Vaccination in adults and adolescents to close gaps

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Outline

- Some Brazilian experiences with vaccination in adolescents and adults
- Immunization data for measles and rubella in Brazil
- Control of recent outbreaks
- Lessons learned
Brazil: demography characteristics

- Largest country in South America
- 5 regions and 27 states, 5,570 municipalities
- Area: 8.5 million Km²
- Borders all South America countries (except Chile and Ecuador);
- Population: 204 million; <1 ano ≈ 3 million and 21 million ≥ 60 years old
  - Challenge for any public health program
Results of Measles and Rubella vaccination in adolescents and adults
Vaccine coverage (VC) for monovalent measles vaccine in <15 y by state, Brazil, 1992

48 million doses = VC 95.8%

Fonte: CGPNI/ SES/MS
Speeding up rubella control

MR coverage in campaign only for women in fertile age and year of vaccination by state, Brasil, 1998, 2000, 2001 e 2002

Fonte: PNI/SES incluídas as doses feitas no resgate de não vacinadas pós-campanha

Brasil 95,6%
Why mass vaccination in 2008?

- A large cohort of adult males was not included in previous vaccination strategies—a much smaller number of females missed prior opportunities for vaccination.
- For elimination—pools of susceptible individuals need to be vaccinated; hard to reach populations.
- Identification of previous vaccination is difficult.
- Safety and effectiveness of additional dose of MR vaccine (MMR would be preferable for mumps component).
- Mass communication strategy for entire population more successful in past campaigns than selective vaccination.
Analysis of vaccination opportunities by birth cohort: Estimate of unvaccinated persons (%) by age group and gender, Brazil.

Source: Segatto et al, submitted
Campaign for rubella elimination

VC on campaign (20 to 39 y, both sexes), by state, Brazil, 2008*

~67 million doses VC Brazil=96%

Source:pni.datasus.gov.br **MMR pop 12 to 19 y and MMR 20 to 39 y

* In MA, MG, MT, RJ, RN, included also adolescents 12-19 years, both sexes
Coverage of rubella campaign by municipality

Brazil

Rio de Janeiro State

≥95%
90-95%
<90%
Vaccine coverage and homogeneity of coverage for MMR in children 1 year of age, Brazil, 2003 a 2014

Source: MoH, SVS/MS October 2015
Follow up campaign against measles, by state, <5 y, Brazil, 2014

9,812,862 doses (89.28%)

Homogeneity = % municipalities with VC ≥ 95%
Vaccine coverage for MMR and MMRV in children 1 year of age, 1st and 2nd dose, Brazil, 2010-2015

Source: Ministry of Health, SVS, CGPNI, Brazil
Analysis of cohort of vaccinees on the different vaccination strategies against measles and rubella

Estimative of accumulated vaccine coverage for MR and MMR Brazil, 2015*

Accumulated vaccine coverage (%)

Source: SES/CGPNI/pni.datasus.gov.br
* estimative of population vaccinated in 2015 considering the highest coverages on the different strategies for the control of measles and rubella
Distribution of confirmed measles cases and incidence/100,000 by age group. Pernambuco, Weeks 12/2013 to 11/2014
Distribution of measles cases from 1 to 4 years of age by the number of doses of vaccine (MMR or MMRV), Pernambuco, Weeks 12/2013 to 11/2014

Source: State Coordination of Surveillance of Exanthematic Diseases, PE
### Vaccination strategies for containment of measles outbreak in Pernambuco, 1/4/2013-14/3/2014

<table>
<thead>
<tr>
<th>Action – MMR vaccination</th>
<th>Municipalities</th>
<th>Doses</th>
<th>2013</th>
<th>2014</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>N</td>
<td>N</td>
<td></td>
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<tr>
<td>Blockade</td>
<td>46</td>
<td>86,348</td>
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<tr>
<td>Selective vaccination polio campaign</td>
<td>185</td>
<td>35,464</td>
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<tr>
<td>Intensification 6m &lt;5 y</td>
<td>25</td>
<td>140,322</td>
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<tr>
<td>Selective vaccination polio campaign</td>
<td>185</td>
<td>35,464</td>
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<td>Actualization of calendar campaign</td>
<td>185</td>
<td>62,903</td>
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<tr>
<td>Vaccination 6m &lt;1 y</td>
<td>185</td>
<td>79,956</td>
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<td>Indiscriminate campaign</td>
<td>41</td>
<td>401,878</td>
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<td>Intensification in prisons</td>
<td>2</td>
<td>5,896</td>
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<tr>
<td>Intensification in popular gatherings</td>
<td>2</td>
<td>9,471</td>
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<tr>
<td>Intensification in enterprises</td>
<td>3</td>
<td>13,065</td>
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<tr>
<td>Intensification in touristic places</td>
<td>6</td>
<td>4,977</td>
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<tr>
<td>MRC</td>
<td>41</td>
<td>716</td>
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<tr>
<td>Intensification after MRC</td>
<td>10</td>
<td>3,736</td>
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<tr>
<td>Mop up after MRC</td>
<td>3</td>
<td>6,622</td>
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<tr>
<td><strong>Total doses applied</strong></td>
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<td>857,354</td>
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</tr>
</tbody>
</table>

Source: Health Secretary, Pernambuco
Measles confirmed cases and vaccine coverage in routine, dose 1, Ceará, 1980-2015

13 years without measles

Attack rate and number of cases by age group – measles confirmed cases, Ceará, 2014

Distribution of confirmed measles cases and number of administered measles-rubella doses. Ceará, 2014 – 2015

Indiscriminate vaccination campaign, 6m-4yr (MMR)

Indiscriminate mass vaccination campaign to 5-29 yrs in Caucaia and Fortaleza (MR)

Mop up vaccination in Fortaleza, 6m-4yr (MMR)
Vaccination campaign on population from 5 y to 29 y for containment of measles outbreak in municipalities* of Ceará, Brazil, 2015*

<table>
<thead>
<tr>
<th></th>
<th>Coverage %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fortaleza</td>
<td>93</td>
</tr>
<tr>
<td>Caucaia</td>
<td>93</td>
</tr>
<tr>
<td>Paracuru</td>
<td>97</td>
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</tbody>
</table>

Source: SESA/COPROM/NUVEP/SINAN. Data from 24/11/2015

* Campaign in Caucaia, Fortaleza e Paracurú
Strategies for attracting target population

Partnerships: teaching institutions – schools and universities

Fonte: SESA-CEARÁ
Strategies for attracting target population

Communication / Information

- Posters
- Find suspect cases
- Sensitize people to vaccinations
Strategies for attracting target population

Outreach vaccination: rapid monitoring coverage and mop up
Strategies for reaching hard to reach people

- Mobile population
- People who don’t go to Health Centers
- Strategy:
  - Home to home vaccination
  - Visits in the afternoon

Source: SESA-CEARÁ
Lessons Learned

❖ Measles transmission is fast, and containment of outbreaks requires fast and anticipatory actions (more proactive than reactive)

❖ Two doses of measles containing vaccines are required for prevention of outbreaks

❖ For prevention and containment of outbreaks, adolescents and young adults should be prioritized as vaccination targets

❖ Cold chain and homogeneity of coverage are critical issues

❖ There is a need to improve the system of vaccine registry (to implement nominal identification of vaccinee)
Thank you!