CHAPTER 6

HOMOGRAFT - HEART VALVE TRANSPLANTATION

Editors:
Mr. Hamdan Leman
Mr. Mohamed Ezani Hj Md Taib

Contents

6.0 Introduction

6.1 Stock and Flow

6.2 Recipients' Characteristics
- Demographics

6.3 Transplant Practices
- Donor Details
- Type of transplant

6.4 Transplant Outcomes
- Patient survival

List of Tables

Table 6.1.1: Stock and Flow, 1996-2005 131
Table 6.2.1: Gender distribution, 1996-2005 132
Table 6.2.2: Ethnic group distribution, 1996-2005 133
Table 6.2.3: Age distribution in years, 1996-2005 134
Table 6.3.1: Number of valves harvested by type of homograft, 1996-2005 135
Table 6.3.2: Type of transplant, 1996-2005 135
Table 6.4.1: Patient survival by gender, 1996-2005 136
Table 6.4.2: Patient survival by age group, 1996-2005 137
Table 6.4.3: Patient survival by type of homograft, 1996-2005 138

List of Figures

Figure 6.1.1: Stock and Flow, 1996-2005 131
Figure 6.2.1: Gender distribution, 1996-2005 132
Figure 6.2.2: Ethnic group distribution, 1996-2005 133
Figure 6.2.3: Age distribution in years, 1996-2005 134
Figure 6.3.2: Type of transplant, 1996-2005 135
Figure 6.4.1: Patient survival by gender, 1996-2005 136
Figure 6.4.2: Patient survival by age group, 1996-2005 137
Figure 6.4.3: Patient survival by type of homograft, 1996-2005 138

6.0 INTRODUCTION

Since 1995, Institut Jantung Negara (IJN) has embarked on establishing a cardiovascular tissue bank. This tissue bank is to meet the rising demand for homograft implantation in the growing paediatric cardiothoracic surgical practice. IJN has successfully retrieved, prepared and implanted cardiac homografts in more than 110 patients. The homograft unit at IJN comprises of cardiothoracic surgeons and perfusionists / medical technicians who are involved in retrieving, processing and cryopreserving homograft tissues for storage. The number of homografts harvested over the last year has been less than compared to the previous year (9 for 2005). This reduction in the number of valves harvested is due to lack of organ donation and also the awareness about the possibility of using cardiac valves as homografts in our paediatric cardiothoracic patients. We hope that further streamlining of our organisational structure, frequent organ donation and homograft donation campaigns plus efficient networking systems involving other cardiothoracic units across Malaysia will create better awareness and increase the number of homograft procurement in the coming years.

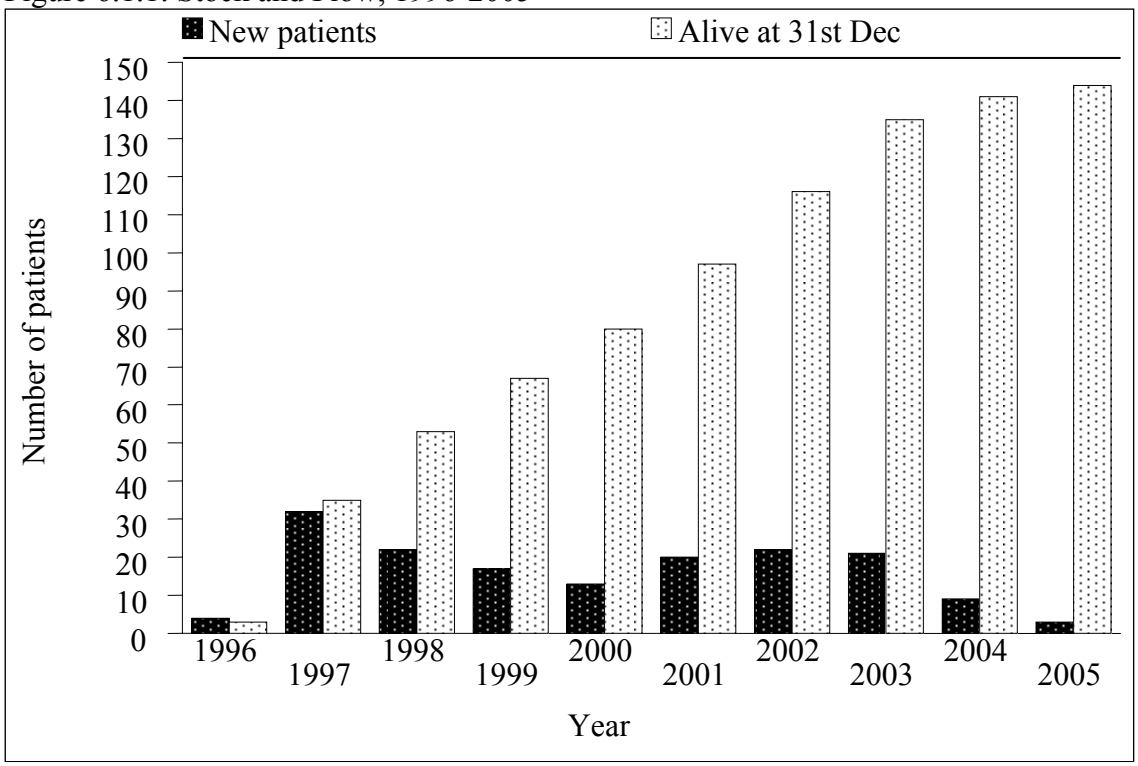
6.1 STOCK AND FLOW

Table 6.1.1: Stock and Flow, 1996-2005

Year	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
New transplant	4	32	22	17	13	20	22	21	9	3
Deaths*	1	0	4	3	0	3	3	2	3	0
Lost to follow up	0	0	0	0	0	0	0	0	0	0
Alive with functioning graft at 31st December	3	35	53	67	80	97	116	135	141	144

*based on year of death

Figure 6.1.1: Stock and Flow, 1996-2005



6.2 RECIPIENTS' CHARACTERISTICS

Table 6.2.1: Gender distribution, 1996-2005

Year	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**TOTAL**
Gender	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Male	2	19	9	9	10	6	9	14	3	0	81
Female	2	13	13	8	3	14	13	7	6	3	82
TOTAL	4	32	22	17	13	20	22	21	9	3	163

Figure 6.2.1: Gender distribution, 1996-2005

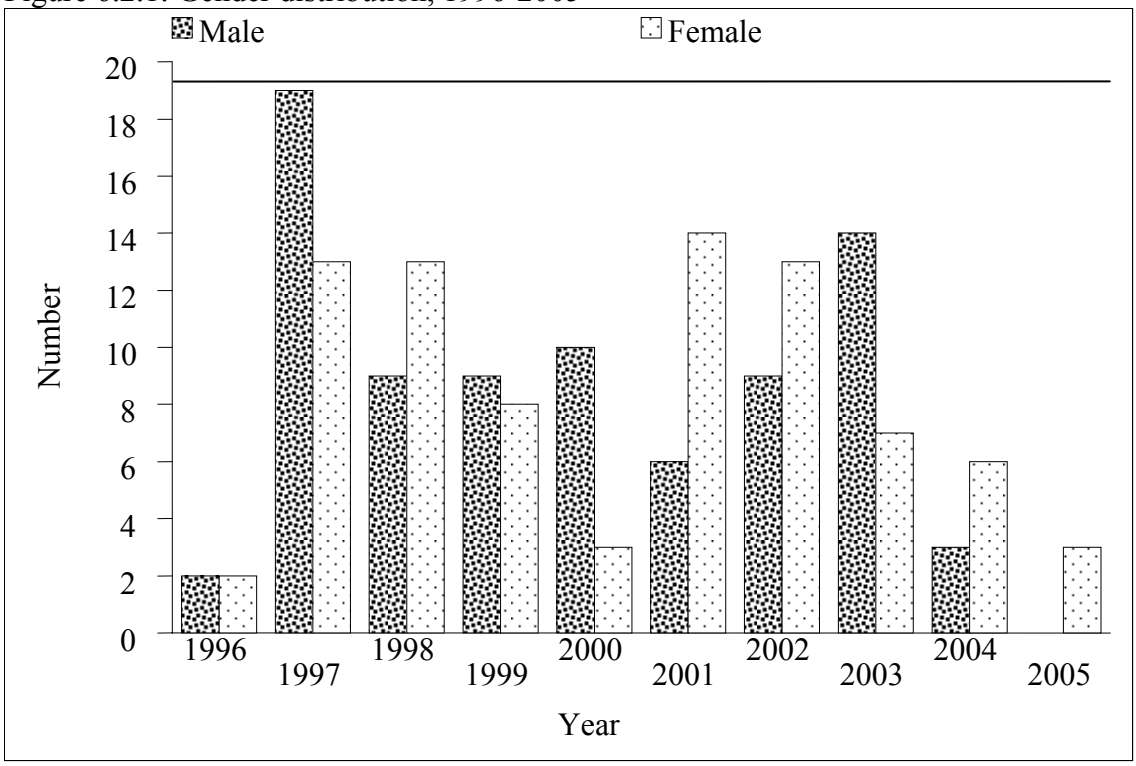


Table 6.2.2: Ethnic group distribution, 1996-2005

Year	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	TOTAL
Ethnic group	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Malay	1	19	15	9	9	10	16	12	6	3	100
Chinese	3	11	4	3	2	9	4	6	1	0	43
Indian	0	2	2	2	0	1	2	2	1	0	12
Others	0	0	1	3	2	0	0	1	1	0	8
TOTAL	4	32	22	17	13	20	22	21	9	3	163

Figure 6.2.2: Ethnic group distribution, 1996-2005

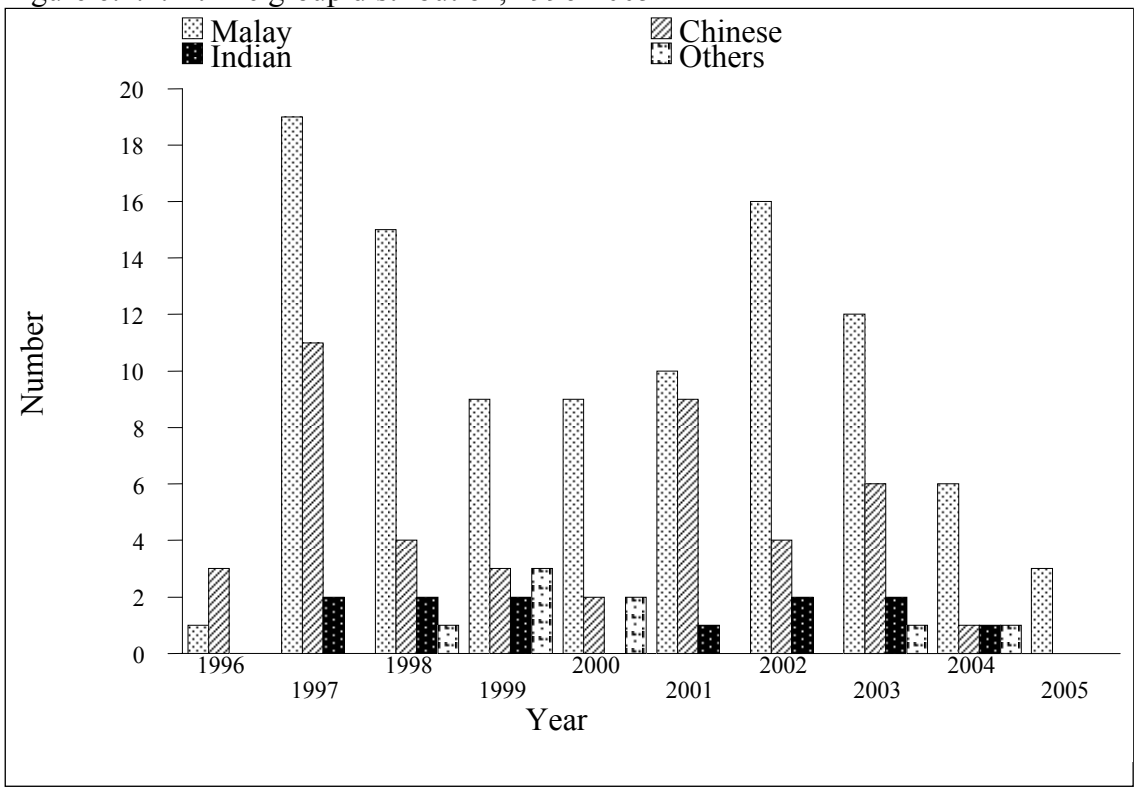
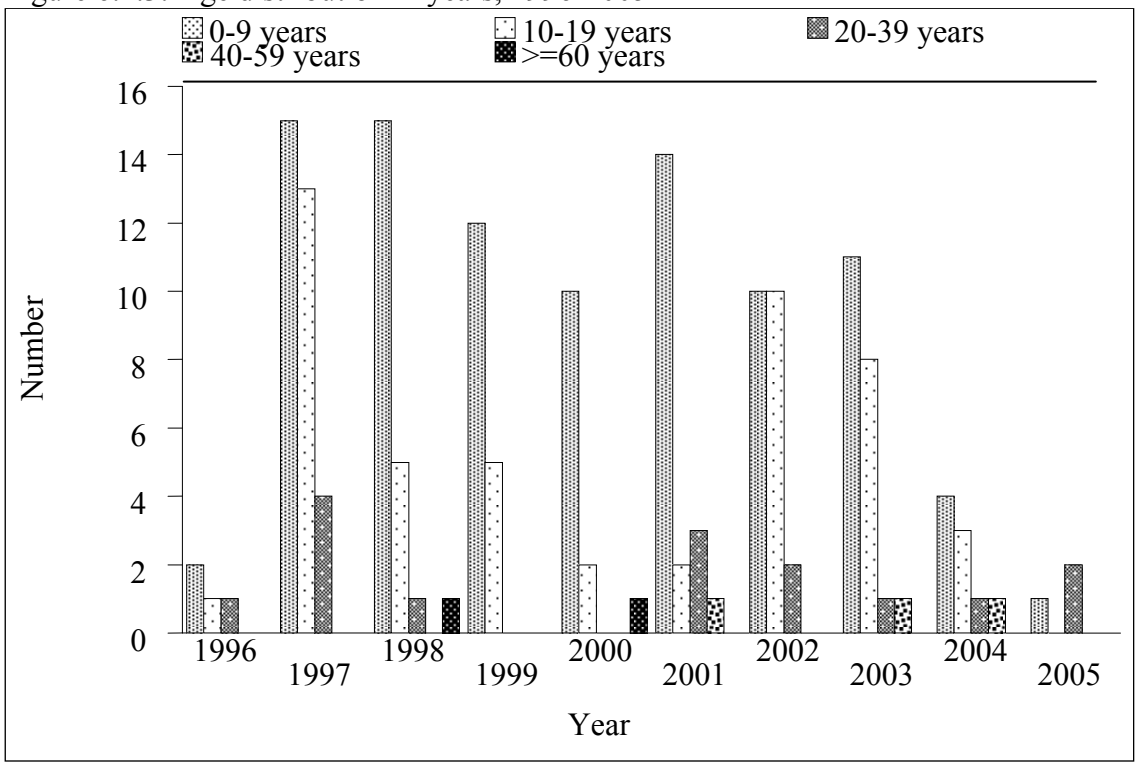


Table 6.2.3: Age distribution in years, 1996-2005

Year	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**TOTAL**
Age group	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
0-9	2	15	15	12	10	14	10	11	4	1	94
10-19	1	13	5	5	2	2	10	8	3	0	49
20-39	1	4	1	0	0	3	2	1	1	2	15
40-59	0	0	0	0	0	1	0	1	1	0	3
>=60	0	0	1	0	1	0	0	0	0	0	2
TOTAL	4	32	22	17	13	20	22	21	9	3	163
Mean	12	11	11	7	12	11	10	12	15	15	11
SD	7	7	15	4	17	14	6	11	11	8	11
Median	11	10	8	7	8	5	10	9	10	20	8
Min	5	3 months	3 months	1	2	5 months	3	2	5	6	3 months
Max	21	30	70	17	67	53	28	53	42	20	70

* Age=date of implantation – date birth

Figure 6.2.3: Age distribution in years, 1996-2005



6.3 TRANSPLANT PRACTICES

6.3.1 Donor details

Table 6.3.1: Number of valves harvested by type of homograft, 1996-2005

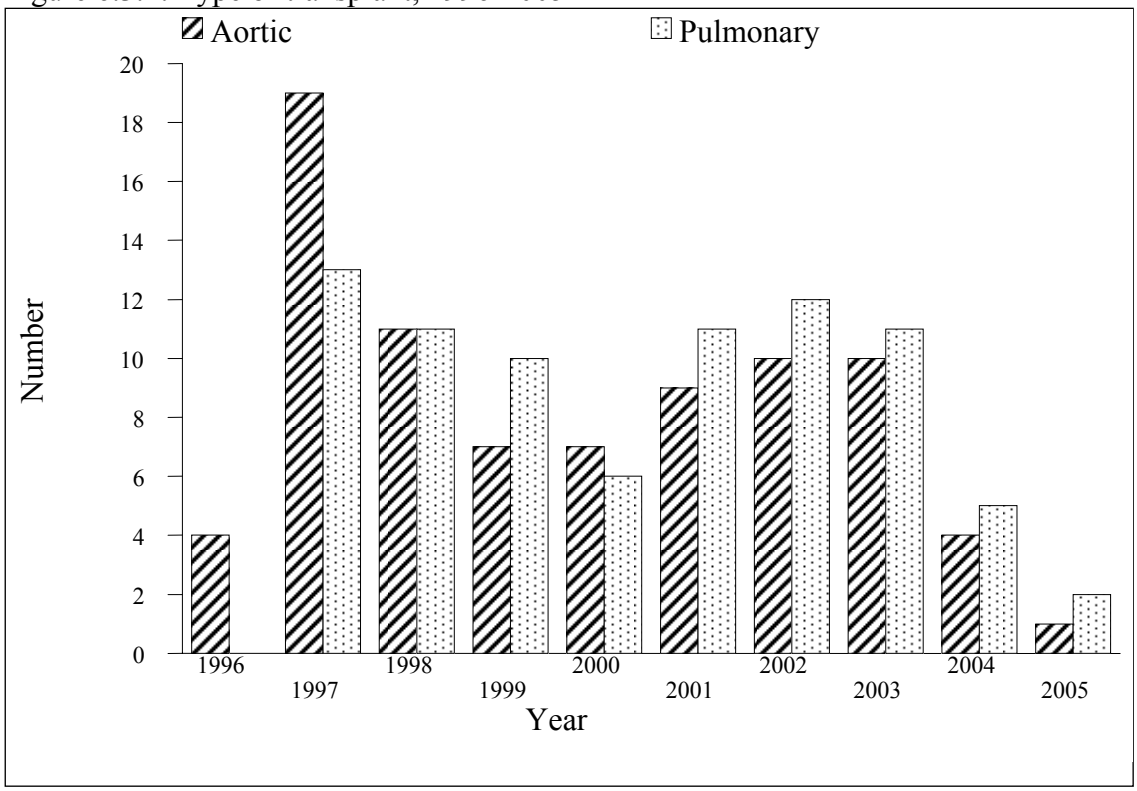
Year	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	TOTAL
Type of homograft	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Aortic	8	17	10	8	11	14	10	8	7	4	97
Pulmonary	1	14	11	10	12	12	14	9	8	5	96
TOTAL	9	31	21	18	23	26	24	17	15	9	193

6.3.2 Transplant details

Table 6.3.2: Type of transplant, 1996-2005

Year	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	TOTAL
Type of transplant	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Aortic	4	19	11	7	7	9	10	10	4	1	82
Pulmonary	0	13	11	10	6	11	12	11	5	2	81
TOTAL	4	32	22	17	13	20	22	21	9	3	163

Figure 6.3.2: Type of transplant, 1996-2005



6.4 TRANSPLANT OUTCOMES

Table 6.4.1: Patient survival by gender, 1996-2005

Gender	**Male**		**Female**	
Interval (years)	% Survival	SE	% Survival	SE
1	91	3	93	3
3	89	4	91	3
5	89	4	91	3

SE=standard error

Figure 6.4.1: Patient survival by gender, 1996-2005

Table 6.4.2: Patient survival by age group, 1996-2005

Age group	**0-9 years**		**10-19 years**		**>=20 years**	
Interval (months)	% Survival	SE	% Survival	SE	% Survival	SE
1	89	3	96	3	95	5
3	88	3	92	4	95	5
5	88	3	92	4	95	5

SE=standard error

Figure 6.4.2: Patient survival by age group, 1996-2005

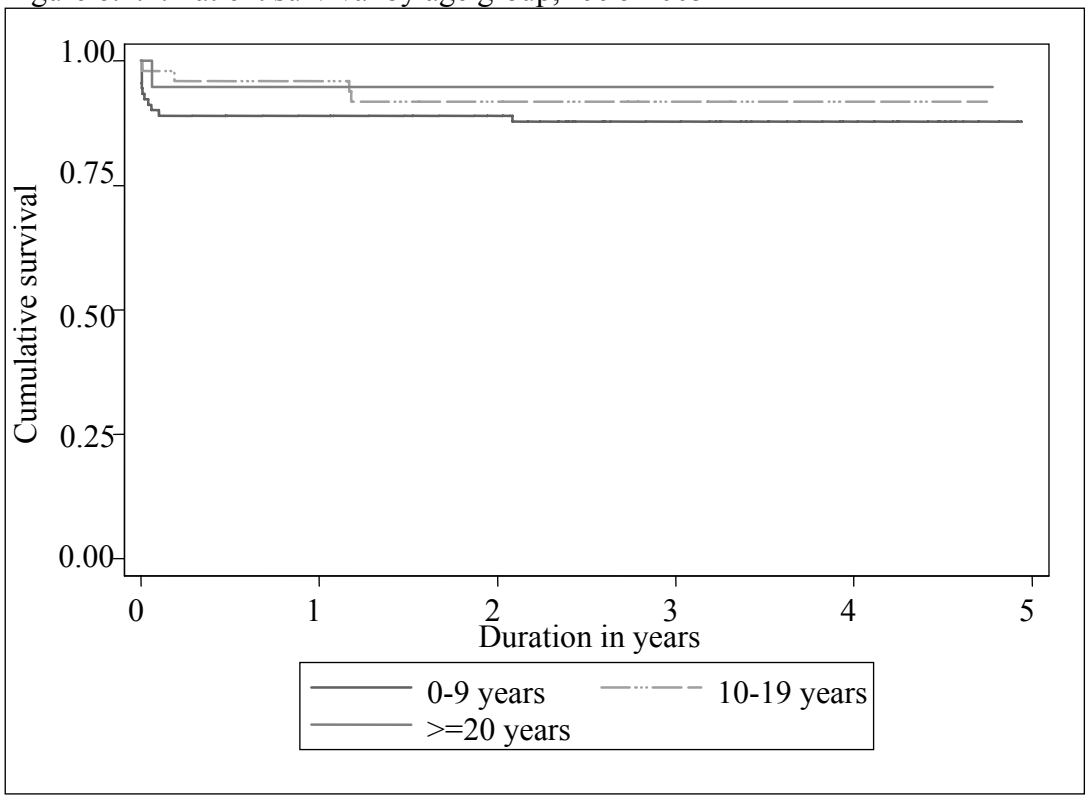


Table 6.4.3: Patient survival by type of homograft, 1996-2005

Type of homograft	**Aortic**		**Pulmonary**	
Interval (years)	% Survival	SE	% Survival	SE
1	93	3	91	3
3	89	4	91	3
5	89	4	91	3

SE=standard error

Figure 6.4.3: Patient survival by type of homograft, 1996-2005