WHO position paper on rubella vaccines

Progress Toward Rubella Elimination
And CRS Prevention in Europe
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Rubella Vaccines WHO Position Paper

- Epidemiology
- Virus and rubella/CRS
- Vaccines
- Immunogenicity
- Vaccine effectiveness
- Precautions and contraindications
- Cost effectiveness
- Vaccination strategies

Weekly Epidemiological Record, 15 July 2011, 86, 301–316
Vaccination strategies

**Purpose:**
- The primary purpose is to prevent the occurrence of congenital rubella infection including CRS

**Strategies:**
1. Focus is on reducing CRS by immunizing adolescent girls and/or women of childbearing age
2. Aims at interrupting transmission and thereby eliminating rubella as well as CRS
1: Reducing CRS only

- For CRS reduction alone, adolescent and adult females should be vaccinated through either routine services or SIAs.

- This option will provide direct protection to women of childbearing age; however, the impact is limited by the coverage achieved and the age groups targeted.

- In the absence of a programme that vaccinates infants and young children, rubella will continue to circulate, resulting in ongoing exposure of pregnant women and the associated risk of CRS.
2: Rubella elimination

- For the elimination of rubella (and thereby CRS), the preferred approach is to begin with MR or MMR vaccine in a campaign targeting a wide range of ages, immediately followed by introduction of MR or MMR vaccine into the routine childhood programme.

- All subsequent follow-up campaigns should use MR or MMR vaccine.

- In addition, countries should make efforts to reach women of childbearing age by immunizing adolescent girls or women of childbearing age, or both, either through routine services or mass campaigns.
Synergy with measles programmes

- Measles-vaccine delivery strategies provide an opportunity for synergy and a platform for advancing rubella and CRS elimination.

- All countries that are providing 2 doses of measles vaccine using routine immunization or supplementary immunization activities (SIAs), should consider including RCVs in their immunization programme.

- Cost-benefit studies of rubella vaccination have shown that benefits outweigh costs and that rubella vaccination is economically justified, particularly when combined with measles vaccine.
Importance of high vaccination coverage

- Sustained low coverage of rubella immunization in infants and young children can result in increased susceptibility among women that may increase the risk of CRS above levels during the prevaccine era (“paradoxical effect”).

- Hence, countries should achieve and maintain immunization coverage of ≥80% with at least one dose of an RCV delivered through routine services or regular SIAs.
Countries planning to introduce RCV

- Should review the epidemiology of rubella and assess the burden of CRS.
- Establish rubella/CRS prevention as a public health priority.
- Depending on the burden of CRS and available resources, countries should determine their goal and time frame for achieving it.
- Introduction of RCV implies a long-term commitment to achieving and maintaining sufficient immunization coverage to ensure sustained reduction in CRS incidence.
- Strong political commitment to the elimination of rubella and CRS, and sustainable financing for vaccination and surveillance activities must be in place before initiating rubella vaccination.
Field and laboratory surveillance

- Should be fully integrated with measles in a single surveillance system

- Need to **document the impact of rubella vaccination**:
  - laboratory-supported surveillance for rubella and CRS surveillance
  - molecular epidemiology
  - monitoring of vaccine coverage
  - monitoring population immunity using seroprevalence surveys where appropriate.
Country Examples

Eastern Mediterranean Region
Tunisia
Rubella vaccination in Tunisia

**Goal: CRS reduction**

- 2005: MR for Girls age 12y (90%)
- 2005: Catch-up campaign for girls 13-18y (>90%)
- Postpartum vaccination (19%)
- CRS surveillance in 3 sentinel sites
Reported Rubella Cases, 1999-2011

- MR for girls age 12y
- MR catch-up campaign for girls 13-18y

- 55% <12y
- 21% 12-20y (88% male)
- 50 hospitalisations
- 3 deaths
- 4 CRS to date
Egypt
Rubella vaccination in Egypt

- Rubella vaccine was introduced in MMR vaccine in 1999 at the age of 18 months

- In 2008, vaccination schedule modified to accelerate measles and rubella elimination and additional dose of MMR at 12 months

- Coverage by the 2 doses >95%

- Rubella was diagnosed clinically before introduction of laboratory confirmation in 2002
Figure 1. Reported Measles and Rubella cases and vaccination coverage — Egypt, 1980-2009

- Measles vaccine (9 months) in 1977
- Measles vaccine (12 months) in 2008
- MMR vaccine (18 months) in 1999
- Catch-up Campaigns

- Measles Cases
- Rubella Cases
- MCV1 Coverage
- MCV2 Coverage

World Health Organization

Year

Reported cases

% Vaccinated
Reported Rubella Cases in Egypt (1998–2011)

- MR Campaign
  - Phase 1: 10y - 19y
  - Phase 2: 2y - 10y

Laboratory Confirmation 2002

MMR introduction at 18m, 1999

Graph showing reported cases from 1998 to 2011:
- 1998: 25 cases
- 1999: 9 cases
- 2000: 24 cases
- 2001: 12 cases
- 2002: 274 cases
- 2003: 261 cases
- 2004: 21 cases
- 2005: 520 cases
- 2006: 2587 cases
- 2007: 11,689 cases
- 2008: 1,097 cases
- 2009-2011: Cases range from 12 to 29
Rubella vaccination in Oman

- 1994 MR mass campaign, 15m–18y (94%)
- 1994 MR introduced in routine at 15m (>95%)
- 1997 MMR introduced at 15m (>95%)
- 2001 Post-partum vaccination
Reported rubella cases and routine infant vaccine coverage, Oman 1993-2009

- **Catch-up, 1994**
  - 15m-18 yrs MR (94%)
- Intro. of MR @15 m Vaccine, 1994
- Switch to MMR 15 m Vaccine, 1997
- Post-partum vaccination

CRS cases: 47

<table>
<thead>
<tr>
<th>Year</th>
<th>No. Rubella Cases</th>
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<tbody>
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<td>1400</td>
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<tr>
<td>1994</td>
<td>Catch-up, 1994</td>
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Routined Infant Coverage (%)

- **rubella**
- **coverage**
WHO Position Paper (2011):

- In light of the remaining global burden of CRS and proven efficacy and safety of RCVs, WHO recommends that countries take the opportunity offered by accelerated measles control and elimination activities to introduce RCVs.

- Requirement is ability to achieve coverage >80% through routine services or in campaigns.

- Preferred approach is a mass campaign for children 9m-14y together with introduction in routine.

- Country examples support this approach.
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