Continued impact of rotavirus vaccination on childhood diarrhea in Mexico

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Introduction

• 2004 – RV1 was authorized for use in children in Mexico
• 2005 – Wide commercialization of RV1 in Mexico
• 2006 – RV1 introduced in the poorest areas of the country by Ministry of Health
• 2007 – Universalization of RV1 in Mexico.
• 2011 – Shift to RV5
Introduction

• Impact on mortality
  – 2007. Reduction of 29% in children <5y was first documented.
  – 2008. Observed reduction of 35% in children <5y
  – 2010. Continued reduction of 46% in children <5y

• Impact on hospitalizations
  – 2009. Reduction of 40% in children <5y was first documented
  – 2011. Continued reduction of 38% in children <5y
Objective

• To evaluate the impact of immunization against rotavirus on diarrhea among children under five years of age, for six continuous years after vaccine introduction (2007-2013).
Methods

Estimated indicators

- Frequencies of deaths, hospitalizations and incident cases due to acute diarrheal disease in children <5y
- Medians were calculated. Chi-square test was used in the comparisons.

<table>
<thead>
<tr>
<th>Age Groups (mo)</th>
<th>Pre-vaccine period</th>
<th>Post-vaccine period</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-11</td>
<td>2003-2006</td>
<td>2008-2013</td>
<td>Deaths, hospitalizations, new cases</td>
</tr>
<tr>
<td>12-23</td>
<td>2003-2006</td>
<td>2009-2013</td>
<td>Deaths, hospitalizations</td>
</tr>
<tr>
<td>24-59</td>
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<td>New cases</td>
</tr>
</tbody>
</table>
# Methods

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Source</th>
<th>Source Details</th>
<th>Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deaths</td>
<td>MOH/INEGI</td>
<td>Nationwide (Total recorded deaths)</td>
<td>Annual Mortality Rate</td>
</tr>
<tr>
<td>Hospitalizations</td>
<td>SAHE</td>
<td>594 MOH hospitals (46% of national hospitalizations)</td>
<td>% of Hospitalizations During rotavirus seasons#</td>
</tr>
<tr>
<td>Incident cases</td>
<td>DGE</td>
<td>Nationwide ≈ 17798 health units (All reported cases)</td>
<td>Cumulative incidence During rotavirus seasons#</td>
</tr>
</tbody>
</table>

# Nov-Mar
RESULTS
Incident cases of acute diarrhea in children <5y, Mexico 2003-2013

Incidence of diarrhea cases / 100,000

- Universal immunization
- ≤ 11mo (-42%)
- 12-59 mo (-21%)
- Urinary Infections

Rotavirus season
Hospitalizations due to acute diarrhea in children <5y, Mexico 2003-2013

- Vaccine Introduction
- Rotavirus season
- ≤ 11mo (-63%)
- 12-23 mo (-67%)
- 24-59 mo (-43%)
- Injuries < 59 mo
Mortality due to acute diarrhea in children <5y, Mexico 2003-2013

- Universal immunization
- Rotavirus season
- ≤ 11 mo (-50%)
- 12-23 mo (-60%)
- 24-59 mo (-30%)
- Congenital Malformations
Conclusions

✓ Initial reports: Major impact among the 0-11 month old group.
✓ Now, impact is evident among all children under 5 years of age.
✓ Significant decreases in incident cases, hospitalizations and mortality are demonstrated.
✓ After 6 years since universal immunization, mortality due to acute diarrhea continues to decline
✓ Since universal immunization against rotavirus Mexico has prevented every year about:
  ➢ 188 200 cases,
  ➢ 25 658 hospitalizations and
  ➢ 923 deaths
Gracias