Measles and Rubella
Global Update

SAGE Meeting, 19 October 2016,
Peter Strebel, WHO, IVB/EPI
Overview

• Progress
  – Global milestones
  – Regional updates
• Barriers and risks
• Opportunities
• Summary
Little change in MCV1 coverage or case load since 2009

Annual reported measles cases and MCV1 and MCV2** coverage*, 1980-2015

* Coverage as estimated by WHO and UNICEF.
** MCV2 estimates is only available from 2000 when global data collection started, however some countries have introduced the vaccine earlier.

Source: JRF
194 WHO Member States.
Updated on 18 July 2016
Global rubella vaccination coverage still <50%

Rubella containing vaccine 1st Dose (RCV1) coverage* by WHO region, 1980-2015

RCV1 coverage (%)

Immunization Vaccines and Biologicals, (IVB), World Health Organization.
194 WHO Member States. Date of slide: 16 July 2016.

*coverage estimates for the 1st dose of rubella containing vaccine are based on WHO and UNICEF estimates of coverage of measles containing vaccine.
Recent increase in countries using rubella vaccine
Countries with rubella vaccine in the national immunization programme, by year of vaccine introduction

17 countries introduced rubella vaccine during 2012-2015
17 countries planning introduction in 2016-2018

Data source: WHO/IVB Database, as of 17 October 2016
Map production Immunization Vaccines and Biologicals (IVB), World Health Organization

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Global Milestone #1: 
>90% MCV1 Vaccination Coverage in Every Country

Immunization coverage with 1st dose of measles containing vaccines in infants, 2015

119 (61%) countries have >90% coverage with 1st dose of measles containing vaccines


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Milestone #2
Reported Measles Incidence <5 cases/million

- Measles incidence down by 75%
  - 36 per million, 2015

Milestone #3
95% Reduction in Measles Deaths*

- Measles deaths down by 79%*

*2015 estimates are provisional
Progress by Region
The Americas (PAHO)

Achievements:
- Proof of concept for elimination
- May 2015 – Region declared free of rubella and CRS
- September 2016 – verification of measles elimination

Challenges:
- Maintaining elimination in the face of ongoing importations
- Lack of global commitment threatens sustainability in Americas
- Competing priorities (e.g., Zika and Chikungunya virus)
W. Pacific Region

Achievements:
• High MCV1, MCV2 and SIA coverage
• All countries have introduced RCV
• Lowest measles incidence in 2012

Challenges:
• Measles resurgence in endemic countries (China and the Philippines)
• Outbreaks following measles importations in Lao PDR, Mongolia, PNG, Solomon Islands, Viet Nam
• <1y and adolescents/adults increasingly affected by measles
European Region

Achievements:
- High coverage with 2 doses of MCVs
- In 2016, reported rubella and measles cases at all-time low
- Advocacy event at London School of Hygiene and Tropical Medicine

Challenges:
- Low commitment to elimination in some member states
- Variable quality of reporting surveillance data (measles and rubella/CRS)
- Outbreaks fueled by susceptible populations: adolescent and adults, migrants, religious groups
- Vaccine hesitancy
S.E. Asian Region

Achievements:
- MCV1 at 84% and rapid increase in MCV2
- All countries conducting case based surveillance for measles & rubella
- India has started reporting measles
- Regional Verification Commission had 1st meeting in August 2016

Challenges:
- Need to increase routine immunization and strengthen surveillance (India and Indonesia)
- Outbreaks in some high coverage countries (Sri Lanka, Thailand)
- MR vaccine supplies
E. Mediterranean Region

Achievements:
• High level of control achieved in 7 countries, of which, Bahrain, Oman and Palestine are ready to verify elimination
• Egypt conducted a high quality 2015 national campaign

Challenges:
• Persistent low coverage in some countries (Somalia, Pakistan, Afghanistan)
• Decreasing coverage in countries with active conflict (Iraq, Syria, Yemen)
• Many member states affected by civil unrest
• Outbreak in Sudan of measles and rubella
• New strategies needed to deliver vaccination services in conflict settings
African Region

Achievements:
• 12 countries near elimination* and an additional 14 on track for the 2020 goal
• 19 countries with MCV2
• 7 countries with RCV

Challenges:
• Weak and fragile health systems in many countries
• Need for periodic SIAs in most countries to reach children missed by routine immunization
• No target yet for rubella/CRS elimination
• Lack of resources for surveillance

*Algeria, Burkina, Cap Verde, Rwanda, Eritrea, Gambia, Ghana, Mauritius, Senegal, Seychelles, Sao Tome, Zimbabwe
### Scorecard on verification of elimination, October 2016

<table>
<thead>
<tr>
<th>WHO Region (no. countries)</th>
<th>Regional Verification Commissions Established</th>
<th>Elimination Achieved</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>No. of countries</td>
</tr>
<tr>
<td>Americas (n=35)</td>
<td>Yes</td>
<td>Measles: 35</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rubella: 35</td>
</tr>
<tr>
<td>Europe (n=53)</td>
<td>Yes</td>
<td>Measles: 21</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rubella: 20</td>
</tr>
<tr>
<td>Western Pacific (n=27)</td>
<td>Yes</td>
<td>Measles: 5</td>
</tr>
<tr>
<td>Eastern Mediterranean (21)</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>South-East Asia (n=11)</td>
<td>Yes</td>
<td>-</td>
</tr>
<tr>
<td>Africa (n=47)</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td>Measles: 61</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rubella: 55</td>
</tr>
</tbody>
</table>
Barriers and Risks
#1 Stagnant MCV1 coverage

- 20 million infants missed measles vaccination in 2015
- Six countries account for over half of all unvaccinated infants and 75% of estimated measles deaths
- Coordinated strategic approach needed to build health infrastructure
#2 SIAs missing 95% coverage target

Measles SIA Administrative Coverage vs Survey Coverage, Selected Countries, 2013-2016

12/18 (67%) SIA’s ≥95% nat. admin. coverage
8/18 (44%) SIA’s ≥95% survey coverage
#3. Large outbreaks of measles

Reported Measles Incidence Rate*, September to August 2016

Nigeria: Age Distribution of Measles Cases
May 2015-April 2016
n=12,904

Mongolia: Age Distribution of Measles Cases
May 2015-April 2016
n=30,235

(99 countries or 51%)
(29 countries or 15%)
(16 countries or 8%)
(30 countries or 15%)
(11 countries or 6%)

No data reported to WHO HQ (9 countries or 0%)
Not applicable

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Age and vaccination status of reported measles cases, 2011-2016* (N=581,290)

Data Source: HQ casebased data as of May 6, 2016
Measles Cases: Lab, Epi-Linked-Clinical
#4 At risk of losing of polio assets

- 88% of estimated measles deaths occur in these countries
- Polio field staff spend nearly 1/3 of their time working on routine immunization and measles
- Critical for SIA quality and surveillance
#5 Unpredictable funding and expenditures

Annual partner expenditures for measles and rubella, Measles and Rubella Initiative (M&RI) and Gavi, 2001-2016*

Av. annual amount = 98 million USD

*2016 data as of 30 September
Opportunities
#1 Economics of MR vaccination

- Published studies show high cost-effectiveness
- High return on investment for measles vaccination in low- and middle-income countries\(^1\)
  - $58 return on $1 invested
- Current level of control costs $98 billion annually\(^2\):
  - Programme ($2 billion)
  - Treatment ($8 billion)
  - Cost of lost productivity ($88 billion)
- Measles and rubella are eradicable with potential for cost-savings \(^3\)
  - Earlier estimate of cost of measles eradication of $8-14 billion\(^4\)
- Results from eradication investment case expected in mid-2017

3. WHO. *Weekly Epidemiological Record*, No 6, 12 February 2016, 91, 61–72
#2 Gavi’s new measles and rubella strategy: Comprehensive multi-year support

<table>
<thead>
<tr>
<th>Past support</th>
<th>New strategy</th>
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<td><strong>2004-2020</strong> $1.3 billion</td>
<td><strong>2016-2020</strong> +$220 million</td>
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- Comprehensive 5 year plan
- Countries fully finance cost of 1st dose of measles vaccine
- Co-financing of follow-up SIAs
- Flexible strategy within the approved budget
#3 New tools for programme performance

- **Nepal:**
  - Rapid convenience monitoring using mobile phones allowed real time monitoring and corrective vaccination activities in 42% of areas

- **Kenya:**
  - Provisional results from the survey following the MR campaign
  - 95% (CI: 94%-96%)
#4 New approaches

Diagnosis

Vaccination

100 micro-array patches
Summary

• Substantial progress in measles control since 2000
• Elimination of measles and rubella in the Americas
• All other 2015 global and regional targets were not met
• Risks to further progress are related to weak underlying national programmes and inadequate resources
• Opportunities include the Gavi measles and rubella strategy, new tools to support SIA quality and funding for development of novel tools
• Midterm review recently completed