

# Measles and Rubella Global Update

**SAGE**  
**April 2018**

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WHO HQ, IVB/EPI

# Overview

- Global update
- Regional update
- Surveillance overview
- M&RI Midterm Review updates
- Conclusions

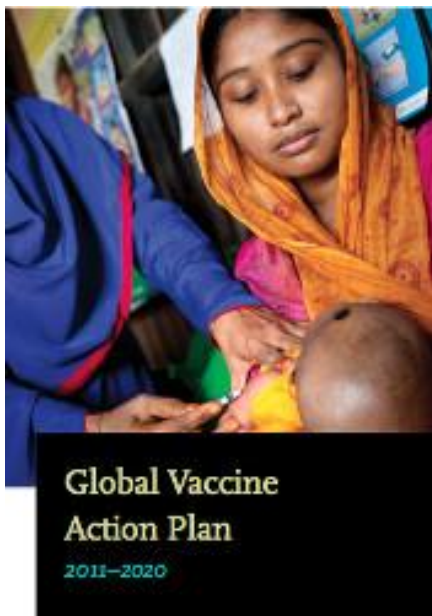
# Measles and Rubella Targets



## Global: World Health Assembly, 2010

### Milestones by 2015:

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



## Regional elimination (GVAP, 2012):

### By 2015:

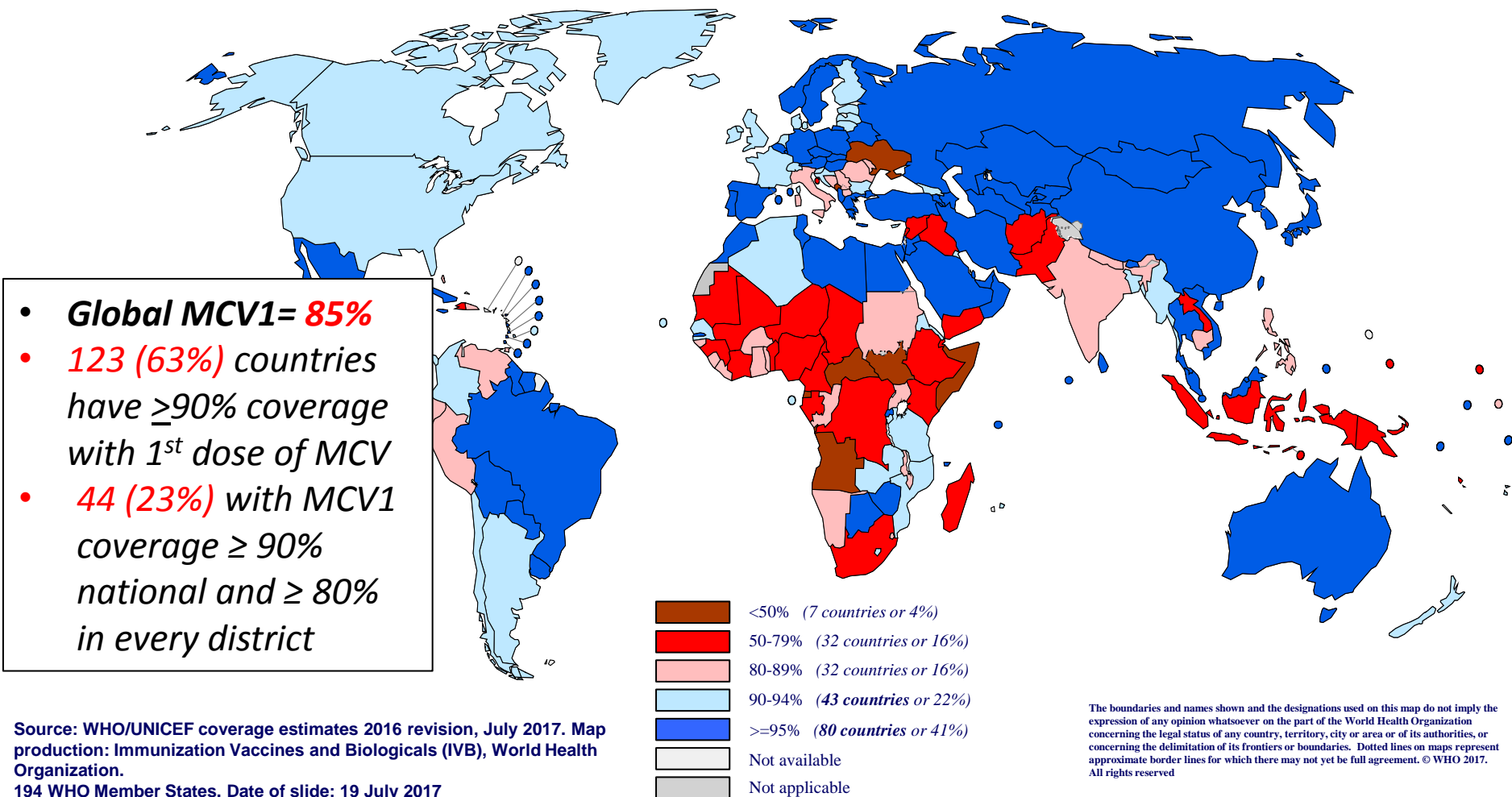
- Elimination of measles in 4 WHO Regions
- Elimination of rubella in 2 WHO Regions

### By 2020:

- Elimination of measles & rubella in 5 WHO Regions

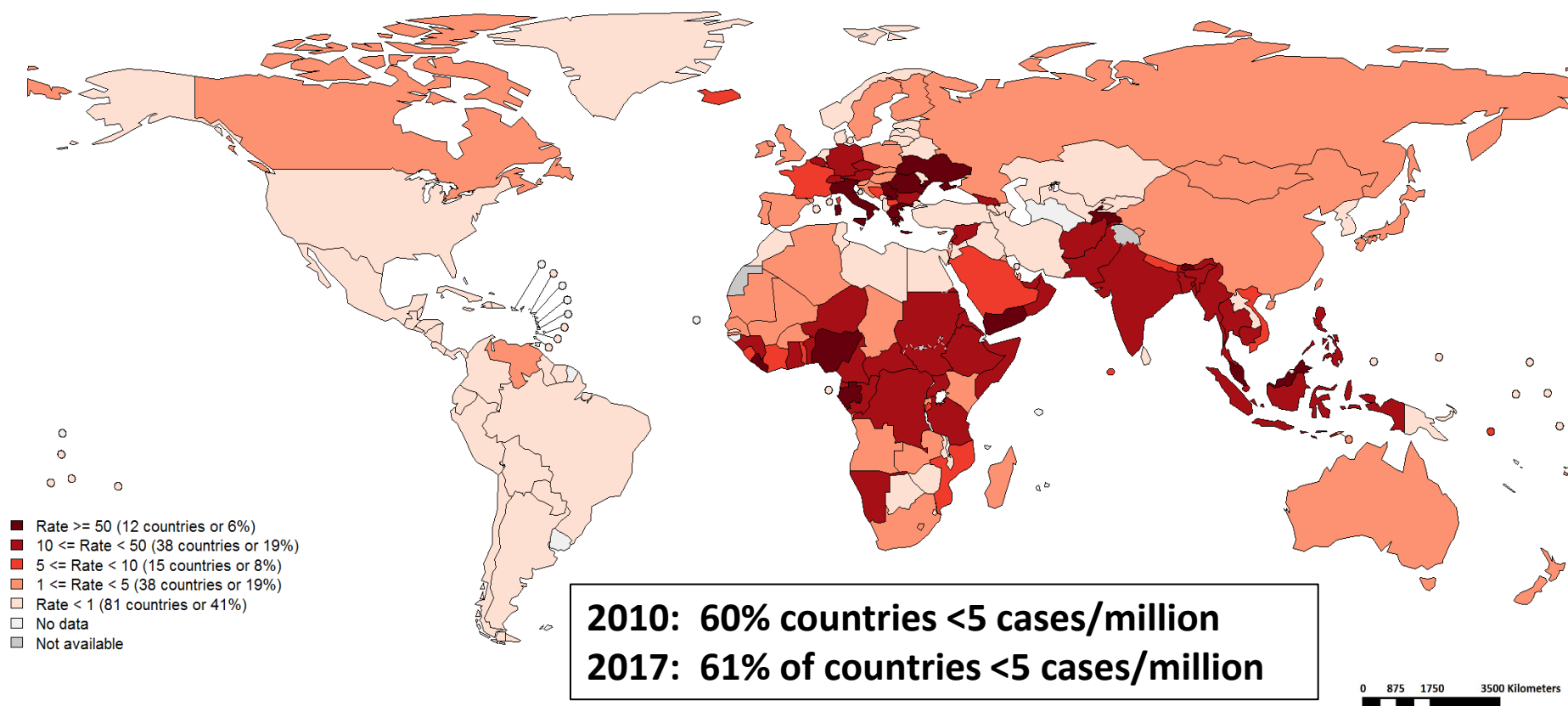
# **Global Update**

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



Immunization coverage with 1<sup>st</sup> dose of measles containing vaccines in infants, 2016

# Global Milestone #2: Measles Incidence <5 cases/million



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

## Disclaimer:

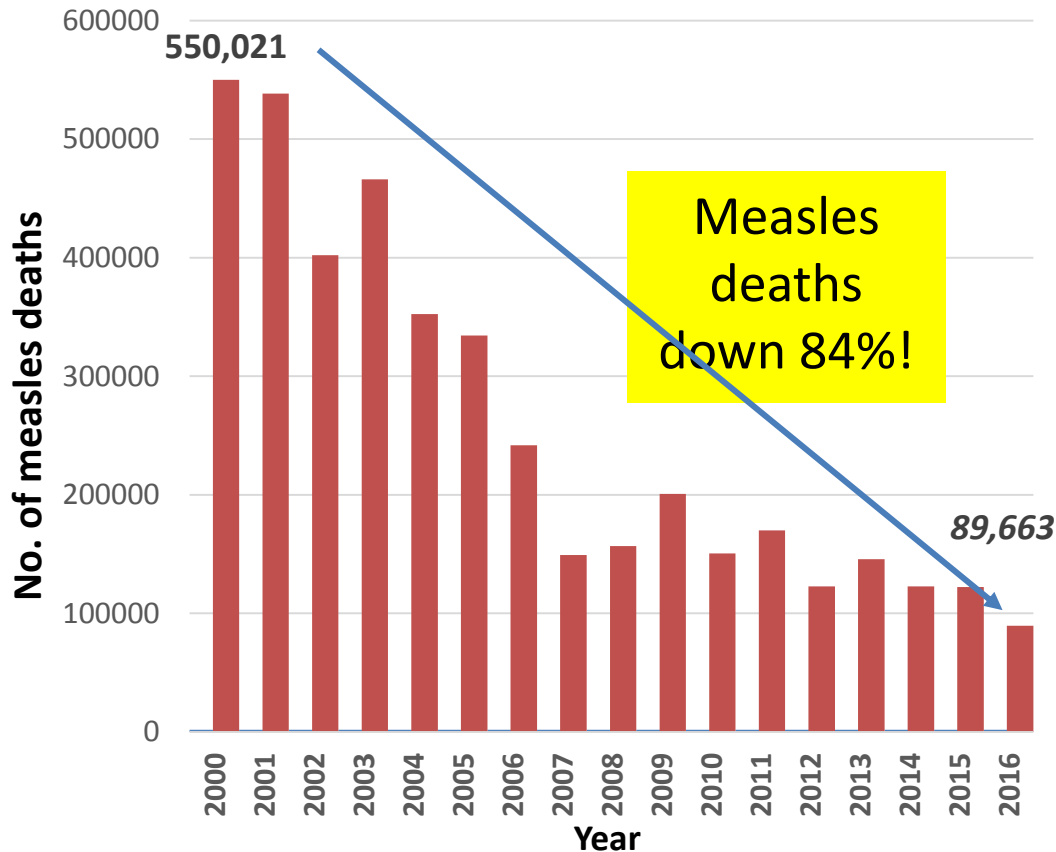
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Based on data received 2018-02 and covering the period between 2017-01 and 2017-12 - Incidence: Number of cases / population\* \* 100,000 - \* World population prospects, 2017 revision - \*\* Countries with the highest number of cases for the period - \*\*\* Countries with the highest incidence rates (excluding those already listed in the table above)

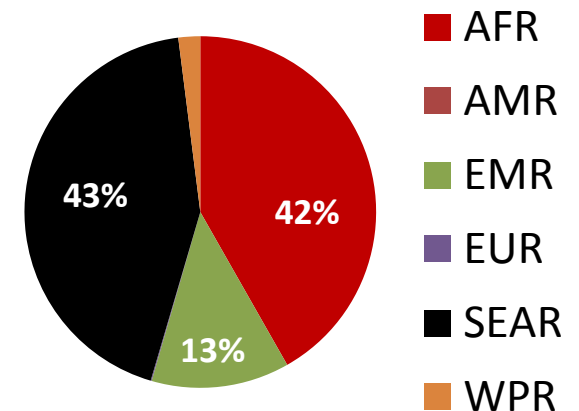
# Global Milestone #3

## 95% Reduction in Measles Deaths

Measles Deaths, by Year 2000-2016



Estimated deaths by Region, 2016

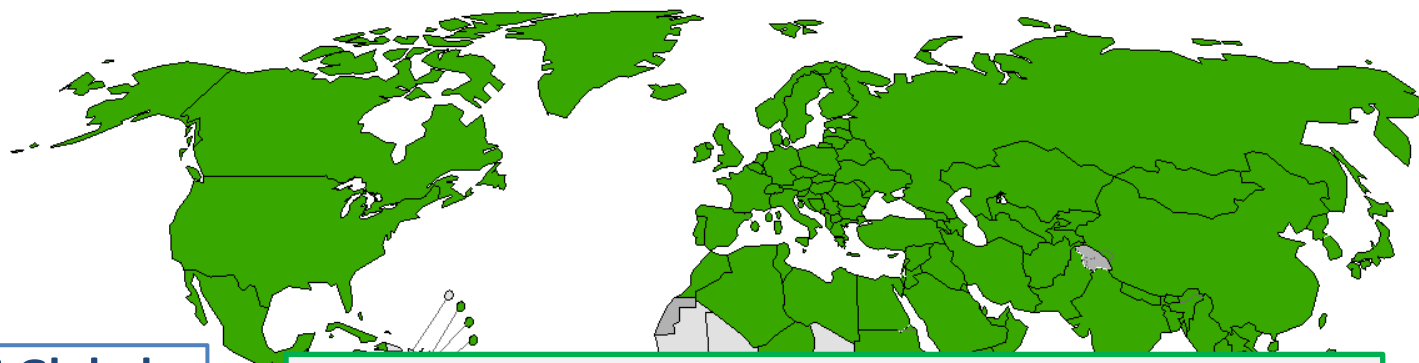


20.4 million deaths prevented from 2000-2016 by measles vaccination

# Increasing Measles Second Dose

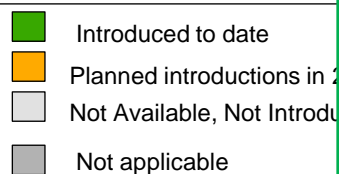
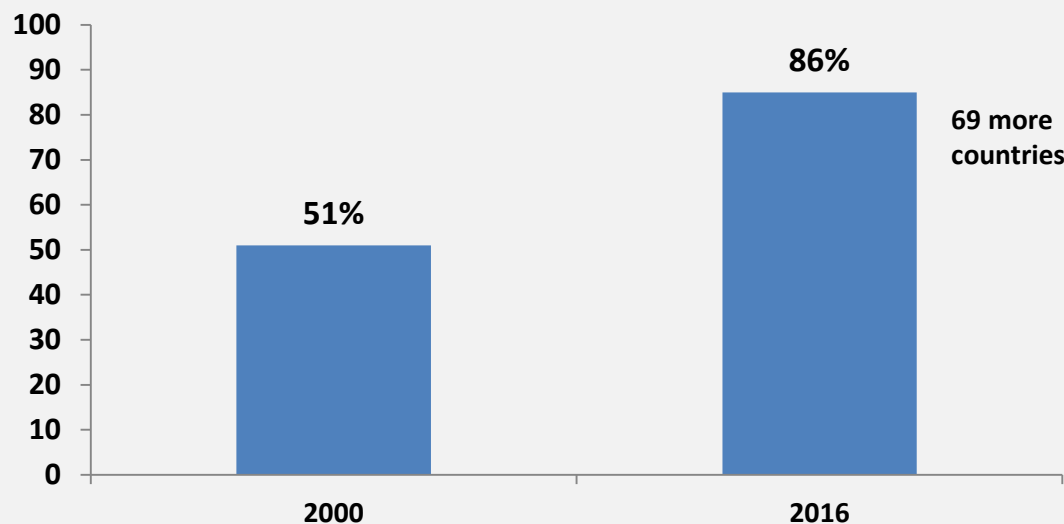
Countries using Measles Second Dose vaccine to date; and planned introductions in 2018

0 1,200 2,400 4,800  
Kil



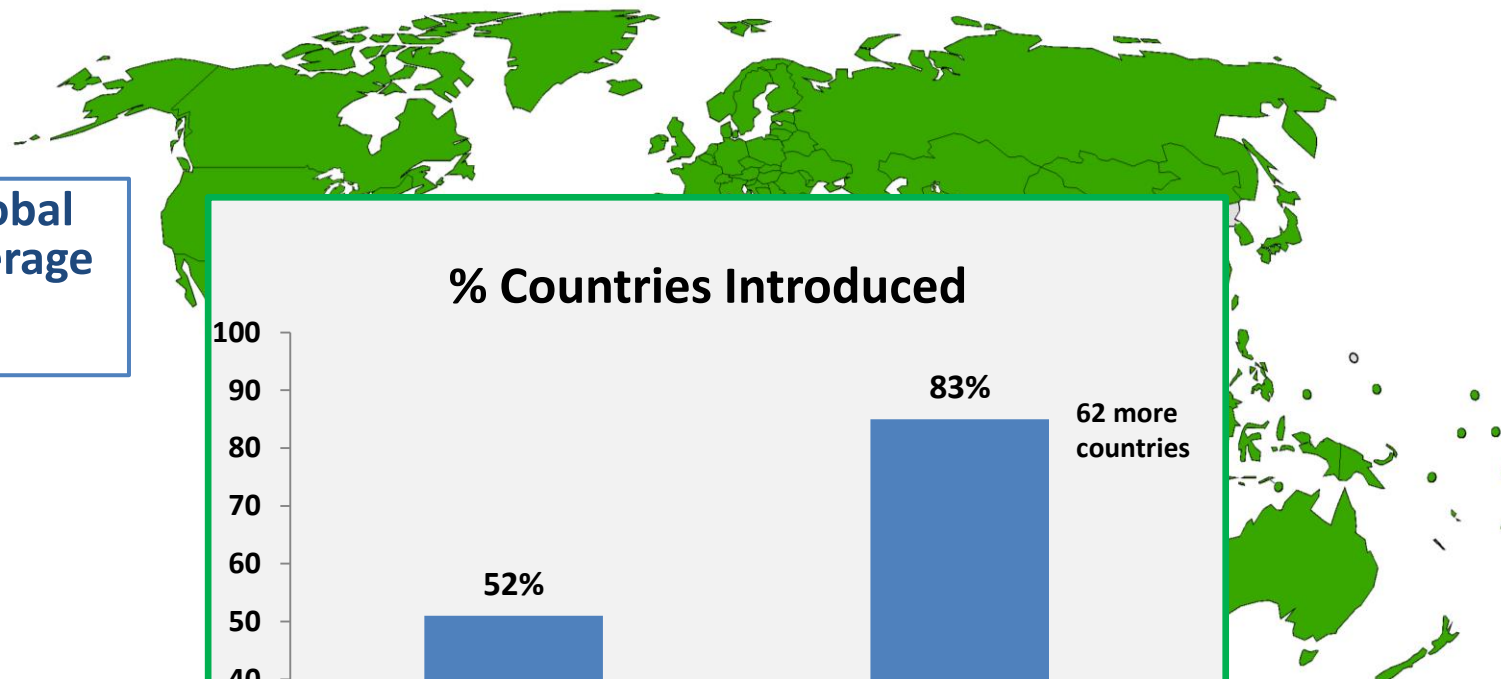
**2016 Global  
MCV2  
Coverage 64%**

## % Countries Introduced

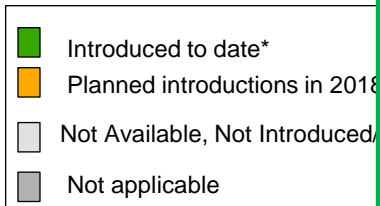
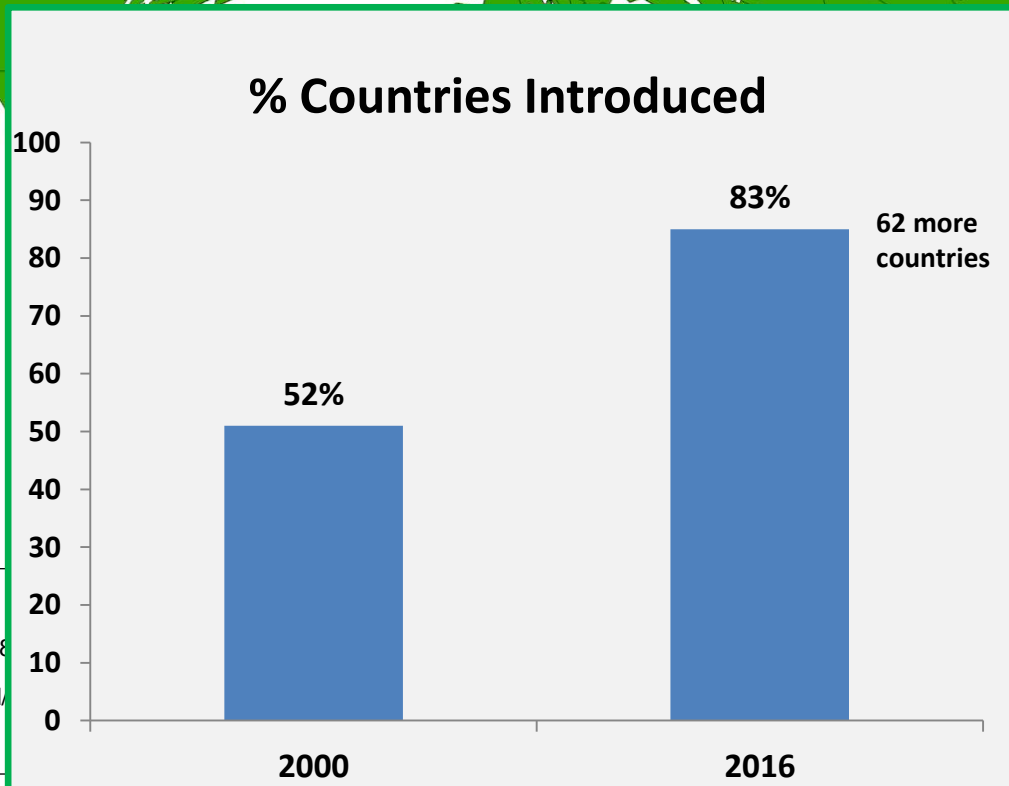




# Countries with Rubella vaccine in the national immunization programme; and planned introductions in 2018



**2016 Global  
RCV Coverage  
47%**



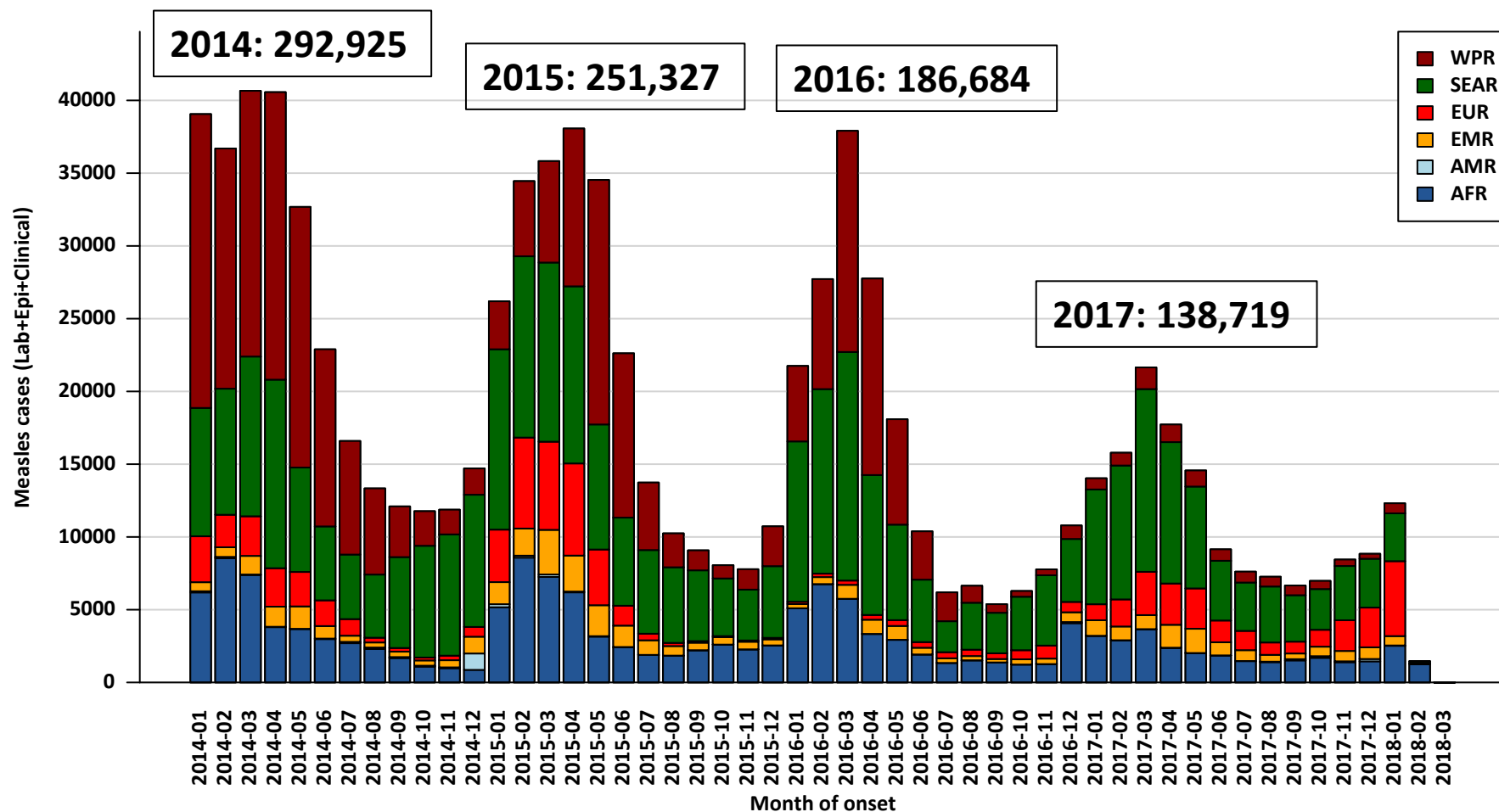
Data source: WHO/IVB Database, as of 26 Jan 2018

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

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\* Includes partial introduction

# Measles Case Distribution by Month and WHO Region (2014-2018)

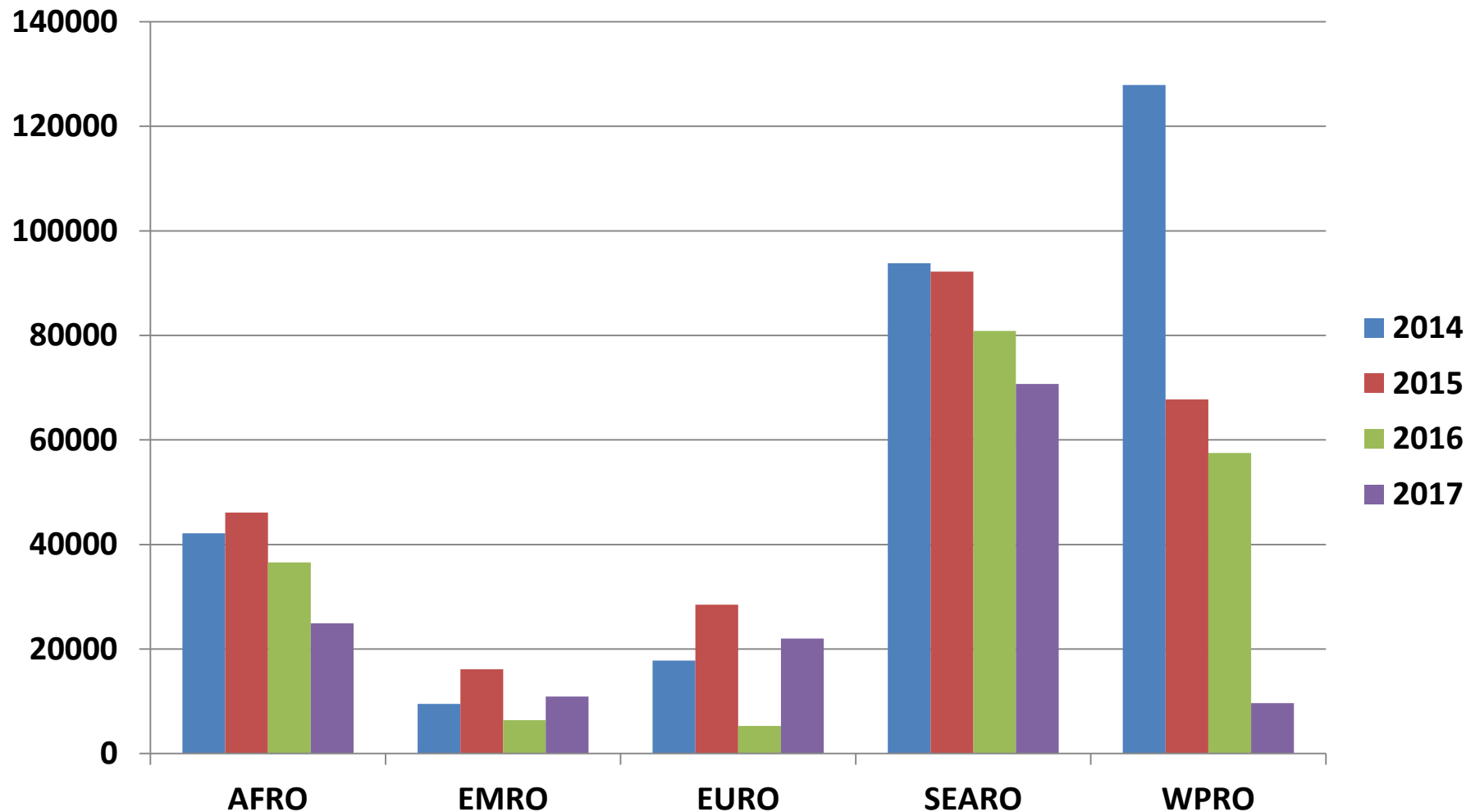


Based on data received 2018-03 - Data Source: IVB Database - This is surveillance data, hence for the last month, the data may be incomplete.

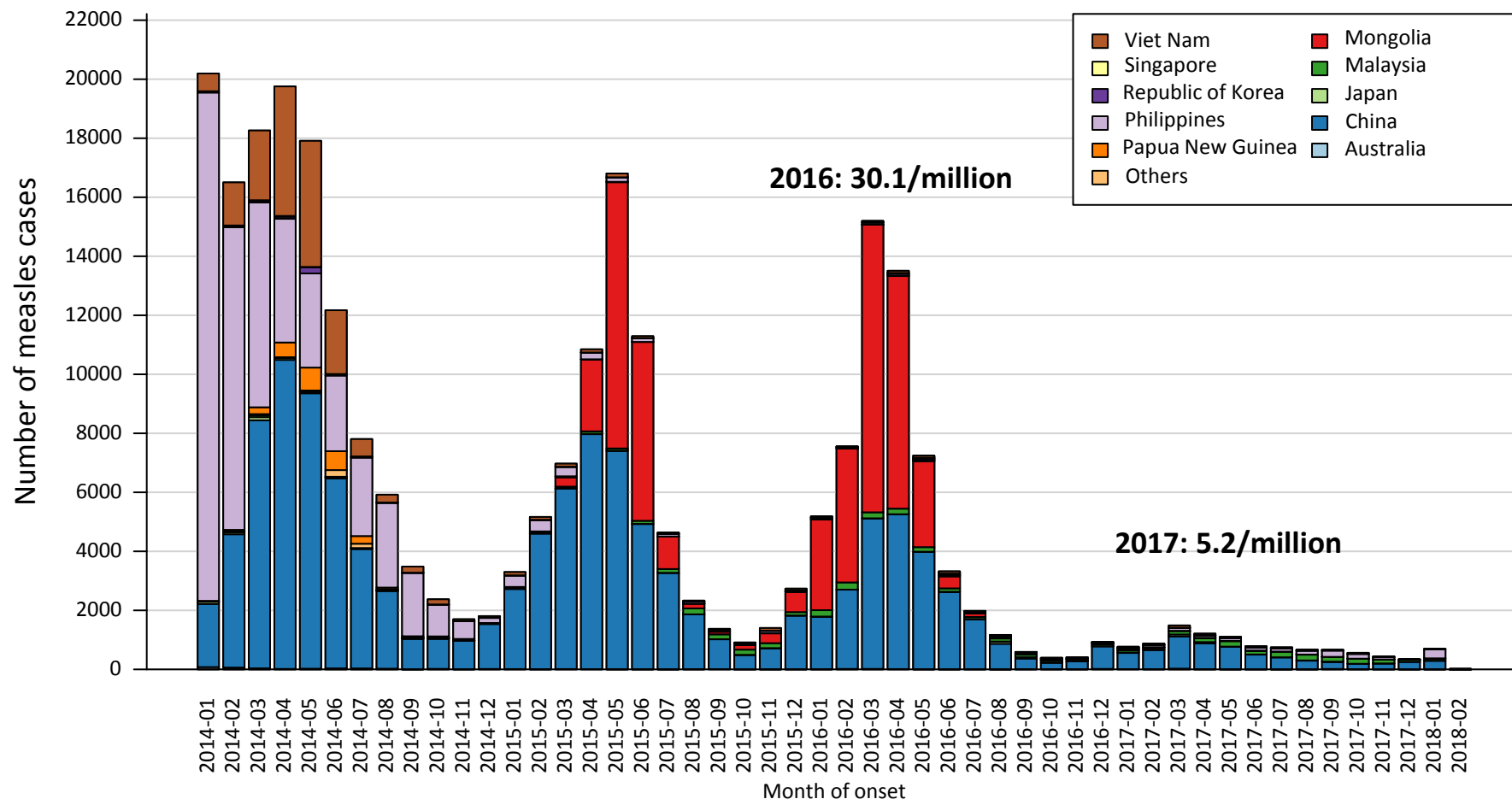
Note: India started submitting monthly measles data from 2014 onwards.

# Regional Update

# Reported Measles Cases by Region 2014-2017

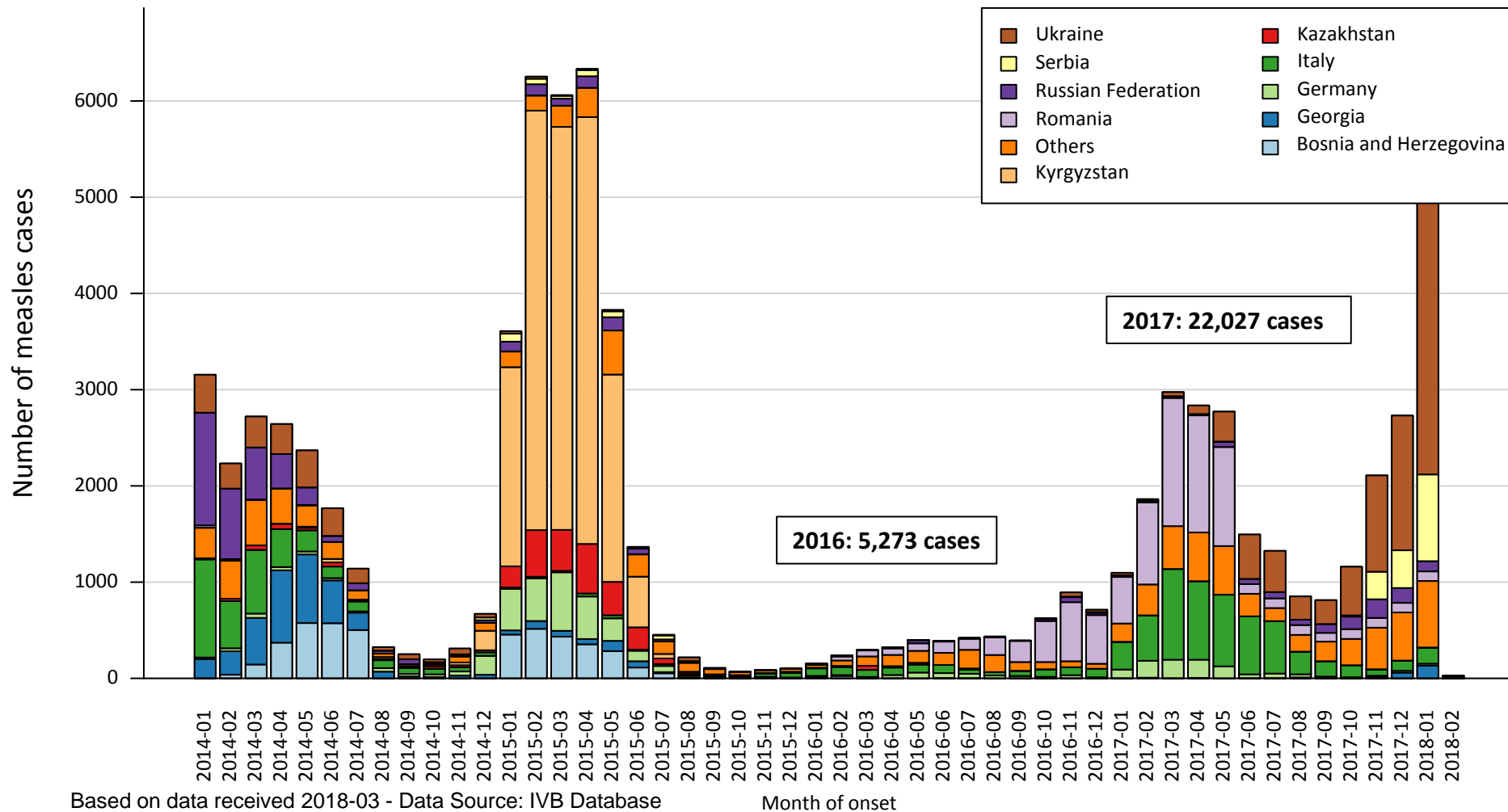


# Measles Case Distribution (WPR), 2014-2018



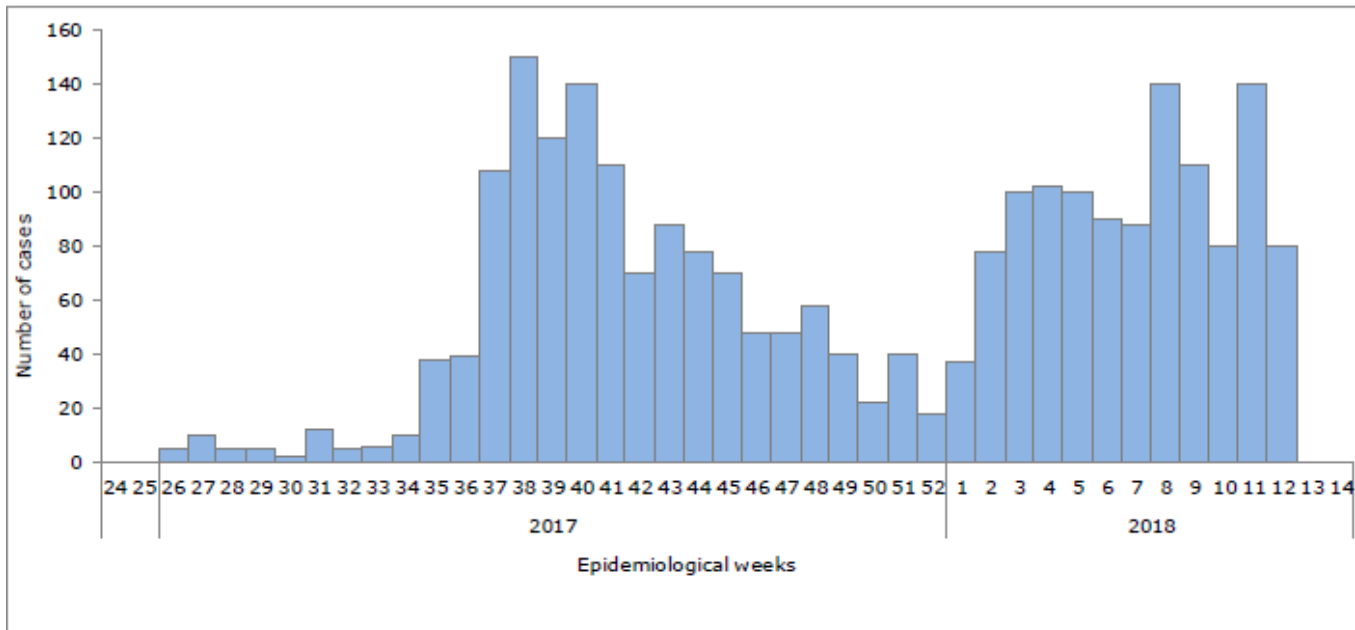
Based on data received 2018-03 - Data Source: IVB Database

# Measles Case Distribution (EUR), 2014-2018



# Venezuela Outbreak

E26, 2017-EW 12, 2018



- Ongoing since June 2017 (9 m)
- 1006 confirmed cases, 2 deaths
- Most cases in state of Bolívar, bordering with Guyana & Brazil

## Spread within the Region:

- Columbia: 4 cases in 4 departments among Venezuelan migrants
- Brazil: 181 suspected (40 confirmed, 32 are Venezuelan nationals)
- Peru: 2 confirmed cases of same genotype (D8)
- Contributed to approx. 5X increase in reported cases in 2017 compared to 2016

# Regional Scorecard on Verification of Elimination, Oct. 2017

WHO Region (No. Member States)	Regional Verification Commissions Established	Elimination Achieved	
		No. of MS (areas)	% of MS
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 (2) Rubella: 2	22% 7%
Eastern Mediterranean (21)	Yes	-	-
South-East Asia (n=11)	Yes	Measles: 2	18%
Africa (n=47)	Yes	-	-
TOTAL (n=194)		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.

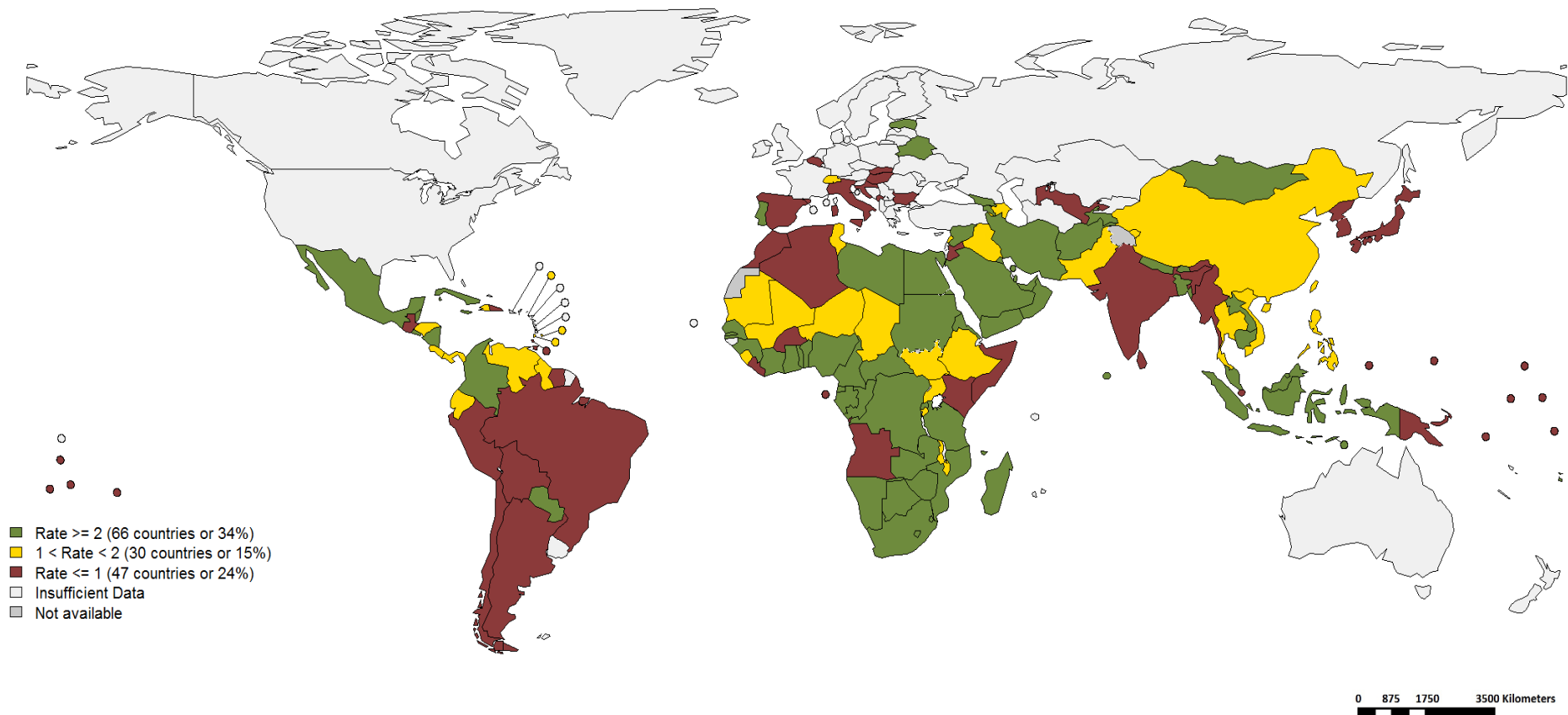


# Measles and Rubella Surveillance Practices

Questionnaire sent to 194 MS; data from 164 MS

- 86% & 77% had case-based, pop-based, national surveillance with lab confirmation for M/R, respectively
  - 26 MS exclude private HC providers and some health facilities
- 49% achieved the sensitivity indicator target of  $\geq 2/100,000$  population (of 94 MS with sufficient data)
- 34% MS reported using globally recommended M/R case definition ( F + R)
- 64% MS use more specific M/R case definition (F+R + 1C)
- 77% MS conduct CRS surveillance (of 163 MS responding)

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



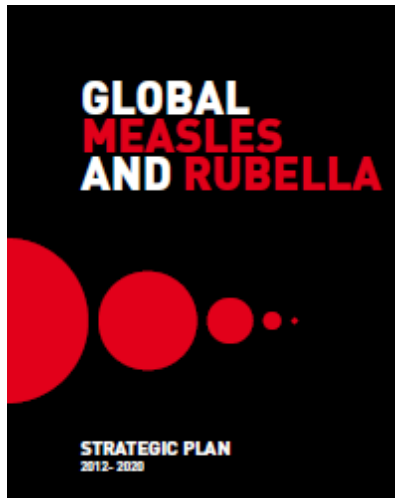
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**Data source:** IVB Database

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Based on data received 2018-02 and covering the period between 2017-01 and 2017-12 - Target:  $\geq 2$  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, 2017 revision

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



W. A. Orenstein, MD

SAGE

Geneva, 19 October 2016

# Global eradication goal

- It is **premature to set a timeframe for measles eradication at this point**
  - Determination should be made, not later than 2020, whether a formal global goal for measles eradication should be set with timeframes for achievement
    - 73<sup>rd</sup> WHA 2020 measles roadmap to eradication
  - In the meantime, all regions should work toward achieving the regional elimination goals.

# Progress with MTR Recommendations

- **Increase emphasis on surveillance**
  - Global guidance updated; review of status completed
- 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; 2YL, MoV, MRI RI WG)
- **Microarray patches (MAPs)** identified as potentially game changing advances to enhance the likelihood of success in reaching M/R goals.
  - WHO Consultation on MCV MAP product development in April 2018.

# Progress with MTR Recommendations

- **Develop close collaboration between M&RI and Gavi**
  - Ongoing (chapter meetings, priority countries)
- **Establish RVCs in all regions**
  - Completed
- **Identify positive and negative impact of M/R elimination on RI**
  - Review and studies carried out
- **Re-evaluate methods to identify target age range for SIAs**
  - Ongoing
- **Develop a costed implementation plan.**
  - FRR 2018-2020 completed

# Progress with MTR Recommendations

- Given the imminent reduction in polio eradication resources, which can have an adverse impact on both MR control/elimination efforts, **a focus on transition of polio resources is urgent** and needs to be a top priority
  - Actions taken to mitigate the impact of polio funding ramp down on MR control/elimination efforts:
    - Strategic Action Plan on Polio transition - WHA May 2018
      - “Strengthening Immunization and VPD Surveillance”
    - New efforts at global and regional level to develop a strategic vision for integrated VPD surveillance including MR
  - Ongoing risk threatening achievements already made

# Summary

- Substantial progress in measles control since 2000
  - Global number of cases and estimated deaths at an all time low
  - Significant progress in WPR in 2017
- Concerns
  - Resurgence of measles in EUR
  - Elimination of measles at risk in the Americas
  - 2015 global milestones and 3 regional targets were *not* met
- Surveillance
  - Increased efforts needed to address the surveillance gaps
- MTR recommendations provide framework to guide program
- Polio transition
  - Urgent to ensure continuity of M/R & other immunization functions currently supported through GPEI funds



# Thank you!

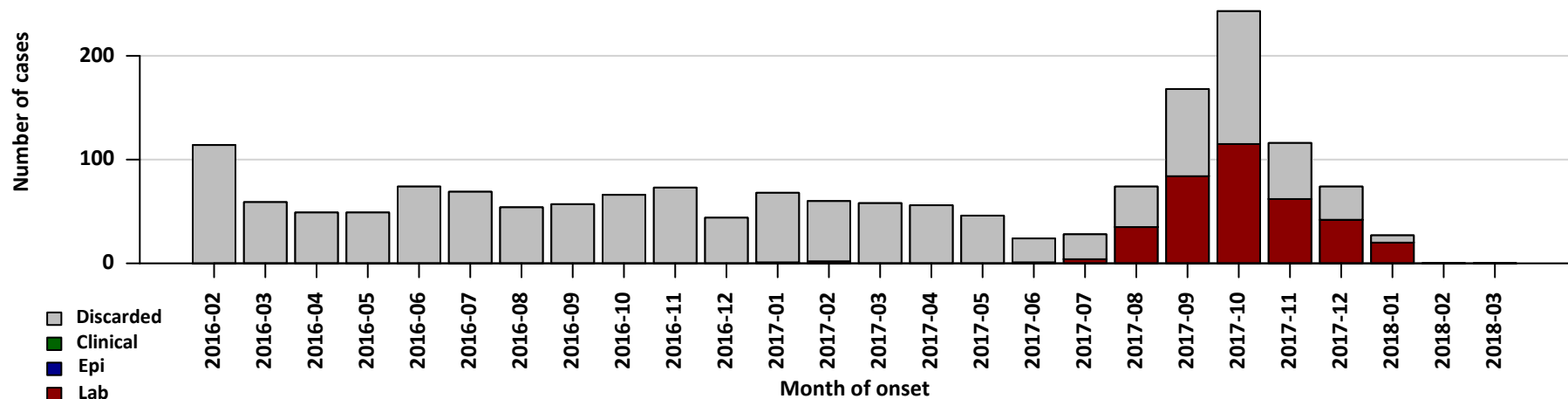


## Thanks to:

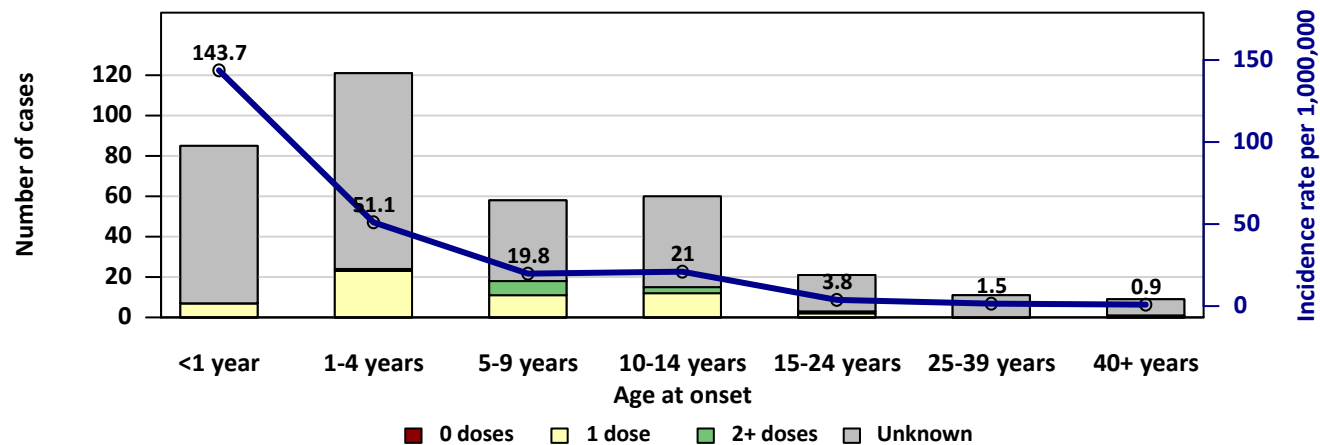
- MR SAGE WG members
- Minal Patel
- Katrina Kretsinger
- Laure Dumolard

Extra slides

# Measles cases: Venezuela (Bolivarian Republic of)



Venezuela (Bolivarian Republic of) age distribution, vaccination status, and incidence, 2017-02 to 2018-01



Year	Confirmed Cases
2008	0
2009	0
2010	0
2011	0
2012	1
2013	0
2014	0
2015	0
2016	0
2017	346
2018	20

# Future new approaches

## Diagnosis



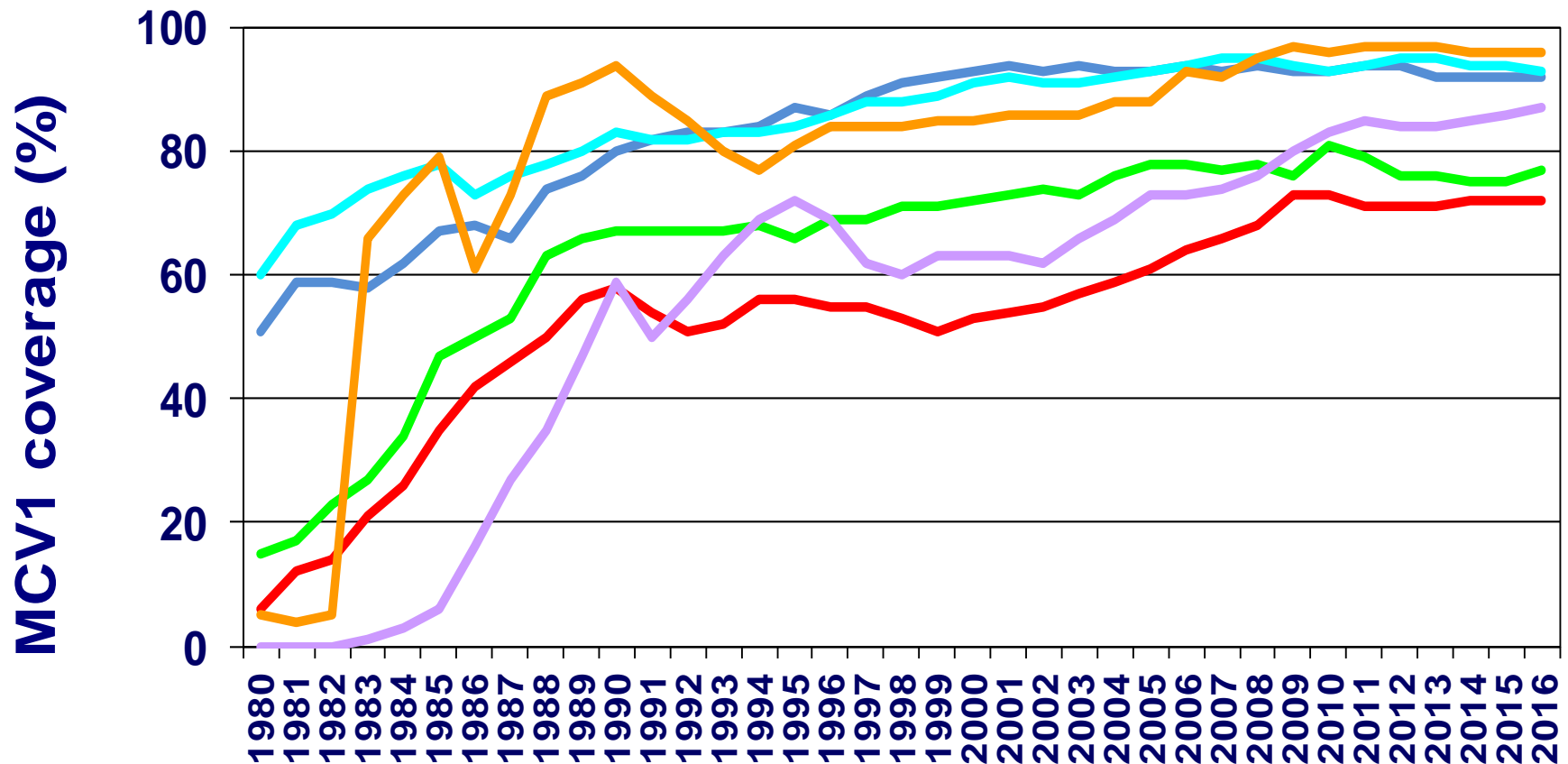
## Vaccination



100 micro-array  
patches

# Measles vaccine 1<sup>st</sup> dose (MCV1) coverage by WHO region, 1980-2016

Global coverage of MCV 1<sup>st</sup> dose at 85% in 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.

— AFR — AMR — EMR — EUR — SEAR — WPR

# 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 2017, reported measles cases at all-time low in AFR/SEAR/WPR
- RVC established in all 6 Regions. With three regions verifying rubella elimination (AMR/EUR/WPR).

\*Algeria, Burkina, Cape Verde, Rwanda, Eritrea, Gambia, Ghana, Mauritius, Senegal, Seychelles, Sao Tome, Zimbabwe

# 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 Venezuela outbreak PAHO and resurgence in 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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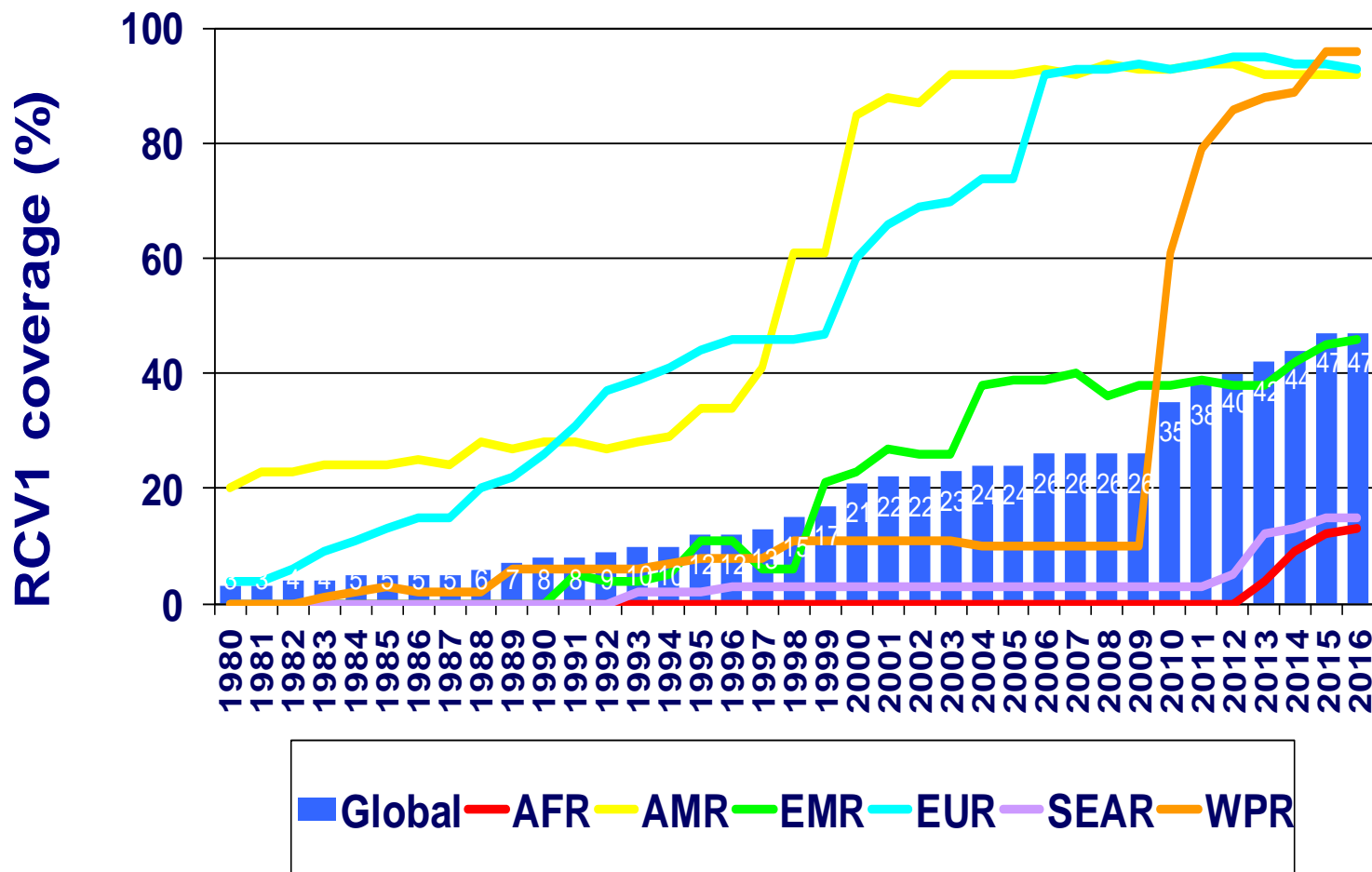
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World Health Organization



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# 2016 Global RCV Coverage 47%

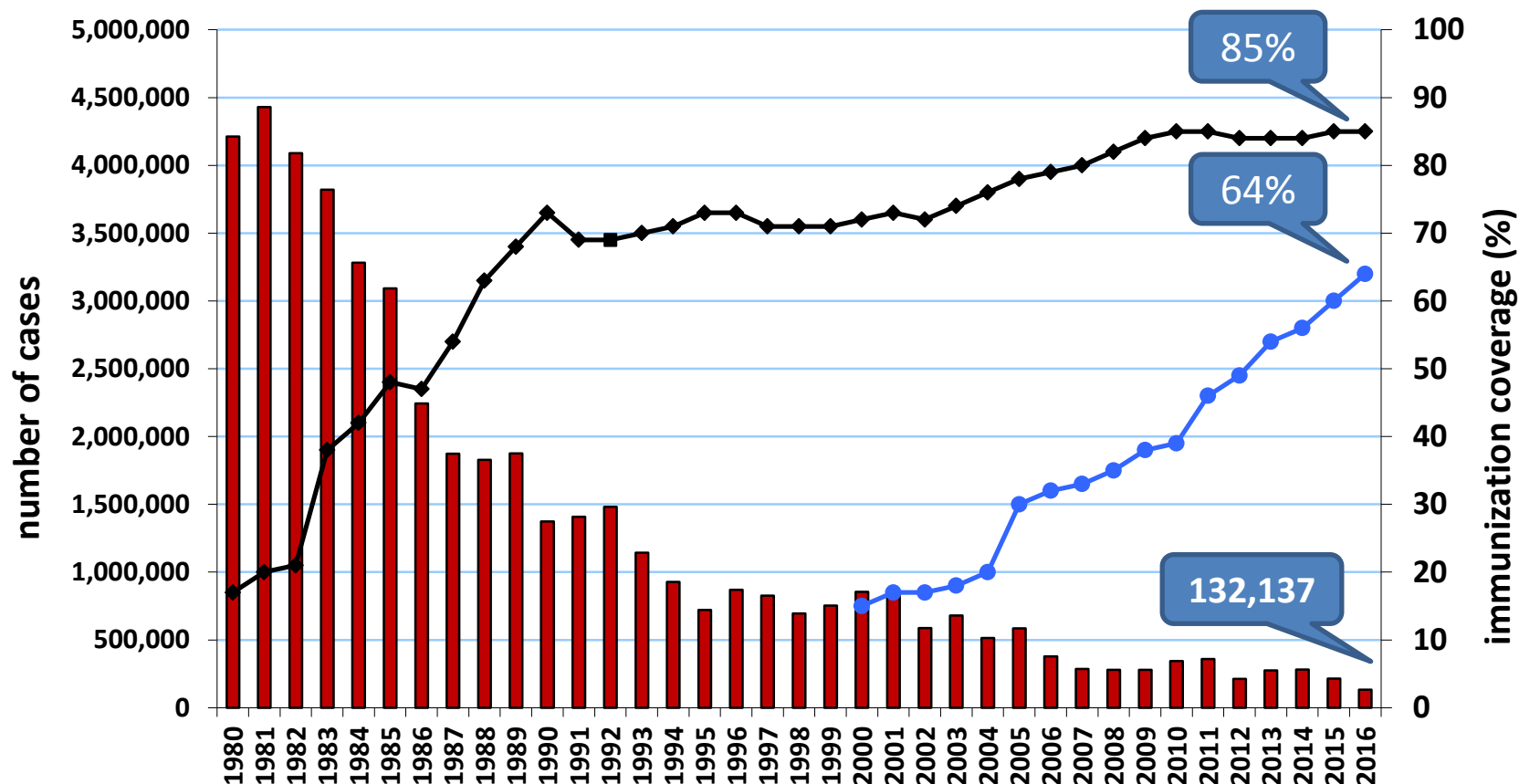
Rubella containing vaccine 1<sup>st</sup> Dose (RCV1) coverage\*  
by WHO region, 1980-2016



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.

# 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

■ Number of cases

◆ MCV1 coverage

● MCV2 coverage



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

# 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.