Chronic Kidney Disease and Health Care Utilisation: insights from health data linkage in Queensland

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Aim
To describe early findings from the linkage of data on patients identified to have chronic kidney disease [CKD], with patient-specific hospital utilisation data in Queensland.

Background
Little is known about healthcare resource consumption occasioned by pre-terminal CKD. The Surveillance and Health Economics Streams of the NHMRC CKD.CRE have partnered with the Queensland Department of Health [QH], to link a large number of people with CKD who are patients in the public renal specialty practices of QH and who are recruited to the CKD.QLD Registry to their health service utilisation.

Methods
The linked data include detailed information on hospital admissions, treatment and discharge from the Queensland Hospital Admitted Patient Data Collection, deaths from the Registry of Deaths, and costs from Queensland Clinical Costing.

Results
The first tranche of data has been delivered. It includes 4,013 patients from 3 major HHS settings in south east Queensland.

Among those 4,013 patients, 86.5% had at least one hospital separation. There were a total of 63,007 separations in all. Amongst those separations, 35,079 [55.7%] were for dialysis in patients who developed terminal kidney failure [n=336, 8.4%] at various intervals after their enrolment in the CKD.QLD Registry.

Discussion
These results are summarised in Table 1 and Figures 1 and 2.

Table 1: Patient distribution across the three main sites [data tranche one].

<table>
<thead>
<tr>
<th>Site</th>
<th>Total patients per site</th>
<th>Total number of patients admitted ≥ once</th>
<th>% of patients admitted ≥ once</th>
<th>% of patients with ≥ 2 dialysis separations</th>
<th>% of patients with ≥ 1 dialysis separations</th>
<th># of separations excluding dialysis</th>
<th>% of dialysis separations of all separations</th>
</tr>
</thead>
<tbody>
<tr>
<td>RBWH</td>
<td>1,638</td>
<td>1,144</td>
<td>88.2%</td>
<td>115 [7%]</td>
<td>28,062</td>
<td>15,569 [55.5%]</td>
<td></td>
</tr>
<tr>
<td>Toowoomba</td>
<td>1,034</td>
<td>864</td>
<td>83.6%</td>
<td>85 [8.2%]</td>
<td>19,565</td>
<td>10,811 [55.3%]</td>
<td></td>
</tr>
<tr>
<td>Logan</td>
<td>1,341</td>
<td>1,162</td>
<td>86.7%</td>
<td>136 [10.1%]</td>
<td>15,380</td>
<td>8,698 [56.6%]</td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td>4,013</td>
<td>3,470</td>
<td>86.5%</td>
<td>336 [8.4%]</td>
<td>63,007</td>
<td>35,079 [55.7%]</td>
<td></td>
</tr>
</tbody>
</table>

Figure 1 shows the number of separations by site, in total, and separately for just dialysis and again for separations that excluded dialysis.

Figure 2 shows the geometric mean of length of stay by site for dialysis separations only, for all separations including dialysis, and for separations excluding those for dialysis.

Conclusions
- Administrative health sector datasets allow important quality and auditing functions but are under-used for research purposes, especially in CKD.
- This is the first glimpse into hospital service utilisation by patients with CKD in Australia. These, and our extended findings, are likely to attract national and international interest.
- This platform will enable the development of population models of CKD to estimate and predict future health service demands and outcomes under a range of different treatment protocols and triage options.

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