Drivers of health burden and health expenditure; Options to arrest respiratory Infections in Kenya

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Key Messages

- Respiratory infections are the leading cause of morbidity in Kenya especially for Children under 5 years of age.
- Many compounding risk factors account for high burden especially in low-income areas.
- Funding to respiratory infections prevention is very low. Funding for curative services is significant yet does not match the burden.
- There is need to direct more resources to prevention and treatment of respiratory infections.

Context /Background

Respiratory infections consist of a wide range of disorders affecting the pulmonary system that are either chronic or infectious in nature which can affect the upper or lower respiratory systems. Upper respiratory tract infections include tonsillitis, pharyngitis, the flu and the common cold while lower respiratory infections include pneumonia, bronchitis and tuberculosis. Most upper respiratory infections are caused by viruses and mostly transmitted via contact, droplets or aerosols. On the other hand, lower respiratory infections may be caused by both viruses for example, severe flu, or bacterial infections as in the case of tuberculosis.

Respiratory infections contribute to a significant burden of disease (both mortality and morbidity) in Kenya and have been the leading cause of outpatient visits for both children under 5 years and persons over 5 years in the last 3 years 2016/17 to 2018/19. Urban low-income settings such as slums record disproportionately high child mortality rates in comparison to formal settings with Pneumonia, diarrheal diseases and stillbirths being the leading contributors of child mortality (about 60% of under-five child mortality). A survey done in Nairobi slums documented that a quarter of all children under 5 years had been severely sick during the two weeks preceding the survey. Two of every three of these children had pneumonia as the cause of illness.

Respiratory infections are caused by multiple risk factors. The most prevalent include poor quality air secondary to environmental pollution; poor living conditions; unsafe fuels and poorly aerated households. Poor personal hygiene including hand washing, cough hygiene among others; poverty

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and poor health knowledge on risk factors such as appropriate dressing and quality of clothes, particularly for children.

Many respiratory infections can be controlled and/or reduced by appropriate prevention strategies such as use of safe fuels at household levels, proper dressing especially in cold weather particularly for children and control of environmental and air pollution. In addition, vaccination for example Pneumococcal can reduce burden of pneumonia, where available. However, the coverage for this vaccine remains low and it has not been incorporated into the National immunization program.

Currently, most resources used in management of respiratory infections go towards curative rather than preventative strategies. Although health promotion and environmental safety form a part of the health system, the health sector does not have organized structures to mitigate and control specific risk factors for respiratory infections. In addition, despite the significant burden of these diseases, the health sector strategic plan does not prioritize respiratory infections among its priority objectives. Consequently, no deliberate indicators on respiratory infections that are routinely monitored as part of the strategic plans. This poses a risk of lack of prioritization of funding for these infections.

**Methodology**

This policy brief was informed by findings from the National Health Accounts (NHA) 2016/17 to 2018/19, as well as evidence from other health sector documents that assessed health sector performance. Publications on access to health services were also used to collaborate the findings. The Kenya National Health Accounts (NHA) estimation was undertaken in order to track the flow of funds to the health sector.

**Findings**

**Burden of respiratory infections**

Respiratory infections contributed to just below half (43%) of outpatient visits among children under 5 in 2018/19 financial year, having increased from 36% in 2016/17. For persons over 5 years, respiratory infections accounted for slightly over a quarter (26%) in the 2018/19 financial year and decreased slightly (from and 28%) in 2016/17. This represents an increase of 20% among children and a decrease of 7% for persons over five years old (table 1).

### Table 1: Proportion of Respiratory infections among topten OPD diagnoses, 2016/2017 to 2018/2019

<table>
<thead>
<tr>
<th>Disease/Rank</th>
<th>For children &lt; 5 years</th>
<th></th>
<th></th>
<th></th>
<th>% change</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2016/2017 (% of total cases)</td>
<td>2017/2018 (% of total cases)</td>
<td>2018/2019 (% of total cases)</td>
<td>% change</td>
<td></td>
</tr>
<tr>
<td>Upper Respiratory</td>
<td>30.8</td>
<td>31.2</td>
<td>31.2</td>
<td>1%</td>
<td></td>
</tr>
<tr>
<td>Other Dis. Of Respiratory System</td>
<td>--</td>
<td>7.5</td>
<td>6.1</td>
<td>-19%</td>
<td></td>
</tr>
<tr>
<td>Pneumonia</td>
<td>3.1</td>
<td>3.3</td>
<td>3.2</td>
<td>3%</td>
<td></td>
</tr>
<tr>
<td>Tonsilitis</td>
<td>1.7</td>
<td>2.2</td>
<td>2.3</td>
<td>35%</td>
<td></td>
</tr>
<tr>
<td>Total Under 5</td>
<td>35.6</td>
<td>44.2</td>
<td>42.8</td>
<td>20%</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Disease/Rank</th>
<th>For persons above 5 years</th>
<th></th>
<th></th>
<th></th>
<th>% change</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2016/2017 (% of total cases)</td>
<td>2017/2018 (% of total cases)</td>
<td>2018/2019 (% of total cases)</td>
<td>% change</td>
<td></td>
</tr>
<tr>
<td>Upper Respiratory</td>
<td>19.1</td>
<td>20.7</td>
<td>19.2</td>
<td>1%</td>
<td></td>
</tr>
<tr>
<td>Other Dis. Of Respiratory System</td>
<td>6.4</td>
<td>5.6</td>
<td>4.5</td>
<td>-30%</td>
<td></td>
</tr>
<tr>
<td>Pneumonia</td>
<td>2</td>
<td>2.1</td>
<td>2</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>Total above 5</td>
<td>27.5</td>
<td>28.4</td>
<td>25.7</td>
<td>-7%</td>
<td></td>
</tr>
</tbody>
</table>

Source, KHSSP MTR 2020
Financing respiratory infections

Respiratory infections took up 12.8 percent of total health expenditure (THE). It has remained relatively constant over the years assessed, and was ranked third overall after HIV/AIDS and Reproductive Health. Total health expenditure for respiratory infections increased by 18% between 2016/17 and 2018/19 from 54 billion USD to 63.7 billion USD (Figure 1).

Figure 1: Distribution of THE by Diseases/Conditions, 2016/17 to 2018/19

As in Figure 2, Governments contributed the highest proportion of expenditure at 54%, 59% and 53% in 2016/17, 2017/18 and 2018/19 respectively. Households were second, contributing slightly over a third of revenues for respiratory infections during each of the three years assessed.

Figure 2: Institutional Units Providing Revenues for Financing Schemes, CHE

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Figure 3: Trends in Expenditure on Respiratory Infections against disease burden
Proportion of total expenditure in respiratory infections has remained relatively constant over time, from 14.8% to 15.2% despite an increase in the burden of these diseases, particularly among children under 5 years of age from 35.6% to 42.8%.

**Table 2: Institutional Units Providing Revenues for Financing Schemes, CHEResp**

<table>
<thead>
<tr>
<th>FSRI</th>
<th>2016/17</th>
<th>2017/18</th>
<th>2018/19</th>
<th>% Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Government</td>
<td>26,177,471,912</td>
<td>27,424,397,032</td>
<td>30,168,553,368</td>
<td>15.2%</td>
</tr>
<tr>
<td>Corporations</td>
<td>5,617,384,137</td>
<td>1,781,507,678</td>
<td>5,716,401,917</td>
<td>1.8%</td>
</tr>
<tr>
<td>Households</td>
<td>17,064,755,626</td>
<td>17,444,534,268</td>
<td>20,362,198,401</td>
<td>19.3%</td>
</tr>
<tr>
<td>Rest of the world</td>
<td>-</td>
<td>676,705</td>
<td>153,361,250</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>48,859,611,676</strong></td>
<td><strong>46,651,115,683</strong></td>
<td><strong>56,400,514,936</strong></td>
<td><strong>15.4%</strong></td>
</tr>
</tbody>
</table>

In absolute amounts, financing from Government and households has increased over the period under review (from 26 billion to 30 billion USD, and 17 billion to 20 billion USD respectively), while contribution by development partners has been insignificant over the review period.

**Figure 4: Healthcare Financing Schemes for CHEResp, 2016/17 to 2018/19**

Most expenditures on respiratory infections were contributed through County Government schemes (43% in 2018/19) while out of pocket accounted for a third of schemes through which financing respiratory infections were financed (Figure 4).

**Figure 5: Healthcare Functions for CHEResp, 2016/17 to 2018/19**

About a half of all expenditures in respiratory diseases were for outpatient services in Government facilities while inpatient care accounted for a quarter of resources used in respiratory infections (Figure 5).
Discussion

These findings indicate an increase in respiratory infection burden, specifically for children under 5 years of age, that is not accompanied by increased investment to manage, prevent and control these diseases. Most financing for respiratory infections has over the years been provided by the Government through free or subsidized services in public facilities. Households also cater for a significant proportion of respiratory infections budgets through out-of-pocket payments, risking impoverishment. These resources support curative services almost entirely with no clear deliberate mechanisms to control and or eliminate these diseases.

The is therefore a need to prioritize respiratory infections by increasing budgetary support from both Government and donors. Currently, such funding would need to support curative services to ease the burden on households. Additionally, investments in preventative strategies are urgently needed particularly as regards control of risk factors. As most of these cut across other sectors such as water and sanitation, environment, these strategies would need a multi-sectoral approach to prevent and control these diseases. Scale up of vaccinations against pneumonia is an additional low hanging fruit that can result in significant gains in control of pneumonia especially in children.

Recommendations

- Increase Government financing for respiratory diseases proportionate to increase in disease burden.
- Scale up Pneumococcal vaccination
- Establish or strengthen multi-sectoral approaches to control risk factors including;
  - Control air pollution through better infrastructure, controlled/organized urban settlements and controlled emissions by industries and motorized transport systems.
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  - Control air pollution through better infrastructure, controlled/organized urban settlements and controlled emissions by industries and motorized transport systems.
  - Reduce household pollution through increased access to safe household fuels and control of unsafe fuels
  - Scale up budgetary support to health promotion and health education with a view to encourage clean environments particularly in low income neighborhoods, appropriate dressing for children to match weather.

References