

LIVER TRANSPLANTATION IN AUSTRALIA

THE EXPERIENCE OF THE THREE
NATIONAL LIVER TRANSPLANT
CENTRES : BRISBANE, MELBOURNE,
SYDNEY.

UNTIL 31/12/1991

4th REPORT

OF THE COMBINED
LIVER TRANSPLANT REGISTRIES.
MARCH 1992.

INTRODUCTION

The three established liver transplantation groups in Australia have agreed to interchange information concerning their liver transplantation experience. All three units thus have their own capability of assessing and analysing the current situation with regards liver transplantation in Australia. The groups have agreed to complete confidentiality with regards individual patients or individual unit results. They have agreed, however, that overall information pertaining to Australia as a whole can be freely promulgated to interested persons.

This report is the fourth annual report of the combined liver transplant registries. The responsibility for preparation of the report rotates between units and this report has been produced by the Brisbane Unit.

Numbers of copies of this report are held by the Directors of each of the units to whom requests for additional copies can be made. Similarly, general enquiries concerning aspects of liver transplantation in Australia would be welcomed by each unit.

We have closely followed the format of previous reports with updated tables and graphs and some new trends have been highlighted. As numbers have increased other analyses have been added.

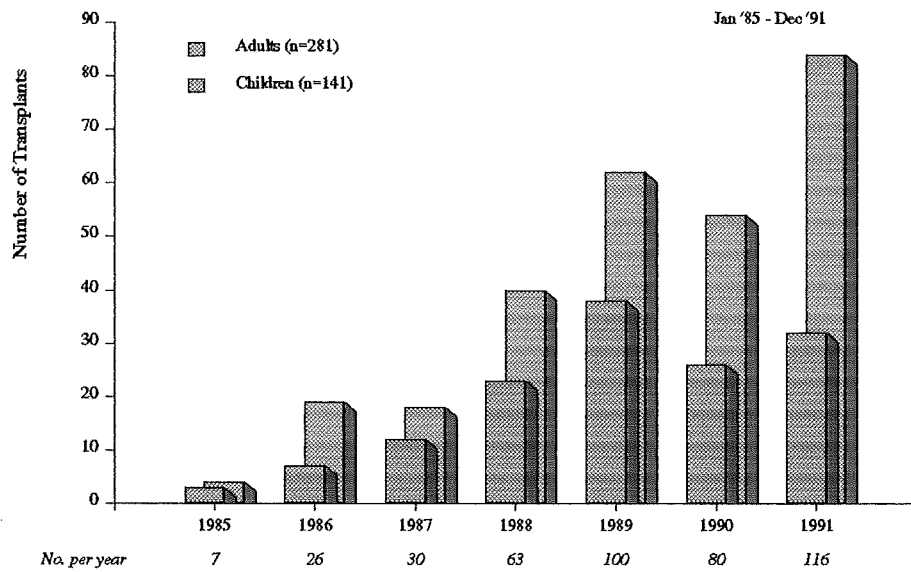
Finally, once again, a word of praise for the Australian and New Zealand transplant co-ordinators who have contributed much in facilitating the interstate and international exchange of hepatic allografts, and which in many instances involved considerable time and effort on their part.

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One hundred and sixteen transplants were performed in 1991, 84 in adults and 32 in children. This brings to 422 the total number of liver transplants performed in Australia since January 1985. (Figure 1)

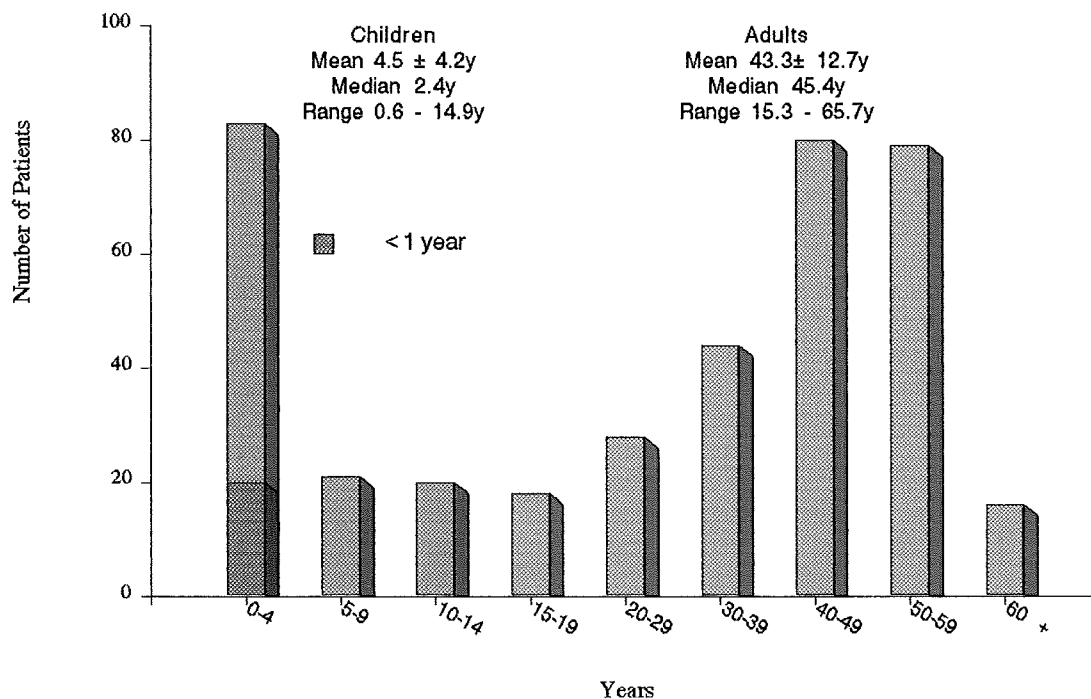
Figure 1



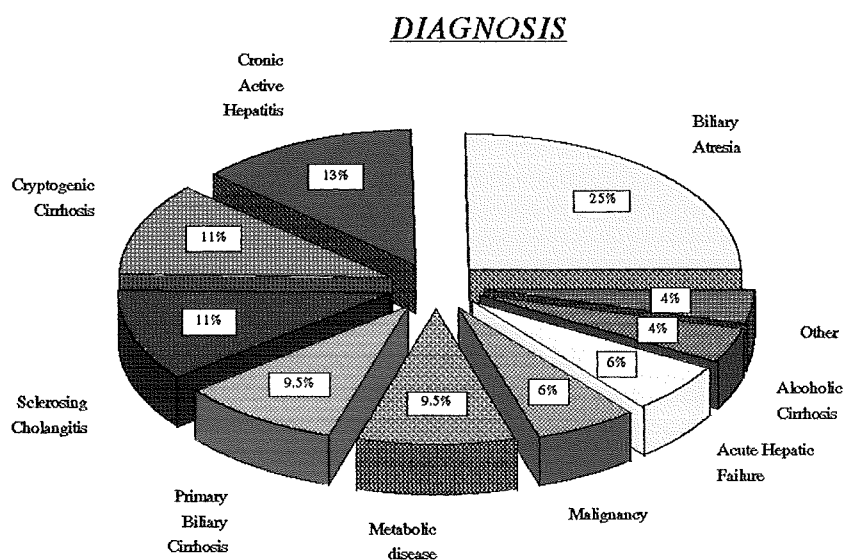
Thirty-two patients have required a second transplant and one patient has received 3 grafts. The overall retransplant rate was 8%. (Table 1)

Table 1

	GRAFT NUMBER		
	1	2	3
Adults	265	15	1
Children	124	17	

Figure 2 Age at Primary Transplant

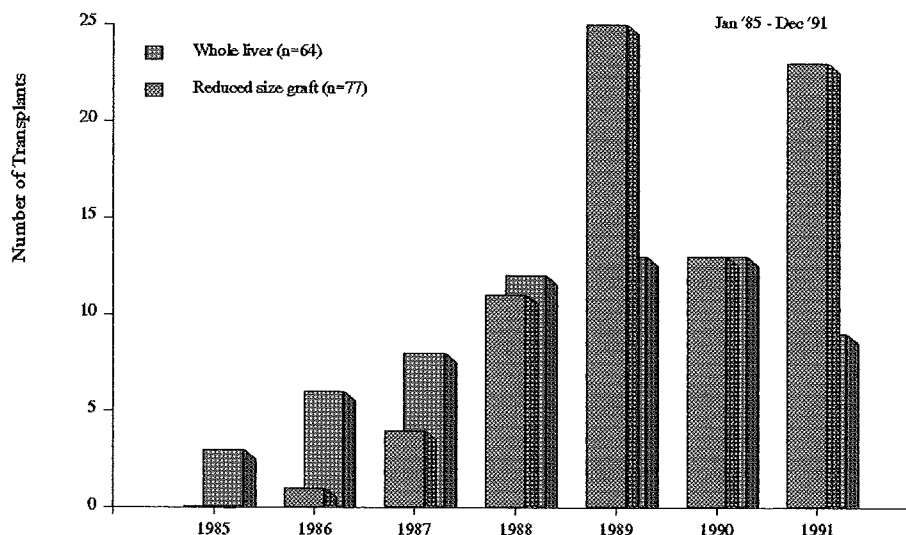
The age distribution is bimodal reflecting the primary disease for which transplantation is performed. In children biliary atresia is predominant. In adults chronic liver disease is usually manifest in the fifth decade. Twenty children less than 1 year of age and 16 adults in their sixties have been transplanted resulting in slight shifts in median age of paediatric and adult groups.

Figure 3

The primary diagnosis of patients at first transplant is shown in Figure 3. All centres have transplanted numbers of non-Australian residents. The disease category most skewed by this is biliary atresia, the predominant disease of paediatric recipients. Adult recipients show an even spread over a number of disease categories.

Again in 1991, because of the relative scarcity of paediatric donor organs, the majority of paediatric patients (72%) received reduced size grafts from adult donors (Figure 4). Since reduced size grafts were first introduced in 1986, 56% of paediatric transplants have been by this technique.

Figure 4



One year patient survival for all subgroups by year was combined and is represented in Figure 5. The improvement seen in 1990 has been sustained in 1991 with 1 year patient survival of 90%. The curve profiles illustrate significant early mortality and corresponds to the period when risk of death from sepsis, rejection and technical complication is highest and immunosuppression is maximal. (Figure 6)

Figure 5

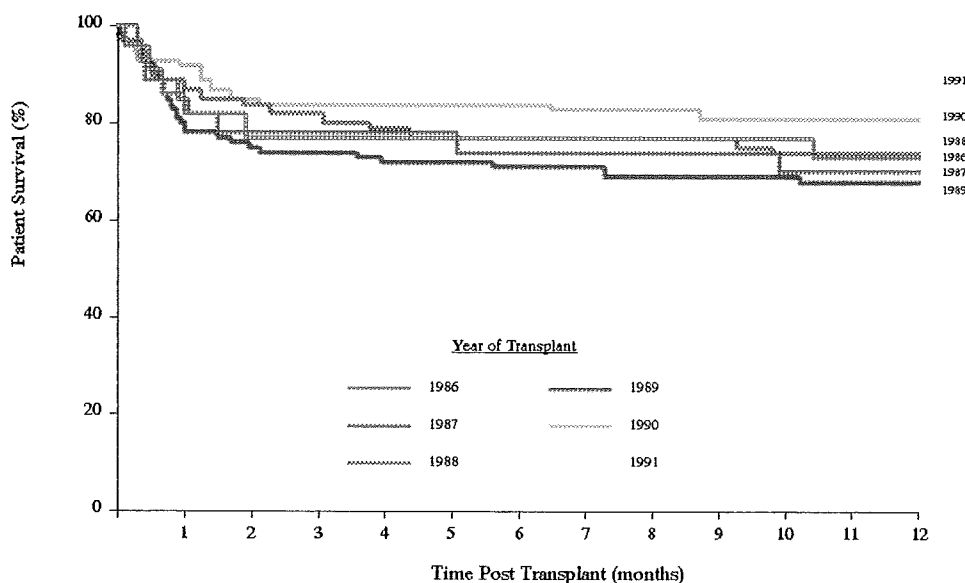
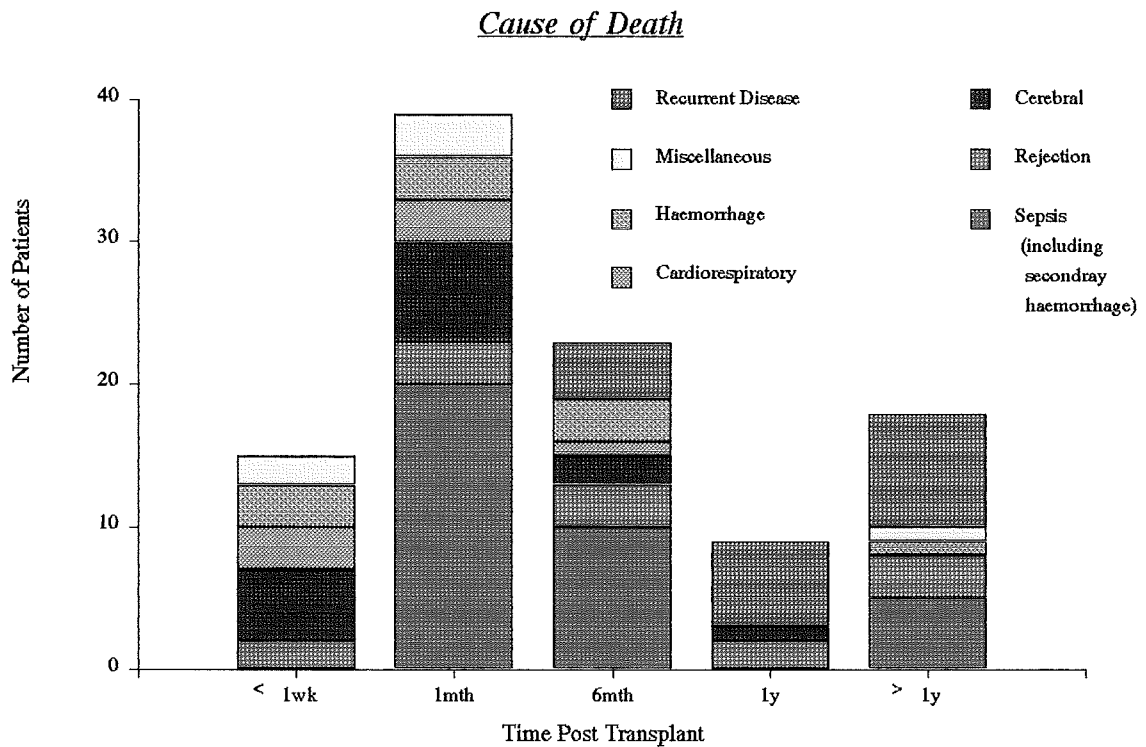
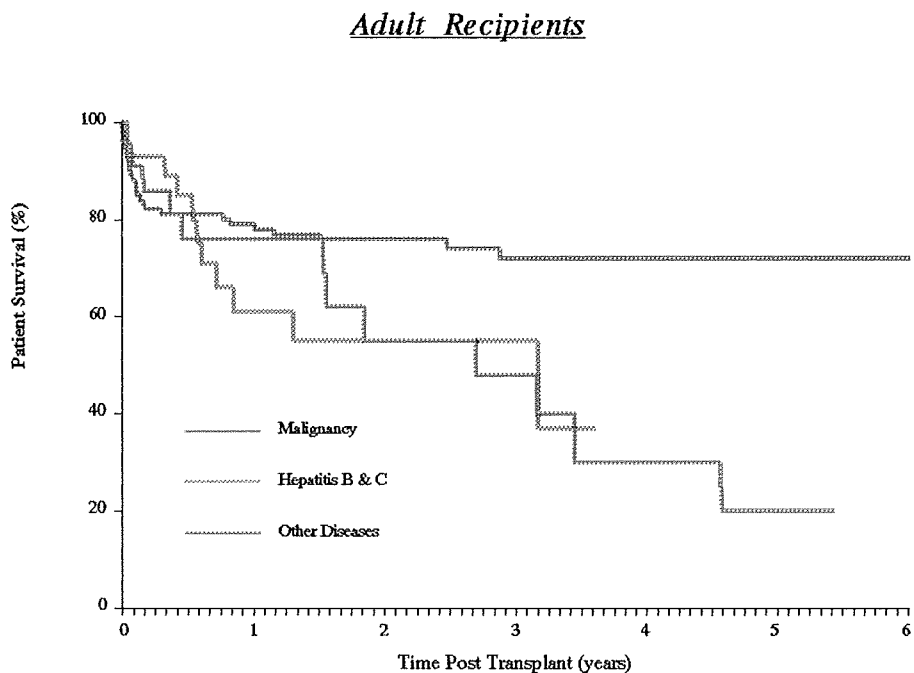


Figure 6



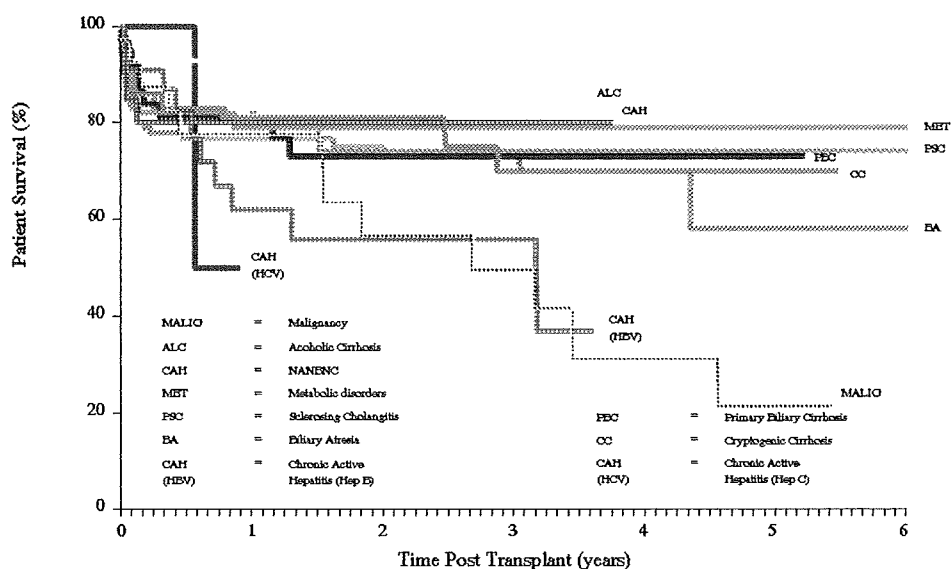
Sepsis, including secondary haemorrhage due to sepsis has been the main cause of death usually in the early post operative period. Recurrent disease, both malignancy and hepatitis B and C, have caused significant mortality in the medium to long term in adult recipients (Figure 7).

Figure 7



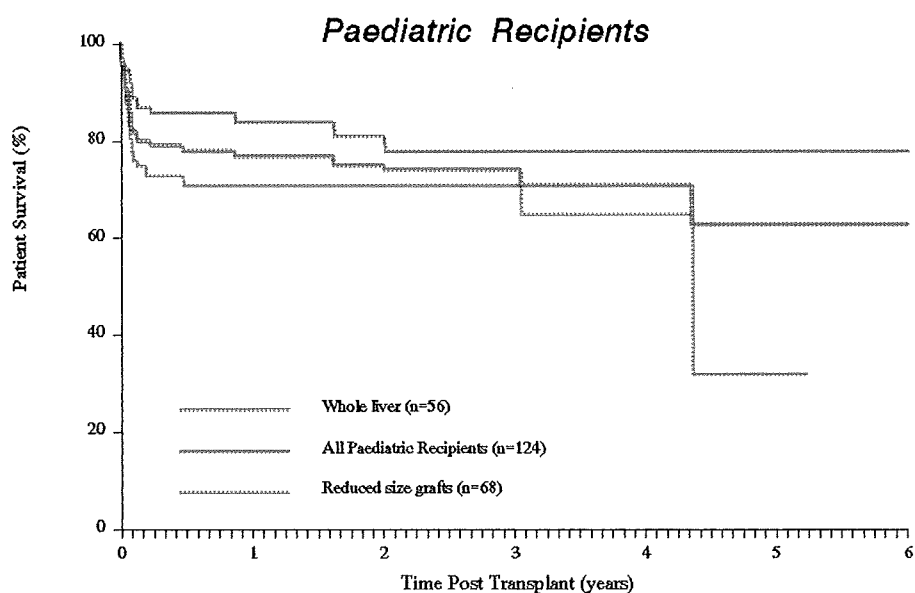
The outcome by primary disease is shown in Figure 8.

Figure 8



Paediatric patients who received reduced size grafts did not fare as well as recipient of whole livers (Figure 9). While the technique of reduced size grafts may be responsible for some of the disadvantage, other factors such as advanced malnutrition and urgency for transplant contribute to some of the deaths. There has been continued evidence that the use of reduced size grafts was the only chance of survival for many of the children.

Figure 9



The influence of age at primary transplant on early outcome is shown in Figure 10. Perioperative mortality is highest in young children (infants / toddlers) whilst older recipients aged 60 or more fare very well.

Figure 10

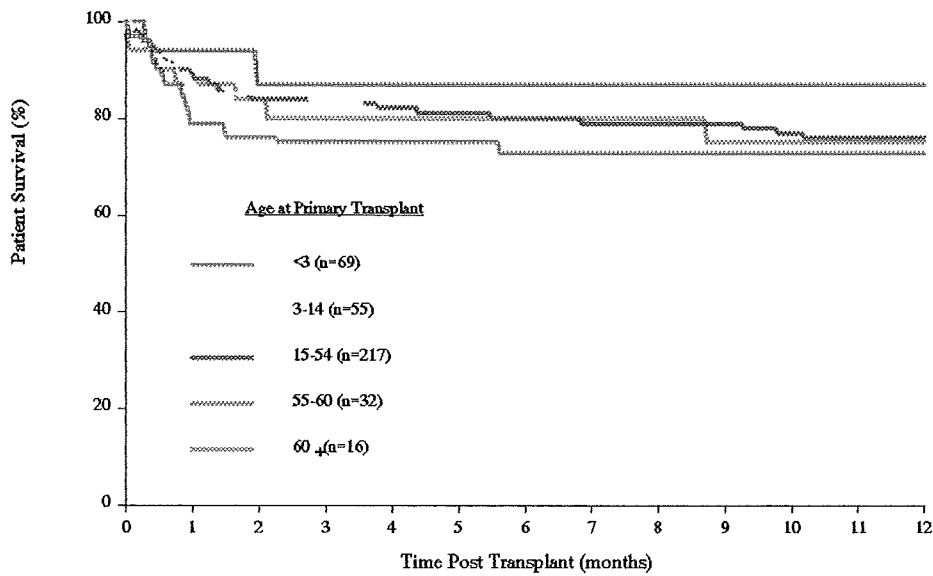
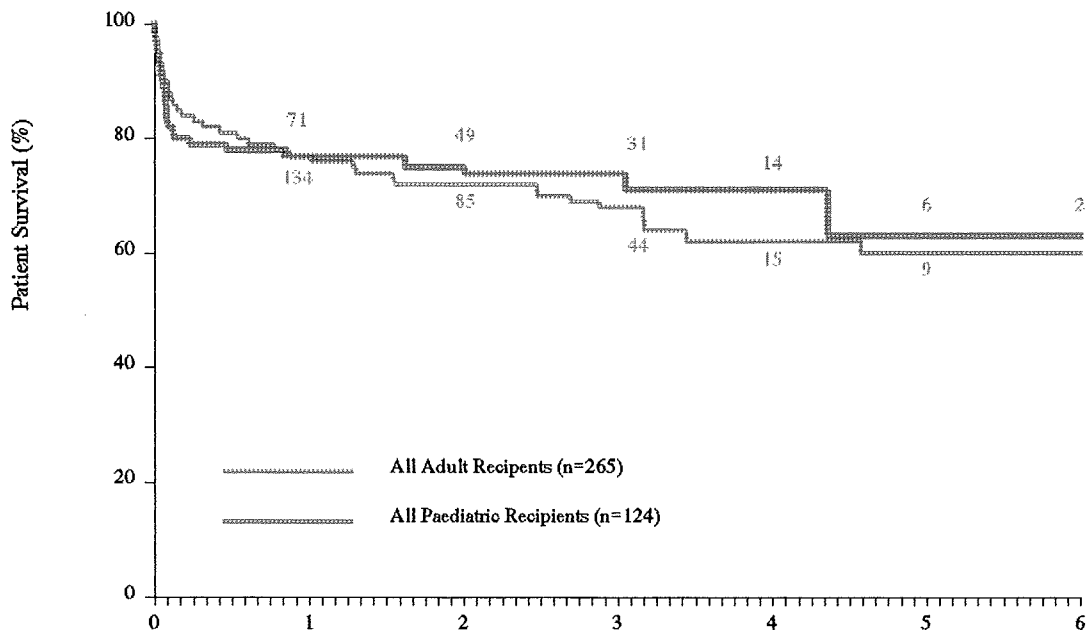


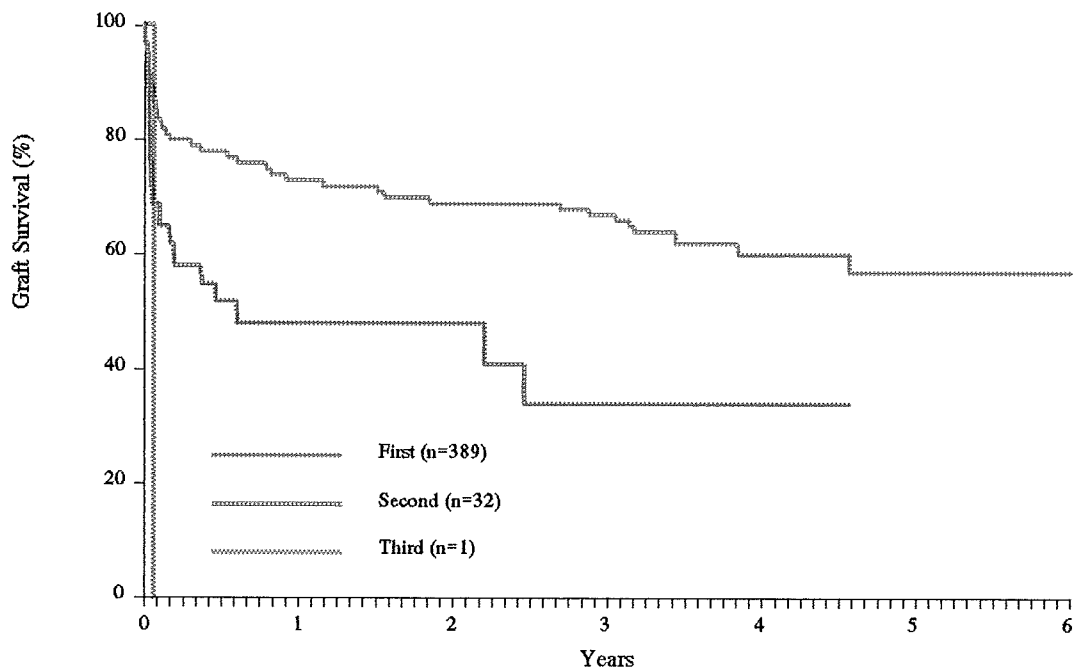
Figure 11 illustrates patient survival for adults and children showing late deaths in both groups. Overall patient survival was 77% at 1 year and 70% at 3 years.

Figure 11



Thirty two patients required retransplantation. Reasons for retransplantation were rejection 31% (2 acute, 8 chronic), vascular complications 34% (usually thrombosis - hepatic artery 8, portal vein 3) and the remainder for graft failure due to primary non function (5), graft infarction (non-thrombotic) and graft sepsis. Graft survival is shown in Figure 12. Seventy three percent of first grafts were still functioning at 1 year but only 48% of second grafts.

Figure 12



SUMMARY

While it is difficult to draw conclusions from a multicentre analysis, some broad statements would seem appropriate

1. The increase in the number of transplants performed in 1991 was mainly due to a 20% increase in the number of adults transplanted.
2. The improved results seen in 1990 have been sustained with a 1 year patient survival at 90% in 1991.
3. With appropriate selection criteria, patients over 60 years of age may fare equally well as younger adults.
4. Primary graft non-function (6 of 422 - 1.4%) is low by world standards and may reflect the high standard of donor care in Intensive Care Units in Australasia.
5. The retransplantation rate of 8% is low by world standards.