

Measles and Rubella Global Update

SAGE
19 October 2017

Alya Dabbagh
WHO HQ, IVB/EPI

Overview

- Global update
- Regional progress and challenges
- M&RI Midterm Review updates
- Economics of measles and rubella elimination
- Conclusions
- Proposed recommendations

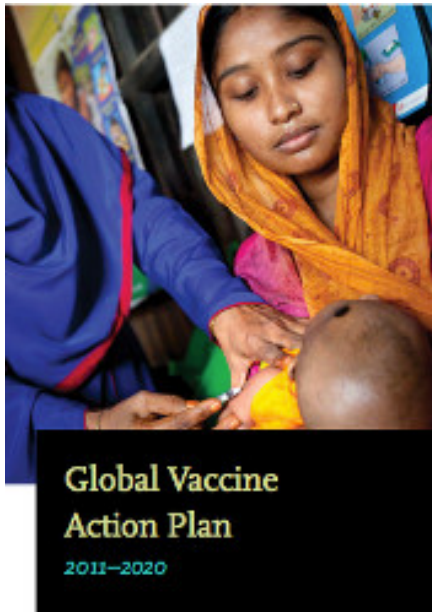
Measles and Rubella Targets



Global: World Health Assembly, 2010

By 2015:

- MCV1 coverage $\geq 90\%$ national and $\geq 80\%$ in every district
- Measles reported incidence < 5 cases/million
- Measles mortality reduction of 95% vs. 2000



Regional elimination (GVAP, 2012):

By 2015:

- Elimination of measles in 4 WHO Regions
- Elimination of rubella in 2 WHO Regions

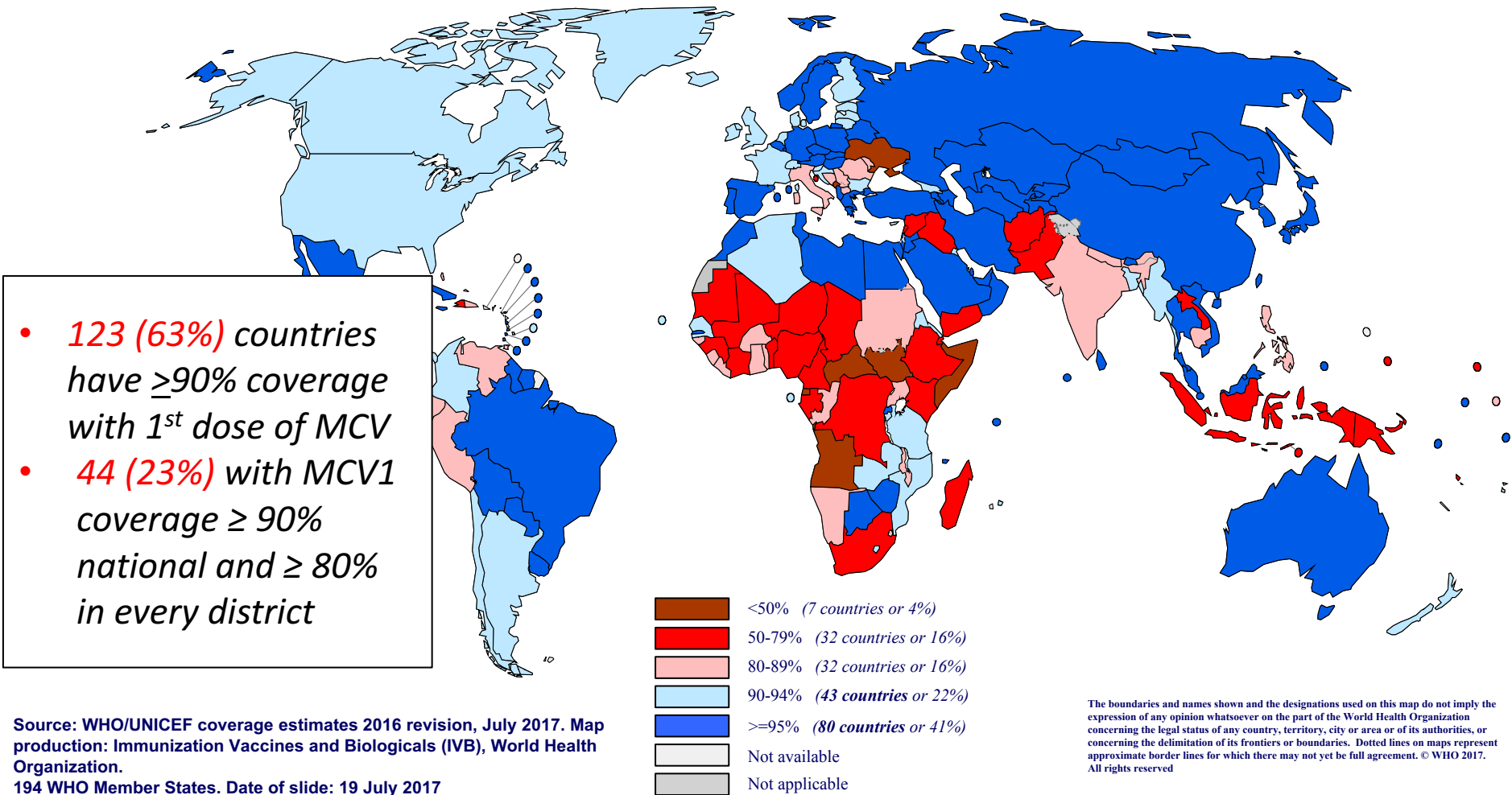
By 2020:

- Elimination of measles & rubella in 5 WHO Regions

Global Update

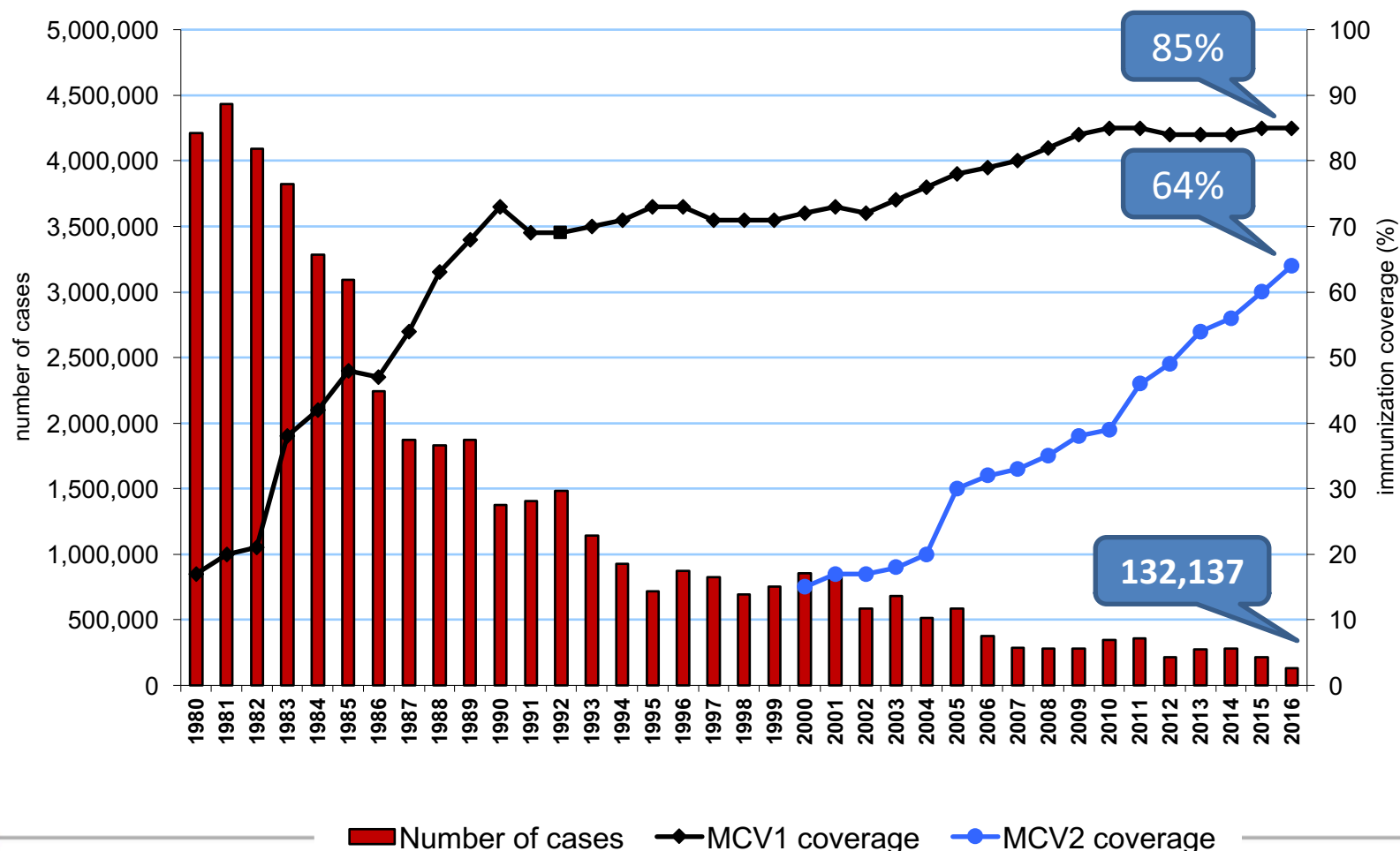
Milestone #1:

90% MCV1 Vaccination Coverage in Every Country



Immunization coverage with 1st dose of measles containing vaccines in infants, 2016

Measles global annual reported cases and MCV1 and MCV2* coverage, 1980-2016



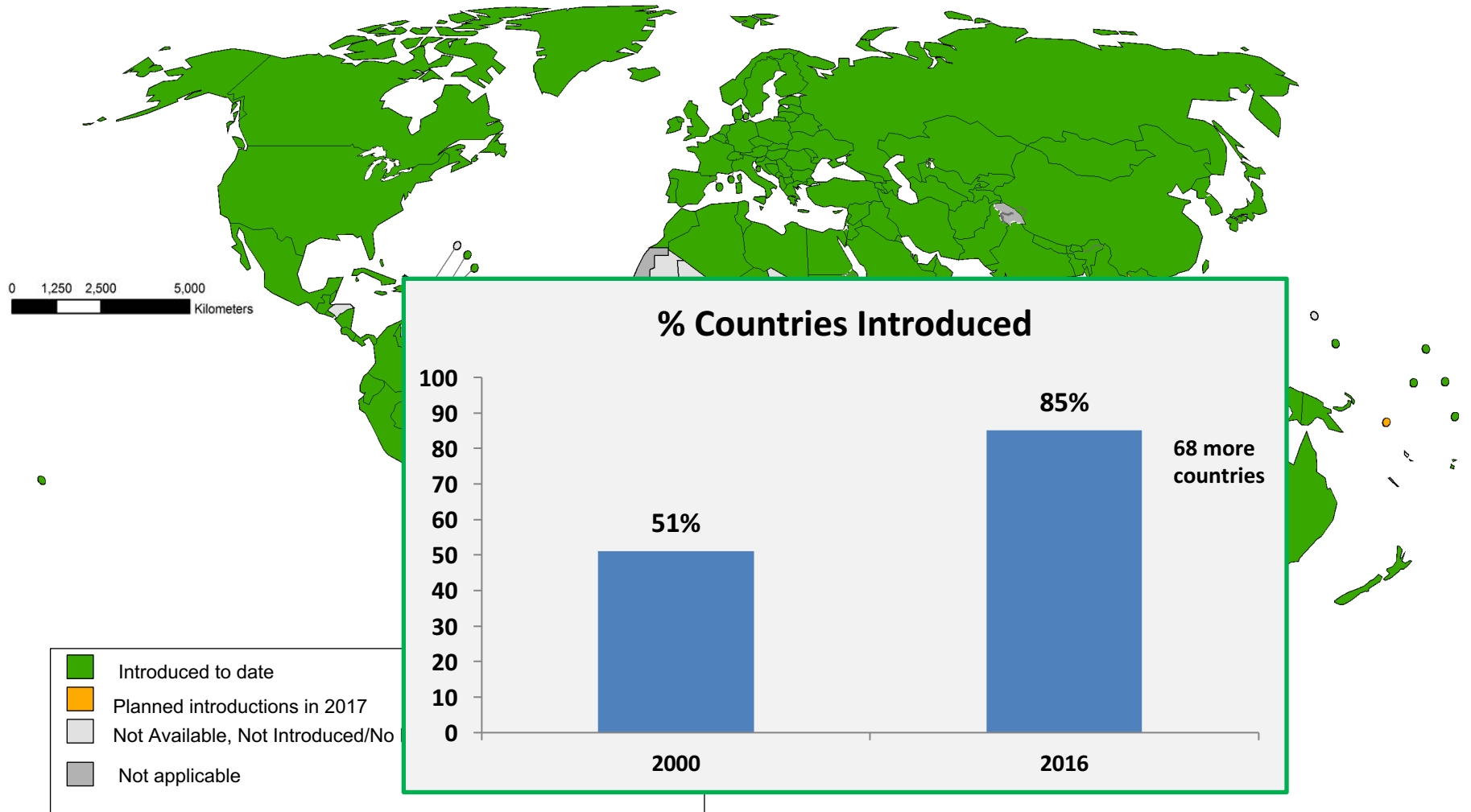
Source: WHO/IVB database, 2017
194 WHO Member States.
Data as of 19 July 2017

*MCV2 estimates is only available from 2000 when global data collection started, however some countries have introduced the vaccine earlier.



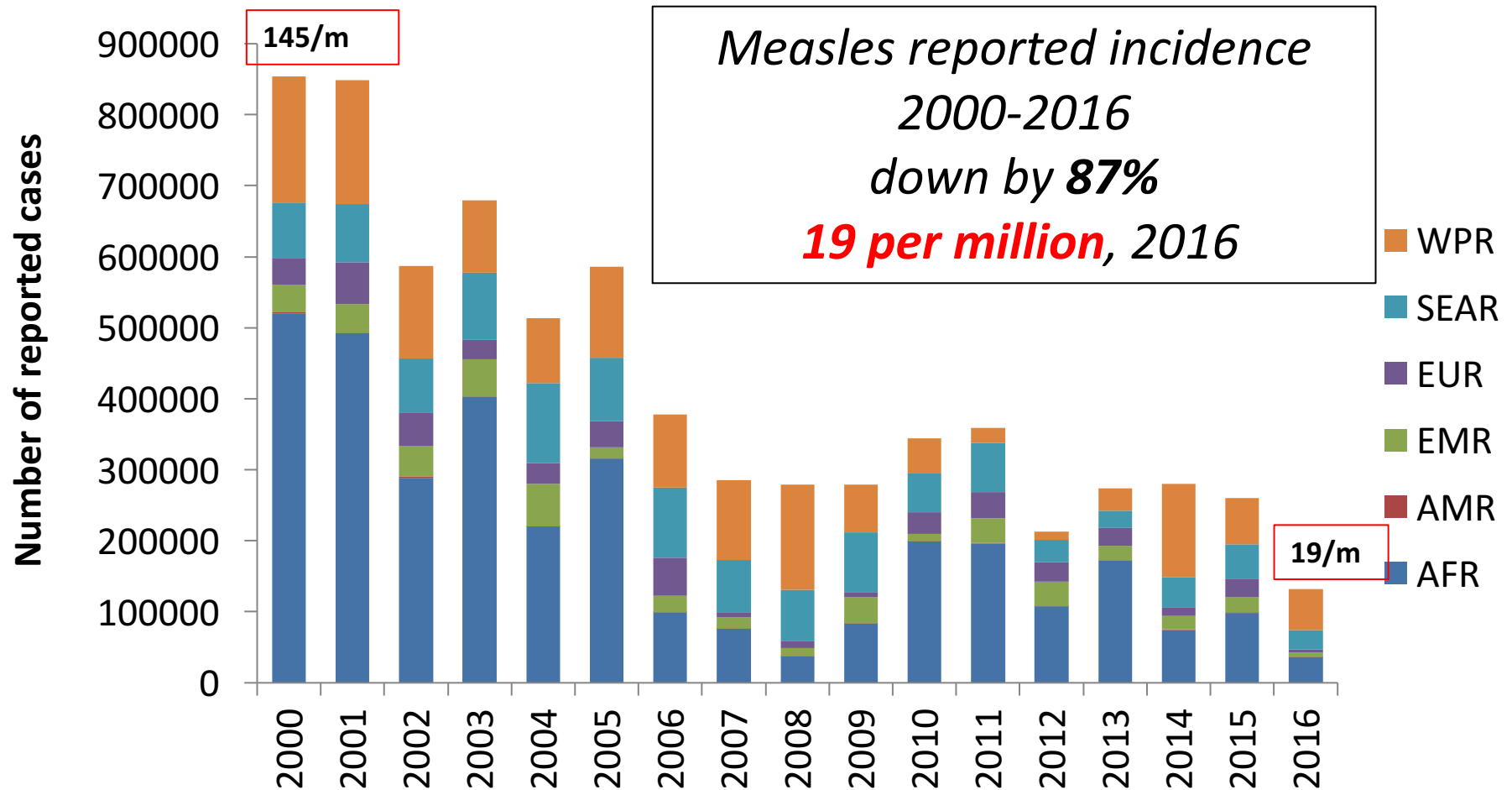
Increasing Measles Second Dose

Countries using Measles Second Dose vaccine to date; and planned introductions in 2017



Milestone #2

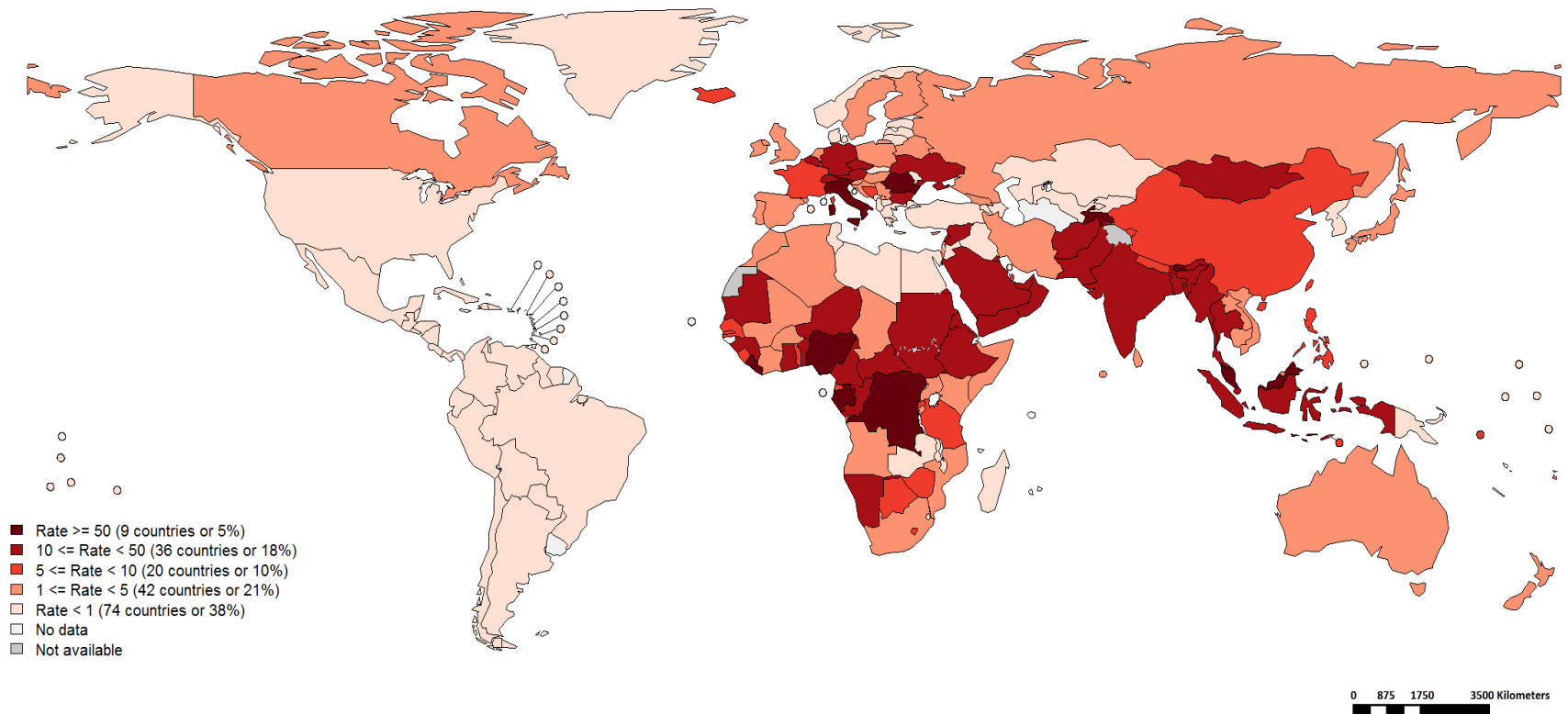
Measles Incidence <5 cases/million



Milestone #2: Measles Incidence <5 cases/million

2010: 60% countries <5 cases/million

2016: 69% of countries <5 cases/million



Map production: World Health Organization, WHO, 2017. All rights reserved
Data source: IVB Database

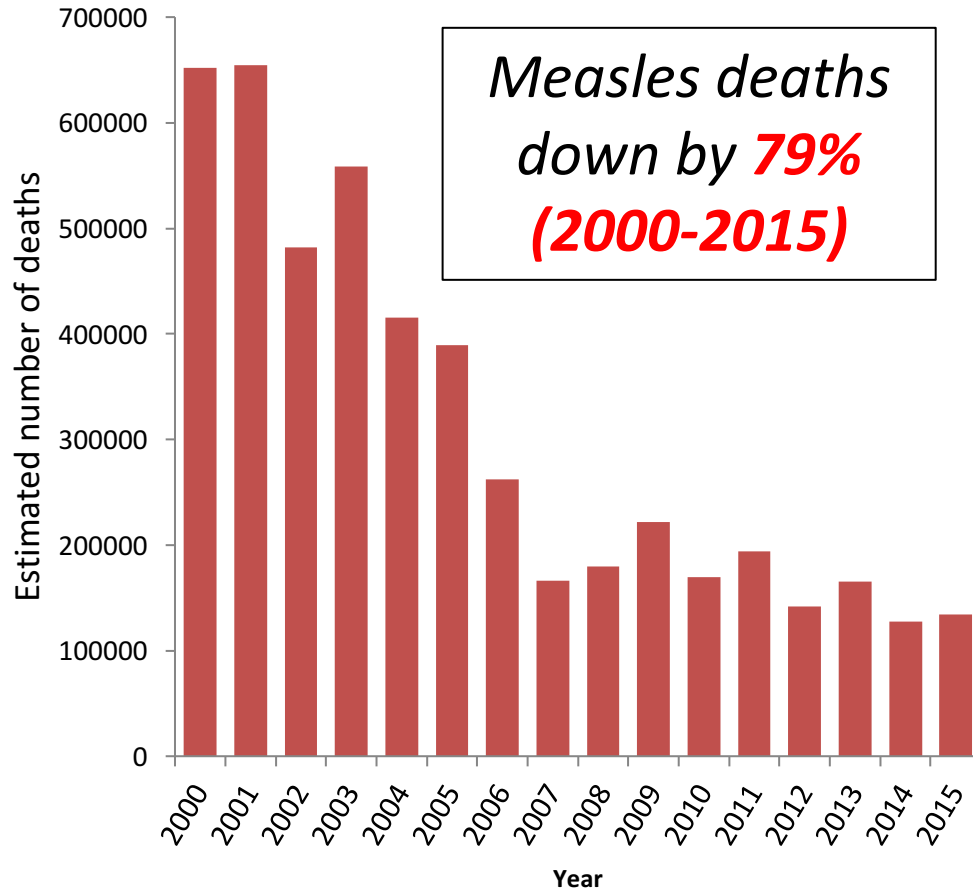
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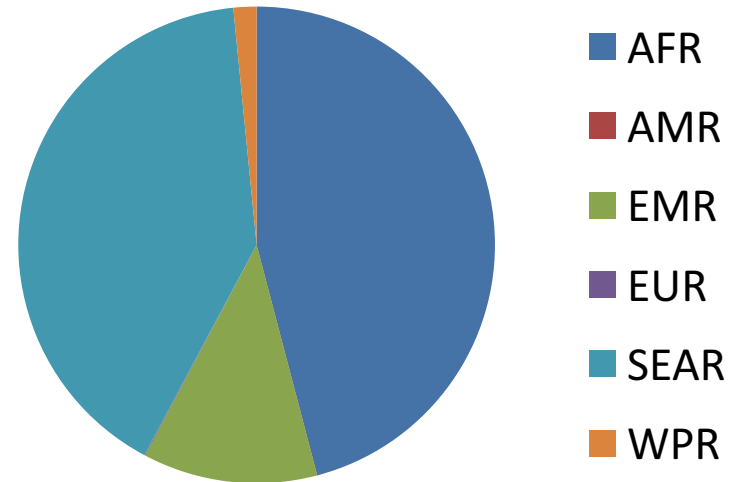
Based on CB data received 2017-09 and covering the period between 2016-08 and 2017-07 - Incidence: Number of cases / population* x 1000,000 - *
World population prospects, 2017 revision -

Global Milestone #3

95% Reduction in Measles Deaths

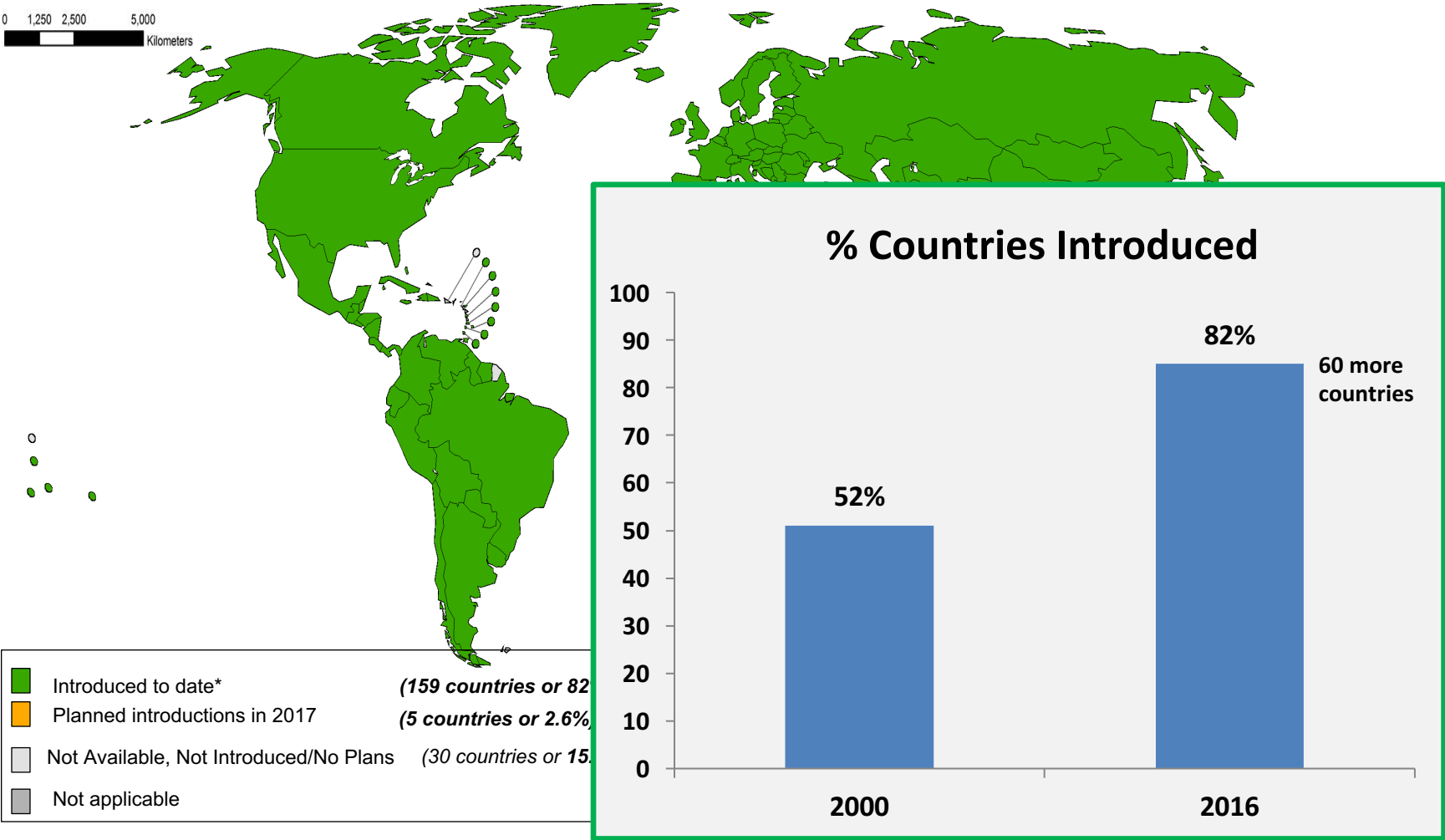


Estimated deaths by Region, 2015
(Total 134,180)



20.3 million deaths prevented since 2000 by measles vaccination

Countries with Rubella vaccine in the national immunization programme; and planned introductions in 2017



Data source: WHO/IVB Database, as of 09 August 2017

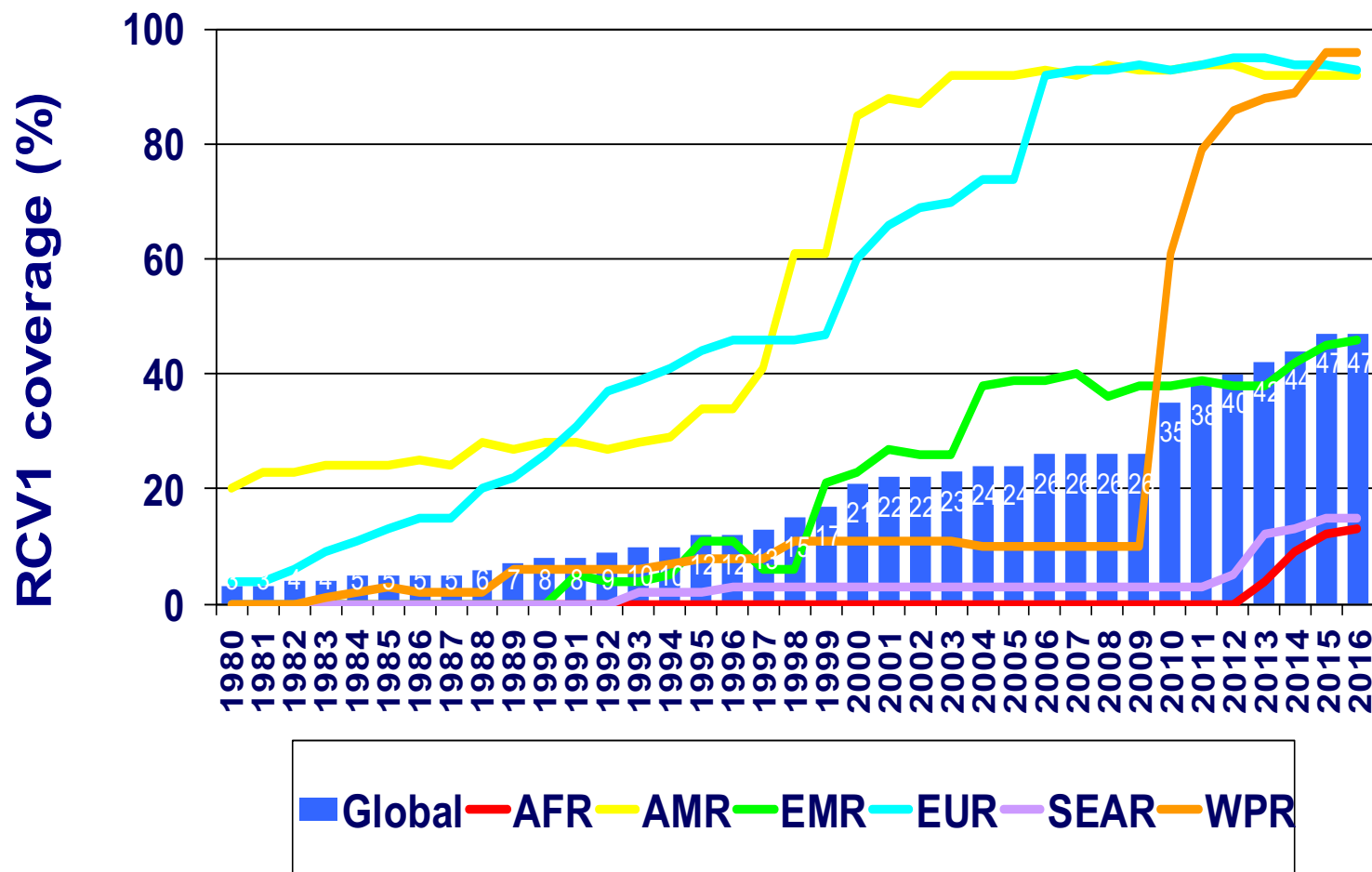
Map production Immunization Vaccines and Biologicals (IVB),
World Health Organization

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* Includes partial introduction

2016 Global RCV Coverage 47%

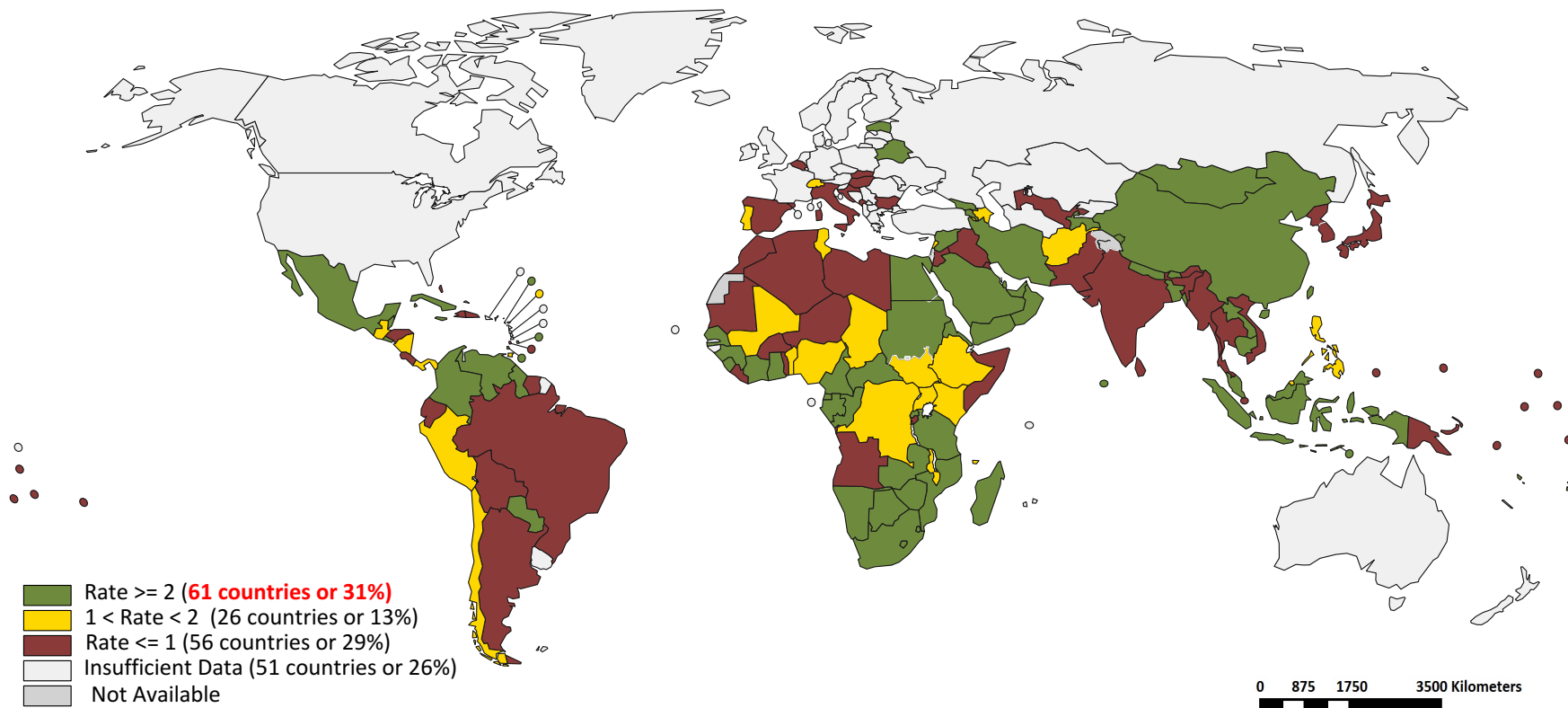
Rubella containing vaccine 1st Dose (RCV1) coverage*
by WHO region, 1980-2016



Source: WHO/UNICEF coverage estimates 2016 revision, July 2017.
Immunization Vaccines and Biologicals (IVB), World Health
Organization.
194 WHO Member States. Date of slide: 15 July 2017.

*coverage estimates for the 1st dose of rubella
containing vaccine are based on WHO and UNICEF
estimates of coverage of measles containing
vaccine.

Surveillance sensitivity reporting rate of measles and rubella (12 months, discarded cases* per 100,000 population)



Based on data received 2017-06 and covering the period between 2016-05 and 2017-04 - Target: ≥ 2 discarded cases* / 100,000 population** - * Suspected cases investigated and discarded as non-measles non-rubella using laboratory testing and/or epidemiological linkage to another etiology ** World population prospects, 2015 revision Data source: IVB Database - Map production: IVB/EPI World Health Organization, WHO, 2017. All rights reserved

Regional Update

Measles and Rubella Eliminated in the Americas



Announcement of measles
elimination in the Americas,
27 September 2016

Key Regional Achievements

- One Region achieved and sustained measles & rubella elimination (AMR).
- 12 AFR countries near elimination* and an additional 14 on track for the 2020 goal.
- High level of control achieved in 7 EMR countries, of which, Bahrain, Oman and Palestine are ready to verify elimination.
- High coverage with 2 doses of MCVs (AMR/EUR/WPR).
- Three regions with all countries having introduced RCV (AMR/EUR/WPR).
- India and Indonesia introducing rubella vaccine in 2017-2018 (>470 million targeted through SIAs).
- In 2016, reported measles cases at all-time low in AMR/AFR/EMR/EUR.
- RVC established and functioning in 4/6 Regions. With three regions verifying rubella elimination (AMR/EUR/WPR).

Scorecard on Verification of Elimination, Oct. 2017

WHO Region (no. countries)	Regional Verification Commissions Established	Elimination Achieved	
		No. of countries	% of countries
Americas (n=35)	Yes	Measles: 35 Rubella: 35	100% 100%
Europe (n=53)	Yes	Measles: 33 Rubella: 33	62% 62%
Western Pacific (n=27)	Yes	Measles: 6 Rubella: 2	22% 7%
Eastern Mediterranean (21)	In process	-	-
South-East Asia (n=11)	Yes	Measles: 2	18%
Africa (n=47)	In process	-	-
TOTAL		Measles: 76 (39%) Rubella: 70 (36%)	

EUR: 7 (13%) additional countries interrupted measles transmission for >12 m but <36 m.

4 (7.5%) additional countries interrupted rubella transmission for >12 m but <36 m.

Key Regional Challenges (1)

- Gaps in population immunity due to:
 - Weak and fragile health systems in many countries (AFR/EMR)
 - Civil unrest, famine, active conflict (EMR)
 - Vaccine hesitancy (EUR)
 - Declining maternal antibody levels
- Susceptibles distributed across increasingly wide age groups, making eventual elimination more expensive & more technically difficult (EUR/WPR).
- Outbreaks affecting adolescent and adults, migrants, religious groups (EUR/WPR)
- Infants <1 year old affected by measles (EUR/WPR).

Key Regional Challenges (2)

- Maintaining elimination in the face of ongoing importations (*PAHO/EUR*)
- No target for rubella /CRS elimination (AFR/EMR/SEAR)
- No target date for rubella elimination (WPR)
- Low commitment to elimination in some member states
- Inadequate resources to fully implement recommended strategies:
 - Inadequate resources for wide age-range campaigns to address population immunity gaps
 - Steadily declining resources through M&R Initiative
 - Lack of resources for surveillance (AFR/EMR/SEAR)
 - Polio transition (AFR/EMR/SEAR)

Challenge: Polio Transition

16 countries with largest polio assets



RISKS:

- **Polio virus transmission if re-introduced**
- **Resurgence of measles and rubella**

88% of estimated measles deaths occur in these countries

Most of the world's rubella and CRS cases (100,000)

Polio field staff spend nearly 1/3 of their time working on RI & MR.

Critical for SIA quality and surveillance

Estimated \$77 million (70%) of annual needs for VPD/MR surveillance are coming from polio \$\$

Over 2500 polio-funded staff are supporting VPD/MR surveillance

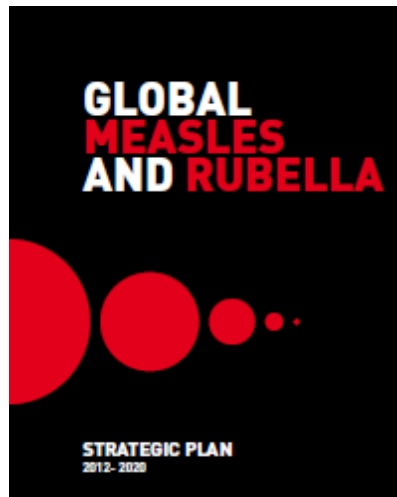
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Data Source: <type data source>
Map Production: <type unit name>
World Health Organization



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Midterm Review of the Global Measles and Rubella Strategic Plan 2012 – 2020



W. A. Orenstein, MD

SAGE

Geneva, 19 October 2016

Progress with MTR Recommendations

- Increase emphasis on surveillance
 - Global guidance updated
- Urgent need to **strengthen the collection and use of surveillance data**
 - At risk
- **Strengthening of RI systems is critical** to achieving regional elimination goals. Need to move from SIAs to **primary reliance on ongoing routine services**
 - On going (tools developed)
- Develop a standardized method to **categorize countries** based on their level of disease control.
 - Completed

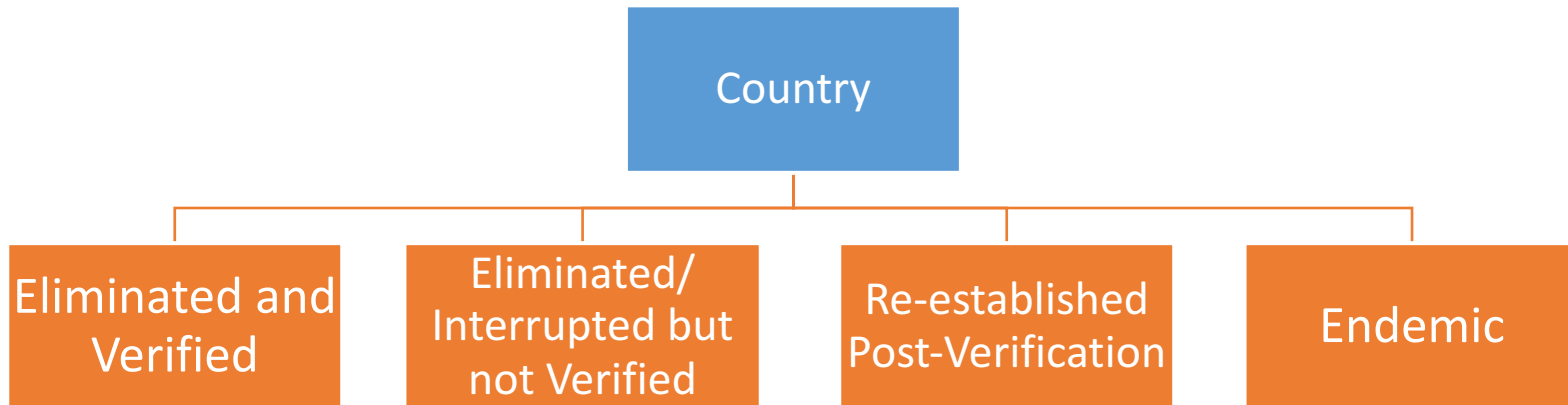
Strengthening of RI Systems

- RI is critical for achieving the elimination goals:
 - $\geq 95\%$ coverage with 2 doses of MCV is needed
 - Central theme for M&R Initiative Strategic Plan (2012-2020) and ongoing activities
 - 2/3 of measles cases averted through RI (J. Inf Dis. 204, 2011)
- Studies demonstrate that *properly* planned SIAs can strengthening RI (E.g.,):
 - Improve micro-planning, training and supervision of HCW
 - Improvement of CC, waste management system & injection-safety standards
 - strengthened AEFI surveillance
- MCV2 in the 2YL offers an ideal opportunity by:
 - fixing an immunization/health check contact during 2YL (e.g. growth monitoring, booster doses, Vit A)
 - catch-up vaccination for all missed vaccines
- Measles vaccination school entry checks can improve coverage of other VPDs.
- Measles Outbreaks as an indicators of weak RI:
 - Measles is highly infectious and seeks out susceptibles; disease is highly visible,
 - Outbreaks identifies gaps in RI programs and population groups missed by RI.

Country Categorization in relationship to Elimination

Objectives:

- To standardize the country categorization used globally
- To document the progress toward elimination



Economics of MR vaccination

- High return on investment for measles vaccination in low- and middle-income countries¹
 - \$58 return on \$1 invested
- Current level of control costs \$98 billion annually²:
 - Programme (\$2 billion)
 - Treatment (\$8 billion)
 - Cost of lost productivity (\$88 billion)
- Published studies show high cost-effectiveness
- Measles and rubella are eradicable with potential for cost-savings³
 - Earlier estimate of cost of measles eradication of \$8-14 billion⁴
- Results from eradication investment case expected by end 2017

1. Ozawa S et al., *Health Affairs* 2016; 35(2): 199-207

2. Thompson KM, Odahowski CL, *Risk Analysis*, 2016; 36(7):1357-1382, Aug 6, 2015, doi: 10.1111/risa.12459

3. WHO. *Weekly Epidemiological Record*, No 6, 12 February 2016, 91, 61–72

4. Bishai et al., *J Vaccines Vaccin* 2012, S:3. <http://dx.doi.org/10.4172/2157-7560.S3-002>

Summary

- Substantial progress in measles control since 2000
- Elimination of measles and rubella in the Americas
- Good recent progress in all regions
- 2015 global and 3 regional targets were *not* met
- Midterm review providing a road map
- RI strengthening is critical and a central theme
- It is urgent that polio assets are assured to sustain the measles, rubella & other immunization functions that are currently supported through PEI funds.

Proposed SAGE WG Recommendations

- The four proposed country categories are appropriate and provide a standardized approach to country categorization. RVCs are encouraged to use the proposed categories.
- In order to make further gains in reducing the global burdens of measles and rubella, it is urgent that measles and rubella elimination receive a high priority for transition of PEI resources.

Thank you!



Thanks to:

- MR SAGE WG members
- Katrina Kretsinger
- Laure Dumolard
- Minal Patel
- Thomas Cherian