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<table>
<thead>
<tr>
<th>Contents</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chapter 1 Stockand Flow</td>
<td>1-1</td>
</tr>
<tr>
<td>Blair Grace, Kylie Hurst, Stephen McDonald</td>
<td></td>
</tr>
<tr>
<td>Chapter 2 New Patients</td>
<td>2-1</td>
</tr>
<tr>
<td>Blair Grace, Hannah Dent, Kylie Hurst, Stephen McDonald</td>
<td></td>
</tr>
<tr>
<td>Intake of Patients and Age of New Patients</td>
<td>2-2</td>
</tr>
<tr>
<td>State of Origin of New Patients</td>
<td>2-3</td>
</tr>
<tr>
<td>Incidence Rates new RRT by State</td>
<td>2-4</td>
</tr>
<tr>
<td>Incidence Rates new RRT by age group</td>
<td>2-5</td>
</tr>
<tr>
<td>Late Referral</td>
<td>2-6</td>
</tr>
<tr>
<td>Late Referral Related to Treatment</td>
<td>2-7</td>
</tr>
<tr>
<td>Co-morbid Conditions</td>
<td>2-8</td>
</tr>
<tr>
<td>Primary Renal Disease</td>
<td>2-10</td>
</tr>
<tr>
<td>Miscellaneous Causes of ESRD</td>
<td>2-11</td>
</tr>
<tr>
<td>Biopsy of New Patients</td>
<td>2-12</td>
</tr>
<tr>
<td>Chapter 3 Deaths</td>
<td>3-1</td>
</tr>
<tr>
<td>Stephen McDonald</td>
<td></td>
</tr>
<tr>
<td>Introduction</td>
<td>3-2</td>
</tr>
<tr>
<td>Death Rates During Renal Replacement Therapy</td>
<td>3-3</td>
</tr>
<tr>
<td>Dialysis Mortality Rates</td>
<td>3-4</td>
</tr>
<tr>
<td>Survival by Age &amp; Comorbidity</td>
<td>3-4</td>
</tr>
<tr>
<td>Cause of Deaths</td>
<td>3-5</td>
</tr>
<tr>
<td>Deaths from Malignancy</td>
<td>3-6</td>
</tr>
<tr>
<td>Deaths Withdrawal-Related to Malignancy</td>
<td>3-7</td>
</tr>
<tr>
<td>Chapter 4 Method and Location of Dialysis</td>
<td>4-1</td>
</tr>
<tr>
<td>Nancy Briggs, Kylie Hurst, Stephen McDonald</td>
<td></td>
</tr>
<tr>
<td>Chapter 5 Haemodialysis</td>
<td>5-1</td>
</tr>
<tr>
<td>Kevan Pollinghorne, Aarti Gulyani, Hannah Dent, Kylie Hurst, Stephen McDonald</td>
<td></td>
</tr>
<tr>
<td>Stock and Flow</td>
<td>5-2</td>
</tr>
<tr>
<td>Blood Flow Rates</td>
<td>5-6</td>
</tr>
<tr>
<td>Duration of Dialysis</td>
<td>5-7</td>
</tr>
<tr>
<td>Outcome Among Haemodialysis Patients</td>
<td>5-10</td>
</tr>
<tr>
<td>Membrane Type and Surface Areas</td>
<td>5-14</td>
</tr>
<tr>
<td>Anaemia</td>
<td>5-15</td>
</tr>
<tr>
<td>Haemoglobin</td>
<td>5-16</td>
</tr>
<tr>
<td>Haemoglobin by Treating Centre</td>
<td>5-17</td>
</tr>
<tr>
<td>Ferritin and Transferin Saturation</td>
<td>5-18</td>
</tr>
<tr>
<td>Ferritin by Treating Centre</td>
<td>5-19</td>
</tr>
<tr>
<td>Serum Calcium - By Treating Centre</td>
<td>5-20</td>
</tr>
<tr>
<td>Serum Phosphate By Treating Centre</td>
<td>5-21</td>
</tr>
<tr>
<td>Calcium-Phosphate - By Treating Centre</td>
<td>5-22</td>
</tr>
<tr>
<td>Urea Reduction Ratio</td>
<td>5-23</td>
</tr>
<tr>
<td>Urea Reduction Ratio by Treating Centre</td>
<td>5-24</td>
</tr>
<tr>
<td>Vascular Access at First Treatment</td>
<td>5-25</td>
</tr>
<tr>
<td>Prevalent Haemodialysis Access</td>
<td>5-28</td>
</tr>
<tr>
<td>Obesity in Incident Haemodialysis Patients</td>
<td>5-32</td>
</tr>
<tr>
<td>Obesity in Prevalent Haemodialysis Patients</td>
<td>5-34</td>
</tr>
<tr>
<td>Home Haemodialysis</td>
<td>5-36</td>
</tr>
<tr>
<td>Technique Failure</td>
<td>5-39</td>
</tr>
<tr>
<td>Chapter 6 Peritoneal Dialysis</td>
<td>6-1</td>
</tr>
<tr>
<td>Fiona Brown, Stephen McDonald, Hannah Dent, Aarti Gulyani, Kylie Hurst</td>
<td></td>
</tr>
<tr>
<td>Stock and Flow</td>
<td>6-2</td>
</tr>
<tr>
<td>Peritoneal Dialysis Fluids</td>
<td>6-8</td>
</tr>
<tr>
<td>Outcome Among Peritoneal Dialysis Patients</td>
<td>6-11</td>
</tr>
<tr>
<td>Peritoneal Dialysis Technique Survival</td>
<td>6-15</td>
</tr>
<tr>
<td>Technique Failure</td>
<td>6-17</td>
</tr>
<tr>
<td>Peritonitis</td>
<td>6-18</td>
</tr>
<tr>
<td>Australian Peritonitis Registry</td>
<td>6-21</td>
</tr>
<tr>
<td>Chapter 7 Transplant Waiting List</td>
<td>7-1</td>
</tr>
<tr>
<td>Data from the National Organ Matching Scheme, Stephen McDonald</td>
<td></td>
</tr>
<tr>
<td>Chapter 8 Transplantation</td>
<td>8-1</td>
</tr>
<tr>
<td>Philip Clayton, Scott Campbell, Kylie Hurst, Angela Webster, Germaine Wong, Patrick J Kelly</td>
<td></td>
</tr>
<tr>
<td>Chapter 9 Organ Procurement</td>
<td>9-1</td>
</tr>
<tr>
<td>Graeme Russ, Kylie Hurst, Kathy Hee</td>
<td></td>
</tr>
<tr>
<td>Chapter 10 Cancer Report</td>
<td>10-1</td>
</tr>
<tr>
<td>Stephen McDonald, Steven McTaggart, Hannah Dent, Sean Kennedy, Nancy Briggs, Kylie Hurst, Stephen McDonald</td>
<td></td>
</tr>
<tr>
<td>Chapter 11 Paediatric Report</td>
<td>11-1</td>
</tr>
<tr>
<td>Stephen McTaggart, Hannah Dent, Sean Kennedy, Nancy Briggs, Kylie Hurst, Stephen McDonald</td>
<td></td>
</tr>
<tr>
<td>Chapter 12 End-Stage Kidney Disease Among Indigenous Peoples of Australia and NZ</td>
<td>12-1</td>
</tr>
<tr>
<td>Stephen McDonald, Kylie Hurst, Matthew Jose</td>
<td></td>
</tr>
<tr>
<td>Chapter 13 APPENDIX I (ON CD) and website <a href="http://www.anzdata.org.au">www.anzdata.org.au</a></td>
<td></td>
</tr>
<tr>
<td>Stock and Flow Australia and New Zealand</td>
<td>3-5</td>
</tr>
<tr>
<td>Numbers and Age Specific Rates - Australia and NZ</td>
<td>6-25</td>
</tr>
<tr>
<td>Age and Donor Source of New Transplants 1963-2010</td>
<td>26-27</td>
</tr>
<tr>
<td>Transplanting Hospital and Donor Source 1996-2010</td>
<td>28-29</td>
</tr>
<tr>
<td>Country of Birth of Patients</td>
<td>30</td>
</tr>
<tr>
<td>Ethnicity of Patients</td>
<td>31</td>
</tr>
<tr>
<td>Australia - Summary 2010</td>
<td>32-33</td>
</tr>
<tr>
<td>Population by Age - Australia 2002-2010</td>
<td>34-35</td>
</tr>
<tr>
<td>Location of Dialysis Treatment</td>
<td>36-40</td>
</tr>
<tr>
<td>New Zealand - Summary 2010 - Population 20012010</td>
<td>41-42</td>
</tr>
</tbody>
</table>
# APPENDIX II - AUSTRALIA

## CONTENTS

### NEW PATIENTS

<table>
<thead>
<tr>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of New Patients in each Australian State - 1963-2010</td>
<td>3</td>
</tr>
<tr>
<td>Number of New Patients by Age Group - 1963-2010</td>
<td>4</td>
</tr>
<tr>
<td>Number of New Patients in Each Age Group by Gender - Australian States 2005-2010</td>
<td>5-6</td>
</tr>
<tr>
<td>Number of New Patients by Racial Origin - Australian States 2007-2010</td>
<td>7</td>
</tr>
<tr>
<td>Primary Renal Disease and Age of New Patients - 2006-2010</td>
<td>8</td>
</tr>
<tr>
<td>Primary Renal Disease and Age of New Patients - Australia States 2009-2010</td>
<td>9-11</td>
</tr>
<tr>
<td>Primary Renal Disease of New Patients - Australia and New Zealand 1997-2010</td>
<td>12</td>
</tr>
<tr>
<td>Primary Renal Disease of New Patients - Australian States 1997-2010</td>
<td>12-13</td>
</tr>
<tr>
<td>Incident Indigenous/Non Indigenous Patients - Australia and Australian States 1998-2010</td>
<td>14-16</td>
</tr>
</tbody>
</table>

### DIALYSIS

<table>
<thead>
<tr>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age and Treatment of Dialysis Patients - 2005-2010</td>
<td>19</td>
</tr>
<tr>
<td>Age and Treatment of Dialysis Patients by Gender - 2008-2010</td>
<td>20</td>
</tr>
<tr>
<td>Race, Primary Renal Disease and Age of Dialysis Patients - Australia 2010</td>
<td>38</td>
</tr>
<tr>
<td>Race, Primary Renal Disease and Age of Dialysis Patients - Australian States 2010</td>
<td>39-44</td>
</tr>
</tbody>
</table>

### TRANSPLANTATION

<table>
<thead>
<tr>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Functioning Transplants - By Country of Transplant - 31st December 2007-2010</td>
<td>45</td>
</tr>
<tr>
<td>Functioning Transplants - Transplanting Australian States - 31st December 2009-2010</td>
<td>46-47</td>
</tr>
<tr>
<td>Gender, Race and Age of Functioning Transplants - Resident Australian States 2010</td>
<td>48-49</td>
</tr>
<tr>
<td>Gender, Race and Age of Functioning Transplants - Resident Country - 2008-2010</td>
<td>50</td>
</tr>
<tr>
<td>Gender and Race of Functioning Transplants - Resident Australian States 2008-2010</td>
<td>51</td>
</tr>
<tr>
<td>Functioning Australian Transplants by Race, Primary Renal Disease and Age - 31st December 2010</td>
<td>52</td>
</tr>
<tr>
<td>Recipient Donor Source and Age for Transplant Operations 2006-2010</td>
<td>53</td>
</tr>
<tr>
<td>Recipient Donor Source and Age for Transplant Operations by State - 2009-2010</td>
<td>54</td>
</tr>
<tr>
<td>Recipient Gender, Donor Source and Recipient Age for Transplant Operations 2005-2010</td>
<td>55</td>
</tr>
<tr>
<td>Donor Source for Transplant Operations - Australian Referring States 1996-2010</td>
<td>56</td>
</tr>
<tr>
<td>Racial Origin and Primary Renal Disease of New Transplanted Patients - 1997-2010</td>
<td>57</td>
</tr>
<tr>
<td>Cause of Graft Loss - 1999-2009 Year of Graft Loss due to Death Failure 2000-2010</td>
<td>58</td>
</tr>
<tr>
<td>Year of Graft Loss due to Death Failure - Age Related - 2000-2010</td>
<td>59</td>
</tr>
</tbody>
</table>

### DEATHS

<table>
<thead>
<tr>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Death and Mode of Treatment - 2005-2010</td>
<td>60</td>
</tr>
<tr>
<td>Death and Mode of Treatment - Australian States 2010</td>
<td>61</td>
</tr>
<tr>
<td>Cause of Deaths - Haemodialysis and Peritoneal Dialysis 2010</td>
<td>62</td>
</tr>
<tr>
<td>Cause of Deaths - Peritoneal Dialysis (continued) and Transplant 2010</td>
<td>63</td>
</tr>
<tr>
<td>Site and Type of Infection Causing Death - 2010</td>
<td>64-65</td>
</tr>
<tr>
<td>Cause of all Deaths by Gender and Race - Female - 2010</td>
<td>66</td>
</tr>
<tr>
<td>Cause of all Deaths by Gender and Race - Male - 2010</td>
<td>67</td>
</tr>
<tr>
<td>Cause of Dialysis Deaths - Australian States - 1996-2010</td>
<td>68</td>
</tr>
<tr>
<td>Cause of Transplant Deaths - Australian States - 1996-2010</td>
<td>69</td>
</tr>
<tr>
<td>Cause of Deaths by Racial Origin - Dialysis and Transplant - Australia 1997-2010</td>
<td>70</td>
</tr>
<tr>
<td>Treatment Withdrawal Related to Treatment Mode, Disease, Gender and Age - 2008-2010</td>
<td>71</td>
</tr>
</tbody>
</table>

### COMORBIDITY

<table>
<thead>
<tr>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of CoMorbid Factors at Entry - 2010</td>
<td>72</td>
</tr>
<tr>
<td>CoMorbid Conditions at Entry - 2010</td>
<td>73</td>
</tr>
<tr>
<td>CoMorbid Conditions at Entry - Non Diabetic Primary Renal Disease Patients - 2006-2010</td>
<td>74</td>
</tr>
<tr>
<td>CoMorbid Conditions at Entry - Diabetic Primary Renal Disease Patients - 2006-2010</td>
<td>75</td>
</tr>
<tr>
<td>Race and Age of New CoMorbid Diabetic / Non Diabetic Patients - Australia 2010</td>
<td>76</td>
</tr>
<tr>
<td>Race of New CoMorbid Diabetic / Non Diabetic Patients - Australia 1999-2010</td>
<td>77</td>
</tr>
<tr>
<td>CoMorbid Conditions at Entry - All Patients - Each Year - 1999-2010</td>
<td>78</td>
</tr>
<tr>
<td>CoMorbid Conditions at Entry - Caucasian Patients - Each Year - 1999-2010</td>
<td>79</td>
</tr>
<tr>
<td>CoMorbid Conditions at Entry - Aboriginal/Torres St Islanders - Each Year - 1999-2010</td>
<td>80</td>
</tr>
<tr>
<td>CoMorbid Conditions at Entry - Asian Patients - Each Year - 1999-2010</td>
<td>81</td>
</tr>
<tr>
<td>CoMorbid Conditions at Entry- Haemodialysis and Peritoneal Dialysis as First Treatment 2010</td>
<td>82-83</td>
</tr>
</tbody>
</table>

### PATIENT DATA - TRANSPLANT AND DIALYSIS AS AT 31ST DECEMBER 2009

<table>
<thead>
<tr>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Currently Functioning Transplant - Transplant Functioning Australia and New Zealand &gt;26 years</td>
<td>84-87</td>
</tr>
<tr>
<td>Currently Functioning Transplant - Third, Fourth, Fifth Graft - Australia and New Zealand</td>
<td>88-89</td>
</tr>
<tr>
<td>Currently Functioning Non Related Live Donor Transplant for &gt;11 years - Australia and New Zealand</td>
<td>90</td>
</tr>
<tr>
<td>Uninterrupted Dialysis for &gt;15 years - Australia and New Zealand - December 2010</td>
<td>91</td>
</tr>
<tr>
<td>Longest Surviving Patients &gt;30 years (Previously transplanted) Dialysis Dependent December 2010</td>
<td>92</td>
</tr>
</tbody>
</table>

### HAEMODIALYSIS ANALYSIS RELATED TO AGE GROUPS

<table>
<thead>
<tr>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Haemodialysis End of Survey, Transplant or Death - Dec 2010 - Dec 2009 - Dec 2008 - Dec 20067</td>
<td>93-94</td>
</tr>
</tbody>
</table>

### IMMUNOSUPPRESSION

<table>
<thead>
<tr>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Immunosuppressive Therapy at Specific Intervals - Australian Grafts 1998-2010</td>
<td>95-97</td>
</tr>
</tbody>
</table>
APPENDIX III - NEW ZEALAND  (Available on CD and from website www.anzdata.org.au)

CONTENTS

NEW PATIENTS
Number of New Patients in each Age Group - 1965-2010 4
Number of New Patients by Racial Origin - 2006-2010 5
Primary Renal Disease of New Patients - 2005-2010 6
Gender, Primary Renal Disease and Age of New Patients - 2008-2010 7
Racial Origin and Primary Renal Disease of New Patients - 1998-2010 8

DIALYSIS
Age and Treatment of Dialysis Patients - 2005-2010 9
Gender, Treatment and Age of Dialysis Patients - 2008-2010 10
Racial Origin, Primary Renal Disease and Age of Dialysis Patients - 31st December 2010 11

TRANSPLANTATION
Functioning Transplants - By Country of Transplant - 31st December 2007-2010 12
Gender, Racial Origin and Age of Functioning Transplants - Resident Country - 2008-2010 13
Functioning Transplants by Racial Origin, Primary Renal Disease and Age - 31st December 2010 14
Donor Source and Recipient Age for Transplant Operations - 2006-2010 15
Racial Origin and Primary Renal Disease of New Transplanted Patients by Year - 1997-2010 16
Recipient Gender, Donor Source and Recipient Age - Transplant Operations 2005-2010 17
Cause of Graft Loss - 2000-2010 18
Year of Graft Loss due to Death or Failure - 2000-2010 18
Year of Graft Loss due to Death or Failure - Age Related - 2000-2010 19

DEATHS
Death and Mode of Treatment - 2005-2010 20
Cause of Deaths - Haemodialysis, Peritoneal Dialysis and Transplant - 2010 21
Site and Type of Infection Causing Death - 2010 22
Cause of all Deaths by Gender, Racial Origin and Age - Female - 2010 23
Cause of all Deaths by Gender, Racial Origin and Age - Male - 2010 24
Cause of Dialysis Death by Gender and Racial Origin - 1998-2010 25
Cause of Transplant Death by Gender and Racial Origin - 1998-2010 26
Treatment Withdrawal Related to Treatment Mode, Disease, Gender and Age - 2008-2010 27

CO Morbidity
Number of CoMorbid Factors at Entry - 2010 28
CoMorbid Conditions at Entry - 2010 29
Racial Origin and Age of New CoMorbid Diabetic / Non Diabetic Patients - 2010 29
CoMorbid Conditions at Entry - Non Diabetic Primary Renal Disease Patients - 2006-2010 30
CoMorbid Conditions at Entry - Diabetic Primary Renal Disease Patients - 2006-2010 31
Racial Origin of CoMorbid Diabetic/Non Diabetic Patients - Each Year - 1999-2010 32
CoMorbid Conditions at Entry - All Patients - Each Year - 1999-2010 33
CoMorbid Conditions at Entry - Caucaso Directions Patients - Each Year - 1999-2010 34
CoMorbid Conditions at Entry - Maori Patients - Each Year - 1999-2010 35
CoMorbid Conditions at Entry - Pacific People Patients - Each Year - 1999-2010 36
CoMorbid Conditions at Entry - Haemodialysis as First Treatment 2010 37
CoMorbid Conditions at Entry - Haemodialysis as First Treatment 2010 38

PATIENT DATA - TRANSPLANT AND DIALYSIS AS AT 31ST DECEMBER 2009
Currently Functioning Transplant - Transplant Functioning >24 years 39
Uninterrupted Dialysis for >11 years 40
Longest Surviving Patients >19 years (Previously transplanted) Dialysis Dependent December 2009 41

HAEMODIALYSIS ANALYSIS RELATED TO AGE GROUPS
Haemodialysis End of Survey, Transplant or Death Dec-2009 - Dec 2009 - Dec 2008 - Dec 2007 42-43
Number of Treatments Per Week 43
Blood Flow Rate (mls/ min) 42
Hours of Treatment Per Week 43

IMMUNOSUPPRESSION
Immunosuppressive Therapy at Specific Intervals - New Zealand Graft 1998-2010 44
The ANZDATA Registry has great pleasure in presenting its 2011 annual report. This is the 34th annual report from the Registry and covers data collected until the 31st of December 2010.

The Registry acknowledges that the report is a tribute to the commitment and involvement of renal units throughout Australia and New Zealand. This commitment results in an enormous amount of time and work from staff of these units. It has ensured 100% of units in Australia and New Zealand participate and we continue to be confident that all the patients who have received chronic dialysis and transplantation treatments in Australia and New Zealand in this time period are included.

2011 has been a year of significant change in the staffing of the Registry office. After 34 years as Manager of the Registry, Lee Excell retired from that role in December 2010. We are pleased that she has continued in a part time advisory role in 2011 to assist in the transition to new management.

In May 2011, Ms Kylie Hurst was appointed as the new Manager of ANZDATA. Kylie brings to the Registry a wealth of experience in data management in her previous role at the Princess Alexandra Hospital. Her prior knowledge of and experience with ANZDATA in that role has proven to be invaluable in starting her new role.

Brian Livingston has continued as information manager in 2011 and Christina Leitch continues to provide administrative support. Bio-statistical expertise has been provided by Hannah Dent and Nancy Briggs.

Associate Professor Stephen McDonald continues in his role as Executive Officer of the Registry. His intellectual and academic leadership of the Registry has been inspirational and has maximized the dissemination of the data and its analysis both nationally and internationally.

Dr Philip Clayton continues as Amgen Fellow in Epidemiology. Since his appointment to this position in 2010, he has been involved in a number of research projects utilizing the database and has published and presented the results nationally and internationally. He has demonstrated excellent analytical skills and scientific rigor. We are greatly indebted to Amgen who continue to make a commitment to the funding of this position which has proven to be a major stimulus for the academic output of the Registry. Dr Blair Grace has also been active in analysis of the ANZDATA database as part of a collaborative NH&MRC funded project, supervised by A/Prof McDonald.

The ANZDATA Registry Steering Committee has once again been chaired by Professor Steven Chadban. We thank Steven for his inspired leadership and his ongoing interest in the Registry and its operations and output. Once again involvement of many individuals who have been members of the ANZDATA registry committees and working groups is gratefully acknowledged. The members of these groups are listed on page vii of this report.

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

We are also grateful to industry for support. In 2011, non-tied grants have been received from Baxter, Genzyme, Novartis and Roche.

Graeme Russ
Chair ANZDATA Executive
December 2011
ANZDATA Registry Executive Committee

Professor Graeme Russ—Chair
A/Professor Stephen McDonald—Executive Officer
Mrs Kylie Hurst—Registry Manager

ANZDATA Registry Steering Committee (2010 Members)

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A/Professor Stephen McDonald
Mrs Kylie Hurst
Dr Phillip Clayton (Fellow in Epidemiology)
Dr Fiona Brown (Project Manager—Peritoneal Dialysis)
Dr Scott Campbell (Project Manager—Transplantation)
Dr Matthew Jose (Project Manager—Indigenous Interest Group)
Dr Wai Lim
Dr Grant Pidgeon (New Zealand Representative)
Dr Helen Pilmore
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Dr Timothy Mathew (Kidney Health Australia Representative)
Dr Sean Kennedy (Project Manager—Paediatric Group)
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Dr Angela Webster (Project Manager—Cancer)
Dr Germaine Wong (Fellow in Cancer Epidemiology)
Mr Damian Harding (Consumer Representative)
Ms Cathy Hill (Nursing Representative)

ANZDATA Registry Working Groups (2010 Membership)

Transplant Working Group
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Dr Wai Lim

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Professor Randall Faull
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Dr Mark Marshall
Dr Vincent Lee

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A/Professor Stephen McDonald
A/Professor Mark Thomas
Ms Gillian Gorham
Professor John Collins
Dr Natasha Rogers
Dr Jacqueline Hughes
Ms Lesley Salem
PRIVACY

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 deindentified 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.

COLLECTION OF DATA

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.
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](http://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 2002 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 (ie 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 Tissue Typing laboratories in each State.

    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
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 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 Scheme (Australia) and New Zealand Kidney Allocation Scheme, ARCBS Tissue Typing Laboratories, cross-checked with ANZDATA. Waiting list analyses are for patients’ status at 31st December 2010.

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 Cockcroft-Gault equation is used [1]
   \[
   \text{ClCr} = \frac{(140 - \text{age}) \times \text{weight}}{(814 \times \text{Crserum})} \times 0.85 \text{ if female}
   \]
   The weight term used for this is lean body mass, calculated using the equation LBW = (0.9 \times [height - 152]) + (50 if male, 45.5 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
   \[
   Kt/V = 0.023 \times \text{PRU} - 0.284 \text{ (note that PRU = percent reduction in urea and not URR)}.
   \]
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/m\(^2\), normal 20-24.9 kg/m\(^2\), overweight 25-29.9 kg/m\(^2\), obese >=30 kg/m\(^2\)

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 2010.

10.3 Population denominator

All populations used in this report were stratified by age and sex, except for the South Eastern Region of NSW, where sex-specific data was not readily available.

Australian populations were taken from the Australian Bureau of Statistics (ABS), except for estimates for South Eastern NSW, some of which were taken from the NSW Department of Planning and Infrastructure.

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 22-24 November 2011.

Population data for each Australian state and territory came from ABS 3201.0 series (1)

Population data for Indigenous Australians were taken from ABS 3238.0 (2), 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. For 2006 onwards, these estimates were taken from the (3) and 2005 estimates were taken from ABS 3235.0 (4).

All New Zealand population estimates were taken from Statistics New Zealand (SNZ). Total populations were taken from (5) and Maori populations were taken from (6).

Estimates of resident Pacific People populations after were taken from (7) 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.

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 are given in Appendix I.

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 11.

13. References
8) http://wdmzpub01.stats.govt.nz/uds/TableViewer/tableView.aspx
Parent hospitals 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 (see Page xvii) provide haemodialysis treatments to selected patients, usually with lower staff ratios and no on-site nephrologist.

**QUEENSLAND**
- Allamanda Private Hospital (Fresenius)
- Bundaberg Base Hospital
- Cairns Base Hospital
- Cherrimside Dialysis Unit (Fresenius)
- Child and Adolescent Renal Service
- Goldcoast Hospital
- Henry Dalziel Dialysis Centre (Greenslopes) (Baxter)
- Hervey Bay Hospital
- John Flynn Hospital
- Mackay Base Hospital
- Princess Alexandra Hospital
- Queensland Renal Transplant Service
- Rockhampton Base Hospital
- Royal Brisbane Hospital
- St Andrew’s Dialysis Clinic (Diaverum)
- Sunshine Coast Health District
- Caloundra Private Hospital
- Nambour General Hospital
- Nambour Selangor Private Hospital
- The Townsville Hospital
- Toowoomba Hospital
- Wesley Private Hospital

**NEW SOUTH WALES**
- Coffs Harbour Hospital
- Dubbo Base Hospital
- East Coast Renal Service
- Prince of Wales Hospital
- St. George Hospital
- St. Vincent’s Hospital
- Sydney Children’s Hospital
- Wollongong Hospital
- Gosford Hospital
- John Hunter Hospital
- Lismore Hospital
- Lismore Private Dialysis Clinic
- Macleay Dialysis Centre - Kempsey
- Manning Rural Referral Hospital
- Mater Misericordiae Hospital
- Mayo Private - Taree
- Port Macquarie Base Hospital
- Port Macquarie Private Hospital
- Royal North Shore Hospital
- South West Sydney Renal Services
- Liverpool Hospital
- Statewide Renal Services
- Concord Hospital
- The Children’s Hospital at Westmead
- Taree Hospital
- The Children’s Hospital at Westmead
- Western Renal Network
- Nepean Hospital
- Orange Hospital
- Westmead Hospital

**AUSTRALIAN CAPITAL TERRITORY (ACT)**
- The Canberra Hospital

**VICTORIA**
- Alfred Hospital
- Austin Health
- Eastern Health Integrated Renal Services
- Epworth Hospital
- Forest Hill Dialysis Centre (Fresenius)
- Geelong Hospital
- Kew Private Dialysis Centre
- Malvern Dialysis Centre (Fresenius)
- Monash Medical Centre – Adult
- Monash Medical Centre – Paediatric
- North West Dialysis Service
- Royal Melbourne Hospital
- Royal Children’s Hospital
- St. Vincent’s Hospital
- Western Health

**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**
- Alice Springs Hospital
- Royal Darwin Hospital

**WESTERN AUSTRALIA**
- Fremantle Hospital
- Hollywood Private Hospital
- Princess Margaret Hospital for Children
- Royal Perth Hospital
- Sir Charles Gairdner Hospital
- St. John of God Private Hospital

**NEW ZEALAND**
- Auckland City Hospital
- Starship Children’s Hospital
- Christchurch Hospital
- Dunedin Hospital
- Hawkes Bay Hospital
- Middlemore Hospital
- Palmerston North Hospital
- Taranaki Base Hospital
- Waikato Hospital
- Wellington Hospital
- Whangarei Area Hospital
QUEENSLAND

Queensland Renal Transplantation Service
Princess Alexandra Hospital (Adult and Paediatric)
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Woolloongabba 4102

NEW SOUTH WALES

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Prince of Wales Hospital
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Randwick 2031

Royal North Shore Hospital
Director - Dr Bruce Cooper
Pacific Highway
St Leonards 2065

Statewide Renal Services (Royal Prince Alfred Hospital)
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Missenden Road
Camperdown 2050

Sydney Children’s Hospital
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Prince of Wales Hospital
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Randwick 2031

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Westmead 2145

Westmead Hospital
Director - Professor Jeremy Chapman
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Westmead 2145

VICTORIA

Alfred Hospital
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Commercial Road
Prahran 3181

Austin Health
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Heidelberg 3084

Monash Medical Centre (Paediatric)
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Clayton 3165

Monash Medical Centre (Adult)
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Clayton 3165

Royal Children’s Hospital
Director - Dr Colin Jones
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Parkville 3052

VICTORIA (CONTINUED)

Royal Melbourne Hospital
Director - Professor Gavin Becker
Parkville 3052

St. Vincent’s Hospital
Director - Professor Robyn Langham
41 Victoria Parade
Fitzroy 3065

SOUTH AUSTRALIA

Central Northern Adelaide Transplant Service (from Jan 1, 2010)
Royal Adelaide Hospital
Director - Professor Graeme Russ
North Terrace
Adelaide 5000

( formerly ) - The Queen Elizabeth Hospital
Woodville, South Australia 5011

Women’s and Children’s Hospital
Director - Dr Paul Henning
72 King William Road
North Adelaide 5006

WESTERN AUSTRALIA

Princess Margaret Hospital for Children
Director - Dr Ian Hewitt
Roberts Road
Subiaco 6008

Royal Perth Hospital
Director - Dr Kevin Warr
Wellington Street
Perth 6001

Sir Charles Gairdner Hospital
Director - Dr Harry Moody
Verdun Street
Nedlands 6009

NEW ZEALAND

Auckland City Hospital
Director - Dr Ian Dittmer
Park Road
Grafton, Auckland

Christchurch Hospital
Director - Dr David McGregor
Riccarton Avenue
Christchurch

Starship Children’s Hospital
Director - Dr William Wong
Park Road
Grafton, Auckland

Wellington Hospital
Director - Dr Grant Pidgeon
Riddiford Street
Newtown, Wellington South
### QUEENSLAND
- Catherton Private Hospital - Cairns Base Hospital
- Cairns Home Training Unit - Cairns Base Hospital
- Cairns Private Hospital Satellite - Cairns Base Hospital
- Cooktown Satellite - Cairns Base Hospital
- East Street Self Care Dialysis Unit - Rockhampton Hospital
- Gympie Satellite - Sunshine Coast Health District
- Home Hill Satellite - Townsville Hospital
- Innisfail Hospital - Cairns Base Hospital
- Ipswich Satellite - Princess Alexandra Hospital
- Kingaroy Satellite - Toowoomba Hospital
- Logan Satellite - Princess Alexandra Hospital
- Mossman Satellite - Cairns Base Hospital
- Mt. Isa Satellite - Townsville Hospital
- Noosa Satellite - Sunshine Coast Health District
- North Lakes Dialysis Unit - Royal Brisbane Hospital
- North Ward Satellite - Townsville Hospital
- Palm Island Satellite - Townsville Hospital
- Redcliffe Satellite - Royal Brisbane Hospital
- Redlands Satellite - Princess Alexandra Hospital
- St Vincent's Robina Satellite - Goldcoast Hospital

### NEW SOUTH WALES
- Armidale Hospital - Tamworth Hospital
- Auburn Satellite - Westmead Hospital
- Ballina Hospital - Lismore Hospital
- Bankstown Hospital - South West Sydney Renal Services
- Bathurst Satellite Dialysis Centre - Orange Hospital
- Bega Satellite - Statewide Renal Services
- Blacktown Regional Dialysis - Westmead Hospital
- Bondi Dialysis Unit (Diaverum)
- Brewarrina Hospital
- Broken Hill Hospital
- Campbelltown Satellite - South West Sydney Renal Services
- Coomra Satellite
- Dame Edith Walker - Statewide Renal Services
- Eora Satellite - Prince of Wales Hospital
- Fairfield Satellite - South West Sydney Renal Services
- Forbes Hospital - New South Wales
- Gosford Satellite - Gosford Hospital
- Goulburn Satellite (Fresenius) - Statewide Renal Services
- Grafton Hospital - Lismore Hospital
- Griffith Base Hospital - Statewide Renal Services
- Innarell Satellite - Tamworth Hospital
- Lakehaven Satellite - Gosford Hospital
- Lanceley Cottage - Royal North Shore Hospital
- Lindfield Dialysis Unit (Diaverum)
- Liverpool Community Centre - South West Sydney Renal Services
- Maitland Hospital - Hunter New England Health
- Mona Vale Satellite - Royal North Shore Hospital
- Moree Satellite - Tamworth Hospital
- Moruya Satellite (Fresenius) - Statewide Renal Services
- Muswellbrook - Hunter New England Health
- Norfolk Island Hospital - Statewide Renal Services
- Penrith Community Dialysis Centre - Nepean Hospital
- Shellharbour - Wollongong Hospital
- Shoalhaven Satellite (Nowra) - Wollongong Hospital
- Singleton Satellite - Hunter New England Health
- Sutherland Hospital - St George Hospital
- Sydney Dialysis Centre - New South Wales
- Taree Community Dialysis - Hunter New England Health
- Wagga Wagga Base Hospital
- Warley Satellite - Hunter New England Health
- Wellington Hospital - New South Wales
- Wollongong Satellite - Wollongong Hospital - New South Wales

### AUSTRALIAN CAPITAL TERRITORY (ACT)
- Canberra Community Satellite
- Northside Dialysis Clinic (Fresenius)

### VICTORIA (CONTINUED)
- Horsham Satellite
- Kyneton Satellite
- Latrobe Regional Satellite
- Mansfield District Hospital
- Maroondah Satellite
- Maryborough Hospital
- Melton Hospital
- Mildura Hospital
- Moorabbin Satellite
- Myrtleford Hospital
- Newcomb Satellite
- Nilhi Hospital Satellite
- Northern Hospital Satellite - Royal Melbourne
- North East Kidney Service - Austin Health
- North Melbourne Dialysis Clinic (Diaverum)
- Ormston Hospital
- Portland District Health
- Robinvale Hospital
- Rosebud Hospital
- Sale Hospital
- Sandringham Satellite
- Seymour Hospital
- South Geelong Satellite - Geelong Hospital
- St. George's Hospital
- Sunshine Satellite Centre - Western Health
- Swan Hill Hospital
- Wanganarra Hospital
- Warrnambool Hospital
- Werribee Mercy Hospital
- Western Gippsland Hospital
- Williamstown Satellite
- Wodonga Regional Health Service
- Wonthaggi Hospital
- Yarrawonga District Hospital
- Yarram Hospital

### SOUTH AUSTRALIA
- Berri Satellite
- Ceduna Hospital
- Clare Satellite
- Hampstead Rehabilitation Satellite
- Hartley Private Hospital (Fresenius)
- Lyell McEwin Satellite
- Millicent Hospital
- Modbury Satellite (Fresenius)
- Mount Gambier Satellite
- Murray Bridge Hospital
- Norluna Satellite
- Payneham Satellite (Baxter)
- Port Augusta Hospital
- Port Lincoln Satellite Centre
- Whyalla Satellite Centre

### NEW ZEALAND
- Stirling Dialysis Clinic (Diaverum)
- Spearwood Satellite
- Spearwood Satellite
- Stirling Satellite - Auckland City Hospital
- Tiwi Dialysis Centre (Baxter)
- Peel Health Campus - Mandurah
- Port Hendal Dialysis Unit (Pillara) - Royal Perth Hospital
- Rockhampton Satellite
- Spearwood Satellite
- Shirey Dialysis Clinic (Diaverum)

### WESTERN AUSTRALIA
- Albany - John Holtin Dialysis Unit
- Armadale Satellite
- Bunbury Satellite
- Busselton Satellite
- Cannington Dialysis Clinic (Diaverum)
- Derby Satellite
- Geraldton Hospital
- Joondalup Satellite
- Kalgoorlie Dialysis Unit
- Kimberley Dialysis Centre - Royal Perth Hospital
- Melville Satellite
- Midland Private Dialysis Centre (Baxter)
- Peel Health Campus - Mandurah
- Perth Home Dialysis Unit (Pillara) - Royal Perth Hospital
- Rockhampton Satellite
- Spearwood Satellite
- Shirey Dialysis Clinic (Diaverum)

### NEW ZEALAND
- Auckland Home Training Unit
- Bay of Islands Hospital - Whangarei Hospital
- Carrington Satellite - Auckland City Hospital
- Grafton Training Unit - Auckland City Hospital
- Greenlane Hospital - Auckland City Hospital
- Manukau Satellite - Middlemore Hospital
- Middlemore Satellite - Middlemore Hospital
- Nephrocare - Auckland
- Nelson Hospital
- Porirua Community Dialysis - Wellington Hospital
- Rotarua Hospital - Waikato Hospital
- Tauranga Hospital - Waikato Hospital
- Waitakere Satellite - Auckland City Hospital
Publications in peer-reviewed journals based substantially on data from ANZDATA and released during the period of data covered by this report (2010) and during 2011 are listed below.


3. Lim WH, Boudville N, McDonald SP, Gorham G, Johnson DW, Jose M. Remote indigenous peritoneal dialysis patients have higher risk of peritonitis, technique failure, all-cause and peritonitis-related mortality. *Nephrol Dial Transplant.* 2011; 26: 3366-72.


SUMMARY

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KEY SUMMARY POINTS

AUSTRALIA

- There were 18,999 people (850 per million population) receiving renal replacement therapy (RRT) at 31st December 2010. Of these, 8,409 (376 per million) had a functioning kidney transplant and 10,590 (474 per million) were receiving dialysis treatment.

- 2,257 people commenced RRT in Australia in 2010 (101 per million per year). The incidence rate varied from 279 per million population per year in the Northern Territory to 92 per million per year in the Australian Capital Territory (ACT).

- The mean age at commencement was 60.7 years, the median 62.9 years and the age range < 1 months - 93.2 years.

- 35% of new patients had diabetic nephropathy attributed as their cause of end stage renal failure, 22% had glomerulonephritis and 14% hypertension.

- The mortality rate per 100 patient years was 13.42 for dialysis dependent patients and 1.11 for those with a functioning kidney transplant.

- Of the 1,401 deaths among dialysis dependent patients in 2010, 35% were due to withdrawal from treatment, 43% were due to cardiovascular causes, 11% to infection and 6% from malignancy.

- Of the 160 deaths among patients with kidney transplants, 32% were due to malignancy, 23% to cardiovascular causes and 23% to infection.

- There has been a 2% increase in the total number of prevalent dialysis patients from 10,425 in December 2009 to 10,590 in December 2010.

- There were 846 kidney transplant operations performed in 2010, (a transplant rate of 38 per million population). This was the highest number ever of transplants performed.

- Of these, 35% (296 grafts; 177 related and 119 non related) were from living donors, compared with 42% (327 grafts; 185 related and 142 non related) in 2009. 35% of primary live donor operations were performed without the recipient receiving prior dialysis therapy (“pre-emptive” transplants).

- For primary deceased donor grafts performed in 2009-2010, the 12 month patient and graft survival rates were 98% and 95% respectively.

- The five year primary deceased donor recipient and graft survival for operations performed in Australia and New Zealand 2005-2009 were 90% and 82% respectively.

- In 2010, 1208 patients (87%) of Aboriginal/TSI ethnicity were dialysis dependent and 177 patients (13%) had a functioning transplant. There were 198 patients that commenced renal replacement therapy.

- The proportion of haemodialysis patients with a haemoglobin value >120 g/l has fallen consistently over the past three years (presumably in response to evidence about the adverse effects of higher Hgb targets in some groups).

- There has been a stabilisation in the proportion of people with serum phosphate >1.8 mmol/L over the last few years.

- Among people receiving haemodialysis as their initial treatment modality, and referred to a nephrologist more than three months prior to starting dialysis, only 51% of people had a usable permanent access (AV fistula or graft) at the time of initial haemodialysis.
KEY SUMMARY POINTS

NEW ZEALAND

- There were 3,793 people (868 per million) receiving renal replacement therapy (RRT) at 31\textsuperscript{st} December 2010. Of these, 1,415 (324 per million) had a functioning kidney transplant, and 2,378 (544 per million) were receiving dialysis treatment.

- 503 people (115 per million per year) commenced RRT in New Zealand in 2010.

- The mean age at commencement was 58.3 years, the median age 60.3 years and the age range 9.2 months - 86.5 years.

- Diabetic nephropathy accounted for 51\% of new patients, glomerulonephritis 22\% and hypertension 12\%.

- Of the incident diabetic patients, 113 patients (44\%) were Maori, 73 patients (29\%) were Pacific People, 49 patients (19\%) were Caucasoid and 21 patients (8\%) were of other ethnicity.

- Of patients < 60 years of age, 29\% were on the active kidney transplantation waiting list at 31\textsuperscript{st} December 2010. 21\% of Maoris, 16\% of Pacific People and 13\% of Asians < 65 years of age were on the transplant waiting list.

- The mortality rate per 100 patient years was 13.68 for dialysis dependent patients and 1.36 for those with a functioning kidney transplant.

- Of the 319 deaths among dialysis dependent patients in 2010, 55\% were due to cardiovascular causes, 21\% to withdrawal from treatment, 17\% to infection and 3\% from malignancy.

- Of the 34 deaths among patients with a kidney transplant, 32\% were due to malignancy, 32\% to cardiovascular causes and 12\% due to infection.

- The number of patients who were dialysis dependent at 31\textsuperscript{st} December 2010 (2,378) was an increase of 4\% (2,280 patients) the previous year. 53\% of all dialysis dependent patients were receiving home dialysis, of whom 66.1\% were having peritoneal dialysis.

- There were 110 kidney transplant operations performed in 2010, a rate of 25 per million population.

- The percentage of live donors in 2010 was 55\% (60 grafts).

- For primary deceased donor grafts performed in 2009-2010, the 12 month patient and graft survival rates were 98\% and 96\% respectively.

- The five year primary deceased donor recipient and graft survival for operations performed in Australia and New Zealand 2005-2009 were 90\% and 82\% respectively.

- Among people receiving haemodialysis as their initial treatment modality, and referred to a nephrologist more than three months prior to starting dialysis, only 32\% of people had a usable permanent access (AV fistula or graft) at the time of first treatment.