

CHAPTER 5

RENAL TRANSPLANTATION

Editor:

Dr Goh Bak Leong

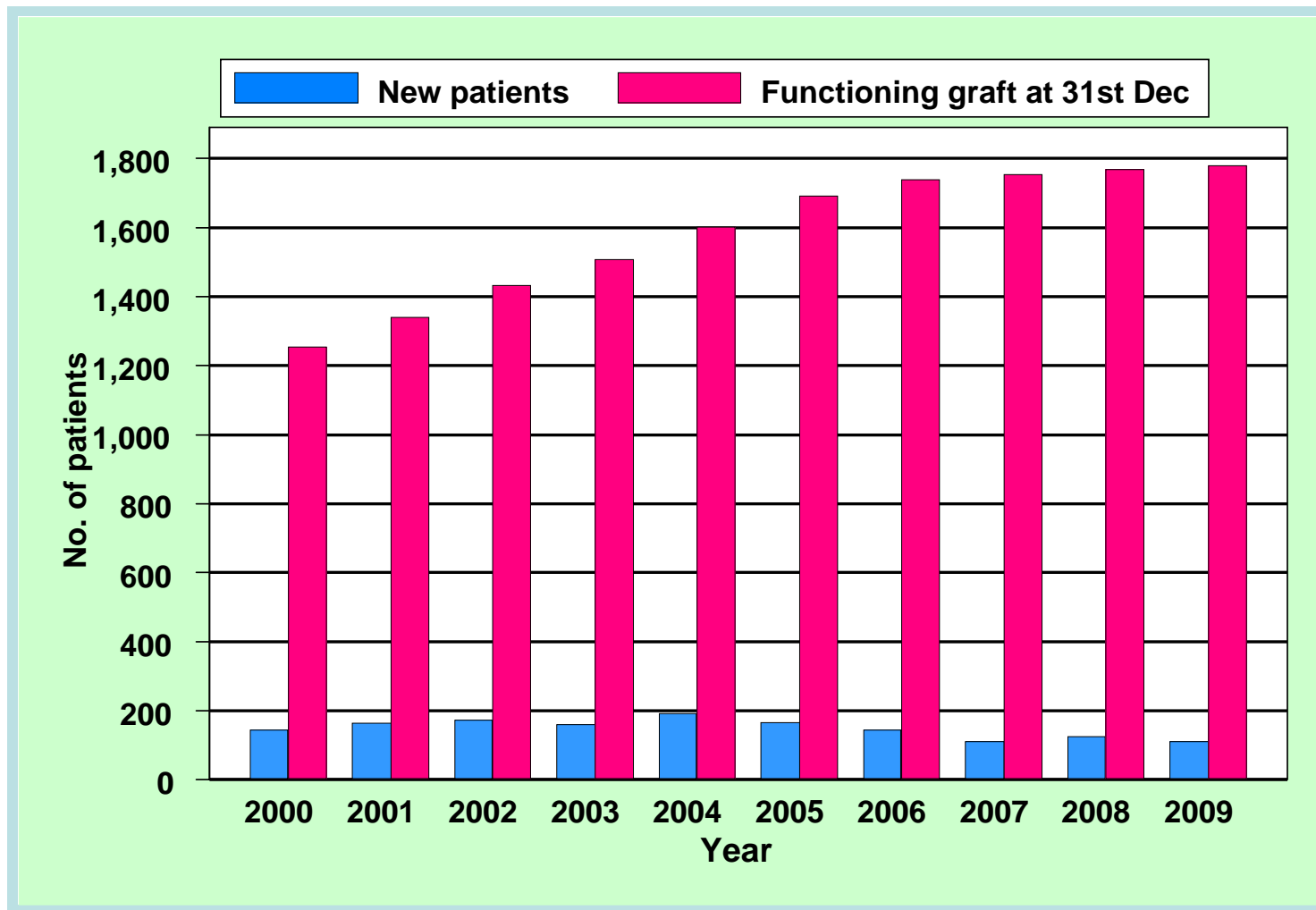
Expert Panel:

Dr Goh Bak Leong (Chairperson)
Dato' Dr Zaki Morad b Mohd Zaher
Dr Fan Kin Sing
Dato' Dr (Mr) Rohan Malek
Dr S. Prasad Menon
Dr Lily Mushahar
Dr Lim Soo Kun

**Table 5.1.1: Stock and Flow of Renal Transplantation,
2000-2009**

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
New transplant patients	143	163	172	160	192	165	145	110	124	109
Died	30	37	35	39	42	44	55	41	52	39
Graft failure	32	40	39	42	44	21	38	38	40	34
Lost to Follow up	8	2	4	5	11	10	5	17	17	13
Functioning graft at 31st December	1255	1339	1433	1507	1602	1692	1739	1753	1768	1779

Figure 5.1.1: Stock and Flow of Renal Transplantation, 2000-2009



**Table 5.1.2: New transplant rate per million population (pmp),
2000-2009**

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
New transplant patients	143	163	172	160	192	165	145	110	124	109
New transplant rate, pmp	6	7	7	6	8	6	5	4	4	4

Figure 5.1.2: New transplant rate, 2000-2009

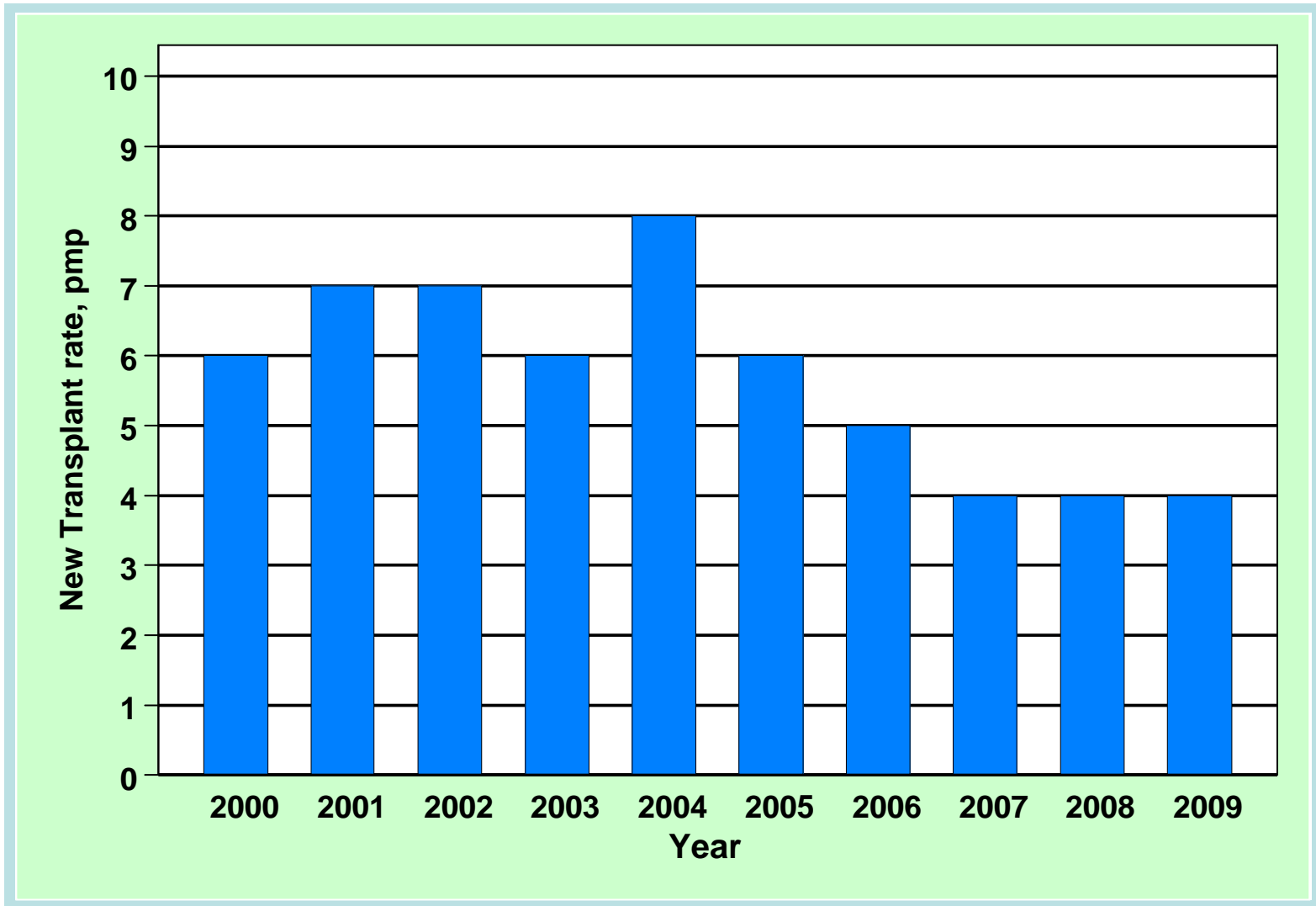


Table 5.1.3: Transplant prevalence rate per million population (pmp), 2000-2009

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Functioning graft at 31st December	1255	1339	1433	1507	1602	1692	1739	1753	1768	1779
Transplant prevalence rate, pmp	53	56	58	60	63	65	65	65	64	63

Figure 5.1.3: Transplant prevalence rate, 2000-2009

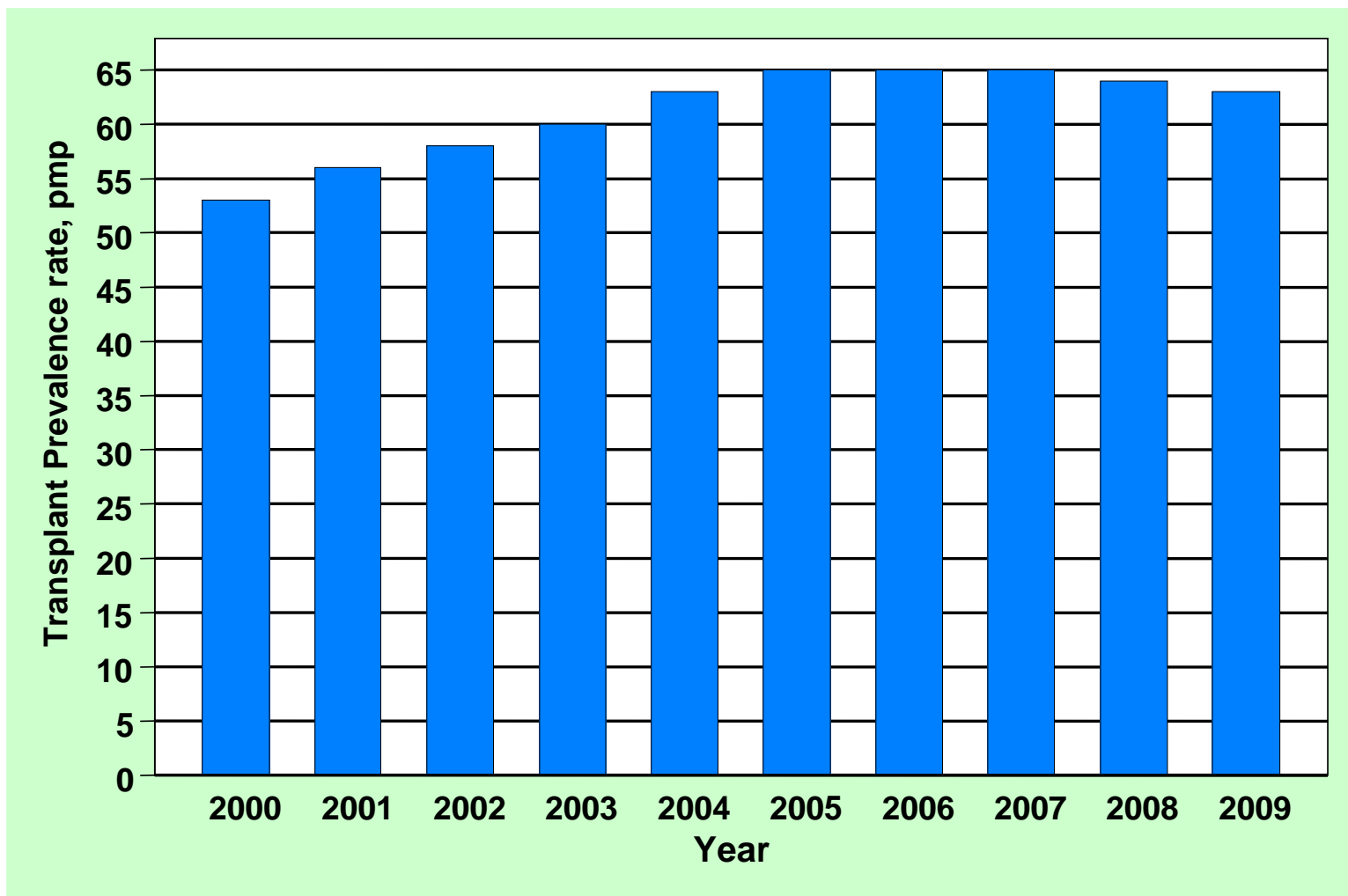


Table 5.1.4: Place of transplantation, 2000-2009

Year	2000		2001		2002		2003		2004	
	No.	%	No.	%	No.	%	No.	%	No.	%
HKL	28	20	33	20	30	17	26	16	20	10
UMMC	19	13	23	14	15	9	6	4	7	4
Selayang Hospital	4	3	11	7	11	6	11	7	11	6
Other local	3	2	4	3	1	1	1	1	2	1
China	80	56	83	51	103	60	111	69	139	72
India	9	6	8	5	12	7	4	3	11	6
Other overseas	0	0	1	1	0	0	1	1	2	1
Unknown	0	0	0	0	0	0	0	0	0	0
Total	143	100	163	100	172	100	160	100	192	100

Year	2005		2006		2007		2008		2009		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
HKL	31	19	35	24	36	33	32	26	34	31	305	21
UMMC	7	4	5	3	3	3	10	8	6	6	101	7
Selayang Hospital	5	3	9	6	14	13	10	8	18	17	104	7
Other local	4	2	2	1	4	4	8	7	6	6	35	2
China	109	66	84	58	45	41	61	49	41	38	856	58
India	6	4	7	5	3	3	2	2	2	2	64	4
Other overseas	3	2	3	2	5	5	1	1	0	0	16	1
Unknown	0	0	0	0	0	0	0	0	2	2	2	0
TOTAL	165	100	145	100	110	100	124	100	109	100	1483	100

Table 5.2.1: Renal Transplant Recipients' Characteristics, 2000-2009

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
New Transplant Patients	143	163	172	160	192	165	145	110	124	109
Age at transplant (years), Mean	39	41	41	42	42	38	37	38	37	37
Age at transplant (years), SD	14	13	12	13	13	14	15	16	14	13
% Male	64	63	58	66	63	70	67	64	58	60
% Diabetic (co-morbid/ primary renal disease)	15	18	15	23	21	21	20	14	18	12
% HBsAg positive	5	5	7	8	5	4	7	6	3	3
% Anti-HCV positive	8	15	9	10	8	2	8	9	3	7

**Table 5.2.2: Primary causes of end stage renal failure,
2000-2009**

Year	2000		2001		2002		2003		2004	
	No.	%	No.	%	No.	%	No.	%	No.	%
New transplant patients	143	100	163	100	172	100	160	100	192	100
Glomerulonephritis	50	35	44	27	54	31	55	34	64	33
Diabetes Mellitus	16	11	23	14	16	9	27	17	32	17
Hypertension	20	14	17	10	24	14	26	16	52	27
Obstructive uropathy	3	2	3	2	2	1	2	1	4	2
ADPKD	3	2	1	1	3	2	5	3	5	3
Drugs/ toxic nephropathy	0	0	0	0	0	0	2	1	2	1
Hereditary nephritis	0	0	0	0	0	0	0	0	1	1
Unknown	54	38	61	37	70	41	58	36	82	43
Others	12	8	23	14	15	9	12	8	28	15

Year	2005		2006		2007		2008		2009	
	No.	%	No.	%	No.	%	No.	%	No.	%
New transplant patients	165	100	145	100	110	100	124	100	109	100
Glomerulonephritis	45	27	53	37	29	26	30	24	35	32
Diabetes Mellitus	30	18	22	15	10	9	18	15	12	11
Hypertension	41	25	32	22	27	25	22	18	25	23
Obstructive uropathy	3	2	6	4	1	1	2	2	4	4
ADPKD	3	2	1	1	2	2	0	0	5	5
Drugs/ toxic nephropathy	0	0	1	1	0	0	2	2	1	1
Hereditary nephritis	0	0	0	0	0	0	0	0	0	0
Unknown	52	32	44	30	42	38	54	44	42	39
Others	16	10	16	11	14	13	13	10	2	2

Table 5.3.1: Type of Renal Transplantation, 2000-2009

Year	2000		2001		2002		2003		2004	
	No.	%	No.	%	No.	%	No.	%	No.	%
Commercial cadaver	80	56	83	51	103	60	112	70	145	76
Commercial live donor	9	6	7	4	11	6	3	2	6	3
Live donor (genetically related)	21	15	32	20	33	19	25	16	21	11
Live donor (emotionally related)	6	4	4	2	3	2	5	3	2	1
Cadaver	27	19	37	23	22	13	15	9	17	9
Total	143	100	163	100	172	100	160	100	191	100

Year	2005		2006		2007		2008		2009	
	No.	%	No.	%	No.	%	No.	%	No.	%
Commercial cadaver	105	64	84	59	45	42	53	46	17	19
Commercial live donor	9	6	5	4	3	3	1	1	9	10
Live donor (genetically related)	37	23	24	17	20	19	32	28	20	22
Live donor (emotionally related)	3	2	4	3	13	12	6	5	10	11
Cadaver	9	6	26	18	27	25	23	20	33	37
Total	163	100	143	100	108	100	115	100	89	100

Table 5.3.2: Biochemical data, 2006-2009

Biochemical parameter	Summary	2006	2007	2008	2009
Creatinine, umol/L	N	1592	1688	1697	1692
	Mean	135.7	131.8	131.9	128.2
	SD	81.3	77.6	80.8	62.8
	Median	120	116	115	115
	Minimum	21.7	36	29	10.7
	Maximum	1152	1186	1181	657
Hb, g/dL	N	1592	1688	1697	1692
	Mean	12.7	12.8	12.8	12.6
	SD	1.9	1.9	1.9	1.8
	Median	12.8	12.8	12.8	12.8
	Minimum	3.3	4.4	6.2	5.3
	Maximum	19.8	18.7	18.6	18.5
Albumin, g/L	N	1592	1688	1697	1692
	Mean	39.6	39.7	39.7	39.6
	SD	0.7	0.8	0.8	1.2
	Median	39.6	39.6	39.6	39.6
	Minimum	29	29	30	21
	Maximum	48	48	50	50
Calcium, mmol/L	N	1592	1688	1697	1692
	Mean	2.3	2.3	2.3	2.3
	SD	0.2	0.2	0.2	0.2
	Median	2.3	2.3	2.3	2.3
	Minimum	1.1	1.4	1	1.1
	Maximum	3.1	3.2	3.5	3.3
Phosphate, mmol/L	N	1592	1688	1697	1692
	Mean	1.1	1.1	1.1	1.1
	SD	0.2	0.3	0.3	0.2
	Median	1.1	1.1	1.1	1.1
	Minimum	0.5	0.5	0.5	0.5
	Maximum	3.5	3.9	3.2	2.8
Biochemical parameter	Summary	2006	2007	2008	2009
Alkaline Phosphate (ALP), U/L	N	1592	1688	1697	1692
	Mean	79.1	79.4	78.9	79.9
	SD	43.2	39.8	46.5	45.3
	Median	71	72.5	72	73
	Minimum	24	22	20	21
	Maximum	700	508	985	732

Biochemical parameter	Summary	2006	2007	2008	2009
ALT, U/L	N	1592	1688	1697	1692
	Mean	29.9	29.9	30.1	29.9
	SD	30.4	25.6	37.8	32.6
	Median	22	23	23	24
	Minimum	4	4	4	4
	Maximum	433	356	881	881
Total cholesterol, mmol/L	N	1592	1688	1697	1692
	Mean	5.3	5.2	5.2	5.2
	SD	1	1	1	1.1
	Median	5.3	5.3	5.3	5.3
	Minimum	1.5	1.7	2	1.9
	Maximum	11.1	11.4	11.2	10.6
LDL cholesterol, mmol/L	N	1592	1688	1697	1692
	Mean	3	2.9	2.9	2.8
	SD	0.8	0.8	0.8	1
	Median	2.9	2.9	2.9	2.9
	Minimum	1	1	0.9	0.9
	Maximum	11.1	8.9	7.7	10.8
HDL cholesterol, mmol/L	N	1592	1688	1697	1692
	Mean	1.6	1.5	1.6	1.5
	SD	0.5	0.4	0.5	0.5
	Median	1.6	1.6	1.6	1.6
	Minimum	0.4	0.4	0.5	0.4
	Maximum	5.8	7.5	7.5	6.9
Systolic Blood Pressure, mmHg	N	1592	1688	1697	1692
	Mean	130.7	131.6	129.5	130.1
	SD	15.9	15.7	15.3	14.7
	Median	130	130	130	130
	Minimum	66	80	80	65
	Maximum	210	210	245	210
Diastolic Blood Pressure, mmHg	N	1592	1688	1697	1692
	Mean	78.9	78.8	77.5	78.3
	SD	9.8	9.4	9.2	8.7
	Median	80	80	79	79
	Minimum	30	20	20	40
	Maximum	120	116	133	120

Table 5.3.3: Medication data, 2006-2009

Medication data	Single drug treatment								Combined drug treatment							
	2006		2007		2008		2009		2007		2007		2008		2009	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
All	1482	100	1665	100	1427	100	1739	100	1482	100	1665	100	1427	100	1739	100
(i) Immunosuppressive drug(s) treatment																
Prednisolone	8	1	9	1	6	0	6	0	1444	97	1611	97	1384	97	1638	94
Azathioprine	0	0	0	0	0	0	1	0	497	34	479	29	382	27	383	22
Cyclosporin A	5	0	8	0	2	0	15	1	1119	76	1191	72	983	69	1116	64
Tacrolimus (FK506)	0	0	4	0	3	0	14	1	254	17	348	21	344	24	473	27
Mycophenolate Mofetil (MMF)	0	0	1	0	2	0	0	0	708	48	907	54	775	54	1043	60
Rapamycin	0	0	0	0	1	0	0	0	7	0	33	2	30	2	32	2
Others	0	0	0	0	0	0	1	0	18	1	4	0	1	0	26	1
(ii) Non-Immunosuppressive drug(s) treatment																
Beta blocker	77	5	90	5	88	6	118	7	597	40	735	44	615	43	679	39
Calcium channel blocker	199	13	184	11	138	10	161	9	787	53	905	54	687	48	736	42
ACE inhibitor	39	3	38	2	29	2	40	2	292	20	384	23	287	20	309	18
AIIRB	27	2	18	1	17	1	21	1	141	10	210	13	141	10	146	8
Anti-lipid	156	11	95	6	89	6	115	7	679	46	732	44	627	44	706	41
Other anti-hypertensive	11	1	6	0	25	2	26	1	159	11	140	8	191	13	167	10

Table 5.4.1: Post-transplant complications, 2006-2009

Post transplant complications	Complication developed before transplant (regardless of complication after transplantation)								Complication developed only after transplantation							
	2006		2007		2008		2009		2006		2007		2008		2009	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
All patients	1592	100	1688	100	1704	100	1708	100	1592	100	1688	100	1704	100	1708	100
Diabetes (either as Primary Renal Disease or co-morbid)	218	14	232	14	233	14	211	12	124	8	113	7	119	7	88	5
Cancer	2	0	3	0	2	0	1	0	20	1	21	1	24	1	16	1
Cardiovascular disease + cerebrovascular disorder	73	5	72	4	67	4	51	3	45	3	54	3	72	4	56	3
Hypertension	1036	65	1063	63	1054	62	1025	60	354	22	451	27	413	24	448	26

Table 5.4.2: Transplant Patients Death Rate and Graft Loss, 2000-2009

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
No. at risk	1218	1296	1385	1469	1554	1646	1715	1745	1760	1821
Transplant death	30	37	35	39	42	44	55	41	52	39
Transplant death rate %	3	3	3	3	3	3	3	2	3	2
Graft loss	32	40	39	42	44	21	38	38	40	34
Graft loss rate %	3	3	3	3	3	1	2	2	2	2
Acute rejection	0	0	0	3	19	14	18	12	14	20
Acute rejection rate %	0	0	0	0	1	1	1	1	1	1
All losses	62	77	74	81	86	65	93	79	92	73
All losses rate %	5	6	5	6	6	4	5	5	5	4

Figure 5.4.2(a): Transplant Recipient Death Rate, 2000-2009

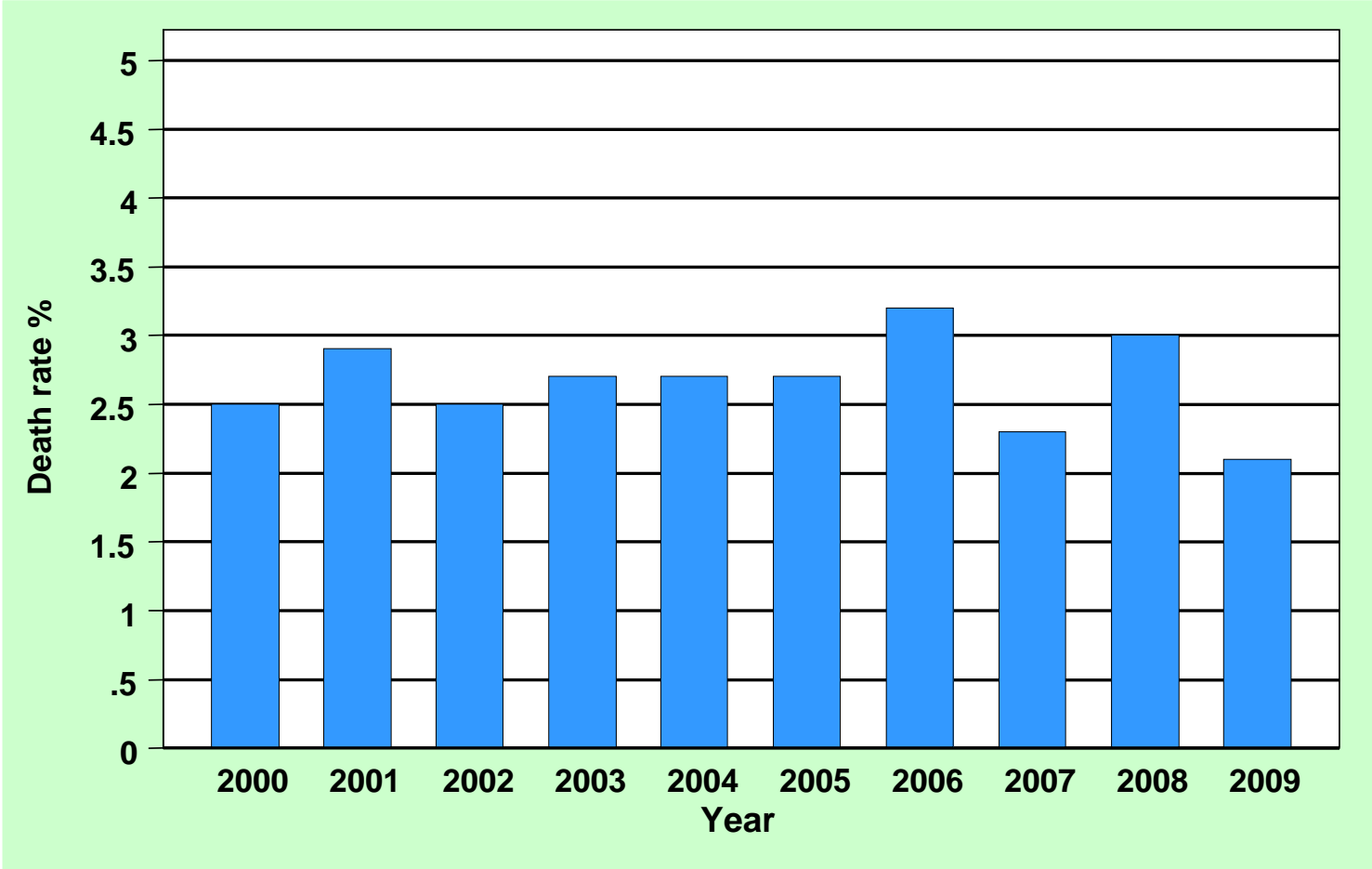
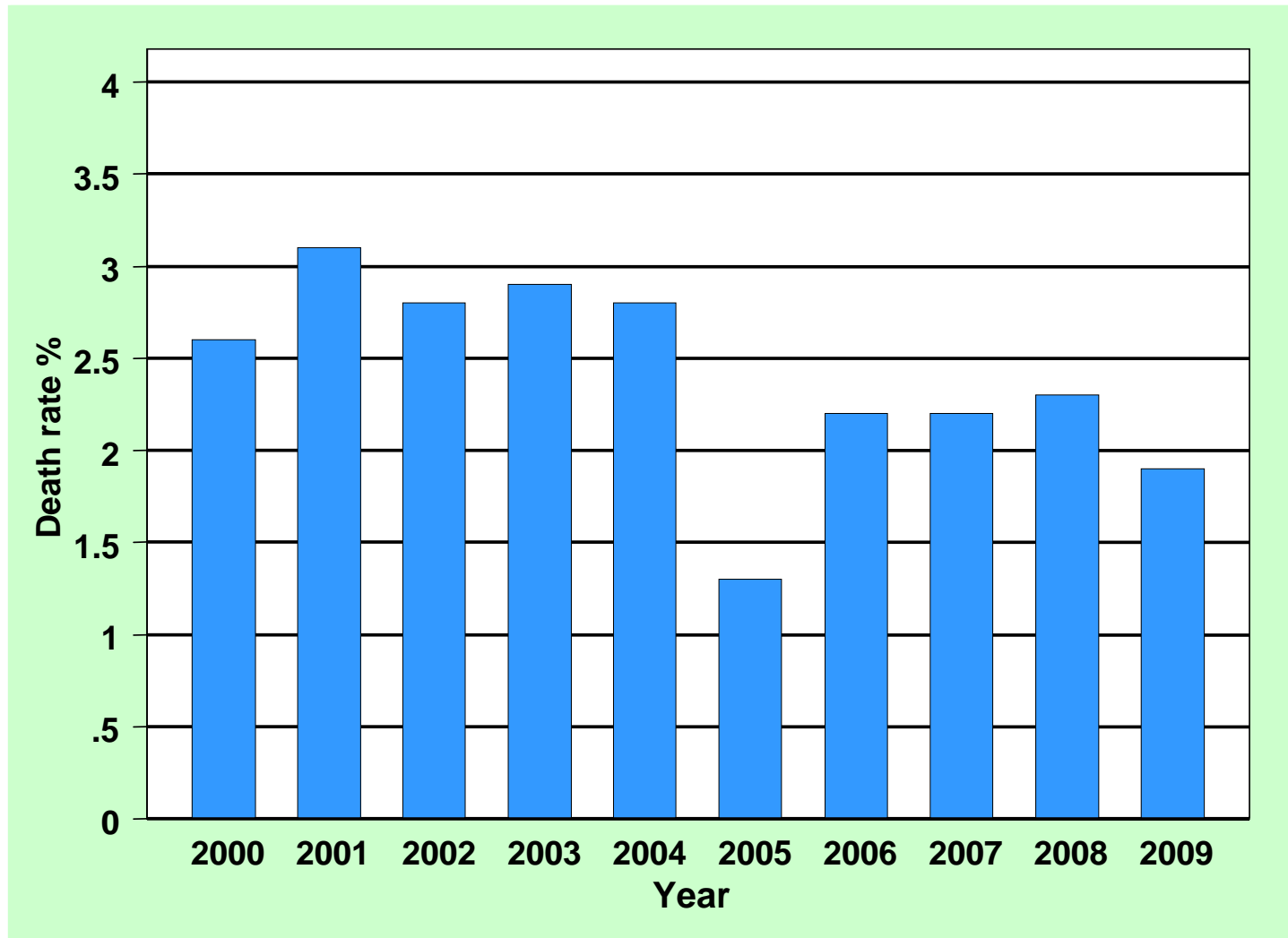


Figure 5.4.2(b): Transplant Recipient Graft Loss Rate, 2000 – 2009



**Table 5.4.3: Causes of Death in Transplant Recipients,
2000-2009**

Year	2000		2001		2002		2003		2004	
	No.	%	No.	%	No.	%	No.	%	No.	%
Cardiovascular	10	30	7	16	5	14	12	27	6	14
Died at home	1	3	5	12	5	14	5	11	5	11
Infection	12	36	21	49	12	34	13	30	15	34
Graft failure	2	6	0	0	0	0	0	0	3	7
Cancer	2	6	6	14	5	14	7	16	8	18
Liver disease	1	3	2	5	3	9	3	7	3	7
Accidental death	1	3	1	2	1	3	1	2	0	0
Others	2	6	0	0	2	6	1	2	3	7
Unknown	2	6	1	2	2	6	2	5	1	2
TOTAL	33	100	43	100	35	100	44	100	44	100

Year	2005		2006		2007		2008		2009	
	No.	%	No.	%	No.	%	No.	%	No.	%
Cardiovascular	5	11	12	20	8	17	10	17	10	23
Died at home	6	13	7	12	5	11	12	21	9	21
Infection	25	56	24	40	15	33	20	34	15	35
Graft failure	0	0	0	0	4	9	0	0	1	2
Cancer	5	11	5	8	6	13	11	19	6	14
Liver disease	3	7	5	8	0	0	0	0	2	5
Accidental death	0	0	1	2	0	0	0	0	0	0
Others	0	0	2	3	1	2	4	7	0	0
Unknown	1	2	4	7	7	15	1	2	0	0
TOTAL	45	100	60	100	46	100	58	100	43	100

Table 5.4.4: Causes of Graft Failure, 2000-2009

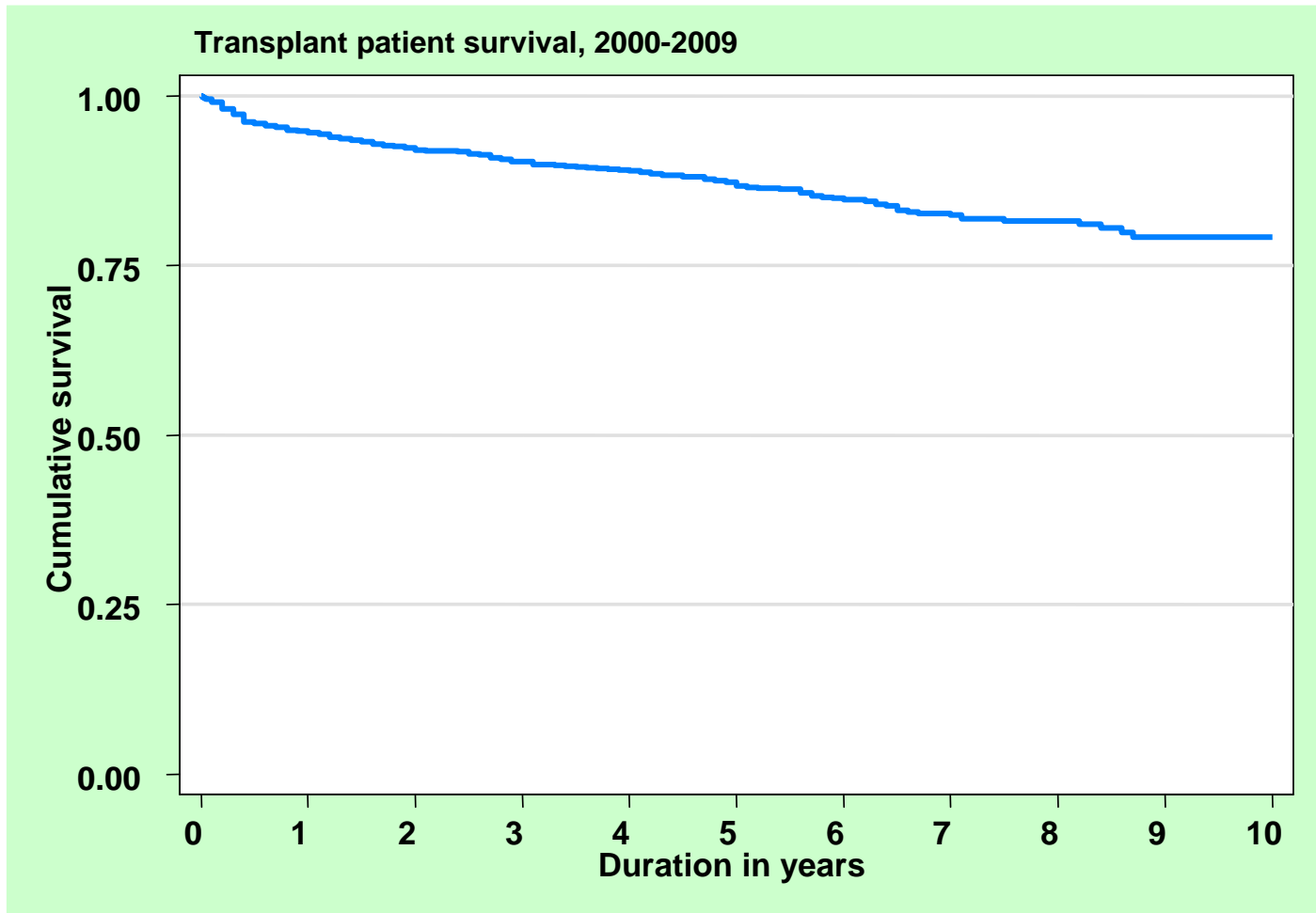
Year	2000		2001		2002		2003		2004	
	No.	%	No.	%	No.	%	No.	%	No.	%
Rejection	19	59	25	61	23	56	21	48	31	70
Calcineurin toxicity	0	0	0	0	1	2	1	2	0	0
Other drug toxicity	0	0	0	0	0	0	0	0	0	0
Ureteric obstruction	0	0	0	0	0	0	0	0	0	0
Infection	1	3	2	5	0	0	2	5	1	2
Vascular causes	3	9	1	2	0	0	3	7	4	9
Recurrent/ de novo renal disease	0	0	2	5	2	5	2	5	1	2
Others	2	6	0	0	4	10	1	2	0	0
Unknown	7	22	11	27	11	27	14	32	7	16
TOTAL	32	100	41	100	41	100	44	100	44	100

Year	2005		2006		2007		2008		2009	
	No.	%	No.	%	No.	%	No.	%	No.	%
Rejection	15	68	26	67	26	68	22	61	15	68
Calcineurin toxicity	0	0	0	0	0	0	1	3	0	0
Other drug toxicity	0	0	0	0	0	0	0	0	0	0
Ureteric obstruction	0	0	0	0	1	3	0	0	0	0
Infection	1	5	2	5	1	3	1	3	1	5
Vascular causes	2	9	4	10	1	3	1	3	2	9
Recurrent/ de novo renal disease	0	0	1	3	0	0	0	0	0	0
Others	1	5	3	8	4	11	0	0	1	5
Unknown	3	14	3	8	5	13	11	31	3	14
TOTAL	22	100	39	100	38	100	36	100	22	100

Table 5.5.1(a) : Patient survival, 2000-2009

Interval (years)	No.	% Survival	SE
0	1483	100	-
1	1263	95	1
2	1102	92	1
3	962	90	1
4	805	89	1
5	639	87	1
6	462	85	1
7	321	82	1
8	200	82	1
9	95	79	2
10	1	79	2

Figure 5.5.1(a): Patient survival, 2000-2009



**Table 5.5.1(b): Risk factors for transplant patient survival
2000 - 2009**

	N	Hazard Ratio	95% CI	P value
Year of transplant:				
2000-2004 ^(ref*)	830	1.00		
2005-2009	653	1.38	(0.92; 2.06)	0.121
Age at transplant:				
<20	153	0.42	(0.18; 0.97)	0.043
20-39 ^(ref*)	552	1.00		
40-54	680	1.97	(1.34; 2.90)	0.001
>=55	98	2.09	(1.20; 3.65)	0.01
Gender:				
Male ^(ref*)	937	1.00		
Female	546	0.9	(0.64; 1.26)	0.528
Primary diagnosis:				
Unknown primary ^(ref*)	755	1.00		
Diabetes mellitus	133	1.32	(0.85; 2.04)	0.218
GN/SLE	356	0.81	(0.54; 1.23)	0.321
Polycystic kidney	25	0.37	(0.05; 2.67)	0.323
Obstructive nephropathy	36	2.22	(0.95; 5.20)	0.066
Others	178	1.26	(0.80; 1.97)	0.314
Type of transplant:				
Commercial cadaver ^(ref*)	827	1.00		
Commercial live donor	60	1.09	(0.56; 2.11)	0.796
Living donor	324	0.83	(0.49; 1.38)	0.466
Cadaver	236	3.55	(2.44; 5.16)	<0.001
HbsAg:				
Negative ^(ref*)	1447	1.00		
Positive	36	1.86	(0.96; 3.62)	0.068
Anti-HCV:				
Negative ^(ref*)	1428	1.00		
Positive	55	1.67	(0.97; 2.85)	0.063

Figure 5.5.1(b): Adjusted Transplant Patient Survival related to Year of Transplant, 2000-2009

(adjusted for age, gender, primary diagnosis, type of transplant, HBsAg and Anti-HCV status)

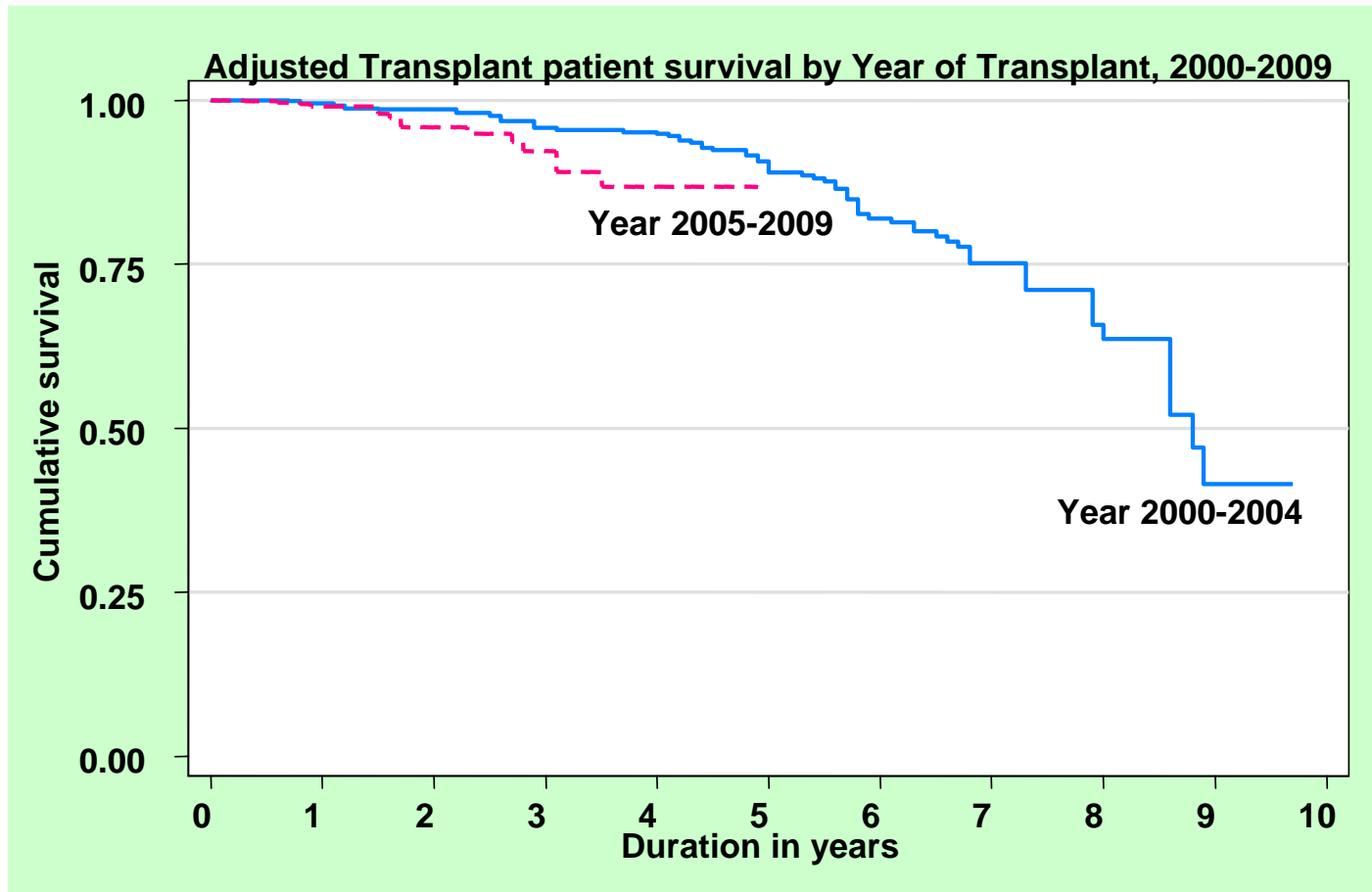
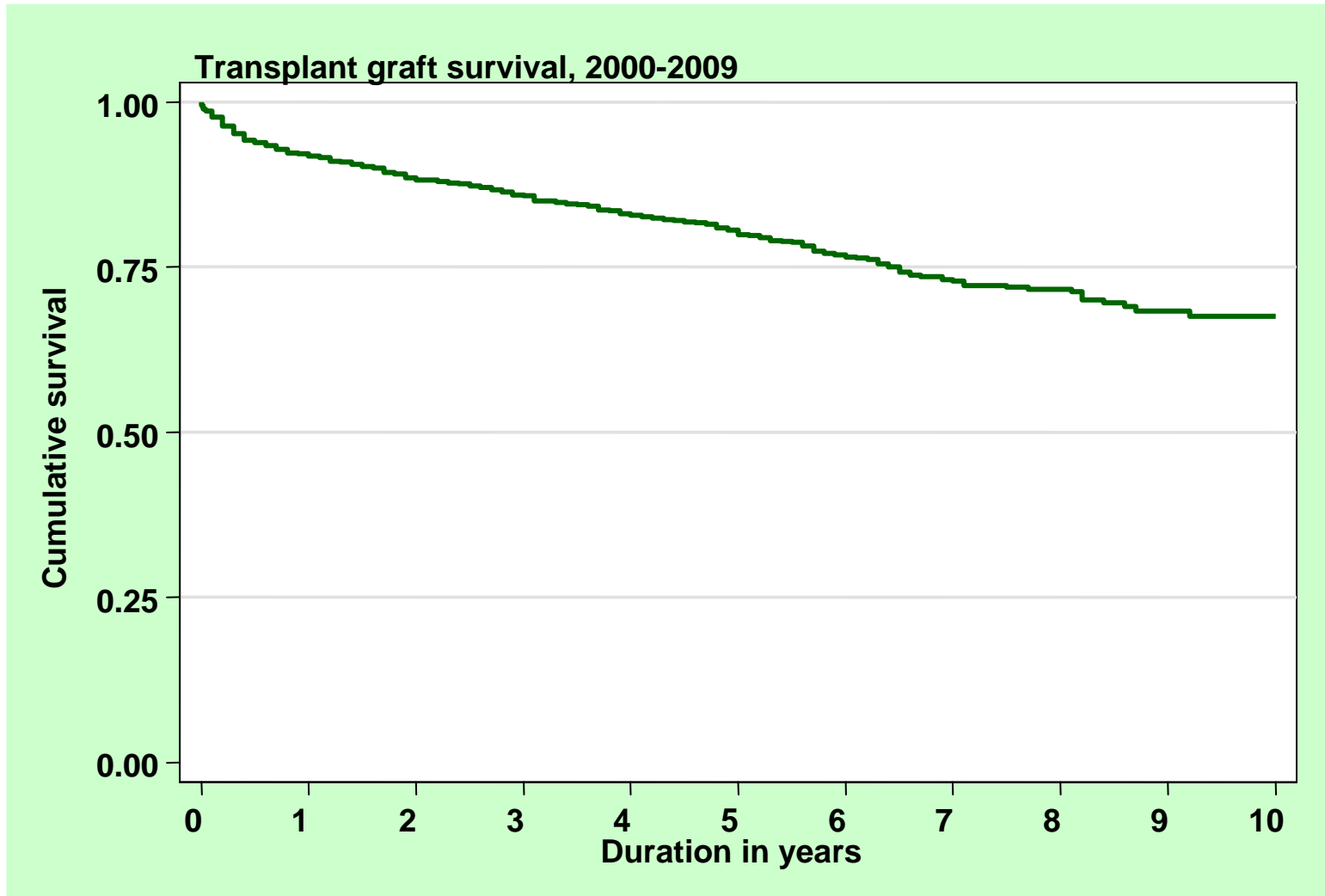


Table 13.5.2 (a): Graft survival, 2000-2009

Interval (years)	No.	% Survival	SE
0	0	100	-
1	1263	92	1
2	1102	88	1
3	962	86	1
4	805	83	1
5	639	80	1
6	462	77	1
7	321	73	2
8	200	72	2
9	95	68	2
10	1	68	2

Figure 5.5.2 (a): Graft survival, 2000-2009



**Table 5.5.2(b): Risk factors for transplant graft survival
2000 - 2009**

	N	Hazard Ratio	95% CI	P value
Year of transplant:				
2000-2004 ^(ref*)	830	1		
2005-2009	653	1.47	(1.07; 2.00)	0.016
Age at transplant:				
<20	153	0.86	(0.55; 1.34)	0.493
20-39 ^(ref*)	552	1		
40-54	680	1.26	(0.94; 1.67)	0.117
>=55	98	1.26	(0.79; 2.02)	0.329
Gender:				
Male ^(ref*)	937	1		
Female	546	0.89	(0.69; 1.16)	0.394
Primary diagnosis:				
Unknown primary ^(ref*)	755	1		
Diabetes mellitus	133	1.29	(0.89; 1.89)	0.181
GN/SLE	356	0.87	(0.63; 1.19)	0.378
Polycystic kidney	25	0.91	(0.33; 2.48)	0.851
Obstructive nephropathy	36	1.52	(0.73; 3.17)	0.267
Others	178	1.54	(1.10; 2.15)	0.011
Type of transplant:				
Commercial cadaver ^(ref*)	827	1		
Commercial live donor	60	1.14	(0.67; 1.92)	0.629
Living donor	324	0.94	(0.65; 1.35)	0.735
Cadaver	236	3.32	(2.47; 4.47)	<0.001
HbsAg:				
Negative ^(ref*)	1447	1		
Positive	36	1.68	(0.92; 3.05)	0.091
Anti-HCV:				
Negative ^(ref*)	1428	1		
Positive	55	1.71	(1.12; 2.60)	0.013

Figure 5.5.2(b): Adjusted Transplant Graft Survival related to Year of Transplant, 2000-2009

(adjusted for age, gender, primary diagnosis, type of transplant, HBsAg and Anti-HCV status)

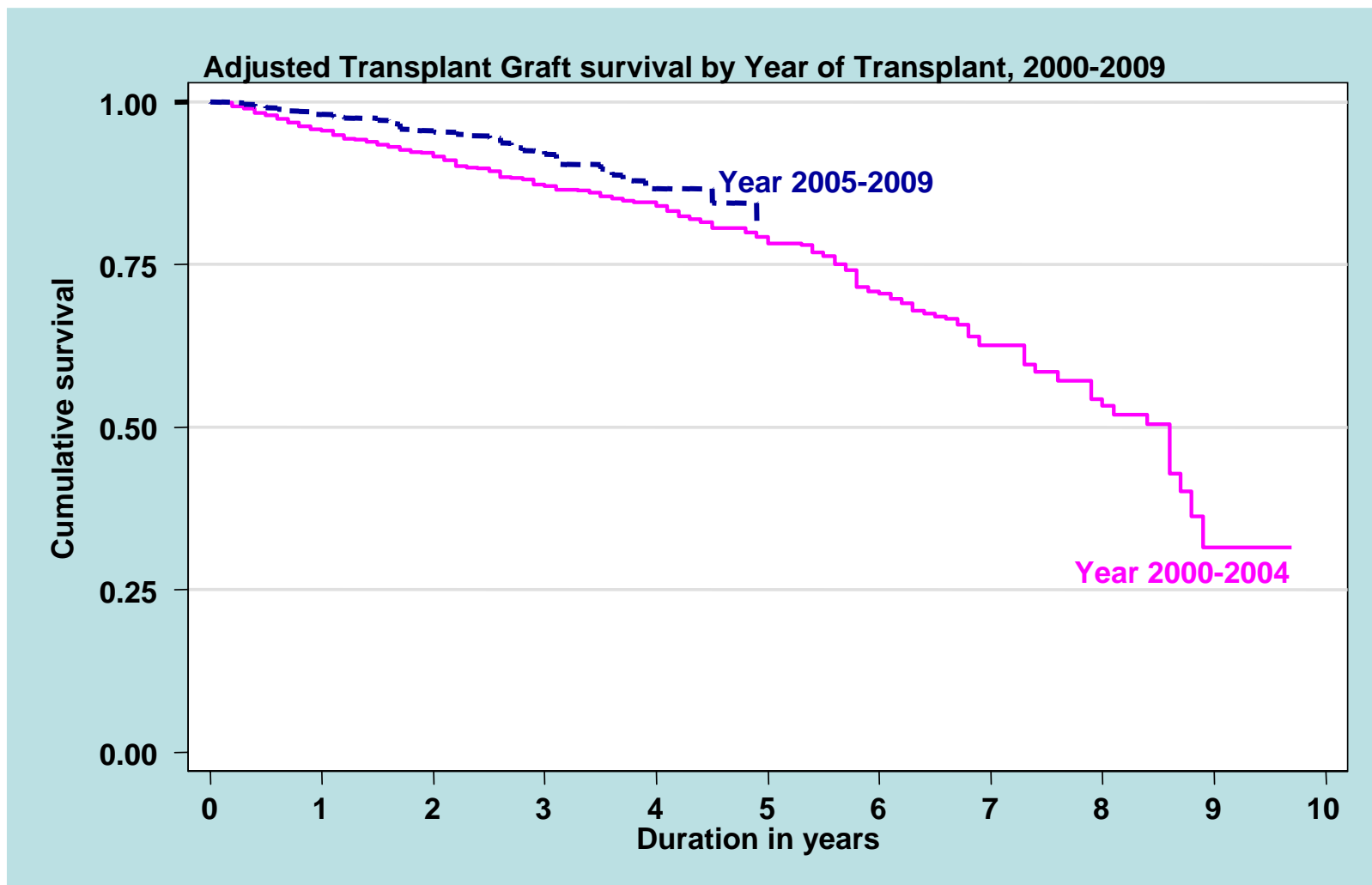


Table 5.5.3: Unadjusted Patient survival by type of transplant, 2000-2009

Type of Transplant	Commercial Cadaver			Commercial Live Donor			Live Donor			Cadaver		
	Interval (years)	No.	% Survival	SE	No.	% Survival	SE	No.	% Survival	SE	No.	% Survival
0	827	100	-	63	100	-	321	100	-	236	100	-
1	761	96	1	54	98	2	271	96	1	159	86	2
2	684	93	1	50	95	3	234	95	1	130	80	3
3	620	92	1	44	93	4	195	94	1	99	77	3
4	524	90	1	37	93	4	163	93	2	78	77	3
5	415	87	1	29	89	5	127	93	2	67	74	3
6	290	86	1	18	78	7	97	92	2	59	72	4
7	188	82	2	13	68	9	73	92	2	48	72	4
8	109	82	2	8	68	9	47	92	2	36	69	4
9	53	81	2	5	68	9	20	90	3	17	63	5
10	1	81	2	-	-	-	-	-	-	-	-	-

Figure 5.5.3: Patient survival by type of transplant, 2000-2009

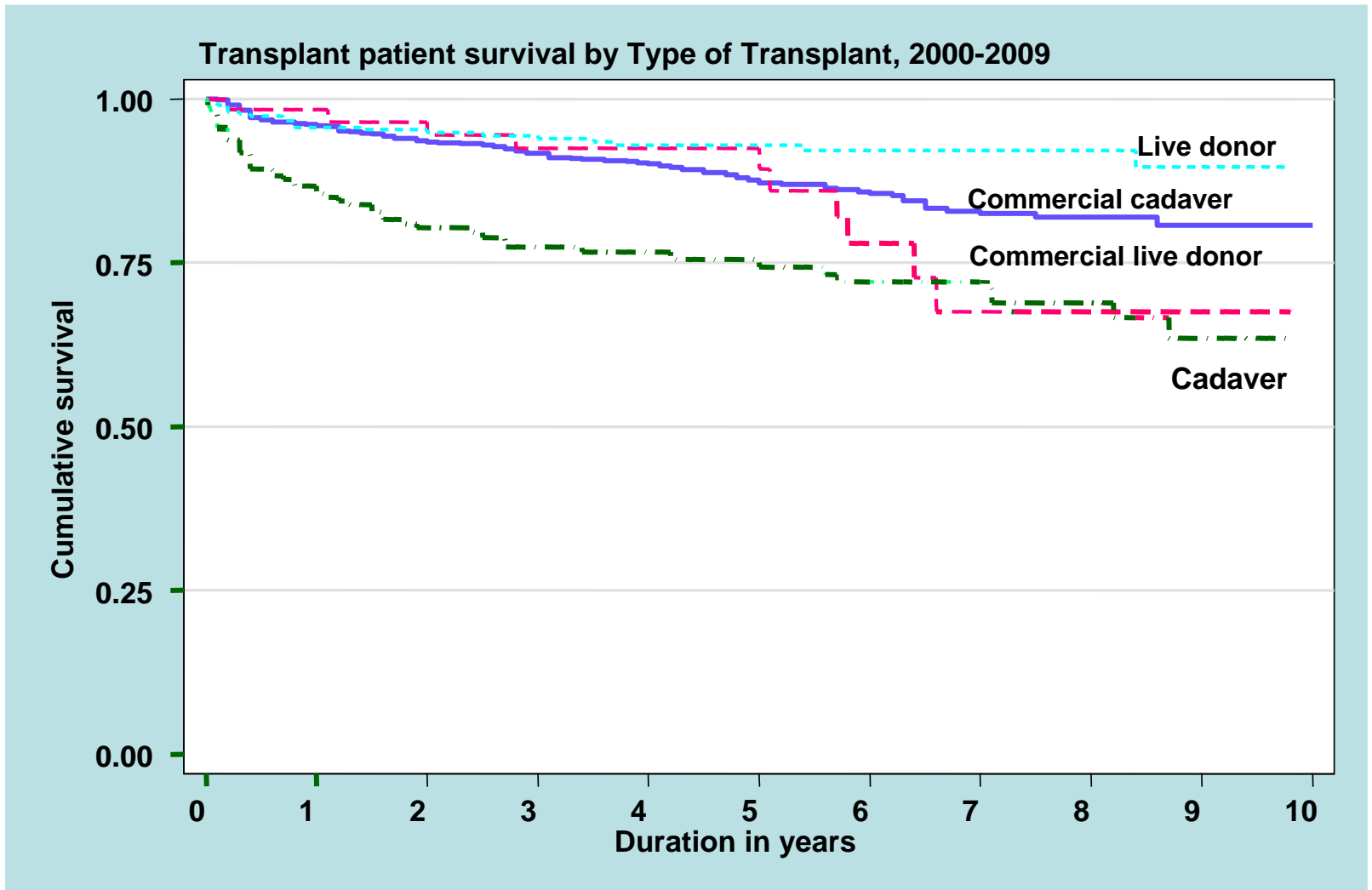


Table 5.5.4: Graft survival by type of transplant, 2000-2009

Type of Transplant	Commercial Cadaver			Commercial Live Donor			Live Donor			Cadaver		
	Interval (years)	No.	% Survival	SE	No.	% Survival	SE	No.	% Survival	SE	No.	% Survival
0	827	100	-	63	100	-	321	100	-	236	100	-
1	761	95	1	54	98	2	271	93	1	159	78	3
2	684	91	1	50	93	3	234	91	2	130	71	3
3	620	89	1	44	87	5	195	90	2	99	66	3
4	524	86	1	37	85	5	163	88	2	78	62	4
5	415	83	1	29	79	6	127	87	2	67	59	4
6	290	80	2	18	66	8	97	82	3	59	57	4
7	188	76	2	13	58	9	73	80	3	48	56	4
8	109	74	2	8	58	9	47	80	3	36	53	4
9	53	72	2	5	58	9	20	76	4	17	47	5
10	1	72	2	-	-	-	-	-	-	-	-	-

Figure 5.5.4: Graft survival by type of transplants, 2000-2009

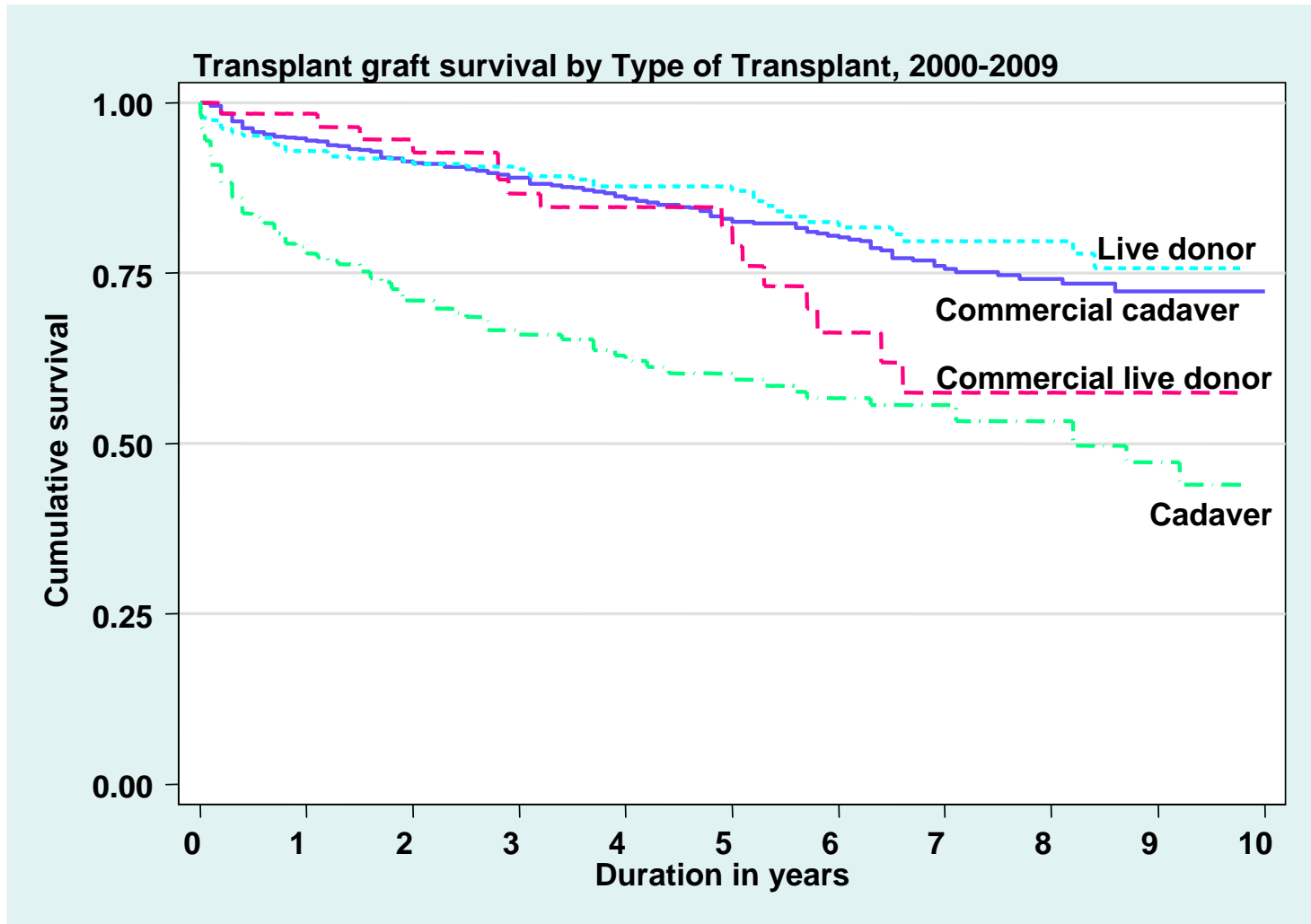


Table 5.5.5: Patient survival by year of transplant (Living related transplant, 2000-2009)

Year of Transplant	2000-2004			2005-2009		
Interval (years)	No.	% Survival	SE	No.	% Survival	SE
0	152	100	-	169	100	-
1	140	93	2	134	98	1
2	135	93	2	99	97	1
3	130	91	2	65	97	1
4	127	90	2	38	95	2
5	125	90	2	2	95	2
6	97	90	3	-	-	-
7	73	90	3	-	-	-
8	47	90	3	-	-	-
9	20	87	3	-	-	-
10	-	-	-	-	-	-

Figure 5.5.5: Patient survival by year of transplant (Living related transplant, 2000-2009)

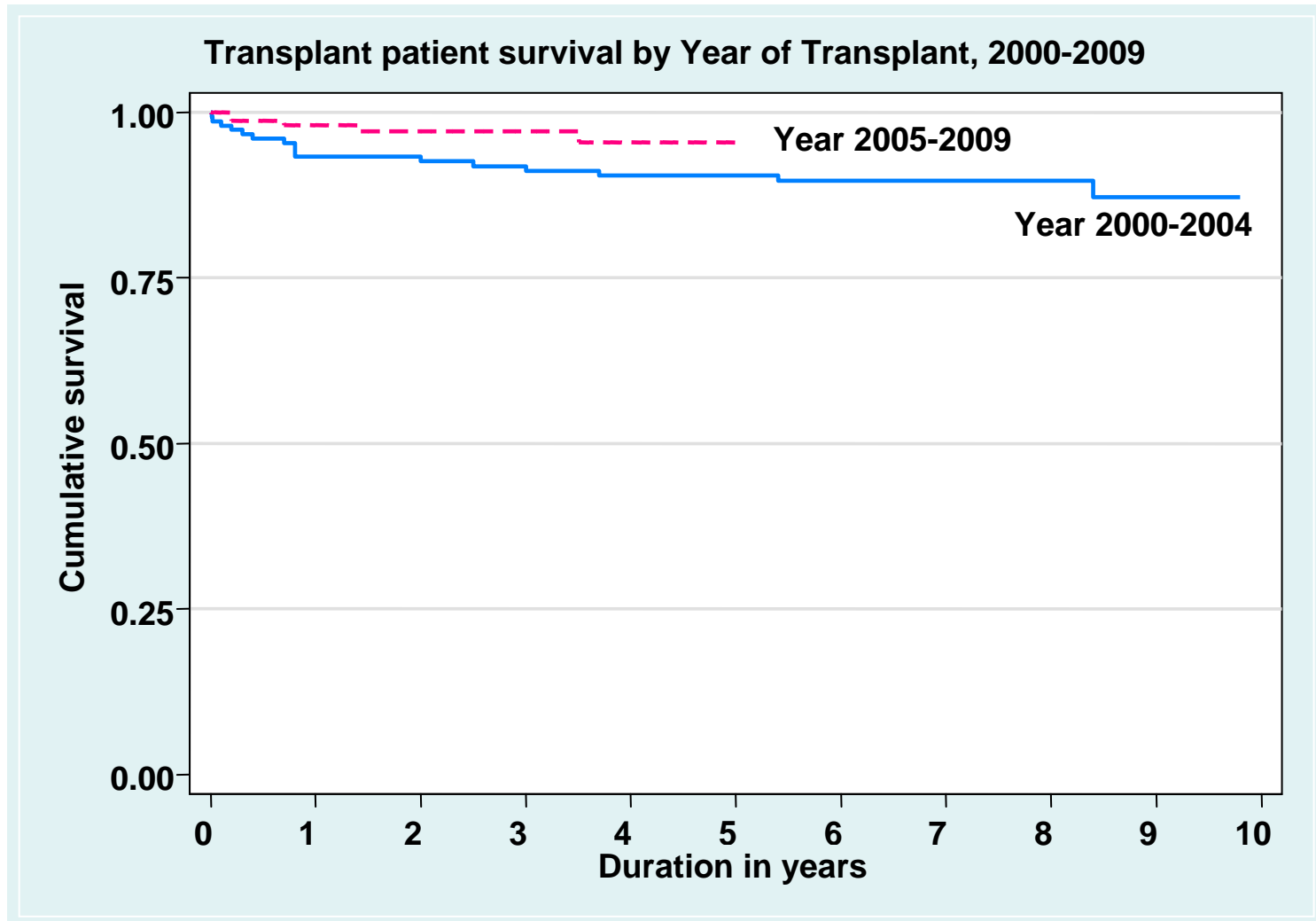


Table 5.5.6: Graft survival by year of transplant (Living related transplant, 2000-2009)

Year of Transplant	2000-2004			2005-2009		
Interval (years)	No.	% Survival	SE	No.	% Survival	SE
0	152	100	-	169	100	-
1	140	90.73	2.36	134	95.1	1.69
2	135	88.74	2.57	99	93.38	2.05
3	130	87.4	2.7	65	93.38	2.05
4	127	84.69	2.94	38	91.71	2.61
5	125	84.01	2.99	2	91.71	2.61
6	97	78.86	3.39	-	-	-
7	73	76.94	3.57	-	-	-
8	47	76.94	3.57	-	-	-
9	20	73.12	4.3	-	-	-
10	-	-	-	-	-	-

*No.=Number at risk SE=standard error

Figure 5.5.6: Graft survival by year of transplant (Living related transplant, 2000-2009)

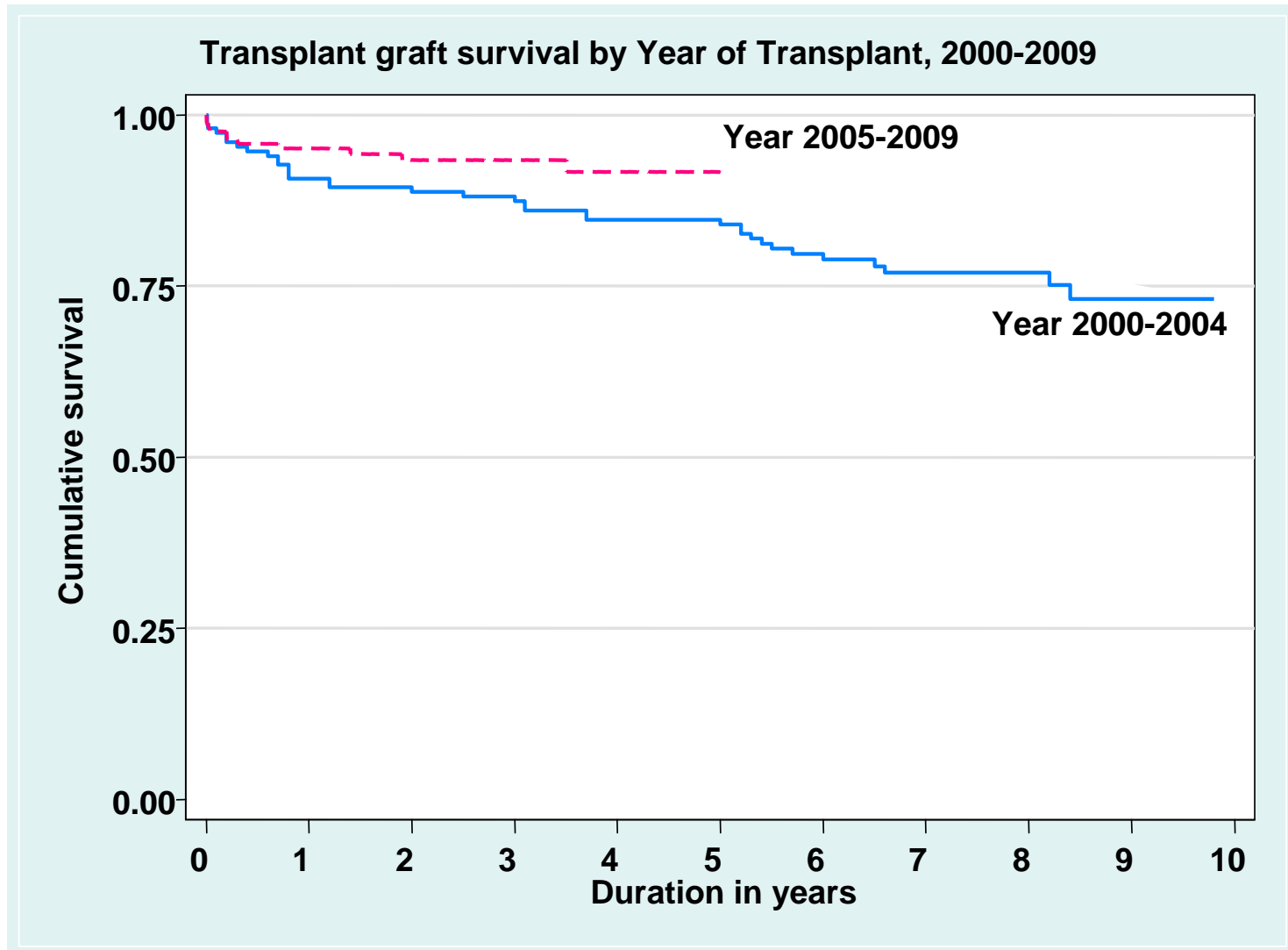


Table 5.5.7: Patient survival by year of transplant (Commercial cadaver transplant, 2000-2009)

Year of Transplant	2000-2004			2005-2009		
Interval (years)	No.	% Survival	SE	No.	% Survival	SE
0	523	100	-	304	100	-
1	488	95	1	273	97	1
2	468	93	1	216	95	1
3	454	91	1	168	94	1
4	433	89	1	91	94	1
5	414	86	2	1	94	1
6	290	86	2	-	-	-
7	188	83	2	-	-	-
8	109	82	2	-	-	-
9	53	81	2	-	-	-
10	1	81	2	-	-	-

Figure 5.5.7: Patient survival by year of transplant (Commercial cadaver transplant, 2000-2009)

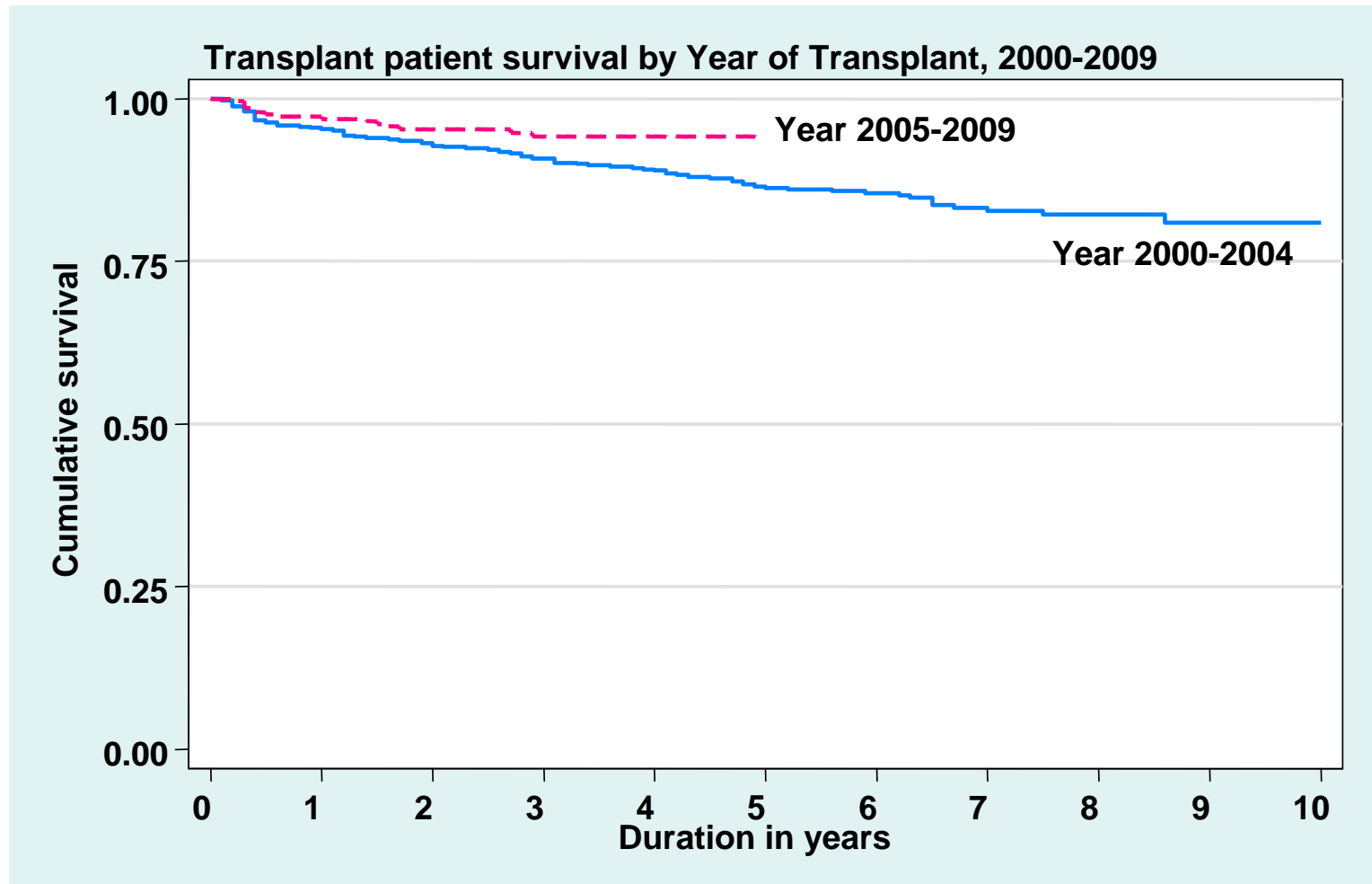


Table 5.5.8: Graft survival by year of transplant (Commercial cadaver transplant, 2000-2009)

Year of Transplant	2000-2004			2005-2009		
Interval (years)	No.	% Survival	SE	No.	% Survival	SE
0	523	100	-	304	100	-
1	488	94	1	273	96	1
2	468	91	1	216	93	2
3	454	88	1	168	92	2
4	433	85	2	91	91	2
5	414	82	2	1	91	2
6	290	81	2	-	-	-
7	188	77	2	-	-	-
8	109	76	2	-	-	-
9	53	75	2	-	-	-
10	1	75	2	-	-	-

*No.=Number at risk SE=standard error

Figure 5.5.8: Graft survival by year of transplant (Commercial cadaver transplant, 2000-2009)

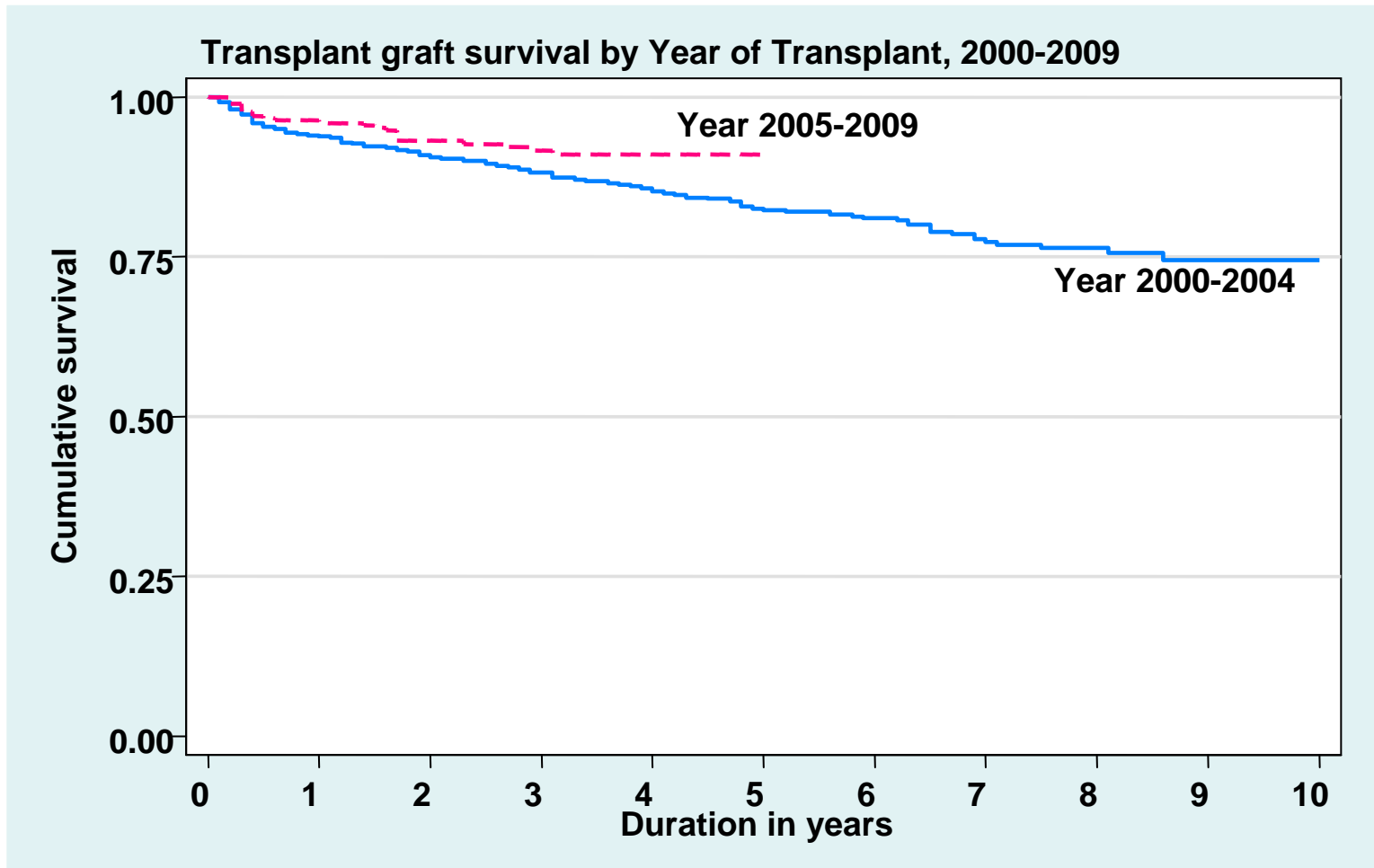


Table 5.6.1: Risk factors for IHD in renal transplant recipients at year 2006, 2007, 2008 and 2009

	2006	2007	2008	2009
Diabetes	21 (1.4)	25 (1.6)	18 (1.1)	28 (1.8)
Hypertension**	454 (31.0)	589 (37.3)	663 (41.7)	644 (41.1)
CKD	177 (12.1)	127 (8.1)	117 (7.4)	155 (9.9)
Diabetes + Hypertension**	156 (10.7)	177 (11.2)	203 (12.8)	163 (10.4)
Diabetes + CKD	18 (1.2)	11 (0.7)	22 (1.4)	18 (1.1)
CKD + Hypertension**	490 (33.5)	516 (32.7)	457 (28.8)	474 (30.2)
Diabetes + CKD + Hypertension**	147 (10.0)	132 (8.4)	109 (6.9)	86 (5.5)

**Hypertension: BP systolic > 140 and BP diastolic > 90

OR have either Beta blocker / Calcium channel blocker / ACE inhibitor / AIIRB / Other anti-hypertensive drugs

GFR (mL/min/1.73m²) = 1.2*(140-age(year))*weight(kg) / creatinine (µmol/L) if male

GFR (mL/min/1.73m²) = 0.85*(1.2*(140-age(year))*weight(kg) / creatinine (µmol/L) if female

CKD stage III-GFR, 30-60

CKD stage IV-GFR, 15-30

CKD stage V-GFR, <15

Figure 5.6.1(b): Venn Diagram for Pre and Post Transplant Complications (in %) at year

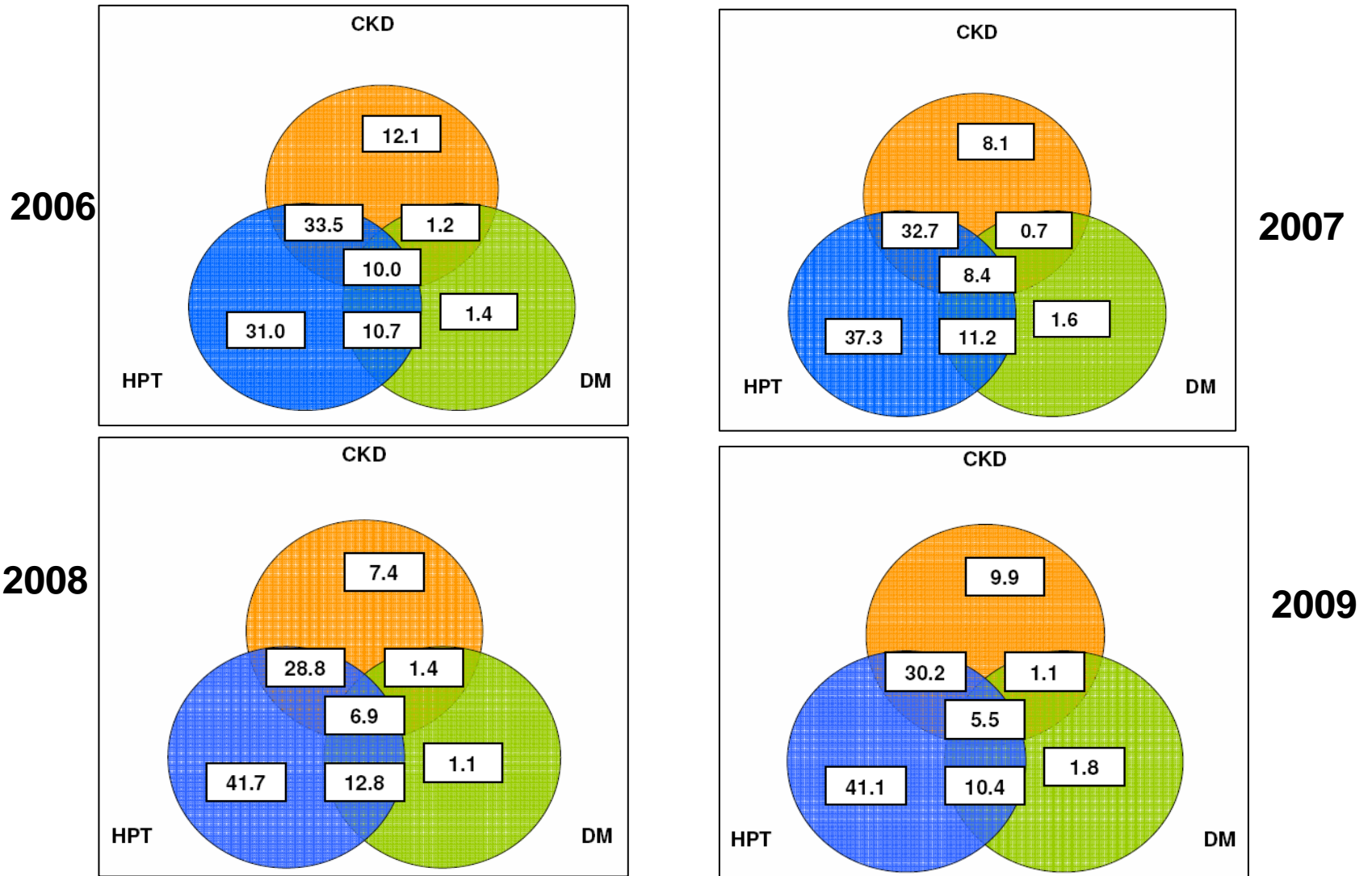


Figure 5.6.1(a): Venn Diagram for Pre and Post Transplant Complications (in %) at year 2006

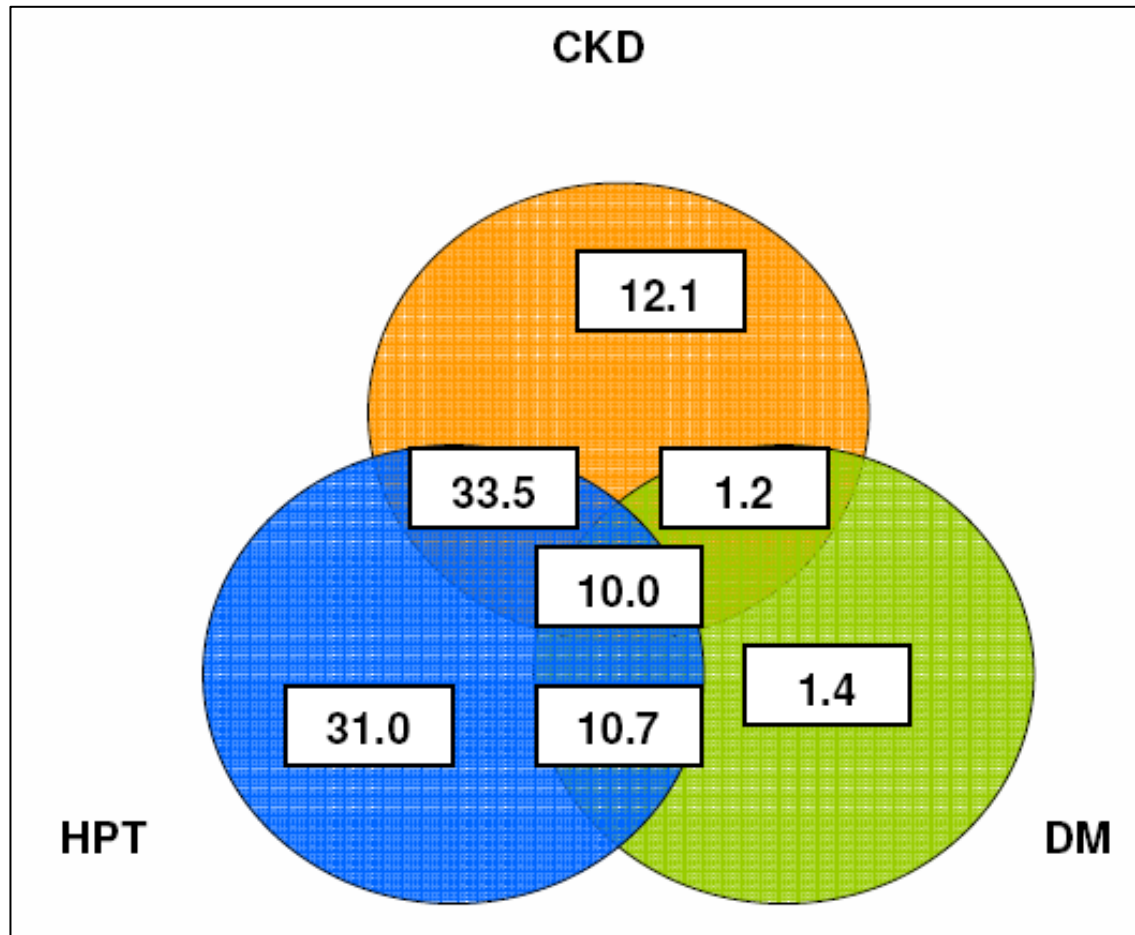


Figure 5.6.1(b): Venn Diagram for Pre and Post Transplant Complications (in %) at year 2007

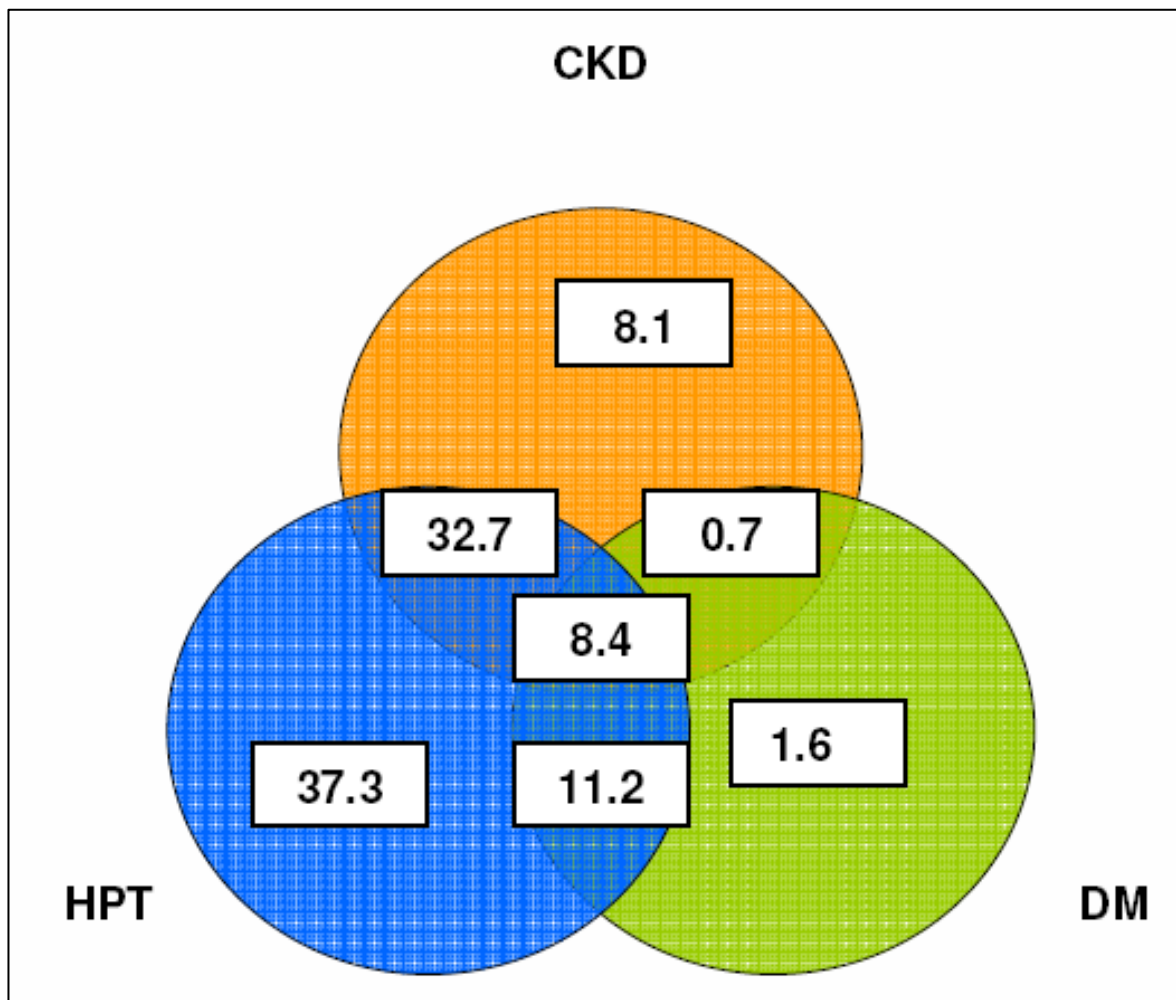


Figure 5.6.1(c): Venn Diagram for Pre and Post Transplant Complications (in %) at year 2008

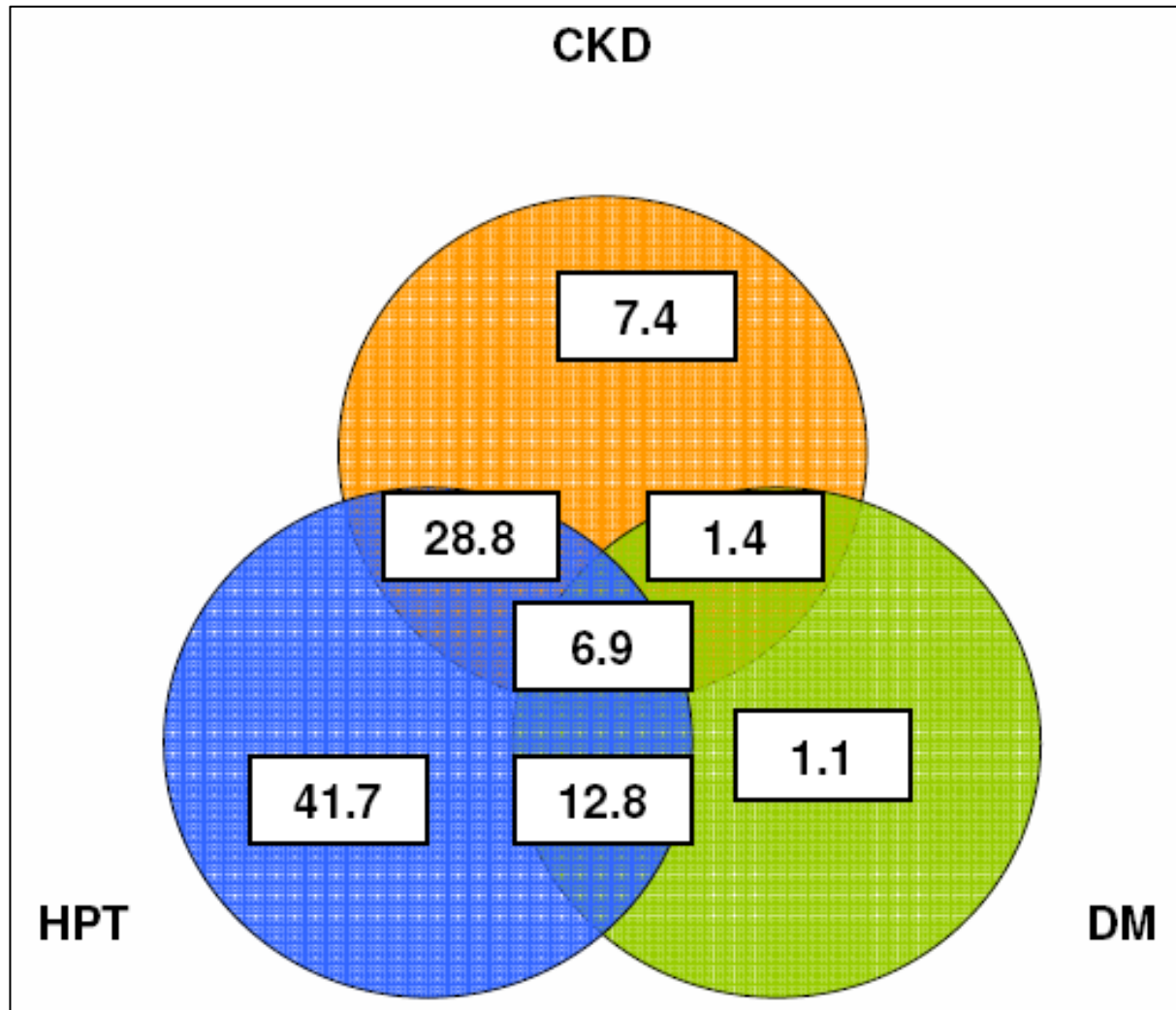


Figure 5.6.1(d): Venn Diagram for Pre and Post Transplant Complications (in %) at year 2009

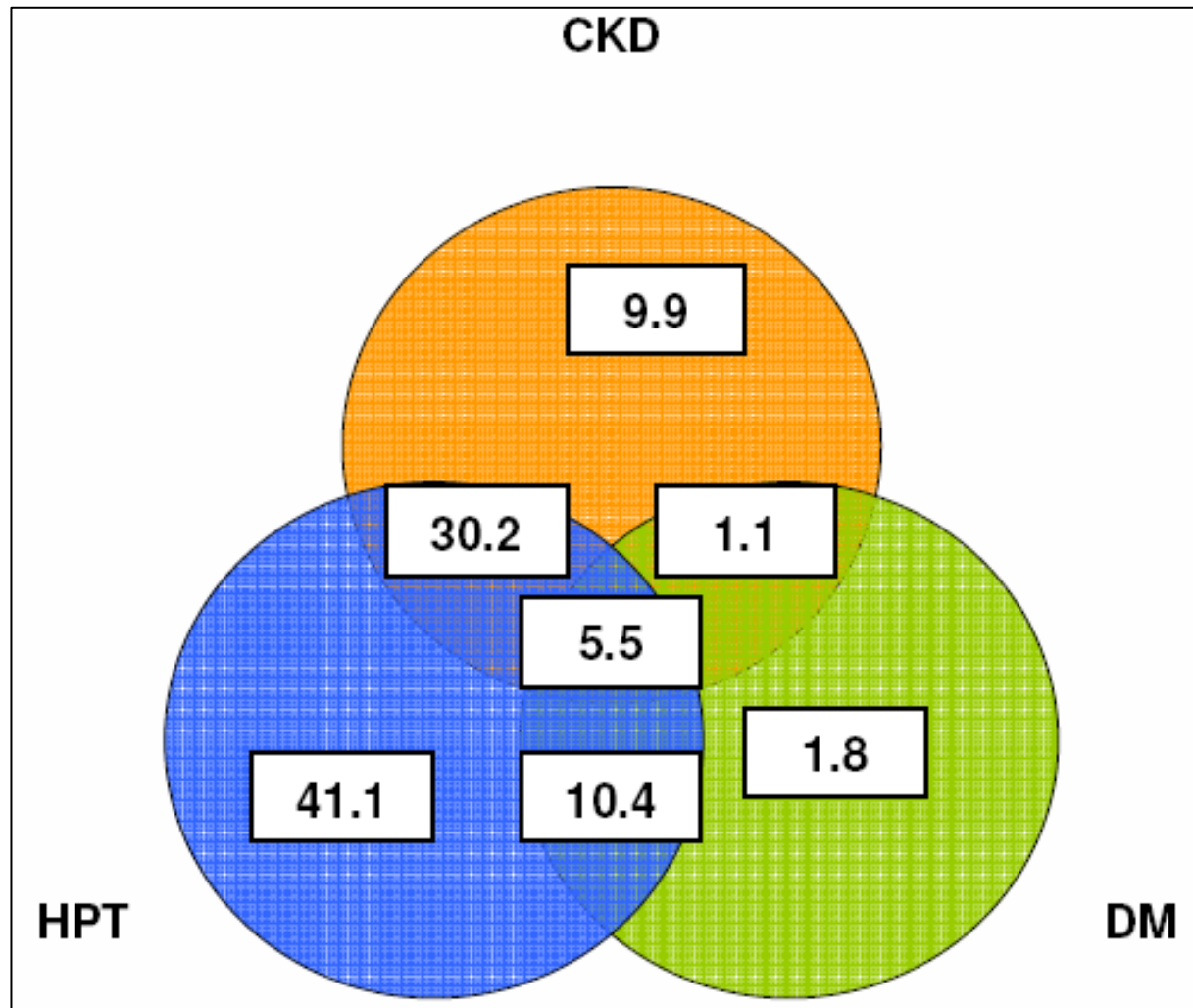


Table 5.6.2(a): Systolic BP, 2006-2009

Year	2006		2007		2008		2009	
Systolic BP	No.	(%)	No.	(%)	No.	(%)	No.	(%)
<120	249	(15.64)	240	(14.22)	289	(17.03)	269	(15.90)
120-129	395	(24.81)	392	(23.22)	377	(22.22)	375	(22.16)
130-139	483	(30.34)	531	(31.46)	611	(36.00)	636	(37.59)
140-159	353	(22.17)	409	(24.23)	335	(19.74)	340	(20.09)
160-179	93	(5.84)	99	(5.86)	75	(4.42)	62	(3.66)
>=180	19	(1.19)	17	(1.01)	10	(0.59)	10	(0.59)

Figure 5.6.2(a): Systolic BP, 2005-2009

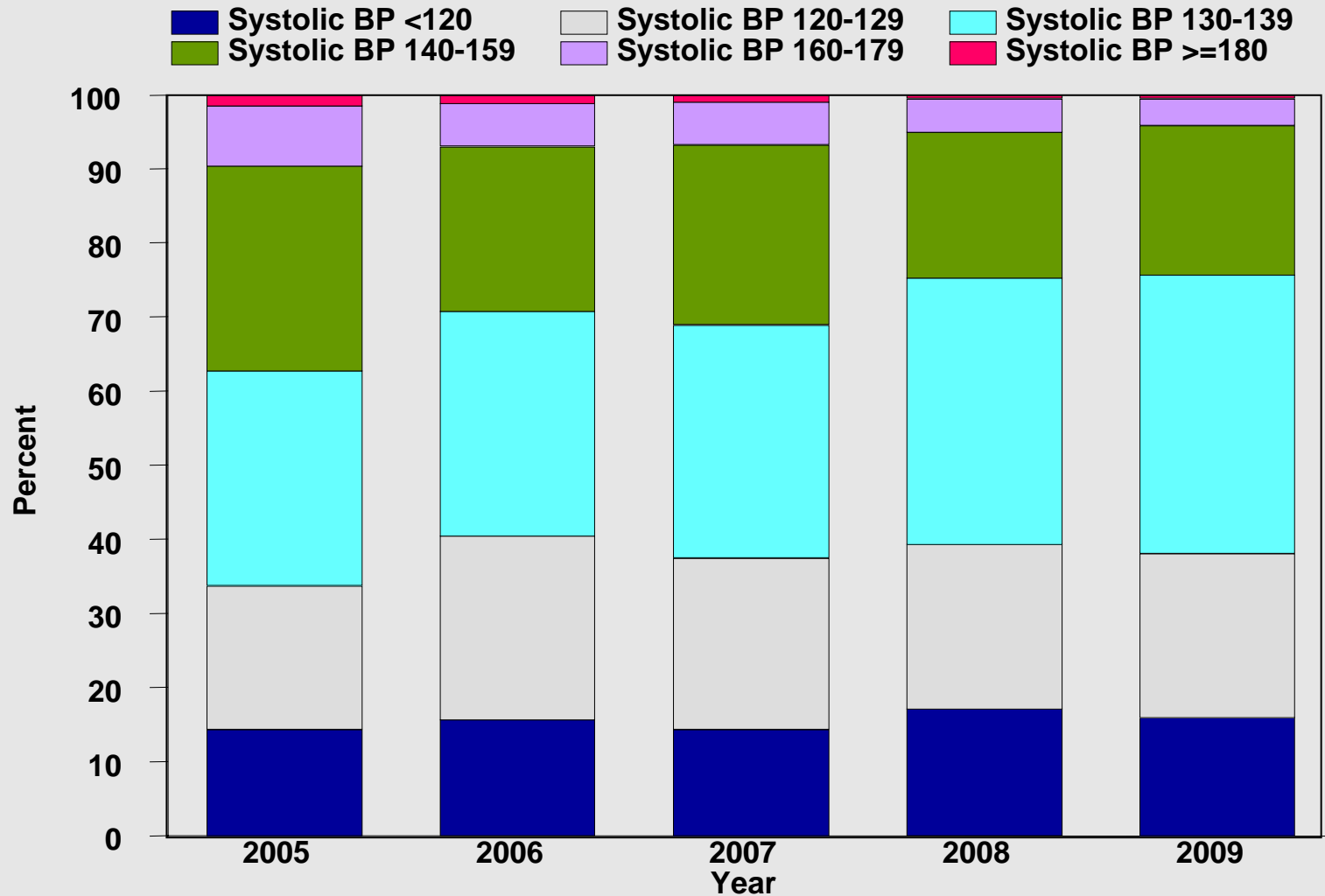


Table 5.6.2(b): Diastolic BP, 2006-2009

Year	2006		2007		2008		2009	
Diastolic BP	No.	(%)	No.	(%)	No.	(%)	No.	(%)
<80	624	(39.20)	699	(41.41)	897	(52.86)	854	(50.47)
80-84	586	(36.81)	610	(36.14)	525	(30.94)	527	(31.15)
85-89	73	(4.59)	74	(4.38)	50	(2.95)	84	(4.96)
90-99	244	(15.33)	261	(15.46)	198	(11.67)	195	(11.52)
100-109	61	(3.83)	39	(2.31)	22	(1.30)	27	(1.60)
>=110	4	(0.25)	5	(0.30)	5	(0.29)	5	(0.30)

Figure 5.6.2(b): Diastolic BP, 2006-2009

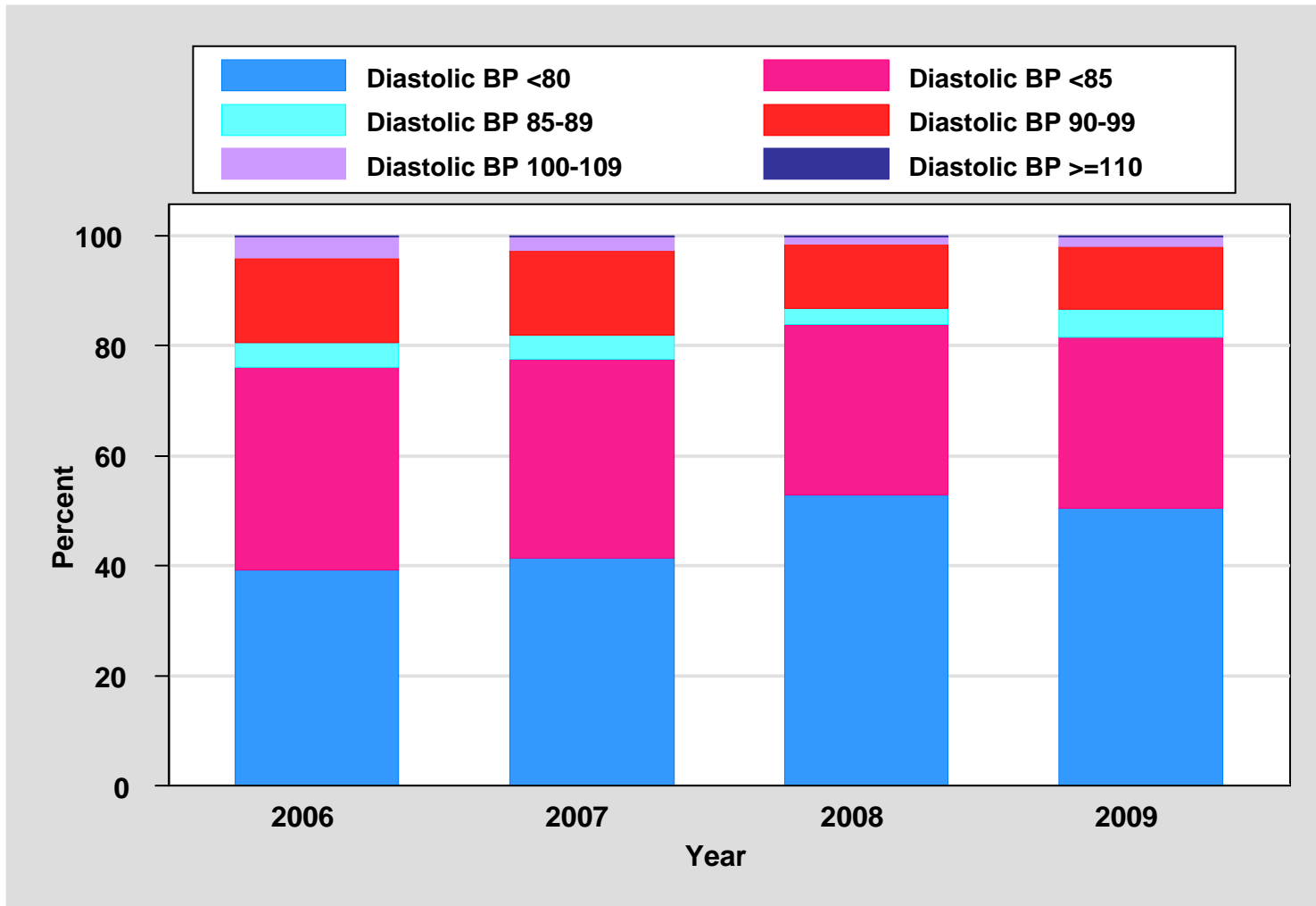


Table 5.6.3: CKD stages, 2006-2009

Year	2006		2007		2008		2009	
CKD stage	No.	(%)	No.	(%)	No.	(%)	No.	(%)
1	116	(7.33)	180	(10.78)	164	(9.81)	165	(9.94)
2	535	(33.80)	593	(35.51)	626	(37.44)	601	(36.20)
3	802	(50.66)	761	(45.57)	738	(44.14)	770	(46.39)
4	108	(6.82)	113	(6.77)	118	(7.06)	106	(6.39)
5	22	(1.39)	23	(1.38)	26	(1.56)	18	(1.08)

Figure 5.6.3: CKD stages by year, 2007-2009

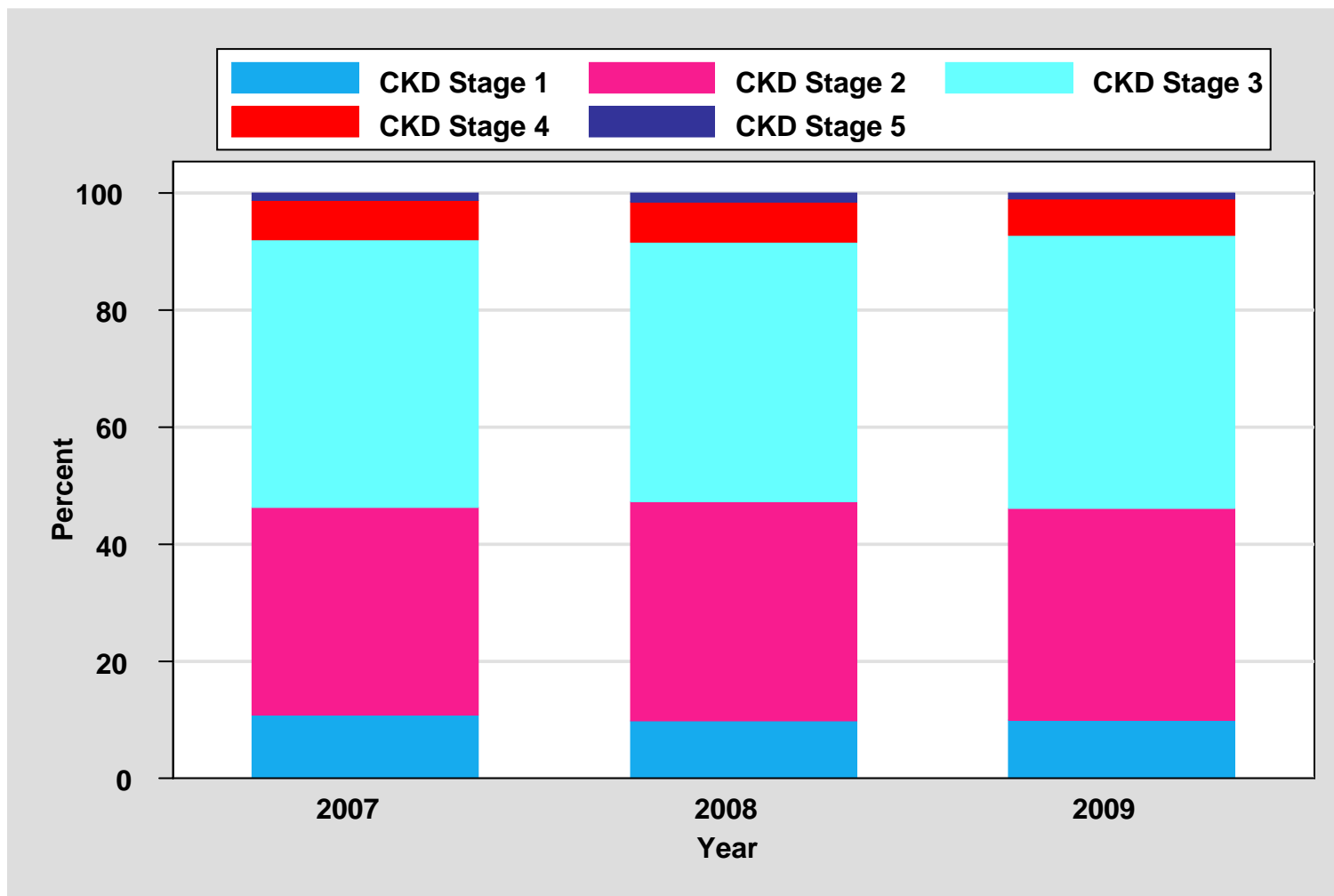


Table 5.6.4: BMI, 2006-2009

Year	2006		2007		2008		2009	
BMI	No.	(%)	No.	(%)	No.	(%)	No.	(%)
<20	242	(15.20)	254	(15.05)	251	(14.79)	243	(14.36)
20-25	648	(40.70)	659	(39.04)	724	(42.66)	726	(42.91)
25-30	496	(31.16)	532	(31.52)	502	(29.58)	498	(29.43)
> 30	206	(12.94)	243	(14.40)	220	(12.96)	225	(13.30)

Figure 5.6.4: BMI by year, 2006-2009

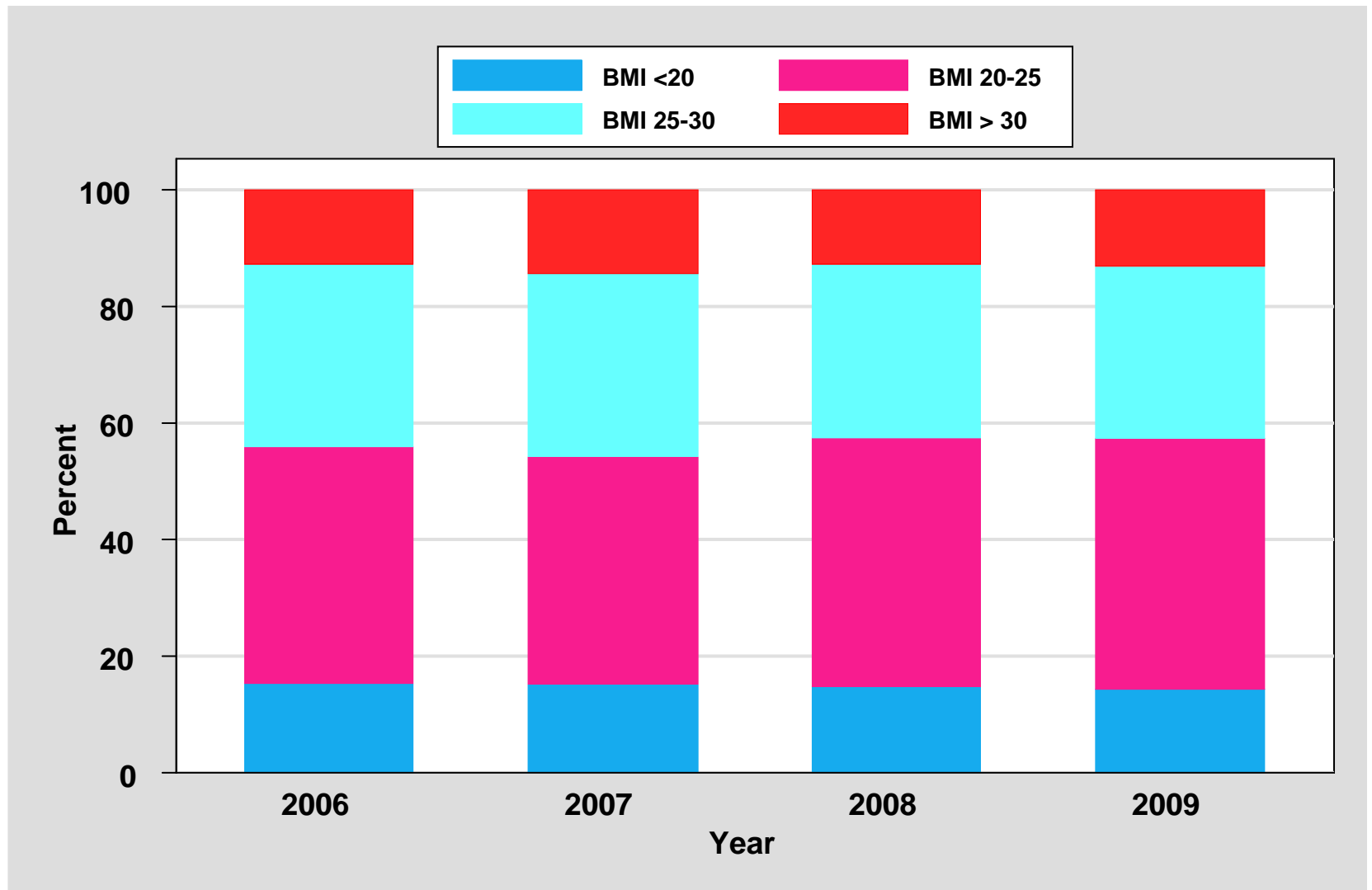


Table 5.6.5(a): LDL, 2006-2009

Year	2006		2007		2008		2009	
LDL	No.	(%)	No.	(%)	No.	(%)	No.	(%)
< 2.6	492	(30.90)	528	(31.28)	585	(34.47)	646	(38.18)
2.6-3.4	738	(46.36)	779	(46.15)	779	(45.90)	714	(42.20)
>= 3.4	362	(22.74)	381	(22.57)	333	(19.62)	332	(19.62)

Figure 5.6.5(a): LDL, 2006-2009

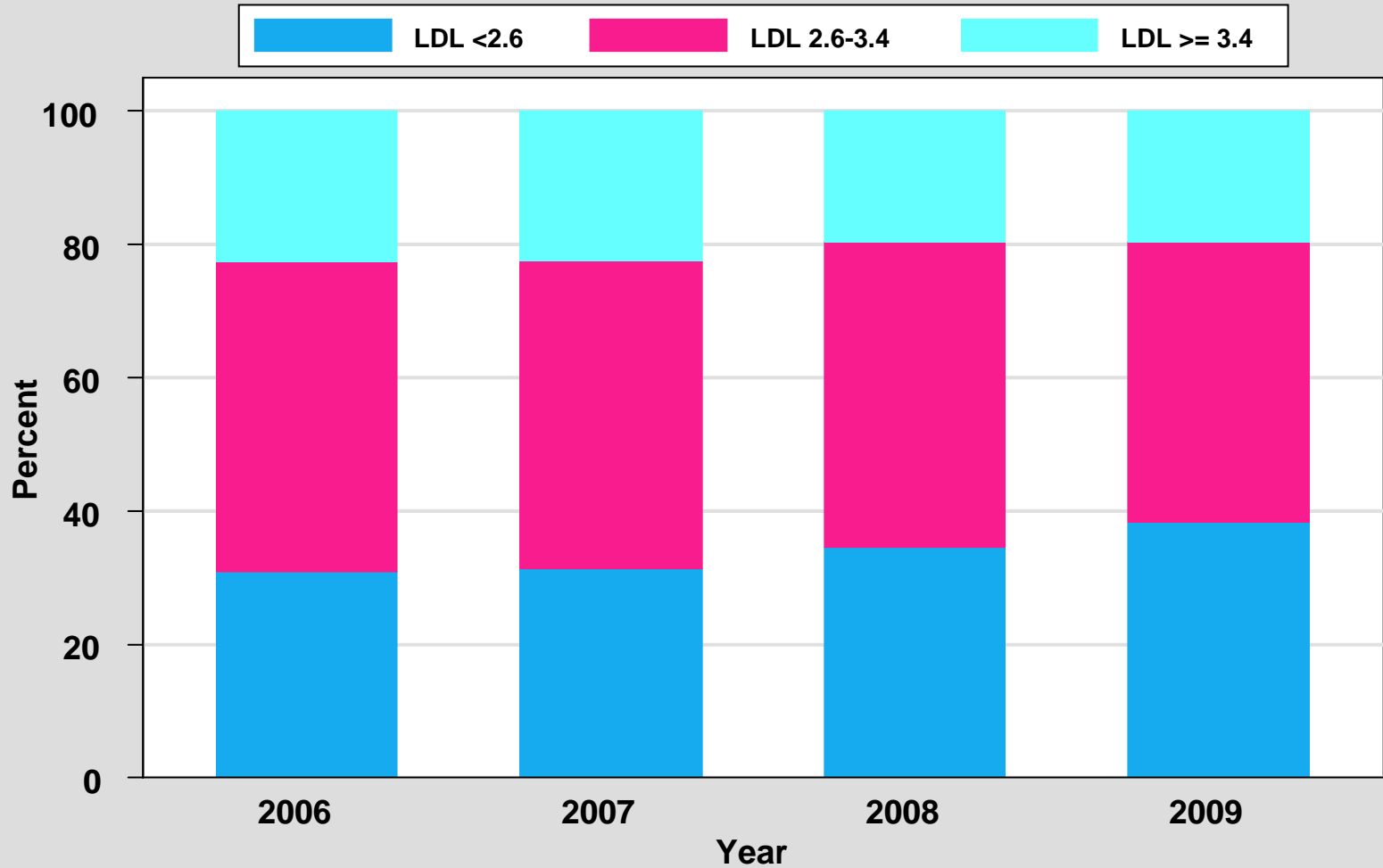


Table 5.6.5(b): Total Cholesterol, 2006-2009

Year	2006		2007		2008		2009	
Total Cholesterol	No.	(%)	No.	(%)	No.	(%)	No.	(%)
<4.1	160	(10.05)	210	(12.44)	208	(12.26)	233	(13.77)
4.1-5.1	490	(30.78)	539	(31.93)	529	(31.17)	506	(29.91)
5.1-6.2	700	(43.97)	721	(42.71)	728	(42.90)	720	(42.55)
6.2- 7.2	173	(10.87)	159	(9.42)	160	(9.43)	159	(9.40)
> 7.2	69	(4.33)	59	(3.50)	72	(4.24)	74	(4.37)

Figure 5.6.5(b): Total Cholesterol, 2006-2009



Table 5.6.5(c): HDL, 2006-2009

Year	2006		2007		2008		2009	
HDL	No.	(%)	No.	(%)	No.	(%)	No.	(%)
<1	104	(6.53)	108	(6.40)	114	(6.72)	153	(9.04)
1-1.3	302	(18.97)	350	(20.73)	382	(22.51)	421	(24.88)
>1.3	1186	(74.50)	1230	(72.87)	1201	(70.77)	1118	(66.08)

Figure 5.6.5(c): HDL by year, 2006-2009

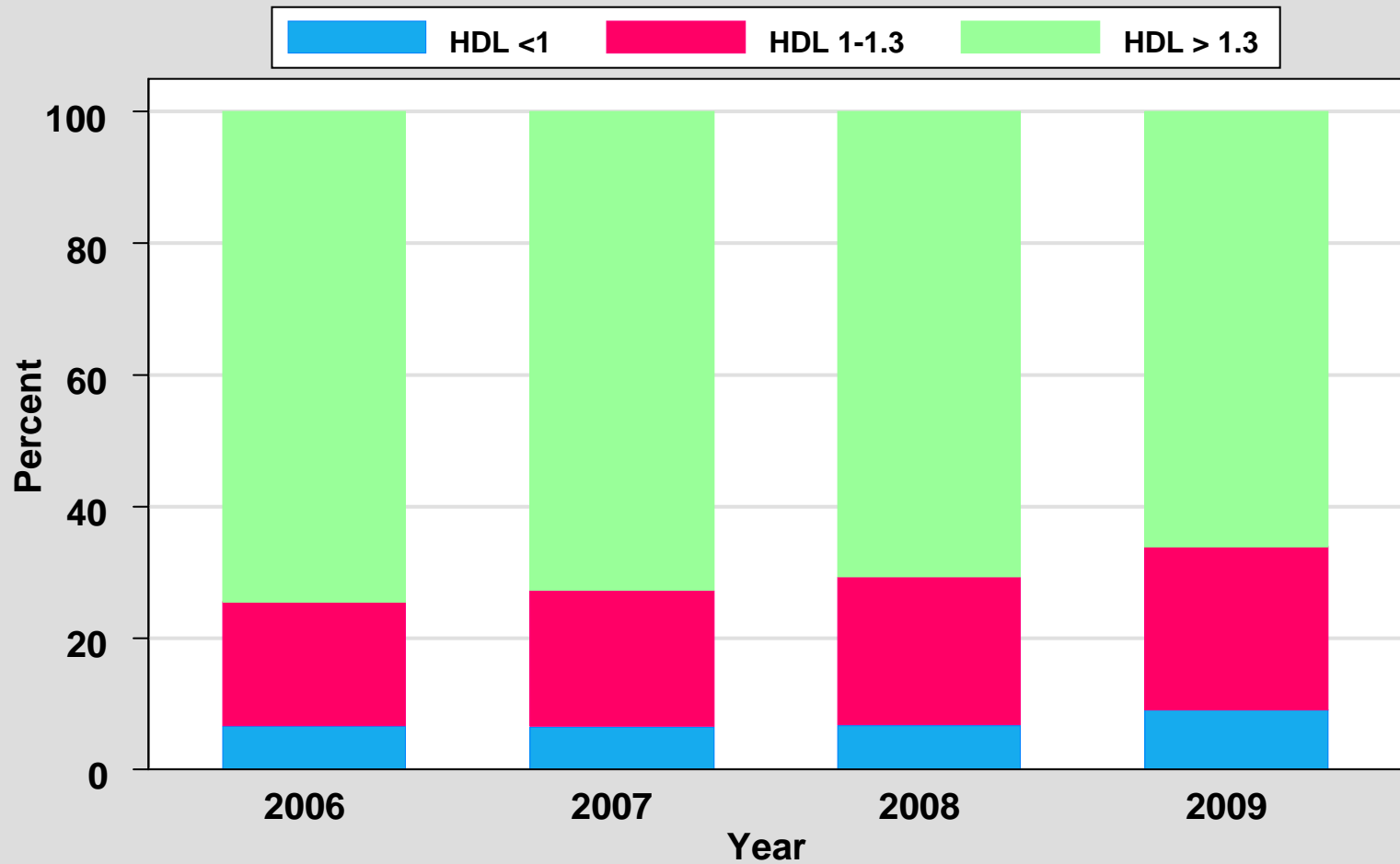


Table 5.6.6(a): Treatment for hypertension, 2006-2009

Year	No.	% on anti-hypertensives	% no 1 anti-hypertensive drug	% on 2 anti-hypertensives	% on 3 anti-hypertensives
2006	1592	86	34	26	17
2007	1688	85	25	31	21
2008	1697	78	25	28	19
2009	1692	81	29	29	17

Table 5.6.6(b): Distribution of Systolic BP without anti-hypertensives, 2006-2009

Year	No.	Mean	SD	Median	LQ	UQ	% Patients \geq 160mmHg
2006	189	123.8	14.4	120	117	130	4
2007	196	125.2	16.5	120	113	134	4
2008	178	123.7	15.5	120	110	130	3
2009	229	124	15.3	120	111	130	3

Table 5.6.6(c): Distribution of Diastolic BP without anti-hypertensives, 2006-2009

Year	No.	Mean	SD	Median	LQ	UQ	% patients ≥ 90mmHg
2006	189	76.4	10.3	80	70	80	11
2007	196	76.6	10.0	80	70	80	12
2008	177	75.1	10.0	80	70	80	10
2009	229	77.4	9.1	80	70	80	12

Table 5.6.6(d): Distribution of Systolic BP on anti-hypertensives, 2006-2009

Year	No.	Mean	SD	Median	LQ	UQ	% Patients ≥ 160mmHg
2006	1334	131.7	16.3	130	120	140	8
2007	1389	132.6	16.0	130	120	140	8
2008	1269	129.9	16.6	130	120	140	6
2009	1221	131.0	15.9	130	120	140	5

Table 5.6.6(e): Distribution of Diastolic BP on anti-hypertensives, 2006-2009

Year	No.	Mean	SD	Median	LQ	UQ	% Patients \geq 90 mmHg
2006	1334	79.2	9.9	80	70	86	22
2007	1388	79.1	9.6	80	70	85	20
2008	1255	77.6	10	80	70	80	16
2009	1219	78.3	9.5	80	70	82	16

Table 5.7.1: Cumulative distribution of QoL-Index score in relation to Dialysis Modality, Transplant recipient patients 2000- 2009

Dialysis modality	TX
Number of patients	1231
Centile	
0	0
0.05	9
0.1	9
0.25 (LQ)	10
0.5 (median)	10
0.75 (UQ)	10
0.9	10
0.95	10
1	10

Figure 5.7.1: Cumulative distribution of QoL-Index score in relation to Dialysis Modality, Transplant recipient patients 2000 - 2009

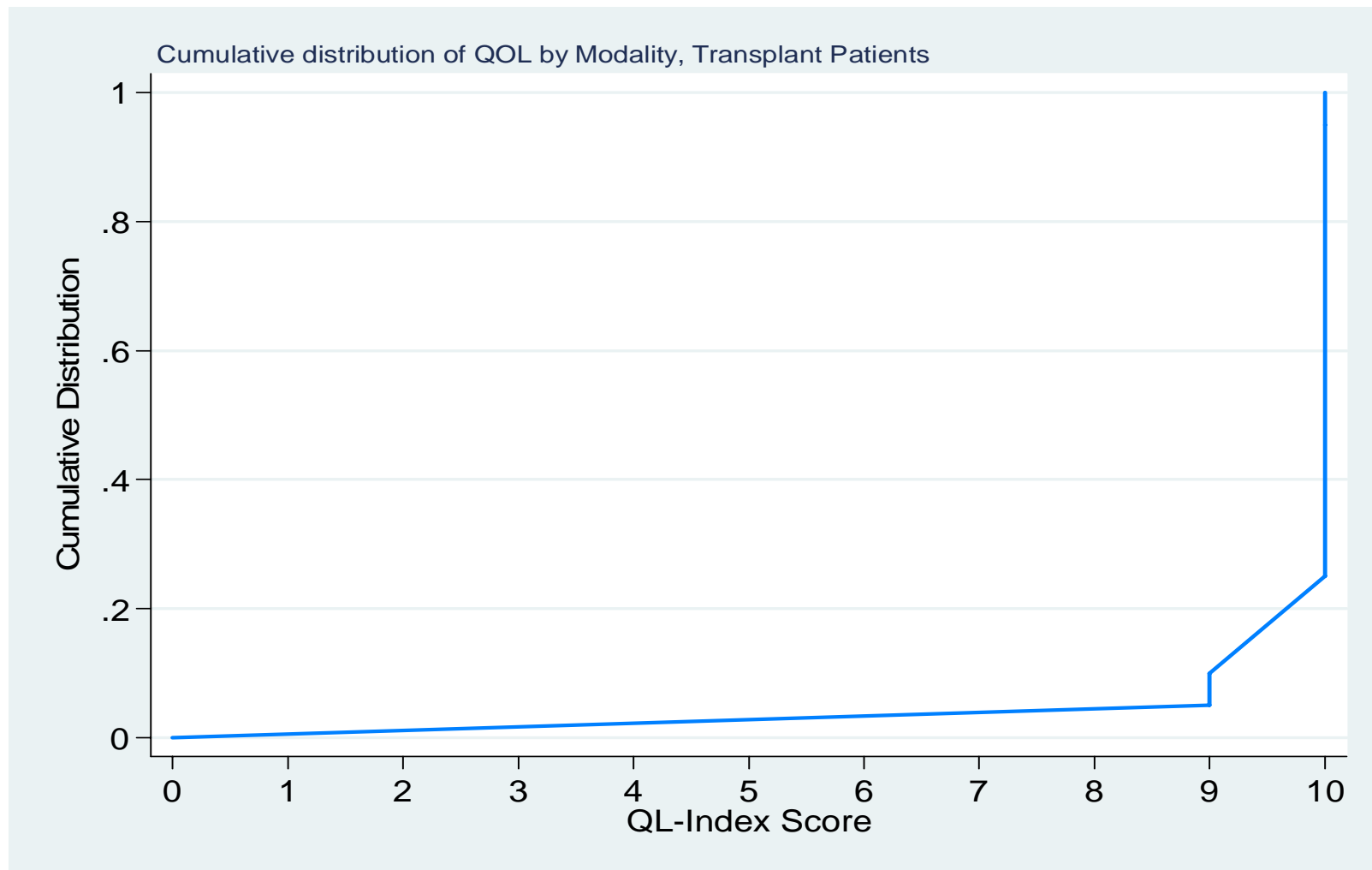


Table 5.7.2: Cumulative distribution of QoL-Index score in relation to Diabetes mellitus, Transplant recipient patients 2000 - 2009

Diabetes mellitus	No	Yes
Number of patients	1166	65
Centile		
0	0	0
0.05	9	7
0.1	10	8
0.25 (LQ)	10	9
0.5 (median)	10	10
0.75 (UQ)	10	10
0.9	10	10
0.95	10	10
1	10	10

Figure 5.7.2: Cumulative distribution of QoL-Index score in relation to Diabetes mellitus, Transplant recipient patients 2000 – 2009

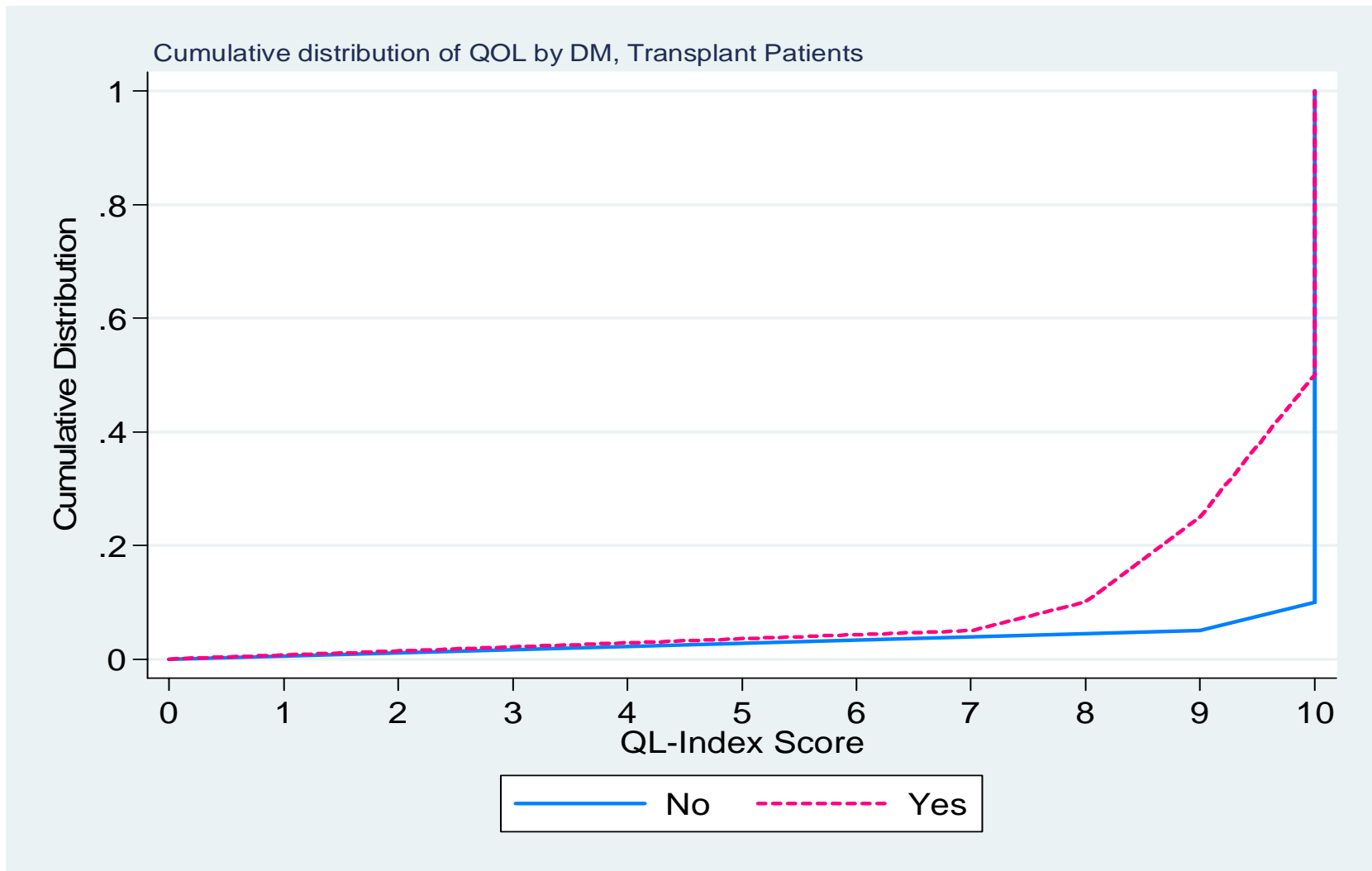


Table 5.7.3: Cumulative distribution of QoL-Index score in relation to Gender, Transplant recipient patients 2000 – 2009

Gender	Male	Female
Number of patients	767	464
Centile		
0	0	0
0.05	9	8
0.1	9	9
0.25 (LQ)	10	10
0.5 (median)	10	10
0.75 (UQ)	10	10
0.9	10	10
0.95	10	10
1	10	10

Figure 5.7.3: Cumulative distribution of QoL-Index score in relation to Gender, Transplant recipient patients 2000 – 2009

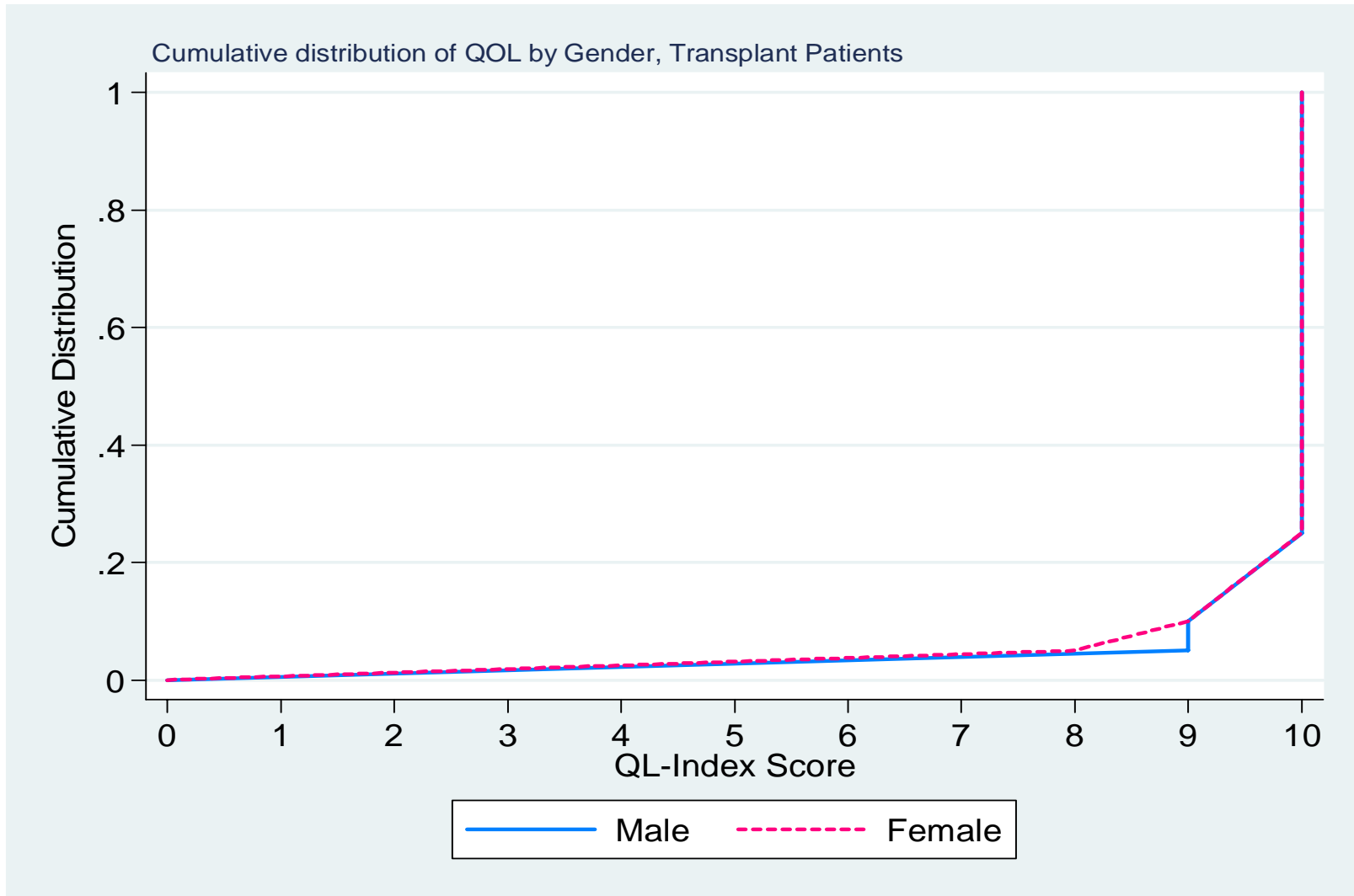


Table 5.7.4: Cumulative distribution of QoL-Index score in relation to Age, Transplant recipient patients 2000– 2009

Age group (years)	<20	20-39	40-59	>=60
Number of patients	129	481	541	80
Centile				
0	0	0	0	0
0.05	9	9	8	8
0.1	10	10	9	8
0.25 (LQ)	10	10	10	9
0.5 (median)	10	10	10	10
0.75 (UQ)	10	10	10	10
0.9	10	10	10	10
0.95	10	10	10	10
1	10	10	10	10

Figure 5.7.4: Cumulative distribution of QoL-Index score in relation to Age, Transplant recipient patients 2000 – 2009

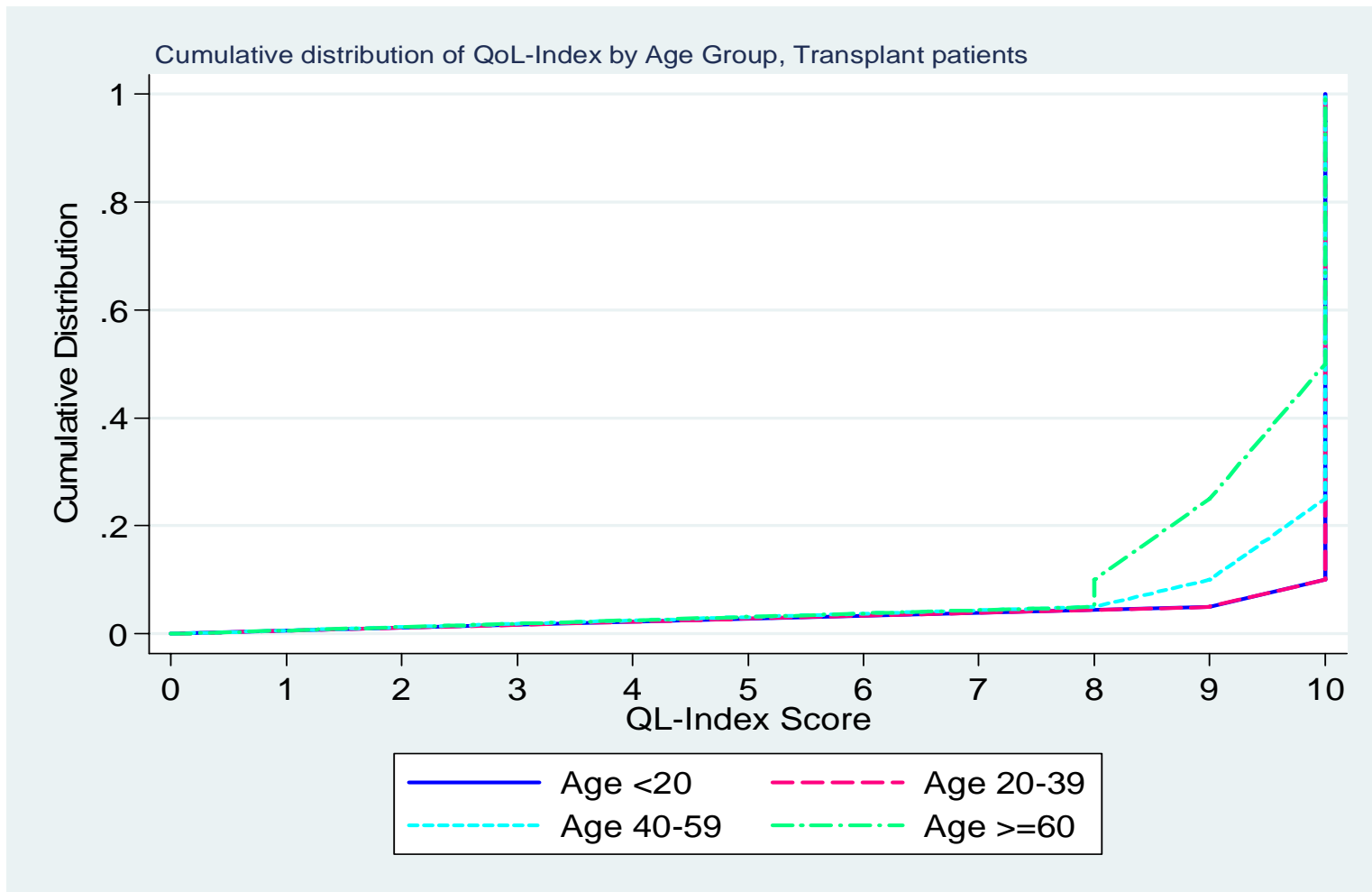


Table 5.7.5: Cumulative distribution of QoL-Index score in relation to Year of entry, Transplant recipient patients 2000– 2009

Year of Entry	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Number of patients	110	126	144	136	167	145	133	91	99	80
Centile										
0	0	0	0	0	0	0	0	0	0	0
0.05	8	9	9	8	9	9	9	8	7	8
0.1	9	9	10	9	10	10	10	9	9	9
0.25 (LQ)	10	10	10	10	10	10	10	10	10	10
0.5 (median)	10	10	10	10	10	10	10	10	10	10
0.75 (UQ)	10	10	10	10	10	10	10	10	10	10
0.9	10	10	10	10	10	10	10	10	10	10
0.95	10	10	10	10	10	10	10	10	10	10
1	10	10	10	10	10	10	10	10	10	10

Figure 5.7.5: Cumulative distribution of QoL-Index score in relation to Year of entry, Transplant recipient patients 2000 – 2009

