

Blood Cell Therapy – The official journal of APBMT – APBMT Activity Survey 2019

	Indication	Allogeneic																		Autologous			Total		
		Related															Unrelated				BM	PB	other mixtures	Allo	Auto
		HLA id sibling				Haplo(≥ 2 loci mismatch)			Other related				Twin			BM	PB	CB	other mixtures						
		BM	PB	CB	other mixtures	BM	PB	other mixtures	BM	PB	CB	other mixtures	BM	PB	other mixtures					BM	PB	CB	other mixtures		
Leukemias	AML 1st CR	45	894	0	62	8	714	662	0	26	0	0	0	2	0	189	490	305	38	1	173	6	3,435	180	
	AML non 1st CR	20	466	0	86	24	596	640	6	40	0	0	0	1	0	162	363	473	30	0	107	0	2,907	107	
	ALL 1st CR	47	510	0	55	7	330	482	2	16	0	0	0	2	0	132	262	193	21	0	43	1	2,059	44	
	ALL non 1st CR	20	251	1	51	14	330	523	1	19	0	0	0	0	1	59	196	172	16	0	19	1	1,654	20	
	CML 1st CP	7	31	0	2	0	26	8	0	1	0	0	0	1	0	19	19	16	2	0	0	0	132	0	
	CML non 1st CP	2	62	0	4	1	60	57	0	9	0	0	0	0	0	19	31	20	4	0	0	0	269	0	
	MDS or MDS/MPN	29	375	0	49	21	341	317	5	12	0	0	0	0	0	208	299	225	26	0	6	0	1,907	6	
	MPN (MPD,MPN)	2	58	0	3	0	39	10	0	1	0	0	0	1	0	28	63	13	0	0	0	0	218	0	
	CLL inclu.PLL	0	9	0	0	0	4	3	0	0	0	0	0	0	0	4	11	3	0	0	5	0	34	5	
Other leukemia	2	31	0	4	1	31	57	1	2	0	0	0	0	0	15	20	21	0	0	4	0	185	4		
Lymphoid Malignancies	PCD-Myeloma	2	44	0	5	2	20	0	0	1	0	0	0	0	0	11	16	7	0	1	4,570	9	108	4,580	
	PCD-other	0	2	0	0	0	1	1	0	0	0	0	0	0	0	1	3	0	0	0	239	0	8	239	
	Hodgkin lymphoma	3	35	0	0	0	24	1	0	3	0	0	0	0	0	8	10	6	0	1	703	1	90	705	
	Lymphoblastic lymphoma	1	27	0	3	1	24	28	1	1	0	0	0	0	0	17	7	23	4	0	79	0	137	79	
	Mature B cell lymphoma	3	63	0	0	0	72	4	0	4	0	0	0	0	0	29	48	69	0	3	1,899	1	292	1,903	
	Mature T/NK cell lymphoma	12	77	0	1	4	92	46	1	5	0	0	0	0	0	49	64	131	0	0	418	0	482	418	
	Other LPD	1	22	0	8	0	34	43	0	1	0	0	0	0	0	5	17	14	11	1	761	13	156	775	
Solid Tumors	Neuroblastoma	1	2	0	0	1	12	1	0	0	0	0	0	0	0	0	0	14	0	4	274	0	31	278	
	Germ cell tumor	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	74	0	1	74	
	Breast cancer	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Ewing	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	44	0	2	44	
	Other solid tumor	0	1	0	0	0	3	1	0	0	0	0	0	0	0	1	0	1	0	9	341	0	7	350	
Non-Malignant Hematological Disorders	BM failure-SAA	79	317	0	109	33	210	435	6	27	0	0	1	2	0	45	220	139	48	0	0	0	1,671	0	
	Aquired pure red cell anemia	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	
	PNH	2	11	0	1	0	3	2	0	1	0	0	0	0	0	1	4	3	0	0	0	0	28	0	
	Congenital bone marrow failure	10	32	0	0	2	19	18	2	7	0	0	0	0	0	14	29	8	0	0	0	0	141	0	
	BM failure-other	2	10	0	0	1	2	2	0	6	0	0	0	0	0	3	9	5	0	0	0	0	40	0	
	Hemoglobinopathy-Thalassemia	120	168	2	78	8	115	104	12	33	0	2	0	0	0	7	201	4	7	0	0	0	861	0	
	Hemoglobinopathy-other	3	24	1	0	1	19	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	49	0	
	Other hematological disease	2	1	0	1	0	0	1	0	1	0	0	0	0	0	0	1	0	0	0	0	0	7	0	
Non-Malignant Non-Hematological Diseases	Primary immune deficiencies	20	32	2	0	15	54	27	3	16	0	0	0	0	0	36	55	38	0	0	0	0	298	0	
	Inherited metabolic disease	5	12	0	0	0	15	13	0	6	0	0	0	0	0	8	21	37	0	0	1	0	117	1	
	Autoimmune disease	2	1	0	0	0	0	0	1	2	0	0	0	0	0	0	3	0	0	0	40	0	9	40	
	EBV related disorders	4	8	0	0	1	12	17	0	0	0	0	0	0	0	8	17	16	0	0	3	0	83	3	
	Hemophagocytic syndrome	2	17	0	3	2	36	39	0	0	0	0	0	0	0	1	21	8	0	0	2	0	129	2	
	Langerhans cell histiocytosis	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	1	1	1	0	0	1	0	5	1
	Others	1	7	0	1	1	10	14	0	2	0	0	0	0	0	7	5	10	0	1	110	1	58	112	
Total	450	3,603	6	526	149	3,252	3,557	41	242	0	2	1	9	1	1,086	2,506	1,975	207	21	9,916	33	17,613	9,970		
Sub total 1	4,585				6,958				285				11				5,774				9,970			27,583	
Sub total 2	11,839																		9,970			27,583			
Sub total 3	17,613																								

Supplementary 1 The number of transplants by disease indications and stem cell sources in 2019.

HLA, human leukocyte antigen; BM, bone marrow; PB, peripheral blood; CB, cord blood; AML, acute myeloid leukemia; ALL, acute lymphoblastic leukemia; MDS, myelodysplastic syndrome; MDS/MPN, myelodysplastic/myeloproliferative neoplasm; CML, chronic myeloid leukemia; MPN, myeloproliferative neoplasm; MPD, myeloproliferative disorder; MPS, myeloproliferative syndrome; CLL, chronic lymphatic leukemia; PLL, prolymphocytic leukemia; MM, multiple myeloma; SAA, severe aplastic anemia; PNH, paroxysmal nocturnal hemoglobinuria; EBV, Epstein-Barr virus

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	Indication	Allogeneic																		Autologous			Total		
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		HLA id sibling				Haplo(≥ 2 loci mismatch)			Other related				Twin			BM	PB	CB	other mixtures						
		BM	PB	CB	other mixtures	BM	PB	other mixtures	BM	PB	CB	other mixtures	BM	PB	other mixtures					BM	PB	CB	other mixtures		
Leukemias	AML 1st CR	55	849	0	103	7	283	920	4	28	0	0	1	0	3	156	465	236	2	1	211	0	3,112	212	
	AML non 1st CR	22	386	0	88	16	331	705	1	46	0	0	0	0	0	156	254	476	1	1	44	0	2,482	45	
	ALL 1st CR	37	499	1	37	4	134	648	0	19	0	0	0	0	1	136	255	166	0	0	64	0	1,937	64	
	ALL non 1st CR	25	212	0	55	5	171	530	5	11	0	0	0	0	0	54	157	138	0	0	5	0	1,363	5	
	CML 1st CP	4	27	0	3	0	9	11	0	2	0	0	0	0	0	9	4	11	0	0	0	0	80	0	
	CML non 1st CP	4	67	0	9	1	32	42	0	3	0	0	0	0	0	13	29	18	0	0	1	0	218	1	
	MDS or MDS/MPN	35	350	0	44	9	162	440	0	22	0	0	0	1	0	211	287	184	1	0	4	0	1,746	4	
	MPN (MPD,MPN)	2	55	0	0	0	14	6	0	5	0	0	0	0	0	23	47	34	0	0	1	0	186	1	
	CLL inclu.PLL	1	9	0	1	0	4	1	0	0	0	0	0	0	0	6	9	3	0	0	2	0	34	2	
Other leukemia	2	37	0	13	2	5	88	0	3	0	1	0	0	0	14	26	20	0	0	6	0	211	6		
Lymphoid Malignancies	PCD-Myeloma	2	31	0	2	1	9	0	0	2	0	0	0	0	0	17	16	9	0	1	3,905	1	89	3,907	
	PCD-other	0	0	0	0	0	1	0	0	0	0	0	0	0	0	2	1	0	0	0	223	0	4	223	
	Hodgkin lymphoma	3	27	0	1	3	21	0	0	2	0	0	0	0	0	9	7	2	0	2	524	0	75	526	
	Lymphoblastic lymphoma	1	21	0	4	1	17	23	0	0	0	0	0	0	0	16	7	12	0	0	60	0	102	60	
	Mature B cell lymphoma	9	81	0	0	1	58	3	0	5	0	0	0	1	0	45	56	67	0	2	1,915	1	326	1,918	
	Mature T/NK cell lymphoma	5	63	0	0	5	54	1	2	10	0	0	0	0	0	76	41	99	0	1	309	0	356	310	
	Other LPD	0	25	0	9	1	7	11	1	9	0	0	0	0	0	6	8	11	0	0	687	0	88	687	
Solid Tumors	Neuroblastoma	0	0	0	0	0	10	0	0	0	0	0	0	0	0	0	0	25	0	4	244	2	35	250	
	Germ cell tumor	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	70	0	1	71	
	Breast cancer	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Ewing	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	44	0	1	44	
	Other solid tumor	1	3	0	2	0	2	0	0	0	0	0	0	0	0	0	4	1	0	5	285	2	13	292	
Non-Malignant Hematological Disorders	BM failure-SAA	83	286	0	141	10	71	580	6	22	0	0	0	1	0	46	207	82	2	0	0	0	1,537	0	
	Aquired pure red cell anemia	2	2	0	0	0	2	0	0	1	0	0	0	0	0	2	2	0	0	0	0	0	11	0	
	PNH	2	14	0	3	0	4	18	0	3	0	0	1	0	0	0	11	0	0	0	0	0	56	0	
	Congenital bone marrow failure	16	28	0	2	1	31	1	2	5	0	0	0	0	0	19	14	15	0	0	0	0	134	0	
	BM failure-other	3	1	0	1	0	0	0	0	0	0	0	0	0	0	2	4	1	0	0	1	0	12	1	
	Hemoglobinopathy-Thalassemia	121	182	10	82	1	42	100	5	31	0	1	0	0	0	1	204	6	0	0	1	0	786	1	
	Hemoglobinopathy-other	11	18	0	0	2	26	0	1	3	0	0	0	0	0	0	4	0	0	0	0	0	65	0	
	Other hematological disease	3	0	0	2	0	0	4	0	0	0	0	0	0	0	0	8	0	0	0	0	0	17	0	
Non-Malignant Hematological Diseases	Primary immune deficiencies	18	23	1	0	16	39	4	2	8	0	0	0	0	0	35	45	32	0	0	3	0	223	3	
	Inherited metabolic disease	4	11	1	1	2	10	17	0	4	0	0	0	0	0	12	22	10	0	0	27	0	94	27	
	Autoimmune disease	0	1	0	0	0	1	2	0	0	0	0	0	0	0	1	0	2	0	0	57	0	7	57	
	EBV related disorders	9	7	0	1	0	3	3	1	0	0	0	0	0	0	7	5	12	0	0	0	0	48	0	
	Hemophagocytic syndrome	9	13	0	2	0	4	0	0	0	0	0	0	0	0	0	9	5	0	0	0	0	42	0	
	Langerhans cell histiocytosis	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2	1	
	Others	4	7	0	1	0	4	1	1	7	0	0	0	0	0	6	12	2	0	0	36	0	45	36	
Total	493	3,337	13	607	88	1,562	4,159	31	251	0	2	2	3	4	1,080	2,220	1,680	6	18	8,730	6	15,538	8,754		
Sub total 1	4,450				5,809				284				9				4,986				8,754			24,292	
Sub total 2	10,552																		8,754			24,292			
Sub total 3	15,538																								

Supplementary 2 The number of transplants by disease indications and stem cell sources in 2018.

HLA, human leukocyte antigen; BM, bone marrow; PB, peripheral blood; CB, cord blood; AML, acute myeloid leukemia; ALL, acute lymphoblastic leukemia; MDS, myelodysplastic syndrome; MDS/MPN, myelodysplastic/myeloproliferative neoplasm; CML, chronic myeloid leukemia; MPN, myeloproliferative neoplasm; MPD, myeloproliferative disorder; MPS, myeloproliferative syndrome; CLL, chronic lymphatic leukemia; PLL, prolymphocytic leukemia; MM, multiple myeloma; SAA, severe aplastic anemia; PNH, paroxysmal nocturnal hemoglobinuria; EBV, Epstein-Barr virus

### **Supplementary Table 3**

All facilities contributing to the activity survey reported in this article are listed here.

#### ***Australia***

Alfred Hospital, Box Hill Hospital, Brisbane Private Hospital, Canberra Hospital, Concord Hospital, Geelong Hospital, Gosford Hospital, Greenslopes Private Hospital, John Hunter Children's Hospital, Liverpool Hospital, Mater Hospital Brisbane, Mater Private Hospital Brisbane, Nepean Hospital, Calvary Mater Hospital Newcastle, Peter MacCallum Cancer Centre, Prince of Wales Hospital, Princess Alexandra Hospital, Princess Margaret Hospital for Children, Royal Adelaide Hospital, Lady Cilento Children's Hospital, Royal Brisbane Hospital, Royal Children's Hospital Melbourne, Royal Hobart Hospital, Royal Melbourne Hospital, Royal North Shore Hospital, Royal Perth Hospital, Royal Prince Alfred Hospital, Sir Charles Gairdner Hospital, St George Hospital, St Vincent's Hospital Sydney, St Vincent's Hospital Melbourne, Sydney Children's Hospital, The Children's Hospital at Westmead, Townsville Hospital, Wesley Clinic, Westmead Hospital, Wollongong Hospital, Women & Children's Hospital, Austin Hospital, Flinders Medical Centre, Fiona Stanley Hospital, Gold Coast University Hospital

***Bangladesh***

Dhaka Medical College and Hospital, Combined Military Hospital, Apollo Hospitals Dhaka, Bangabandhu Sheikh Mujib Medical University

***China (mainland)***

Beijing Cancer Hospital, Beijing Chao-Yang Hospital, Ludaopei Hematology and Oncology Center, Beijing Hospital, Cancer Institute and Hospital Chinese Academy of Medical Sciences, The First Affiliated Hospital of Zhejiang University, Guangdong Province Hospital Of Traditional Chinese Medicine, The First Affiliated Hospital of China PLA General Hospital, Hainan No.1 Provincial People's Hospital, Henan Institute of Hematology Cancer Hospital of Henan, Huashan Hospital, Jiangsu Institute of Hematology, The First Affiliated Hospital of Soochow University, Jiangsu Province Hospital, The First Affiliated Hospital of Nanjing Medical University, Nanjing Drum Tower Hospital, Peking University First Hospital, Peking University People's Hospital, Shanghai Changzheng Hospital, Shanghai Children's Medical Center, Shanghai Daopei Hospital, Shanghai Ruijin Hospital, The Third Affiliated Hospital of Sun Yat-sen University, Tongren

Hospital, Union Hospital Fujian Medical University, Union Hospital, Tongji Medical College of Huazhong University of Science and Technology, West China Hospital of Sichuan University, Xinhua Hospital Affiliated to Shanghai Jiaotong University School of Medicine, Xuanwu Hospital Capital Medical University, Beijing Friendship Hospital, Zhongshan Hospital of Xiamen University, Zhujiang Hospital Southern Medical University, Chinese PLA General Hospital, Harbin Hematology and Cancer Institution, Nanfang Hospital Southern Medical University, PLA Navy General Hospital, PLA, The Military General Hospital of Beijing, Tangshan Iron and Steel Company Hospital, The First Affiliated Hospital of Guangxi Medical University, The Second Affiliated Hospital of Henan Medical University, Xinqiao Hospital of the Third Military Medical University, 309th Hospital of PLA, Changhai Hospital of Shanghai, Xinjiang Uygur Autonomous Region People's Hospital, Zhejiang Provincial Hospital of Traditional Chinese Medicine, The First Affiliated Hospital of Medical College of Xi'an Jiao Tong University, Shandong Provincial Hospital, Hospital of Guizhou Medical University, Guangdong General Hospital, Xiangya Hospital Central-South University, The First Hospital of China Medical University, 307 Hospital of PLA, Anhui Provincial Hospital, Shangdong Provincial Qianfoshan Hospital, Chinese Academy of

Medical Sciences (CAMS) and Peking Union Medical College (PUMC), Hainan General Hospital, Kunming General Hospital of PLA, Ludaopei Hematology and Oncology Center, Ningbo First Hospital, Peking University Third Hospital, Qilu Hospital of Shandong University, Shangdong Provincial Qianfoshan Hospital, The Affiliated Hospital of Qingdao University, The First Affiliated Hospital of Fujian Medical University, The Second Artillery General Hospital of Chinese PLA, The Second Hospital of Hebei Medical University, Tianjin First Central Hospital, Tianjin Medical University Cancer Institute and Hospital, West China Women's and Children's Hospital, Xijing Hospital, He Nan Provincial People's Hospital, Fujian Provincial Hospital, Shengjing Hospital of China Medical University, Sun Yat-sen Memorial Hospital, Sun Yat-sen University, The First Affiliated Hospital of Dalian Medical University, Yanda International Hospital, Jinan Military General Hospital, The First Affiliated Hospital of He Nan Science and Technology University, The General Hospital of Shenyang Military, Tongji Hospital Huazhong University of Science and Technology, Anhui Provincial Hospital, Nanfang Hospital Southern Medical University(Nan Fang Hospital (Adults), Changhai Hospital of PLA, Xiehe Hospital of Beijing, The First Affiliated Hospital of Xinjiang Medical Collage, The First Hospital of Shanghai, The First Affiliated Hospital of



suzhou University, Hematology Department of 307 Hospital of Hematology  
Department of PLA, Zhejiang Provincial Hospital of Traditional Chinese Medicine,  
The First Affiliated Hospital of Wenzhou (Medical) University, Ruijin Hospital

### ***Hong Kong***

Queen Mary Hospital-The University of Hong Kong, Prince of Wales Hospital-  
The Chinese University of Hong Kong, Hong Kong Children Hospital

### ***India***

Christian Medical College, Army Research and Referral Hospital, Tata Memorial  
Centre, All India Institute of Medical Science, Sahyadri Specialty Hospital, Jaslok  
Hospital and Research Center, Narayana Multi specialty Hospital and Mazumdar  
Shaw Cancer Center, Gujarat Cancer and Research Institute, Rajiv Gandhi  
Cancer Institute and Research Center, Postgraduate Institute of Medical  
Education and Research, Manipal Hospital, Prince Aly Khan Hospital, Ruby Hall  
Clinic, Sir Ganga Ram Hospital, Christian Medical College, Apollo Cancer  
Specialty Hospital, St. John's Medical College & Hospital, Netaji Subhaschandra  
Bose Cancer Research Institute, Sterling Hospitals, Deenanath Mangeshkar

Hospital, BLK Super Specialty Hospital, G Kuppusamy Naidu Memorial Hospital, Bhailal Amin General Hospital, Institute Rotary Cancer Hospital, Sanjay Gandhi Post Graduate Institute of Medical Sciences, Apollo CBCC Cancer Care, Health Care Global Enterprises, Nil Ratan Sircar Medical College and Hospital, Columbia Asia Referral Hospital, Institute of Haematology and Transfusion Medicine, Cancer Institute (WIA), Sterling Cancer Hospital, Tata Medical Center, Kovai Medical College and Hospital, Lotus Hospital, Central India Institute of Haematology and Oncology, Global Hospital and Transplant Center, Max Super Specialty Hospital, Amrita Institute of Medical Sciences and Research Centre, RK Birla Cancer Centre/SMS Medical College & Hospital, Malabar Cancer Centre, Fortis Memorial Research Institute, Artemis Hospital, Saroj Gupta Cancer Centre and Research Institute, Indraprastha Apollo Hospitals/Ahmedabad, M S Ramaiah Medical College, Yashoda Hospital, Dharamshila Cancer Hospital and Research Center, Meenakshi Mission Hospital, Apollo Gleneagles Hospital, Sri Ramachandra Medical College and Research Institute, Max Super Specialty Hospital Shalimar Bagh, Command Hospital Air Force, Armed Forces Medical College and Command Hospital, Jupiter Hospital, LTM Medical College, P D Hinduja Hospital and MRC, Kokilaben Dhirubhai Ambani Hospital, Sahara

Hospital, Manipal Hospital, Medanta-The Medicity Hospital, AMRI Hospital, Coimbatore Kidney Centre & Speciality Hospitals, Gleneagles Global Health City Chennai, Kamalnayan Bajaj Hospital, Sher-i-Kashmir Institute of Medical Sciences, Jawaharlal Institute of Postgraduate Medical Education and Research, Aster Aadhar Hospital, Aster Medcity Hospital, Asian Institute of Medical Sciences, Shri Siddhivinayak Ganpati Cancer Hospital, Rajagiri Hospital, Nanavati Super Speciality Hospital, Bangalore Baptist Hospital, CHL Hospitals, Max Super Speciality Hospital SAKET, P D Hinduja National Hospital and MRC, Sterling Cancer Hospital, MCGM -Comprehensive thalassemia care , Aster CMI Hospital, Sri Ramakrishna Hospital, Paras HMRI Hospital Patna, Jaypee Hospital, HCG Manavata Cancer Centre, Fortis Hospital/Mulund, SRCC Children's Hospital, Basavatarakam Indo-American Cancer Hospital and Research Center, Sri Aurobindo Institute of Medical Sciences, Dayanand Medical College and Hospital, Himalayan Institute of Medical Sciences , Kailash Cancer Hospital and Research Center, Dr Rela Institute & Medical Centre, Mahatma Gandhi Cancer Hospital and Research Institute, Apollo Hospitals/Navi Mumbai, Fortis Hospital , Kidwai Memorial Institute of Oncology, MGM Medical college and MCRI superspeciality Hospital, Cytecure Cancer Hospitals

***Iran***

Shariati Hospital, Namizi Hospital Transplant Research Center-Shiraz University of Medical Sciences, Imam Khomeini Hospital, Afzalipour Hospital, Imam Khomeini Hospital, Amir Kola Hospital, Petroleum Industry Hospital, Taleghani Hospital, Mahak Hospital, Montaserieh Hospital, Sherkat Naft Hospital, Shafa hospital-Ahvaz, Children's Medical Center, Ayatollah Taleghani Hospital, Shahid Ghazi Hospital, Seyed Al-Shohada Hospital, Firoozgar Hospital, Shiraz Hospital, Ali Asghar Hospital/Tehran

***Japan***

Hokkaido University Hospital, Sapporo Hokuyu Hospital, Sapporo Medical University Hospital, Asahikawa Medical College Hospital, Asahikawa Red Cross Hospital, Teine Keijinkai Hospital, Sapporo City General Hospital, National Hospital Organization Hokkaido Cancer Center, Hakodate Municipal Hospital, Asahikawa City Hospital, Hokkaido Medical Center for Child Health and Rehabilitation, Asahikawa-Kosei General Hospital, Steel Memorial Muroran Hospital, Oji General Hospital, Aiiku Hospital, Kushiro Rosai Hospital, Kin-ikyo

Chuo Hospital, Sapporo Kiyota Hospital, Hirosaki University Hospital, Aomori Prefectural Central Hospital, Iwate Medical University School of Medicine, Iwate Prefectural Central Hospital, Tohoku University Hospital, National Hospital Organization Sendai Medical Center, Miyagi Cancer Center, Miyagi Children's Hospital, Ishinomaki Red Cross Hospital, Osaki Citizen Hospital, Akita University School of Medicine, Nakadoori General Hospital, Yamagata University School of Medicine, Yamagata Prefectural Central Hospital, Fukushima Medical University School of Medicine, Iwaki Kyoritsu General Hospital, Ohta General Hospital, Kita-Fukushima Medical Center, University of Tsukuba, Ibaraki Children's Hospital, Tsukuba Memorial Hospital, Tsuchiura Kyodo General Hospital, Hitachi General Hospital, National Hospital Organization Mito Medical Center, Jichi Medical University Hospital, Dokkyo Medical University School of Medicine, Tochigi Cancer Center, HAGA RED CROSS HOSPITAL, **Saiseikai Maebashi Hospital**, Gunma University Graduate School of Medicine, Gunma Children's Medical Center, National Hospital Organization Shibukawa Medical Center, Gunma Cancer Center, Saitama Cancer Center, Saitama Medical University International Medical Center, National Defense Medical College, Saitama Children's Medical Center, Saitama Medical Center-Saitama Medical University, Jichi Medical

University Saitama Medical Center, International Medical Center-Saitama Medical University, Japanese Red Cross Saitama Hospital, Chiba University Hospital, Chiba Children's Hospital, Matsudo City Hospital, Kameda General Hospital, Jikei University School of Medicine-Kashiwa Hospital, Chiba Aoba Municipal Hospital, Japanese Red Cross Narita Hospital, Japanese Red Cross Society Narita Hospital, National Cancer Center Hospital East, Teikyo University Chiba Medical Center, Juntendo University Urayasu Hospital, Nippon Medical School Chiba Hokusoh Hospital, Asahi General Hospital, International University of Health and Welfare Narita Hospital, National Cancer Center Hospital, The Institute of Medical Science-The University of Tokyo, Tokyo Metropolitan Cancer and Infectious Disease Center-Komagome Hospital, Nihon University Itabashi Hospital, The Jikei University School of Medicine, Keio University School of Medicine, Tokyo Medical University Hospital, Tokyo Women's Medical University, Showa University School of Medicine, Kyorin University Hospital, NTT Medical Center Tokyo, University of Tokyo Hospital, Juntendo University School of Medicine, Nippon Medical School Hospital, Teikyo University School of Medicine, Tokyo Metropolitan Children's Hospital, Toho University Omori Medical Center, Nihon University Hospital, St. Luke's International Hospital, National Center for

Child Health and Development, Federation of National Public Service Personnel Mutual Aid Associations TORANOMON HOSPITAL, National Center for Global Health and Medicine, Faculty of Medicine Hospital Tokyo Medical and Dental University, National Hospital Organization Tokyo Medical Center, Tokyo Metropolitan Tama Medical Center, Japanese Red Cross Medical Center, Tokyo Saiseikai Central Hospital, Tokyo Metropolitan Geriatric Hospital, The fraternity memorial hospital, Tokyo-kita Medical Center, Tokyo Metropolitan Health and Hospitals Corporation Tama-Hokubu Medical Center, Yokohama City University Hospital, Kanagawa Cancer Center, St. Marianna University School of Medicine, Tokai University School of Medicine, Kanagawa Children's Medical Center, Yokohama City University Medical Center, Showa University Fujigaoka Hospital, St. Marianna University School of Medicine Yokohama City Seibu Hospital, Yokohama Municipal Citizen's Hospital, Yokohama City Minato Red Cross Hospital, Federation of National Public Service Personnel Mutual Aid Associations-Toranomon Hospital-Kajigaya, Yokohama Minami Kyosai Hospital, Shonan Kamakura General Hospital, Saiseikai Yokohama Nanbu Hospital, Niigata University Medical and Dental Hospital, Niigata Cancer Center, Nagaoka Red Cross Hospital, Niigata City General Hospital, Toyama Prefectural Central

Hospital, Kurobe City Hospital, Toyama University Hospital, Kouseiren Takaoka Hospital, Toyama Red Cross Hospital, Kanazawa University Hospital, Kanazawa Medical University Hospital, Ishikawa Prefectural Central Hospital, Keiju Kanazawa Hospital, University of Fukui Hospital, University of Yamanashi-Faculty of Medicine, Fukui Prefectural Hospital, Fukui-ken Saiseikai Hospital, Yamanashi Prefectural Central Hospital, Shinshu University School of Medicine, Nagano Children's Hospital, Nagano Red Cross Hospital, National Hospital Organization Matsumoto Medical Center, Saku Central Hospital AdvancedCare Center, Suwa Red Cross Hospital, Gifu University Graduate School of Medicine, Chunokosei Hospital, Gifu Municipal Hospital, Gifu Red Cross Hospital, Takayama Red Cross Hospital, Hamamatsu University School of Medicine, Hamamatsu Medical Center, Shizuoka General Hospital, Seirei Hamamatsu General Hospital, Shizuoka Children's Hospital, Shizuoka Red Cross Hospital, Sizuoka Cancer Center, Juntendo University Shizuoka Hospital, Shizuoka City Shimizu Hospital, Japanese Red Cross Nagoya First Hospital, Nagoya Daini Red Cross Hospital, Meitetsu Hospital, Nagoya University Graduate school of Medicine, Nagoya Ekisaikai Hospital, National Hospital Organization Nagoya Medical Center, Nagoya City University Hospital, Anjo Kosei Hospital, Konan



Kosei Hospital, Fujita Health University School of Medicine, Aichi Cancer Center Hospital, Toyohashi Municipal Hospital, Aichi Medical University School of Medicine, Okazaki City Hospital, Komaki City Hospital, Japan Community Health care Organization Chukyo Hospital, Daiyukai General hospital, Toyota Kosei Hospital, Nishio Municipal Hospital, Tosei General Hospital, Mie University Hospital, Japanese Red Cross Ise Hospital, Suzuka Kaisei Hospital, Suzuka General Hospital, Shiga University of Medical Science, Shiga Medical Center for Children, Otsu Red Cross Hospital, Omihachiman Community Medical Center, Shiga General Hospital, Kyoto University Hospital, Kyoto First Red Cross Hospital, University Hospital Kyoto Prefectural University of Medicine, Japan Community Health care Organization Kyoto Kuramaguchi Medical Center, Kyoto City Hospital, Aiseikai Yamashina Hospital, Kyoto Katsura Hospital, Kyoto Second Red Cross Hospital, Fukuchiyama city hospital, Osaka International Cancer Institute, Kinki University School of Medicine, Osaka University Hospital, Osaka City University Graduate School of Medicine, Kansai Medical University Medical Center, Children's Medical Center, Osaka City General Hospital, Osaka City General Hospital, Osaka Red Cross Hospital, Osaka Women's and Children's Hospital, Matsushita Memorial Hospital, Kishiwada City Hospital,

Rinku General Medical Center, National Hospital Organization Osaka Minami Medical Center, Osaka Medical College Hospital, Fuchu Hospital, Kansai Medical University Hirakata Hospital, Sumitomo Hospital, The Tazuke Kofukai Medical Research Institute Kitano Hospital, Nippon Life Hospital-Nippon Life Saiseikai Public Interest Incorporated Foundation, Takatsuki Red Cross Hospital, Yodogawa Christian Hospital, Federation of National Public Service Personal Mutual Aid Association Hirakata Kohsai Hospital, KKR Otemae Hospital, PL General Hospital, Sakai City Medical Center, Kansai Electric Power Hospital, Izumi-City General Hospital, Suita municipal hospital, Hyogo College of Medicine, Hyogo Prefectural Kobe Children's Hospital, Hyogo Cancer Center, Kobe City Medical Center General Hospital, Kobe University Hospital, Japanese Red Cross Society Himeji Hospital, Ashiya Municipal Hospital, Akashi Municipal Hospital, Japan Community Health Care Organization Kobe Central Hospital, Hyogo Prefectural Nishinomiya Hospital, Shinko Hospital, Meiwa Hospital, Nishiwaki Municipal Hospital, Hyogo Prefectural Amagasaki General Medical Center, Kakogawa Central City Hospital, Itami City Hospital, Konan Medical Center, Nara Medical University, Tenri Hospital, Takanohara Central Hospital, Kindai University Nara Hospital, Nara Prefecture General Medical Hospital, Wakayama

Medical University, Japanese Red Cross Society Wakayama Medical Center, Insurance Social Kinan Hospital, Tottori University Faculty of Medicine, National Hospital Organization-Yonago Medical Center, Shimane Prefectural Central Hospital, Shimane University Faculty of Medicine, Matuse Red Cross Hospital, National Hospital Organization Okayama Medical Center, Kurashiki Central Hospital, Okayama University Hospital, Kawasaki Medical School Hospital, Okayama Rosai Hospital, Okayama City Hospital, Hiroshima Red Cross Hospital and Atomic-bomb Survivors Hospital, Hiroshima University Hospital, National Hospital Organization Kure Medical Center, National Hospital Organization Hiroshimanishi Medical Center, Chugoku Central Hospital of the Mutual Aid Association of Public School Teachers, Yamaguchi University School of Medicine, Shimonoseki Kosei General Hospital, Tokushima University Hospital, Tokushima Red Cross Hospital, Tokushima Prefectural Central Hospital, Kagawa University Faculty of Medicine, National Hospital Organization Shikoku Medical Center for Children and Adults, Takamatsu Red Cross Hospital, Kagawa Prefectural Central Hospital, Ehime Prefectural Central Hospital, Matsuyama Red Cross Hospital, National Hospital Organization-Shikoku Cancer Center, Ehime University Graduate School of Medicine, Kochi Medical School-Kochi University, Kochi

University Hospital, Kochi Health Sciences Center, Kyushu University Hospital, Harasanshin Hospital, Hamanomachi Hospital, Our Lady of the Snow Social Medical Corporation St. Mary's Hospital, Kokura Memorial Hospital, Kurume University School of Medicine, Fukuoka University School of Medicine, National Hospital Organization Kyushu Cancer Center, University of Occupational and Environmental Health-Japan, National Hospital Organization Kyusyu Medical Center, Kitakyushu City Hospital Organization-Kitakyushu Municipal Medical Center, Japan Community Health-care Organization Kyushu Hospital, Iizuka Hospital, Japanese Red Cross Fukuoka Hospital, Chihaya Hospital, Kitakyushu City Yahata Hospital, Saga-Ken Medical Centre Koseikan, Saga University Hospital, Nagasaki University Graduate School of Biomedical Sciences, Japanese Red Cross Nagasaki Genbaku Hospital, Sasebo City General Hospital, National Hospital Organization-Nagasaki Medical Center, National Hospital Organization-Kumamoto Medical Center, Kumamoto University School of Medicine, Oita University Hospital, Oita Prefectural Hospital, Kyusyu University Hospital at Beppu, Miyazaki Prefectural Miyazaki Hospital, University of Miyazaki Hospital, Imamura Bun-in Hospital, Kagoshima University Medical and Dental Hospital, Kagoshima City Hospital, National Hospital Organization Kagoshima

Medical Center, Ryukyu University Hospital, Heart Life Hospital, Okinawa Red Cross Hospital.

### ***Korea***

The Catholic University Seoul St. Mary's Hospital, The Catholic University Daejeon St. Mary's Hospital, The Catholic University Our Lady Mercy Hospital, The Catholic University St. Vincent's Hospital, Gachon University Gil Hospital, Kyungpook National University Hospital, Gyeongsan National University Hospital, Kyung Hee University Hospital, Korea University Guro Hospital, Korea University Anam Hospital, Kosin University Gospel Hospital, National Cancer Center, Daegu Catholic University Hospital, Daegu Fatima Hospital, Dong-A University Hospital, Pusan National University Hospital, Seoul National University Hospital, Sungkyunkwan University Hospital, Soonchunhyang University Bucheon Hospital, Soonchunhyang University Seoul Hospital, Ajou University Hospital, Yonsei University Hospital, Yeungnam University Hospital, Ulsan University Asan Medical Center, Ulsan University Hospital, Wonkwang University Hospital, Korea Cancer Center Hospital, Ewha Womans University Mokdong Hospital, Inje University Paik Hospital, Inha University Hospital, Chonnam National University

Hwasun Hospital, Chonbuk National University Hospital, Chungnam National University Hospital, Pochon University Bundang CHA Hospital, Hallym University Hospital, Hanyang University Hospital, Chosun University Hospital, Chung-Ang University Hospital, Inje University Haeundae Paik Hospital, Cheju Halla General Hospital, Keimyung University Dongsan Medical Center, Konkuk University Medical Center, Pusan National University Yangsan Hospital, Yonsei University Wonju Christian Hospital

### ***Malaysia***

Hospital Ampang, Hospital Kuala Lumpur, Gleneagles Medical Centre Penang, Lam Wah Ee Hospital, Subang Jaya Medical Centre, Hospital University Kebangsaan Malaysia, University Malaya Medical Centre, Ampang Puteri Specialist Hospital, Hospital Universiti Sains Malaysia, Hospital Pulau Pinang, Hospital Melaka, Hospital Wanita dan Kanak-Kanak, Hospital Sultanah Aminah, Sunway Medical Centre, Hospital Queen Elizabeth

### ***Mongolia***

National First Central Hospital of Mongolia

***Myanmar***

North Okkalapa General and Teaching Hospital, Yangon General Hospital

***Nepal***

Civil Service Hospital

***New Zealand***

Auckland Hospital, Christchurch Hospital, Palmerston North Hospital, Starship  
Hospital, Waikato Hospital, Wellington Hospital

***Pakistan***

National Institute of Blood Diseases and Blood and Marrow Transplantation, The  
Aga Khan University Hospital, Armed Forces Bone Marrow Transplant Centre

***The Philippines***

St. Luke's Medical Center–Quezon City, St. Luke's Medical Center–Global City,  
The Medical city, Makati Medical center, National Kidney and Transplant Institute,  
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### ***Singapore***

National University Hospital, Singapore General Hospital, KK Hospital Women's  
and Children's Hospital, National Cancer Center Singapore

### ***Sri Lanka***

The (Asiri) Central Hospital, National Cancer Institute, Nawaloka Hospital, Lanka  
Hospital

### ***Taiwan***

Taipei Veterans General Hospital, National Taiwan University Hospital, National  
Taiwan University Hospital, Kaoshiung Medical University Hospital, China  
Medical University Hospital, Chang-Gung Memorial Hospital—Linko, Changhua  
Christian Hospital, Tri Service General Hospital, Koo Foundation Sun Yat-Sen  
Cancer Center, Hualien Tzu Chi Hospital, Buddhist Tzu Chi Medical Foundation,



Chang-Gung Memorial Hospital—Chiayi, Chia-Yi Christian Hospital , National Cheng Kung University Hospital, Taichung Veterans General Hospital, Kaoshiung Veterans General Hospital, Chang-Gung Memorial Hospital-Kaohsiung, Far Eastern Memorial Hospital, Taipei Medical University-Shuang Ho Hospital

### ***Thailand***

Faculty of Medicine Ramathibodi Hospital, King Chulalongkorn Memorial Hospital, Phramongkutklo Hospital, Faculty of Medicine Siriraj Hospital, Naresuan University, Srinagarind Hospital-Khon Kaen University, Chiang Mai University, Sunpasitthiprasong Hospital

### ***Vietnam***

Blood Transfusion and Hematology Hospital, Hue Regional Hematology & Blood Transfusion Center ,National Institute of Blood Transfusion and Hematology, National Hospital of Pediatrics, Cho Ray Hospital , Nghe An oncology hospital, Central Military Hospital 108, Bach Mai Hospital