

The Twenty Fourth Report

Australia and New Zealand Dialysis and Transplant Registry

2001



Edited by Graeme R Russ

Sponsored by

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See Website (www.anzdata.org.au)

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See Website (www.anzdata.org.au)



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 Federal Department of Health and Aged Care
 Australian Health Ministers' Advisory Council
 The Australian Kidney Foundation
 New Zealand Ministry of Health
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 Novartis Pharmaceuticals Australia Pty Ltd
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Editor: Graeme R Russ

Publications based upon ANZDATA Registry information reported here or supplied upon request, must include the citation as noted above and the following notice:

The data reported here have been supplied by the Australia and New Zealand Dialysis and Transplant Registry. The interpretation and reporting of these data are the responsibility of the Editors and in no way should be seen as an official policy or interpretation of the Australia and New Zealand Dialysis and Transplant Registry.



This is the 24th Report from ANZDATA Registry and comes at a time of significant change.

This is the first report fully edited by Graeme Russ who has assumed the mantle of Executive Officer of the Registry from Alex Disney. In line with our current approach the report is multi-authored and has become increasingly specialised.

The establishment of the ANZDATA Advisory Committee to the Registry has seen the appointment of A/Professor Rowan Walker to the Chair. This Committee is charged with the responsibility for the overall scientific direction and performance of ANZDATA Registry and its annual report.

The review into registry funding, which was signalled in last year's introduction, resulted in an increased allocation of funds to the Registry and a recognition that individual organ registries should remain separate. In addition, the allocation of funds is now coming direct from the Federal Department of Health and Aged Care rather than relying on annual decisions of AHMAC.

Good progress has been made with the pilot of an interactive internet enabled data entry system. Four Australian hospitals will be testing the new system in the next few months and it is intended that late in 2002 this facility should be offered to units wishing to participate. Generous funds have been donated to allow this development from Novartis, Janssen-Cilag and Wyeth.

This year has also seen the appointment of a Fellow in Epidemiology. Dr Stephen McDonald took up this role in April 2001. This appointment has been made possible by a generous Grant from AMGEN. Funds have also been provided by Fresenius for the establishment of a vascular access register. This will utilise internet based data entry and will be running in pilot form from early in 2002.

The ANZDATA Registry Executive and the ANZDATA Advisory Committee are sub-committees of the Dialysis, Nephrology and Transplant Committee of the Australia and New Zealand Society of Nephrology and the Australian Kidney Foundation. The ANZDATA Registry Advisory Committee meets annually and currently consists of:

A/Prof R Walker (Chairman)
A/Prof G Russ (Executive Officer and
Manager/Transplantation)
Dr S P McDonald (AMGEN Fellow in
Epidemiology)
Mrs L Excell (Registry Manager)
Dr J Knight (AKF Representative)
Dr N Hay (NZ Representative)
Dr J Collins (Manager/CAPD)
Dr J Craig (Manager/Paediatrics)
A/Prof P Kerr (Manager/Haemodialysis)
Dr J Chapman
Dr A Gillin
A/Prof D Harris
Dr L McMahan
Dr D Johnson
Dr H Moody

The annual report is again a comprehensive and detailed account of the delivery of dialysis and transplantation in Australia and New Zealand. We remain proud of the fact that 100% of Australian and New Zealand units contribute and that we believe there is 100% reporting of patients.

The Registry headquarters in Adelaide has moved to new offices within The Queen Elizabeth Hospital main building. This is to allow a re-building program to take place. The new arrangements are satisfactory and allow easier access of the medical team to the Registry Staff. Lee Excell continues in her lead role with responsibility for maintaining the database and overview of analysis. Brian Livingston continues as our main computer programmer and analyst and Lis Steinmetz attends to administration and secretarial support.

This report is posted to a large mailing list in Australia and overseas. For the first time this year we are offering the report on CD as an alternative to a spiral bound copy. In addition a more formal bound copy with a gloss board cover can be ordered from the Registry office. Should you know of anyone who would like to join the mailing list please let us know.

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Chairman



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These definitions apply throughout this report unless otherwise stated.

1. Wording

Throughout this report 'treatment' refers to renal replacement therapy, including haemodialysis, peritoneal dialysis and transplantation

HD = haemodialysis

CAPD = continuous ambulatory peritoneal dialysis

APD = automated peritoneal dialysis

ESRD = end stage renal disease

2. Data collection

ANZDATA collects information from all renal units in Australia and New Zealand every 6 months. Currently this is by a paper-based system, with manual completion of the form and manual data entry. No formal audit mechanism is in place.

For transplants, HLA matching is obtained direct from the Tissue Typing laboratories in each State.

3. Inclusion criteria

Included in the Registry are all patients receiving renal replacement therapy where the intention to treat is long-term, i.e. medical opinion is that renal function will not recover. Cases of acute renal failure are excluded. People who move overseas permanently are censored at date of last treatment (or departure in the case of transplant recipients).

4. Modality attribution

The initial mode of dialysis is determined at 90 days after first treatment, to allow for early changes and maturation of access. Other transfers (between modalities, or from satellite to hospital HD etc.) are not analysed if less than 30 days, except for transfers between dialysis centres to which a 60 day rule is applied to allow for holiday movements.

5. Underlying renal disease

This is recorded by the treating hospital according to a modified EDTA coding system (details on back of survey form).

6. Deaths

Deaths are coded by the treating hospital using a modified EDTA coding system (details on back of survey form). Where a recent change in location or modality preceded death, the death is attributed to the modality / location at time of death, although some analyses differ and this is stated. All deaths following transplant surgery are attributed to transplantation.

7. Co-morbid conditions

These are recorded by the treating hospital. No definitions are supplied; the treating clinician is asked to record whether the patient has coronary artery disease, chronic lung disease, cerebrovascular disease, peripheral vascular disease or diabetes according to their clinical opinion on a yes / suspected / no basis.

8. Derived measures

8.1. Estimated creatinine clearance

Where creatinine clearance is estimated from serum creatinine at entry or post transplantation, the Cockcroft-Gault equation is used [1].

$$Cl_{Cr} = (140 - \text{age}) * \text{weight} / (814 * Cr_{\text{serum}}) [*0.85 \text{ if female}]$$

The weight term used for this is lean body mass, calculated using the equation $LBW = (0.9 * [\text{height} - 152]) + (50 \text{ if male}, 45.5 \text{ if female})$.

8.2. Urea reduction ratio / Kt/V

Results are requested in one of these formats, using the stop flow method on a mid-week dialysis. Single pool Kt/V is collected, along with the method used.

For conversion of URR to Kt/V urea the formula used [2] is

$$Kt/V = 0.023 * PRU - 0.284 \text{ (note that PRU = percent reduction in urea and not URR).}$$

8.3. Peritoneal Dialysis measures

These are the standard measures, often calculated by computerised patient management programs.

8.3.1. Residual renal function

The measure used is the arithmetic mean of urea and creatinine clearance from a 24-hour urine collection and serum creatinine & urea.

8.3.2. Peritoneal equilibration test

The ratio of dialysate to plasma glucose is used, following a 4 hour dwell of a 2 litre 2.5%, performed 1-6 months after initiation of PD dextrose bag.

9. Rates & Measures**9.1. Incidence rates**

Except where otherwise quoted incidence rates are per calendar year, and are expressed per million population.

9.2. Prevalence rates

Except where otherwise specified, prevalence rates are point prevalence rates at 31 December 2000.

9.3. Population denominator

The population estimates used are the estimated resident populations (ERP) for the year 2000, released by the Australian Bureau of Statistics and Statistics New Zealand. Figures used are those for the June quarter.

For both countries, the statistics bureaux record indigenous status on a self-identification basis.

For Australia, there has been considerable change in the propensity to self-identify as indigenous, such that a number of estimates are released by the ABS [3]. For this report, the mid range projections have been used.

In both Australia and New Zealand, national population censuses have been carried out in 2001 which will provide an opportunity to verify the ERP's.

9.4. Survival rates

For transplant recipients, survival rates exclude those who were transplanted overseas or were recipients of multiple organ grafts.

Graft survival (unless otherwise qualified) includes both cessation of graft function (i.e. return to dialysis) and patient death.

Survival rates for fixed periods are calculated according to the life-table method and include an adjustment to the risk-set of ½ of those censored without failure over the interval to create an "average" risk set.

9.5. Death and other event rates

Rates are expressed per 100 person years at risk (unless otherwise stated).

9.6. Age standardisation

All rates are crude, not age-standardised. The age distribution of the population is given in Appendix I.

10. Comparative measures

In addition to the usual measures, included are a series of specific rates agreed on as an effort to harmonise reporting between ANZDATA, the UK Renal Registry and the Canadian Organ Replacement Registry. These include incidence, prevalence and transplant rates for age ranges 25-45, 45-65 and 65+ years. In addition we also report 12 month mortality for the cohort who survived 90 days after ESRD entry (i.e. mortality at 455 days after ESRD entry). These are presented in Appendix I.

11. Database

Data is stored on a relational database using ORACLE version 8I.

12. Statistics

Statistical analyses were performed using SPSS release version 10.0.7.

13. References

1. Cockcroft DW, Gault MH: Prediction of creatinine clearance from serum creatinine. *Nephron* 16:31-41, 1976.
2. Basile C, Casino F, Lopez T: Percent reduction in blood urea concentration during dialysis estimates Kt/V in a simple and accurate way. *Am J Kidney Dis* 15:40-45, 1990.
3. Australian Bureau of Statistics: Experimental estimates of the Aboriginal and Torres Strait Islander Population, Australia, 1998. Canberra, ABS Cat.No. 3230.0, 1998.

**QUEENSLAND**

Allamanda Private Hospital
 Bundaberg Base Hospital
 Cairns Base Hospital
 Goldcoast Hospital
 Greenslopes Private Hospital
 Hervey Bay Hospital
 John Flynn Hospital
 Mackay Base Hospital
 Nambour Hospital
 Princess Alexandra Hospital
 Riverview Private Hospital
 Rockhampton Base Hospital
 Royal Brisbane Hospital
 St. Vincent's Hospital, Robina
 Toowoomba Hospital
 Townsville General Hospital
 Wesley Private Hospital

NEW SOUTH WALES

Dubbo Base Hospital
 East Coast Renal Service
 Prince of Wales Hospital
 Sydney Children's Hospital
 St. George Hospital
 St. Vincent's Hospital
 Wollongong Hospital
 Gosford Hospital
 John Hunter Hospital
 Lismore Hospital
 Mater Misericordiae Hospital
 New Children's Hospital
 Orange Base Hospital
 Port Macquarie Community Dialysis Centre
 Port Macquarie Private Hospital
 Royal North Shore Hospital
 South West Sydney Renal Service
 Bankstown Hospital
 Liverpool Hospital
 Statewide Renal Services
 Concord Hospital
 Royal Prince Alfred Hospital
 Sydney Adventist Hospital
 Tamworth Hospital
 Westmead Hospital

AUSTRALIAN CAPITAL TERRITORY (ACT)

The Canberra Hospital

VICTORIA

Alfred Hospital
 Austin and Repatriation Medical Centre
 Epworth Hospital
 Geelong Hospital
 Monash Medical Centre – Adult
 Monash Medical Centre – Paediatric
 Royal Children's Hospital
 North West Dialysis Service
 Royal Melbourne Hospital
 St. Vincent's Hospital

TASMANIA

Launceston General Hospital
 Royal Hobart Hospital

SOUTH AUSTRALIA

Flinders Medical Centre
 The Queen Elizabeth Hospital
 Royal Adelaide Hospital
 Women's and Children's Hospital

NORTHERN TERRITORY

Royal Darwin Hospital
 Alice Springs Hospital

WESTERN AUSTRALIA

Fremantle Hospital
 Princess Margaret Hospital for Children
 Royal Perth Hospital
 Sir Charles Gairdner Hospital

NEW ZEALAND

Auckland Hospital
 Starship Children's Hospital
 Christchurch Hospital
 Dunedin Hospital
 Middlemore Hospital
 Palmerston North Hospital
 Waikato Hospital
 Wellington Hospital
 Whangarei Area Hospital

**QUEENSLAND**

Princess Alexandra Hospital (Adult & Paediatric)
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NEW SOUTH WALES

John Hunter Hospital
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Prince of Wales Hospital (Adult & Paediatric)
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Royal North Shore Hospital
Director - Dr Lloyd Ibels
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St Leonards 2065

Royal Prince Alfred Hospital
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St. Vincent's Hospital
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Royal Melbourne Hospital
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Royal Perth Hospital
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Perth 6001

Sir Charles Gairdner Hospital
Director - Dr Brian Hutchison
Verdun Street
Nedlands 6009

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Christchurch Hospital
Director - Dr Richard Robson
Christchurch

Starship Children's Hospital
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Grafton, Auckland

Waikato Hospital
Director - Dr Maggie Fisher
Pembroke Street
Hamilton

Wellington Hospital
Director - Dr Grant Pidgeon
Riddiford Street
Newtown, Wellington South



QUEENSLAND

Atherton Satellite - Cairns Base Hospital
 Calvary Hospital - Cairns Base Hospital
 Home Hill Satellite – Townsville General Hospital
 Keperra – Royal Brisbane Hospital
 Logan Satellite – Princess Alexandra Hospital
 Mater Children’s Hospital
 Noosa Satellite - Nambour Hospital
 Royal Children’s Hospital
 Sandgate Satellite – Royal Brisbane Hospital
 Vincent Satellite – Townsville General Hospital

NEW SOUTH WALES (ACT)

Ballina Satellite – Lismore Hospital
 Bankstown Hospital - S.W.Sydney Renal Service
 Bathurst - St. Vincent’s Hospital
 Blacktown Satellite - Westmead Hospital
 Brewarrina Hospital
 Chatswood Satellite
 Coffs Harbour Base Hospital
 Coonamble Hospital
 Dame Eadith Walker - Statewide Renal Services
 Dubbo Base Hospital
 Eora Cottage – Prince of Wales Hospital
 Gosford Hospital
 Grafton Hospital - Lismore Hospital
 Kempsey Hospital - Port Macquarie Comm.Dx.
 Lanceley Cottage – Royal North Shore Hospital
 Liverpool Community Hospital - Sth West S.R.S.
 Maitland Hospital
 Nita Reed House (Taree) - John Hunter Hospital
 Norfolk Island Hospital
 Orange Base Hospital
 Shellharbour – Wollongong Hospital
 Shoalhaven Satellite (Nowra) - Wollongong Hosp.
 Singleton Satellite – John Hunter Hospital
 Sydney Adventist Hospital
 Sydney Dialysis Centre
 Wagga Wagga Base Hospital
 Wansey Satellite – John Hunter Hospital

AUSTRALIAN CAPITAL TERRITORY (ACT)

Canberra Community Dialysis Centre

VICTORIA

Angliss Hospital
 Apollo Bay Hospital
 Ararat Hospital
 Austin Training Satellite - Austin & Repat.Hosp.
 Bacchus Marsh Hospital
 Bairnsdale Hospital
 Ballarat Hospital
 Bendigo Hospital
 Berwick Hospital
 Birchip Hospital
 Broadmeadows Hospital
 Brunswick Satellite
 Casterton Hospital
 Caulfield Satellite
 Charlton Campus
 Cohuna Hospital
 Colac Hospital
 Cranbourne Satellite
 Daylesford Hospital
 Diamond Valley Hospital
 Donald Hospital
 Echuca Hospital
 Edenhope Hospital
 Epworth Hospital
 Frankston Satellite
 Geelong Hospital
 Goulburn Valley Hospital
 Hamilton Hospital
 Hastings Hospital
 Heidelberg – Austin & Repatriation Hospital
 Horsham Satellite
 La Trobe Regional Satellite

VICTORIA CONT...

Laverton Hospital
 Lorne Hospital
 Maryborough District Health Service
 Mildura Hospital
 Mitcham Hospital
 Moorabbin Satellite
 Myrtleford Hospital
 Nauru (overseas) – Alfred Hospital
 Newcomb Satellite
 North East Kidney Service - Austin Hosp.
 Omeo District Hospital
 Orbost Hospital
 Peter James Centre
 Portland Hospital
 Robinvale Hospital
 St. Arnaud Hospital
 Sale Hospital
 Sandringham Satellite
 Seymour Hospital
 Sunshine Hospital
 Swan Hill Hospital
 Terang Satellite
 Walwa Hospital
 Wangaratta Hospital
 Warrnambool Hospital
 Werribee Mercy Hospital
 Western Gippsland Hospital
 Williamstown Satellite
 Wodonga Hospital
 Wonthaggi Hospital
 Yarawonga District Hospital
 Yarram Hospital

TASMANIA

North West Renal Unit
 - Burnie - Launceston Hosp.
 Royal Hobart Hospital

SOUTH AUSTRALIA

Berri Hospital
 College Grove Private Hospital
 Hartley Private Hospital
 Murray Bridge Hospital
 North Adelaide Satellite Centre
 Port Augusta Hospital
 Wayville Satellite Centre

NORTHERN TERRITORY

Bathurst Island Hospital - Royal Darwin
 Community Health Centre
 – Alice Springs Hospital
 Katherine Dialysis Unit - Royal Darwin
 Nightcliff Community Centre
 – Royal Darwin Hospital

WESTERN AUSTRALIA

Albany Satellite
 Armadale Satellite
 Bunbury Satellite
 Geraldton Hospital
 Joondalup Satellite Unit
 Kalgoorlie Hospital
 Melville Satellite
 Midland Satellite
 Peel Health Campus - Mandurah
 Pilbara Dialysis Unit - Pt.Hedland
 Roebourne District Hospital
 Royal Perth Rehabilitation Hospital
 – Royal Perth Hospital

NEW ZEALAND

Greenlane Hospital
 Hastings Hospital
 Middlemore Hospital
 Nelson Hospital
 New Plymouth Hospital