



2012

Thirty Fifth Annual Report

Edited by

**Stephen McDonald
Philip Clayton
Kylie Hurst**

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 Australia and New Zealand Dialysis and Transplant Registry
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Editors: Stephen McDonald, Philip Clayton, Kylie Hurst

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.

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INTRODUCTION

The ANZDATA Registry has great pleasure in presenting the 2012 Annual Report. This is the 35th Annual Report from the Registry and covers data collected until the 31st December 2011.

The Report is a result of the commitment and involvement of renal units throughout Australia. This commitment is a reflection of the enormous time and work from staff of these units. Participation of 100% of units in Australia and New Zealand continues and we are confident that all the patients who have received renal replacement therapy in Australia and New Zealand in this time period are included.

There have been some innovations in this year's report. As foreshadowed in the 2011 Report, analysis of the transplant waiting list data which is reported in Chapter 7 is an entirely new analysis. This analysis is based on a linkage study which linked data from the Australian National Organ Matching System (NOMS) with ANZDATA. This has allowed us to report the dynamics of the waiting list, which has not previously been possible. We are hoping to be able to undertake similar analyses for New Zealand in next year's report.

The other innovation appears in Chapter 9 regarding kidney donation. The format of this chapter has been substantially revised this year and there is a greater focus on trends in donor demographics and it now includes living donor data which were previously included in a separate chapter.

The role of Executive Officer of the Registry continues to be filled by Associate Professor Stephen McDonald. Once again, he provides the intellectual and academic leadership of the Registry and has been the driving force in the dissemination of data and its analyses, both nationally and internationally.

Dr Philip Clayton continues as the Amgen Fellow in Epidemiology. He also has published and presented results of research projects utilising the database both nationally and internationally. We are greatly indebted to Amgen who continue to make the commitment through the funding of this position. For 10 years now this position has proven to be a major stimulus for the academic output of the Registry. Dr. Blair Grace has also continued to provide analysis of the ANZDATA database as part of a collaborative NHMRC funded project supervised by Associate Professor McDonald.

Mrs Kylie Hurst enters her second year as Manager of the ANZDATA Registry and we acknowledge the pivotal role that she has played in generating new ideas and innovations in the way the Registry functions. Christina Leitch continues to provide administrative support. Biostatistical expertise has been provided by Nancy Briggs, Hannah Dent and Aarti Gulyani.

Professor Steven Chadban continues to Chair the ANZDATA Registry Steering Committee. His enthusiasm and ongoing interest in the Registry and its operations and output are acknowledged. The members of the ANZDATA Registry Committees and Working Groups are listed on page vii of this report. The Executive gratefully acknowledges the involvement and contribution of these many individuals.

Major funding for the Registry has been provided from the Australian Commonwealth Department of Ageing through the Australian Organ and Tissue Donation and Transplant Authority, Kidney Health Australia and the New Zealand Ministry of Health.

We also gratefully acknowledge industry support which in 2012 consisted of non-tied grants from Baxter, Genzyme, Novartis and Roche.

GRAEME R RUSS

CHAIR ANZDATA EXECUTIVE

DECEMBER 2012

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PRIVACY ASPECTS OF DATA COLLECTION

In December 2001 changes to the Commonwealth Privacy Act were introduced which have led to changes to the collection of personal information. Essentially these extend to the private sector a number of changes based around 10 "National Privacy Principles" (NPP's). A detailed exposition of these can be found at the Privacy Commissioner's website (www.privacy.gov.au). Briefly, however, health information is treated as "sensitive" information, which must usually be collected and handled with consent of the person, unless certain conditions are met. Patients are entitled to view the information the Registry holds about them, and request alterations if the data is thought to be inaccurate.

Each Australian State has also enacted similar provisions which cover practice and patients in public hospitals.

ANZDATA does not release data identifiable by patient name. Results are published/released in tabular or graphic format only. Requests for data are met using deidentified data only. On occasion, when data identifying particular hospitals is involved, consent from the Director of the relevant renal unit is sought prior to the release of information.

ANZDATA spent some time during 2002 formulating an appropriate response to these issues including seeking advice from a variety of sources. The approach taken has been that of a "opt-out" consent, whereby patients are distributed information outlining the nature and purpose of the information collected, offered an opportunity to view that data and ask questions, and the opportunity to request withdrawal of part or all of their data. This approach is explicitly suggested for Registries by the Privacy Commissioner in his "Guidelines for the Health Sector". To this end ANZDATA has circulated to all participating hospitals a patient information sheet (see opposite), for each hospital to use (or a locally modified version if appropriate) to inform patients.

At the time of data collection each unit is asked to certify that they have complied with measures under the relevant privacy measures.

Tissue Typing Data and Transplant Waiting List data are collected in each Tissue Typing Laboratory and entered into the National Organ Matching System database. These data are transmitted to ANZDATA for inclusion in the ANZDATA database and for this Report.

ANZDATA REGISTRY

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Important Privacy Information

As part of routine medical care of people receiving treatment with dialysis or kidney transplantation, your kidney specialist collects certain information about the patients they treat. All kidney specialists throughout Australia and New Zealand report this information every twelve months to the Australia and New Zealand Dialysis and Transplant Registry (ANZDATA). ANZDATA collects the information for the purpose of monitoring treatments and performing analyses to improve quality of care for people with kidney failure.

1. What is ANZDATA ?

ANZDATA is an organization set up by Kidney Health Australia and the Australia and New Zealand Society of Nephrology to monitor dialysis and transplant treatments. ANZDATA is funded by the Australian and New Zealand Governments and Kidney Health Australia.

2. What information is collected about you ?

This information includes your name, age, gender, racial origin, hospital of treatment, some aspects of your medical condition (such as whether you have diabetes) and details about the type of kidney treatment you are receiving (dialysis or transplant).

We **DO NOT** collect details about your address, telephone number, medical insurance, or non-medical matters such as occupation, income, etc.

3. Is personal data ever released ?

The identity of people in the database **IS NOT released publicly nor in any reports**. Measures have been put into place to ensure the security of all collected information.

4. What is this information used for ?

The information is used primarily for quality assurance, investigating patterns of kidney disease, and planning appropriate health services. We release reports on a variety of topics, including an Annual Report examining the rates and treatment of kidney failure in Australia and New Zealand. We also have a major role in ensuring the quality of patient care by sending to each kidney unit each year a report outlining their activity. These reports also compare the outcome of the treatment they provide with that of other units throughout the two countries.

Reports are also produced at a state and national level, and from time to time analyses are also produced for renal units, government health departments and industry concentrating on particular aspects of renal failure management e.g. peritoneal dialysis, transplantation, haemodialysis.

5. Can you see what personal information ANZDATA collects and the reports that it produces ?

Individuals are able to view their own information on request. You can request alterations if you believe it is inaccurate. You may also opt not to have your treatment included in this database, and you should let your kidney specialist know if this is the case. You can also choose not to have some information (eg racial origin) recorded. However, if your information is not included in the Registry, the ability to compare results in Australia and New Zealand or to analyse the results of different treatment methods and for different patient types (eg diabetics) will be compromised.

The national reports and much other material produced by ANZDATA are available free on the Internet at www.anzdata.org.au, or they can be sent to you on request to the address above. Your kidney specialist will also have copies of many of the reports.

If you wish to discuss any of the issues raised here, please let your doctor know or telephone the ANZDATA Registry direct on [08] 8222 0949. You may also write to us (ANZDATA Registry, C/- Royal Adelaide Hospital, DX800, Mail Point 117, North Terrace, Adelaide, SA. 5000) or send us an e-mail (anzdata@anzdata.org.au).



GUIDELINES FOR DATA RELEASE

The policy for release of data to investigators, renal units and others was revised during 2013 and is summarised on the Website. ANZDATA encourages the analysis, use and citation of its data, and receives many data requests annually which vary in size and complexity. At times these overwhelm the limited resources within the Registry, and must be prioritised. Generally, formal requests for data are preceded by a period of consultation with a member of the Registry staff. Requests are welcome from Renal Physicians, other staff members of Renal Units, Charitable Bodies, Academic Institutions, Government Departments and Industry. Requests dealing with identifiable Hospital data (i.e. data which identifies outcomes of an individual hospital) will only be fulfilled with the explicit consent of the Heads of the relevant Hospital Units. Individual patient identified data (names) is not released.

ATTRIBUTION OF PUBLICATIONS

The policy on attribution of publications which incorporate ANZDATA sourced data was revised during 2002, following a period of consultation with participating physicians.

Where a member of a participating unit has analysed data provided by ANZDATA and subsequently prepared a manuscript, then "ANZDATA Registry" should be acknowledged as a secondary institution in addition to the author's Hospital or University. This applies whether the primary data analysis is performed by the author or by ANZDATA staff. Where the author is an ANZDATA office holder or staff member then the primary attribution should be "ANZDATA Registry".

Where ANZDATA data is only a minor portion of the work, then it may be more appropriate to acknowledge the source explicitly in the "Acknowledgements" section.

In both cases the disclaimer on page ii of this report should be included.

In all cases the source and treatment of the data should be made clear in the "Methods" section. Preferably the abstract (and keywords if applicable) should also include "ANZDATA" which would allow for searching Registry publications.

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A number of definitions given below are used throughout this report unless otherwise stated.

1. Wording

Throughout this report 'treatment' refers to renal replacement therapy, including haemodialysis, peritoneal dialysis and transplantation. In places the word "graft" (or "allograft") is used for kidney transplant.

HD = haemodialysis CAPD = continuous ambulatory peritoneal dialysis APD = automated peritoneal dialysis
ESKD = end stage kidney disease

2. Data collection

ANZDATA collects information from all renal units in Australia and New Zealand. Data collection occurs at two time points. Key events (new patients, deaths, transplants) are notified as they occur, with units requested to send this at least monthly. This can occur either via a web-based interface or paper submission. An extensive cross-sectional survey is then performed twelve monthly (for data to 31st December). 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 at this stage.

For kidney transplants, HLA matching and panel reactive antibodies are obtained direct from the National Organ Matching System.

Monthly summaries are distributed to the contributing units. Results contained in this (and other reports) are based on a final database locked and prepared after the end of year survey returns are received.

3. Inclusion criteria

Included in the Registry are all patients resident in Australia or New Zealand receiving renal replacement therapy where the intention to treat is long-term, ie 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

For survival analysis the initial mode of dialysis is generally 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 haemodialysis 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

Death rate is predominantly reported as number of patients died/total number of years of treatment of all patients treated at any time during the year. It is expressed as deaths per 100 patient years (pt yrs) at risk.

7. Comorbid conditions

These are recorded by the treating hospital. No formal 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. Transplant Waiting List

The active transplant waiting list is based on data from the National Organ Matching System (Australia) cross-checked with ANZDATA.

9. Derived measures

9.1 Haemoglobin

Haemoglobin is recorded as the last available measurement before the end of the survey period.

9.2 Erythropoietic agents

Erythropoietin agent use is recorded as "yes" if these agents were used at any time during the survey period.

9.3 Iron studies

Iron studies are requested within the last three months of the survey period.

9.4 Estimated creatinine clearance

Where creatinine clearance is estimated from serum creatinine at entry or post transplantation, the 4-variable MDRD formula is used^[1]

$$eGFR = 186 \times Cr^{-1.154} \times age^{-0.203} \times 1.212 \text{ if black} \times 0.742 \text{ if female}$$

(where Cr is creatinine in mg/dL and age is age in years)

The weight term used for this is lean body mass, calculated using the equation $LBW=(0.9 \times [height-152])+(50 \text{ if male, } 45.5 \text{ if female})$ ^[2]

9.5 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^[3] is

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

9.6 Body mass index

Body mass index (BMI) is calculated as $\frac{\text{weight (kg)}}{(\text{height (m)})^2}$

The categories used are : underweight <20 kg/m² , normal 20-24.9 kg/m², overweight 25-29.9 kg/m², obese >=30 kg/m²

9.7 Peritoneal dialysis measures

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

9.7.1 Residual renal function

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

9.7.2 Peritoneal equilibration test

The ratio of dialysate to plasma glucose is used, following a 4 hour dwell of a 2 litre 2.5% bag of dialysate, performed within 6 months after initiation of peritoneal dialysis.

10. Rates and Measures

10.1 Incidence rates

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

10.2 Prevalence rates

Except where otherwise specified, prevalence rates are point prevalence rates at 31st December 2011.

10.3 Population denominator

All populations used in this report were stratified by age and sex.

Australian populations were taken from the Australian Bureau of Statistics (ABS).

All populations used were for 30 June of each year, except for total New Zealand populations, where data for 31 December were readily available, and all websites were accessed 20th September 2012.

Population data for each Australian state and territory came from ABS 3101.0 series ⁽⁴⁾

Population data for Indigenous Australians were taken from ABS 3238.0⁽⁵⁾, using series A (the most conservative estimates) for populations after 2006.

Populations serviced by the Greater Southern Area Health Service were estimated by the South Eastern Region of NSW. These estimates were taken from ABS 3235.0⁽⁶⁾

All New Zealand population estimates were taken from Statistics New Zealand (SNZ). Total populations were taken from NZ Infoshare ⁽⁷⁾ and Maori populations were taken from NZ Infoshare Maori population estimates ⁽⁸⁾.

Estimates of resident Pacific People populations after were taken from ⁽⁹⁾ for years 2006 onwards. Prior to this, populations of Pacific people before 2006 were only available for years 1996, 2001 (and 2006), and we used linear interpolation to estimate populations for each age and sex group for the years 1997-2001 and 2002-2005.

10.4 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 (ie return to dialysis) and patient death.

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

10.5 Graft survival

For outcomes of kidney transplants, graft failure includes both loss of graft function (ie return to dialysis) and death of patients (with graft function). Calculations of patient survival for transplant recipients includes all subsequent modalities (i.e. deaths after graft failure are included). Patients transplanted overseas are excluded from calculations.

10.6 Dialysis Survival

Patient and technique survivals for haemodialysis and peritoneal dialysis are based on the dialysis modality at 90 days after first treatment for patients not transplanted during that period. Patients are followed up until they are either transplanted (at which point they are censored) or until they have a 'permanent' change of dialysis modality or until death or most recent follow up date. A 'permanent' change of dialysis is defined as any change in excess of 30 days.

Peritonitis survivals are calculated from first peritoneal dialysis (ignoring all earlier treatments) to date of first peritonitis episode. If there were no episodes of peritonitis then calculation is censored at change of treatment from peritoneal dialysis to haemodialysis or transplantation. Peritoneal dialysis includes automated peritoneal and continuous ambulatory peritoneal dialysis. Excluded are patients who had peritonitis before commencing peritoneal dialysis.

10.8 Death and other event rates

Rates are expressed per 100 person years at risk (unless otherwise stated). Some analyses include survival of all patients, others exclude the first 90 days of followup. This is stated in the individual analyses.

10.9 Age standardisation

All rates are crude, not age-standardised. The age distribution of the populations for Australia and New Zealand



Can be obtained by contacting the Registry.

10.10 Peritonitis rates

Peritonitis rates are present using episodes of peritonitis reported during periods of peritoneal dialysis - episodes reported prior to commencement of peritoneal dialysis (for example between Tenckhoff catheter insertion and commencement of peritoneal dialysis) are not included in these calculations.

11. Database

Data is stored on a relational database using Oracle version 9I.

12. Statistics

Statistical analyses were performed using Stata version 12.

13. References

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- 6) <http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/3235.02011?OpenDocument>
- 7) <http://www.stats.govt.nz/infoshare/SelectVariables.aspx?pxID=59949f0f-e948-429b-8ed7-7d702c1b39c0>
- 8) <http://www.stats.govt.nz/~media/Statistics/browse-categories/population/estimates-projections/national-pop-estimates/Maori-population-estimates-30-June-19912011.xls>
- 9) <http://nzdotstat.stats.govt.nz/wbos/Index.aspx?DataSetCode=TABLECODE31>

Parent hospitals, transplanting unit and satellite dialysis units together with their state and unit codes are listed below. In some cases, these have combined as part of a regional network and this is also indicated. The definition of a 'parent hospital' is a pragmatic one, and refers to units which offer a full range of dialysis services (i.e. can commence patients on dialysis, have on-site nephrologist presence and can deal with patients of all degrees of complexity).

In contrast, satellite units provide haemodialysis treatments to selected patients, usually with lower staff ratios and no on-site nephrologist.

NOTE: The states listed below are in no particular order.

QUEENSLAND (STATE CODE 4)

PARENT HOSPITALS	Unit Code	SATELLITE DIALYSIS UNITS	Unit Code
Allamanda Private Hospital (Fresenius)	ALLA	Atherton Private Hospital	ATHR
Bundaberg Base Hospital	BUND	Cairns Home Training Unit	CHTR
Cairns Base Hospital	CAIR	Cairns Private Hospital Satellite	CPRV
Chermside Dialysis Unit (Fresenius)	CHER	Caloundra Public Hospital	CAPU
Child and Adolescent Renal Service	CARS	Cooktown Satellite	COOK
Gold Coast Hospital	GOLD	East Street Self Care Dialysis Unit	EAST
Greenslopes Private Hospital (Baxter)	GREN	Gympie Satellite	GYMP
Hervey Bay Hospital	HERV	Home Hill Satellite	HILL
John Flynn Hospital	FLYN	Innisfail Hospital	INNI
Mackay Base Hospital	MACK	Ipswich Satellite	IPSW
Princess Alexandra Hospital	PSAH	Kingaroy Satellite	KROY
<i>Queensland Renal Transplant Service</i>	QRTS	Logan Satellite	LOGN
Rockhampton Base Hospital	ROCK	Maryborough Hospital	MARY
Royal Brisbane Hospital	RBSH	Mossman Satellite	MOSS
St Andrew's Dialysis Clinic (Diaverum)	GSTA	Mt. Isa Satellite	MTIS
<i>Sunshine Coast Health District</i>		Noosa Satellite	NOOS
<i>Caloundra Private Hospital</i>	CALO	North Lakes Dialysis Unit	NLAK
<i>Nambour General Hospital</i>	NAMB	North Ward Satellite	NWAR
<i>Nambour Selangor Private Hospital</i>	NPRV	Palm Island Satellite	PISL
The Townsville Hospital	TOWN	Redcliffe Satellite	REDC
Toowoomba Hospital	TWMB	Redlands Satellite	REDL
Wesley Private Hospital	WSLY	St Vincent's Robina Satellite	STVR
TRANSPLANTING UNIT			
	Unit Code		
Queensland Renal Transplantation Service	QRTS		
Princess Alexandra Hospital (Adult and Paediatric) Director of Transplantation Dr Tony Griffin Ipswich Road Woolloongabba 4102			

AUSTRALIAN CAPITAL TERRITORY (ACT) (STATE CODE 9)

PARENT HOSPITALS	Unit Code	SATELLITE DIALYSIS UNITS	Unit Code
The Canberra Hospital	CANB	Canberra Community Satellite	CSAT
		Northside Dialysis Clinic (Fresenius)	NSID

TASMANIA (STATE CODE 7)

PARENT HOSPITALS	Unit Code	SATELLITE DIALYSIS UNITS	Unit Code
Launceston General Hospital	LAUN	Launceston Community Centre Satellite	LCCS
Royal Hobart Hospital	RHBT	North West Renal Unit, Burnie	NWRU



SOUTH AUSTRALIA (STATE CODE 5)

PARENT HOSPITALS	Unit Code	SATELLITE DIALYSIS UNITS	Unit Code
Flinders Medical Centre	FMDC	Berri Satellite	BERI
Central Northern Adelaide Transplant Service	CNAR	Ceduna Hospital	CEDU
<i>The Queen Elizabeth Hospital</i>	QEZB	Clare Satellite	CLAR
<i>Royal Adelaide Hospital</i>	RADL	Hampstead Rehabilitation Satellite	HAMP
Women's and Children's Hospital	WCHL	Hartley Private Hospital (Fresenius)	HART
		Port Lincoln Satellite Centre	LINC
		Lyell McEwin Satellite	LMCK
		Millicent Hospital	MILL
		Maitland Hospital	MLAN
		Modbury Satellite (Fresenius)	MSAT
		Mount Gambier Satellite	MTGA
		Murray Bridge Hospital	MURR
		Noarlunga Satellite	NOAR
		Payneham Satellite (Baxter)	PAYN
		Port Augusta Hospital	PTAG
		Port Piri Satellite	PIRI
		Victor Harbour Satellite	VHAR
		Wayville Satellite Centre	WAYV
		Whyalla Satellite Centre	WHYA
TRANSPLANTING UNIT	Unit Code		
Central Northern Adelaide Transplant Service	CNAR		
Royal Adelaide Hospital			
Director - Professor Graeme Russ			
North Terrace			
Adelaide 5000			
Women's and Children's Hospital	WCHL		
Director - Dr Paul Henning			
72 King William Road			
North Adelaide 5006			

NORTHERN TERRITORY (STATE CODE 1)

PARENT HOSPITALS	Unit Code	SATELLITE DIALYSIS UNITS	Unit Code
Alice Springs Hospital	ALIC	Flynn Drive Satellite	FDVE
Royal Darwin Hospital	DARW	Katherine Dialysis Unit	KATH
		Nightcliff Community Centre	NTCL
		Palmerston Satellite	PTON
		Tennant Creek Hospital	TENN
		Tiwi Dialysis Centre	TIWI

WESTERN AUSTRALIA (STATE CODE 6)

PARENT HOSPITALS	Unit Code	SATELLITE DIALYSIS UNITS	Unit Code
Fremantle Hospital	FREM	Albany	ALBA
Princess Margaret Hospital for Children	PMHC	Armadale Satellite	ARMA
Royal Perth Hospital	RLPT	Bunbury Satellite	BUNB
Sir Charles Gairdner Hospital	SCGH	Busselton Satellite	BUSS
		Cannington Dialysis Clinic (Diaverum)	CANN
		Derby Satellite	DERB
		Geraldton Hospital	GRLD
		Joondalup Satellite	JOON
		Hollywood Private Hospital	HPRH
		Kalgoorlie Dialysis Unit	KALG
		Kimberley Dialysis Centre	KIMB
		Melville Satellite	MELV
		Midland Private Dialysis Centre (Baxter)	MIDL
		Murdoch	STJM
		Peel Health Campus	MAND
		Port Hedland Dialysis Unit (Pilbara)	PTHD
		Rockingham Satellite	RHAM
		Spearwood Satellite	SPEA
		Stirling Dialysis Clinic (Diaverum)	STIR
		St. John of God Private Hospital	
		Subiaco	SJOG
TRANSPLANTING UNIT	Unit Code		
Princess Margaret Hospital for Children	PMHC		
Director - Dr Ian Hewitt			
Roberts Road			
Subiaco 6008			
Royal Perth Hospital	RLPT		
Director - Dr Kevin Warr			
Wellington Street			
Perth 6001			
Sir Charles Gairdner Hospital	SCGH		
Director - Dr Harry Moody			
Verdun Street			
Nedlands 6009			



NEW SOUTH WALES (STATE CODE 2)

PARENT HOSPITALS	Unit Code	TRANSPLANTING UNIT (CONT)	Unit Code
Coffs Harbour Hospital	COFF	Sydney Children's Hospital	SCHL
Dubbo Base Hospital	DUBB	Director - Dr Andrew Rosenberg	
East Coast Renal Service		C/- Department of Nephrology	
<i>Prince of Wales Hospital</i>	POWH	Prince of Wales Hospital	
<i>St. George Hospital</i>	STGH	Barker Street	
<i>St. Vincent's Hospital</i>	STVI	Randwick 2031	
<i>Sydney Children's Hospital</i>	SCHL		
<i>Wollongong Hospital</i>	WGNG		
Gosford Hospital	GOSF	The Children's Hospital at Westmead	NEWC
John Hunter Hospital	HUNT	Director - Dr Stephen Alexander	
Lismore Hospital	LISM	Cnr Hawkesbury and Hainsworth Street	
Lismore Private Dialysis Clinic	LPDC	Westmead 2145	
Macleay Dialysis Centre - Kempsey	MACL		
Manning Rural Referral Hospital	MANN		
Mater Misericordiae Hospital	MATR	Westmead Hospital	WEST
Mayo Private - Taree	MAYO	Director - Professor Jeremy Chapman	
Port Macquarie Base Hospital	PTMQ	Cnr Hawkesbury and Darcy Road	
Port Macquarie Private Hospital	PMPH	Westmead 2145	
Royal North Shore Hospital	RNSH		
South West Sydney Renal Services	SSYD		
<i>Liverpool Hospital</i>	LVPL		
Statewide Renal Services	SWRS		
<i>Concord Hospital</i>	CONC		
<i>Royal Prince Alfred Hospital</i>	RPAH		
Sydney Adventist Hospital	SADV		
Tamworth Hospital	TAMW		
The Children's Hospital at Westmead	NEWC		
The Tweed Hospital	TWHD		
Western Renal Network			
<i>Nepean Hospital</i>	NEPN		
<i>Orange Hospital</i>	ORAN		
<i>Westmead Hospital</i>	WEST		
TRANSPLANTING UNIT	Unit Code	SATELLITE DIALYSIS UNITS	Unit Code
John Hunter Hospital	HUNT	Armidale Hospital	ARMD
Director of Transplantation -		Auburn Satellite	AUBN
Professor Adrian Hibberd		Ballina Hospital	BLNA
Lookout Road		Bankstown Hospital	BANK
New Lambton Heights		Bathurst Satellite Dialysis Centre	BATH
Newcastle 2304		Bega Satellite	BEGA
		Blacktown Regional Dialysis	BLAK
Prince of Wales Hospital	POWH	Bondi Dialysis Unit (Diaverum)	BOND
Director - Professor Bruce Pussell		Brewarrina Hospital	BREW
Barker Street		Broken Hill Hospital	BROK
Randwick 2031		Campbelltown Satellite	CAMP
		Concord Repatriation Satellite Unit	CRSU
Royal North Shore Hospital	RNSH	Condobolin Hospital	COND
Director - Dr Bruce Cooper		Coonamble Hospital	COON
Pacific Highway		Dame Eadith Walker	DEWE
St Leonards 2065		Eora Satellite	EORA
		Fairfield Satellite	FAIR
Statewide Renal Services	SWRS	Forbes Hospital	FORB
Royal Prince Alfred Hospital	RPAH	Gilgandra Satellite	GILG
Director of Transplantation - Professor		Gosford Satellite	GOSS
Steven Chadban		Goulburn Satellite (Fresenius)	GLBN
Missenden Road		Grafton Hospital	GRFT
Camperdown 2050		Griffith Base Hospital	GRIF
		Invarell Satellite	INVR
		Lakehaven Satellite	LAKE
		Lanceley Cottage	LANC
		Lindfield Dialysis Unit (Diaverum)	LIND
		Liverpool Community Centre	LCOM
		Maitland Hospital	MAIT
		Mona Vale Satellite	MNVL
		Moree Satellite	MORE
		Moruya Satellite (Fresenius)	MORU
		Muswellbrook	MUSW



Publications in peer-reviewed journals based substantially on data from ANZDATA and released during the period of data covered by this report and during 2011 are listed below.

2011

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THIS SECTION FOR ALL PATIENTS DIALYSED AT ANY TIME DURING THE SURVEY PERIOD

19 TYPE OF DIALYSIS 20 DRY WEIGHT AT LAST DIALYSIS 21 UNCORRECTED CALCIUM 22 PHOSPHATE 23 HEMOGLOBIN 24 EPO AGENT 25 FERRITIN 26 % SATURATION IRON

HAEMODIALYSIS

27 DIALYSER BRAND 28 BLOOD FLOW RATE 29 SESSIONS PER WEEK 30 HOURS PER SESSION 31 UREA REDUCTION OR KtV

32 ACCESS IN USE (Functioning only) Enter for ALL PATIENTS ON HAEMODIALYSIS AT ANY TIME DURING THIS SURVEY PERIOD

ALL PERITONEAL DIALYSIS

33 PET TEST (Once Only) 34 CONNECTION SYSTEM 35 PERITONITIS DATE OF FIRST EPISODE 36 NUMBER OF EPISODES OF PERITONITIS

38 CREATININE CLEARANCE 39 WEEKLY KtV 40 RESIDUAL RENAL FUNCTION 41 PD SOLUTIONS

42 GRAFT NUMBER 43 DATE OF THIS TRANSPLANT 44 REFERRING HOSPITAL 45 DONOR HOSPITAL 46 TRANSPLANT HOSPITAL 47 RECIPIENT ANTIBODY STATUS

49 DONOR DETAILS 50 TOTAL ISCHAEMIA 51 IMMEDIATE FUNCTION 52 DISEASE IN GRAFT 53 DATE FIRST PROVEN 54 CAUSE OF GRAFT FAILURE

55 MONOCLONAL / POLYCLONAL THERAPY

56 TOTAL DAILY DRUG DOSE (mg) 57 CYA SPARING DRUG 58 BODY WEIGHT (kg) 59 SERUM CREATININE

60 HLA TYPING 61 RECIPIENT BLOOD GROUP 62 PRA AND CROSSMATCH

AUST & NZ DIALYSIS AND TRANSPLANT SURVEY

THIS SECTION FOR ALL PATIENTS

1 INITIAL HOSPITAL 2 Surname 3 DATE OF BIRTH 4 SEX 5 RACIAL ORIGIN 6 PRIMARY RENAL DISEASE 7 BIOPSY 8 SE. CREATININE

9 COUNTRY OF BIRTH 10 POSTCODE 11 CO-MORBID CONDITIONS AT ENTRY 12 CENTRE OF TREATMENT

13 COURSE OF TREATMENT 14 HEPATITIS C ANTIBODY 15 CANCER EVER 16 CAUSE OF DEATH 17 WAS GRAFT SUSTAINING LIFE?

18 PARENTHOOD 19 PATIENT BECAME PREGNANT OR FATHERED A CHILD DURING THIS SURVEY

20 PATIENT BECAME PREGNANT OR FATHERED A CHILD DURING THIS SURVEY

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48 PATIENT BECAME PREGNANT OR FATHERED A CHILD DURING THIS SURVEY

INSTRUCTIONS FOR DIALYSIS AND TRANSPLANTATION SURVEY COMPILATION
PLEASE READ THE EXPLANATORY NOTES BEFORE COMMENCING TO FILL IN THE FORMS
 Please complete the form using neat capitals

5 - RACIAL ORIGIN

- 1 Caucasian
- 2 Indian/Asian
- 3 Chinese
- 4 Māori
- 5 Arab
- 61 Cook Islander
- 63 Samoan
- 64 Tongan
- 65 Torres Strait Islander
- 7 Pacific People - other (specify)
- 8 Other
- 9 Indonesian
- 10 Filipino
- 11 Vietnamese
- 20 Patient objects to answering question
- 00 Patient coded by patient's assessment

Mixed race coded by patient's assessment

6 - PRIMARY RENAL DISEASE

Results of ANCA (Anti Neutrophil Cytoplasmic Antibody) test in association with glomerulonephritis should be entered in box marked OTHER

- 100 Presumed GN, type undetermined histologically (no biopsy)
- 110 Focal sclerosing GN (including hyaline)
- 111 Primary focal sclerosing GN or focal glomerular sclerosis
- 112 Secondary focal sclerosing GN
- 121 Mesangiocapillary GN with subendothelial deposits (double contour)
- 122 Mesangiocapillary GN with intramembranous deposits (dense deposit disease)
- 130 Membranous GN
- 140 Extra and intra capillary GN (extensive crescents - clinically rapidly progressive)
- 151 Mesangial proliferative (IgA+ positive)
- 152 Mesangial proliferative (IgA- negative)
- 153 IgA nephropathy (no I.F. studies)
- 160 Crescentic GN (including focal crescenting)
- 170 Advanced GN (unclassified - end stage)
- 180 GN with systemic disease (specify)
- 181 Goodpasture's syndrome with linear IgG and lung haemorrhage
- 182 Proliferative GN with linear IgG - no lung haemorrhage
- 183 SLE
- 184 SLE with Schölenlein purpura
- 185 Wegener's Granulomatosis
- 186 Microscopic Polyangiitis
- 187 Scleroderma
- 190 GN other (specify)
- 191 Familial GN (specify Alport's - yes or no)
- 200 Anaemic nephropathy
- 300 Renal vascular disease due to malignant hypertension (NO drug treatment)
- 301 Renal vascular disease - type unspecified (nephrosclerosis) (NO primary renal disease)
- 302 Renal vascular disease - due to hypertension (nephrosclerosis) (cholesteral emboli)
- 303 Atherosclerotic disease (cholesteral emboli)
- 400 Bilateral renal artery stenosis
- 401 Poly cystic kidney disease
- 402 Infected cystic polycystic kidney disease
- 500 Reflux nephropathy
- 600 Pyelonephritis
- 700 Calculi
- 701 Gout
- 801 Diabetes - Type 1 (insulin dependent) [juvenile onset]
- 802 Diabetes - Type 2 (non-insulin requiring)
- 803 Diabetes - Type 2 (insulin requiring)
- 900 Other (specify) [Mature onset]
- 001 Uncertain diagnosis
- 002 Lead nephropathy
- 003 Cadmium toxicity
- 004 Renal tubulosis
- 005 Amyloid disease
- 006 Hemolytic uraemic syndrome
- 007 Cerebral haemorrhage
- 008 Interstitial necrosis
- 009 Congenital renal hypoplasia and dysplasia
- 010 Loss of single kidney (specify - e.g. trauma, surgery)
- 011 Megaluria
- 012 Oxalosis
- 013 Cystinosis
- 014 Renan nephropathy (GS/WITZ)
- 015 Renal cell carcinoma of urinary tract
- 016 Paraproteinemia (including multiple myeloma)
- 017 Paraproteinemia (including multiple myeloma)

PRIMARY RENAL DISEASE (cont.)

- 018 Light chain nephropathy (benign)
- 019 Lithium toxicity
- 020 Primary renal neuropathy
- 021 Sarcoidosis
- 031 Posterior urethral valves
- 032 Pevl-ureteric junction obstruction
- 033 Obstructed megareter
- 034 Neurogenic bladder
- 035 Non-obstructed dilated bladder and ureters (megacystitis - megareter)
- 036 Spina/bowel
- 037 Bladder neck obstruction (incl. prostaticomegaly)
- 039 Other lower urinary tract abnormalities (with secondary reflux) (specify)
- 040 Ureteric obstructive nephropathy
- 041 Obstructive nephropathy

13 - REASON FOR MODALITY CHANGE

From CAPD to APD
From APD to CAPD
From any form of PD to HD
From HD to any form of PD

- 10 Recurrent / persistent peritonitis
- 11 Acute peritonitis
- 15 Tunnel / exit site infection
- 16 Diveritculitis
- 20 Inadequate solute clearance
- 21 Inadequate fluid ultrafiltration
- 22 Inadequate ultrafiltration
- 27 Abnormal access
- 30 Dialysate leak
- 31 Catheter block
- 32 Haemoperitoneum
- 33 Catheter fell out
- 35 Hernia
- 36 Abdominal pain
- 40 Abnormal electrolyte
- 41 Sclerosing peritonitis
- 42 Peritoneal infection
- 43 Multiple adhesions
- 44 Pregnancy
- 45 Haematuria
- 46 Pleural effusion
- 47 Cardiovascular instability
- 48 Other poor access to dialysis services
- 49 Vascular access problems
- 50 Patient preference
- 51 Unable to manage self-care
- 60 Recovery of renal function
- 70 Transplantation
- 80 Death
- 81 Death outside Australia or New Zealand
- 82 Other surgery
- 83 Hydrothorax
- 86 Scrotal oedema
- 90 Planned transfer after acute PD start
- 91 Planned transfer after acute HD start
- 99 Other (specify)

INFECTIOIN

Please enter code for nature of infective organism, after the code for site of infection. Please specify type of organism

- 69 Staph, CMV, Candida, etc
- 69 321 Lung infection - bacterial (specify)
- 322 Lung infection - viral (CMV)
- 31 CNS
- 32 Lung
- 33 Urinary tract
- 34 Wound
- 35 Shunt
- 36 Peritonium

CAUSE OF DEATH (cont.)

- 37 Septicaemia - site unknown (specify organism)
- 38 Liver (incl. viral hepatitis) (specify A, B, CMV, herpes, etc)
- 39 Other site (specify)

SOCIAL

- 40 Withdrawal for psycho-social reasons
- 41 Patient refused further treatment (specify reason)
- 42 Suicide
- 43 Therapy ceased for any other reason (specify reason)
- 44 Accidental death (specify)
- 45 Withdrawal for cardiovascular comorbid conditions
- 46 Withdrawal for onerous vascular comorbid conditions
- 47 Withdrawal for peripheral vascular comorbid conditions
- 48 Withdrawal related to malignancy
- 49 (N/A; Tick/box; etc)

MISCELLANEOUS

- 50 Hepatic failure (specify)
- 51 Anaemia caused by graft failure
- 52 Pneumonia
- 53 Bone marrow depression
- 54 Cachexia
- 55 Malnutrition
- 56 Malnutrition
- 57 Perforation of abdominal viscus - peptic ulcer, diverticulum, appendix
- 58 Other (specify)
- 59 Dementia (aluminium)
- 60 Immunosuppression due to viral infection (specify organisms involved)
- 61 Chronic respiratory failure
- 62 Sclerosing peritonitis

19 - TYPE OF DIALYSIS

- 11 Haemodialysis - plate dialyser
- 12 Haemodialysis - hollow fibre dialyser
- 15 Haemodiafiltration
- 16 Haemodiafiltration
- 19 C.V.V.H.D (Intensive Care Unit)
- 20 Peritoneal - bags no cyclor
- 21 Peritoneal - continuous ambulatory (CAPD)
- 22 Peritoneal - automated (APD)
- 23 Peritoneal - other (specify)
- 25 Peritoneal - other (specify)

20 - DRY WEIGHT

At end of survey, transplantation or death

21 - UNCORRECTED CALCIUM

Not corrected for albumin

Midweek, predialysis and closest to end of survey, transplantation or death.

22 - PHOSPHATE

Midweek, predialysis and closest to end of survey, transplantation or death.

23 - HAEMOGLOBIN

Midweek, predialysis and closest to end of survey, transplantation or death.

31 - URR or Kt/V

Please enter method used

- A Urea Reduction Ratio % (URR%)
- B Kt/V by BICST
- C Kt/V by UMI
- E Kt/V (other method - specify)

Kt/V (for HD patients) Range 0.5 - 2.2

54 - CAUSE OF GRAFT FAILURE

REJECTION

- 10 Hyperacute rejection (within 48 hours of transplantation)
- 20 Acute rejection at anytime, causing graft failure
- 40 Chronic allograft nephropathy (slow progressive loss of renal function, not due to recurrent original disease or acute rejection)

VASCULAR

- 50 Renal artery stenosis
- 51 Renal artery thrombosis
- 52 Renal vein thrombosis
- 53 Renal artery thrombosis
- 54 Renal vessel haemorrhage (primary)
- 55 Renal vessel haemorrhage (secondary)
- 56 Embolus - thrombo
- 57 Haemolytic uraemic syndrome

TECHNICAL

- 60 Non-viable kidney (due to pre-transplant cortical necrosis)
- 61 Cortical necrosis post transplant (not due to rejection)
- 70 Ureteric and bladder problems

GLOMERULONEPHRITIS

- 80 Mesangiocapillary GN with intramembranous deposits (dense deposit disease)
- 81 Mesangiocapillary GN with intramembranous deposits
- 84 Focal sclerosing GN (including hyaline)
- 85 Membranous GN
- 86 Mesangial proliferative GN (IgA positive)
- 87 Goodpasture's syndrome
- 88 Intra and extra capillary GN with extensive crescents (clinically progressive)
- 89 Other (specify)

DRUG THERAPY

- 90 Complications of drug therapy requiring reduction or withdrawal of steroid and/or immunosuppressants
- 91 Rejection following US reduction due to immunosuppressants
- 92 Rejection following US reduction due to immunosuppressants
- 93 Rejection following US reduction due to infection

MISCELLANEOUS

- 00 Other (specify)
- 01 Acute myocardial infarction
- 02 Myocardial infarction
- 05 BK virus nephropathy

55 - MONOCLONAL / POLYCLONAL THERAPY

Record in order of administration, each separate course of such drugs; a second course of the same drug should be separately recorded. Complete the requested details regarding, date, identity of drug, number of doses given, and reason for administration, according to the following codes

TYPE OF ANTI-BODY

- 2 Daclizumab (Zenepax)
- 4 OKT3
- 5 Intravenous immunoglobulin
- 6 Basiliximab (Simulect)
- 7 Rituximab
- 8 Polyclonal anti T cell
- 9 Other monoclonal (specify)

REASON FOR USE

1. Prevention of acute rejection
2. Treatment for acute rejection
3. Other (specify)

56 - TOTAL DAILY DRUG DOSE

Enter the total daily dose for each drug where applicable; if an anti-rejection drug is used, enter the name in the space provided marked OTHER

Only those drugs taken at the listed intervals should be entered; any other drugs should be recorded on the closest day preceding the requested time interval

The initial drug dose (at zero months) is the first oral maintenance dose; do NOT enter the intravenous loading doses administered at surgery after transplantation

(2007)

UREA REDUCTION RATIO %

([Pre-dialysis urea - post-dialysis urea.] x 100 = URR%

Pre-dialysis urea:

Blood should be drawn from the 'arterial' needle immediately prior to dialysis, at a mid-week dialysis session

Post-dialysis urea:

Blood is again drawn from the 'arterial' needle and this should occur within 20 seconds after cessation of the blood pump (alternatively the pump can be turned down to 50 ml/min - this is to avoid problems with reconnection)

32 - ACCESS IN USE

Type at First HD - leave blank if initial renal replacement treatment was not haemodialysis.

Type at Last HD - enter for all patients on haemodialysis at any time during the survey. Enter the procedure closest to the end of survey, change to PD, transplantation, or death.

33 - PET TEST (Required Once Only per patient)

Standard Peritoneal Dialysis Equilibration Test (2.5% 2 litre exchanges)

Provide dialysis/plasma creatinine at 4 hours

38 to 40 - PD CLEARANCE STUDIES

performed 1-6 months after initiation of PD and used from a 24 hour collection of PD effluent

NOTE: Dialysate Creatinine Clearance and Kt/V both refer to Haemodialysis ONLY (NOT the total of dialysis and renal clearances)

38 CREATININE CLEARANCE (Dialysate only)

Range - 10 - 200 litres/week
 Litres/week / 1.73m² Body Surface Area

39 WEEKLY Kt/V (Dialysate only) - Range 0.1 - 5.0

40 RESIDUAL RENAL FUNCTION (Creatinine Clearance)

Litres/week / 1.73m² Body Surface Area

49 - SOURCE OF DONOR KIDNEY

- 1 Deceased Donor
- 2 Sister (if twin, record 6 or 7)
- 3 Brother (if twin, record 6 or 7)
- 4 Mother
- 5 Father
- 6 Monocytic (identical) twin
- 7 Dyncytic (non-identical) twin
- 8 Other related living donor (specify)
- 9 Son
- 10 Daughter
- 11 Husband
- 12 Wife
- 13 Cousin
- 14 Unrelated living donor (specify)

50 - TOTAL ISCHAEMIA (HOURS)

From time of donor renal artery interruption or aortic clamp, until time of release of renal artery in the recipient (clamp off)

51 - IMMEDIATE FUNCTION

- 1 Spontaneous fall in se creatinine by 10% within 24 hours
- 2 Spontaneous fall in se creatinine by 10%, first
- 3 Poor immediate function. No spontaneous fall in se creatinine within 72 hours; but no dialysis needed
- 4 No immediate function. No spontaneous fall (> 10%) in se creatinine; dialysis required within 72 hours

52 - DISEASE IN GRAFT

Complete this section for FUNCTIONING or FAILED GRAFTS

Please enter Date first proven (e.g. Graft Biopsy)

- 1 = BK virus nephropathy in graft
- 2 = De novo glomerulonephritis
- 3 = Primary renal disease known and not the same as glomerulonephritis in graft
- 4 = Primary renal disease unknown or not biopsied

In cases of glomerulonephritis, where histological confirmation of recurrence may be uncertain, enter as G

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2011

**ANNUAL REPORT
SUMMARY**

Kylie Hurst

Philip Clayton

Stephen McDonald

2012 Annual Report—35th Edition





AUSTRALIA

Chapter 1 - Stock and Flow

- There were 19,751 (885 per million population) receiving renal replacement therapy (RRT) at 31st Dec 2011.
- Of these 8753 (392 per million) had a functioning kidney transplant and 10,998 (493 per million) were receiving dialysis treatment.

Chapter 2 - New Patients

- 2453 people commenced RRT in Australia in 2011(110 per million per year).
- Incidence rates have stabilized over the past five years.
- The mean age of patients entering programs in Australia in 2011 was 60 years and the median 62.3 years.
- 35% of all new patients had diabetic nephropathy attributed as their Cause of end stage renal disease, 23% had glomerulonephritis and 15% hypertension.

Chapter 3 - Deaths

- The mortality rate per 100 patient years was 13.7 for dialysis dependent patients and 2.4 for those with a functioning kidney transplant.
- Of the 1,476 deaths among dialysis dependent patients in 2011, 33% were due to withdrawal from treatment, 32% were due to cardiovascular causes, 11% to infection.
- In Australia there is steady improvement in mortality rates in most age groups over time.

Chapter 4 - Method and Location of Dialysis

- There has been an increase of 321 (3%) in the total number of prevalent dialysis patients.
- Twelve percent of all prevalent dialysis patients were using automated peritoneal dialysis, a further 7% continuous ambulatory peritoneal dialysis, 22% hospital based haemodialysis, 50% satellite haemodialysis and 9% home haemodialysis.

Chapter 5 - Haemodialysis

- There were 8,929 patients receiving HD treatment at 31st December 2011, an increase of 4%; of these 22% were hospital based, 50% were in satellite centres and 9% at home.
- A total of 1,811 patients received HD for the first time during the year, a slight increase from previous years.
- There were 517 transplant operations to people receiving HD treatment, 6% of all HD patients dialysing and 12% of those patients < 65 years.

Chapter 6 - Peritoneal Dialysis

- Peritoneal dialysis was used to treat 19% of all dialysis patients in 2011 (APD-1283,CAPD-786,total 10998).
- There were 820 new peritoneal dialysis patients in the calendar year 2011; of these 543 patients (66%) started renal replacement therapy with peritoneal dialysis and 277 (34%) had previously been treated with haemodialysis or a transplant.
- Median time to first peritonitis was 22 months, with 30% of patients completely free of peritonitis at three years

Chapter 7 - Transplant Waiting list

- There were 1299 active patients on the deceased donor kidney waiting list at the 1Jan and 1141 active on 31 Dec 2010. 651 were made active during the year and 160 were taken off the list, 6 died.
- The numbers of both dialysis patients and transplants vary with age; As expected, numbers listed 65 years or older are much lower than for younger age groups, and the proportion removed from the list is higher.

Chapter 8 - Transplantation

- The 825 transplant operations performed in 2011 represent a decrease over 2010. This was primarily driven by a 14% decrease in the number of live donor transplants performed compared with 2010, The 2011 numbers represents a transplant rate of 37 per million population per year.
- The median age of transplant recipients in 2011 was 50 years.
- There have been 19,859 transplant operations performed on 17,135 patients since 1963. Of these, 8,753 grafts were functioning at 31st December 2011.

Chapter 9 - Kidney Donation

- In Australia there has been a large increase in the number of deceased donors since 2008, driven by an increase in expanded criteria (ECD) and in particular cardiac death (DCD) donors.
- In Australia the mean deceased donor age has increased steadily from 36 years in 1992 to 47 years in 2011.
- There were 255 living donor kidney transplants performed in 2011 in Australia, representing 31% of all transplant operations.
- The proportion of all primary living donor transplants performed "pre-emptively" in Australia was 37%.

Chapter 10 - Cancer Report

- Between 1982 and 2009, 2,568 people on dialysis (5.1 %) had at least one cancer.
- During this time 2180 transplant recipients (12.7 %) had at least one cancer.

Chapter 11 - Paediatric Report

- Overall, glomerulonephritis remains the most common cause of ESKD in children and adolescents (30%) but causes vary significantly with age. In young children renal hypoplasia/dysplasia is the most common cause while reflux nephropathy is a common cause of ESKD in adolescents.
- Around 20% of children and adolescents receive pre-emptive kidney transplants. Of the remainder, 37% commence renal replacement therapy with haemodialysis compared with 43% starting with peritoneal dialysis.

Chapter 12 - End-Stage Kidney Disease Among Indigenous Peoples of Australia and New Zealand

- A total of 250 Aboriginal and Torres Strait Islander People commenced dialysis in Australia during 2011.
- Over the period 2001-11 there has been an increase in the number of transplants from deceased donors. Numbers from living donors remain extremely low.

NEW ZEALAND

Chapter 1 - Stock and Flow

- There were 3,862 (877 per million population) receiving renal replacement therapy (RRT) at 31st Dec 2011
- Of these 1481(336 per million) had a functioning kidney transplant and 2,381 (541 per million) were receiving dialysis treatment.

Chapter 2 - New Patients

- 477 people commenced RRT in New Zealand in 2011 (108 per million per year).
- The mean age of patients entering programs in new Zealand in 2011 was 57.5 years and the median 59.1 years.
- 42% of all new patients had diabetic nephropathy attributed as their Cause of end stage renal disease, 24% had glomerulonephritis and 11% hypertension.

Chapter 3 - Deaths

- The mortality rate per 100 patient years was 15.5 for dialysis dependent patients and 2.8 for those with a functioning kidney transplant.
- Of the 412 deaths among dialysis dependent patients in 2011, 25% were due to withdrawal from treatment, 32% were due to cardiovascular causes, 13% to infection.

Chapter 4 - Method and Location of Dialysis

- There were 2381 prevalent dialysis patients in 2011 which is stable compared to previous years.
- Together, hospital haemodialysis and satellite dialysis accounted for 48% of patients in 2011, the same as the previous two years. Satellite haemodialysis numbers decreased 9% in 2011 (368 patients), after increases of 5% (396 patients) in 2010 and 8% (413 patients) in 2009.

Chapter 5 - Haemodialysis

- There were 1,591 patients receiving treatment at 31st December 2011, Hospital based HD (44%), satellite HD (29%) and home HD (27%) have all remained the same for the past three years.
- There were 62 HD patients who received transplants in 2011 (47 in 2010). Four patients \geq 65 years were transplanted.
- There were 403 patients who received HD for the first time in 2011, similar to previous years. Seventy eight percent were having their initial dialysis treatment, 20% were previously dialysing with peritoneal dialysis and 2% were failed transplants.

Chapter 6 - Peritoneal Dialysis

- Peritoneal dialysis accounted for 33% of all dialysis patients and 64% of all patients dialysing at home.
- There were 239 new peritoneal dialysis patients in the calendar year 2011; of these 147 patients started renal replacement therapy with peritoneal dialysis and 90 had previously been treated with haemodialysis or a transplant.
- The median time to first peritonitis was 19.4 months, with 31% of patients free of peritonitis at three years.

Chapter 7 - Transplant Waiting list

- We anticipate incorporating detailed NZ waiting list stack and flow analyses in next year's Report.

Chapter 8 - Transplantation

- The number of transplant operations (118) performed in 2011 represents a transplant rate of 27 per million population per year compared with 25 in 2010 .
- The median age of transplant recipients in 2011 was 50 years.
- There have been 3,746 operations performed on 3,188 patients since 1965 with 1,481 grafts still functioning at 31st December 2011

Chapter 9 - Kidney Donation

- The deceased donor numbers are steady and the proportion of ECD and DCD donors are much lower than in Australia.
- In New Zealand the mean donor age in 2011 was 36 years.
- The number of living donor transplants decreased by 5% (57 donors) in New Zealand in 2011.
- The proportion of pre-emptive primary living donor transplants in New Zealand was 23% in 2011.

Chapter 10 - Cancer Report

- Refer to Australian Summary points

Chapter 11 - Paediatric Report

- Refer to Australian Summary points

Chapter 12 - End-Stage Kidney Disease

Among Indigenous Peoples of Australia and New Zealand

- The number of Maori and Pacific People starting dialysis decreased in 2011 (126 patients and 94 patients) respectively.
- The number of transplants to Maori and Pacific Peoples recipients remains stable.



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