

CHAPTER 3

HEART AND LUNG TRANSPLANTATION

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Table 3.1.1a: Stock and Flow of Heart Transplantation, 1997-2009

Year	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
New transplant patients	1	3	2	3	4	0	2	0	1	1	1	0	1
Deaths	0	1	0	3	1	3	1	0	0	1	0	0	1
Retransplanted	0	0	0	0	0	0	0	0	0	0	1	0	0
Lost to follow up	0	0	0	0	0	0	0	0	0	0	0	0	0
Alive at 31 st December	1	3	5	5	8	5	6	6	7	7	8	8	8

Figure 3.1.1a: Stock and Flow of Heart Transplantation, 1997-2009

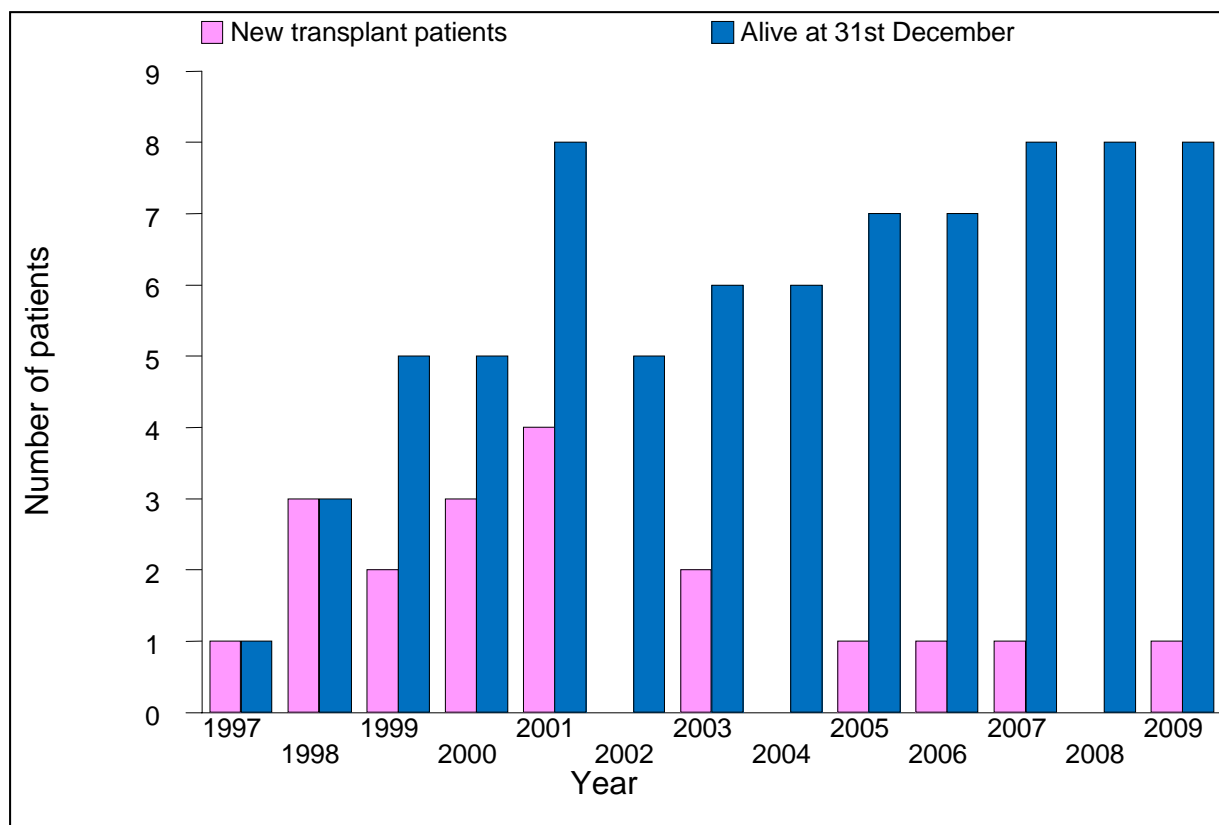


Table 3.2.1a: Distribution of Patients by Gender, 1997-2009

Year	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	TOTAL
Gender	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Male	1	3	0	2	2	0	2	0	1	1	0	0	0	12
Female	0	0	2	1	2	0	0	0	0	0	1	0	1	7
TOTAL	1	3	2	3	4	0	2	0	1	1	1	0	1	19

Table 3.2.2a: Distribution of Patients by Ethnic Group, 1997-2009

Year	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	TOTAL
Ethnic group	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Malay	0	0	1	1	2	0	0	0	1	0	0	0	0	5
Chinese	0	0	0	1	0	0	1	0	0	0	1	0	1	4
Indian	1	3	1	1	2	0	1	0	0	1	0	0	0	10
TOTAL	1	3	2	3	4	0	2	0	1	1	1	0	1	19

Table 3.2.3a: Distribution of Patients by Age, 1997-2009

Year	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	TOTAL
Age, years	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
0-19	0	0	2	1	1	0	0	0	1	0	1	0	0	6
20-39	0	2	0	0	0	0	0	0	0	0	0	0	0	2
40-59	1	1	0	2	3	0	2	0	0	1	0	0	1	11
≥60	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	1	3	2	3	4	0	2	0	1	1	1	0	1	19
Mean	51	40	15	37	38	-	46	-	15	44	15	-	41	35
SD	-	9	1	22	17	-	8	-	-	-	-	-	-	16
Median	51	37	15	44	43	-	46	-	15	44	15	-	41	40
Minimum	51	33	15	13	14	-	40	-	15	44	15	-	41	13
Maximum	51	50	16	55	54	-	52	-	15	44	15	-	41	55

Table 3.2.4a: Distribution of Patients by Primary Diagnosis, 1997-2009

Year	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	TOTAL
Primary diagnosis	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Ischaemic Cardiomyopathy	1	3	0	1	1	0	2	0	0	1	0	0	0	9
Idiopathic Dilated Cardiomyopathy	0	0	2	1	2	0	0	0	1	0	0	0	0	6
Restrictive Cardiomyopathy	0	0	0	0	0	0	0	0	0	0	0	0	0	0
End Stage Valvular Heart Disease	0	0	0	0	1	0	0	0	0	0	0	0	0	1
Hypertrophic Cardiomyopathy	0	0	0	1	0	0	0	0	0	0	0	0	0	1
Others	0	0	0	0	0	0	0	0	0	0	1	0	1	2
TOTAL	1	3	2	3	4	0	2	0	1	1	1	0	1	19

Table 3.3.1a: Distribution of Patients by Heart Procedure, 1997-2009

Year	97	98	99	00	01	02	03	04	05	06	07	08	09	TOTAL
Heart Procedure	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Orthotopic Bicaval	1	1	0	0	0	0	0	0	0	0	0	0	0	2
Orthotopic Traditional	0	2	2	3	4	0	2	0	1	1	2	0	1	18
Heterotopic	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	1	3	2	3	4	0	2	0	1	1	2	0	1	20

Table 3.3.2a: Distribution of Patients by Immunosuppressive Used, 1997-2009

Year	97	98	99	00	01	02	03	04	05	06	07	08	09	Total
Type of immunosuppressive	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Steroids														
Prednisolone	1	3	2	3	4	0	1	0	1	0	1	0	1	17
Methylprednisolone	1	3	2	3	4	0	2	0	1	1	2	0	1	20
Calcineurin Inhibitors														
Neoral®	1	3	2	3	4	0	1	0	1	1	0	0	1	17
Tacrolimus (FK506)	0	0	0	0	0	0	0	0	0	0	1	0	0	1
Antimetabolites														
Azathioprine (AZA)	1	3	2	3	4	0	2	0	0	1	0	0	0	16
Mycophenolate Mofetil (MMF)	0	0	0	0	1	0	0	0	1	0	1	0	1	4
Anti-lymphocyte Receptor Antibodies														
Anti-thymocyte globulin (ATG)	0	0	0	0	0	0	0	0	0	0	2	0	0	2
TOTAL patients at notification	1	3	2	3	4	0	2	0	1	1	1	0	1	19

Table 3.3.3a: Immunosuppressive Used at Time of Last Follow-up up to 2009

Year of follow up	2004	2005	2006	2007	2008	2009
Type of immunosuppressive	No.	No.	No.	No.	No.	No.
Steroids						
Prednisolone	3	4	4	3	4	3
Methylprednisolone	1	1	0	0	1	2
Calcineurin Inhibitors						
Neoral®	6	6	7	7	7	7
FK506	0	0	0	0	1	1
Antimetabolites						
Azathioprine (AZA)	3	3	3	3	3	2
Mycophenolate Mofetil (MMF)	3	3	5	5	5	6
TOTAL patients at follow-up	6	6	7	7	8	8

Table 3.3.4a: Duration of Waiting Time on Waiting List, 1997-2009

Year	97	98	99	00	01	02	03	04	05	06	07	08	09	TOTAL
Duration (months)	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
<5	0	2	1	0	1	0	1	0	0	0	0	0	0	5
5≤10	1	0	1	0	1	0	0	0	1	0	0	0	0	4
10≤15	0	0	0	1	0	0	0	0	0	1	2	0	1	5
15≤20	0	0	0	1	0	0	0	0	0	0	0	0	0	1
20≤25	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25≤30	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30≤35	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35≤40	0	0	0	0	0	0	1	0	0	0	0	0	0	1
TOTAL	1	2	2	2	2	0	2	0	1	1	2	0	1	16
Mean	6	2	4	15	5	-	20	-	9	10	13	-	13	10
SD	-	0	1	6	5	-	25	-	-	-	0	-	-	9
Median	6	2	4	15	5	-	20	-	9	10	13	-	13	9
Minimum	6	2	3	10	1	-	2	-	9	10	13	-	13	1
Maximum	6	2	5	19	8	-	37	-	9	10	13	-	13	37

Table 3.4.1: Post Transplant Events at Last Follow-up up to 2009

Year of transplant	97	98	99	00	01	02	03	04	05	06	07	08	09	TOTAL
Type of post transplant events	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Drug Treated Hypertension	1	2	2	1	3	0	1	0	0	0	0	0	0	10
Bone Disease (Symptomatic)	1	0	0	0	1	0	0	0	0	0	0	0	0	2
Chronic Liver Disease	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cataracts	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Diabetes	1	2	0	0	0	0	1	0	0	0	0	0	0	4
Renal Dysfunction	1	1	0	0	0	0	0	0	0	0	0	0	0	2
Stroke	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Drug-Treated Hyperlipidaemia	1	2	2	1	3	0	1	0	1	0	0	0	0	11
TOTAL patients at follow-up	1	2	2	1	3	0	1	0	1	0	1	0	1	13

Table 3.4.2: Post Transplant Malignancies at Follow-up up to 2009

Year of transplant	97	98	99	00	01	02	03	04	05	06	07	08	09	TOTAL
Type of post transplant malignancies	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Donor related	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Recurrence of pre-transplant tumor	0	0	0	0	0	0	0	0	0	0	0	0	0	0
De novo solid tumor	1	0	0	0	0	0	0	0	0	0	0	0	0	1
De novo lymphoproliferative	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Skin	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total patients at follow up	1	2	2	1	3	0	1	0	1	0	1	0	1	13

Table 3.4.3: Non-compliance at Follow-up up to 2009

Year of transplant	97	98	99	00	01	02	03	04	05	06	07	08	09	TOTAL
Non-compliance during follow-up	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
• Yes	0	0	2	0	0	0	1	0	0	0	0	0	0	3
• No	1	2	0	1	3	0	0	0	1	0	1	0	1	9
TOTAL patients at follow-up	1	2	2	1	3	0	1	0	1	0	1	0	1	13
<i>Areas of non-compliance:</i>														
• Immunosuppression medication	0	0	1	0	0	0	1	0	0	0	0	0	0	2
• Patient unable to afford immunosuppression medications	0	0	0	0	0	0	0	0	0	0	0	0	0	0
• Other medication	0	0	0	0	0	0	0	0	0	0	0	0	0	0
• Other therapeutic regimen	0	0	1	0	0	0	0	0	0	0	0	0	0	1
TOTAL patients with noncompliance	0	0	2	0	0	0	1	0	0	0	0	0	0	3

Table 3.4.4: Patient Treated for Rejection at Follow-up up to 2009

Year of transplant	97	98	99	00	01	02	03	04	05	06	07	08	09	TOTAL
Patient treated for rejection	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
• Yes	0	1	1	0	1	0	0	0	1	0	0	0	0	4
• No	1	1	1	1	2	0	1	0	0	0	1	0	1	8
TOTAL patients at follow-up	1	2	2	1	3	0	1	0	1	0	1	0	1	13
<i>Number of rejection events</i>														
• 1	0	1	0	0	1	0	0	0	1	0	0	0	0	3
• 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
• 3	0	0	1	0	0	0	0	0	0	0	0	0	0	1
TOTAL patients with rejection	0	1	1	0	1	0	0	0	1	0	0	0	0	4

Table 3.4.5a: Distribution of Patients by Time of Deaths, 1997-2009

Year of discharge	97	98	99	00	01	02	03	04	05	06	07	08	09	TOTAL
Time of deaths*	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
<3 months (at discharge)	0	1	0	2	0	1	1	0	0	1	0	0	0	6
3-<6 months	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6 months-1 year	0	0	0	0	0	1	0	0	0	0	0	0	0	1
>1 year	0	0	0	1	1	1	0	0	0	0	0	0	1	4
TOTAL patients who died	0	1	0	3	1	3	1	0	0	1	0	0	1	11

Table 3.4.6: Patient Survival, 1997-2009

Year of Transplant	1997-2009	
Interval	% Survival	SE
6 months	70	10
1 year	59	11
2 year	48	11
3 year	42	11
4 year	42	11
5 year	42	11
6 year	42	11
7 year	42	11
8 year	42	11
9 year	42	11
10 year	42	11
11 year	28	14

Figure 3.4.6: Patient Survival, 1997-2009

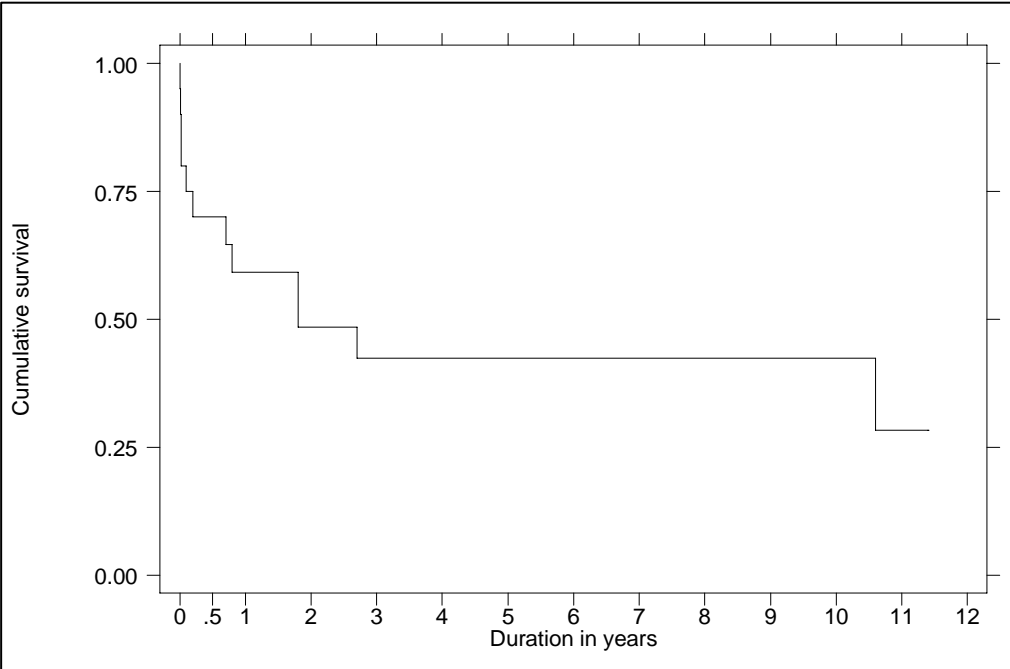


Table 3.4.7: Cause of Death at Discharge, 1997-2009

Year	97	98	99	00	01	02	03	04	05	06	07	08	09	TOTAL
Cause of death	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Hyperacute rejection	0	0	0	0	0	0	1	0	0	0	0	0	0	1
Multi organ failure	0	0	0	1	0	0	0	0	0	0	0	0	0	1
Respiratory failure secondary to septicaemia	0	0	0	0	0	1	0	0	0	0	0	0	0	1
Respiratory failure, renal function and liver failure, ARDS, septicaemia	0	0	0	1	0	0	0	0	0	0	0	0	0	1
Septicaemia, multiorgan failure	0	1	0	0	0	0	0	0	0	0	0	0	0	1
Graft failure	0	0	0	0	0	0	0	0	0	1	0	0	0	1
TOTAL patients who died at discharge	0	1	0	2	0	1	1	0	0	1	0	0	0	6

Table 3.4.8: Cause of Death at Follow-up, 1997-2009

Year	97	98	99	00	01	02	03	04	05	06	07	08	09	TOTAL
Cause of death	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Severy Bleeding	0	0	0	0	0	1	0	0	0	0	0	0	0	1
Lung cancer, septicaemia, small cell type bronchopneumonia	0	0	0	1	0	0	0	0	0	0	0	0	0	1
Rejection due to non compliance	0	0	0	0	1	0	0	0	0	0	0	0	0	1
Sudden death due to graft CAD	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Unknown	0	0	0	0	0	1	0	0	0	0	0	0	0	1
TOTAL patients who died at follow up	0	0	0	1	1	2	0	0	0	0	0	0	1	5

Table 3.1.1b: Stock and Flow of Lung Transplantation, 2005-2009

Year	2005	2006	2007	2008	2009
New transplant patients	1	1	2	0	0
Deaths	0	1	1	0	0
Retransplanted	0	0	0	0	0
Lost to follow up	0	0	0	0	0
Alive at 31 st December	1	1	2	2	2

Figure 3.1.1b Stock and Flow of Lung Transplant and Heart Lung Transplant

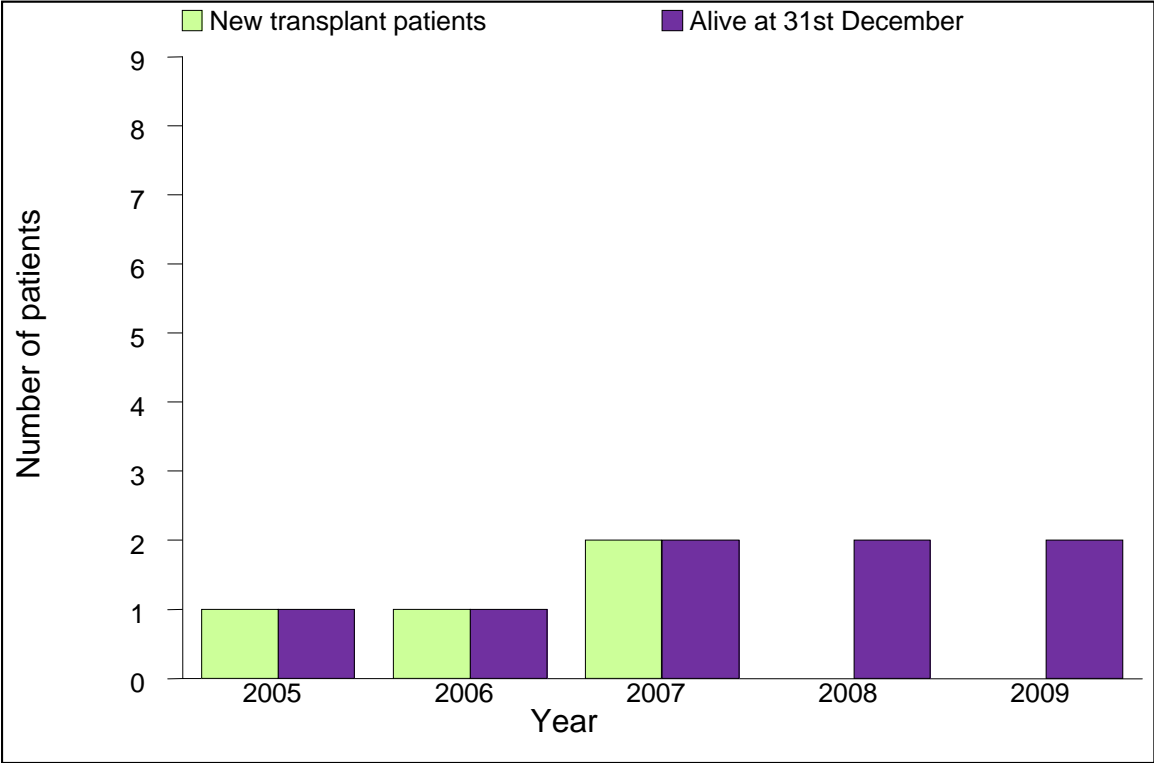


Table 3.2.1b: Distribution of Patients by Gender, 2005-2009

Year	2005	2006	2007	2008	2009	TOTAL
Gender	No.	No.	No.	No.	No.	No.
Male	1	1	1	0	0	3
Female	0	0	1	0	0	1
TOTAL	1	1	2	0	0	4

Table 3.2.2b: Distribution of Patients by Ethnic Group, 2005-2009

Year	2005	2006	2007	2008	2009	TOTAL
Ethnic group	No.	No.	No.	No.	No.	No.
Malay	0	0	1	0	0	1
Chinese	0	0	0	0	0	0
Indian	1	1	0	0	0	2
Bumiputra Sarawak	0	0	1	0	0	1
TOTAL	1	1	2	0	0	4

Table 3.2.3b: Distribution of Patients by Age, 2005-2009

Year	2005	2006	2007	2008	2009	TOTAL
Age, years	No.	No.	No.	No.	No.	No.
0-19	0	0	1	0	0	1
20-39	0	1	1	0	0	2
40-59	1	0	0	0	0	1
≥60	0	0	0	0	0	0
TOTAL	1	1	2	0	0	4

Table 3.2.4b: Distribution of Patients by Primary Diagnosis, 2005-2009

Year	2005	2006	2007	2008	2009	TOTAL
Primary diagnosis	No.	No.	No.	No.	No.	No.
Idiopathic pulmonary fibrosis	1	1	1	0	0	3
Idiopathic pulmonary arterial hypertension	0	0	1	0	0	1
Chronic obstructive pulmonary disease	0	0	0	0	0	0
Bronchiectasis	0	0	0	0	0	0
TOTAL	1	1	2	0	0	4

Table 3.3.1b: Distribution of Patients by Heart Procedure, 2005-2009

Year	2005	2006	2007	2008	2009	TOTAL
Heart Procedure	No.	No.	No.	No.	No.	No.
Single lung transplant	1	0	0	0	0	1
Double lung transplant	0	1	1	0	0	2
Heart-Lung transplant	0	0	1	0	0	1
TOTAL	1	1	2	0	0	4

Table 3.3.3b: Immunosuppressive Used at Time of Last Follow-up up to 2009

Year of follow up*	2005	2006	2007	2008	2009
Type of immunosuppressive	No.	No.	No.	No.	No.
Steroids:					
Prednisolone	1	2	2	1	0
Methylprednisolone	1	1	2	0	0
Calcineurin Inhibitors:					
Neoral®	1	2	3	0	0
FK506 (Tacrolimus)	0	0	0	2	2
Antimetabolites:					
Mycophenolate Mofetil (MMF)	1	2	3	2	0
TOTAL patients at follow-up	1	2	3	2	2

Table 3.4.5b: Distribution of Patients by Time of Deaths, 2005-2009

Year of discharge	2005	2006	2007	2008	2009	TOTAL
Time of deaths	No.	No.	No.	No.	No.	No.
<3 months (at discharge)	0	1	1	0	0	2
3-<6 months	0	0	0	0	0	0
6 months-1 year	0	0	0	0	0	0
>1 year	0	0	0	0	0	0
TOTAL patients who died	0	1	1	0	0	2