Introduction

Respiratory syncytial virus (RSV) is the most common viral agent causing severe acute respiratory infections (ARIs) in infants and young children worldwide. Respiratory infections of viral origin have been associated with multiple complications in the short, medium and long term, the clinical manifestations and their frequency of presentation are influenced by age.

Of particular importance are bronchiolitis in children under 2 years of age, in addition, the risk on the possibility of hospital admission, the need for mechanical ventilation and admission to an intensive care unit has a relationship that responds to; lower age-higher rate of hospitalizations and this risk increases in children with birth less than 37 weeks of gestational age, with congenital heart disease and heart defects, infants with chronic lung disease or bronchopulmonary dysplasia.

Objective: The aim was to perform a burden of the disease study that quantifies direct and indirect medical costs in pediatric patients under 2 years of age diagnosed with a Respiratory Syncytial Virus infection (RSV) and risk factors from the perspective of Mexico's public health institutions.

Methods

In order to quantify the resource use in the management of the objective population and epidemiological parameters, an expert panel was performed following the Dephi’s Panel methodology. Seven specialists from different public health institutions participated. The resource use considered direct complications in the short, medium and long term, the clinical manifestations and their frequency of presentation are influenced by age.

For resource quantification we considered three complications in RSV infection: addition, the risk on the possibility of hospital admission, the need for mechanical ventilation and admission to an intensive care unit that responds to; lower age-higher rate of hospitalizations and this risk increases in children with birth less than 37 weeks of gestational age, with congenital heart disease and heart defects, infants with chronic lung disease or bronchopulmonary dysplasia.

For indirect costs, days of absenteeism from work were identified for the main caregivers: father, mother or both, an acquaintance or family member who is economically active. To assign a weighted value to the day of work absenteeism, the percentage distribution of the type of caregiver according to the severity of the complication was considered.

Results

The annual cost of RSV infections was estimated by severity and complication between (USD) $691.25 to $3,677.91 for URTIs, $247.83 to $10,508.66 for bronchiolitis and $453.33 to $18,128.08 for pneumonia. Mild complications presented the greatest contribution of indirect costs, with a percentage of 25% to 30% with 3 to 5 days of work absenteeism.

<table>
<thead>
<tr>
<th>Severity/complication</th>
<th>URTIs</th>
<th>Bronchiolitis</th>
<th>Pneumonia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mild</td>
<td>$691.25</td>
<td>$247.83</td>
<td>$453.33</td>
</tr>
<tr>
<td>Moderate</td>
<td>$4,066.21</td>
<td>$6,741.64</td>
<td>$13,253.26</td>
</tr>
<tr>
<td>Severe</td>
<td>$3,677.91</td>
<td>$10,508.66</td>
<td>$18,128.08</td>
</tr>
</tbody>
</table>

It is observed that the grade and condition that presents the highest cost is for pneumonia in the severe grade, much higher than the cost of bronchiolitis in the mild stage. Figure 1 shows the percentages related to the costs for each of the patients suffering from pneumonia, classified by severity and the need covered, with the highest cost being that of hospitalization for severe pneumonia.

Overall, RSV infections carried a significant economic burden for Mexico's public health institutions, mainly caused by the severe presentations of the disease.

Conclusion

Respiratory tract infections (URTIs, bronchiolitis and pneumonia) caused by RSV infections in patients under 2 years old with risk factors represent a high economic burden for Mexico's public health institutions, mainly caused by the severe presentations of the disease.

References