Severe Lower Respiratory Tract Infection in Early Infancy and Pneumonia Hospitalizations among Children, Kenya

Technical Appendix

Technical Appendix Table 1. Number and crude incidence rates per 1,000 child-years of various diagnoses by study group for readmission to Kilifi District Hospital, coastal Kenya

<table>
<thead>
<tr>
<th>Diagnoses</th>
<th>RSV LRTI cyo = 1,781.93</th>
<th>Other-LRTI cyo = 3,693.78</th>
<th>Non-LRTI cyo = 3,550.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>Inc</td>
<td>N</td>
<td>Inc</td>
</tr>
<tr>
<td>All-cause readmission</td>
<td>231</td>
<td>129.6</td>
<td>419</td>
</tr>
<tr>
<td>Pneumonia</td>
<td>131</td>
<td>73.5</td>
<td>228</td>
</tr>
<tr>
<td>Pneumonia with wheeze</td>
<td>36</td>
<td>20.2</td>
<td>44</td>
</tr>
<tr>
<td>All-cause mortality</td>
<td>8</td>
<td>4.5</td>
<td>45</td>
</tr>
<tr>
<td>Malaria (blood slide positive)</td>
<td>23</td>
<td>12.9</td>
<td>83</td>
</tr>
<tr>
<td>Gastroenteritis</td>
<td>45</td>
<td>25.3</td>
<td>72</td>
</tr>
<tr>
<td>Malnutrition</td>
<td>9</td>
<td>5.1</td>
<td>17</td>
</tr>
<tr>
<td>Bacteraemia</td>
<td>8</td>
<td>4.5</td>
<td>11</td>
</tr>
<tr>
<td>Otitis media</td>
<td>2</td>
<td>1.1</td>
<td>7</td>
</tr>
<tr>
<td>Anaemia</td>
<td>12</td>
<td>6.7</td>
<td>26</td>
</tr>
<tr>
<td>Fits</td>
<td>19</td>
<td>10.7</td>
<td>47</td>
</tr>
<tr>
<td>Others</td>
<td>48</td>
<td>26.9</td>
<td>106</td>
</tr>
</tbody>
</table>

*cyo, child-years of observation; N, number of admissions; Inc, crude incidence rates per 1,000 cyo.

Technical Appendix Table 2. Univariate Poisson regression analysis of risk factors for readmission with pneumonia, pneumonia with wheeze and all-cause mortality*

<table>
<thead>
<tr>
<th>Risk factors†</th>
<th>Baseline category</th>
<th>Pneumonia‡</th>
<th>Pneumonia + wheeze§</th>
<th>All-cause mortality</th>
</tr>
</thead>
<tbody>
<tr>
<td>RSV LRTI</td>
<td>Non-LRTI group</td>
<td>2.19 (1.57–3.06)</td>
<td>5.52 (2.80–10.85)</td>
<td>0.40 (0.19–0.85)</td>
</tr>
<tr>
<td>Other LRTI</td>
<td></td>
<td>1.84 (1.40–2.42)</td>
<td>3.18 (1.68–6.03)</td>
<td>1.08 (0.70–1.66)</td>
</tr>
<tr>
<td>Male gender</td>
<td>Female</td>
<td>1.03 (0.81–1.32)</td>
<td>1.33 (0.82–2.15)</td>
<td>1.35 (0.89–2.06)</td>
</tr>
<tr>
<td>Age at first admission &gt;3m</td>
<td>≤3 months</td>
<td>0.85 (0.67–1.08)</td>
<td>1.31 (0.80–2.14)</td>
<td>0.74 (0.49–1.11)</td>
</tr>
<tr>
<td>Hospital stay, more than 7 days</td>
<td>≤7 days</td>
<td>1.23 (0.83–1.81)</td>
<td>1.25 (0.56–2.78)</td>
<td>2.75 (1.75–4.33)</td>
</tr>
<tr>
<td>Locations with good access to hospital</td>
<td>Poorly accessible locations</td>
<td>0.77 (0.60–1.00)</td>
<td>0.53 (0.32–0.89)</td>
<td>1.73 (1.15–2.62)</td>
</tr>
<tr>
<td>Admission to HDU</td>
<td>Not admitted in HDU</td>
<td>0.49 (0.28–0.86)</td>
<td>0.33 (0.08–1.35)</td>
<td>1.81 (0.93–3.52)</td>
</tr>
<tr>
<td>Low O₂ saturation (hypoxia)</td>
<td>&gt;90% at first admission</td>
<td>1.20 (0.65–2.21)</td>
<td>1.16 (0.40–3.35)</td>
<td>1.57 (0.76–3.26)</td>
</tr>
<tr>
<td>Readmitted during RSV epidemic</td>
<td>Outside RSV epidemic</td>
<td>1.25 (1.04–1.50)</td>
<td>1.33 (0.89–1.98)</td>
<td>1.87 (1.22–2.88)</td>
</tr>
<tr>
<td>Age group (mo) at follow-up</td>
<td>12–23 m</td>
<td>0.51 (0.42–0.63)</td>
<td>0.51 (0.33–0.79)</td>
<td>0.25 (0.15–0.41)</td>
</tr>
<tr>
<td>24–35 m</td>
<td>0.19 (0.14–0.27)</td>
<td>0.29 (0.14–0.59)</td>
<td>0.09 (0.04–0.22)</td>
<td></td>
</tr>
<tr>
<td>36–59 m</td>
<td>0.05 (0.03–0.08)</td>
<td>0.05 (0.01–0.23)</td>
<td>0.09 (0.05–0.18)</td>
<td></td>
</tr>
<tr>
<td>Had ≥1 non-LRTI readmissions</td>
<td>Never had a non-LRTI admission</td>
<td>1.84 (1.43–2.37)</td>
<td>1.53 (0.92–2.55)</td>
<td>1.74 (1.13–2.70)</td>
</tr>
<tr>
<td>Readmission time Jan–Dec</td>
<td>0.92 (0.76–1.11)</td>
<td>0.86 (0.58–1.27)</td>
<td>0.51 (0.33–0.79)</td>
<td></td>
</tr>
</tbody>
</table>

*IRR, incidence rate ratio; RSV, respiratory syncytial virus; LRTI, lower respiratory tract infection; HDU, high dependency unit.
†Risk factors refer to state at the time of first admission except the last 4 (RSV epidemic, age group, occurrence of one or more non-LRTI admissions, and readmission time), which refer to events during follow up period.
‡Pneumonia as defined in the main text.
§Pneumonia with concurrent wheezing. IRRs (95% CI) for readmission with pneumonia, pneumonia with wheeze, and all-cause mortality comparing RSV LRTI vs. other LRTI group are 1.19 (0.88–1.61), 1.74 (1.02–2.94), and 0.37 (0.17–0.78), respectively.
Technical Appendix Figure. Incidence rates of readmission with pneumonia over follow up time by the 3 study groups.