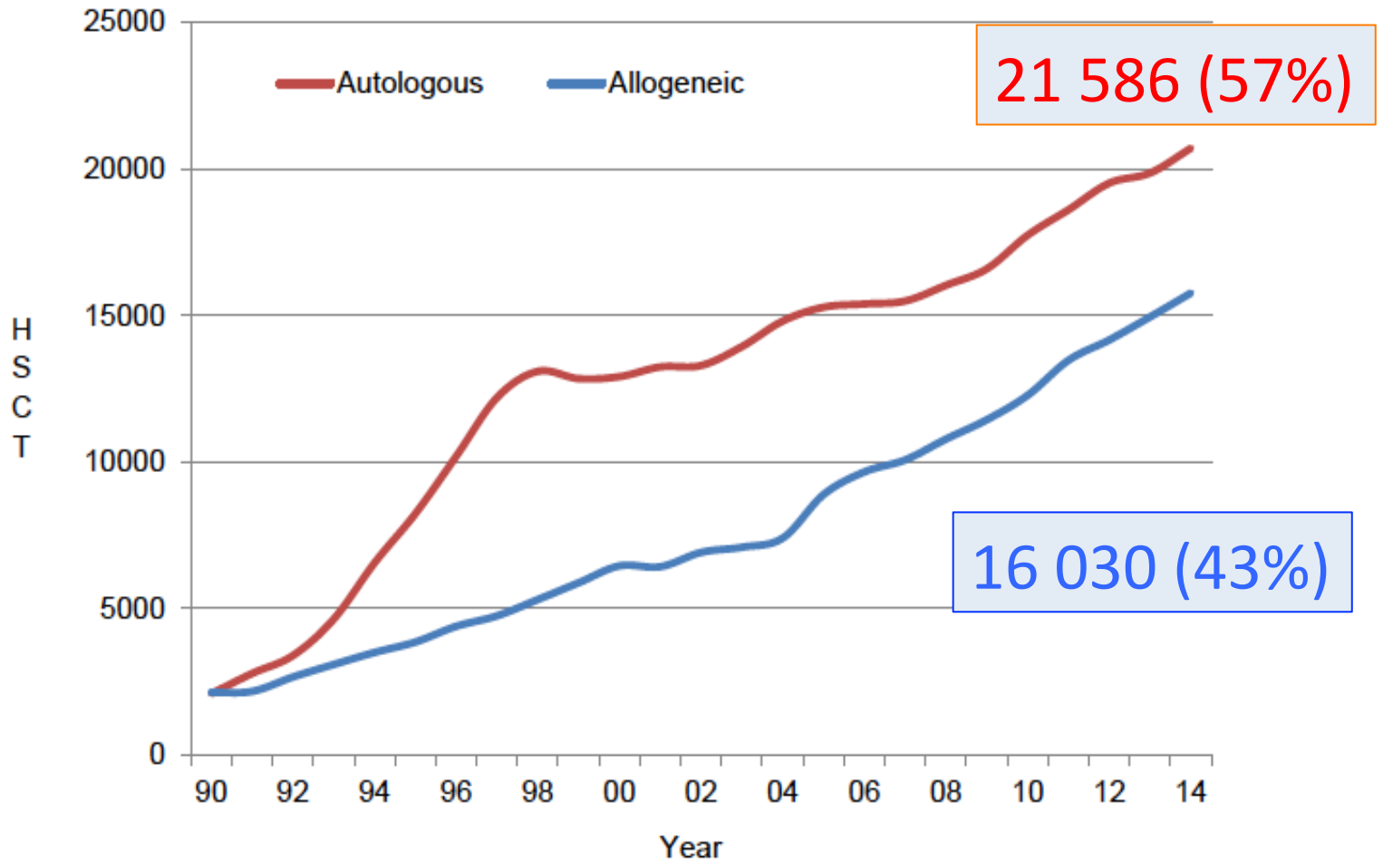
Progetto Ematologia Romagna

Discutendo di trapianto di cellule staminali allogeniche

Francesco Lanza- UO Ematologia- Ravenna

HSCT ACTIVITY IN EUROPE : EBMT REGISTRY



EBMT INDICATION MANUSCRIPT : to be published in May 2017

OPEN

Bone Marrow Transplantation (2017), 1–7

www.nature.com/bmt

SPECIAL REPORT

Use of haploidentical stem cell transplantation continues to increase: the 2015 European Society for Blood and Marrow Transplant activity survey report

JR Passweg[1], H Baldomero[1], P Bader[2], C Bonini[3], RF Duarte[4], C Dufour[5], A Gennery[6], N Kröger[7], J Kuball[8], F Lanza[9], S Montoto[10], A Nagler[11], JA Snowden[12], J Styczynski[13] and M Mohty[14] for the European Society for Blood and Marrow Transplantation (EBMT)

Hematopoietic stem cell transplantation (HSCT) is an established procedure for many acquired and congenital disorders of the hematopoietic system. A record number of 42 171 HSCT in 37 626 patients (16 030 allogeneic (43%), 21 596 autologous (57%)) were reported by 655 centers in 48 countries in 2015. Trends include continued growth in transplant activity over the last decade, with the highest percentage increase seen in middle-income countries but the highest absolute growth in the very-high-income countries in Europe. Main indications for HSCT were myeloid malignancies 9413 (25%; 96% allogeneic), lymphoid malignancies 24 304 (67%; 20% allogeneic), solid tumors 1516 (4%; 3% allogeneic) and non-malignant disorders 2208 (6%; 90% allogeneic). Remarkable is the decreasing use of allogeneic HSCT for CLL from 504 patients in 2011 to 255 in 2015, most likely to be due to new drugs. Use of haploidentical donors for allogeneic HSCT continues to grow: 2012 in 2015, a 291% increase since 2005. Growth is seen for all diseases. In AML, haploidentical HSCT increases similarly for patients with advanced disease and for those in CR1. Both marrow and peripheral blood are used as the stem cell source for haploidentical HSCT with higher numbers reported for the latter.

Bone Marrow Transplantation advance online publication, 13 March 2017; doi:10.1038/bmt.2017.34

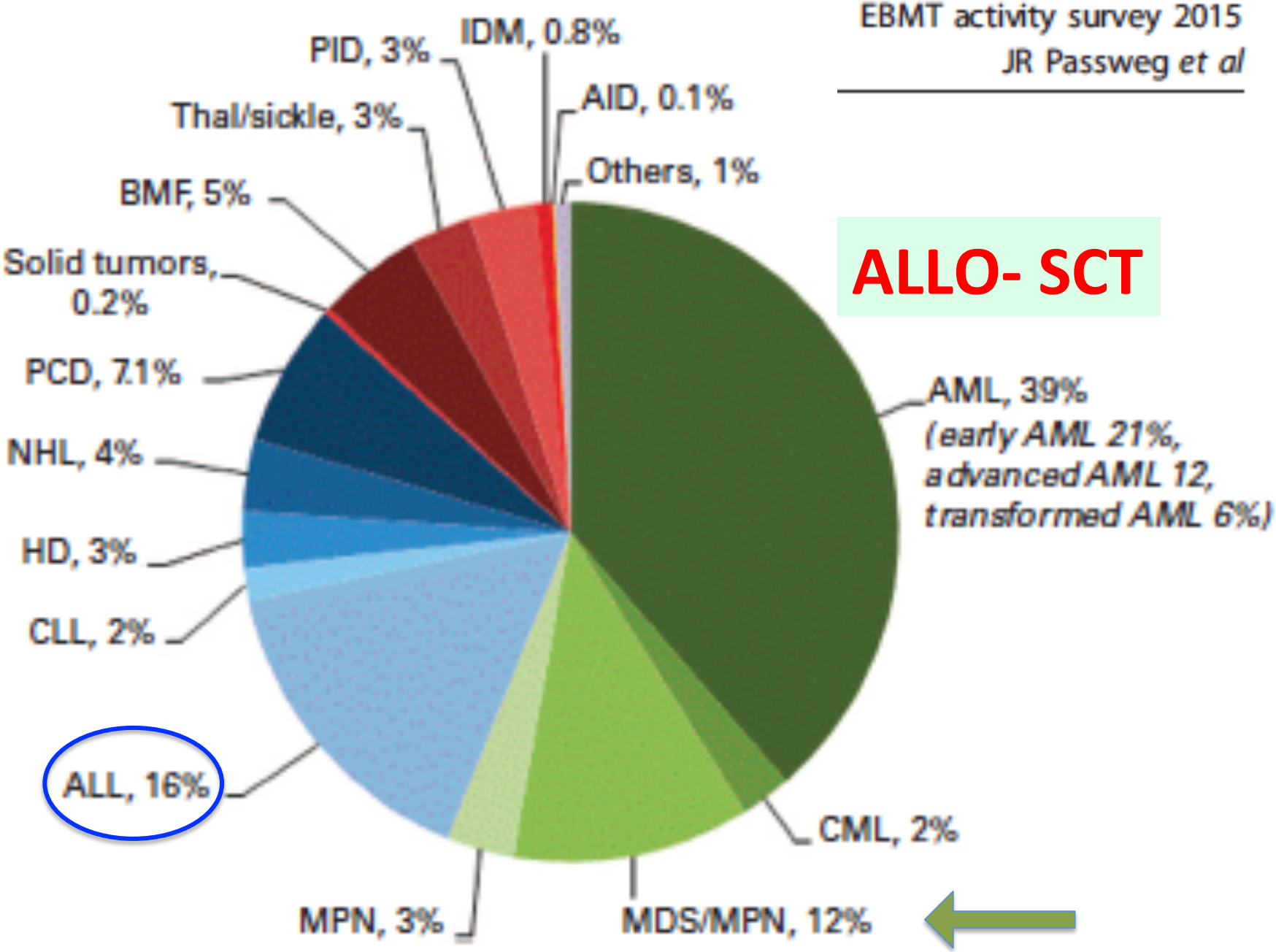
CELLULAR THERAPY ACTIVITY IN EUROPE

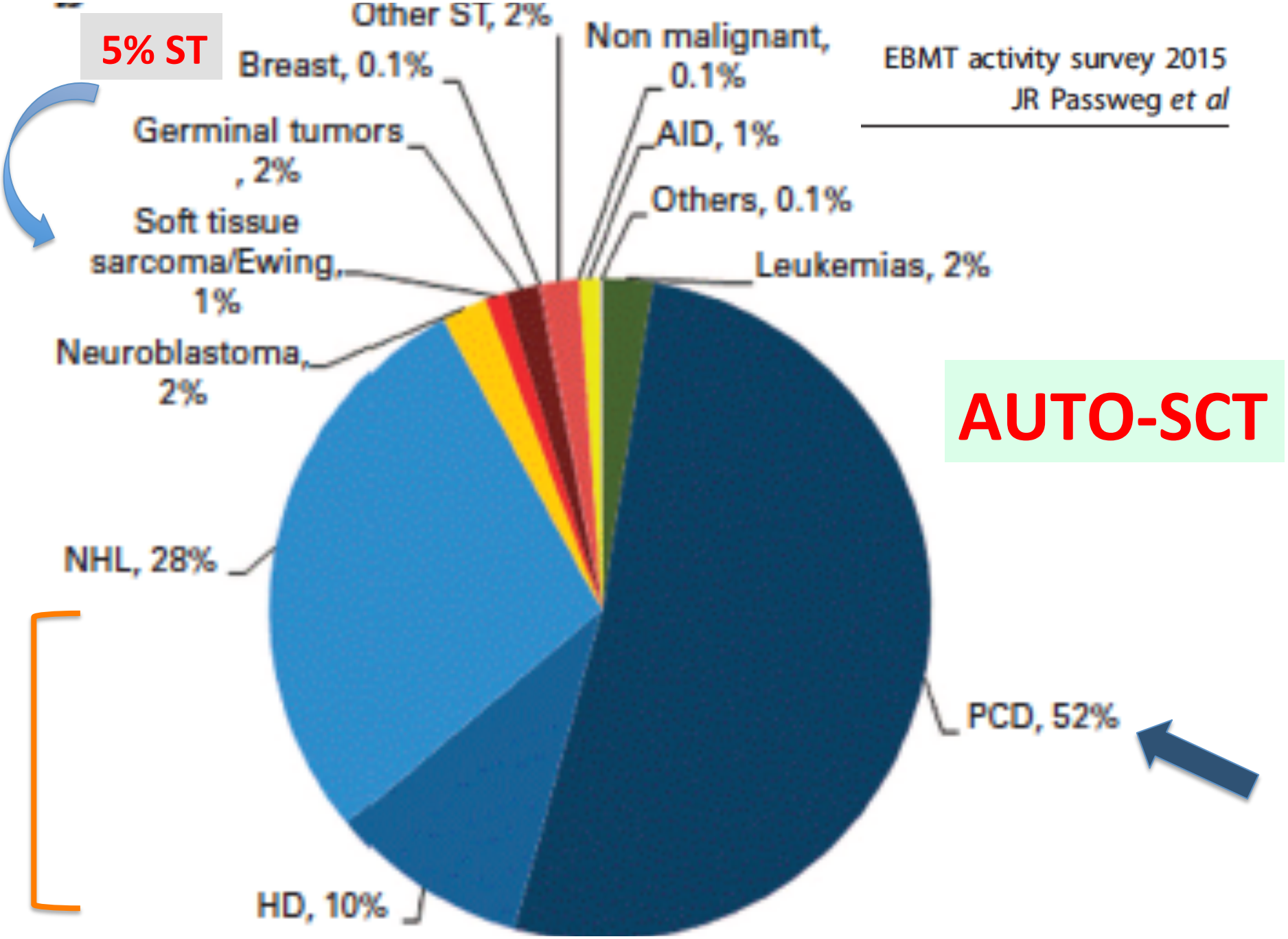
Table 2. Numbers of cellular therapies in Europe 2015 by indication, donor type and cell source

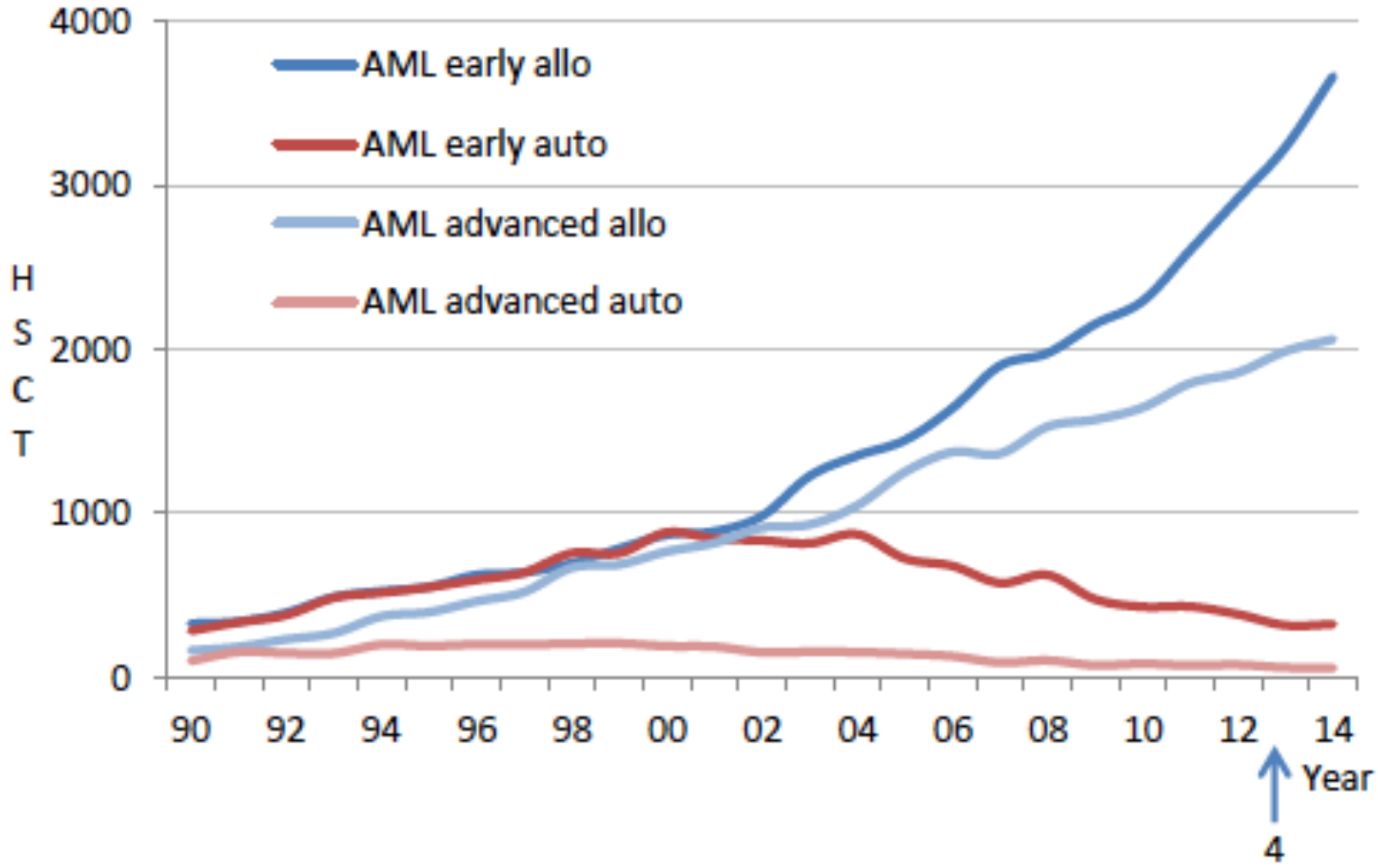
Number of patients	*DLI*	*MSC*		*NK cells*		*Selected/ expanded T cells or CIK*		*TREGS*		*Genetically modified T cells*		*Dendritic cells*		*Expanded CD34+ cells*		*Genetically modified CD34+ cells*		*Other*	
		Allo	*Auto*	*Allo*	*Auto*	*Allo*	*Auto*	*Allo*	*Auto*	*Allo*	*Auto*	*Allo*	*Auto*	*Allo*	*Auto*	*Allo*	*Auto*	*Allo*	*Auto*
GvHD		396				3		29		1				3					
Graft enhancement	803	44	1	2		14								5				24	
Autoimmune disease		4	40																
Genetic disease		2									1						8		
Infection		4				119												6	
Malignancy		1		11	1	32	5	1	5	8	4	5	20			19			3
DLI for residual disease	410																		
DLI for relapse	1285																		
DLI per protocol	442																		
Regenerative medicine		16	7											1				3	94
Total	**2940**	**467**	**48**	**13**	**1**	**168**	**5**	**30**	**5**	**9**	**5**	**5**	**20**	**9**	**0**	**19**	**8**	**33**	**97**

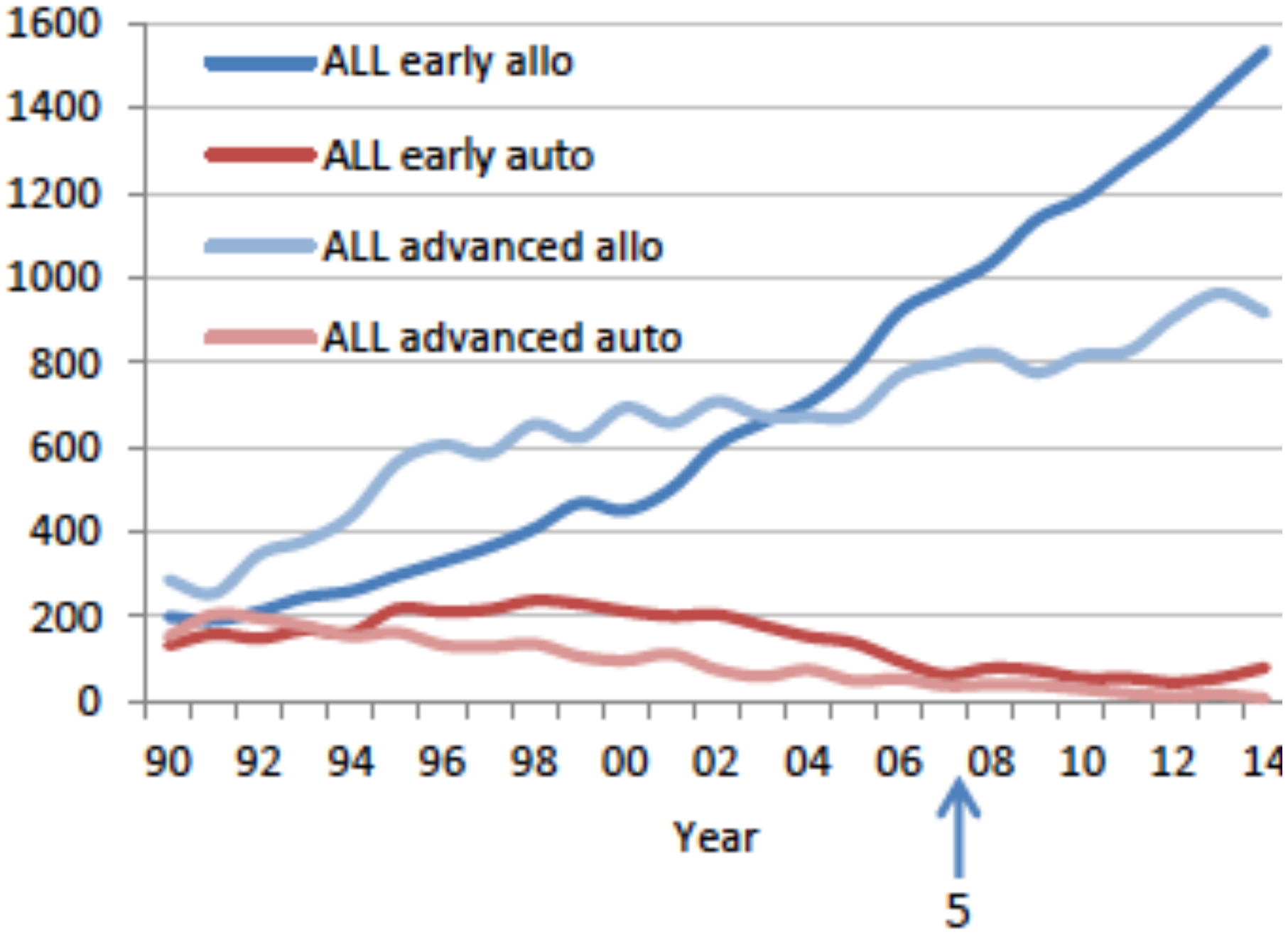
Abbreviations: DLI = donor lymphocyte infusions; MSC = mesenchymal stem cells; NK = natural killer; TREGS = regulatory T cells. Bold text implies the totals.

EBMT activity survey 2015
JR Passweg *et al*




5% ST
Other ST, 2%
Breast, 0.1%
Non malignant, 0.1%
AID, 1%
Others, 0.1%
Germinal tumors, 2%
Soft tissue sarcoma/Ewing, 1%
Leukemias, 2%
Neuroblastoma, 2%
NHL, 28%
HD, 10%
PCD, 52%
EBMT activity survey 2015
JR Passweg et al
AUTO-SCT


4000
3000
2000
1000
0
H
S
C
T
AML early allo
AML early auto
AML advanced allo
AML advanced auto
90
92
94
96
98
00
02
04
06
08
10
12
14
Year
4


1600
1400
1200
1000
800
600
400
200
0
ALL early allo
ALL early auto
ALL advanced allo
ALL advanced auto
90
92
94
96
98
00
02
04
06
08
10
12
14
Year
5

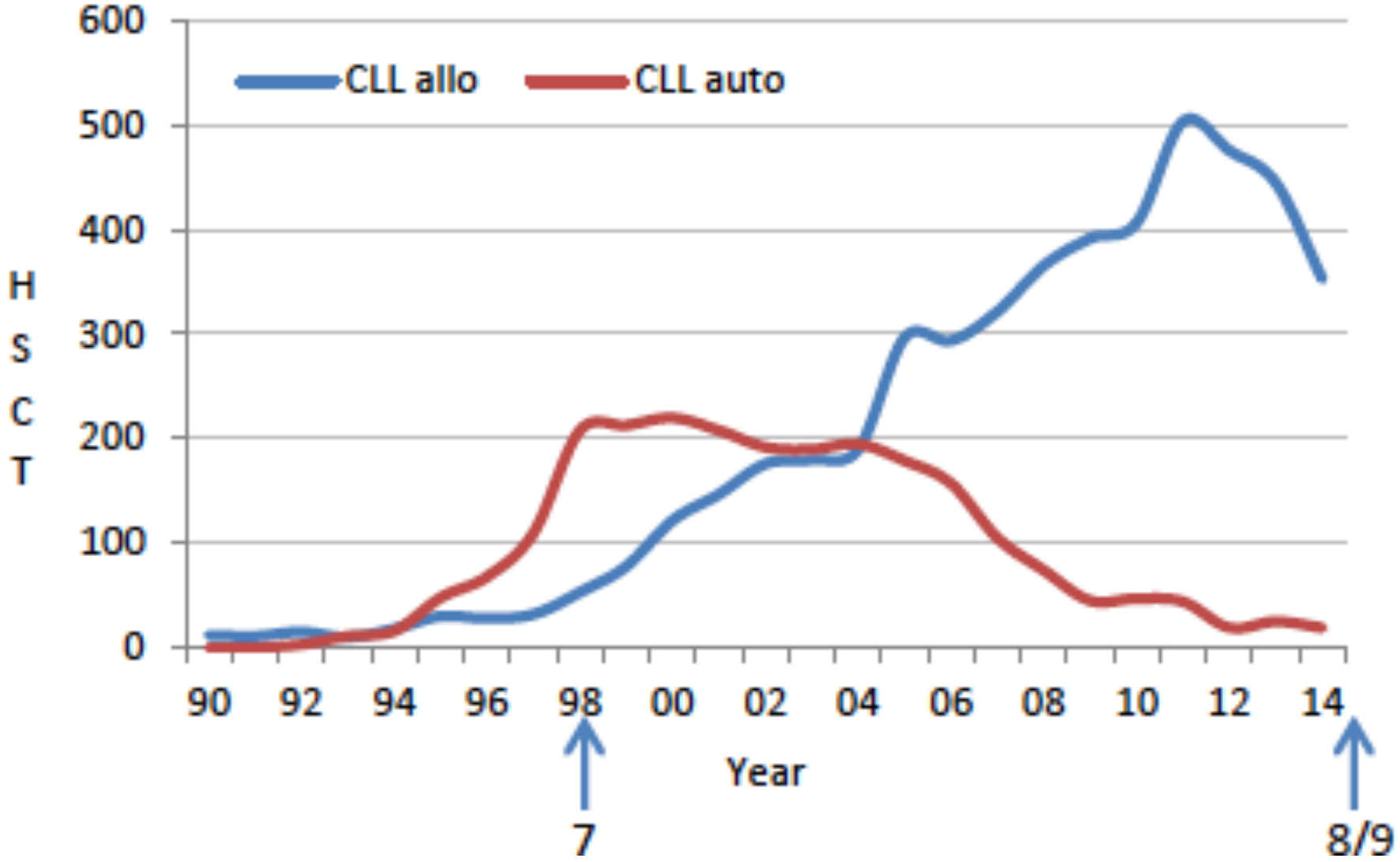
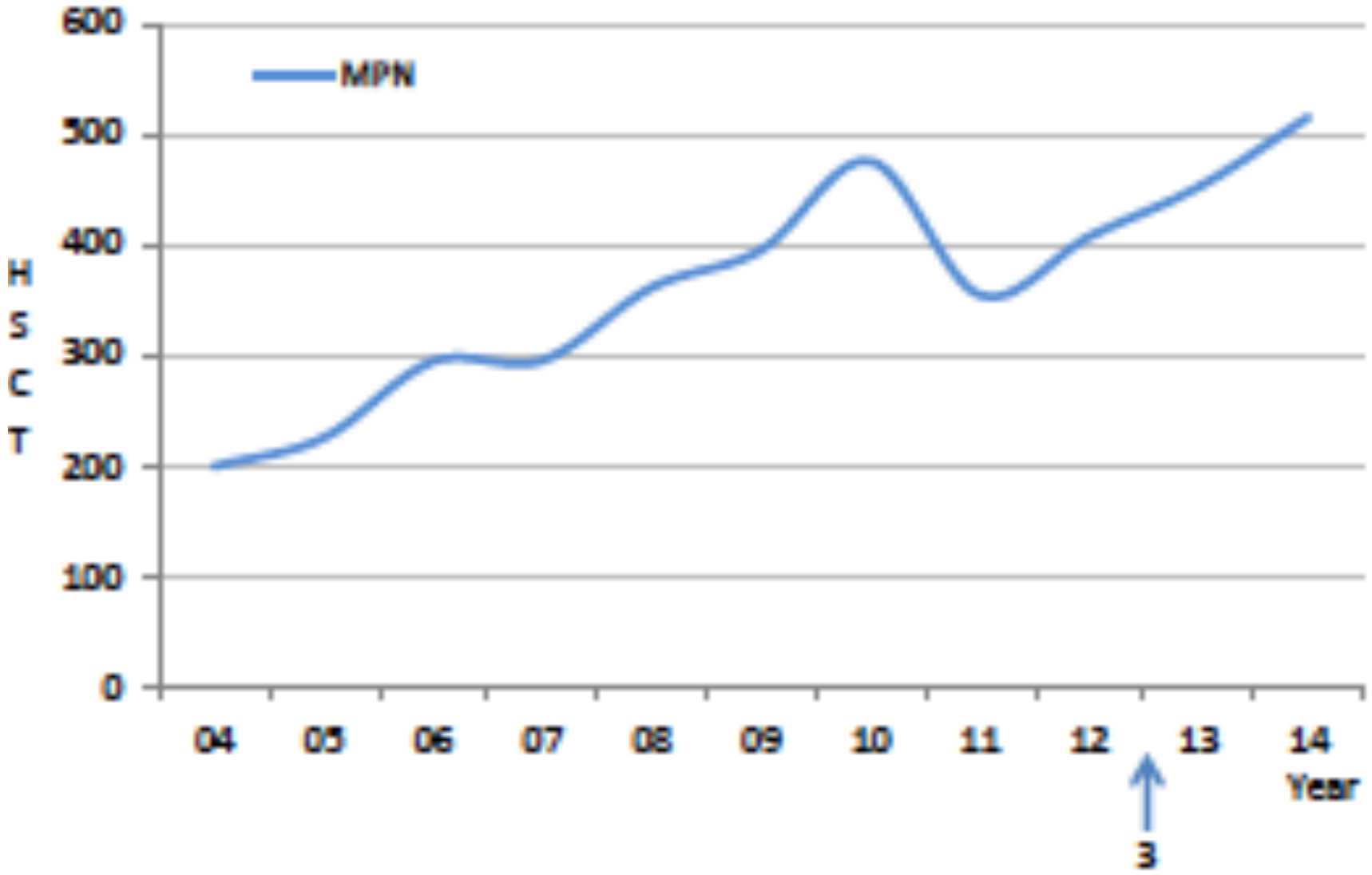
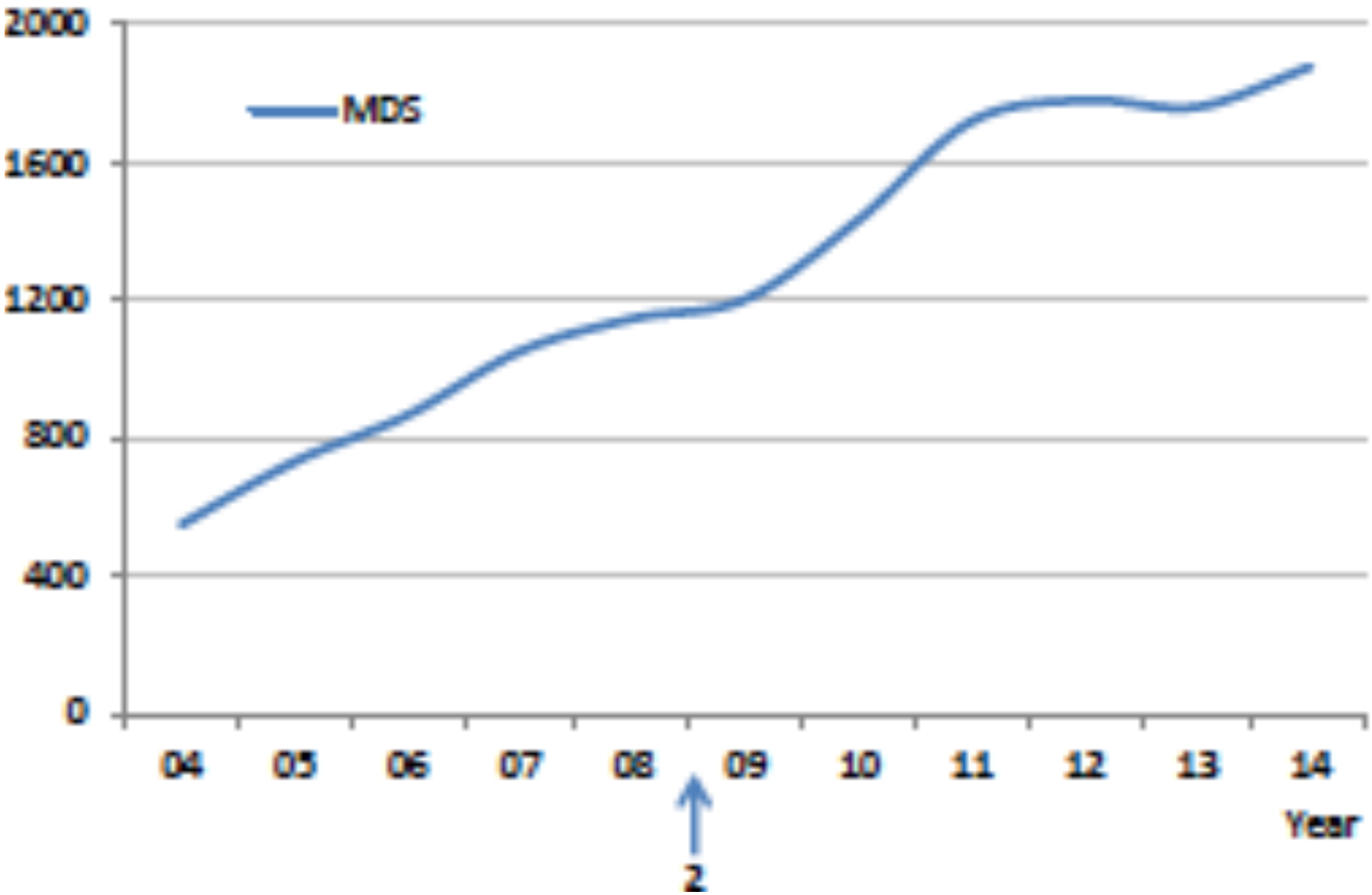
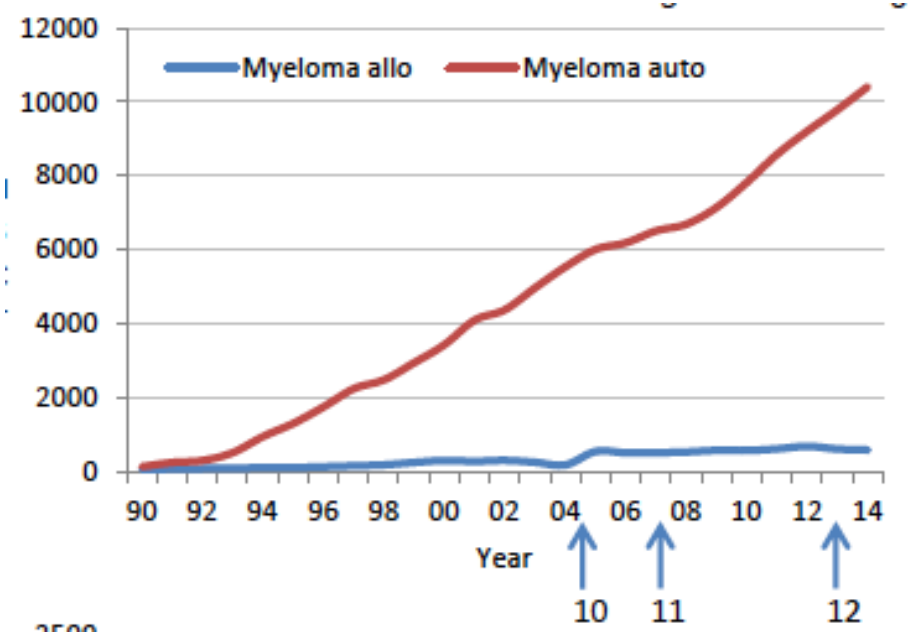

600
500
400
300
200
100
0
H
S
C
T
CLL allo
CLL auto
90
92
94
96
98
00
02
04
06
08
10
12
14
Year
7
8/9

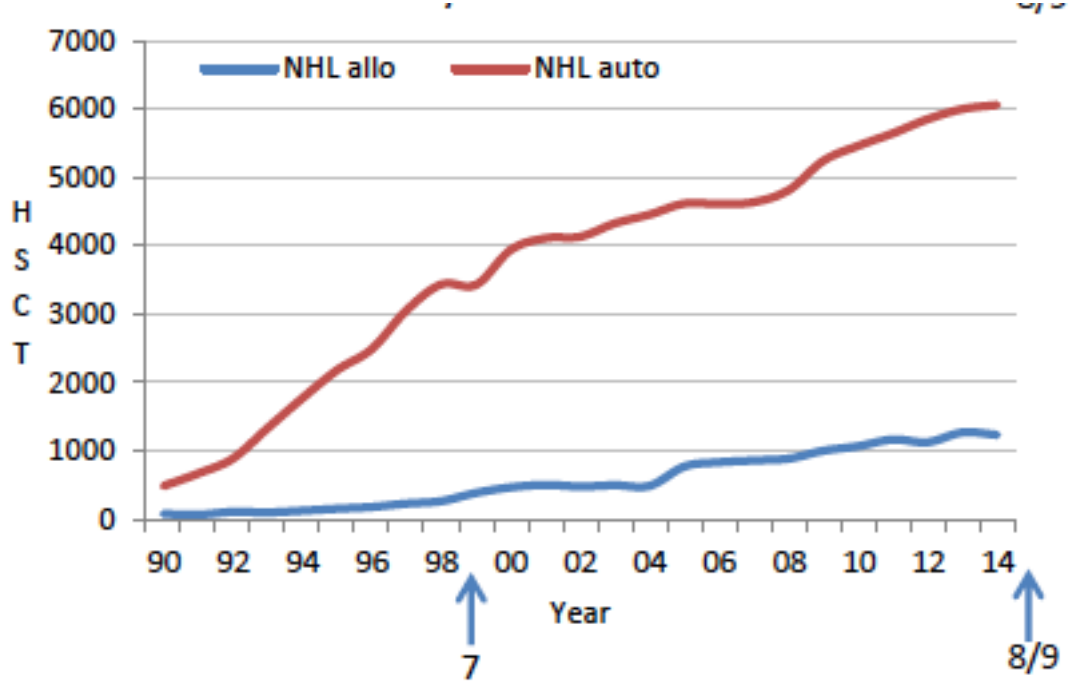
Figure 1c


600
500
400
300
200
100
0
HSCT
MPN
04
05
06
07
08
09
10
11
12
13
14
Year
3

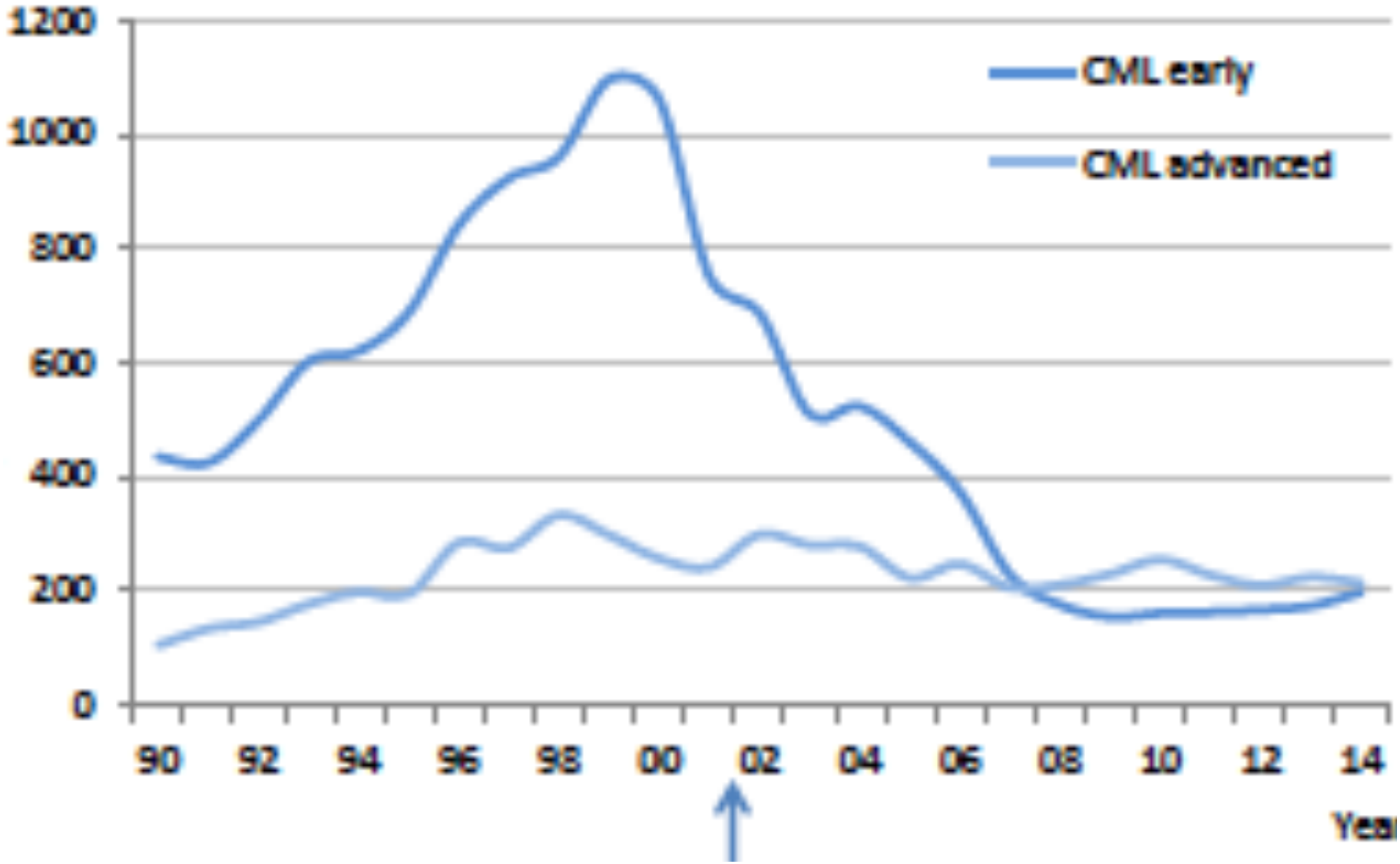
gure 1b




12000
10000
8000
6000
4000
2000
0
Myeloma allo
Myeloma auto
90 92 94 96 98 00 02 04 06 08 10 12 14
Year
10
11
12


7000
6000
5000
4000
3000
2000
1000
0
H
S
C
T
NHL allo
NHL auto
90 92 94 96 98 00 02 04 06 08 10 12 14
Year
7
8/9

gure 1a


1200
1000
800
600
400
200
0
CML early
CML advanced
90
92
94
96
98
00
02
04
06
08
10
12
14
Yea

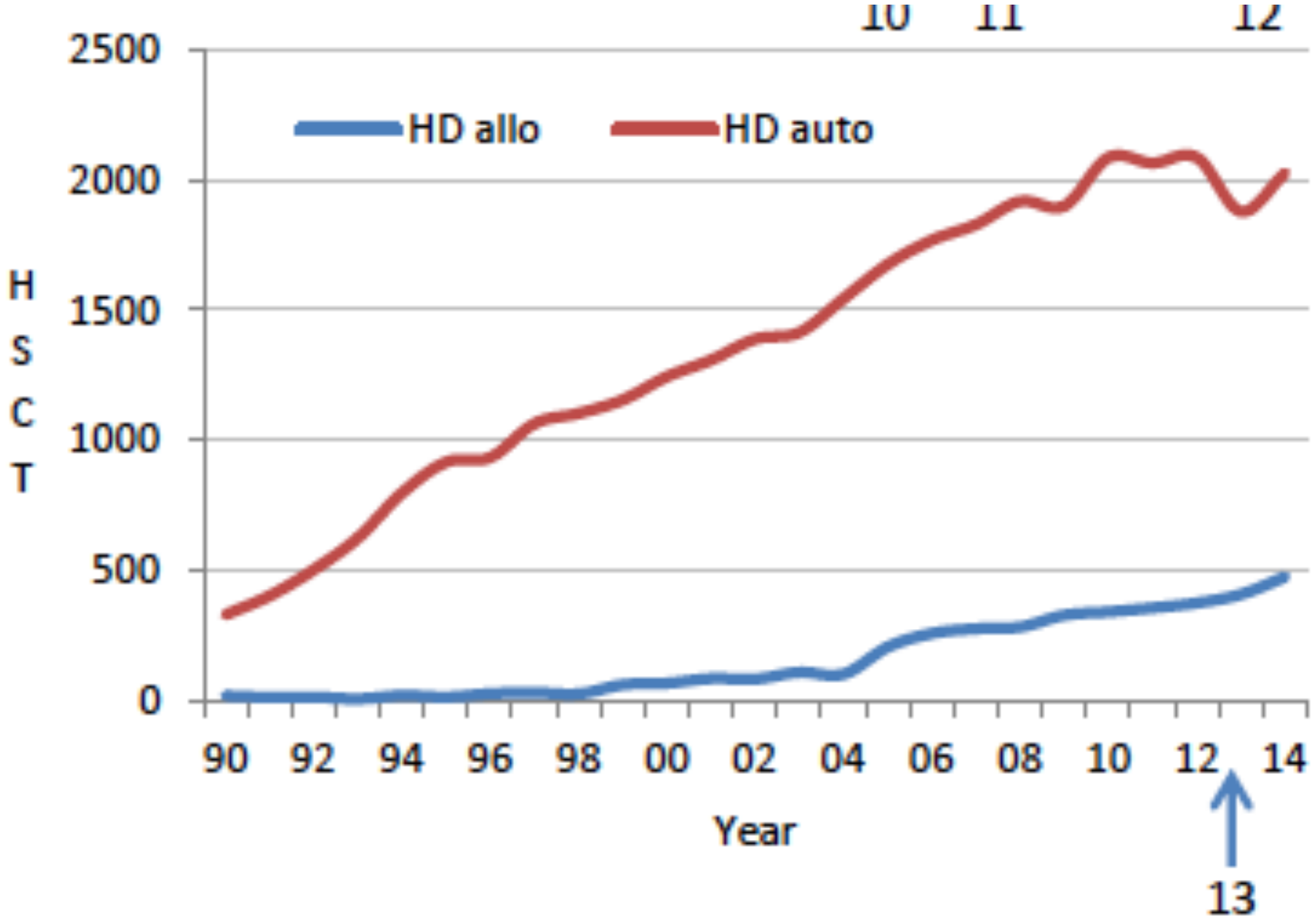
Bone Marrow Transplantation (2016), 1–6

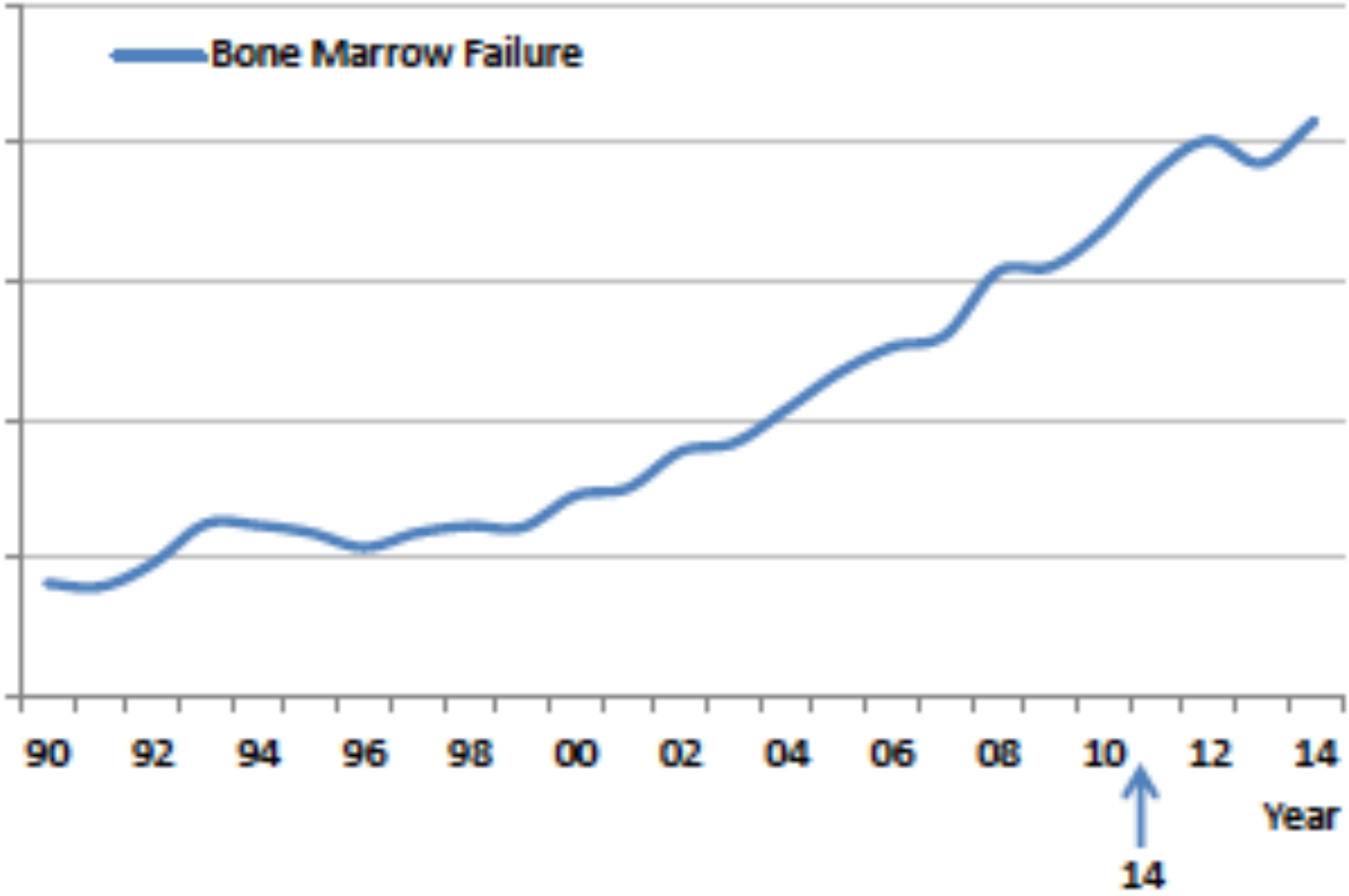
www.nature.com/bmt

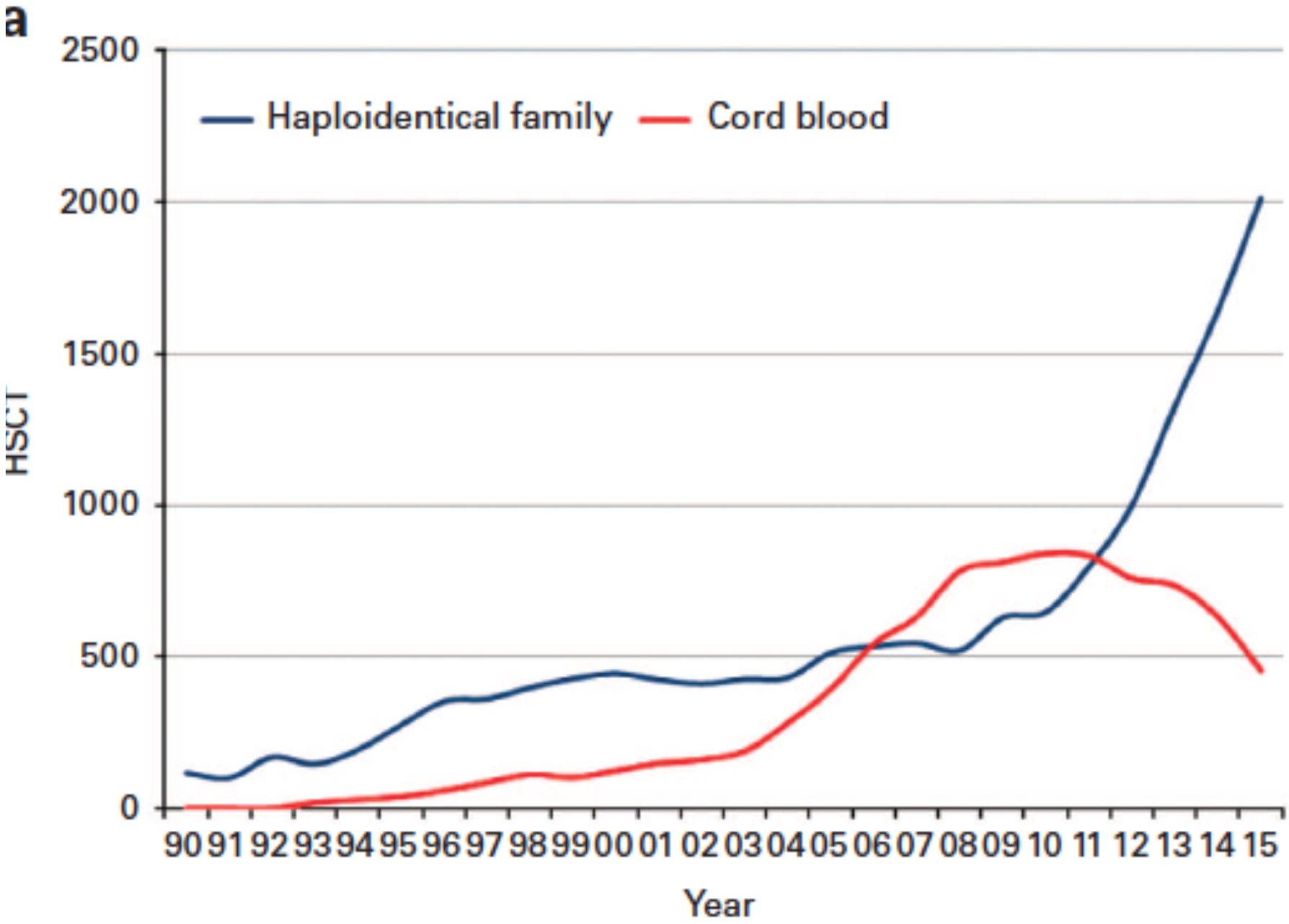
SPECIAL REPORT

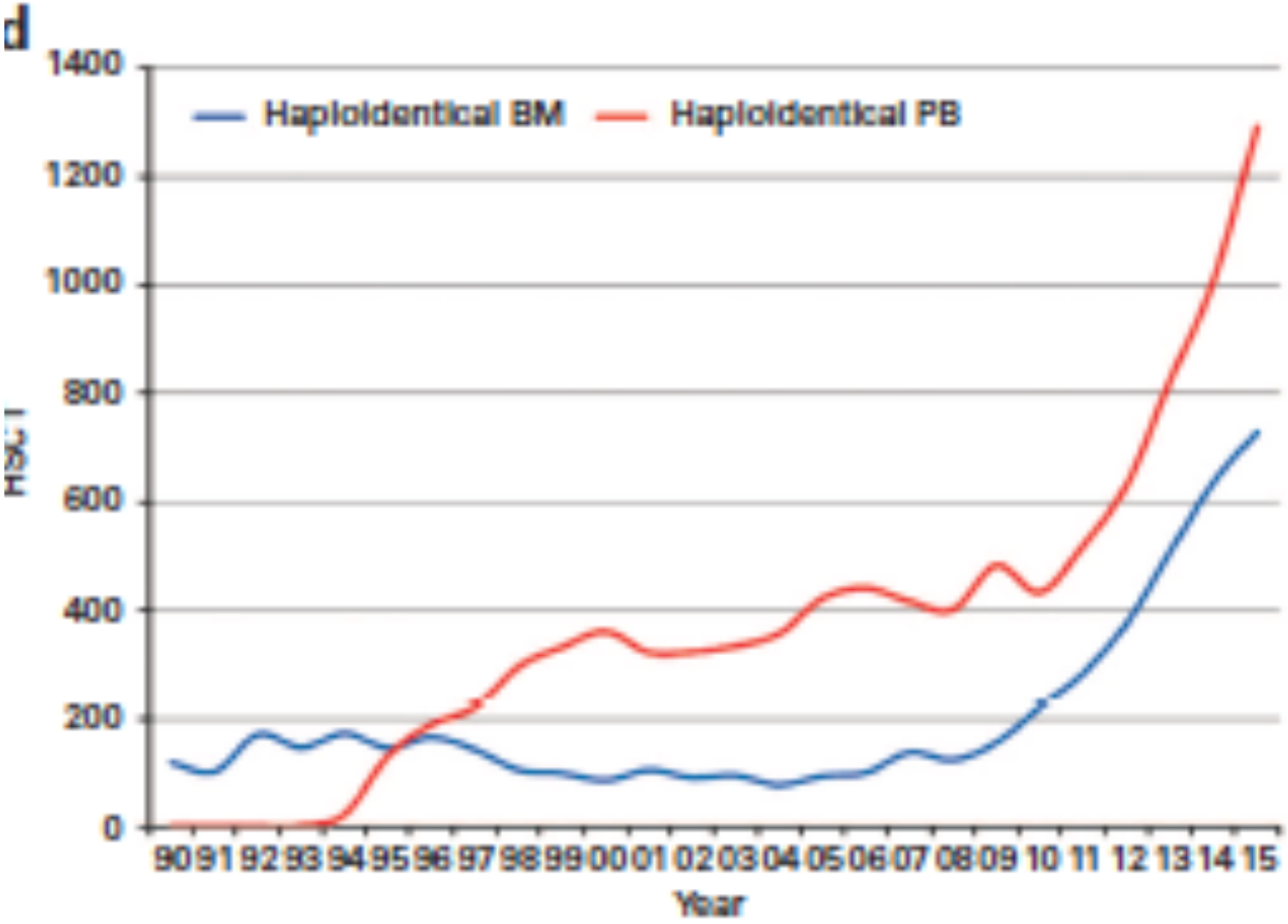
Impact of drug development on the use of stem cell transplantation: a report by the European Society for Blood and Marrow Transplantation (EBMT)

JR Passweg[1], H Baldomero[1], P Bader[2], C Bonini[3], S Cesaro[4], P Dreger[5], RF Duarte[6], C Dufour[7], J Kuball[8], D Farge-Bancel[9], A Gennery[10], N Kröger[11], F Lanza[12], A Nagler[13], A Sureda[14] and M Mohty[15] for the European Society for Blood and Marrow Transplantation (EBMT)

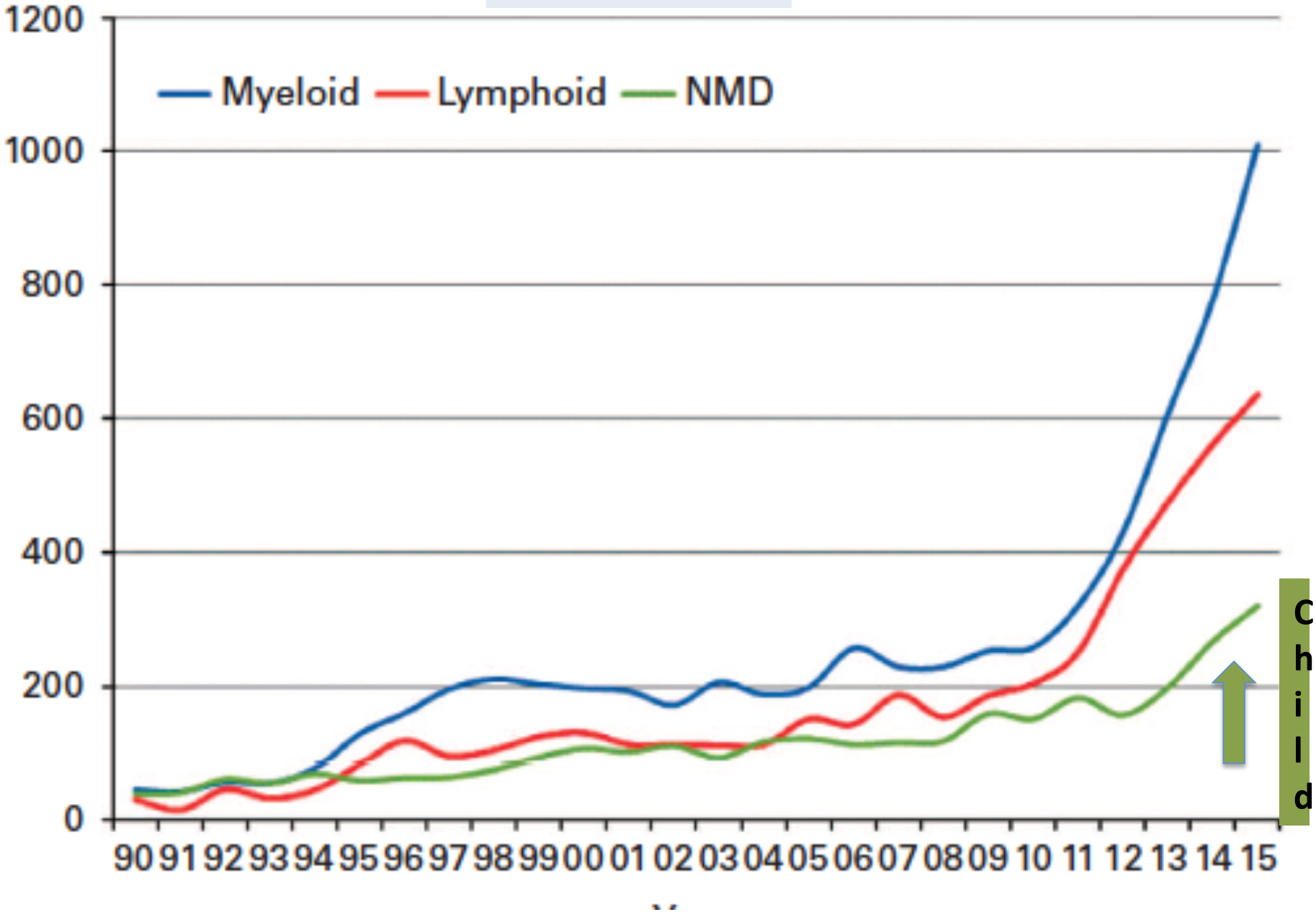

10
11
12
2500
2000
1500
1000
500
0
HD allo
HD auto
H
S
C
T
90
92
94
96
98
00
02
04
06
08
10
12
14
Year
13

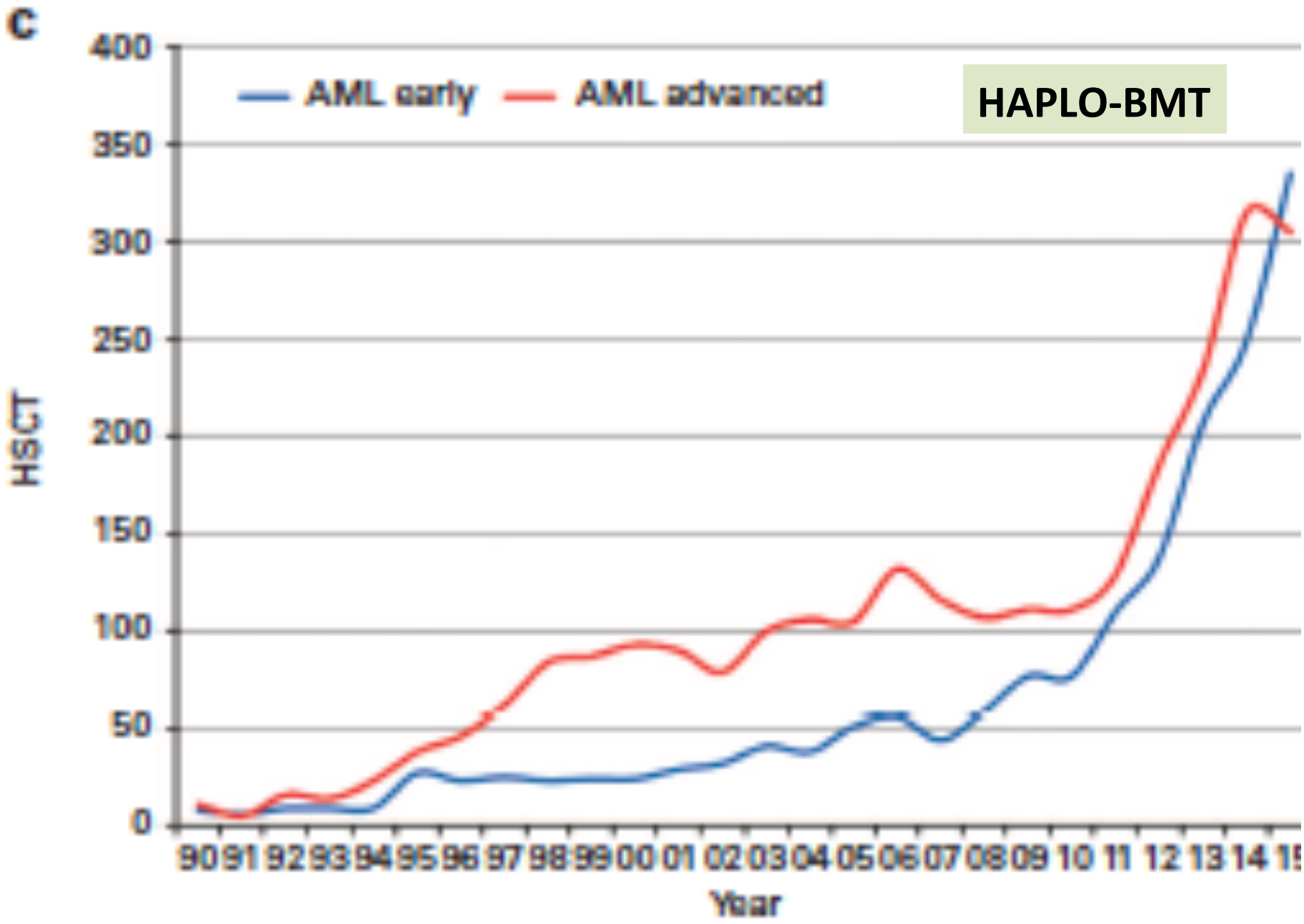

Bone Marrow Failure
90
92
94
96
98
00
02
04
06
08
10
12
14
Year
14

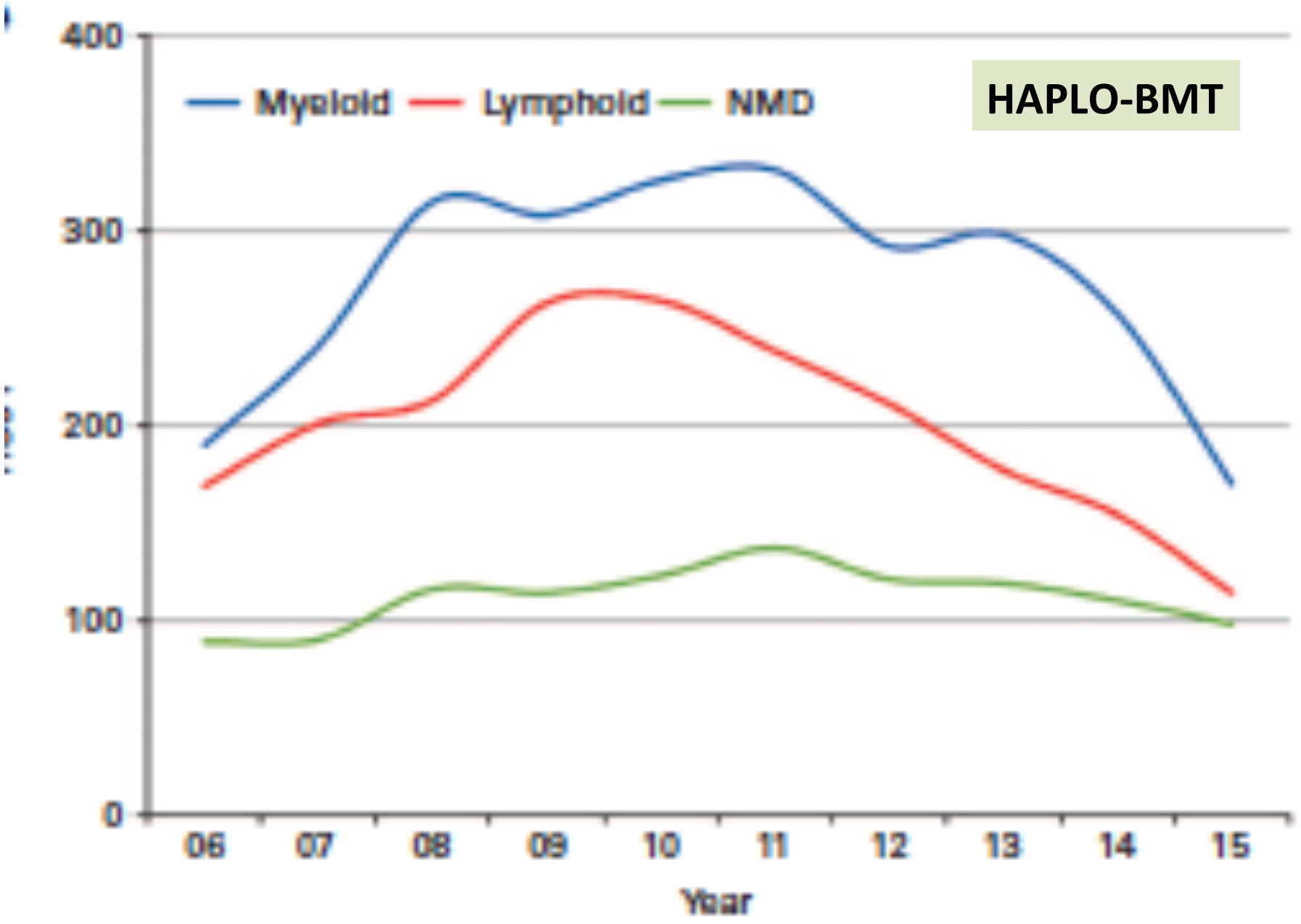

a
2500
2000
1500
1000
500
0
HSCT
Haploidentical family
Cord blood
90 91 92 93 94 95 96 97 98 99 00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15
Year


d
1400
1200
1000
800
600
400
200
0
Haploidentical BM
Haploidentical PB
90 91 92 93 94 95 96 97 98 99 00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15
Year

HAPLO-BMT


1200
1000
800
600
400
200
0
Myeloid
Lymphoid
NMD
90 91 92 93 94 95 96 97 98 99 00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15
Child


C
AML early
AML advanced
HAPLO-BMT
HSCT
400
350
300
250
200
150
100
50
0
90 91 92 93 94 95 96 97 98 99 00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15
Year


400
300
200
100
0
Myeloid
Lymphoid
NMD
HAPLO-BMT
06
07
08
09
10
11
12
13
14
15
Year

Alloreactivity: The janus-face of hematopoietic stem cell transplantation OPEN

A Gratwohl, A Sureda, J Cornelissen, J Apperley, P Dreger, R Duarte, H T Greinix, E Mc Grath, N Kroeger, F Lanza, A Nagler, J A Snowden, D Niederwieser, R Brand, for the European Society for Blood and Marrow Transplantation (EBMT)

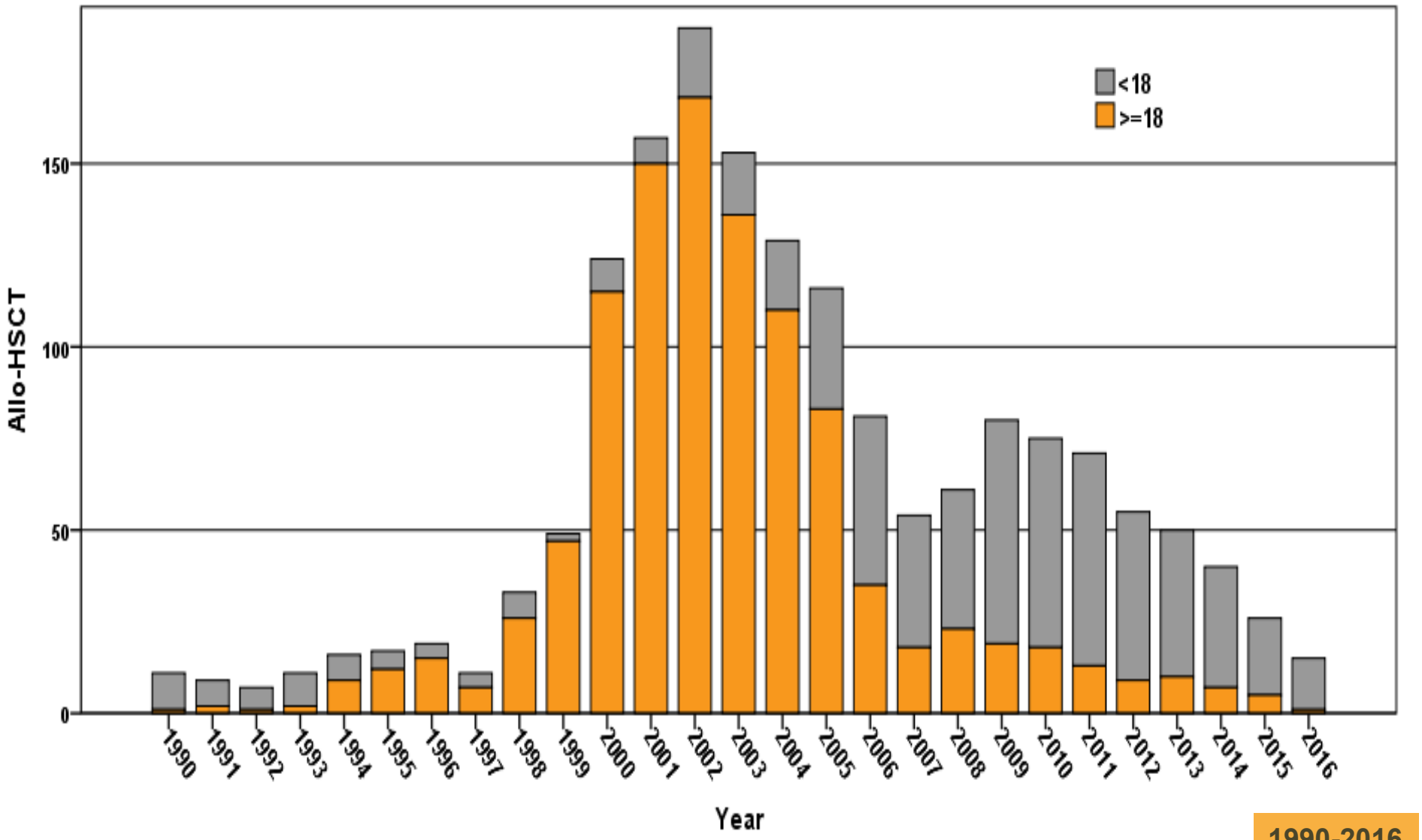
Abstract

Differences in major and minor histocompatibility antigens between donor and recipient trigger powerful graft-versus-host reactions after allogeneic hematopoietic stem cell transplantation (HSCT). The clinical effects of alloreactivity present a Janus face: detrimental graft-versus-host disease increases non-relapse mortality, beneficial graft-versus-malignancy may cure the recipient. The ultimate consequences on long-term outcome remain a matter of debate. We hypothesized that increasing donor-recipient antigen matching would decrease the negative effects, whilst preserving antitumor alloreactivity. We analyzed retrospectively a predefined cohort of 32 838 such patients and compared it to 59 692 patients with autologous HSCT as reference group. We found a significant and systematic decrease in non-relapse mortality with decreasing phenotypic and genotypic antigen disparity, paralleled by a stepwise increase in overall and relapse-free survival (Spearman correlation coefficients of cumulative excess event rates at 5 years 0.964; P<0.00; respectively 0.976; P<0.00). We observed this systematic stepwise effect in all main disease and disease-stage categories. The results suggest that detrimental effects of alloreactivity are additive with each step of mismatching; the beneficial effects remain preserved. Hence, if there is a choice, the best match should be donor of choice Data support an intensified search for predictive genomic and environmental factors of 'no-graf versus-host disease'.Leukemia accepted article preview online, 08 March 2017.

EBMT Registry-Solid Tumour Working Party March 2017		
Solid tumour Registry	**55 641**	
Patients	**40 663**	
Aduts/Paediatric (%)	**59/ 41**	
Male/Female (%)	**48 / 52**	
Auto / Allo (%)	**97 / 3**	
Nb of HSCT	**Auto (n=53 865)**	**Allo (n=1 731)**
First HSCT	**39 284**	**1162**
Second HSCT	9 781	430
Third HSCT	3 440	76
Fourth HSCT	623	27
> Fifth HSCT	190	9
Median follow up (yr<2016)	**2, (<1-35)**	**1,8 (<1-31)**

Solid Tumour Working Party

Allo / Year 1990-2016* (n=1660)- EBMT Registry February 2017

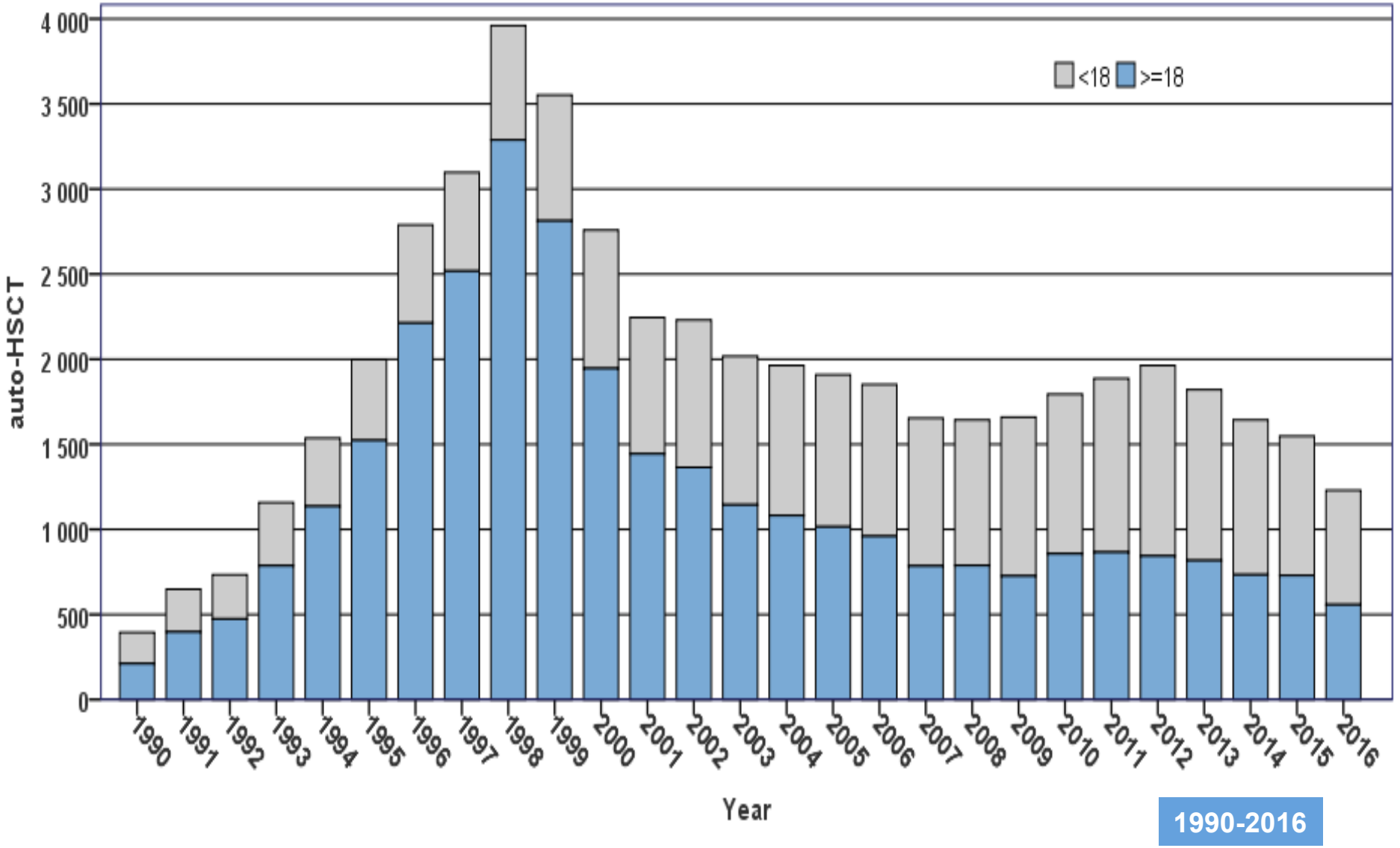


1990-2016

Solid Tumour Working Party

Autologous– Adults/ paediatric- 1990/2016

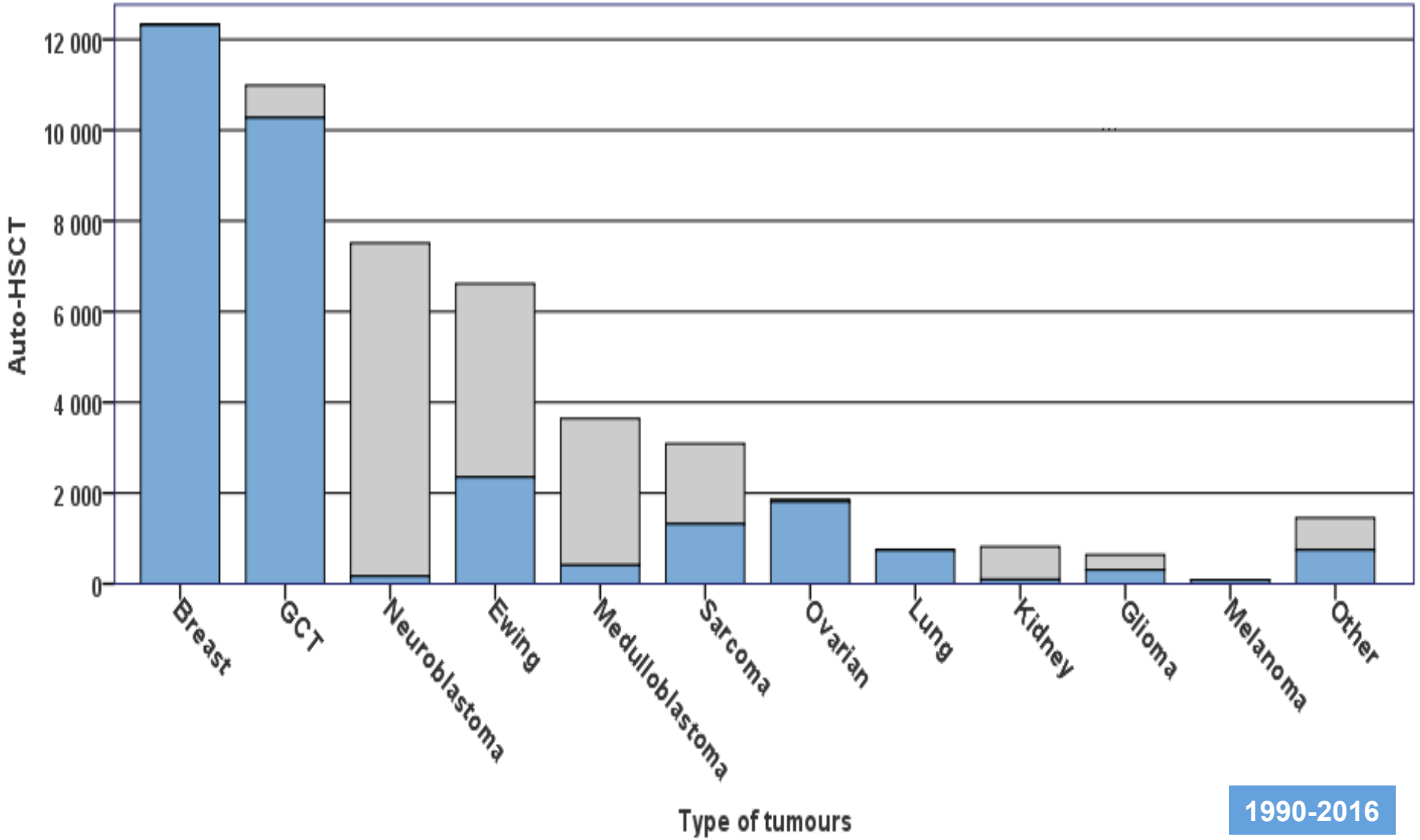
EBMT Registry - February 2017*



1990-2016

Solid Tumour Working Party

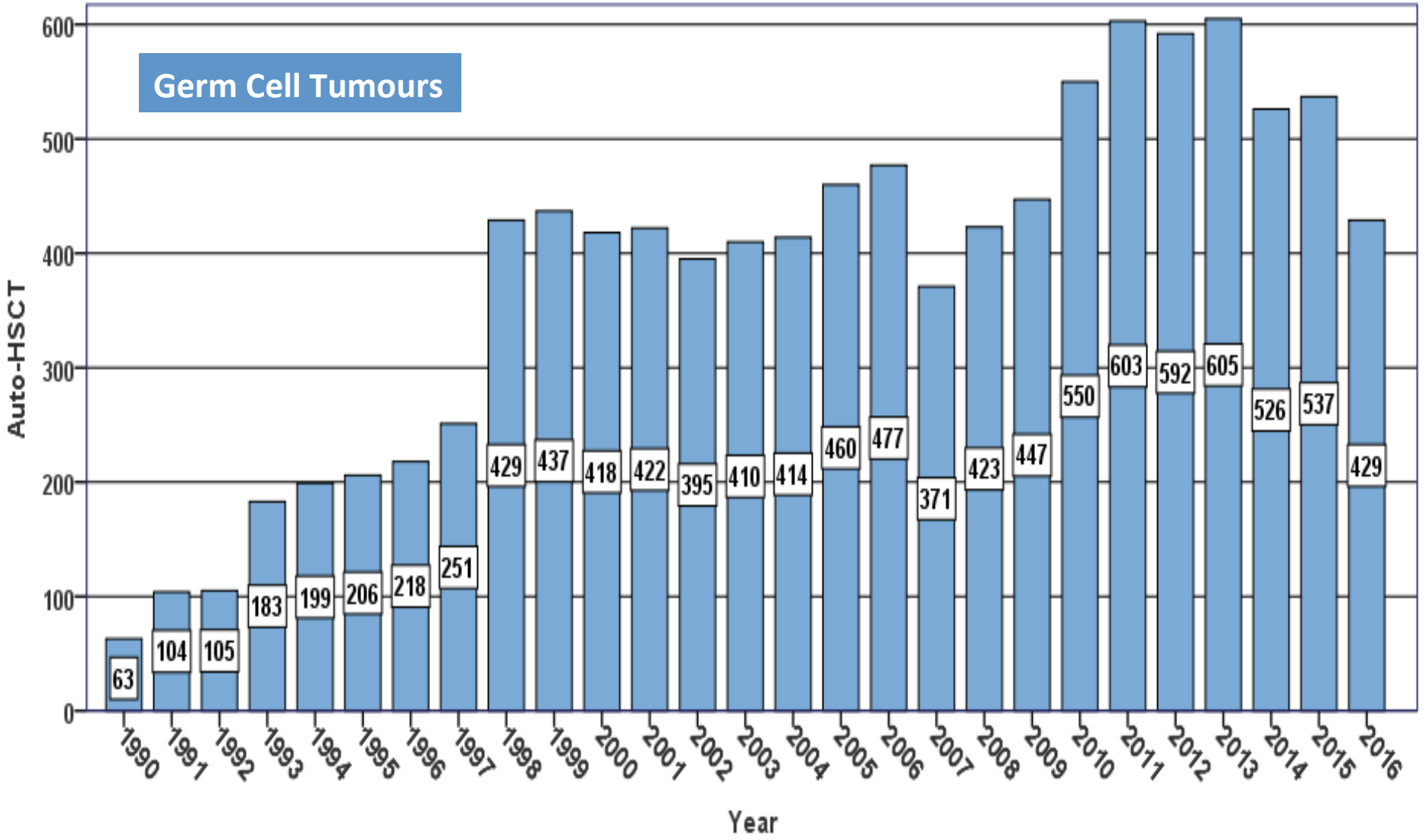
Autologous / main indications- EBMT Registry – February 2017

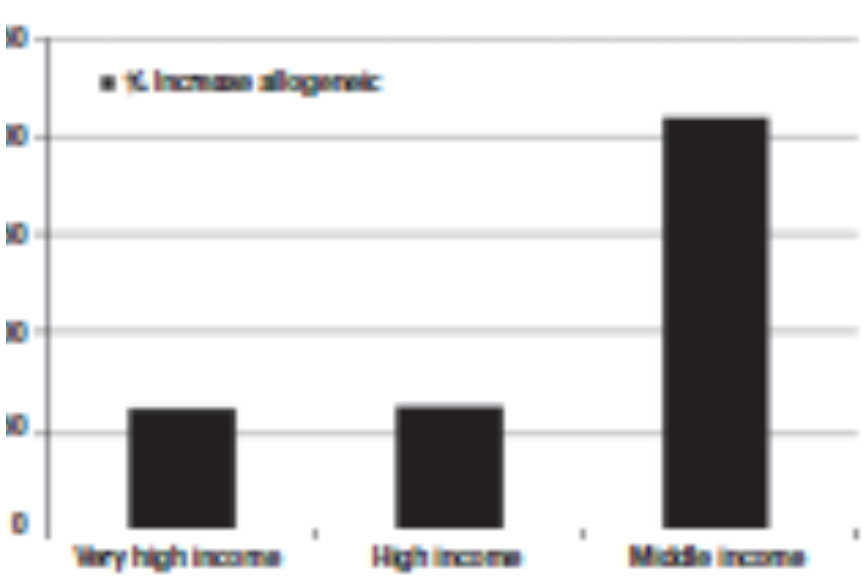


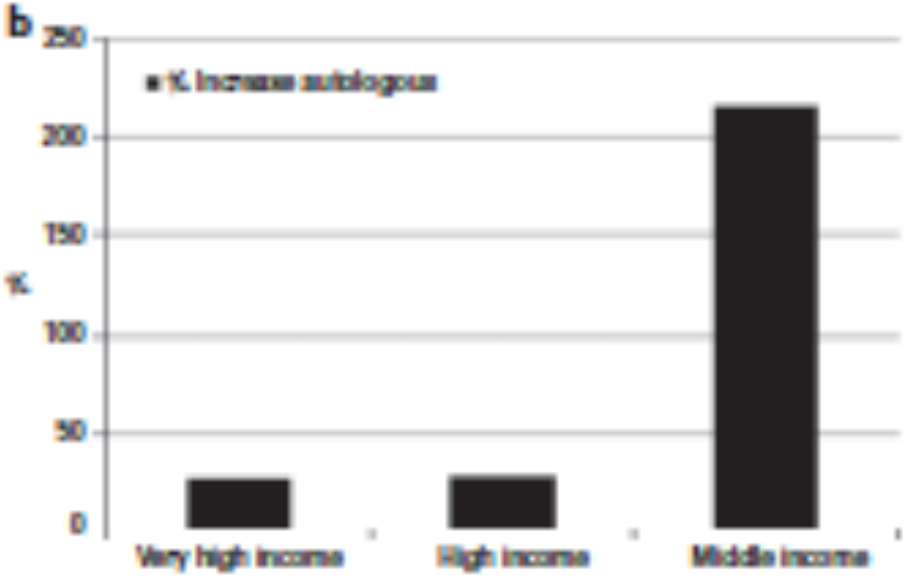
1990-2016

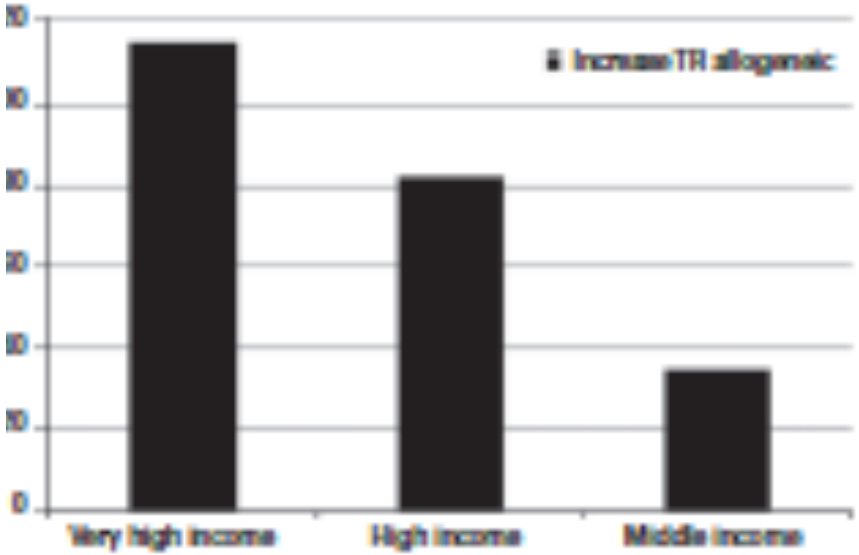
Solid Tumour Working Party

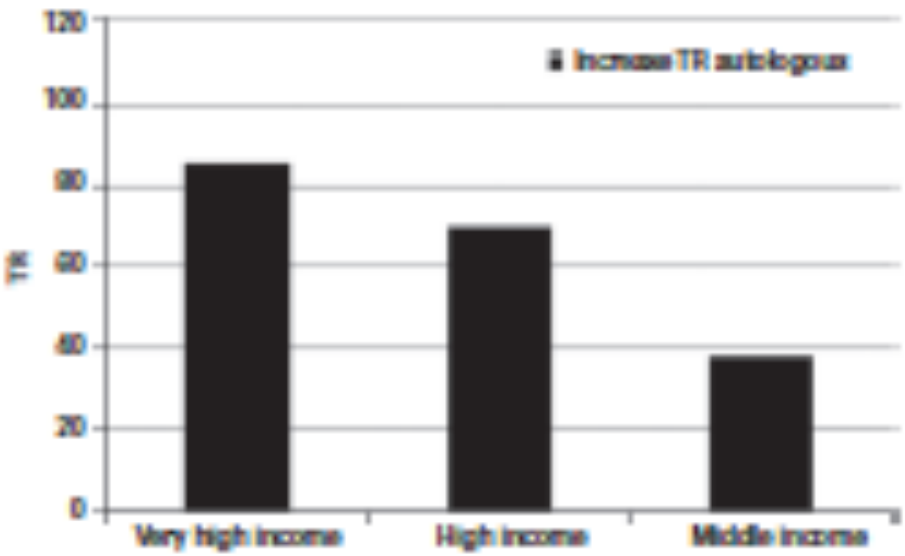
Nr of auto performed for GCT/Year in adult patients
1990-2016 (n= 10 274)




a
% Increase allogeneic
Very high income
High income
Middle income


b
% Increase autologous
250
200
150
100
50
0
%
Very high income
High income
Middle income


c
Increase TR allogeneic
Very high income
High income
Middle income


d
Increase TR autologous
120
100
80
60
40
20
0
%
Very high income
High income
Middle income