Bone Marrow Transplantation, (1999) 24, 231–245

http://www.stockton-press.co.uk/bmt

Special report

Blood and marrow transplantation activity in Europe 1997

A Gratwohl[1], J Passweg[1], H Baldomero[1] and J Hermans[2]
for the European Group for Blood and Marrow Transplantation (EBMT)

[1]*Division of Hematology, Department of Internal Medicine and Department of Research, Kantonsspital Basel, Switzerland and*
[2]*Department of Medical Statistics, University of Leiden, The Netherlands*

Summary:

Data from the annual survey on transplant activity 1997, collected from 457 transplant teams in 31 European countries by the European Group for Blood and Marrow Transplantation (EBMT) were used to describe current status and to assess relative and absolute changes in indication, donor type and stem cell source compared to 1991. A total of 16 950 patients were reported to have a first blood or marrow transplant in 1997, a total of 18 923 procedures, including re- and double transplants were performed. Of the 16 950 first transplants, 4751 (28%) were allogeneic, 12 199 (72%) autologous transplants. Of the autologous transplants, 829 (7%) were bone marrow derived, 11 370 (93%) from peripheral blood stem cells or combined bone marrow and peripheral blood stem cell transplants. Of the allogeneic transplants, 3311 (70%) were bone marrow, 1440 (30%) were peripheral blood stem cell transplants. In 1991, the respective figures were 2175 allogeneic (44%) and 2786 (56%) autologous transplants, more than 90% of the autologous, all allogeneic transplants bone marrow derived. Main indications in 1997 were leukemias with 5253 transplants (31%), 70% allogeneic; lymphomas with 6773 transplants (40%), 94% autologous; solid tumors with 4154 transplants (24%), 99% autologous; non-malignant disorders with 770 transplants (5%), 85% allogeneic. There was an absolute increase of 11 971 transplants since 1991. An increase was observed in all disease categories. Marked differences were found, when the relative increase index (RII) for specific disease categories over time was analyzed. In allogeneic transplants, relatively more transplants were performed in 1997 for acute myeloid leukemia beyond 1st complete remission (RII 1.28), myelodysplastic syndromes (RII 1.58), chronic lymphocytic leukemia (RII 1.33) and non-Hodgkin's lymphoma (RII 1.58). For autologous transplant indications, a high relative increase index was observed in myelodysplastic syndromes (RII 3.77), in multiple myeloma (RII 2.12) and carcinoma of the breast (RII 6.37) with a relative decrease in leukemias (RII 0.39) and certain solid tumors such as glioma (RII 0.27) and neuroblastoma (RII 0.46). These data present the current status of blood and marrow transplantation in Europe. They show the change from bone marrow to blood as stem cell source and highlight shifts in indication. They provide a basis for patient counselling and health care planning.
Keywords: bone marrow transplantation; peripheral blood stem cell transplantation; indication; transplant activity; Europe

Correspondence: Prof Dr A Gratwohl, Kantonsspital Basel, Division of Hematology, Department of Internal Medicine, CH-4031 Basel, Switzerland
Received 23 December 1998; accepted 21 February 1999

When the first preliminary annual survey on transplant activity was introduced by the European Group for Blood and Marrow Transplantation EBMT in 1990, a total 4234 transplants, 2137 allogeneic and 2097 autologous were reported. All procedures at that time were bone marrow transplants.[1] Within less than a decade major changes have occurred. Hematopoetic stem cell transplants have become established therapy for many congenital or acquired disorders of the hematopoietic system and for chemo- or radiosensitive malignancies.[2–5] Stem cell source has changed from bone marrow to peripheral blood[6–8] and includes in most recent times cord blood.[9,10] Donors for allogeneic transplants include HLA-identical siblings, HLA-mismatched relatives or unrelated volunteers.[11–13]

The annual surveys have helped to describe the rapid increase in activity, to follow the changes in stem cell source and to assess quantitatively similarities or differences between individual European countries.[1,14–18] Such objective data provide a basis for the annual recommendations on transplant indications.[19] The present report, illustrating the transplant activity in 1997, concentrates on the changes in indications since 1991. It focuses on absolute and relative increases according to the specific indication, separated for autologous and allogeneic transplants.

Patients and methods

Data collection

Data on transplant activity of the EBMT have been collected by standardized procedure since 1991, based on a preliminary analysis in 1990.[1] Members are requested to report the numbers of newly treated patients by indication,

Table 1 Number of transplants performed in Europe in 1997 according to donor type, stem cell source and disease indication

Indication	*Donor source/No. of patients*													
	Allogeneic								*Autologous*			*Total*		
	Family						*Unrelated*							
	HLA-id		*non-id*		*twin*				*BM only*	*PBPC only*	*BM+ PBPC*	*Allo*	*Auto*	*Total*
	BM	*PBPC*	*BM*	*PBPC*	*BM*	*PBPC*	*BM*	*PBPC*						
Leukemias												3667	1586	5253
Acute myeloid leukemia														
1st complete remission	355	202	11	14	3	1	47	8	198	389	54	641	641	1282
not 1st complete remission	142	125	13	49	2	1	167	23	61	120	20	522	201	723
Acute lymphatic leukemia														
1st complete remission	185	78	9	14	1	2	72	4	61	145	12	365	218	583
not 1st complete remission	232	83	17	36	2	1	178	37	36	88	6	586	130	716
Chronic myeloid leukemia														
chronic phase	399	201	25	25	4	5	247	18	10	164	6	924	180	1104
not 1st chronic phase	76	49	10	25	1		101	14	8	63	2	276	73	349
Myelodysplastic syndrome	133	79	7	17	1	2	72	10	3	28	2	321	33	354
Chronic lymphatic leukemia	17	13	1				1		5	103	2	32	110	142
Lymphoproliferative disorders												412	6361	6773
Myeloma	65	74	4	1	4	2	1		69	2125	43	151	2237	2388
Hodgkin's lymphoma	10	13	2	5		3			103	909	54	33	1066	1099
Non-Hodgkin's lymphoma	134	64	2	4	3	3	16	2	143	2823	92	228	3058	3286
Solid tumors												15	4139	4154
Neuroblastoma	2	1			1	1			35	165	6	5	206	211
Glioma									10	55	2	0	67	67
Soft tissue sarcoma									7	146	7	0	160	160
Germinal tumors						1			20	326	3	1	349	350
Breast cancer: stage 2									16	986	3	0	1005	1005
Breast cancer: stage 3									3	665	1	0	669	669
Breast cancer: inflammatory									1	158	7	0	166	166
Breast cancer: metastatic	1	2							12	767	7	3	786	789
Ewing		1	1							195	3	2	198	200
Lung cancer										81	1	0	82	82
Ovarian cancer									4	165	2	0	171	171
Other solid tumors	1	2			1				14	256	10	4	280	284
Non malignant disorders												657	113	770
Severe aplastic anemia + Fanconi	145	33	2	5		1	43	8				237	0	237
Thalassemia	100	15					7					122	0	122
SCID	34	2	19	6			16	3				80	0	80
Inborn errors	50	2	18	14			42	9	1		2	135	3	138
Auto immune disease		6							4	25		6	29	35
Others	42	12	1	5		2	13	2	5	74	2	77	81	158
Total	2123	1057	142	220	23	25	1023	138	829	11 021	349	4751	12 199	16 950

stem cell source and donor type (Table 1) on a questionnaire for the preceding year each January. The same information is sought from non-members, known to the investigators to perform transplants, from teams announced to EBMT by national organizations, neighboring teams or hospital administrators.

The numbers for 1973, 1983 and 1991 are derived from previous reports. In 1993, all participating teams were additionally requested to report their patient numbers selectively for 1973 and 1983.[16] New teams beginning transplant programmes can thus be identified.

Definition of transplant numbers

The survey concentrates on numbers of patients receiving their first transplant during the calendar year 1997. Patients with second, double, triple or re-transplants are counted only once, thus multiple reporting is prevented. Included as exceptions are patients who were treated previously at another institution but who receive a first transplant at the reporting institution.

The additional procedures, re- or double transplants are collected in total, not specified by disease, to give an estimate of the total number of transplants.

Participating teams

473 teams were contacted in 32 European countries (= number in appendix) and, by EBMT tradition Israel, Saudi Arabia and Iran, to report all consecutive allogeneic and autologous transplants. All teams, with the exception of three, reporting in 1996 replied to the 1997 survey. An additional 12 teams did not reply. The teams are listed in the Appendix in alphabetical order of country, town, center and reporting physician. According to our estimate, based on contacts with national agencies and commercial providers, the report covers probably 95% of all allogeneic and near to 90% of all autologous blood or marrow transplants performed in Europe in 1997. Main deficiencies apply to small private institutions performing selectively some isolated transplants. According to personal communications, no blood or marrow transplants were performed in 1997 in

Albania, Andorra, Armenia, Azerbaijan, Bosnia-Herzegovina, Bulgaria, Cyprus, Georgia, Iceland, Latvia, Liechtenstein, Lithuania, Malta, Moldovia, Monaco, Romania, San Marino, Ukraine and the Vatican.

Data validation

Reported data are entered in a computer file. Before data analysis, a printout is sent to each team for validation and verification. In countries with a national transplantation agency or registry, data are compared with the respective national co-ordinators. Discrepancies between reports to the national agency and EBMT are corrected by contacting teams in question for rectification.

Statistical analysis

Mean, median, range and coefficient of variation of numerical variables were calculated with the Excel spreadsheet.

Absolute and relative increase in transplant activity from 1991 to 1997 was calculated for each indication, separately for allogeneic and autolgous transplants. To determine the absolute increase, the number of transplants in 1991 was subtracted from the number of transplants in 1997; to determine the relative increase index (RII), the following formula was used: the fraction of transplants in 1997 of a given indication was divided by the fraction in 1991. For example, (*n* autologous transplants for breast carcinoma in 1997 divided by *n* total autologous transplants 1997) divided by (*n* autologous transplants for breast carcinoma in 1991 divided by *n* total autologous transplants 1991).

Table 2 Number of patients transplanted with a first transplant and total number of transplant procedures in Europe 1997

	Allo	*Auto*	*Total*
1st. transplant	4751	12 199	16 950
Retransplants	207	428	635
Double transplants	74	1264	1338
Total transplants	5032	13 891	18 923

Results

Participating teams

457 participating teams from 31 countries reported to the survey in 1997 (96% of contacted teams). In 1973, when EBMT was founded, there were eight teams in five countries; in 1983, 97 teams in 17 countries. The increase from 143 teams in 1990 to 457 teams in 1997 is exclusively due to new teams starting transplant activities.

The majority of teams, 57%, do both allogeneic and autologous transplants, 41% of teams restrict their activity to autologous, 2% to allogeneic transplants only.

Transplant figures

A total of 16 950 first transplants, 4751 allogeneic (28%) and 12 199 autologous (72%) were carried out in 1997. This represents an increase of 14% over 1996, when there were 14 593 transplants (4393 allogeneic; 10 200 autologous). This increase is due to new teams (16% increase) and greater number of transplants by established teams.

The increase in transplant activity from 16 transplants in 1973 (all allogeneic), to 1353 (880 allogeneic, 473 autologous) transplants in 1983 and 4961 in 1991 (2175 allogeneic, 2786 autologous) to the total of 16 950 in 1997 is illustrated in Figure 1.

The total number of procedures, including re- and double transplants performed at the same 457 institutions was 18 923, 5032 allogeneic and 13 891 autologous transplants

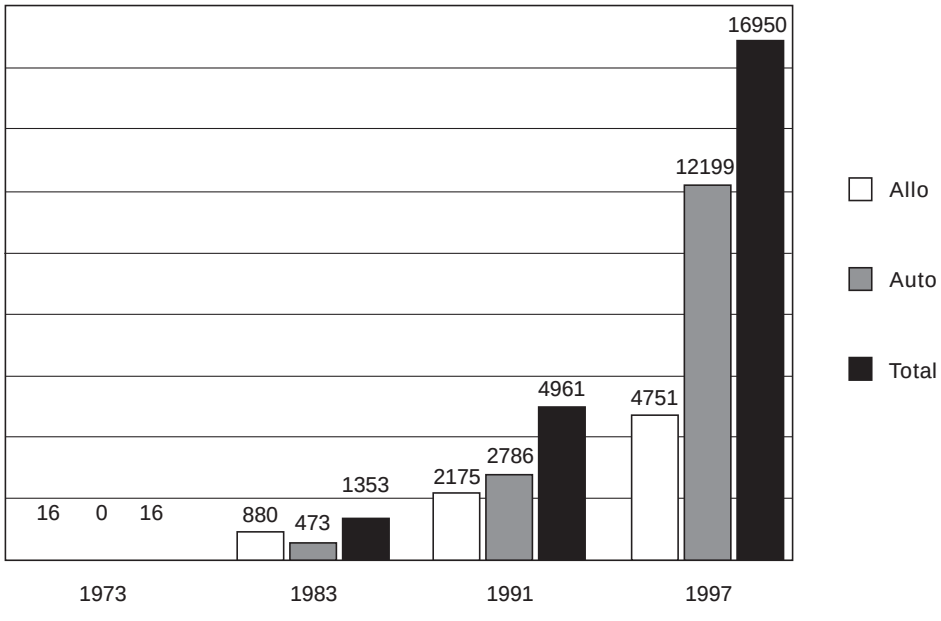

Figure 1 Blood and marrow stem cell transplants in Europe since 1973, the year of the foundation of the European Group for Blood and Marrow Transplantation (EBMT). The graph illustrates total transplants, allogeneic and autologous transplants.

Table 3a Absolute and relative increase in transplant activity from 1991 to 1997 according to main disease category

Indication	*Transplants 1991*			*Increase allogeneic transplants*			*Increase autologous transplants*			*Increase total transplants*		
	Allo	*Auto*	*Total*	*No. 1997*	*Absolute increase*	*Relative increase*	*No. 1997*	*Absolute increase*	*Relative increase*	*No. 1997*	*Absolute increase*	*Relative increase*
Leukemias	1640	938	2578	3667	2027	1.02	1586	648	0.39	5253	2675	0.60
Lymphomas	146	1315	1461	412	266	1.29	6361	5046	1.11	6773	5312	1.36
Solid tumors	8	528	536	15	7	0.86	4139	3611	1.79	4154	3618	2.27
SAA + Fanconi	159	0	159	237	78	0.68				237	78	0.44
Congenital disorders	199	0	199	343	144	0.79				343	144	0.51
Others	23	5	28	77	54	1.53	81	76	3.71	158	130	1.65
Total	2175	2786	4961	4751	2576		12 167	9381		16 918	11 957	

Table 3b Absolute and relative increase in transplant activity from 1991 to 1997 according to donor type and disease indication

Indication	*Transplants 1991*			*Increase allogeneic transplants*			*Increase autologous transplants*			*Increase total transplants*		
	Allo	*Auto*	*Total*	*No. 1997*	*Absolute increase*	*Relative increase*	*No. 1997*	*Absolute increase*	*Relative increase*	*No. 1997*	*Absolute increase*	*Relative increase*
AML 1st CR	342	337	679	641	299	0.86	641	304	0.43	1282	603	0.55
non 1st CR	187	156	343	522	335	1.28	201	45	0.29	723	380	0.62
ALL 1st CR	192	160	352	365	173	0.87	218	58	0.31	583	231	0.48
non 1st CR	256	207	463	586	330	1.05	130	−77	0.14	716	253	0.45
CML cP	425	49	474	924	499	1.00	180	131	0.84	1104	630	0.68
not 1st CP	134	27	161	276	142	0.94	73	46	0.62	349	188	0.63
MDS	93	2	95	321	228	1.58	33	31	3.77	354	259	1.09
CLL	11	0	11	32	21	1.33	110	110	–	142	131	3.78
Myeloma	65	241	306	151	86	1.06	2237	1996	2.12	2388	2082	2.28
HD	15	405	420	33	18	1.01	1066	661	0.60	1099	679	0.77
NHL	66	669	735	228	162	1.58	3058	2389	1.04	3286	2551	1.31
Neuroblastoma	3	102	105				206	104	0.46	206	101	0.59
Glioma	0	56	56				67	11	0.27	67	11	0.35
Soft tissue	0	41	41				160	119	0.89	160	119	1.14
Germinal Ca.	0	120	120				349	229	0.66	349	229	0.85
Breast Ca.	0	94	94				2626	2532	6.37	2626	2532	8.18
Ewing	3	41	44				198	157	1.10	198	154	1.33
Lung Ca.	0	0	0				82	82	–	82	82	–
Ovarian Ca.	0	0	0				171	171	–	171	171	–
Other solid tumors	2	74	76				280	206	0.86	280	204	1.09
SAA + Fanconi	159	0	159	237	78	0.68				237	78	0.44
Thalassaemia	102	0	102	122	20	0.55				122	20	0.35
SCID	27	0	27	80	53	1.36				80	53	0.87
Inborn errors	70	0	70	135	65	0.88				135	65	0.58
Auto immune/disease	0	0	0	6	6	–	29	29	–	35	35	–
Others	23	5	28	77	54	1.53	81	76	3.70	158	130	1.65
Total	2175	2786	4961	4736	2569		12 196	9410		16 932	11 971	

(Table 2). This restriction to numbers of new patients treated accounts for some of the discrepancies between reports from centers or national agencies when numbers of transplant procedures in total are reported.

Main indications

Indications for transplants in 1997 are listed in detail by donor type and donor source in Table 1. Main indications were lymphomas with 6773 transplants (40%), 412 (6%) allogeneic and 6361 (94%) autologous; leukemias with 5253 transplants (31%), 3667 (70%) allogeneic and 1586 (30%) autologous; solid tumors with 4154 transplants (24%), 15 (1%) allogeneic and 4139 (99%) autologous and non-malignant disorders with 770 transplants (5%), 657 (85%) allogeneic and 113 (15%) autologous.

Changes in indications

The relative proportion of main indications over the last 25 years in Europe is illustrated in Figures 2a and b and Table 3a and b. Most pronounced is the shift to lymphomas and solid tumors which were no indication in 1973. Solid tumors represented 15% of all transplants in 1983 (201 transplants), 11% in 1991 (536 transplants) and 24% in 1997 (4154 transplants); lymphomas 10% in 1983 (137 transplants), 29% in 1991 (1461 transplants) and 40% in 1997 (6773 transplants).

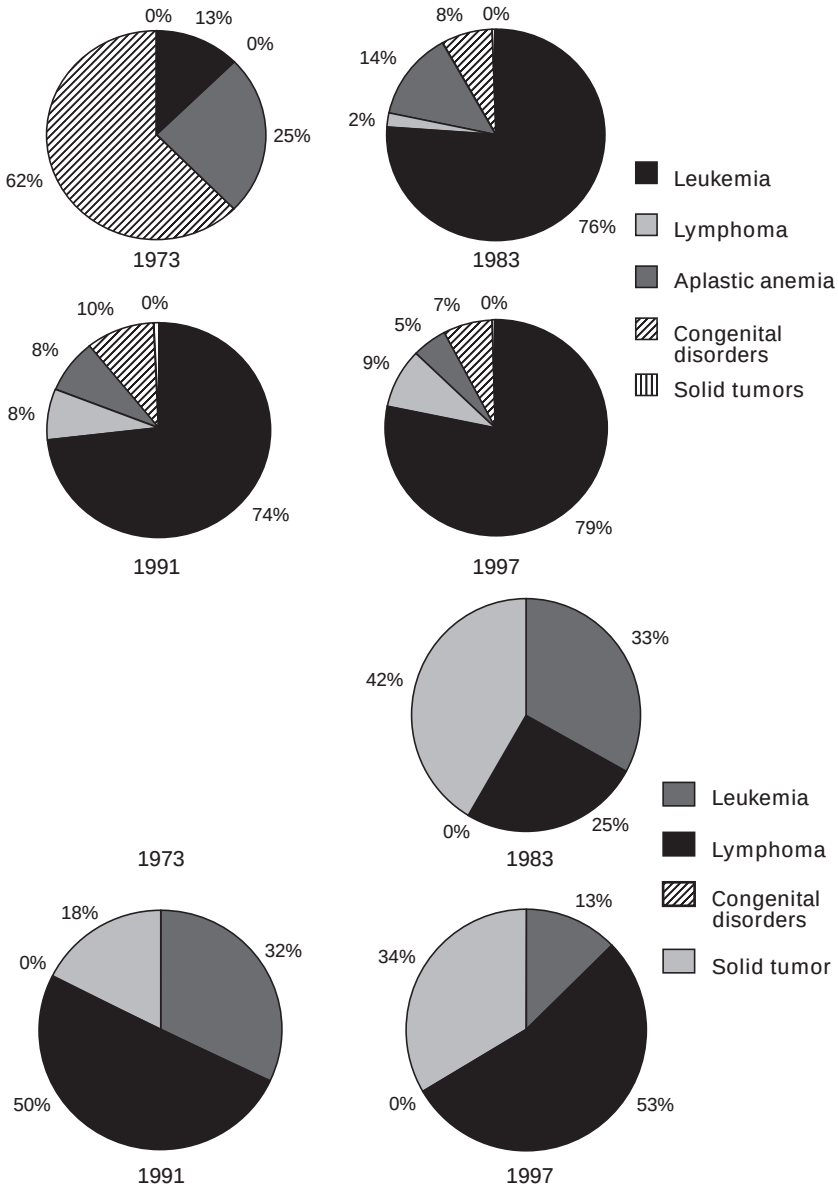

Figure 2 Changes in main indications for transplants in Europe from 1973 to 1997. (a) Allogeneic transplants; (b) autologous transplants.

The comparative absolute and relative increases in main indications for allogeneic and autologous transplants are listed in Table 3a. All indications have increased in absolute numbers. A relative increase in main indications was observed for autologous transplants in lymphoma (RII 1.11) and solid tumors (RII 1.79), for allogeneic transplants in lymphoma (RII 1.29).

More illustrative are the relative changes, if the disease indications are looked at individually as they are presented in Table 1 (Table 3b).

The relative increases for autologous transplants focus on myelodysplastic syndromes (RII 3.77), myeloma (RII 2.12) and, most markedly, carcinoma of the breast (RII 6.37). A relative decrease is observed for acute leukemias, Hodgkin's disease and some solid tumors, such as neuroblastoma (RII 0.46) and glioma (RII 0.27), for which indication even less transplants were performed in 1997 than in 1991.

Relative increases for allogeneic transplants were observed in myelodysplastic syndromes (RII 1.58), chronic lymphocytic leukemia (RII 1.33) and non-Hodgkin's lymphoma (RII 1.58), relative decreases for aplastic anemia (RII 0.68) and thalassemia (RII 0.55). In acute leukemias, there is a trend to perform transplants relatively more frequently at later stages of the disease than in first complete remission (RII 1.28 or RII 1.05 *vs* RII 0.86, or RII 0.87). Most remarkable is the constant figure of RII 1.00 for chronic myeloid leukemia, the most frequent and most accepted indication for an allogeneic transplant world-wide.

Donor type

Of the 16 950 transplants in 1997, 4751 were allogeneic (28%) and 12 199 autologous (72%). For the 4751 allogeneic transplants, donors were an HLA-identical sibling (67%) for 3180 recipients, HLA non-identical family mem-

ber (8%) for 362 recipients, syngeneic twin (1%) for 48 recipients and an unrelated, volunteer donor (24%) for 1161 recipients.

Changes in donor type for the allogeneic transplants since 1973 are illustrated in Figure 3. The proportion of unrelated transplants has increased from less than 1% in 1983 to 217 (10%) in 1991 and 1161 (24%) in 1997.[1] In contrast, the proportion of nonidentical family members as donors has shown a bimodal pattern. It increased steadily from 6% in 1973 to 10% in 1983, declined to 5% (101/2175) in 1991 and has risen again to 8% (362/4751) in 1997.

Stem cell source

Of the 12 199 autologous transplants in 1997, 829 (7%) were bone marrow derived, 11 021 (90%) from peripheral blood and 349 (3%) combined bone marrow and peripheral blood cells. In 1991, the proportion of autologous bone marrow derived cells was 85%. In 1991, no allogeneic peripheral blood stem cell transplants were reported. In 1997, 3311 (70%) of the 4751 allogeneic transplants were bone marrow derived, 1440 (30%) were using peripheral blood stem cells. The proportion of unrelated peripheral blood stem cell transplants is still low (138/1161, 12%) compared to 33% for the HLA-identical sibling donors, 61% for related non-identical donors and 52% for twin donors. This rapid shift occurring since 1991 is illustrated in Figure 3.

A total of 86 allogeneic cord blood transplants were reported. This represents 2% of all allogeneic transplants in 1997. Detailed figures of cord blood transplants have only been collected since 1996.

Discussion

The present report, the seventh of a series,[1,14–18] gives information on transplant numbers, transplant rates, stem cell sources, donor types and indications for blood and marrow transplants in Europe. It illustrates four major trends observed over the last 7 years: the number of transplants of blood and marrow progenitor cells is increasing rapidly, there is a shift from bone marrow to peripheral blood as stem cell source in autologous and allogeneic transplants, unrelated donor transplants are used increasingly and new indications for autologous transplants are emerging. The report underlines the rapid evolution of blood and marrow transplantation from an experimental undertaking 30 years ago[20,21] to established procedure today with near to 19 000 transplants in Europe and an estimated total of over 40 000 hematopoietic stem cell transplants world-wide in 1997.

Information on transplant activity invariably precedes analysis of outcome by many years. Nevertheless, in current times of evidence-based medicine objective criteria are warranted to determine procedure value. Subsequent collection of data, as in the repeated activity reports, provide a potential instrument. The comparison of transplant activities in different countries based on the number of transplants per number of inhabitants gives an estimate of the coefficient of variation in transplant activity for individual indications. There has been one quantitative approach, published recently.[22] It allows assessment consensus among physicians in Europe in a reproducible way.

The measure of absolute and relative increase or decrease over time for individual indications, as has been analyzed this year, is a new instrument to capture early trends objectively long before outcome data are available: a RII close to 1 documents that such indications are regarded as accepted indications during the observation period and that the absolute increase over time is mainly due to recruiting additional patients into new transplant programmes. A RII>1 indicates emerging new indications, a RII<1 fading indications.

The present data give us some clues: an absolute increase was observed for all indications except for neuroblastoma;

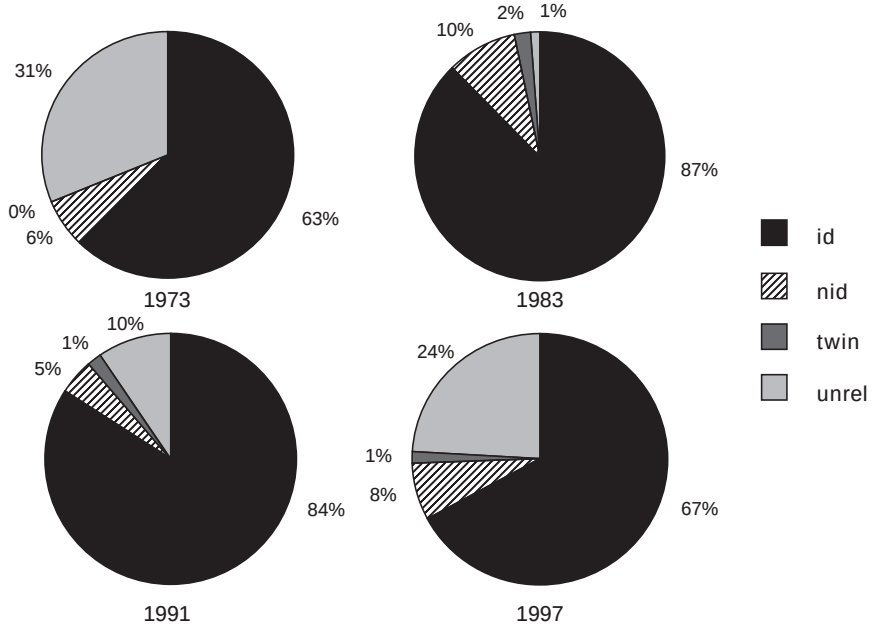

Figure 3 Changes in donor type for allogeneic blood and marrow transplants from 1973 to 1997. Proportion of HLA-identical sibling, other family member, twin donor and unrelated volunteer donor transplants.

the relative changes varied depending on indication and donor type. It is comforting to see that RII close to 1 are primarily found for disease indications with low CVs in previous reports, eg chronic myeloid leukemia for allogeneic transplants (RII 1.00) or non-Hodgkin's lymphoma for autologous transplants (RII 1.04). These indications are generally considered clear and accepted indications for hematopoietic stem cell transplants.[19]

High RII were observed in autologous transplants for MDS, multiple myeloma and carcinoma of the breast: all indications which have emerged over the last years. In contrast, autologous transplants for acute leukemias beyond first CR and for some solid tumors showed a decrease in RII. The relevance of these changes needs to be determined. They can indicate, that recent data do not favor transplants, that alternative treatments are becoming available or reduced interest in the procedure.

High RII were observed in allogeneic transplants for MDS, CLL and non-Hodgkin's lymphoma. The former reflect disease states frequently refractory to cure by conventional treatment, the latter a disease where a graft-versus-tumor effect, specifically graft-versus-lymphoma effect is being discussed. A relative decrease in severe aplastic anemia and thalassemia was noted. Two different potential explanations can be given for these relative decreases: alternative treatments, such as immunosuppression are available for patients with severe aplastic anemia. Thalassemia is restricted to certain geographic areas. Any increase in all regions is invariably associated with the relative decrease for indications with limited recruitment areas. Similarly, the trend to perform transplants for acute leukemias beyond first CR can be explained by the recognition of prognostic factors for good risk leukemias, hence the delay in transplant until later stages of the disease.

This report provides no information on outcome. These data are being collected and will be reported with due follow-up. The main goal of this report is to highlight the most significant changes in recent years. Knowledge of current activity and ongoing trends is essential for analysis and interpretation of outcome. It forms a basis for health care planning, setting up guidelines and recommendations for patient counselling.

Acknowledgements

The co-operation of all participating teams (listed in the Appendix) and their staff of the European EBMT data office in Paris, V Chesnels, P Palut, NC Gorin, the French Registry SFGM (JP Vernant), the Dutch Registry (T de Witte, A van Biezen), the Austrian Registry (D Niederwieser), the Italian Registry GITMO (A Bacigalupo, M Vignetti), the German Registry DRST (H Ottinger, C Muller, B Kubanek, N Schmitz, UW Schaefer), the British Registry BSBMT (A Eades), the Swiss Registry (H Baldomero, J Passweg) and the Spanish Transplantation Office ONT (M Naya), is greatly appreciated. The authors would like to thank A Maerki for excellent secretarial assistance and H Luttringer, L John and O Baldomero for technical assistance with data management. The work was supported in part by a grant from the Swiss National Research Foundation, 32–52756.97, the Swiss Cancer League and the Swiss Cancer Research Foundation. EBMT is supported by grants from the following corporate members: Hoffmann-La Roche Ltd, Amgen Europe, Chugai Rhone-Poulenc, Baxter, Astra, Cobe International, Nextar, Liposome, Imtix, Octapharma, Stem Cell Technologies, ICN Pharmaceuticals, Bristol Meyer Squibb.

References

1 Gratwohl A. Bone marrow transplantation activity in Europe 1990. Report from the European Group for Blood and Marrow Transplantation (EBMT). *Bone Marrow Transplant* 1991; **8**: 197–201.
2 Armitage JO. Bone marrow transplantation. *New Engl J Med* 1994; **330**: 827–838.
3 Rowe JM, Ciobanu N, Ascensao J *et al*. Recommended guidelines for the management of autologous and allogeneic bone marrow transplantation. *Ann Intern Med* 1994; **120**: 143–158.
4 Forman SJ, Blume KG, Thomas ED (eds). *Hematopoietic Cell Transplantation*, 2nd edition, Blackwell Scientific Publishers: London, New York, 1998.
5 Parkman R. The future of placental-blood transplantation. *New Engl J Med* 1998; **339**: 1628–1629.
6 Gratwohl A. Blood and marrow transplantation activity in Europe 1996. Special report. *Bone Marrow Transplant* 1998; **22**: 227–240.
7 Schmitz N, Bacigalupo A, Hasenclever D *et al*. Allogeneic bone marrow transplantation *vs* filgrastim-mobilized peripheral blood progenitor cell transplantation in patients with early leukemia: first results of a randomised multicentre trial of the European Group for Bone and Marrow Transplantation. *Bone Marrow Transplant* 1998; **21**: 995–1003.
8 Russell N, Gratwohl A, Schmitz N. Annotation: the place of blood stem cells in allogeneic transplantation. *Br J Haematol* 1996; **93**: 747–753.
9 Gluckman E, Rocha V, Boyer-Chammard A *et al*. Outcome of cord-blood transplantation from related and unrelated donors. *New Engl J Med* 1997; **337**: 373–381.
10 Rubinstein P, Carrier C, Scaradavou A *et al*. Outcomes among 562 recipients of placental-blood transplants from unrelated donors. *New Engl J Med* 1998; **339**: 1565–1577.
11 Gratwohl A, Hermans J, Goldman JM *et al*. Risk assessment for patients with chronic myeloid leukaemia before allogeneic blood or marrow transplantation. *Lancet* 1998; **352**: 1087–1092.
12 Sasazuki T, Juji T, Morishima Y *et al*. Effect of matching of class I HLA alleles on clinical outcome after transplantation of hematopoietic stem cells from an unrelated donor. Japan Marrow Donor Program. *New Engl J Med* 1998; **339**: 1238–1239.
13 Aversa F, Tabilio A, Velardi A *et al*. Treatment of high-risk acute leukemia with T cell-depleted stem cells from unrelated donors with one fully mismatched HLA haplotype. *New Engl J Med* 1998; **339**: 1186–1193.
14 Gratwohl A, Hermans J, Goldman J, Gahrton G. Bone marrow transplantation in Europe. Major geographical differences. *J Int Med* 1993; **233**: 333–341.
15 Gratwohl A, Hermans J. Bone marrow transplantation activity in Europe 1992. Report from the European Group for Blood and Marrow Transplantation (EBMT). *Bone Marrow Transplant* 1994; **13**: 5–10.
16 Gratwohl A, Hermans J. Indications and donor source of hematopoietic stem cell transplants in Europe 1993. *Clin Transplant* 1995; **9**: 355–363.
17 Gratwohl A, Hermans J, Baldomero H. Hematopoietic precursor cell transplants in Europe: activity in 1994. Report from the European Group for Blood and Marrow Transplantation (EBMT). *Bone Marrow Transplant 1996*; **17**: 137–148.
18 Gratwohl A, Hermans J, Baldomero H. Blood and marrow transplantation activity in Europe 1995. *Bone Marrow Transplant* 1997; **19**: 407–419.

19 Goldman JM, Schmitz N, Niethammer D, Gratwohl A for the Accreditation Sub-Committee of the European Group for Blood and Marrow Transplantation. Special report: allogeneic and autologous transplantation for haematological diseases, solid tumours and immune disorders: current practice in Europe in 1998. *Bone Marrow Transplant* 1998; **21**: 1–7.
20 Gathi RA, Meuwissen HJ, Allen HD *et al*. Immunologic reconstitution of sex-linked lymphopenic immunological deficiency. *Lancet* 1968; **ii**: 1366–1369.
21 Bach FH, Albertini RJ, Joo P *et al*. Bone marrow transplantation in a patient with Wiskott–Aldrich syndrome. *Lancet* 1968; **ii**: 1364–1366.
22 Gratwohl A, Baldomero H, Hermans J. Quantitative assessment of consensus on indications for blood or marrow transplantation in Europe 1995. *Cancer Res Ther Control* 1999 (in press).

Appendix 1997

List of transplant centers and numbers of transplants performed (numbers in brackets show total number of transplants followed by allografts/autografts)

Albania: no report
Andorra: no report
Armenia: no report
Austria (*14 teams; 334, 99/235)*
Graz, University Hospital, CIC 308, W Linkesch, (25, 9/16)
Graz, University Hospital, Onco, CIC 278, H Samonigg, M Schmid (16, 0/16)
Graz, Universitats-Kinderklinik, CIC 593, Ch Urban (9, 6/3)
Innsbruck, Universitatsspital (hem), CIC 516, G Gastl (10, 0/10)
Innsbruck, Universitatsspital, CIC 271, D Niederwieser (38, 12/26)
Linz, 1 Medizinische Abteilung, AO Krakenhaus, MA Fridrik (4, 0/4)
Linz, AOK der Elisabethinen, CIC 594, D Lutz (23, 5/18)
Salzburg, LKA Salzburg (onco), CIC 356, Prof Hausmaninger (3, 0/3)
Vienna-Lainz, 5 Med Abt, Onko, Krakenhaus der Stadt Wien-Lainz, CIC 362, G Baumgartner, A Fortelny, E Ulsperger, Dr Mayer (8, 0/8)
Vienna, St Anna Kinderspital, CIC 528, H Gadner, C Peters (38, 27/11)
Vienna, Donauspital, CIC 767, W Hinterberger (14, 0/14)
Vienna, Universitatsklinik fur Innere Medizine-AKH, CIC 227, HT Greinix, P Kalhs (79, 39/40)
Vienna, Wilhelminerspital, CIC 828, H Ludwig (50, 1/49)
Vienna, Hanusch-Krakenhaus, CIC 743, R Reisner (17, 0/17)

Azerbaijan: no report

Republic of Belarus (2 teams; 23, 10/13)
Minsk, Hospital No 9, CIC 801, N Milanovitch (23, 10/13)
Minsk, Institute of Haematology, CIC 326, V Ivanov (missing)

Belgium (17 teams; 552, 151/401)
Antwerpen, AZ Middleheim, CIC 783, R de Boc (13, 0/13)
Brugge, AZ St Jan, CIC 506, D Selleslag, A Van Hoof, (37, 11/26)
Brussels, Children's University Hospital, CIC 644, C Devalck, E Sariban (12, 9/3)
Brussels, Hopital Erasme, CIC 596, W Feremans (25, 0/25)
Brussels, Clinique Universitaire St Luc (Adults), CIC 234, A Ferrant (50, 19/31)
Brussels, Institut Jules Bordet, CIC 215, D Bron (33, 11/22)
Brussels, University Hospital, CIC 630, B van Camp, A Schots (40, 24/16)
Brussels, Clinique Universitaire St Luc (peds), CIC 234, C Vermylen (13, 7/6)
Charleroi, Hopital Notre-Dame, M Andre (28, 0/28)
Edegem, University Antwerpen, CIC 648, W Schroyens (24, 4/20)
Gent, University Hospital, CIC 744, LA Noens (45, 18/27)
Haine St Paul, Hopital de Jolimont, CIC 234, A Delannoy, C Ravoet (14, 0/14)
Hasselt, Virgajesse Ziekenhuis, D Vanstraelen, Dr Janssen (17, 0/17)
Leuven, University Hospital Gasthuisberg, CIC 209, MA Boogaerts, H Demuynck (82, 27/55) late change, app only
Liege, University Hospital Sart-Tilman, CIC 726, Y Beguin (56, 15/41)
Roeselare, H Hartziekenhuis, Van Aelst, J Tytgat, J Demol (17, 0/17)
Yvoir, Clinique universitaire de Mont-Godinne, C Doyen (44, 6/38)

Bosnia-Herzegovina: no report

Bulgaria: no report

Croatia (2 teams; 105, 29/76)
Zagreb, Hospital Merkur, CIC 309, B Jaksic (20, 0/20)
Zagreb, Clinical Hospital Center, CIC 302, B Labar (85, 29/56)

Cyprus: no report

Czech Republic (9 teams; 356, 76/280)
Brno, Masaryk University Hospital, CIC 597, J Vorlicek (78, 10/68)
Hradec Kralove, Charles University, CIC 729, S Filip, M Blaha (32, 2/30)
Pilsen, Faculty Hospital, CIC 718, V Koza (83, 33/50)
Prague, University Hospital Motol (peds onco), P Kavan (35, 0/35)
Prague, University Hospital Motol (peds hem), J Stary (15, 13/2)
Prague, Institute of Hematology and Blood Transfusion, CIC 656, A Vitek, P Kobylka (25, 18/7)

Prague, Charles University, CIC 745, M Trneny (48, 0/48)
Prague, Clinical Haematology, Charles University, CIC 318, T Kozak (20, 0/20)
Olomouc, University Hospital, CIC 574, K Indrak, (20, 0/20)

Denmark (3 teams; 142, 35/107)
Aarhus, Amtssygehus, CIC 634, A Boesen (25, 0/25)
Copenhagen, Rigshospitalet, CIC 206, N Jacobsen (86, 35/51)
Copenhagen, Herlev Hospital, University, CIC 568, HE Johnson (31, 0/31)

Estonia (1 team; 11, 0/11)
Tartu, University Hospital, CIC 746, H Everaus (11, 0/11)

Finland (5 teams; 218, 64/154)
Helsinki, University Hospital, Dept Oncology, H Joensuu, T Wiklund (41, 0/41)
Helsinki, University Hospital, Third Dept of Medicine, CIC 515, T Ruutu (75, 35/40)
Helsinki, Children's Hospital, CIC 219, V Pihkala, J Vettenrarta (28, 21/7)
Tampere, University Hospital, CIC 635, M Lehtinen (30, 0/30)
Turku, University Central Hospital, CIC 225, K Remes (44, 8/36)

France (51 teams; 2665, 652/2013)
Angers, Centre Hospitalier, CIC 650, N Ifrah (35, 11/24)
Argenteuil, Centre Hospitalier, M Urbajtel (15, 4/11)
Besançon, Hopital Jean Minjoz and Hopital St Jacques (adults and peds), CIC 233, P Herve, J-Y Cahn, MN Cailleux (71, 27/44)
Brest, Centre Hospitalier, C Berthou (35, 1/34)
Caen, Centre Hospitalier Regional, CIC 251, O Reman (19, 0/19)
Clermont Ferrand, Hotel Dieu (peds), CIC 589, F Demeocq, (36, 7/29)
Clermont Ferrand, Centre Jean Perrin, CIC 273, M Legros (61, 3/58)
Creteil, Hopital H Mondor, CIC 252, C Cordonnier, M Kuentz (54, 30/24)
Dijon, Centre Georges François Leclerc, F Mayer (4, 0/4)
Dijon, Hopital d'Enfants, D Caillot (54, 0/54)
Grenoble, Centre Hospitalier, CIC 270, J Sotto, L Molina, F Nicolini (52, 13/39)
Lille, Hopital Claude Huriez, CIC 277, F Bauters, JP Jouet (133, 43/90
Lyon, Hopital Edouard Herriot, CIC 671, D Fiere, E Archimbaud, A Belhabri, M Michallet (83, 36/47)
Lyon, Centre Leon Berard, CIC 241, T Philip (92, 0/92)
Lyon, Hopital Debrousse, CIC 806, N Philippe, G Souillet (26, 24/2)
Marseille, Inst Paoli-Calmettes, CIC 230, D Blaise (252, 27/225)
Marseille, Hopital d'Enfants de la Timone, CIC 301, C Coze (11, 0/11)
Mulhouse, Hopital du Hasenrain, Ph Henon, Dr Becker (11, 0/11)
Nantes, Hotel Dieu, CIC 253, JL Harousseau, N Milpied (151, 29/122)
Nice, Hopital de Cimiez, CIC 523, JG Fuzibet, N Gratecos (28, 9/19)
Nice, Centre Antoine Lacassagne, A Thyss (19, 0/19)
Paris, Hopital Laennec, JM Andrieu, C Le Maignan (2, 0/2)
Paris, Hopital d'Instruction des Armees Percy, Clamart, T de Revel, G Nedellec (29, 5/24)
Paris, Hopital Cochin, F Dreyfus (29, 0/29)
Paris, Hopital Necker des Enfants Malades, CIC 210, A Fischer (40, 38/2)
Paris, Hopital St Louis (auto), CIC 805, G Gisselbrecht (45, 0/45)
Paris, Hopital St Louis (allo), CIC 207, E Gluckman (81, 81/0)
Paris, Hopital St Louis (peds), CIC 748, G Schaison (missing)
Paris, Hopital St Antoine, CIC 213, NC Gorin, L Fouillard (40, 9/31)
Paris, Hopital Pitie Salpetiere, CIC 262, J-P Vernant, V Leblond (62, 18/44)
Paris, Hopital Tenon, JP Lotz (34, 0/34)
Paris, Hopital Robert Debre, P Rohrlich, E Vilmer (22, 21/1)
Paris, Hopital Necker (adults), CIC 201, B Varet, C Belanger, A Veil (44, 21/23)
Paris, Hotel Dieu, CIC 222, R Zittoun, B Rio (43, 18/25)
Paris, Institut Curie (adults/onco), CIC 702, P Pouillart, J Michon (44, 0/44)
Paris, Institut Curie (peds) CIC 702, JM Zucker, J Michon (70, 0/70)
Pessac, Hopital Haut-Leveque, CIC 267, J Reiffers, Dr Faberes (135, 44/91)
Poitiers, Hopital Jean Bernard, CIC 264, A Sadoun (61, 17/44)
Rennes, Hopital Pontchaillou, C Dauriac (56, 18/38)
Rennes, CHRU, Clinique Medical Infantil, E Le Gall, V Gandemer (11, 6/5)
Rouen, Centre Henri Becquerel, H Tilly, P Lenain (48, 12/36)
St Cloud, Centre Rene Huguenin, M Janvier (14, 0/14)
St Etienne, Hoptial Etienne, CIC 250, D Guyotat, JL Stephan (missing)
Strasburg, Hopital de Hautepierre, B Lioure (81, 18/63)
Strasburg, Hospices Civils, Service de Pediatrie 5, P Lutz (5, 2/3)
Toulouse, Hopital de Purpan, X CIC 624, M Attal (117, 28/89)
Toulouse, Centre Claudius Regaud, H Roche, C Chevreau (18, 0/18)
Tours, Hopital Bretonneau, CIC 272, P Colombat (92, 0/92)
Vandeuvre-les-Nancy, Hopital d'Enfants, P Bordigoni (38, 16/22)
Villejuif, Institut G. Roussy (adults and peds), CIC 503, O Hartmann; CIC 666, JL Pico (140, 16/124)
Villejuif, Hopital Paul Brousse, B Delmas-Marsalet (22, 0/22)

Georgia: no report

*Germany (94 teams; 3426, 926/2500)***

Augsburg, Zentralklinikum, G Schlimok (40, 1/39)
Bad Saarow, Humaine Klinikum, W Schultze (51, 0/51)
Berlin, Klinikum Charite, Kinderheilkunde, CIC 807, R Arnold (61, 35/26)
Berlin, KH Neukolln, C Kerschgens, A Mayr (3, 0/3)
Berlin, Zentralkrankenhaus, Dr Meier (0, 0/0)
Berlin, Universitats-Klinik Benjamin Franklin, CIC 590, E Thiel, W Knauf (32, 4/28)
Berlin, Universitats-Klinik Charlottenburg, Virchow Klinikum (adults and peds until 9/96), CIC 293, W Siegert, HJ Schmid (90, 19/7.1)
Berlin, Universitats-Klinik Charlottenburg, Virchow Klinikum (peds from 9/96), W Ebell (29, 22/7)
Berlin, Universitats-Klinik Charlottenburg, Virchow Klinikum (onco), CIC 518, B Dorken (27, 0/27)
Bonn, Med Uni Klinik Bonn, T Sauerbruch, I Schmidt-Wolf (19, 0/19)
Bremen, DIAKO, Dr Wolff (12, 0/12)
Chemnitz, KH Kuchwald, F Fiedler (21, 0/21)
Cottbus, Carl-Thiem Klinikum, Ch Rudolph (8, 0/8)
Dortmund, St Johannes Hospital, H-J Pielken (2, 0/2)
Dresden, Universitatsklinikum Carl Gustav Carus, CIC 808, G Ehninger (86, 41/45)
Dusseldorf, Zentrum fur Kinderheilkunde, CIC 651, S Burdach (19, 11/8)
Dusseldorf, Medizinische Klinik, CIC 390, C Aul, A Heyll (70, 18/52)
Duisburg, St John's Hospital, CIC 519, J Anhuf (58, 0/58)
Duisburg, Klinikum Kalkweg (onco), H Gerhartz (12, 0/12)
Erlangen, Universitats-Klinik fur Kinder und Jugendliche, CIC 809, JD Beck, J Greil (10, 2/8)
Erlangen, Universitat Erlangen-Nuremberg, CIC 809, M Gramatzki (37, 17/20)
Eschweiler, St Antonius Hospital, R Fuchs (2, 0/2)
Essen, Evangelisches Krankenhaus Essen-Werden GmbH, CIC 784, W Heit (64, 0/64)
Essen, Universitats-Klinik (Haen), G Brittinger, U Duhrsen, M Uppenkamp (13, 0/13)
Essen, Universitats-Klinik (Onko), S Seeber, A Harstrick (90, 0/90)
Essen, Universitats-Klinik, CIC 259, UW Schaefer, DW Beelen, B Kremens (130, 115/15)
Frankfurt aM, JW Goethe-Universitat, CIC 297, D Hoelzer, H Martin (55, 16/39)
Frankfurt, KH Nordwest, A Knuth (10, 0/10)
Frankfurt, University Kinderklinik, D Schwabe (5, 1/4)
Freiburg iBr, Medizinische Universitatsklinik (ads), CIC 810, J Finke, W Lange (163, 65/98)
Freiburg, Klinik fur Tumorbiologie, CIC 310, HH Bartsch (no data)
Freiburg iBr, Universitats-Kinderklinik, CIC 591, C Niemeyer (12, 8/4)
Gottingen, Georg-August Universitat, B Wormann (53, 0/53)
Greifswald, Ernst-Moritz-Arndt Universitat, CIC 530, G Dolken (31, 0/31)
Gutersloh, Stadtkrankenhaus, C Gropp (15, 0/15)
Hagen, Kath Krankenhaus, H Eimermacher (19, 0/19)
Halle, Martin Luther Universtat, CIC 338, H-J Schmoll, Dr Wolf (25, 0/25)
Hamburg, Allgemeines Krankenhaus, D Braumann (9, 0/9)
Hamburg, D Hossfeld (47, 0/47)
Hamburg, Eppendorf-Krankenhaus, CIC 614, AR Zander (115, 47/68)
Hannover, Medizinische Hochschule, CIC 295, A Ganser, B Hertenstein (89, 32/57)
Hannover, Medizinische Hochschule, Abt Kinderheilkunde, CIC 295, A Reiter (13, 8/5)
Hannover, KH Siloah, H Kirchner (20, 0/20)
Heidelberg, Universtats-Poliklinik, CIC 524, R Haas (197, 10/187)
Homburg/Saar, Universitat des Saarlandes, CIC 785, T Trumper (47, 12/35)
Idar-Oberstein, Klinik fur Hamato-/Onkologie, CIC 592, AA Fauser (74, 60/14)
Jena, Klinik fur Innere Medizine II, CIC 533, HG Sayer, K Hoeffken (35, 10/25)
Jena, Universtats-Kinderklinik, CIC 750, F Zintl, D Fuchs (21, 14/7)
Jena, IBAT, U Hofmann (16, 0/16)
Karlsruhe, Stadtisches Klinik, J Fischer (14, 0/14)
Kassel, Stadtische Kliniken, W-D Hirschmann (1, 0/1)
Kiel, Christian-Albrechts-Universitat, CIC 256, N Schmitz (69, 18/51)
Koln, Kinderonkologie der Universitats-Klinik, F Berthold (5, 0/5)
Koln, Universitats-Klinik, CIC 534, H Tesch, Ch Scheid (34, 0/34)
Krefeld, Klinikum Krefeld, Med Klinik III, R Pencey (8, 0/8)
Leipzig, Universitats-Klinik, W Helbig, R Krahl (66, 32/34)
Lemgo, Klinikum Lippe, HP Lohrmann (6, 0/6)
Leverkusen, Med Klinik III, T Gauler (3, 0/3)
Lubeck, Stadt KH Sud, H Barteis (16, 0/16)
Lubeck, Med Universitat, T Wagner (25, 0/25)
Lubeck, Kinderklinik Universitat, Dr Schultz, P Bucsky (2, 0/2)
Ludwigshafen am Rhein, Klinikum der Stadt, M Uppenlamp (12, 0/12)
Magdeburg, Otto-van-Guericke Universtitat, HG Hoffkes, A Franke (25, 0/25)
Mainz, Medizinische Klinik der Universitat, CIC 786, C Huber, K Kolbe (100, 32/68)
Mannheim, Klinikum, R Hehlmann (9, 0/9)
Marburg, Medizinisches Universitatsklinik, CIC 645, R Weide (35, 2/33)
Minden/Westfallen, H Bodenstein (1, 0/1)
Monchengladbach, KH Maria Hilf II, H Reis (2, 0/2)
Munich, Klinikum Grosshadern (ads) CIC 513, H-J Kolb (102, 61/41)
Munich, Klinikum Grosshadern (peds), CIC 513, C Bender-Gotze (7, 5/2)
Munich, Dr v Haunersches Kinderspital (hem and onco) RJ Haas, D Stachel, Dr Schmid (12, 11/1)
Munich, Klinikum Innenstadt, B Emmerich, C Straka (44, 0/44)
Munchen, Kinderklinik Schwabing, S Muller-Weihrich (6, 2/4)
Munchen, Stadtisches Krankenhaus, Ch Nerl, N Fischer (25, 0/25)
Munchen, Klinikum rechts der Isar, M Sandherr (13, 0/13)

Munster, Uni Klinik, CIC 680, W Berdel, J Kienast, Th Buchner, H Ostermann (47, 0/47)
Munster, Klinik fur Kinderheilkunde (hem and onco), J Ritter (7, 0/7)
Neuss, Lukaskrankenhaus, P Czygan (11, 0/11)
Nurnberg, Klinikum, CIC 625, H Wandt, K Schafer-Eckart (59, 9/50)
Oldenburg, Stadtische Kliniken, CIC 749, B Metzner (33, 0/33)
Osnabruck, Paracelsus Klinik, OM Koch (3, 0/3)
Regensburg, Universitats Klinikum, CIC 787, R Andreesen, A Reichle (75, 0/75)
Rostock, Universitats Klinikum, CIC 585, M Freund, J Casper (32, 0/32)
Stuttgart, Robert-Bosch Krankenhaus, S Kleiner (38, 0/38)
Stuttgart, Olgahospital Padiatrisches Zentrum, CIC 701, J Treuner, E Koscielniak (8, 0/8)
Stuttgart, Katharinenhospital, H Fiechtner, J Schleicher (9, 0/9)
Tubingen, Medizinische Universitats-Klinik, CIC 223, L Kanz, W Brugger (148, 49/99)
Tubingen, Medizinische Universitats-Klinik, Abteilung Padiatrie, CIC 535, D Niethammer, T Klingebeil (46, 25/21)
Ulm, Medizinische Universitats-Klinik, CIC 204, D Bunjes (77, 39/38)
Ulm, Kinderklinik der Universitat, CIC 204, W Friedrich (33, 31/2)
Wiesbaden, Deutsche Klinik fur Diagnostik, CIC 311, R Schwerdtfeger (51, 42/9)
Wiesbaden, Dr Horst-Schmidt Klinikum, CIC 586, N Frickhofen (5, 0/5)
Wuppertal, St Antonius, S Oehl (5, 0/5)
Wurzburg, Universitatsklinikum, Wurzburg, M Wilhelm, K Wilms (15, 0/15)

Greece (6 teams; 164, 64/100)
Athens, Hellenic Cancer Institute St Savas, CIC 751, A Efremedis (31, 0/31)
Athens, 'Aghia Sophia' Children's Hospital, CIC 752, S Graphakos (40, 27/13)
Athens, Evanghelismos Hospital, CIC 622, D Karakasis, A Skandalis, N Harhalakis, E Nikiforakis (33, 22/11)
Athens, Diagnosis and Therapy Centre 'Hygeia', Maroussi, CIC 643, G Karianakis (15, 2/13)
Thessaloniki, The George Papanicolaou General Hospital, CIC 561, AS Fassas (37, 13/24)
Athens, Laikon General Hospital, CIC 328, Y Rombos (8, 0/8)

Hungary (3 teams; 62, 41/21)
Budapest, National Institute of Hematology, CIC 504, E Kelemen, K Palocz, R Denes (16, 16/0)
Budapest, Szent Laszlo Hospital, CIC 739, T Masszi, P Remenyl, G Krivan (39, 22/17)
Miskolc, Postgraduate Medical School (peds), CIC 599, N Kalman, K Kiss (7, 3/4)

Iceland: no report

Iran (1 team; 31, 22/9)
Tehran, Shariati Hospital, CIC 633, A Ghavamzadeh (31, 22/9)

Ireland (3 teams; 85, 42/43)
Dublin, St Vincent's Hospital, CIC 541, J Crown (31, 0/31)
Dublin, St James's Hospital, CIC 257, SR McCann (38, 29/9)
Dublin, Our Lady's Hospital of Sick Children, Crumlin, CIC 774, A O'Meara (16, 13/3)

Israel (5 teams; 180, 44/136)
Haifa, Rambam Medical Centre, J Rowe (86, 18/68)
Jerusalem, Hadassah University Hospital, CIC 258, R Or, S Slavin (missing)
Petach-Tikva, Children's Medical Center, CIC 755, I Yaniv (30, 16/14)
Revohot, Kaplan Hospital, CIC 327, A Berribi (10, 0/10)
Tel Aviv, University, Chaim Sheba Medical Center (Hem) CIC 754, I Ben-Bassat (54, 10/44)

Italy (66 teams; 2568, 733, 1835)
Ancona, Ospedale Toarette, CIC 788, P Leoni, A Olivieri (36, 0/36)
Avellinio, Giovanni Di Guglielmo, CIC 789, E Volpe (22, 0/22)
Bari, Policlinico, CIC 649, V Pavone, V Liso (20, 2/18)
Bergamo, Ospedale Riuniti, CIC 658, T Barbui (66, 9/57)
Bologna, St Orsola University, CIC 240, G Bandini, G Rosti, S Rizzi (137, 33/104)
Bologna, Clinica Pediatrica III, CIC 790, A Pession (24, 10/14)
Bolzano, Ospedale S Maurizio, CIC 299, P Coser (35, 1/34)
Brescia, Ospedali Civili, CIC 288, T Izzi (19, 0/19)
Brescia, Universita, CIC 741, F Porta (20, 17/3)
Cagliari, Ospedale Oncologica, CIC 791, G Broccia, P Dessalui (41, 5/36)
Cagliari, II Clinica Pediatrica, CIC 812, F Argiolu, A Cao (12, 10/2)
Cagliari, Instituto di Clinica Medica, CIC 811, L Contu, G La Nasa (10, 10/0)
Catania, Universita, CIC 792, 4 Ginstolisi, G Milone (25, 9/16)
Cremona, Medicina II, CIC 226, S Morandi (25, 2/23)
Ferrara, St Anna Hospital, CIC 330, G Castoldi (10, 0/10)
Firenze, Policlinico di Careggi, CIC 304, A Bosi (52, 25/27)
Firenze, Azienda Ospedale, 'A Meyer', CIC 600, L Faulkner (8, 0/8)
Forli, Morgagni-Pierantoni Hospital, CIC 298, GL Frassineti, D Armadori (16, 0/16)
Genova, Ospedale S Martino, CIC 217, A Bacigalupo, A Carella, G Santini (163, 82/81)
Genova, Istituto Giannina Gaslini, CIC 274, G Dini (37, 16/21)
Genova, Universita, CIC 139, F Patrone (37, 0/37)
Milano, Istituto Scientifico HS Raffaele, CIC 813, C Bordignon (34, 11/23)
Milano, Istituto Nazionale Tumori, CIC 616, A Giani (69, 0/69)
Milano, Universita, CIC 265, G Lambertenghi Deliliers (38, 20/18)

Milano, Ospedale di Niguarda, CIC 294, P Marenco, R Cairoli (31, 14/17)
Milano, Istituto Europeo di Oncologia, CIC 331, G Martinelli (91, 0/91)
Milano, Ospedale Policlinico, CIC 542, G Sirchia (do not transplant)
Modena, University of Modena, CIC 543, F Narni, R Sabbatini, G Torelli (45, 0/45)
Monza, Ospedale S Gerardo, CIC 279, C Uderzo (23, 19/4)
Monza, Inst Di Scienze Biomediche, CIC 544, P Pioltelli, E Pogliani (16, 0/16)
Napoli, Div Di Oncologia, CIC 313, C Battista (16, 0/16)
Napoli, Universita, CIC 766, B Rotoli, C Selleri, G De Rosa (19, 12/7)
Nuoro, Ospedale San Francesco, CIC 793, A Gabbas, A Palmas (15, 0/15)
Padova, Centro Leucemie Infantili, CIC 285, C Messina (30, 15/15)
Padova, Centro Oncologia Regionale, CIC 319, L Salvagno (16, 0/16)
Palermo, Trabianto Policlinico, CIC 814, A Cajazzo (37, 10/27)
Palermo, Ospedale V. Cervello, CIC 392, I Majolino (63, 17/46)
Parma, Universita degli studi, CIC 245, V Rizzoli (16, 3/13)
Pavia, Policlinico S Matteo, CIC 286, C Bernasconi (57, 28/29)
Pavia, Policlinico St Matteo, CIC 557, F Locatelli (46, 35/11)
Pavia, Fondazione Clinica del Lavoro, CIC 771, P Pedrazzoli, G Robustelli della Cuna (46, 0/46)
Perugia, Silvestrini Hospital, CIC 815, A Amici (3, 1/2)
Perugia, Policlinico Monteluce, Universita, CIC 794, MF Martelli, F Aversa (98, 49/49)
Perugia, Policlinico Monteluce, F Grignani (29, 0/29)
Pesaro, Ospedale, CIC 529, G Lucarelli (74, 61/13)
Pescara, Ospedale civile, CIC 248, P di Bartolomeo (36, 28/8)
Pisa, Istituto di Clinica Pediatrica and St Chiara Hospital, CIC 795 and CIC 320, P Macchia, PF Conte (42, 8/34)
Ravenna, Ospedale Civile, CIC 306, G Rosti (54, 0/54)
Reggio di Calabria, Azienda Ospedale 'Riuniti e Morelli', CIC 587, P Lacopino (76, 11/65)
Roma, Universita S Eugenio, CIC 756, S Amadori, L Cudillo (66, 20/46)
Roma, Universita 'La Sapienza', CIC 232, W Arcese, F Mandelli, G Meloni (100, 38/62)
Roma, Universita Cattolica, CIC 307, S Cuore, S Sica, G Leone (34, 9/25)
Roma, Ospedale Bambino Gesu, CIC 796, G Deb (5, 0/5)
Roma, Ospedale S Camillo, CIC 287, A De Laurenzi (37, 2/35)
San Giovanni Rotondo, Hospital Casa Sollievo Sofferenza (Onco), CIC 314, G Lelli (24, 0/24)
San Giovanni Rotondo, Hospital Casa Sollievo Sofferenza (Hem), CIC 526, MM Greco (25, 0/25)
Siena, Ospedale Sclavo, CIC 321, F Lauria (16, 0/16)
Tarento, Institute of Haematology, CIC 332, P Mazza (41, 8/33)
Torino, S Giovanni Antica Sede Hospital, CIC 322, M Airoldi (13, 0/13)
Torino, University Hospital of Turin, San Giovanni Battista, CIC 231, M Falda, F Locatelli (75, 30/45)
Torino, Dept of Pediatrics, University, CIC 305, E Madon, F Fagioli (32, 13/19)
Trieste, Istituto per l'Infanzia, Clinical Pediatrica, M Andolina, A de Manzini (16, 7/9)
Udine, Policlinico Universitario, CIC 705, M Baccarani, R Fanin (52, 8/44)
Verona Policlinico di Borgo Roma (onco), GL Cetto (7, 0/7)
Verona, Policlinico di Borgo Roma, CIC 623, G Perona (45, 13/32)
Vicenza, Ospedale S Bortolo, CIC 797, R Raimondi, F Rodeghiero (45, 12/33)

Latvia: no report

Liechtenstein: no report

Lithuania: no report

Luxemburg (2 teams; 50, 0/50)
Centre Hospitalier, M Dicato (48, 0/48)
Esch-Alrette, Hopital de la Ville Esch/Alzette, CIC 545, F Le Moine (2, 0/2)

Macedonia (1 team)
Skopje, T Stojcevski (transplants performed in different European countries)

Malta: no report

Moldova: no report

Monaco: no report

Netherlands (16 teams; 470, 156/314)
Amsterdam, Free University Hospital, CIC 588, GM Ossenkoppele (49, 0/49)
Amsterdam, Academic Medical Center (ads), CIC 247, AEG Von dem Borne (17, 5/12)
Amsterdam, Free University Hospital (onco), Dr Wagstaff (5, 0/5) late data, app only*
Amsterdam, The Netherlands Cancer Institute, CIC 976, S Rodenhuis, J Baars (32, 0/32)
Amsterdam, Emma Kinderziek, Academic Medical Center (peds), CIC 247, H v den Berg, H Behrendt (5, 0/5)
Groningen, University Hospital (onco), E de Vries (11, 0/11)
Groningen, University Hospital (hem), CIC 546, E Vellenga (27, 0/27)
The Hague, Leyenburg Hospital, CIC 547, PW Wijermans, HL Haak (17, 0/17)
Leiden, University Medical Centre, CIC 203 and 398, J Vossen, R Willemze, WE Fibbe, JJ van Rood (67, 34/33)
Maastrict, University Hospital, CIC 565, HC Schouten (26, 8/18)
Nijmegen, University Hospital, CIC 237, A Schattenberg, T de Witte, J Groot, L Beex (88, 44/44)

Rotterdam, Dr Daniel Den Hoed Cancer Center, CIC 246, JJ Cornelissen (55, 34/21)
Rotterdam, University Hospital, CIC 508, MR Schipperus (12, 0/12)
Utrecht, University Hospital (adults and peds), CIC 239, LF Verdonck, NM Wulffraat (58, 31/27)
Zwolle, Sophia Ziekenhuis, CIC 548, M von Marwijk Kooy, AG Schepen (6, 0/6)
The Medisch Spectrum Twente, CIC 360, Dr Schaafsma (19, 0/19) late data, app only*

Norway (2 teams; 85, 36/49)
Oslo, Rikshospitalet, CIC 235, D Albrechtsen, L Brinch (43, 36/7)
Oslo, The Norwegian Radium Hospital, CIC 782, S Kvaloy (42, 0/42)

Poland (8 teams; 239, 95/144)
Gdansk, Medical University, CIC 799, A Hellmann (35, 15/20)
Katowice, Silesian Medical Academy, CIC 677, J Holowiecki (71, 20/51)
Poznan, Medical Academy, CIC 730, J Hansz (43, 23/20)
Poznan, Institute of Pediatrics, CIC 641, J Wachowiak (11, 11/0)
Warsaw, Central Clinical Hospital, Military Medical Academy, CIC 816, K Sulek (6, 4/2)
Warsaw, Maria Sklodowksa-Curie, Centre of Oncology, CIC 800, J Walewski (6, 0/6)
Wroclaw, University of Medicine, Dept of Children, CIC 817, J Boguslawska-Jaworska (23, 5/18)
Wroclaw, K Diuske Hospital, CIC 538, A Lange (44, 17/27)

Portugal (7 teams; 196, 50/146)
Coimbra, University Hospital, N Costa (11, 0/11)
Lisbon, Instituto Portugues de Oncologia, CIC 300, M Abecasis, F Campilli (72, 16/56)
Lisbon, Hospital de Santa Maria, CIC 636, J Alves do Carmo, F de Lacerda (28, 15/13)
Lisboa, Hospital dos Capuchos, JP Fernandes (21, 0/21)
Porto, Instituto Portugues de Oncologia, CIC 291, P Pimentel, F Campilho (55, 19/36)
Porto, Hospital S Joao, CIC 329, F Principe (8, 0/8)
Porto, Hospital S Joao, CIC 572, JE Guimaraes (1, 0/1)

Romania: no report

Russia (6 teams; 62, 15/47)
Moscow, Institute of Biophysics, AE Baranov (8, 2/6)
Moscow, Cancer Research Center, CIC 757, V Ptuschkin (17, 0/17)
Moscow, Research Hematology Center of RAS, VG Savtchenko (14, 6/8)
St Petersburg, Research Institute of Hematology, CIC 724, KM Abdulkadirov (11, 5/6)
St Petersburg, All-Russia Center of Lab Biodozymetry, R Fedortseva (missing)
St Petersburg, City BMT, CIC 725, BV Afanasiev, L Zubarovskaya (12, 2/10)

San Marino: no report

Saudi Arabia (1 team; 14, 8/6)
Riyadh, Armed Forces Hospital, CIC 818, M Aldouri (14, 8/6)

Slovakia (4 teams; 93, 19/74)
Bansra Bystrica, Roosevelt Hospital, CIC 333, K Mocikova (15, 0/15)
Bratislava, 2nd Children's Clinic, University Hospital, J Lukac (4,1/3)
Bratislava, University Hospital, CIC 610, M Mistrik (25, 18/7)
Bratislava, National Cancer Institute, CIC 560, J Lakota (49, 0/49)

Slovenia (1 team; 11, 7/4)
Ljubljana, University Medical Centre, CIC 640, J Pretnar (11, 7/4)

Spain (61 teams; 2014, 413/1601)
Alicante, Hospital General, C Rivas-Gonzales (7, 0/7)
Barcelona, Sante Creu (peds), CIC 260, I Badell Serra, J Cubells-Riero (23, 13/10)
Barcelona, Santa Creu (adults and onco), CIC 260, J Sierra, S Brunet, C Sola (96, 10/86)
Barcelona, Hospital Pilar, J Estape, JJ Grau (missing)
Barcelona, Hospital Duran i Reynals, CIC 759, A Granena (57, 7/50)
Barcelona, Hospital General 'Vall d'Hebron', CIC 583, A Julia Font (40, 5/35)
Barcelona, Hospital M Infantil, CIC 527, J Ortega (40, 19/21)
Barcelona, Hospital Clinic, CIC 214, E Montserrat, E Carreras (92, 45/47)
Barcelona, Clinica Corachan, CIC 758, P Vivancos (9, 0/9)
Barcelona, Instituto Dexeus, CIC 334, M Ribas-Mundo, A Domingo Albos (missing)
Cadiz, Hospital del SAS de Jerez, A Leon (67, 0/67)
Canary Isles, Hospital Insular Las Palmas, CIC 335, F Fernandez-Fuentes, J Gonzalez-San Miguel (10, 0/10)
Canary Isles, Hospital Universitario de Canarias, Santa Cruz De Tenerife, L Hernandez Nieto, MT Hernandez Garcia (10, 0/10)
Canary Isles, Hospital Nostra Senora del Pino, Las Palmas, JJ Malcorra, R Mataix, C Campo (35, 12/23)
Cordoba, Hospital Reina Sofia, CIC 238, A Torres Gomez (60, 27/33)
Cruces/Barakaldo, Hospital de Cruces, I Zuazua-Verde (missing)
Galdakao, Hospital, Dr Koldo-Atucha (7, 0/7)
Granada, Hospital Virgen de la Nieves, JM de Pablos (21, 6/15)
La Coruna, Hospital Materno Infantil Juan Canalejo, FJ Batlle, C Ramirez, P Torres, R Varela (27, 2/25)
Lerida, Hospital Arnan de Villanova, J Macia (10, 0/10)
Lugo, Hospital Xeral-Calde, M Gonzales-Lopez (17, 0/17)
Madrid, Clinica La Luz, H Cortes-Funes, J Hornedo (18, 0/18)
Madrid, Hospital Universitario San Carlos, CIC 733, J Diaz Mediavilla, L Llorente (18, 0/18)

Madrid, Hospital Ruber Internacional, J Diaz Mediavilla (19, 0/19)
Madrid, Unidad de TMO-ONC 4, Hospital Gregorio Maranon, CIC 819, JL Diez Martin (35, 10/25)
Madrid, Clinica Ruber, JM Fernandez-Ranada, Q Escudero (27, 0/27)
Madrid, Hospital de la Princesa, CIC 236, JM Fernandez Ranada, A Figuera, A Alegre (95, 41/54)
Madrid, Clinica Puerta de Hierro, CIC 728, MN Fernandez (29, 13/16)
Madrid, Hospital General La Paz (adults), F Hernandez Navarro (56, 7/49)
Madrid, Hospital Doce de Octubre (adults, peds, onco), J Lahuerta (hem), H Cortes Funes (onco), J Lopez Perez (peds), (79, 9/70)
Madrid, Hospital Nino Jesus, CIC 732, LM Madero (40, 5/35)
Madrid, Hospital Univ San Carlos, CIC 733, M Martin, E Diaz-Rubio, A Casado, JA Lopez-Martin (23, 0/23)
Madrid, Clinica San Camillo, M Martin-Jimenez Z (7, 0/7)
Madrid, Hospital La Paz Infantil, CIC 734, A Martinez-Rubio, A Sastre, P Garcia-Miguel (19, 5/14)
Madrid, Hospital Ramon y Cajal (adults), CIC 615, J Odriozola, J Perez de Oteyza, J Lopez, J Garcia Larana (45, 9/36) and (peds) A Munoz Villa, E Otheo, MS Maldonado (18, 10/8)
Madrid, Fundacion Jimenez Diaz, J Vincente Fernandez, L Barbolla (missing)
Madrid, Hospital Militar Gomez Ulla, F Sancho-Cuesta (8, 0/8)
Malaga, Hospital Regional, CIC 576, J Maldonado (38, 16/22)
Murcia, Hospital Virgen de la Arrivxaca, CIC 323, R Candell Parra (16, 0/16)
Murcia, Hospital General, CIC 735, V Vincente-Garcia, JM Moraleda, I Heras (30, 9/21)
Oviedo, Hospital Covadonga, CIC 642, D Carrera Fernandez, C Rodriguez Pinto (25, 3/22)
Palma de Mallorca, Hospital Son Dureta, CIC 722, J Besalduch, HS Dureta (37, 11/26)
Palma de Mallorca, Policlinica Miramar, J Besalduch, A Sampol (9, 0/9)
Pamplona, Hospital Provincial de Navarra, CIC 577, J Gastearena, E Perez Equiza, MJ Uriz Pascual (23, 0/23)
Pamplona, Clinica Universitario de Navarra, CIC 737, J Rifon (7, 0/7)
Pontevedra, Hospital Montecelo, CIC 549, M Constela (19, 0/19)
Salamanca, Complejo Hospital, CIC 727, D Caballero (98, 12/86)
San Sebastian, Hospital Nostra Senora de Aranzazu, CIC 598, J Marin (56, 6/50)
Santander, Hospital Universitario M de Valdecilla, CIC 242, A Iriondo, E Conde, E Bureo, A Zubizarreta-Pina (97, 24/73)
Sant Cugat del Valles, Hospital General de Cataluna, M Sureda-Gonzales (9, 0/9)
Santiago de Compostela, Hospital Xeral de Galicia, CIC 570, JL Bello (26, 2/24)
Sevilla, Hospital Universitario Virgen del Rocio, CIC 769, JM Rodriguez Fernandez (52, 26/26)
Sevilla, Hospital Universitario Virgen Macarena, CIC 629, L Errazquin (no data)
Valencia, Hospital Universitario La Fe (peds), CIC 653, V Castel, A Verdeguer (22, 8/14)
Valencia, Hospital Clinico Universitario, CIC 282, J Garcia-Conde, C Solano (75, 17/58)
Valencia, Instituto Valenciano de Oncologia, V Guillen, J Palau (28, 0/28)
Valencia, Hospital Universitario La Fe, CIC 663, MA Sanz, GF Sanz (65, 19/46)
Valladolid, Hospital Rio Hortega (missing)
Vigo, Hospital Xeral-Cies, A Martinez-Dalmau (21, 0/21)
Zaragoza, Hospital Miguel Servet (hem and onco), M Giralt, G Perez-Lugmus, D Rubio-Felix, A Anton (43, 5/38)
Zaragoza, Clinico Universitario Lozano Blesa, A Tres, Palomera (54, 0/54)

Sweden (9 teams; 398, 130/268)
Goteborg, Medical Clinic, CIC 715, J Carneskog (60, 14/46)
Goteborg, East Hospital, CIC 289, A Fasth, S Rodjer (13, 7/6)
Huddinge, Hospital, CIC 212, P Ljungman (83, 51/32)
Linkoping, University Hospital, CIC 740, G Juliusson (31, 6/25)
Lund, University Hospital, CIC 283, AN Bekassy (52, 16/36)
Orebro, Medical Center Hospital, CIC 738, U Tidefelt (14, 0/14)
Stockholm, Karolinska Hospital, CIC 626, M Bjorkholm (30, 0/30)
Umea, Norrland University Hospital, CIC 731, E Lofvenberg (20, 1/19)
Uppsala, University Hospital, CIC 266, B Simonsson, K Carlson, H Hagberg (95, 35/60)

Switzerland (8 teams; 254, 68/186)
Aarau, Kantonsspital, CIC 316, M Wernli (10, 0/10)
Basel, Kantonsspital, CIC 202, A Gratwohl, T Kuhne, R Herrmann (61, 28/33)
Bellinzona, Ospedale San Giovanni, F Cavalli, M Ghielmini (17, 0/17)
Berne, Inselspital, CIC 221, A Tobler, K Leibundgut (25, 0/25)
Geneva, Hopital Cantonal Universitaire, CIC 261, B Chapuis, J Humbert (22, 20/2)
Lausanne, CHUV, CIC 820 + CIC 579, D Schapira, T Kovacsovics, N Nenadov-Beck (54, 0/54)
St Gallen, Kantonsspital, CIC 324, U Hess (11, 0/11)
Zurich, University Hospital, CIC 208/CIC 646, J Gmur, R Stahel, L Jost, R Seger (54, 20/34)

Turkey (9 teams; 148, 108/40)
Ankara, Ibn-1 Sina Hospital, CIC 617, H Koc (51, 37/14)
Ankara, Hacettepe University, CIC 292, K Oezerkan (3, 3/0)
Ankara, Childrens Hospital Hacettepe University, CIC 509, A Tuncer (11, 11/0)
Balcali, Hospital, CIC 821, A Tanyeli (3, 3/0)
Istanbul, Marmara University, Altunizade, CIC 714, T Akoglu (6, 6/0)

Istanbul, Cerrahpasa Medical School, CIC 761, B Ferhanoglu, T Soysal, Z Baslar (13, 9/4)
Istanbul, Tip Fakultesi, CIC 762, G Gedikoglu (25, 18/7)
Istanbul, Medical Faculty, CIC 760, Y Tangun (26, 17/9)
Izmir, SSK Tepecik Hastanesi, S Kansoy, S Gaglayan (10, 4/6)

Ukraine: no report

United Kingdom (51 teams: 1963, 636/1327)
Aberdeen, The Royal Infirmary, CIC 344, DJ Culligan (7, 0/7)
Bangor, Gwynedd Hospital, CIC 736, H Parry (6, 0/6)
Bath, Royal United Hospital, CIC 619, JG Smith (19, 0/19)
Belfast, Belvoir Park Hospital, P Abram (10, 0/10)
Belfast, Royal Victoria Hospital, CIC 268, F Jones, MF McMullin, P Burnside (3, 1/2)
Belfast, City Hospital, CIC 753, TCM Morris (19, 0/19)
Birmingham, Ladwood Middleway, CIC 781, PJ Darbyshire, MW Williams (33, 27/6)
Birmingham, Queen Elizabeth Hospital, CIC 387, JA Holmes (35, 7/28)
Birmingham, Heartlands Hospital, CIC 284, DW Milligan (47, 17/30)
Bournemouth, Royal Bournemouth Hospital, CIC 765, H Myint (20, 2/18)
Bristol, Royal Hospital for Sick Children, CIC 386, JM Cornish and Southmead Hospital, J Hows, MG Rainey (70, 58/12)
Cambridge, Addenbrooke's Hospital, CIC 566, RE Marcus (61, 7/54)
Cardiff, University of Wales, CIC 303, CH Poynton (67, 12/55)
Clydebank, HCL International Medical Center, CIC 317, D Spence (16, 12/4)
Coventry, Walsgrave Hospital, R Harris (8, 0/8)
Edinburgh, Western General Hospital (hem and onco), CIC 228, AC Parker, P Ganly, MJ Mackie, P Johnson, R Leonard (39, 8/31)
Exeter, Royal Devon and Exeter Hospital, CIC 571, M Joyner (8, 0/8)
Glasgow, Royal Infirmary, CIC 244, IM Franklin, A Parker, R Chopra (62, 29/33)
Glasgow, The Western Infirmary, CIC 325, T Fitzsimons (27, 0/27)
Glasgow, Royal Hospital for Sick Children, CIC 707, Dr Gibson (16, 12/4)
Harrow, Northwick Park Hospital, CIC 802, CDL Reid (no data)
Leeds, St James's University Hospital and The General Infirmary, D Barnard, S Kinsey, JA Child, CIC 254 (75, 26/49)
Leicester, Royal Infirmary, CIC 713, RM Hutchinson (42, 13/29)
Liverpool, Royal Liverpool University Hospital, CIC 501, RE Clark (54, 12/42)
London, Hammersmith and Charing Cross Hospital, CIC 205 and CIC 510, JM Goldman, D Samson (127, 59/68)
London, University College Hospital, CIC 224, AH Goldstone (135, 41/94)
London Oncology Marrow Transplantation Group, CIC 263, PJ Gravett (7, 0/7)
London, St George's Hospital, CIC 539, J Marsh, S Ball, EC Gordon-Smith (14, 10/4)
London, King's College, CIC 763, A Pagliuca, GJ Mufti (45, 26/19)
London, Royal Marsden Hospital, CIC 218, R Powles, J Mehta (144, 33/111)
London, Royal Free Hospital, CIC 216, HG Prentice, M Potter (48, 28/20)
London, St Bartholomew's, CIC 768 and the Royal London Hospital, CIC 269, A Rohatiner, AC Newland (83, 14/69)
London, Guy's Hospital, CIC 721, S Schey (47, 8/39)
London, Institute of Child Health, CIC 243, P Veys, IM Hann (45, 39/6)
Manchester, Christie Hospital, G Morgenstern (92, 7/85)
Manchester, Royal Children's Hospital, CIC 521, AM Will (29, 17/12)
Manchester, The Royal Infirmary, JA Yin (29, 13/16)
Manchester, Trafford General Hospital, PA Carrington (2, 0/2)
Manchester, Hope Hospital, PA Carrington (3, 0/3)
Newcastle upon Tyne, Royal Victoria Infirmary, CIC 276, SJ Proctor, P Taylor, A Cant, ADJ Pearson (72, 30/42)
Nottingham, City Hospital, CIC 717, N Russell (69, 32/37)
Oxford, John Radcliffe Hospital, Headington, CIC 255, TJ Littlewood, C Bunch, C Mitchell (40, 11/29)
Plymouth, Derriford Hospital, CIC 823, MD Hamon (47, 6/41)
Poole, Dorset Cancer Centre, CIC 580, A Bell (26, 3/23)
Sheffield, The Central Sheffield University Hospitals, The Royal Hallamshire Hospital (peds and ads), CIC 778, E Vandenberghe, JS Lilleyman (22, 13/9)
Sheffield Weston Park Hospital, CIC 930, P Lorigan (25, 0/25)
Somerset, Taunton and Somerset Hospital, SA Johnson, S Rule (10, 0/10)
CRC Wessex, Southampton, CIC 704, A Smith, A Duncombe, J Sweetenham, J Kohler (50, 3/47)
Stoke-on-Trent, North Staffordshire Royal Infirmary, P Chipping (3, 0/3)
Sunderland, The Sunderland Royal, PJ Carey (1, 0/1)
Wakefield, Pinderfield's General Hospital, CIC 764, C Galvin, D Wright (4, 0/4)

Yugoslavia (Serbia and Montenegro) (4 teams; 31, 22/9)
Belgrade, Clinical Centre of Serbia, CIC 373, M Colovic, A Bogdanovic (3, 3/0)
Belgrade, Mother and Child Health Institute, D Makic (2, 1/1)
Belgrade, Military Medical Academy, CIC 582, M Malesevic (16, 8/8)
Novi Sad, Institute of Internal Diseases, CIC 655, D Pejin (10, 10/0)

Missing = no data received
No data = team not transplanting
*Late data = numbers not included in tables
**Late correction = 25 autologous transplants have been double reported. They have not been deducted from final report, tables and figures. Correct numbers for Germany: (3401, 926/2475)
Latest changes 11 May 1999