Dialysis outcome measures

Effective dialysis reduces the risk of long-term dialysis patients developing bone and mineral disorders, anaemia and inadequate nutrition. Pathology markers aligned to the Dialysis Outcomes and Practice Patterns Study (DOPPS) – a leading source of international benchmarking data for dialysis treatment – are used to measure National Renal Care’s dialysis outcomes.

National Renal Care outcomes

National Renal Care compares favourably to the DOPPS benchmark for albumin and phosphates, and shows a marginal decline in the management of bone and mineral disease and anaemia. The declines are due to an inconsistent supply of erythropoietin, used in the management of anaemia, and the persistent lack of availability and affordability of phosphate binders, which results in patients having to use a calcium carbonate phosphate binder.

National Renal Care continues to be a clinical leader in dialysis treatment in SA, achieving a 79.1% score from the Discovery Health Kidney Care programme – 0.1% above industry average and a 0.8% improvement compared to 2018. Thirty-five National Renal Care units achieved a score greater than industry average.

<table>
<thead>
<tr>
<th>Dialysis outcome measures (higher score is better)</th>
<th>DOPPS</th>
<th>2019</th>
<th>2018</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calcium (bone and mineral disorders)</td>
<td>61.0%</td>
<td>67.6%</td>
<td>68.5%</td>
<td>67.1%</td>
</tr>
<tr>
<td>Phosphates (bone and mineral disorders)</td>
<td>46.0%</td>
<td>47.7%</td>
<td>48.8%</td>
<td>48.0%</td>
</tr>
<tr>
<td>Haemoglobin (anaemia)</td>
<td>62.0%</td>
<td>52.6%</td>
<td>53.0%</td>
<td>52.8%</td>
</tr>
<tr>
<td>Albumin (nutritional insufficiency)</td>
<td>84.8%</td>
<td>85.3%</td>
<td>85.6%</td>
<td>83.2%</td>
</tr>
</tbody>
</table>

Measure definition: the percentage of patients with pathology results that are in the recommended range as defined by the 2017 DOPPS benchmark.

Patient reported outcomes

A patient’s view of their health status.

Patient reported outcomes are measures that ask patients about the limitations they experience as a result of their condition. Their answers are recorded without anyone else’s interpretation. PROMs give patients a voice that is heard, quantified and compared to normative data in a large variety of domains such as physical function, pain, depression, anxiety and fatigue16.

Patients on chronic dialysis

The Short Form-36 Health Related Quality of Life survey (SF-36 HRQoL) is a PROM used to assess the physical, psychological and social functioning of chronic dialysis patients. The physical component measures the extent to which their health limits physical activities such as self-care, walking, and moderate and vigorous activities. The mental component measures depression, behavioural/emotional control, anxiety and feelings of belonging17.

National Renal Care outcomes

National Renal Care’s results deteriorated slightly in 2019 but remain above the DOPPS benchmark18 for the physical component and on par with the benchmark for the mental component. In response, National Renal Care is conducting a ‘what matters most to you’ campaign, which will inform improvement strategies, and continues to explore new PROM methodologies to co-create a person-centred participative dialysis environment.

<table>
<thead>
<tr>
<th>Chronic dialysis patient reported outcomes (higher score is better)</th>
<th>DOPPS</th>
<th>2019</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical component summary (% patients in the DOPPS recommended range)</td>
<td>51.5%</td>
<td>66.7%</td>
<td>67.9%</td>
</tr>
<tr>
<td>Mental component summary (% patients in the DOPPS recommended range)</td>
<td>89.7%</td>
<td>87.2%</td>
<td>88.2%</td>
</tr>
</tbody>
</table>

Measure definition: the percentage of patients who are in the DOPPS recommended range for the mental and physical composite scores calculated from the SF-36 HRQoL PROM.

17. Source: Hays et al., 1993; Lopes et al., 2007; Nissenson and Fine, 2008; Fructuoso et al., 2011.
18. Website: www.dopps.org
Patients with mental disorders

The majority of patients admitted to an Akeso Clinic suffer from some form of depressive mood disorder or condition. PROM questionnaires are completed on admission and discharge, and include:

- The Patient Health Questionnaire\textsuperscript{19} (PHQ-9) to measure the severity of depression.
- The DSM-5\textsuperscript{20} Self-Rated Level 1 Cross-Cutting Symptom Measure\textsuperscript{21} to measure a patient's symptom burden.
- The WHO Disability Assessment Scale 2.0\textsuperscript{22} to measure the level of disability.

**Akeso Clinics outcomes**

The graphs below plot the distribution of the PHQ-9 score for 7,455 patients on their admission and discharge, with higher scores on the horizontal axes showing more severe depression. The graph on the right shows a marked shift to the left (or lower scores) for patients at discharge, indicating a significant improvement in the severity of their depression.

![Graph showing PHQ-9 score distribution](image)

Patients are admitted to Akeso Clinics because of the severity of their symptoms (symptom burden) and the impact of their mental illness on their level of functioning in their day-to-day lives (level of disability). Patient reported outcome measures (PROMs) are used to give these patients a voice that quantifies their symptom burden and level of disability and can be used by patient and clinician to track change over time. PROMs are completed on admission to quantify the severity of their symptoms and disability and are repeated on discharge to assess their progress towards recovery. Using the American Psychiatric Association publication guidelines, the table below shows the significance of the clinical improvement achieved and sustained by Akeso Clinics, namely reducing patient symptom severity and increasing level of functioning from admission to discharge.

<table>
<thead>
<tr>
<th>Akeso Clinics admitted patient reported outcomes (higher score is better)</th>
<th>Large improvement threshold\textsuperscript{23} 2019</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Symptom burden ((A_w) effect size)</td>
<td>0.71</td>
<td>0.875</td>
</tr>
<tr>
<td>Level of disability ((A_w) effect size)</td>
<td>0.71</td>
<td>0.737</td>
</tr>
</tbody>
</table>

Measure definition: the non-parametric common language estimator (\(A_w\)) for effect size\textsuperscript{24} and Cliff's Confidence Intervals\textsuperscript{25}. An \(A_w\) effect size of greater than 0.71\textsuperscript{26} indicates a large improvement.

\textsuperscript{19} Website: http://www.cqaimh.org/pdf/tool_phq9.pdf.
\textsuperscript{21} Website: https://www.psychiatry.org/psychiatrists/practice/dsm/educational-resources/assessment-measures.
\textsuperscript{22} Website: https://www.who.int/classifications/icfwhodasii/en/index3.html.