

S1A Table. Recipient demographic and clinical characteristics of the study population from ISHLT and the Nordic Thoracic Transplantation database.

	N	ISHLT		NTTD	
		Derivation cohort N = 41,780	IVC N = 8,569	TVC N = 6,276	N = 1,285
Recipient's diagnosis	57,863				
Ischemic cardiomyopathy		17,670 (42%)	3,630 (42%)	2,166 (35%)	450 (36%)
Non-ischemic cardiomyopathy		19,265 (46%)	3,946 (46%)	3,213 (51%)	613 (50%)
Congenital		867 (2%)	180 (2%)	203 (3%)	49 (4%)
Graft failure		846 (2%)	168 (2%)	151 (2%)	5 (0%)
Valvular heart disease		1,254 (3%)	266 (3%)	130 (2%)	38 (3%)
Miscellaneous		1,878 (4%)	379 (4%)	413 (7%)	83 (7%)
Age (year)	57,910	51±12	51±12	51±13	50±11
Female gender	57,910	8,463 (20%)	1,827 (21%)	1,485 (24%)	286 (22%)
Height (cm)	45,100	173±9.4	173±9.5	174±9.6	175±8.6
Weight (kg)	45,464	78±16	78±16	81±17	77±14
History of cigarette use	15,299	3,604 (42%)	760 (41%)	1,896 (46%)	83 (12%)
COPD	31,135	789 (3%)	142 (3%)	138 (4%)	36 (5%)
Diabetes	33,471	4,802 (20%)	1,006 (21%)	1,059 (25%)	82 (11%)
History of peptic ulcer	32,833	1,102 (5%)	221 (4%)	75 (2%)	30 (4%)
Hypertension*	33,613	9,185 (38%)	1,904 (38%)	1,526 (44%)	141 (19%)
Peripheral vascular disease	33,535	833 (3%)	182 (4%)	102 (3%)	20 (3%)
History of cerebrovascular disease	32,387	916 (4%)	197 (4%)	171 (4%)	
Cerebrovascular event	30,080	550 (3%)	127 (3%)	103 (3%)	45 (6%)
Dialysis pre-transplant	34,908	322 (1%)	77 (1%)	89 (2%)	15 (2%)
Infection within two weeks [†]	32,624	2,326 (10%)	493 (10%)	410 (10%)	40 (5%)
Cytomegalovirus status	20,776	10,019 (74%)	2,106 (74%)	2,291 (71%)	778 (67%)
Antiarrhythmic drugs prior to transplant	31,660	8,472 (37%)	1,755 (37%)	1,255 (39%)	263 (36%)
Amiodarone prior to transplant	31,114	5,787 (26%)	1,223 (26%)	993 (32%)	172 (23%)
Implantable defibrillator	28,675	9,142 (44%)	1,934 (45%)	2,921 (93%)	182 (24%)
Unstable angina	23,133	2,336 (14%)	503 (15%)	69 (3%)	70 (9%)
PRA > 10%	31,590	1,841 (8%)	370 (8%)	402 (11%)	87 (7%)
Previous blood transfusion	19,138	7,574 (51%)	1,569 (51%)	966 (86%)	
Previous transplanted [#]	54,001	1,160 (3%)	224 (3%)	200 (3%)	5 (0%)
Previous cardiac surgery	34,004	6,594 (28%)	1,371 (28%)	2,465 (60%)	305 (24%)
Malignancy prior to transplantation	36,176	1,014 (4%)	221 (4%)	310 (7%)	
Oxygen consumption at exercise	7,216	11.8±3.1	11.7±3.2	11.9±3.2	
Activities of daily living	10,184				
No assistance		2,319 (28%)	488 (29%)	58 (20%)	
Some assistance		4,528 (55%)	887 (53%)	132 (46%)	
Total assistance		670 (8%)	164 (10%)	42 (15%)	
Working for income	12,639	414 (6%)	82 (5%)	232 (6%)	

Data are mean (SD), number (%). The numbers are calculated on patients with available data. *Drug treated systemic hypertension. [†]Infection requiring intra venous antibiotic therapy within two weeks prior to transplant. [#]Previous transplant — previous kidney, liver, pancreas, pancreas islet cells, heart, lung, intestine and/or bone marrow transplant. COPD, chronic obstructive pulmonary disease; ISHLT, International Society for Heart and Lung Transplantation; IVC, internal validation cohort; NTTD, Nordic Thoracic Transplantation Database; PRA, panel reactive antibody; TVC, temporal validation cohort.

S1B Table. Recipient hemodynamic, laboratory and urgency characteristics of the study population from ISHLT and the Nordic Thoracic Transplantation Database.

	N	ISHLT			NTD
		Derivation cohort N = 41,780	IVC N = 8,569	TVC N = 6,276	N = 1,285
PVR (wood units)	27,053	2.6±1.9	2.6±2.1	2.5±1.6	3.0±1.8
SPP (mmHg)	31,226	44±15	44±16	43±15	
Creatinine (µmol/l)	34,017	120± 64	120±67	117±66	111±59
Serum bilirubin (mg/dl)	31,020	1.43±3.54	1.29±2.37	1.20±2.05	1.31±0.91
Serum albumin (g/l)	17,583	36.5± 7.7	36.5± 7.5	36.7±7.0	
Medical condition at transplant	35,172				
Not hospitalized		11,374 (45%)	2,338 (45%)	2,308 (57%)	590 (76%)
Hospitalized		4,106 (16%)	887 (17%)	669 (17%)	92 (12%)
ICU		9,679 (38%)	1,989 (38%)	1,043 (26%)	97 (12%)
Inotropic support prior to transplant	34,271	12,136 (49%)	2,627 (51%)	1,561 (38%)	
Mechanical ventilation	32,712	731 (3%)	151 (3%)	138 (3%)	
Intra-aortic balloon pump	33,460	2,160 (9%)	456 (9%)	332 (8%)	
ECMO	32,836	106 (0%)	23 (0%)	39 (1%)	
Ventricular assist device	24,509	4,367 (26%)	902 (26%)	1,429 (34%)	

Data are mean (SD) or number (%). The numbers are calculated on patients with available data. ECMO, extracorporeal membrane oxygenation; ICU, intensive care unit; ISHLT, International Society for Heart and Lung Transplantation; IVC, internal validation cohort; NNTD, Nordic Thoracic Transplantation Database; PVR, pulmonary vascular resistance; SPP, systolic pulmonary pressure; TVC, temporal validation cohort.

SIC Table. Donor demographic and characteristics of the study population from ISHLT and the Nordic Thoracic Transplantation Database.

	N	ISHLT			NTTD
		Derivation cohort N = 41,780	IVC N = 8,569	TVC N = 6,276	N = 1,285
Age (year)	57,910	34±13	34±13	35±13	39±13
Female gender	57,910	13,011 (31%)	2,657 (31%)	1,981 (32%)	451 (35%)
Height (cm)	48,782	174.8±9.4	174.8± 9.3	174.7±9.4	176.7±8.6
Weight (kg)	50,097	78±16	78±17	81±18	78±14
History of smoking	31,920	7,544 (33%)	1,507 (32%)	725 (18%)	94 (20%)
History of alcohol use	12,832	1,114 (15%)	241 (16%)	618 (15%)	
History of cocaine use	32,141	1,810 (8%)	404 (8%)	566 (14%)	
History of diabetes	35,528	496 (2%)	99 (2%)	144 (3%)	7 (2%)
History of hypertension	35,420	3,012 (12%)	598 (11%)	6,15 (15%)	33 (7%)
LVEF (%)	20,235	61.5±7.9	61.5±7.8	61.6±7.1	
Cytomegalovirus status	35,913	15,188 (60%)	3,138 (60%)	2,489 (62%)	778 (67%)
Creatinine (µmol/l)	31,558	105±84	106±82	115±98	
BUN (mg/dl)	31,262	14±11	15±12	17±14	
Serum bilirubin (mg/dL)	31,077	1.24±1.94	1.23±1.69	1.48±2.64	
Ischemic time (minutes)	36,276	186±65	186±65	197± 66	172± 66
Cause of donor death	47,785				
Head trauma		17,497 (51%)	3,673 (53%)	2,2330 (44%)	285 (22%)
Cerebrovascular event		10,482 (31%)	2,2064 (30%)	1,400 (26%)	733 (57%)
Other		6,227 (18%)	1,257 (18%)	1,570 (30%)	267 (21%)

Data are means (SD) or number (%).The numbers are calculated on patients with available data. BUN, blood urea nitrogen; LVEF, left ventricular ejection fraction; ISHLT, International Society for Heart and Lung Transplantation; IVC, internal validation cohort; NTTD, Nordic Thoracic Transplantation Database; TVC, temporal validation cohort.

S1D Table. Blood group, immunology and era of the study population from ISHLT registry and the Nordic Thoracic Transplantation Database.

	N	ISHLT			NTTD
		Derivation cohort N = 41,780	IVC N = 8,569	TVC N = 6,276	N = 1,285
Recipient blood group	57,910				
A		18,304 (44%)	3,752 (44%)	2,629 (42%)	618 (48%)
AB		2,737 (7%)	539 (6%)	500 (8%)	72 (6%)
B		5,300 (13%)	1,051 (12%)	859 (14%)	158 (12%)
O		15,439 (37%)	3,227 (38%)	2,288 (36%)	437 (34%)
Donor blood group	57,910				
A		16,802 (40%)	3,446 (40%)	2,315 (37%)	544 (42%)
AB		1,266 (3%)	257 (3%)	312 (5%)	20 (2%)
B		4,226 (10%)	806 (9%)	675 (11%)	132 (10%)
O		19,486 (47%)	4,060 (47%)	2,974 (47%)	589 (46%)
HLA-A mismatch	25,473				
0		735 (4%)	157 (4%)	111 (4%)	744 (%)
1		7,438 (41%)	1,514 (41%)	1,196 (40%)	339 (51%)
2		9,948 (55%)	2,044 (55%)	1,665 (56%)	282 (42%)
HLA-B mismatch	28,416				
0		285 (1%)	55 (1%)	51 (2%)	9 (1%)
1		5,304 (26%)	1,085 (26%)	821 (24%)	214 (34%)
2		1,4663 (72%)	3,010 (73%)	2,510 (74%)	409 (65%)
HLA-DR mismatch	25,385				
0		720 (4%)	163 (4%)	142 (5%)	19 (3%)
1		7,324 (41%)	1,496 (40%)	1,169 (40%)	339 (46%)
2		9,934 (55%)	2,060 (55%)	1,646 (56%)	373 (51%)
Era of transplantation	57,910				
1991-1995		6,029 (14%)	1,259 (15%)		
1996-2000		14,804 (35%)	2,949 (34%)		450 (35%)
2001-2005		13,078 (31%)	2,682 (31%)		451 (35%)
2006-2010		7,869 (19%)	1,679 (20%)	6,276 (100%)	384 (30%)

Data are means (SD) or number (%). The numbers are calculated on patients with available data. HLA, human leukocyte antigen; ISHLT, International Society for Heart and Lung Transplantation; IVC, internal validation cohort; NTTD, Nordic Thoracic Transplantation Database; TVC, temporal validation cohort.