CHAPTER 2

NEW PATIENTS

COMMENCING TREATMENT IN 2003

Leonie Excell
and
Stephen McDonald
### Intake of New Patients

For Australia, 1,953 new patients commenced treatment in 2003, a rate of 98 per million population per year. This was an increase of 3% from 2002. Overall, however, the rate has stabilised over the period 2001-2003.

In New Zealand, the number of new patients entering renal failure programs was 449, a rate of 112 per million of population. This was a decrease of 5% from 2002.

### Age of New Patients

In Australia in 2003, three age groups showed an increase in acceptance of new patients. The 0-19 year age group rose slightly from 8 to 10 per million (41 to 51 patients), the 20-44 year age group from 44 to 47 per million (316 to 341 patients) and the 75-84 year age group rose from 379 to 416 per million (332 to 377 patients).

There were decreases in the other remaining groups in 2003, the largest fall in the 85-94 year age group (24 to 16 patients), from 87 to 55 per million (fig 2.2).

The mean age of patients entering programs in Australia in 2003 was 59.3 years and the median 62.4 years (fig 2.4).

In New Zealand, the mean age of patients entering was 56.7 years and the median 59.2 years (fig 2.4).

The age specific rates of acceptance increased in 2003 in four of the age groups. The increases were in the 20-44 year age group from 51 to 55 per million, the 65-74 year age group from 363 to 405 per million, the 75-84 year age group from 178 to 285 per million and the 85-94 year group from 39 to 57 per million (fig 2.3).

There were decreases in 2003 in the 0-19 year age group from 19 to 14 per million and in the 45-64 year age group from 279 to 218 per million (fig 2.2).
Within the older age groups, a difference remains between Australia and New Zealand with rates of people 60-74 years greater in New Zealand whereas the rates of people 75-84 years were greater in Australia.

Rates of new patients aged $\geq 85$ years remains low in both countries.

**STATE OF ORIGIN OF NEW PATIENTS**

There was an increase in numbers in renal replacement therapy rates in only three states in 2003 (fig 1.5): South Australia (26%), New South Wales (15%) and Queensland (9%). The new patient entry rate decreased in the ACT by 17%, The Northern Territory (10%), Victoria (7%), Western Australia (<1%) and Tasmania remained the same (5%). The graphs (fig 2.5) indicate recent trends, and also indicate 95% confidence intervals around these rates. It can therefore be seen that it is difficult to draw inferences about trends in the smaller states.

The highest acceptance rates were in the Northern Territory (262 per million) and in Queensland (107 per million) and the lowest in the ACT and in Tasmania (77 and 75 per million respectively).
Figure 2.5

New RRT rates
Qld

New RRT rates
NSW

New RRT rates
ACT

New RRT rates
VIC

New RRT rates
Tas

New RRT rates
SA

New RRT rates
NT

New RRT rates
WA

New RRT rates
Qld

New RRT rates
NSW

New RRT rates
ACT

New RRT rates
VIC

New RRT rates
Tas

New RRT rates
SA

New RRT rates
NT

New RRT rates
WA
LATE REFERRAL

Twenty seven percent of all new patients in both Australia and New Zealand were referred late to nephrological care, i.e. less than three months before first treatment (fig 2.6). This rate has been steady for a number of years, however there is variation between States in this rate. Late referral is further examined in a later chapter (pages 29-31).

Figure 2.6

<table>
<thead>
<tr>
<th>Primary Renal Disease</th>
<th>Qld</th>
<th>NSW</th>
<th>ACT</th>
<th>Vic</th>
<th>Tas</th>
<th>SA</th>
<th>NT</th>
<th>WA</th>
<th>Aust</th>
<th>NZ</th>
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<tbody>
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<td>YES</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Analgesic</td>
<td>5 (4%)</td>
<td>9 (5%)</td>
<td>1 (5.5%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>15 (3%)</td>
</tr>
<tr>
<td>Diabetes-I insulin</td>
<td>4 (3%)</td>
<td>2 (1%)</td>
<td>0 (0%)</td>
<td>6 (6%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>2 (4%)</td>
<td>14 (3%)</td>
</tr>
<tr>
<td>Diabetes-II ins. req.</td>
<td>13 (11%)</td>
<td>15 (8%)</td>
<td>1 (5.5%)</td>
<td>6 (6%)</td>
<td>1 (12.5%)</td>
<td>1 (3%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>2 (4%)</td>
<td>39 (7%)</td>
</tr>
<tr>
<td>Diabetes-II non-ins.</td>
<td>18 (15%)</td>
<td>17 (9%)</td>
<td>0 (0%)</td>
<td>18 (17%)</td>
<td>0 (0%)</td>
<td>6 (21%)</td>
<td>4 (50%)</td>
<td>8 (15%)</td>
<td>71 (14%)</td>
<td>25 (20%)</td>
</tr>
<tr>
<td>Glomerulonephritis</td>
<td>27 (23%)</td>
<td>48 (27%)</td>
<td>7 (39%)</td>
<td>27 (25%)</td>
<td>3 (37.5%)</td>
<td>5 (17%)</td>
<td>0 (0%)</td>
<td>20 (38%)</td>
<td>137 (26%)</td>
<td>29 (24%)</td>
</tr>
<tr>
<td>Hypertension</td>
<td>13 (11%)</td>
<td>30 (17%)</td>
<td>1 (5.5%)</td>
<td>16 (15%)</td>
<td>0 (0%)</td>
<td>4 (14%)</td>
<td>0 (0%)</td>
<td>10 (19%)</td>
<td>74 (14%)</td>
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<td>3 (37.5%)</td>
<td>9 (31%)</td>
<td>2 (25%)</td>
<td>6 (11%)</td>
<td>87 (17%)</td>
<td>22 (18%)</td>
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<tr>
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<td>3 (3%)</td>
<td>8 (4%)</td>
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<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>2 (4%)</td>
<td>16 (3%)</td>
<td>1 (&lt;1)</td>
</tr>
<tr>
<td>Reflux</td>
<td>5 (4%)</td>
<td>2 (1%)</td>
<td>2 (11%)</td>
<td>4 (4%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>1 (1%)</td>
<td>14 (3%)</td>
<td>2 (2%)</td>
</tr>
<tr>
<td>Uncertain</td>
<td>19 (16%)</td>
<td>14 (8%)</td>
<td>3 (17%)</td>
<td>9 (8%)</td>
<td>1 (12.5%)</td>
<td>4 (14%)</td>
<td>2 (25%)</td>
<td>2 (4%)</td>
<td>54 (10%)</td>
<td>8 (7%)</td>
</tr>
<tr>
<td>Sub Total</td>
<td>119 (29%)</td>
<td>180 (29%)</td>
<td>18 (45%)</td>
<td>106 (24%)</td>
<td>8 (22%)</td>
<td>29 (19%)</td>
<td>8 (15%)</td>
<td>53 (26%)</td>
<td>521 (27%)</td>
<td>123 (27%)</td>
</tr>
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</tr>
<tr>
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<td>29 (7%)</td>
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<td>2 (1%)</td>
<td>0 (0%)</td>
<td>5 (4%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>55 (4%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>Diabetes-I insulin</td>
<td>6 (2%)</td>
<td>16 (4%)</td>
<td>0 (0%)</td>
<td>11 (3%)</td>
<td>0 (0%)</td>
<td>6 (5%)</td>
<td>0 (0%)</td>
<td>9 (6%)</td>
<td>48 (3%)</td>
<td>10 (3%)</td>
</tr>
<tr>
<td>Diabetes-II ins. req.</td>
<td>40 (14%)</td>
<td>49 (11%)</td>
<td>2 (9%)</td>
<td>47 (14%)</td>
<td>2 (7%)</td>
<td>13 (11%)</td>
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<td>15 (10%)</td>
<td>170 (12%)</td>
<td>71 (22%)</td>
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<tr>
<td>Diabetes-II non-ins.</td>
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<td>6 (27%)</td>
<td>28 (8%)</td>
<td>1 (4%)</td>
<td>9 (7%)</td>
<td>25 (57%)</td>
<td>29 (19%)</td>
<td>160 (11%)</td>
<td>53 (16%)</td>
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<tr>
<td>Glomerulonephritis</td>
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<td>134 (30%)</td>
<td>4 (18%)</td>
<td>103 (31%)</td>
<td>8 (29%)</td>
<td>36 (29%)</td>
<td>7 (16%)</td>
<td>39 (26%)</td>
<td>390 (27%)</td>
<td>87 (27%)</td>
</tr>
<tr>
<td>Hypertension</td>
<td>49 (17%)</td>
<td>77 (17%)</td>
<td>5 (23%)</td>
<td>37 (11%)</td>
<td>6 (21%)</td>
<td>16 (13%)</td>
<td>3 (7%)</td>
<td>31 (21%)</td>
<td>224 (16%)</td>
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<td>146 (10%)</td>
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<td>5 (3%)</td>
<td>94 (7%)</td>
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<td>1 (2%)</td>
<td>3 (2%)</td>
<td>59 (4%)</td>
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<tr>
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<td>2 (7%)</td>
<td>6 (5%)</td>
<td>4 (9%)</td>
<td>7 (5%)</td>
<td>86 (6%)</td>
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</tr>
<tr>
<td>Sub Total</td>
<td>289 (71%)</td>
<td>444 (71%)</td>
<td>22 (55%)</td>
<td>332 (76%)</td>
<td>28 (78%)</td>
<td>123 (81%)</td>
<td>44 (85%)</td>
<td>150 (74%)</td>
<td>1432 (73%)</td>
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<td>Total</td>
<td>408 (100%)</td>
<td>624 (100%)</td>
<td>40 (100%)</td>
<td>438 (100%)</td>
<td>36 (100%)</td>
<td>152 (100%)</td>
<td>52 (100%)</td>
<td>203 (100%)</td>
<td>1953 (100%)</td>
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</table>

Co-morbid Conditions

Co-morbid conditions at entry to RRT are shown in Figure 2.7. There are only minor differences between the two countries except in the incidence of Type II Diabetes which is more common in New Zealand (40% of new patients, compared to 26% in Australia). (See Appendix II and III for further analyses of co-morbid conditions).

Figure 2.7

<table>
<thead>
<tr>
<th>Country</th>
<th>Chronic Lung Disease</th>
<th>Coronary Artery Disease</th>
<th>Peripheral Vascular Disease</th>
<th>Cerebrovascular Disease</th>
<th>Smoking</th>
<th>Diabetes (Including Diabetic Nephropathy)</th>
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<tr>
<td>Aust. n=1953</td>
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<td>Yes</td>
<td>239 (12%)</td>
<td>593 (30.5%)</td>
<td>367 (19%)</td>
<td>210 (11%)</td>
<td>Current 208 (11%)</td>
<td>1-insulin 68 (3%)</td>
</tr>
<tr>
<td></td>
<td>70 (4%)</td>
<td>163 (8.5%)</td>
<td>118 (6%)</td>
<td>57 (3%)</td>
<td>Former 771 (39%)</td>
<td>II-ins.req. 264 (14%)</td>
</tr>
<tr>
<td></td>
<td>1644 (84%)</td>
<td>1197 (61%)</td>
<td>1468 (75%)</td>
<td>1686 (86%)</td>
<td>Never 971 (50%)</td>
<td>II-non-ins. 357 (18%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Unknown 3 (&lt;1)</td>
<td></td>
</tr>
<tr>
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<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>N.Z. n=449</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>49 (11%)</td>
<td>101 (22.5%)</td>
<td>60 (13%)</td>
<td>51 (11.5%)</td>
<td>Current 62 (14%)</td>
<td>1-insulin 11 (3%)</td>
</tr>
<tr>
<td></td>
<td>8 (2%)</td>
<td>45 (10%)</td>
<td>18 (4%)</td>
<td>11 (2.5%)</td>
<td>Former 167 (37%)</td>
<td>II-ins.req. 96 (21%)</td>
</tr>
<tr>
<td></td>
<td>392 (87%)</td>
<td>303 (67.5%)</td>
<td>371 (83%)</td>
<td>387 (86%)</td>
<td>Never 220 (49%)</td>
<td>II-non-ins. 94 (21%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>No 248 (55%)</td>
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</table>
Primary Renal Disease of New Patients

Australia

Glomerulonephritis and diabetic nephropathy (excluding diabetics with renal failure due to other causes) were the most common causes of ESRD (27% and 26% respectively), followed by hypertension (15%), polycystic kidney disease (5%), reflux and analgesic nephropathy (both 4%) (fig 2.8). This picture has been stable for a number of years.

IgA mesangio proliferative glomerulonephritis (25% of all GN) was the most common histologically proven form of glomerulonephritis (33% of biopsy proven glomerulonephritis), followed by focal sclerosing GN and systemic disease (both 14%) (fig 2.9).

A renal biopsy based diagnosis was reported in 35% of cases: glomerulonephritis 77%, hypertension 20%, diabetes (types I and II) 15%, analgesic nephropathy 14%, reflux 12% and polycystic kidney disease 3% (fig 2.8). The biopsy rate in Australia is slowly declining (fig.2.11), although for those with a primary diagnosis of glomerulonephritis it is steady.

Amongst the miscellaneous diseases causing end stage renal failure, there were ten cases attributed to cyclosporin nephrotoxicity and six to lithium toxicity (fig 2.10). The incidence of analgesic nephropathy continues to decrease and reached 3.6% (70 patients) in 2003, the lowest recorded.

New Zealand

Diabetic nephropathy (40%) was the most common cause of ESRD followed by glomerulonephritis (26%) and hypertension (10%).

Diabetes Type II (non insulin and insulin requiring) represented 94% of diabetic nephropathy.

Focal sclerosing (21%) and IgA mesangio proliferative (15%), represented 44% of biopsy proven glomerulonephritis.

Biopsy rates were all lower than those in Australia but are steady.

Figure 2.8

<table>
<thead>
<tr>
<th>Causes of ESRD</th>
<th>Number of Patients (% Patients)</th>
</tr>
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<tbody>
<tr>
<td>Disease</td>
<td>2000</td>
</tr>
<tr>
<td>--------------</td>
<td>------</td>
</tr>
<tr>
<td><strong>Australia</strong></td>
<td></td>
</tr>
<tr>
<td>Glomerulonephritis</td>
<td>532</td>
</tr>
<tr>
<td>Analgesic Nephropathy</td>
<td>85</td>
</tr>
<tr>
<td>Polycystic Kidney</td>
<td>110</td>
</tr>
<tr>
<td>Reflux Nephropathy</td>
<td>88</td>
</tr>
<tr>
<td>Hypertension</td>
<td>236</td>
</tr>
<tr>
<td>Diabetic Nephropathy</td>
<td>391</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>198</td>
</tr>
<tr>
<td>Uncertain Diagnosis</td>
<td>115</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>1755</td>
</tr>
</tbody>
</table>

| **New Zealand**       |      |      |      |      |
| Glomerulonephritis    | 112  | 132  | 108  | 116  |
| Analgesic Nephropathy | - (-)| - (-)| 2 (<1%)| - (-) |
| Polycystic Kidney     | 12   | 29   | 19   | 21   |
| Reflux Nephropathy    | 22   | 12   | 17   | 10   |
| Hypertension          | 59   | 56   | 40   | 44   |
| Diabetic Nephropathy  | 151  | 177  | 207  | 180  |
| Miscellaneous         | 42   | 39   | 52   | 47   |
| Uncertain Diagnosis   | 23   | 24   | 18   | 31   |
| **Total**             | 421  | 469  | 463  | 449  |

Figure 2.9

<table>
<thead>
<tr>
<th>Types of Glomerulonephritis 1-Jan-2003 to 31-Dec-2003</th>
<th>Number (% of all GN)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Australia</strong></td>
<td>527</td>
</tr>
<tr>
<td>Presumed GN - No Biopsy performed</td>
<td>111 (21%)</td>
</tr>
<tr>
<td>Focal Sclerosing</td>
<td>73 (14%)</td>
</tr>
<tr>
<td>MCGN - Type I</td>
<td>6 (1%)</td>
</tr>
<tr>
<td>MCGN - Type II</td>
<td>3 (&lt;1%)</td>
</tr>
<tr>
<td>Membranous GN</td>
<td>29 (6%)</td>
</tr>
<tr>
<td>Rapidly Progressive GN</td>
<td>14 (3%)</td>
</tr>
<tr>
<td>Mesangio proliferative IgA +</td>
<td>132 (25%)</td>
</tr>
<tr>
<td>Mesangio proliferative IgA -</td>
<td>11 (2%)</td>
</tr>
<tr>
<td>Mesangio proliferative No I.F.</td>
<td>5 (1%)</td>
</tr>
<tr>
<td>Focal &amp; Segmental Proliferative GN</td>
<td>34 (6%)</td>
</tr>
<tr>
<td>Advanced GN (end-stage type)</td>
<td>9 (2%)</td>
</tr>
<tr>
<td>Goodpasture’s Syndrome</td>
<td>7 (1%)</td>
</tr>
<tr>
<td>Systemic Lupus</td>
<td>25 (5%)</td>
</tr>
<tr>
<td>Henoch-Schonlein Purpura</td>
<td>2 (&lt;1%)</td>
</tr>
<tr>
<td>Wegerier’s Granulomatosis</td>
<td>16 (3%)</td>
</tr>
<tr>
<td>Microscopic Polyarteritis</td>
<td>13 (2%)</td>
</tr>
<tr>
<td>Scleroderma</td>
<td>9 (2%)</td>
</tr>
<tr>
<td>GN Other</td>
<td>12 (2%)</td>
</tr>
<tr>
<td>Familial GN (including Alports)</td>
<td>12 (2%)</td>
</tr>
<tr>
<td>Anti GBM (no haemoptysis)</td>
<td>4 (1%)</td>
</tr>
<tr>
<td>GN (with systemic disease)</td>
<td>- (-)</td>
</tr>
<tr>
<td><strong>New Zealand</strong></td>
<td>116</td>
</tr>
<tr>
<td>Presumed GN - No Biopsy performed</td>
<td>20 (17%)</td>
</tr>
<tr>
<td>Focal Sclerosing</td>
<td>24 (21%)</td>
</tr>
<tr>
<td>MCGN - Type I</td>
<td>8 (7%)</td>
</tr>
<tr>
<td>MCGN - Type II</td>
<td>- (-)</td>
</tr>
<tr>
<td>Membranous GN</td>
<td>5 (4%)</td>
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<tr>
<td>Rapidly Progressive GN</td>
<td>4 (3%)</td>
</tr>
<tr>
<td>Mesangio proliferative IgA +</td>
<td>17 (15%)</td>
</tr>
<tr>
<td>Mesangio proliferative IgA -</td>
<td>1 (&lt;1%)</td>
</tr>
<tr>
<td>Mesangio proliferative No I.F.</td>
<td>1 (&lt;1%)</td>
</tr>
<tr>
<td>Focal &amp; Segmental Proliferative GN</td>
<td>3 (3%)</td>
</tr>
<tr>
<td>Advanced GN (end-stage type)</td>
<td>8 (7%)</td>
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<tr>
<td>Goodpasture’s Syndrome</td>
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<tr>
<td>Systemic Lupus</td>
<td>7 (6%)</td>
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<tr>
<td>Henoch-Schonlein Purpura</td>
<td>- (-)</td>
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<tr>
<td>Wegerier’s Granulomatosis</td>
<td>5 (4%)</td>
</tr>
<tr>
<td>Microscopic Polyarteritis</td>
<td>2 (2%)</td>
</tr>
<tr>
<td>Scleroderma</td>
<td>1 (&lt;1%)</td>
</tr>
<tr>
<td>GN Other</td>
<td>3 (3%)</td>
</tr>
<tr>
<td>Familial GN (including Alports)</td>
<td>2 (2%)</td>
</tr>
<tr>
<td>Anti GBM (no haemoptysis)</td>
<td>1 (&lt;1%)</td>
</tr>
<tr>
<td>GN (with systemic disease)</td>
<td>1 (&lt;1%)</td>
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</table>
Figure 2.10

Miscellaneous Causes of ESRD
1-Jan-2003 to 31-Dec-2003
(Number of Patients)

<table>
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<tr>
<th>Renal Disease</th>
<th>Aust (233)</th>
<th>NZ (47)</th>
<th>Renal Disease</th>
<th>Aust (233)</th>
<th>NZ (47)</th>
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<td>Cyclosporin Nephrotoxicity</td>
<td>10</td>
<td>3</td>
<td>Medullary Cystic Disease</td>
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<tr>
<td>Lithium Toxicity</td>
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<td>-</td>
<td>Gout</td>
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<tr>
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<tr>
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<td>Churg-Strauss Syndrome</td>
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<td>Gentamycin Toxicity</td>
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</table>

Triad Syndrome [1]
Sacral Teratoma-Ureteric Reimplant [1]
Pelvic Ureteric Junction Obstruction 1 1

Figure 2.11

Biopsy rates: GN only

Biopsy rate of new patients with primary diagnosis of GN, by year of first RRT treatment

Biopsy rates

Biopsy rate of all new patients, by year of first RRT treatment
Figure 2.12

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<tr>
<th>Biopsy</th>
<th>Primary Renal Disease</th>
<th>Qld</th>
<th>NSW</th>
<th>ACT</th>
<th>Vic</th>
<th>Tas</th>
<th>SA</th>
<th>NT</th>
<th>WA</th>
<th>Aust</th>
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<td>Diabetes I - Insulin</td>
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<td>1</td>
<td>1</td>
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<td>1</td>
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<td>52</td>
<td>203</td>
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</table>

Eighteen per cent of all patients with diabetic nephropathy in Australia (520/2930) and 5% (581/1124) in New Zealand, have had a biopsy proven diagnosis since this data was first collected by the Registry from 1st April, 1997.

Reported serum creatinine at first dialysis is outlined for Australia and New Zealand in Figure 2.13. In both countries, patients commence PD with a lower creatinine than HD.

The boxes in the graph illustrate median, 25th and 75th centiles. The error bars illustrate 95th centiles.