An aggressive approach for measles outbreak among adolescents in Barranquilla, Colombia, 2011

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Ministry of Health Colombia
Outline

1. General background of the country
2. How did we diagnose that older teenager/adult susceptibility was an issue in our country?
3. How did we design a specific approach or strategy for closing immunity gaps
4. Description of the approach and challenges
5. How did we measure success of the approach or strategy?
6. What monitoring and vaccination strategies are we using for avoid this problem in the future?
Country Demographics

<table>
<thead>
<tr>
<th>Area</th>
<th>2,070,408 Km²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population in 2012</td>
<td>47’700,000</td>
</tr>
<tr>
<td>Sub national level</td>
<td>32 departments</td>
</tr>
<tr>
<td>Municipalities</td>
<td>1,123; 4 districts</td>
</tr>
<tr>
<td>Indigenous reserve</td>
<td>641</td>
</tr>
<tr>
<td>IMR</td>
<td>17.7 x 1,000 NW</td>
</tr>
<tr>
<td>Life expectancy</td>
<td>77.7 years old</td>
</tr>
</tbody>
</table>

26% of urban population are in Bogota (capital) and Antioquia
Impact of Vaccination Strategies in Measles and Rubella elimination, Colombia, 1970-2012

*M: Measles containing vaccine only
Source: Ministry of Health - Colombia
Measles-Rubella Vaccination Strategies

Regular Schedule
* 1973 MCV [9M]
* 1995 MMR [12M]
* 1997 MMR [10A]
* 2002 MMR [5A, 10A cancelled]

Vaccination Campaign
* 1993: MCV [9M-14A]
* 1996: MMR [10-12A]
* 1997: MMR [14-15A]
* 2011-2012: MR [10-20A]

Follow-up Campaign
* 1995: MMR [1-3A]
* 1999: MCV [1-4A]
* 2002: MCV [1-4A]
* 2006: MR [1-5A]
* 2010: MR [1-8A]
Measles/Rubella Suspected/Confirmed/Discarded Cases, Colombia, 1994-2015

<table>
<thead>
<tr>
<th>Year</th>
<th>Measles</th>
<th>Rubella</th>
<th>Total</th>
<th>Cases under investigation</th>
<th>Suspected measles cases</th>
<th>Confirmed measles cases</th>
<th>Confirmed rubella cases</th>
<th>Discarded cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>1994</td>
<td>2777</td>
<td>SD</td>
<td>2777</td>
<td>0</td>
<td>972</td>
<td>639</td>
<td>SD</td>
<td>0</td>
</tr>
<tr>
<td>1995</td>
<td>2383</td>
<td>SD</td>
<td>2383</td>
<td>0</td>
<td>473</td>
<td>308</td>
<td>SD</td>
<td>0</td>
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<tr>
<td>1996</td>
<td>1032</td>
<td>SD</td>
<td>1032</td>
<td>66</td>
<td>72</td>
<td>8</td>
<td>76</td>
<td>142</td>
</tr>
<tr>
<td>1997</td>
<td>653</td>
<td>SD</td>
<td>653</td>
<td>2</td>
<td>79</td>
<td>11</td>
<td>19</td>
<td>27</td>
</tr>
<tr>
<td>1998</td>
<td>790</td>
<td>1</td>
<td>791</td>
<td>1</td>
<td>73</td>
<td>14</td>
<td>11</td>
<td>12</td>
</tr>
<tr>
<td>1999</td>
<td>1876</td>
<td>2</td>
<td>1878</td>
<td>0</td>
<td>34</td>
<td>10</td>
<td>9</td>
<td>33</td>
</tr>
<tr>
<td>2000</td>
<td>1308</td>
<td>755</td>
<td>2063</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>4</td>
<td>155</td>
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<td>2001</td>
<td>924</td>
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<td>0</td>
<td>2</td>
<td>1</td>
<td>24</td>
<td>55</td>
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<td>2002</td>
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<td>1004</td>
<td>6422</td>
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<td>16</td>
<td>123</td>
<td>46</td>
<td>66</td>
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<tr>
<td>2003</td>
<td>1392</td>
<td>759</td>
<td>2151</td>
<td>0</td>
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<td>0</td>
<td>16</td>
<td>30</td>
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<tr>
<td>2004</td>
<td>1284</td>
<td>1037</td>
<td>2321</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>5</td>
<td>41</td>
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<tr>
<td>2005</td>
<td>1028</td>
<td>1413</td>
<td>2441</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>32</td>
<td>49</td>
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<tr>
<td>2006</td>
<td>953</td>
<td>1090</td>
<td>2043</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>5</td>
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<td>2007</td>
<td>756</td>
<td>906</td>
<td>1662</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>1</td>
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<tr>
<td>2008</td>
<td>693</td>
<td>799</td>
<td>1492</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>0</td>
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<tr>
<td>2009</td>
<td>503</td>
<td>889</td>
<td>1392</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>1</td>
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<tr>
<td>2010</td>
<td>1165</td>
<td>1463</td>
<td>2628</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2011</td>
<td>2420</td>
<td>1378</td>
<td>3798</td>
<td>0</td>
<td>0</td>
<td>6†</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>2012</td>
<td>1520</td>
<td>1187</td>
<td>2707</td>
<td>0</td>
<td>0</td>
<td>1†</td>
<td>0</td>
<td>1†</td>
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<tr>
<td>2013</td>
<td>663</td>
<td>665</td>
<td>1328</td>
<td>77</td>
<td>0</td>
<td>1†</td>
<td>0</td>
<td>0</td>
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<tr>
<td>2014</td>
<td>1592</td>
<td>1234</td>
<td>2826</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<tr>
<td>2015</td>
<td>1277</td>
<td>1034</td>
<td>2311</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
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</tr>
</tbody>
</table>

*Source:* Colombian surveillance system for measles and rubella
†Classified as imported cases (Period 2011-2013)
### Characteristics of measles imported cases
**Colombia, 2011-2013**

<table>
<thead>
<tr>
<th>Year/ EW of notification</th>
<th>Age</th>
<th>City (Department)</th>
<th>Potential source of infection</th>
<th>Final classification</th>
<th>Genotype</th>
<th>Chain of transmission</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011/32</td>
<td>14 yr</td>
<td>Barranquilla (Atlantico)</td>
<td>Communicable period includes lay-over in Brazil</td>
<td>Lab confirmed case</td>
<td>D4</td>
<td>Five secondary cases confirmed by epi-link. Range of age between 5-47 yr</td>
</tr>
<tr>
<td>2012/5</td>
<td>35 yr</td>
<td>Bogota Capital</td>
<td>Case arrived to the country 7 days before onset of symptoms. Case leaves in Spain.</td>
<td>Lab confirmed case</td>
<td>D4</td>
<td>No secondary cases</td>
</tr>
<tr>
<td>2013/25</td>
<td>57 yr</td>
<td>Bogota Capital</td>
<td>Case returns from Berlin and Barcelona two days before onset of symptoms</td>
<td>Lab confirmed case</td>
<td>NA</td>
<td>No secondary cases</td>
</tr>
</tbody>
</table>
Main facts: measles outbreak among adolescents. Colombia, 2011

• FIFA U-20 World Cup in Colombia
• The country’s active surveillance system quickly detected the index case
• Index case is a 14 years old, who generated 5 secondary cases of 13, 15, 47, 5 and 15 years old
• 3 cases in the same family
• Contacts within the family and a Christian church
Susceptible population for measles among individuals aged 10-19yrs old, Colombia 2011

Source: Expanded Immunization Program. Ministry of Health, Colombia
How Did We Design a Specific Approach or Strategy for Closing Immunity Gaps?

• A. Political Commitment
  – Order from the Minister of Health to quickly respond to the presented outbreak
  – Call to mobilization from the entire country and from all communities

• B. Financing:
  – Immediate availability of $11.5 million for outbreak response
    • $6 million to purchase vaccines
    • $114,000 to strengthen the cold chain
    • $4.8 million for operational costs
    • $500,000 for communications
How Did we Design a Specific Approach or Strategy for Closing Immunity Gaps? (2)

• C. Vaccination Strategy
• With limited vaccine availability, a vaccination strategy that is regionalized in the country during the outbreak
  – Phase 1: 3 departments
  – Phase 2: 8 departments
  – Phase 3: 21 departments
• Indiscriminate vaccination to the 10-19 year-old population
  – Educational institutions: schools and universities
  – Churches
  – Malls
  – House-to-house
How Did we Design a Specific Approach or Strategy for Closing Immunity Gaps? (3)

• D. Mobilization and support from the private sector
  – Movie theaters
  – Free press and radio releases
  – Social responsibility from TV channels
  – Participation from artists

• Message from religious leaders

• Social networks
  – Facebook
Social Mobilization Actions to Vaccinate Adolescents

• Counting on participation from a spokes-model of the target age to promote the campaign: Camilo Echeverry, the winner of a Colombian competition similar to American Idol.

• Participation from the Queen of the Barranquilla Carnival and other famous artists.
How Did we Design a Specific Approach or Strategy for Closing Immunity Gaps? (4)

• E. Epidemiological Surveillance
  Strengthened epidemiological surveillance in the country:
  – Improved and disseminated guidelines for outbreak control
  – Engaged commitment from health personnel
  – Fostered coordination with Dengue surveillance
  – Opportunity to train/reinforce outbreak control main measures
How Did we Design a Specific Approach or Strategy for Closing Immunity Gaps?(5)

• F. Intra and intersectoral coordination
  ➢ Education sector
  ➢ Social sector
  ➢ Health insurances
  ➢ Churches
  ➢ NGOs
  ➢ Academic and scientific societies
  ➢ Other community groups
How did we measure success of the approach or strategy?

- ~7.7 million were vaccinated (target was 8.7), resulting in a 88.4% (adm) vaccination coverage.
- No additional measles cases were identified.
- Active case finding (institutional and community) took place. No cases of measles were confirmed.
- Specimens IgM (-) for Dengue were tested for measles/rubella. No cases were confirmed.
- 1122 Rapid Convenience Monitoring
What Monitoring and Vaccination Strategies are we using to avoid this Problem in the future?

• Commitment to maintaining this achievement:
  ▪ Free and permanent vaccine availability for the entire childhood population (barrier-free vaccination strategy)
  ▪ Reduction of immunity gaps among municipalities
  ▪ Follow-up vaccination campaigns
  ▪ Mop-up vaccination campaigns during VWA
  ▪ Strengthening the epidemiological surveillance in the public and private sectors
  ▪ Strengthening collaboration with strategic partners (PAHO, UNICEF, others).
G. Sustaining Measles and Rubella Elimination in Colombia: Integration of Evidence

1. Measles, Rubella and CRS Epidemiology
2. Cohorts of the vaccinated population
3. Quality of epidemiological surveillance
4. Surveillance laboratory activities
5. Sustaining Measles, Rubella and CRS Elimination

In February 2014, Colombia was evaluated by members of the International Expert Committee (IEC) and was recognized as a country that had interrupted the endemic circulation of measles and rubella viruses.
Thank you!
Gracias!