Chapter 1

Incidence of End Stage Kidney Disease

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Suggested Citation:
Tables 1.1 and 1.2 show the stock and flow of renal replacement therapy (RRT) patients by country and by state. In Australia in 2013 there were 2,544 new RRT patients, with an overall incidence rate of 110 per million population (pmp). This rate has now been stable for several years. In New Zealand there were 546 new patients (123 pmp). The rate in New Zealand is subject to more annual variation due to lower numbers.

In contrast to incident patients, the number of prevalent patients in each country continues to climb; in Australia at the end of 2013 there were 21,470 (928 pmp) patients receiving RRT, and in New Zealand there were 4,156 (936 pmp).

### Table 1.1

#### Stock and Flow 2009 - 2013

<table>
<thead>
<tr>
<th>Country</th>
<th>Event</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total New Patients</td>
<td>2431 (112)</td>
<td>2335 (106)</td>
<td>2511 (112)</td>
<td>2573 (113)</td>
<td>2544 (110)</td>
</tr>
<tr>
<td></td>
<td>Total Transplants</td>
<td>773 (36)</td>
<td>846 (38)</td>
<td>825 (37)</td>
<td>845 (37)</td>
<td>882 (38)</td>
</tr>
<tr>
<td></td>
<td>- Living Donor Transplants</td>
<td>327</td>
<td>296</td>
<td>255</td>
<td>238</td>
<td>252</td>
</tr>
<tr>
<td></td>
<td>- Subsequent Transplants</td>
<td>99</td>
<td>102</td>
<td>81</td>
<td>98</td>
<td>94</td>
</tr>
<tr>
<td></td>
<td>Total Deaths</td>
<td>1693</td>
<td>1599</td>
<td>1733</td>
<td>1658</td>
<td>1743</td>
</tr>
<tr>
<td></td>
<td>- Dialysis Patients</td>
<td>1538</td>
<td>1414</td>
<td>1507</td>
<td>1485</td>
<td>1518</td>
</tr>
<tr>
<td></td>
<td>- Transplant Patients</td>
<td>155</td>
<td>185</td>
<td>226</td>
<td>173</td>
<td>225</td>
</tr>
<tr>
<td></td>
<td>Total Prevalent</td>
<td>18510 (853)</td>
<td>19212 (872)</td>
<td>19909 (891)</td>
<td>20742 (913)</td>
<td>21470 (928)</td>
</tr>
<tr>
<td></td>
<td>- Dialysis Patients</td>
<td>10468 (483)</td>
<td>10712 (486)</td>
<td>11054 (495)</td>
<td>11478 (505)</td>
<td>11774 (509)</td>
</tr>
<tr>
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<td>- Transplant Patients</td>
<td>8042 (371)</td>
<td>8500 (386)</td>
<td>8855 (396)</td>
<td>9264 (408)</td>
<td>9696 (419)</td>
</tr>
<tr>
<td></td>
<td>Total New Patients</td>
<td>584 (136)</td>
<td>515 (118)</td>
<td>487 (111)</td>
<td>517 (117)</td>
<td>546 (123)</td>
</tr>
<tr>
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<td>Total Transplants</td>
<td>121 (28)</td>
<td>110 (25)</td>
<td>118 (27)</td>
<td>108 (25)</td>
<td>115 (26)</td>
</tr>
<tr>
<td></td>
<td>- Living Donor Transplants</td>
<td>67</td>
<td>60</td>
<td>57</td>
<td>54</td>
<td>58</td>
</tr>
<tr>
<td></td>
<td>- Subsequent Transplants</td>
<td>12</td>
<td>6</td>
<td>8</td>
<td>9</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Total Deaths</td>
<td>365</td>
<td>354</td>
<td>413</td>
<td>392</td>
<td>373</td>
</tr>
<tr>
<td></td>
<td>- Dialysis Patients</td>
<td>331</td>
<td>319</td>
<td>369</td>
<td>361</td>
<td>342</td>
</tr>
<tr>
<td></td>
<td>- Transplant Patients</td>
<td>34</td>
<td>35</td>
<td>44</td>
<td>31</td>
<td>31</td>
</tr>
<tr>
<td></td>
<td>Total Prevalent</td>
<td>3688 (857)</td>
<td>3832 (881)</td>
<td>3878 (885)</td>
<td>3988 (905)</td>
<td>4156 (936)</td>
</tr>
<tr>
<td></td>
<td>- Dialysis Patients</td>
<td>2281 (530)</td>
<td>2388 (549)</td>
<td>2392 (546)</td>
<td>2467 (560)</td>
<td>2584 (582)</td>
</tr>
<tr>
<td></td>
<td>- Transplant Patients</td>
<td>1407 (327)</td>
<td>1444 (332)</td>
<td>1486 (339)</td>
<td>1521 (345)</td>
<td>1572 (354)</td>
</tr>
</tbody>
</table>
The total numbers of incident patients in Australia and New Zealand since the beginning of RRT are shown in figure 1.1. The flattening off of incidence in the last decade is apparent compared with the strong growth in the preceding decades.

Figure 1.2 presents these data another way, showing the numbers of new patients and change in each country over the last 30 years.

Table 1.3 shows the number of new patients (pmp) by state and country over 2009-2013. There is substantial variation in incidence rates between states, with the lowest rates in Tasmania (86 pmp in 2013) and the highest in the Northern Territory (351 pmp in 2013).
Table 1.3

<table>
<thead>
<tr>
<th>State</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>QLD</td>
<td>490 (113)</td>
<td>450 (102)</td>
<td>454 (101)</td>
<td>473 (104)</td>
<td>492 (106)</td>
</tr>
<tr>
<td>NSW</td>
<td>766 (109)</td>
<td>726 (102)</td>
<td>790 (109)</td>
<td>811 (111)</td>
<td>783 (106)</td>
</tr>
<tr>
<td>ACT</td>
<td>41 (116)</td>
<td>53 (147)</td>
<td>53 (144)</td>
<td>63 (168)</td>
<td>53 (139)</td>
</tr>
<tr>
<td>Vic</td>
<td>549 (102)</td>
<td>575 (105)</td>
<td>603 (109)</td>
<td>634 (113)</td>
<td>651 (113)</td>
</tr>
<tr>
<td>Tas</td>
<td>58 (115)</td>
<td>47 (92)</td>
<td>53 (104)</td>
<td>49 (96)</td>
<td>44 (86)</td>
</tr>
<tr>
<td>SA</td>
<td>207 (129)</td>
<td>182 (112)</td>
<td>184 (112)</td>
<td>203 (123)</td>
<td>165 (99)</td>
</tr>
<tr>
<td>NT</td>
<td>72 (319)</td>
<td>65 (283)</td>
<td>82 (355)</td>
<td>98 (415)</td>
<td>85 (351)</td>
</tr>
<tr>
<td>WA</td>
<td>248 (111)</td>
<td>237 (103)</td>
<td>292 (124)</td>
<td>242 (99)</td>
<td>271 (108)</td>
</tr>
<tr>
<td>Aust</td>
<td>2431 (112)</td>
<td>2335 (106)</td>
<td>2511 (112)</td>
<td>2573 (113)</td>
<td>2544 (110)</td>
</tr>
<tr>
<td>NZ</td>
<td>584 (136)</td>
<td>515 (118)</td>
<td>487 (111)</td>
<td>517 (117)</td>
<td>546 (123)</td>
</tr>
</tbody>
</table>

Figure 1.3 shows incidence rates by age group, and figure 1.4 shows them by age group and state; the bars represent 95% confidence intervals. Note the different y axes for each state.
Figure 1.4.1
New patients by age group
NT

Figure 1.4.2
New patients by age group
NSW

Figure 1.4.3
New patients by age group
VIC

Figure 1.4.4
New patients by age group
QLD

Figure 1.4.5
New patients by age group
SA

Figure 1.4.6
New patients by age group
WA
The rates in older patients are shown in table 1.4. Incidence rates for older patients tend to be lower in New Zealand than in Australia. Finally, table 1.5 further categorises the 2013 data by sex.

### Table 1.4

<table>
<thead>
<tr>
<th>Country</th>
<th>Age</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>60-64</td>
<td>271 (234)</td>
<td>280 (234)</td>
<td>294 (240)</td>
<td>317 (259)</td>
<td>320 (258)</td>
</tr>
<tr>
<td></td>
<td>65-69</td>
<td>288 (333)</td>
<td>255 (281)</td>
<td>293 (307)</td>
<td>294 (287)</td>
<td>316 (292)</td>
</tr>
<tr>
<td></td>
<td>70-74</td>
<td>302 (444)</td>
<td>291 (413)</td>
<td>278 (382)</td>
<td>294 (389)</td>
<td>304 (389)</td>
</tr>
<tr>
<td></td>
<td>75-79</td>
<td>297 (542)</td>
<td>271 (493)</td>
<td>301 (539)</td>
<td>259 (452)</td>
<td>262 (444)</td>
</tr>
<tr>
<td></td>
<td>80-84</td>
<td>169 (394)</td>
<td>156 (357)</td>
<td>163 (367)</td>
<td>189 (424)</td>
<td>190 (425)</td>
</tr>
<tr>
<td></td>
<td>85+</td>
<td>66 (179)</td>
<td>77 (199)</td>
<td>63 (156)</td>
<td>69 (164)</td>
<td>59 (135)</td>
</tr>
<tr>
<td>New Zealand</td>
<td>60-64</td>
<td>72 (325)</td>
<td>93 (402)</td>
<td>62 (260)</td>
<td>84 (351)</td>
<td>77 (319)</td>
</tr>
<tr>
<td></td>
<td>65-69</td>
<td>75 (438)</td>
<td>70 (398)</td>
<td>75 (416)</td>
<td>62 (324)</td>
<td>78 (379)</td>
</tr>
<tr>
<td></td>
<td>70-74</td>
<td>66 (511)</td>
<td>48 (354)</td>
<td>47 (327)</td>
<td>45 (298)</td>
<td>45 (292)</td>
</tr>
<tr>
<td></td>
<td>75-79</td>
<td>49 (472)</td>
<td>33 (317)</td>
<td>22 (211)</td>
<td>27 (254)</td>
<td>34 (311)</td>
</tr>
<tr>
<td></td>
<td>80-84</td>
<td>16 (204)</td>
<td>18 (227)</td>
<td>19 (234)</td>
<td>13 (159)</td>
<td>8 (97)</td>
</tr>
<tr>
<td></td>
<td>85+</td>
<td>4 (61)</td>
<td>3 (44)</td>
<td>5 (71)</td>
<td>1 (14)</td>
<td>4 (54)</td>
</tr>
</tbody>
</table>

### Table 1.5

<table>
<thead>
<tr>
<th>Country</th>
<th>Sex</th>
<th>0-4</th>
<th>5-14</th>
<th>15-24</th>
<th>25-34</th>
<th>35-44</th>
<th>45-54</th>
<th>55-64</th>
<th>65-74</th>
<th>75-84</th>
<th>85+</th>
<th>Total</th>
<th>Mean</th>
<th>Median</th>
</tr>
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<tbody>
<tr>
<td>Australia</td>
<td>F</td>
<td>5</td>
<td>9</td>
<td>31</td>
<td>44</td>
<td>80</td>
<td>175</td>
<td>245</td>
<td>227</td>
<td>157</td>
<td>25</td>
<td>998</td>
<td>59.2</td>
<td>61</td>
</tr>
<tr>
<td></td>
<td>M</td>
<td>11</td>
<td>13</td>
<td>37</td>
<td>77</td>
<td>114</td>
<td>229</td>
<td>343</td>
<td>393</td>
<td>295</td>
<td>34</td>
<td>1,546</td>
<td>60.4</td>
<td>63</td>
</tr>
<tr>
<td>New Zealand</td>
<td>F</td>
<td>1</td>
<td>2</td>
<td>4</td>
<td>10</td>
<td>28</td>
<td>44</td>
<td>61</td>
<td>58</td>
<td>18</td>
<td>1</td>
<td>227</td>
<td>56.6</td>
<td>58</td>
</tr>
<tr>
<td></td>
<td>M</td>
<td>0</td>
<td>1</td>
<td>6</td>
<td>22</td>
<td>30</td>
<td>75</td>
<td>93</td>
<td>65</td>
<td>24</td>
<td>3</td>
<td>319</td>
<td>56.3</td>
<td>57</td>
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</tbody>
</table>
Late Referral

The following figures and tables examine late referral, defined as <3 months between referral and RRT start. Figure 1.5 shows the overall proportion of new patients referred late in Australia and New Zealand over the last 10 years. There has been a steady decline in both countries. In 2013 18% of Australian and 15% of New Zealand new patients were referred late. Rates have fallen in each Australian state (figure 1.5.2) and in all age groups (figure 1.6), although the New Zealand data are subject to more variation due to low numbers.

Tables 1.6 and 1.7 show late referral rates for new patients over 2009-2013 by race and primary renal disease. Rates are similar amongst racial groups but vary substantially between primary renal disease categories; for example in Australia 9% of patients with polycystic kidney disease were referred late, compared with 34% of patients with “other” diseases.

Figure 1.5.1

Late referral rates
All incident patients 2004 - 2013

Figure 1.5.2

Late referral rates by state
Australia 2004 - 2013

Figure 1.6.1

Late referral rates by age
Australia 2004 - 2013

Figure 1.6.2

Late referral rates by age
New Zealand 2004 - 2013
### Table 1.6
Late Referral by Country and Race 2009 - 2013

<table>
<thead>
<tr>
<th>Country</th>
<th>Race</th>
<th>Late</th>
<th>Not late</th>
<th>Not reported</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>Caucasian</td>
<td>1899 (20%)</td>
<td>7309 (79%)</td>
<td>82 (1%)</td>
<td>9290</td>
</tr>
<tr>
<td></td>
<td>Aboriginal/TSI</td>
<td>276 (24%)</td>
<td>866 (74%)</td>
<td>30 (3%)</td>
<td>1172</td>
</tr>
<tr>
<td></td>
<td>Asian</td>
<td>244 (22%)</td>
<td>871 (78%)</td>
<td>8 (1%)</td>
<td>1123</td>
</tr>
<tr>
<td></td>
<td>Māori</td>
<td>35 (27%)</td>
<td>95 (73%)</td>
<td>0 (0%)</td>
<td>130</td>
</tr>
<tr>
<td></td>
<td>Pacific</td>
<td>69 (27%)</td>
<td>182 (72%)</td>
<td>2 (1%)</td>
<td>253</td>
</tr>
<tr>
<td></td>
<td>Other</td>
<td>79 (22%)</td>
<td>272 (75%)</td>
<td>13 (4%)</td>
<td>364</td>
</tr>
<tr>
<td></td>
<td>Not reported</td>
<td>6 (10%)</td>
<td>35 (56%)</td>
<td>21 (34%)</td>
<td>62</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>2608 (21%)</td>
<td>9630 (78%)</td>
<td>156 (1%)</td>
<td>12394</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Country</th>
<th>Race</th>
<th>Late</th>
<th>Not late</th>
<th>Not reported</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>New Zealand</td>
<td>Caucasian</td>
<td>169 (16%)</td>
<td>885 (84%)</td>
<td>4 (0%)</td>
<td>1058</td>
</tr>
<tr>
<td></td>
<td>Asian</td>
<td>29 (13%)</td>
<td>190 (87%)</td>
<td>0 (0%)</td>
<td>219</td>
</tr>
<tr>
<td></td>
<td>Māori</td>
<td>147 (18%)</td>
<td>663 (81%)</td>
<td>8 (1%)</td>
<td>818</td>
</tr>
<tr>
<td></td>
<td>Pacific</td>
<td>94 (18%)</td>
<td>415 (81%)</td>
<td>3 (1%)</td>
<td>512</td>
</tr>
<tr>
<td></td>
<td>Other</td>
<td>6 (18%)</td>
<td>28 (82%)</td>
<td>0 (0%)</td>
<td>34</td>
</tr>
<tr>
<td></td>
<td>Not reported</td>
<td>0 (0%)</td>
<td>7 (75%)</td>
<td>2 (25%)</td>
<td>8</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>445 (17%)</td>
<td>2187 (83%)</td>
<td>17 (1%)</td>
<td>2649</td>
</tr>
</tbody>
</table>

### Table 1.7
Late Referral by Country and Disease 2009 - 2013

<table>
<thead>
<tr>
<th>Country</th>
<th>Primary Renal Disease</th>
<th>Late</th>
<th>Not late</th>
<th>Not reported</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>GN</td>
<td>590 (22%)</td>
<td>2065 (77%)</td>
<td>24 (1%)</td>
<td>2679</td>
</tr>
<tr>
<td></td>
<td>Analgesic</td>
<td>32 (18%)</td>
<td>144 (81%)</td>
<td>2 (1%)</td>
<td>178</td>
</tr>
<tr>
<td></td>
<td>Polycystic</td>
<td>69 (9%)</td>
<td>705 (90%)</td>
<td>11 (1%)</td>
<td>785</td>
</tr>
<tr>
<td></td>
<td>Reflux</td>
<td>43 (14%)</td>
<td>265 (86%)</td>
<td>1 (0%)</td>
<td>309</td>
</tr>
<tr>
<td></td>
<td>Hypertension</td>
<td>351 (21%)</td>
<td>1351 (79%)</td>
<td>8 (0%)</td>
<td>1710</td>
</tr>
<tr>
<td></td>
<td>Diabetes</td>
<td>792 (18%)</td>
<td>3522 (81%)</td>
<td>33 (1%)</td>
<td>4347</td>
</tr>
<tr>
<td></td>
<td>Other</td>
<td>540 (34%)</td>
<td>1049 (65%)</td>
<td>20 (1%)</td>
<td>1609</td>
</tr>
<tr>
<td></td>
<td>Uncertain</td>
<td>180 (27%)</td>
<td>485 (72%)</td>
<td>5 (1%)</td>
<td>670</td>
</tr>
<tr>
<td></td>
<td>Not reported</td>
<td>11 (10%)</td>
<td>44 (41%)</td>
<td>52 (49%)</td>
<td>107</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>2608 (21%)</td>
<td>9630 (78%)</td>
<td>156 (1%)</td>
<td>12394</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Country</th>
<th>Primary Renal Disease</th>
<th>Late</th>
<th>Not late</th>
<th>Not reported</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>New Zealand</td>
<td>GN</td>
<td>113 (20%)</td>
<td>459 (80%)</td>
<td>3 (1%)</td>
<td>575</td>
</tr>
<tr>
<td></td>
<td>Analgesic</td>
<td>4 (27%)</td>
<td>11 (73%)</td>
<td>0 (0%)</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>Polycystic</td>
<td>6 (4%)</td>
<td>130 (94%)</td>
<td>3 (2%)</td>
<td>139</td>
</tr>
<tr>
<td></td>
<td>Reflux</td>
<td>7 (15%)</td>
<td>40 (85%)</td>
<td>0 (0%)</td>
<td>47</td>
</tr>
<tr>
<td></td>
<td>Hypertension</td>
<td>38 (14%)</td>
<td>231 (86%)</td>
<td>1 (0%)</td>
<td>270</td>
</tr>
<tr>
<td></td>
<td>Diabetes</td>
<td>175 (14%)</td>
<td>1081 (86%)</td>
<td>7 (1%)</td>
<td>1263</td>
</tr>
<tr>
<td></td>
<td>Other</td>
<td>78 (31%)</td>
<td>169 (68%)</td>
<td>1 (0%)</td>
<td>248</td>
</tr>
<tr>
<td></td>
<td>Uncertain</td>
<td>22 (26%)</td>
<td>62 (74%)</td>
<td>0 (0%)</td>
<td>84</td>
</tr>
<tr>
<td></td>
<td>Not reported</td>
<td>2 (25%)</td>
<td>4 (50%)</td>
<td>2 (25%)</td>
<td>8</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>445 (17%)</td>
<td>2187 (83%)</td>
<td>17 (1%)</td>
<td>2649</td>
</tr>
</tbody>
</table>
Co-morbidities

Tables 1.8-1.10 show the co-morbidities at RRT entry of new patients in 2013. Notably, patients who have never smoked are in the minority in both countries, and non-diabetics are in the minority in New Zealand. Trends in the prevalence of these co-morbidities at RRT entry are shown in figures 1.7-1.8, with the bars representing 95% confidence intervals. The last two years have seen a substantial fall in the number of patients reported as having coronary artery disease in both countries, and in Australia, peripheral vascular disease.

Table 1.8

<table>
<thead>
<tr>
<th>Country</th>
<th>Status at RRT entry</th>
<th>Coronary artery disease</th>
<th>Peripheral vascular disease</th>
<th>Cerebrovascular disease</th>
<th>Chronic lung disease</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>No</td>
<td>1646 (65%)</td>
<td>1991 (78%)</td>
<td>2258 (89%)</td>
<td>2149 (84%)</td>
</tr>
<tr>
<td></td>
<td>Suspected</td>
<td>141 (6%)</td>
<td>147 (6%)</td>
<td>42 (2%)</td>
<td>78 (3%)</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>757 (30%)</td>
<td>406 (16%)</td>
<td>244 (10%)</td>
<td>317 (12%)</td>
</tr>
<tr>
<td>New Zealand</td>
<td>No</td>
<td>381 (70%)</td>
<td>438 (80%)</td>
<td>481 (88%)</td>
<td>465 (85%)</td>
</tr>
<tr>
<td></td>
<td>Suspected</td>
<td>32 (6%)</td>
<td>23 (4%)</td>
<td>15 (3%)</td>
<td>22 (4%)</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>133 (24%)</td>
<td>85 (16%)</td>
<td>50 (9%)</td>
<td>59 (11%)</td>
</tr>
</tbody>
</table>

Table 1.9

<table>
<thead>
<tr>
<th>Country</th>
<th>Status at RRT entry</th>
<th>N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>Current</td>
<td>288 (11%)</td>
</tr>
<tr>
<td></td>
<td>Former</td>
<td>1007 (40%)</td>
</tr>
<tr>
<td></td>
<td>Never</td>
<td>1195 (47%)</td>
</tr>
<tr>
<td></td>
<td>Not reported</td>
<td>54 (2%)</td>
</tr>
<tr>
<td>New Zealand</td>
<td>Current</td>
<td>75 (14%)</td>
</tr>
<tr>
<td></td>
<td>Former</td>
<td>218 (40%)</td>
</tr>
<tr>
<td></td>
<td>Never</td>
<td>243 (45%)</td>
</tr>
<tr>
<td></td>
<td>Not reported</td>
<td>10 (2%)</td>
</tr>
</tbody>
</table>

Table 1.10

<table>
<thead>
<tr>
<th>Country</th>
<th>Diabetes at RRT entry</th>
<th>N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>No</td>
<td>1338 (53%)</td>
</tr>
<tr>
<td></td>
<td>Type 1</td>
<td>107 (4%)</td>
</tr>
<tr>
<td></td>
<td>Type 2</td>
<td>1099 (43%)</td>
</tr>
<tr>
<td>New Zealand</td>
<td>No</td>
<td>236 (43%)</td>
</tr>
<tr>
<td></td>
<td>Type 1</td>
<td>20 (4%)</td>
</tr>
<tr>
<td></td>
<td>Type 2</td>
<td>290 (53%)</td>
</tr>
</tbody>
</table>
Figure 1.7.1
Comorbid conditions at RRT entry
Australia

Figure 1.7.2
Comorbid conditions at RRT entry
New Zealand

Figure 1.8
Diabetes status at RRT entry

<table>
<thead>
<tr>
<th>Australia</th>
<th>New Zealand</th>
</tr>
</thead>
<tbody>
<tr>
<td>% of patients</td>
<td>% of patients</td>
</tr>
</tbody>
</table>

Non-diabetic  | Type 1 diabetes  | Type 2 diabetes |
Primary Renal Disease

The primary renal diseases of new patients over 2010-13 are shown in table 1.11. Diabetes continues to be the leading cause of ESKD in both countries, followed by glomerulonephritis (table 1.12). Analgesic nephropathy is now a rare cause of ESKD. The “other” causes from table 1.11 are shown in detail in table 1.13. There has been a trend towards missing data for primary disease in Australia; the Registry is actively seeking to address this problem.

Table 1.11

<table>
<thead>
<tr>
<th>Country</th>
<th>Primary Renal Disease</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Australia</td>
<td>New Zealand</td>
<td>Australia</td>
<td>New Zealand</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2010</td>
<td>2011</td>
<td>2012</td>
<td>2013</td>
</tr>
<tr>
<td>GN</td>
<td>501 (21%)</td>
<td>572 (23%)</td>
<td>522 (20%)</td>
<td>493 (19%)</td>
<td>111 (22%)</td>
</tr>
<tr>
<td>Analgesic</td>
<td>37 (2%)</td>
<td>33 (1%)</td>
<td>40 (2%)</td>
<td>26 (1%)</td>
<td>2 (0%)</td>
</tr>
<tr>
<td>Polycystic</td>
<td>166 (7%)</td>
<td>144 (6%)</td>
<td>137 (5%)</td>
<td>161 (6%)</td>
<td>18 (3%)</td>
</tr>
<tr>
<td>Reflux</td>
<td>60 (3%)</td>
<td>56 (2%)</td>
<td>65 (3%)</td>
<td>48 (2%)</td>
<td>8 (2%)</td>
</tr>
<tr>
<td>Hypertension</td>
<td>321 (14%)</td>
<td>363 (14%)</td>
<td>321 (12%)</td>
<td>359 (14%)</td>
<td>58 (11%)</td>
</tr>
<tr>
<td>Diabetes</td>
<td>830 (36%)</td>
<td>891 (35%)</td>
<td>956 (37%)</td>
<td>887 (35%)</td>
<td>260 (50%)</td>
</tr>
<tr>
<td>Other</td>
<td>289 (12%)</td>
<td>313 (12%)</td>
<td>375 (15%)</td>
<td>364 (14%)</td>
<td>41 (8%)</td>
</tr>
<tr>
<td>Uncertain</td>
<td>131 (6%)</td>
<td>134 (5%)</td>
<td>129 (5%)</td>
<td>132 (5%)</td>
<td>17 (3%)</td>
</tr>
<tr>
<td>Not reported</td>
<td>0 (0%)</td>
<td>5 (0%)</td>
<td>28 (1%)</td>
<td>74 (3%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>Total</td>
<td>2335</td>
<td>2511</td>
<td>2573</td>
<td>2544</td>
<td>515</td>
</tr>
</tbody>
</table>
Table 1.12

Glomerulonephritis as Cause of Primary Renal Disease in 2013

<table>
<thead>
<tr>
<th>Primary renal disease</th>
<th>Australia</th>
<th>New Zealand</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advanced GN (unclassified)</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Extra and intra capillary GN (rapidly progressive)</td>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td>Familial GN (including Alports)</td>
<td>10</td>
<td>2</td>
</tr>
<tr>
<td>Focal and segmental proliferative GN</td>
<td>16</td>
<td>13</td>
</tr>
<tr>
<td>Focal sclerosing GN (including hyalinosis)</td>
<td>23</td>
<td>5</td>
</tr>
<tr>
<td>GN other (specify)</td>
<td>12</td>
<td>0</td>
</tr>
<tr>
<td>GN with systemic disease</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Goodpasture’s with linear IgG and lung haemorrhage</td>
<td>12</td>
<td>4</td>
</tr>
<tr>
<td>Henoch-Schonlein purpura</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Membranous GN</td>
<td>22</td>
<td>3</td>
</tr>
<tr>
<td>Mesangial proliferative (IgA+)</td>
<td>131</td>
<td>23</td>
</tr>
<tr>
<td>Mesangial proliferative (IgA-)</td>
<td>10</td>
<td>2</td>
</tr>
<tr>
<td>Mesangial proliferative (no IF studies)</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Mesangiocapillary GN (double contour)</td>
<td>10</td>
<td>2</td>
</tr>
<tr>
<td>Microscopic polyarteritis</td>
<td>9</td>
<td>1</td>
</tr>
<tr>
<td>Presumed GN (no biopsy)</td>
<td>129</td>
<td>28</td>
</tr>
<tr>
<td>Primary focal sclerosing GN/focal glomerular sclerosis</td>
<td>47</td>
<td>13</td>
</tr>
<tr>
<td>Proliferative GN with linear IgG and no lung haemorrhage</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>S.L.E.</td>
<td>17</td>
<td>5</td>
</tr>
<tr>
<td>Scleroderma</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>Secondary focal sclerosing GN</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Wegener’s granulomatosis</td>
<td>19</td>
<td>4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>493</strong></td>
<td><strong>118</strong></td>
</tr>
</tbody>
</table>
### Table 1.13

**Miscellaneous Primary Renal Diseases in 2013**

<table>
<thead>
<tr>
<th>Primary renal disease</th>
<th>Australia</th>
<th>New Zealand</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calcineurin inhibitor toxicity</td>
<td>12</td>
<td>0</td>
</tr>
<tr>
<td>Cystinosis</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Gout</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Interstitial nephritis</td>
<td>42</td>
<td>4</td>
</tr>
<tr>
<td>Lead nephropathy</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Lithium toxicity</td>
<td>15</td>
<td>2</td>
</tr>
<tr>
<td>Loss of single kidney (trauma/surgery)</td>
<td>14</td>
<td>4</td>
</tr>
<tr>
<td>Oxalosis</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Post partum nephropathy</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Pyelonephritis</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>Renal tuberculosis</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Sarcoidosis</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Bladder neck obstruction (incl. prostatomegaly)</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Congenital renal hypoplasia and dysplasia</td>
<td>28</td>
<td>2</td>
</tr>
<tr>
<td>Neuropathic bladder</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Obstructed megaureter</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Obstructive nephropathy</td>
<td>24</td>
<td>3</td>
</tr>
<tr>
<td>Other lower urinary tract abnormalities (with secondary reflux)</td>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td>Pelvi-ureteric junction obstruction</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Posterior urethral valves</td>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td>Spina bifida or myelomeningocele</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Ureteric obstructive nephropathy</td>
<td>12</td>
<td>3</td>
</tr>
<tr>
<td>Calculi</td>
<td>15</td>
<td>5</td>
</tr>
<tr>
<td>Medullary cystic disease</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Cortical necrosis</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Haemolytic uraemic syndrome</td>
<td>9</td>
<td>2</td>
</tr>
<tr>
<td>Amyloid disease</td>
<td>25</td>
<td>6</td>
</tr>
<tr>
<td>Light chain nephropathy (not malignant)</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Paraproteinaemia (Including Multiple Myeloma)</td>
<td>38</td>
<td>3</td>
</tr>
<tr>
<td>Renal cell carcinoma (Grawitz)</td>
<td>16</td>
<td>2</td>
</tr>
<tr>
<td>Transitional cell carcinoma urinary tract</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Other (Specify)</td>
<td>60</td>
<td>5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>364</strong></td>
<td><strong>53</strong></td>
</tr>
</tbody>
</table>
Biopsy rates for primary renal disease are essentially stable in both countries (figure 1.9); the bars show 95% confidence intervals.

**Figure 1.9.1**

Biopsy rates

Australia

**Figure 1.9.2**

Biopsy rates

New Zealand

**Timing of RRT Start**

The median eGFR at RRT start over time is shown in figure 1.10. In Australia there was a slight trend towards earlier initiation of RRT until 2009; since then the median eGFR has stabilised, and was 7.2mL/min/1.73m² in 2013. In New Zealand timing of RRT hasn’t changed in the last 10 years, with a median eGFR at RRT start of 6.3mL/min/1.73m² in 2013.

**Figure 1.10.1**

eGFR at RRT start

Australia

**Figure 1.10.2**

eGFR at RRT start

New Zealand
Suggested Citation:

ANZDATA Registry
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East Wing 9th Floor
North Terrace, Adelaide
South Australia
Australia

www.anzdata.org.au