

CHAPTER 6

HOMOGRAFT - HEART VALVE TRANSPLANTATION

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6.0 INTRODUCTION

The Homograft unit in Institut Jantung Negara (IJN) was established in 1995. This was in response to the rising need for homografts and also the rising cost of importing homografts from overseas. The team comprises of surgeons and medical technicians who are involved in retrieving, processing and cryopreserving the homografts for storage. They maintain a detailed record of each homograft obtained and utilised.

Valvular homografts are used routinely in cardiac surgery especially for patients with congenital valvular heart disease. They are used as biological conduits to replace absent valves or to reconstruct outflow tracks in the heart. Homografts are superior to artificial valves due to their inherent traits such as superior perfusion parameters, durability, ease of handling and reduced risk of thrombo-embolic phenomenon. This removes the need for tight anticoagulation treatment post operatively and is extremely convenient for children and women of childbearing age in whom anticoagulation is contraindicated. Homografts have inherent resistance to infection and are preferred in an environment where sepsis is of concern.

The continued efforts by the Ministry of Health in promoting organ and tissue donation have helped to improve the availability of homografts in the country. The efficient and better streamlining of organisation structure has improved networking between various hospitals and transplant units with better public and medical staff awareness.

6.1 STOCK AND FLOW

Table 6.1.1: Stock and Flow, 1996-2010

Year	96	97	98	99	00	01	02	03	04	05	06	07	08	09	10
New transplant	4	31	22	17	13	20	22	21	9	3	4	5	28	38	23
Deaths*	1	0	4	3	0	6	4	3	4	2	1	0	3	6	0
Lost to follow up	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Alive with functioning graft at 31 st December	3	34	52	66	79	93	111	129	134	135	138	143	168	200	223

*based on year of death

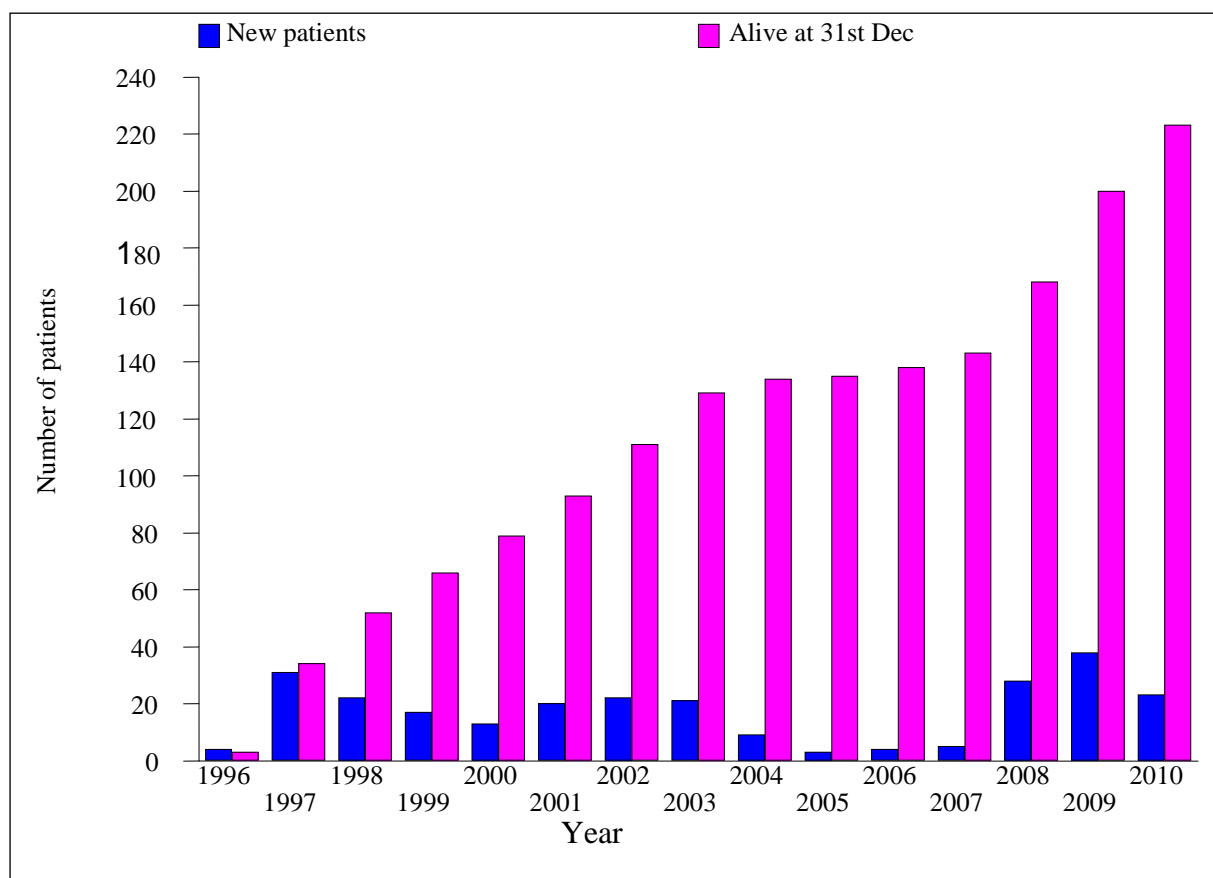


Figure 6.1.1: Stock and Flow, 1996-2010

6.2 RECIPIENTS' CHARACTERISTICS

Table 6.2.1: Gender distribution, 1996-2010

Year	96	97	98	99	00	01	02	03	04	05	06	07	08	09	10	TOTAL
Gender	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Male	2	18	9	9	10	6	9	14	3	0	4	2	13	20	13	132
Female	2	13	13	8	3	14	13	7	6	3	0	3	15	18	10	128
TOTAL	4	31	22	17	13	20	22	21	9	3	4	5	28	38	23	260

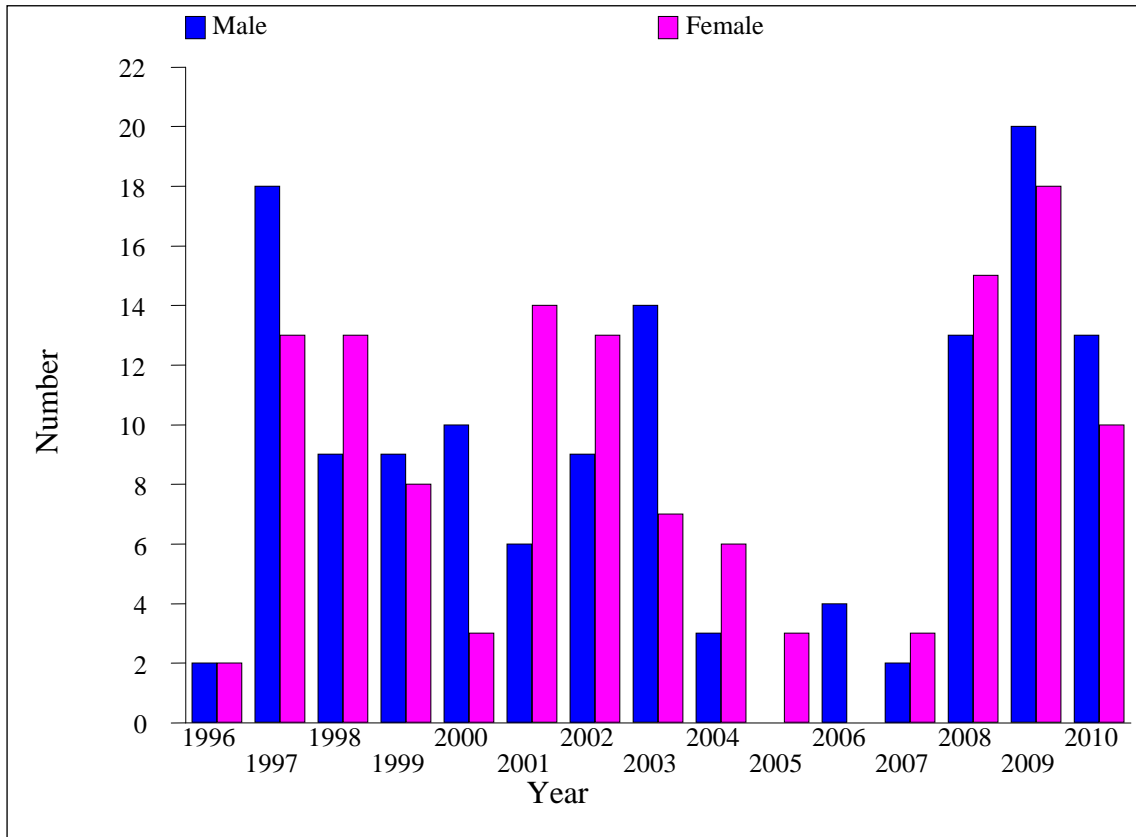


Figure 6.2.1: Gender distribution, 1996-2010

Table 6.2.2: Ethnic group distribution, 1996-2010

Year	96	97	98	99	00	01	02	03	04	05	06	07	08	09	10	TOTAL
Ethnic group	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Malay	1	18	15	9	9	10	16	12	6	3	2	3	18	29	17	168
Chinese	3	11	4	3	2	9	4	6	1	0	1	0	7	6	3	60
Indian	0	2	2	2	0	1	2	2	1	0	1	0	1	3	1	18
Others	0	0	1	3	2	0	0	1	1	0	0	2	2	0	2	14
TOTAL	4	31	22	17	13	20	22	21	9	3	4	5	28	38	23	260

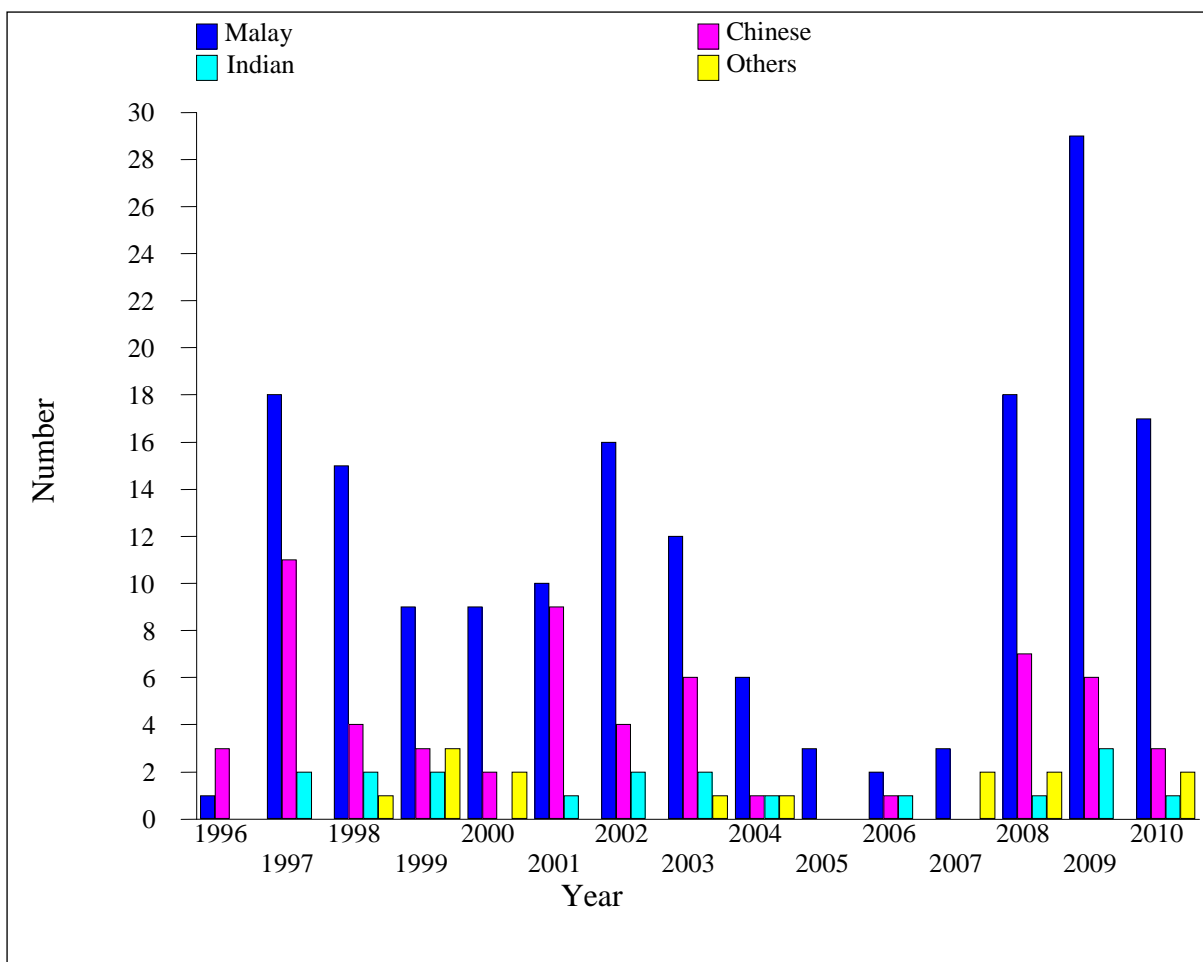


Figure 6.2.2: Ethnic group distribution, 1996-2010

Table 6.2.3: Age distribution in years, 1996-2010

Year	96	97	98	99	00	01	02	03	04	05	06	07	08	09	10	TOTAL
Age group	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
0-9	2	16	15	13	10	14	10	11	3	1	3	2	19	31	16	166
10-19	1	11	5	4	2	2	11	8	4	2	1	2	7	5	5	70
20-39	1	4	1	0	0	3	1	1	1	0	0	0	2	2	2	18
40-59	0	0	0	0	0	1	0	1	1	0	0	1	0	0	0	4
>=60	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	2
TOTAL	4	31	22	17	13	20	22	21	9	3	4	5	28	38	23	260
Mean	11.9	11.5	11	6.9	12.3	10.9	10.2	12.3	15.2	15	5.7	15.8	6.8	8.4	9	10.1
SD	6.6	6.7	14.5	4.1	17	14.2	6.1	11	11.4	7.8	4.6	18.4	6.2	6.9	6	9.7
Median	11.2	9.9	7.8	7	8.3	4.8	10.4	9	10.3	19.5	4.9	10.5	6.3	7.1	8.4	8
Min	4.9	3 m	3 m	7 m	1.6	5 m	2.6	1.8	4.9	6	1	3 m	1 m	2 m	3 m	2 m
Max	20.5	29.6	69.7	17.1	66.8	52.8	27.5	53.4	42	19.5	11.8	47.4	21.5	36	21.9	69.7

* Age=date of implantation – date birth

*m=Months

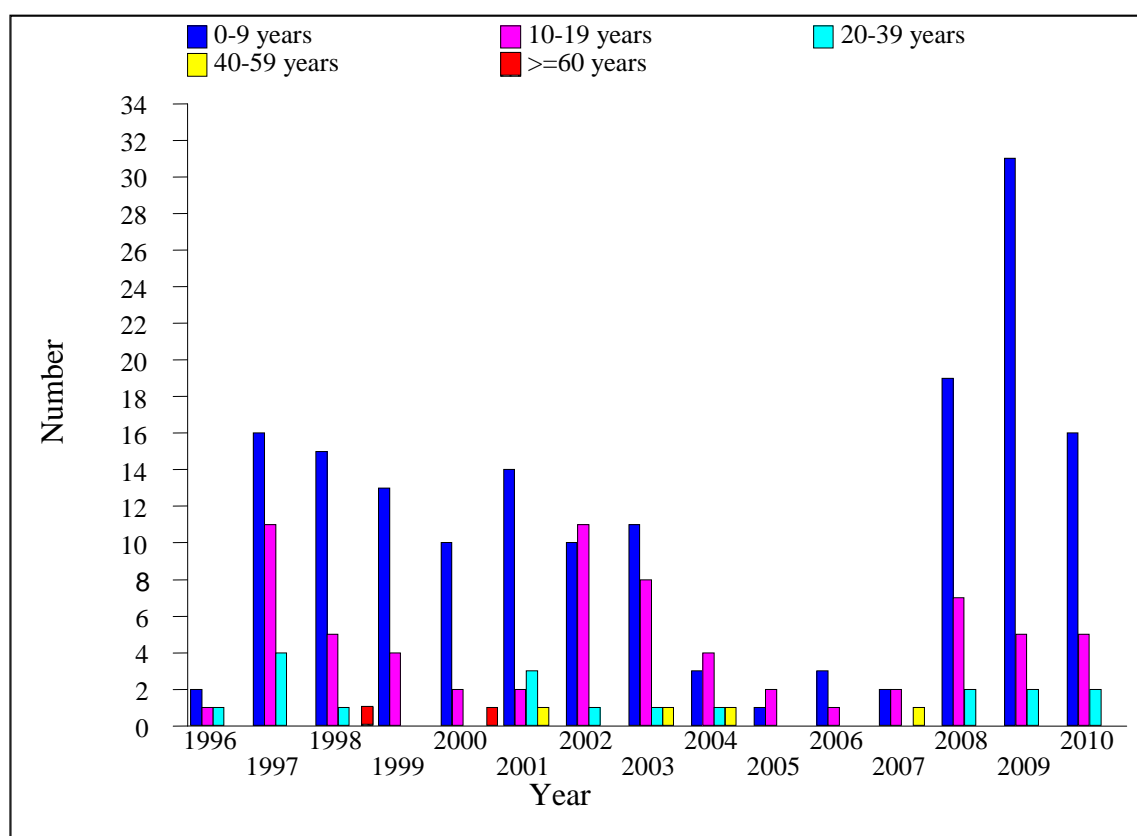


Figure 6.2.3: Age distribution in years, 1996-2010

6.3 TRANSPLANT PRACTICES

6.3.1 Donor details

Table 6.3.1: Number of valves harvested by type of homograft, 1996-2010

Year	96	97	98	99	00	01	02	03	04	05	06	07	08	09	10	TOTAL
Type of homograft	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Aortic	8	17	10	8	11	14	10	8	7	5	14	9	15	17	14	167
Pulmonary	1	14	11	10	12	12	14	9	8	5	15	8	13	19	12	163
TOTAL	9	31	21	18	23	26	24	17	15	10	29	17	28	36	26	330

6.3.2 Transplant details

Table 6.3.2: Type of transplant, 1996-2010

Year	96	97	98	99	00	01	02	03	04	05	06	07	08	09	10	TOTAL
Type of transplant	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Aortic	4	18	11	7	7	9	10	10	4	1	1	2	8	24	10	126
Pulmonary	0	13	11	10	6	11	12	11	5	2	3	3	20	14	13	134
TOTAL	4	31	22	17	13	20	22	21	9	3	4	5	28	38	23	260

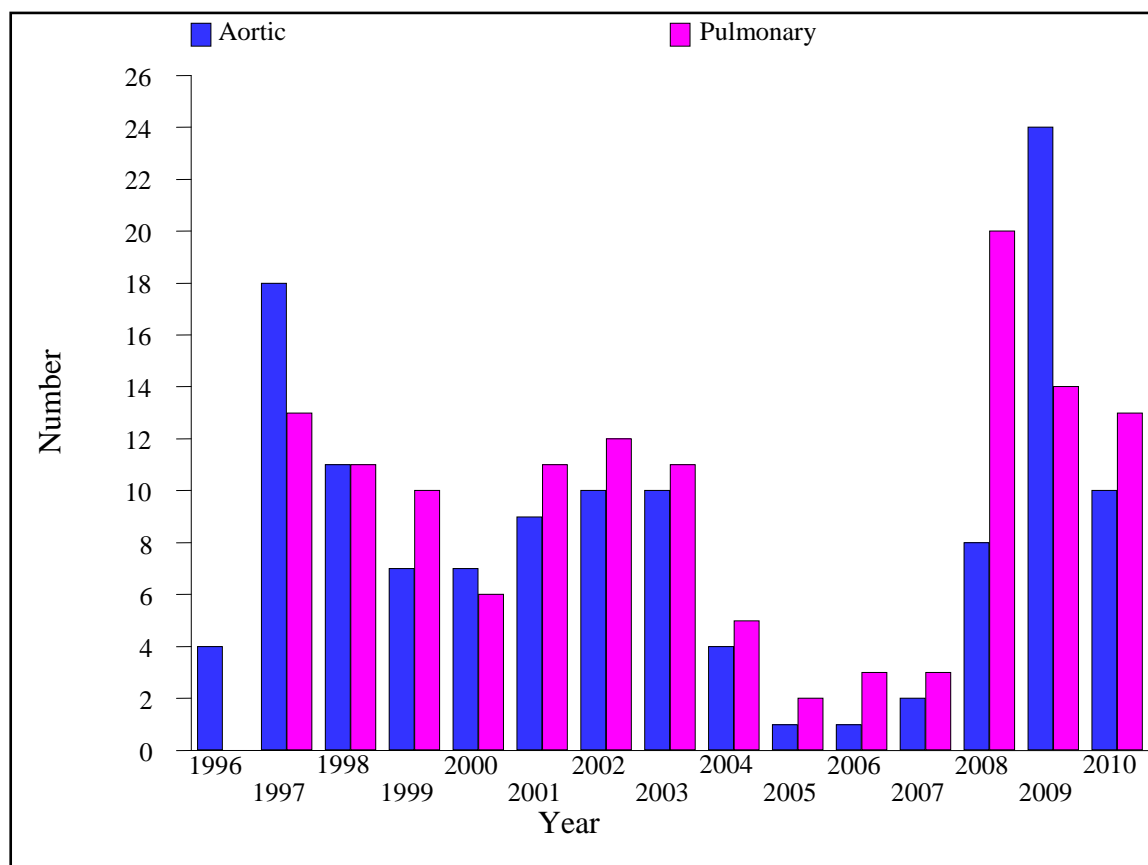


Figure 6.3.2: Type of transplant, 1996-2010

6.4 TRANSPLANT OUTCOMES

Table 6.4.1: Patient survival by gender, 1996-2010

Gender Interval (years)	Male		Female	
	% Survival	SE	% Survival	SE
1	91	2	90	3
3	89	3	88	3
5	87	3	88	3
7	87	3	88	3
9	87	3	85	4
11	87	3	85	4
13	87	3	85	4

SE=standard error

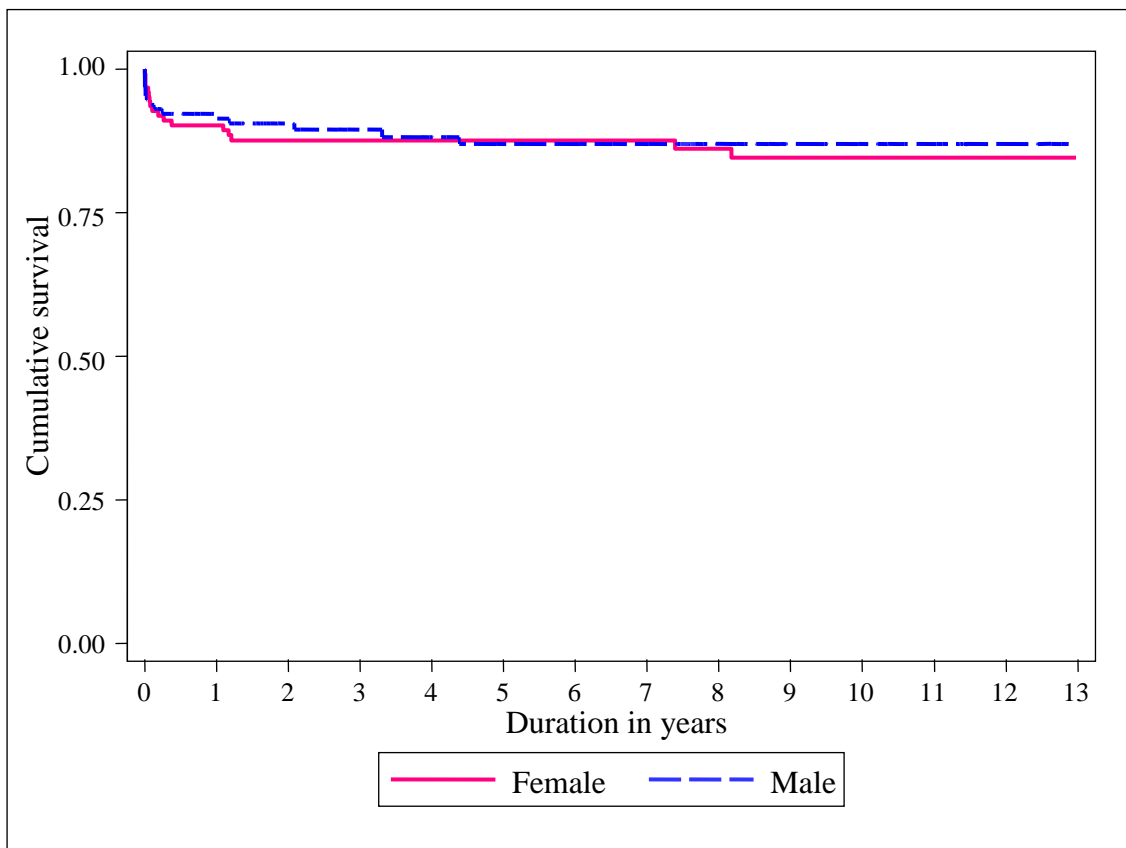


Figure 6.4.1: Patient survival by gender, 1996-2010

Table 6.4.2: Patient survival by age group, 1996-2010

Age group Interval (months)	0-9 years		10-19 years		≥20 years	
	% Survival	SE	% Survival	SE	% Survival	SE
1	90	2	94	3	91	6
3	89	3	89	4	87	7
5	89	3	87	4	81	9
7	89	3	87	4	81	9
9	87	3	85	5	81	9
11	87	3	85	5	81	9
13	87	3	85	5	81	9

SE=standard error

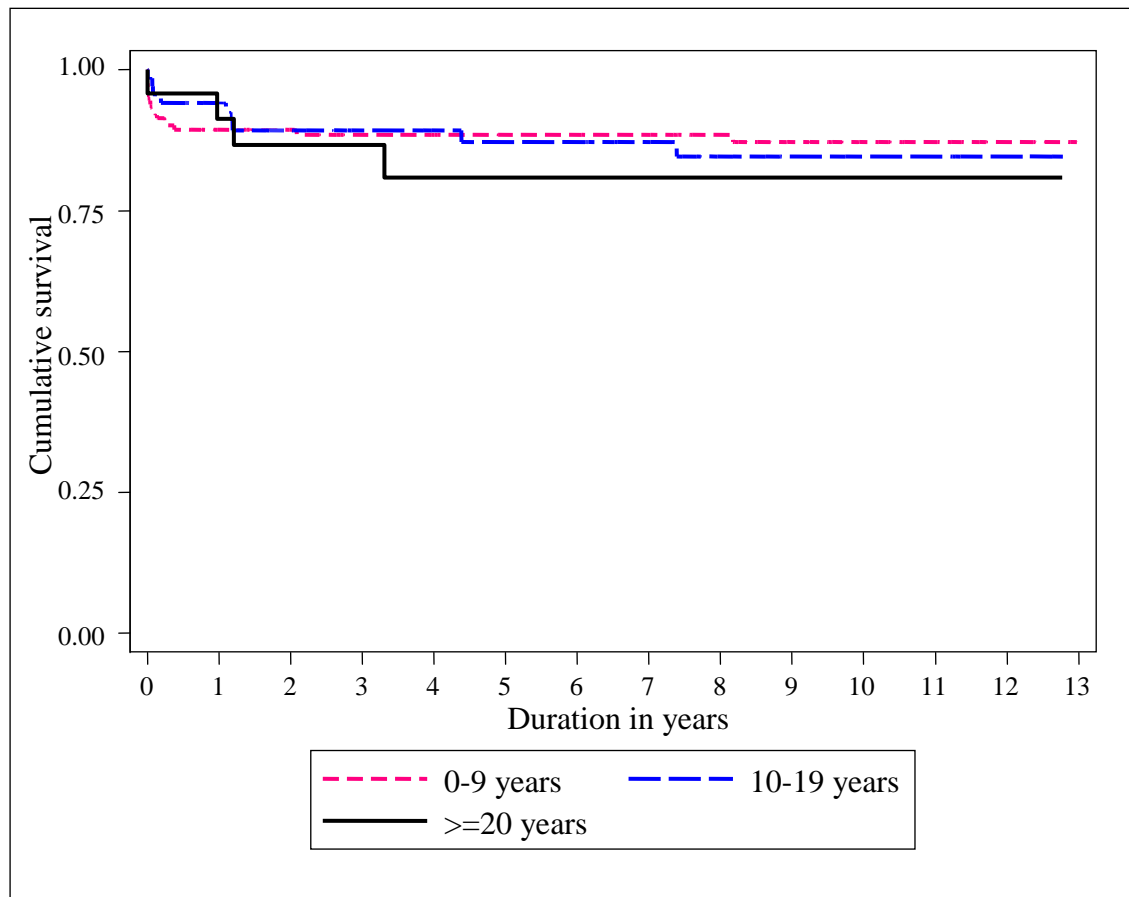


Figure 6.4.2: Patient survival by age group, 1996-2010

Table 6.4.3: Patient survival by type of homograft, 1996-2010

Type of homograft Interval (years)	Aortic		Pulmonary	
	% Survival	SE	% Survival	SE
1	91	3	91	3
3	87	3	90	3
5	86	3	88	3
7	86	3	88	3
9	83	4	88	3
11	83	4	88	3
13	83	4	88	3

SE=standard error

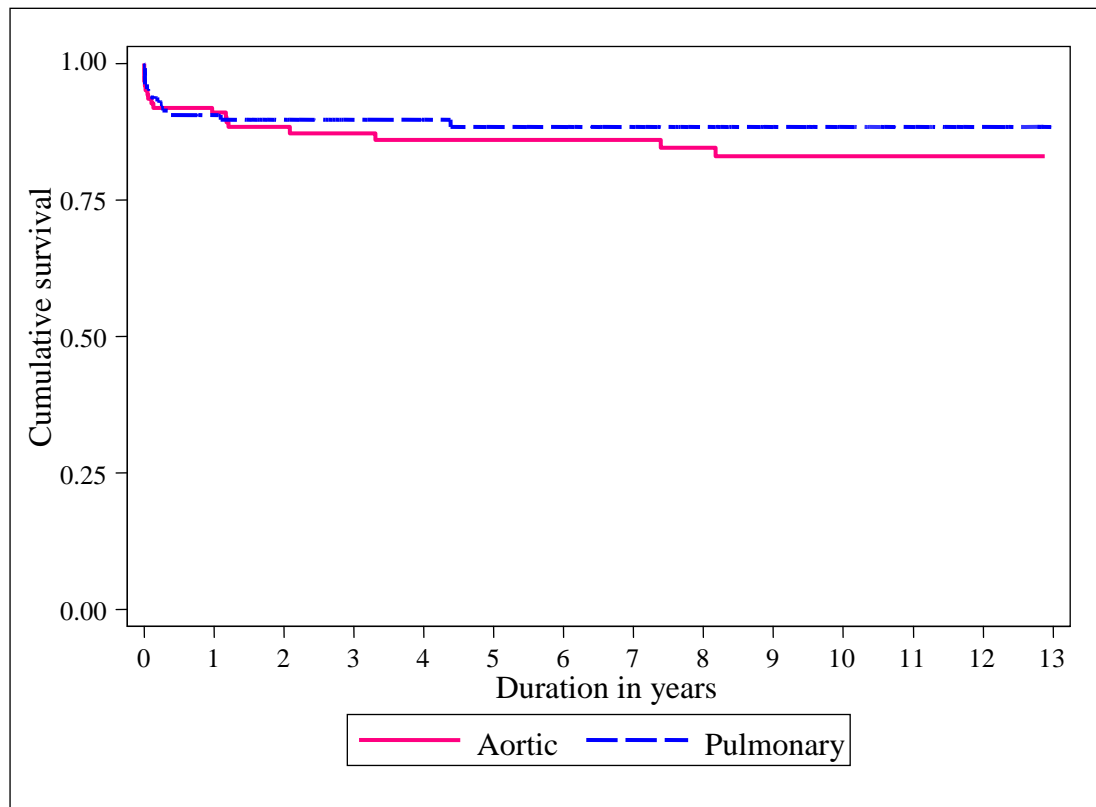


Figure 6.4.3: Patient survival by type of homograft, 1996-2010