

Global Measles Rubella Update

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Strategic Advisory Group of Experts on Immunization Meeting

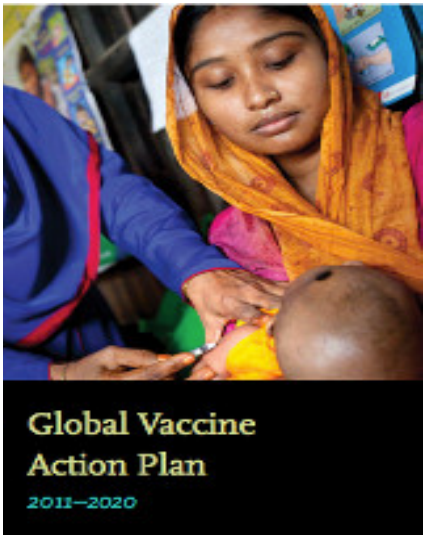
October 8, 2019

Geneva, Switzerland



World Health
Organization

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 2020:

Elimination of measles & rubella in 5 WHO Regions

2018 report:

Milestones:

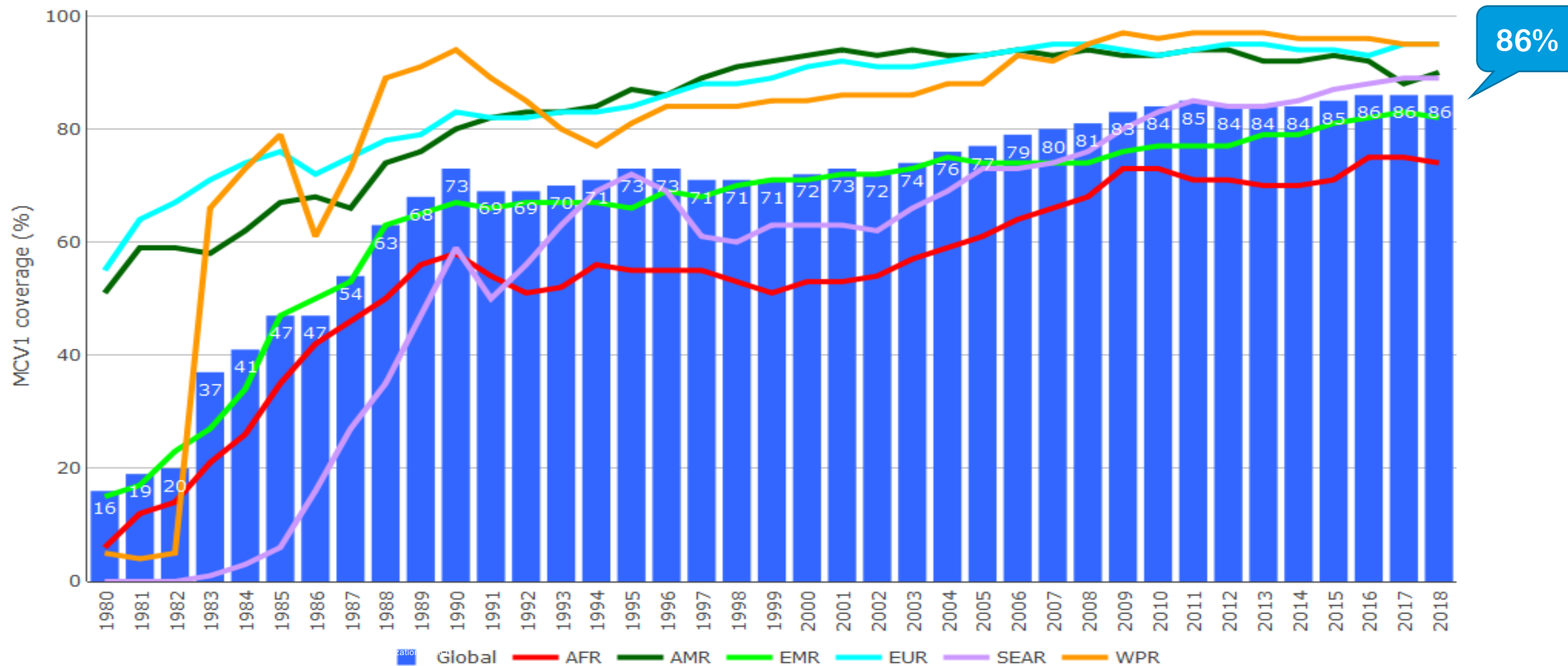
1. 118 (61%) Member States achieved $\geq 90\%$ coverage; 57 (29%) MS achieved $\geq 80\%$ in every district
2. Reported incidence 50 cases / million
3. 2017: 80% reduction estimated mortality vs 2000

Regional elimination:

- No Regions measles-eliminated
- One Region (PAHO) rubella-eliminated

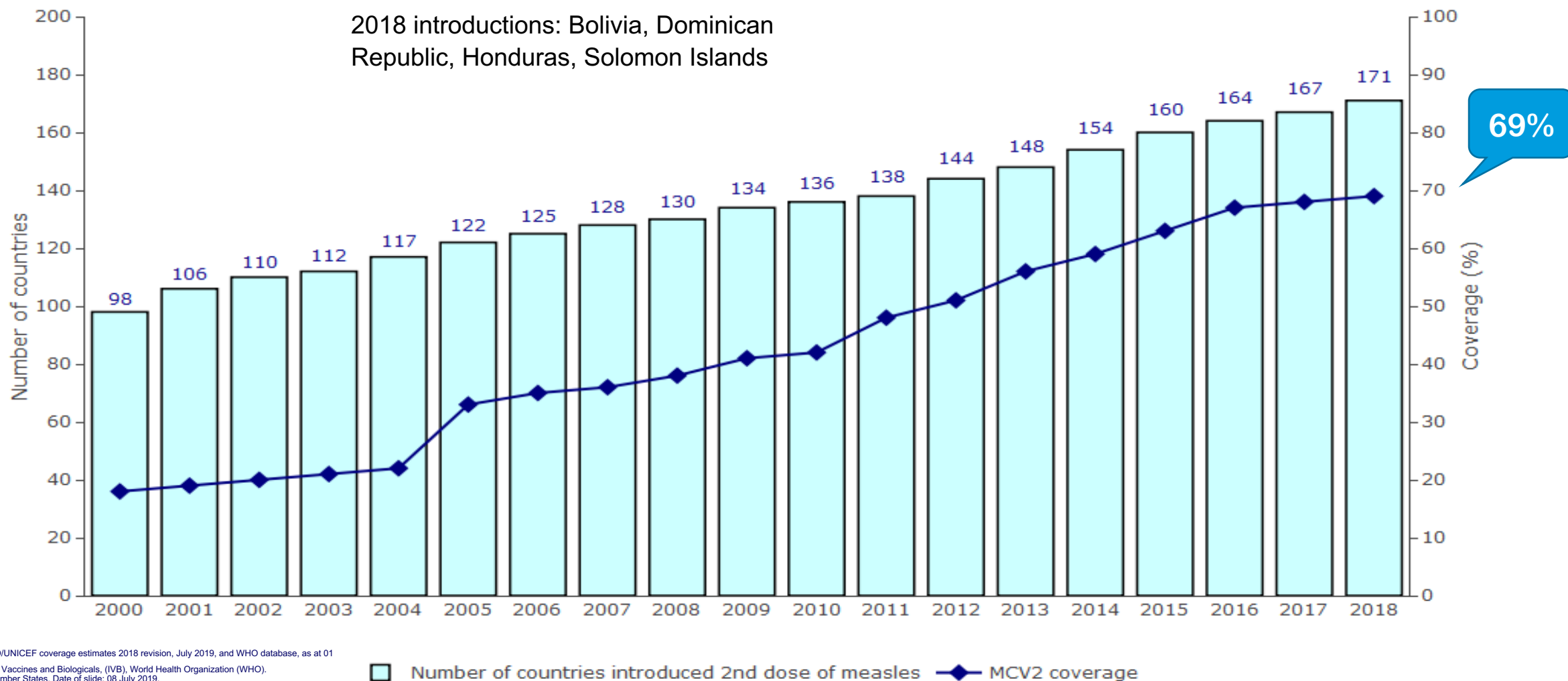
Global Measles Vaccine Coverage Flat

Measles containing vaccine 1st dose (MCV1) coverage by WHO region, 1980-2018



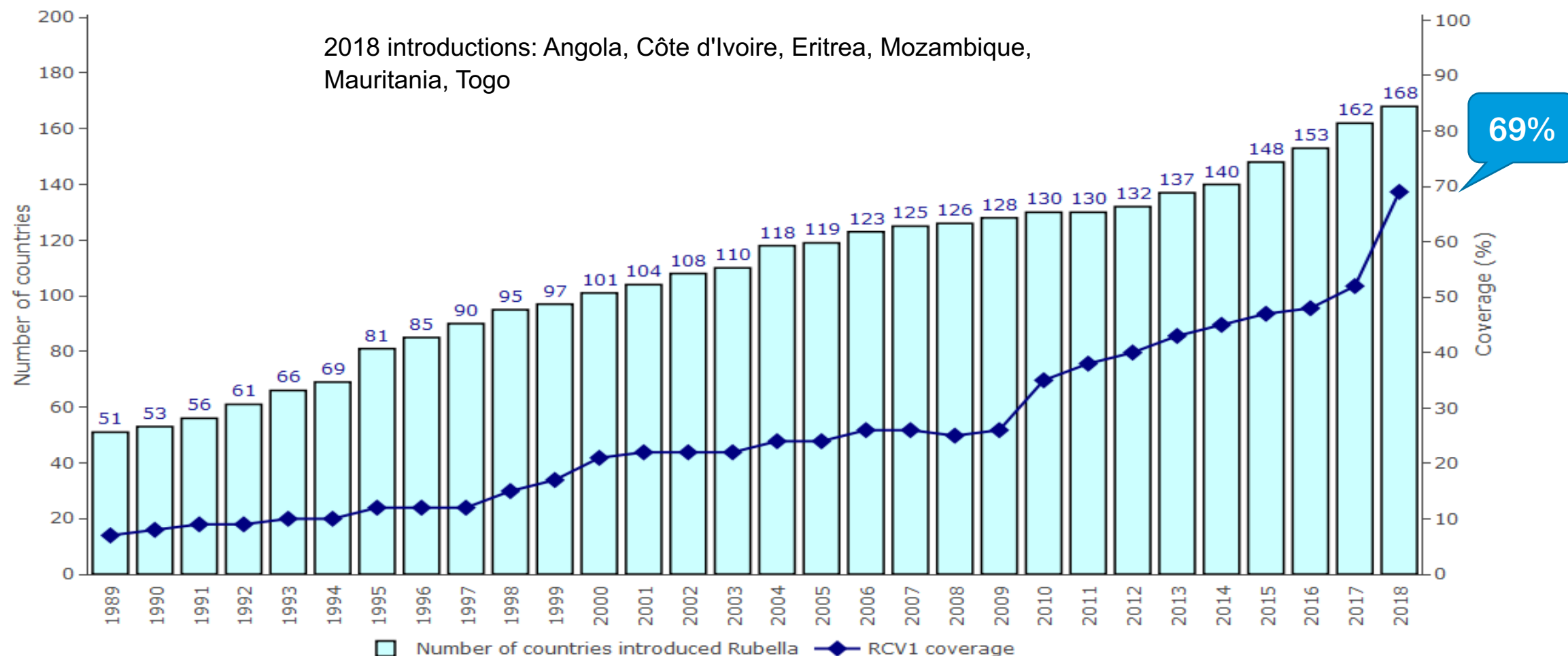
Steady Increases in Measles Second Dose

Number of countries having introduced 2nd dose of measles containing vaccines (MCV2) and global MCV2 coverage, 2000-2018

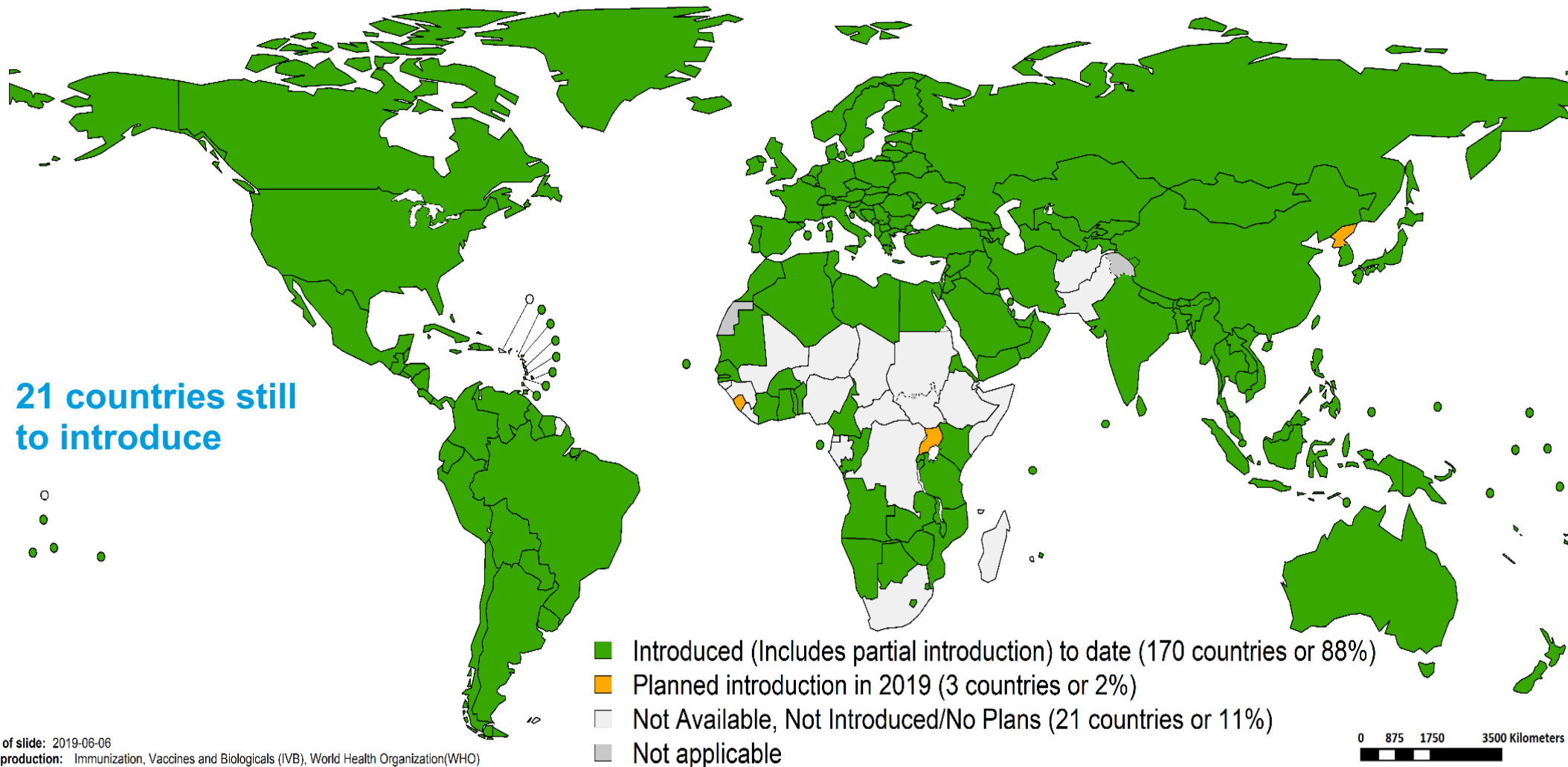


Dramatic Increases in Rubella Vaccine Coverage

Number of countries having introduced rubella containing vaccines and global infant coverage of 1st dose of rubella containing vaccines (RCV1)*, 1989-2018



Countries with rubella vaccine in the national immunization programme, and planned introductions in 2019



Date of slide: 2019-06-06

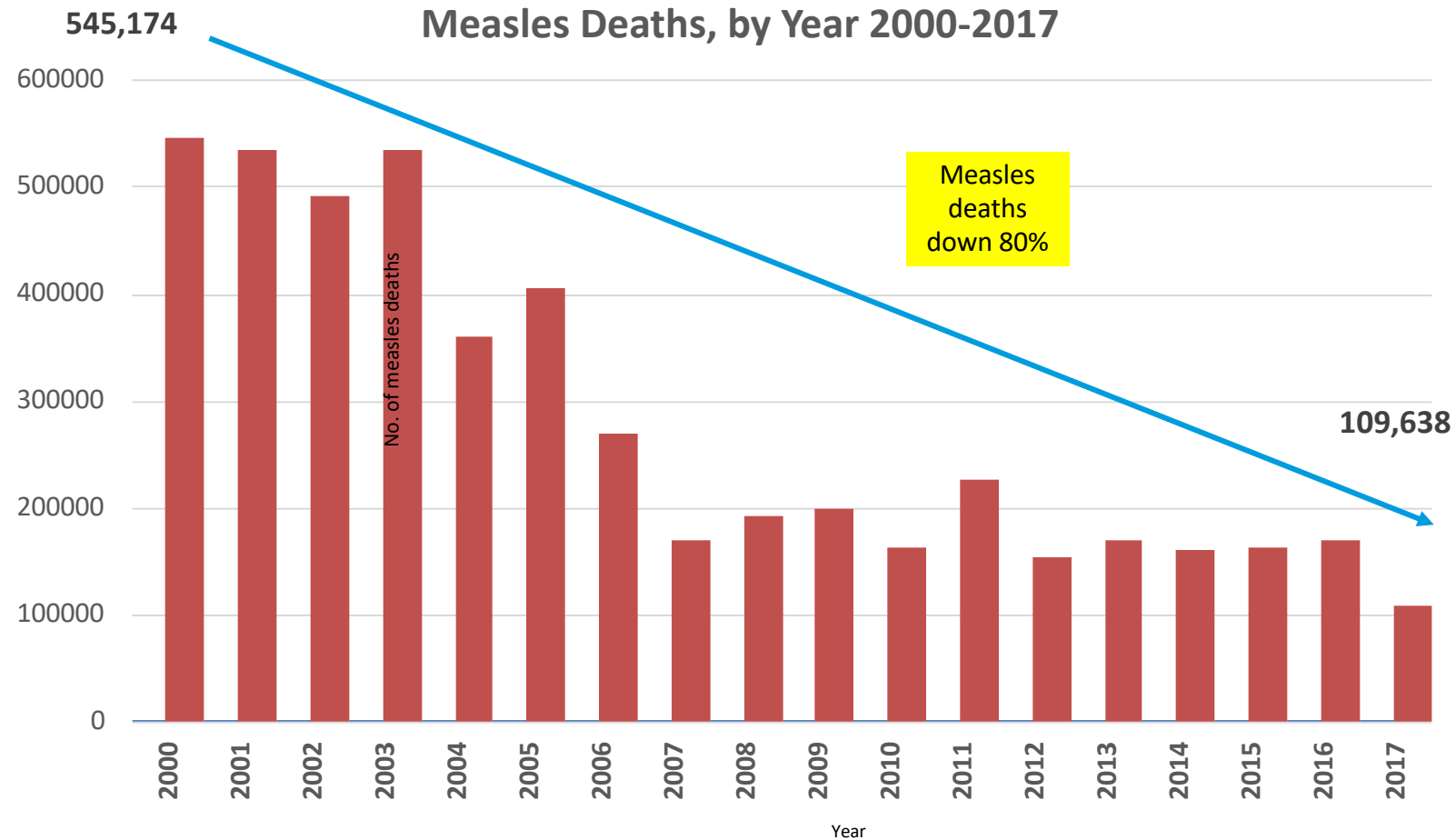
Map production: Immunization, Vaccines and Biologicals (IVB), World Health Organization (WHO)

Data source: IVB database as at 6th June 2019

Disclaimer:

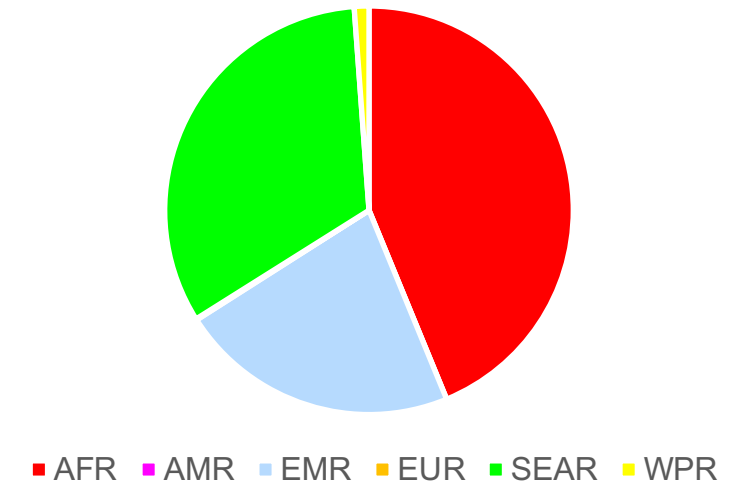
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80% Reduction in Estimated Global Measles Deaths, 2000-2017



21.1 million deaths prevented from 2000-2017 by measles vaccination

2017 Estimated Deaths by Region



Anti-vaxxers distract from a more serious threat
TEDROS ADHANOM GHEBREYESUS
Many parents aren't afraid of social media trolls but simply can't access or afford vaccine

**States seek to force parents
to vaccinate children**

**Philippines measles outbreak fed by
distrust of vaccines**

**'Dramatic resurgence' of measles seen in
Europe, WHO reports**

Anti-vaxx 'mobs'

**New York measles outbreak
prompts state of emergency**

**Global measles cases three
times higher than last year**

Anti-vaxxers' must not be given credence

Italy bans unvaccinated children from schools

**UK loses measles elimination
status after vaccine use drops**

**El sarampión resurge con fuerza
en Europa, según la OMS**

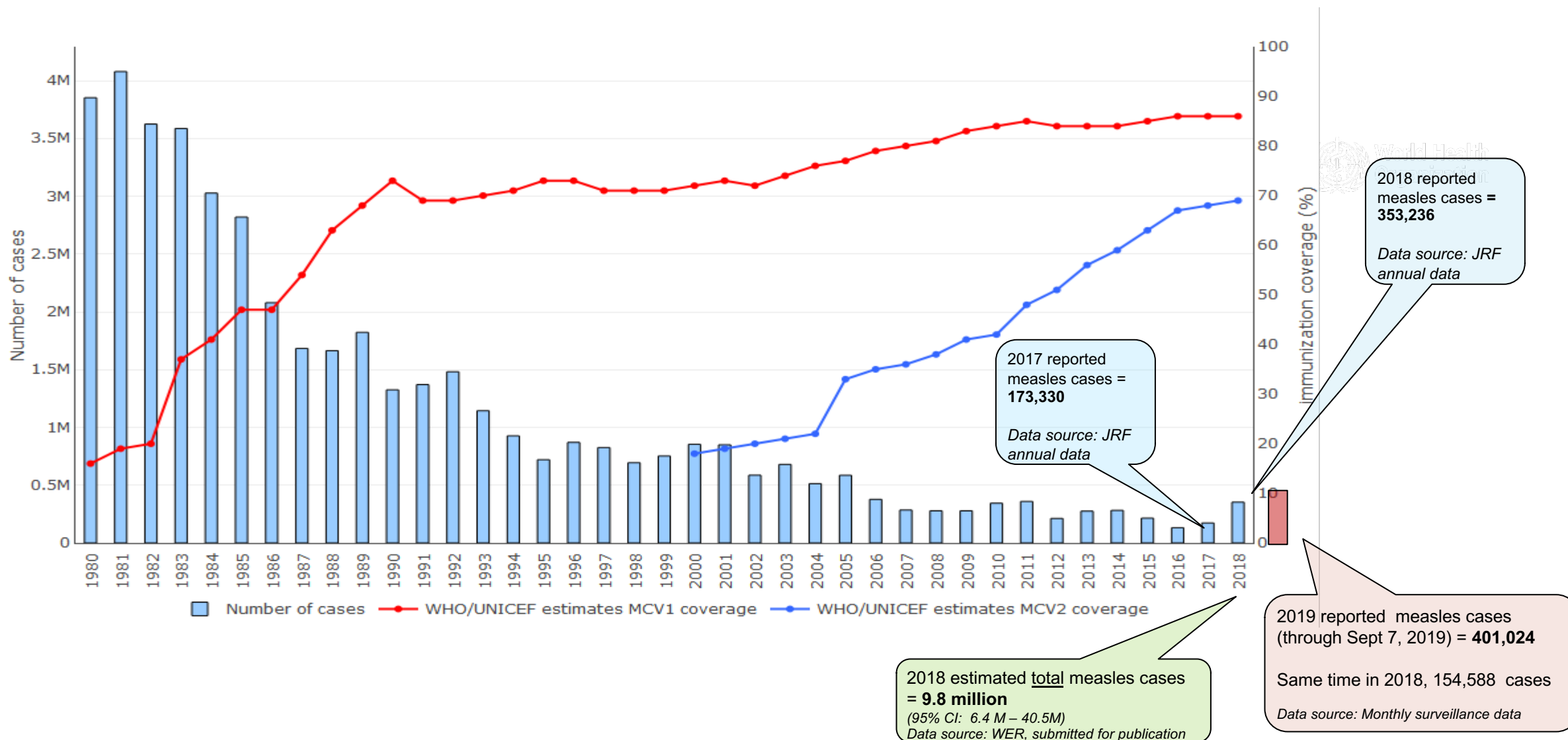
**Lawmakers to propose bill to
allow teens to get vaccinated
without parental consent**

**US may soon lose measles
elimination status, CDC says**

**Retour en force de la rougeole en Europe,
l'OMS appelle à intensifier la vaccination**

Increases in Reported Measles Cases

Measles global annual reported cases and MCV1 and MCV2* coverage, 1980-2018



Increase in Measles Incidence, 2016-2018

2016: 18 reported cases / million

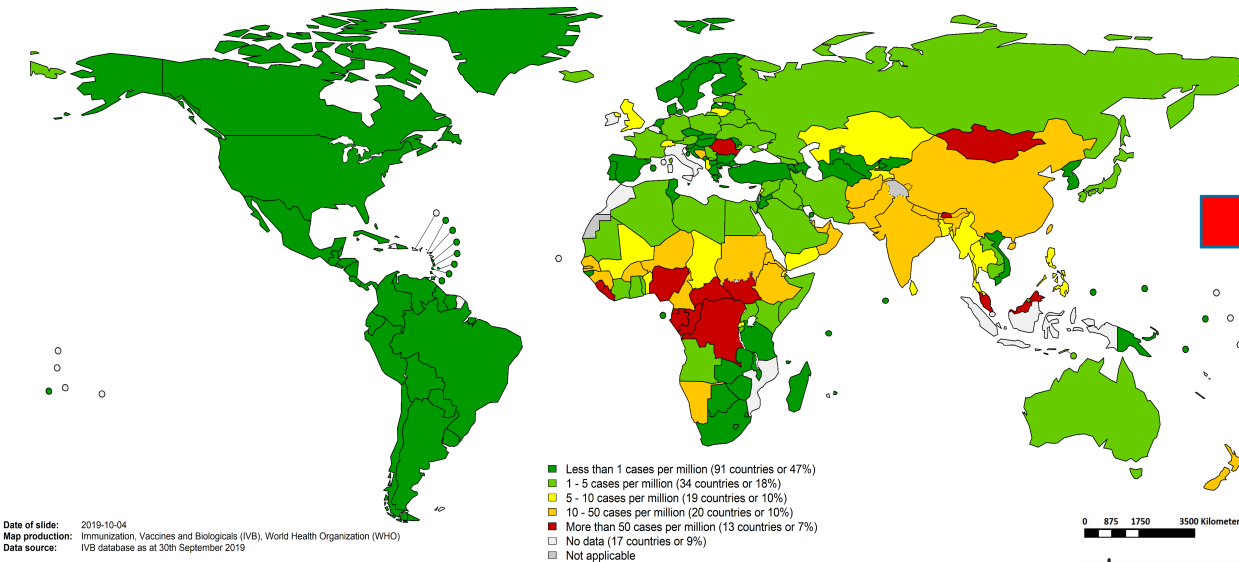
125 countries w incidence < 5 / million
33 countries w incidence ≥ 10 / million



2018: 50 reported cases / million

96 countries w incidence < 5 / million
75 countries w incidence ≥ 10 / million

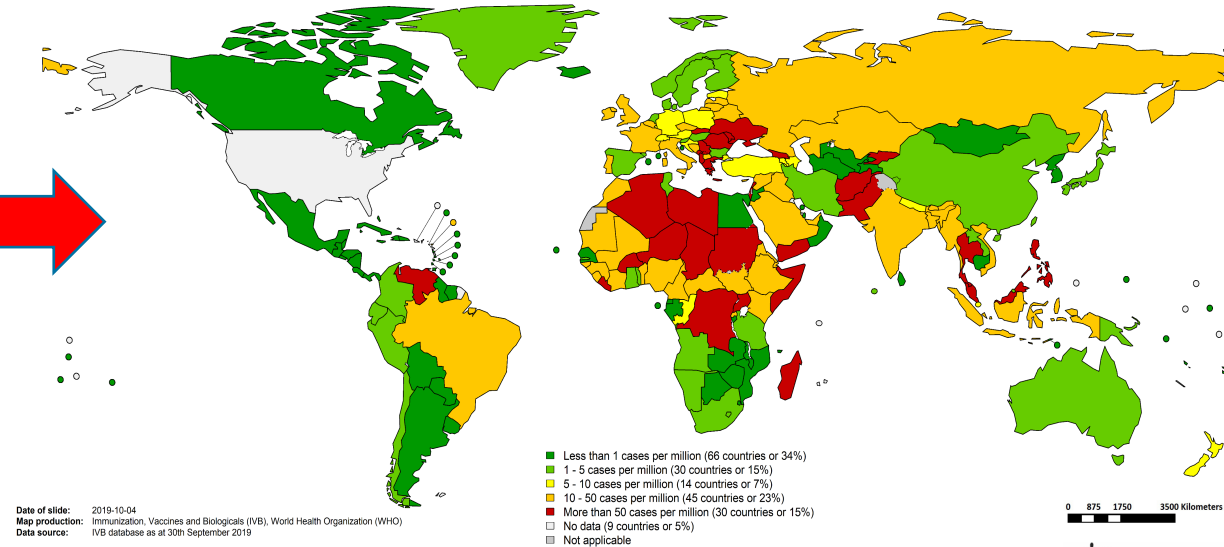
Measles cases per million population, 2016



Date of slide: 2019-10-04
Map production: Immunization, Vaccines and Biologicals (IVB), World Health Organization (WHO)
Data source: IVB database as at 30th September 2019

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Measles cases per million population, 2018

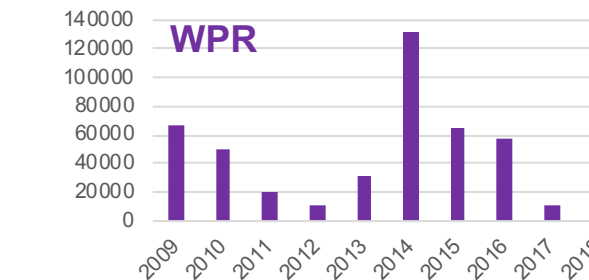
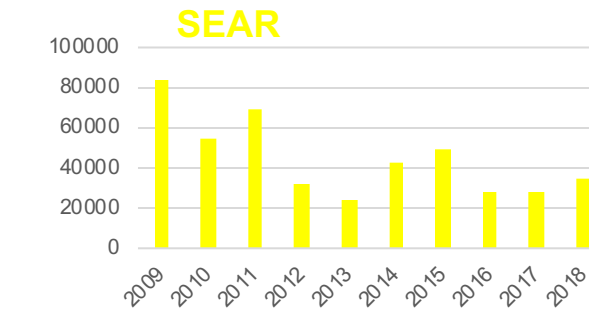
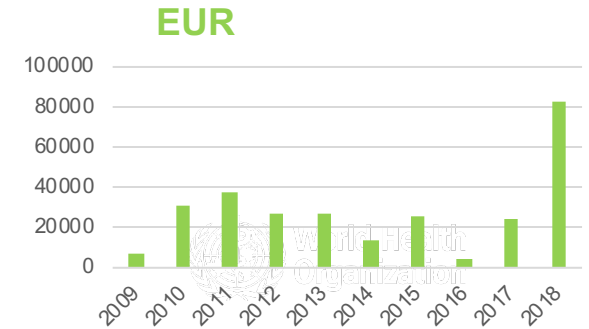
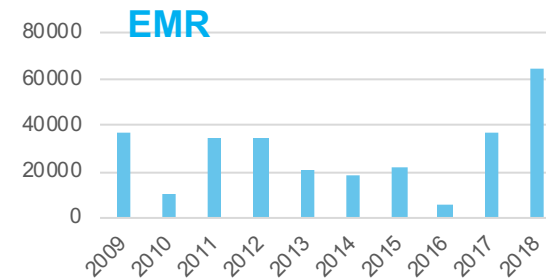
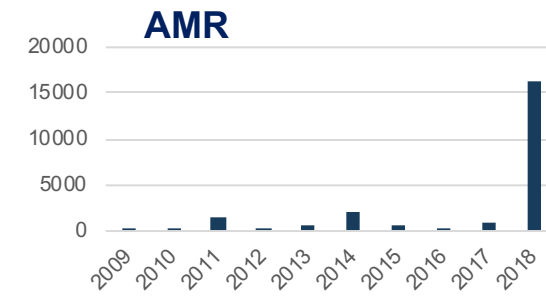
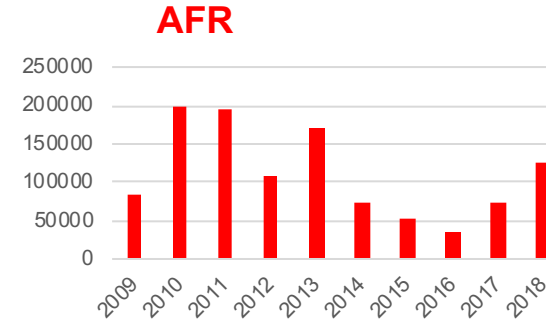
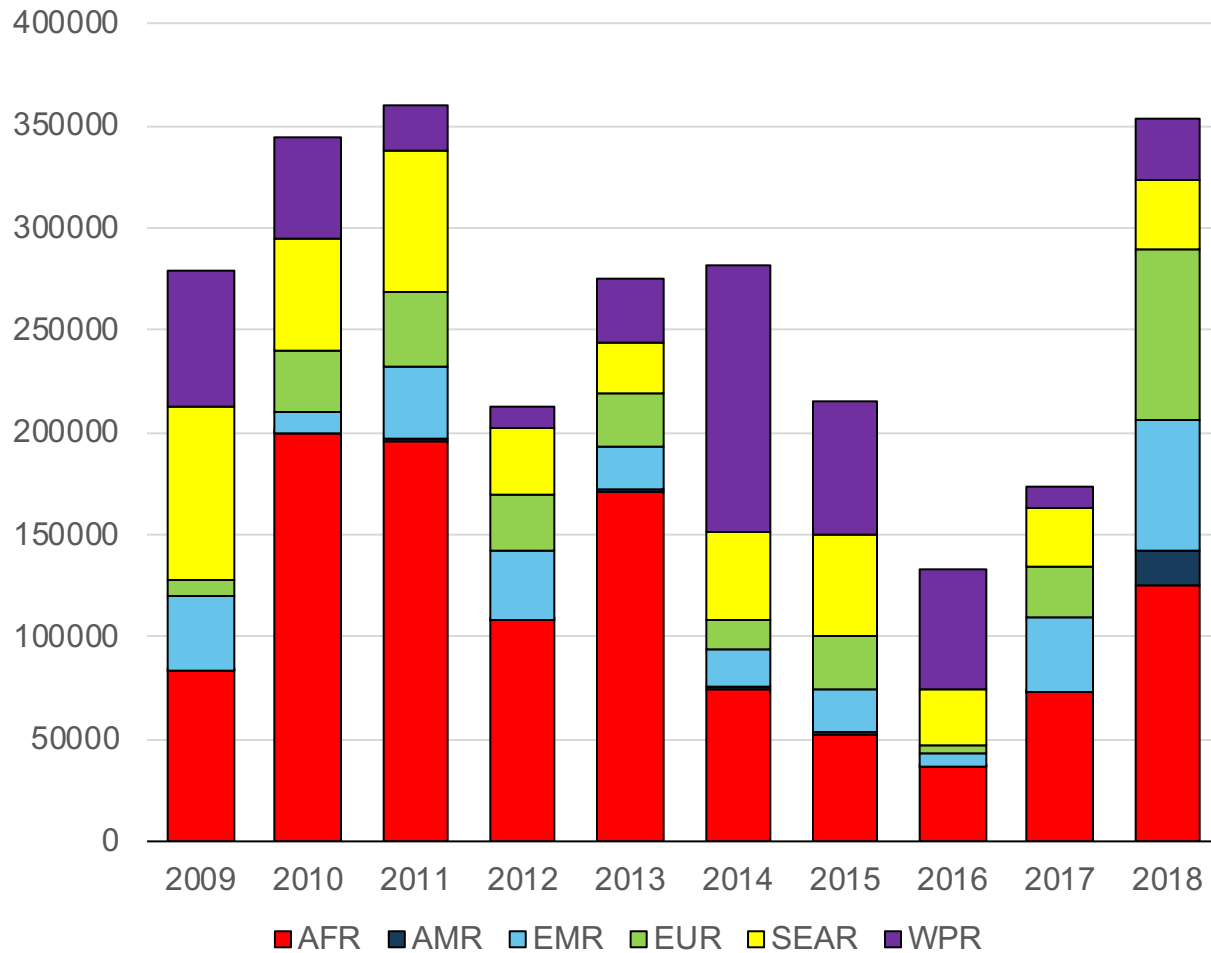


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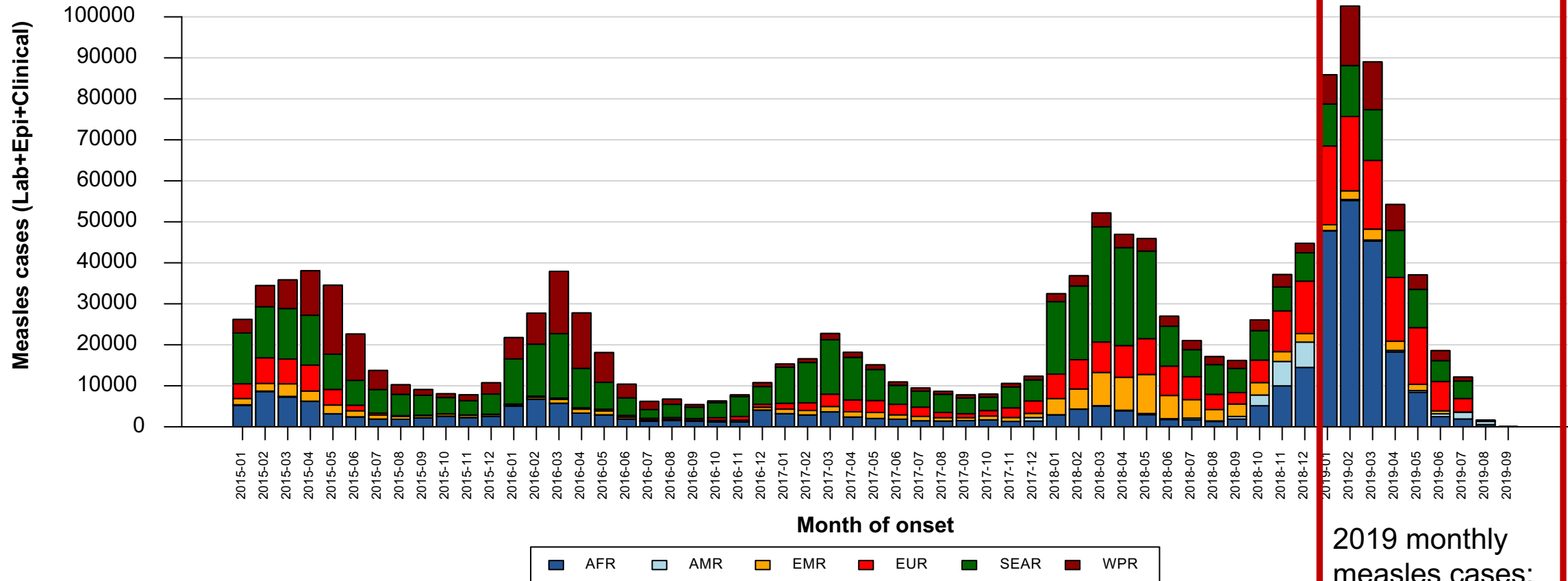
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Increases in all Regions 2017-2018

Reported number of measles cases by Region, 2000-2018



Measles case distribution by month and WHO Region (2015-2019)

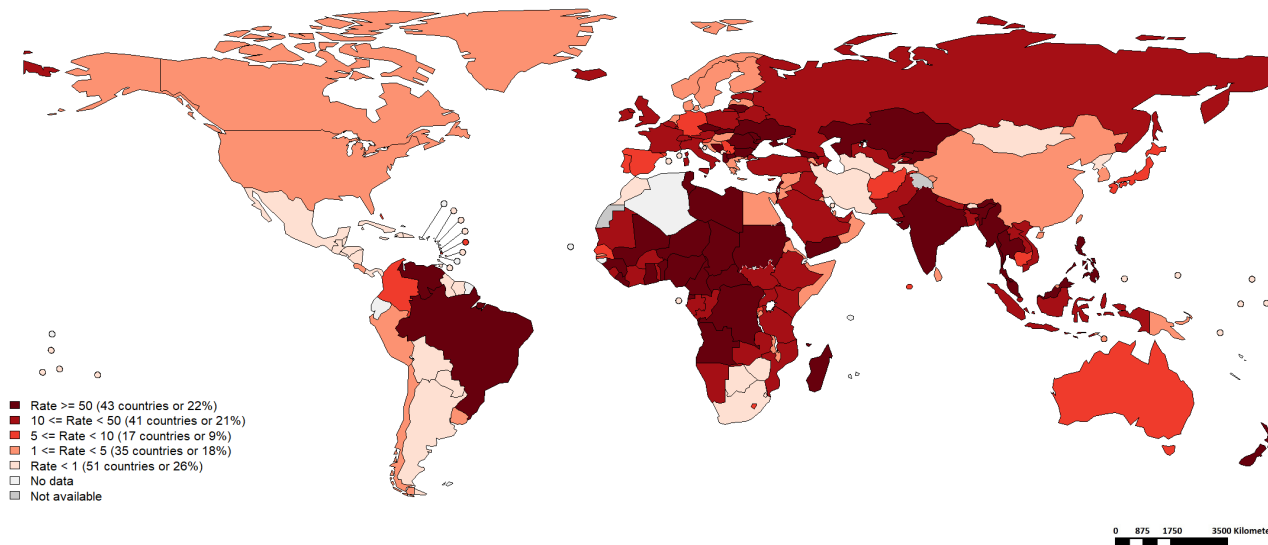


Notes: Based on data received 2019-08 - Data Source: IVB Database - This is surveillance data, hence for the last month(s), the data may be incomplete.

Measles Incidence Rate per Million (August 2018 – July 2019)

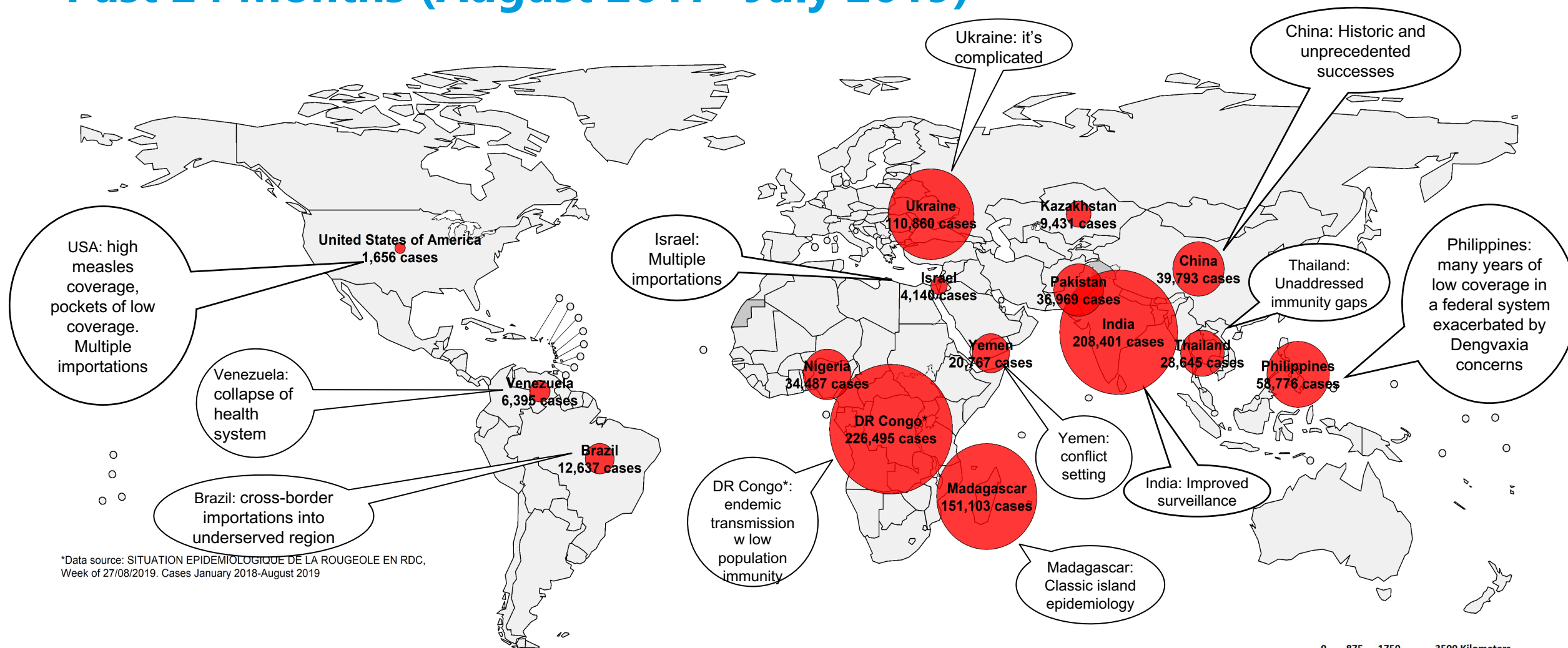
Top 10**		
Country	Cases	Rate
Madagascar	151032	6066.87
Ukraine	81964	1844.43
India***	76589	57.84
Philippines	46689	451.89
Nigeria	27195	146.22
Brazil	11573	55.73
Kazakhstan	10015	556.77
DR Congo	9378	119.11
Thailand	7544	109.55
Pakistan	6510	33.7

Other countries with high incidence rates***		
Country	Cases	Rate
Georgia	4812	1225.86
The Republic of North Macedonia	1897	911.49
Kyrgyzstan	2898	486.59
Israel	3914	477.79
Bosnia and Herzegovina	1377	391.55
Lithuania	793	272.67



Measles cases from countries with known discrepancies between case-based and aggregate surveillance, as reported by country				
Country	Year	Cases in Case-based	Cases in Aggregate	Data Source for aggregate #s
DR Congo	2018	5624	65,098	SITUATION EPIDEMIOLOGIQUE DE LA ROUGEOLE EN RDC, Week of 27/08/2019
	2019	7094	161,397	
Somalia	2018	181	3,183	Somali EPI/POL Weekly Update Week 34
	2019	28	2,870	

Selected Measles Outbreaks: Reported Cases over Past 24 Months (August 2017- July 2019)



*Data source: SITUATION EPIDEMIOLOGIQUE DE LA ROUGEOLE EN RDC, Week of 27/08/2019. Cases January 2018-August 2019

Date of slide: 2019-10-04

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

Data source: Data source: WHO monthly case-based data August 2017- August 2019, except where noted

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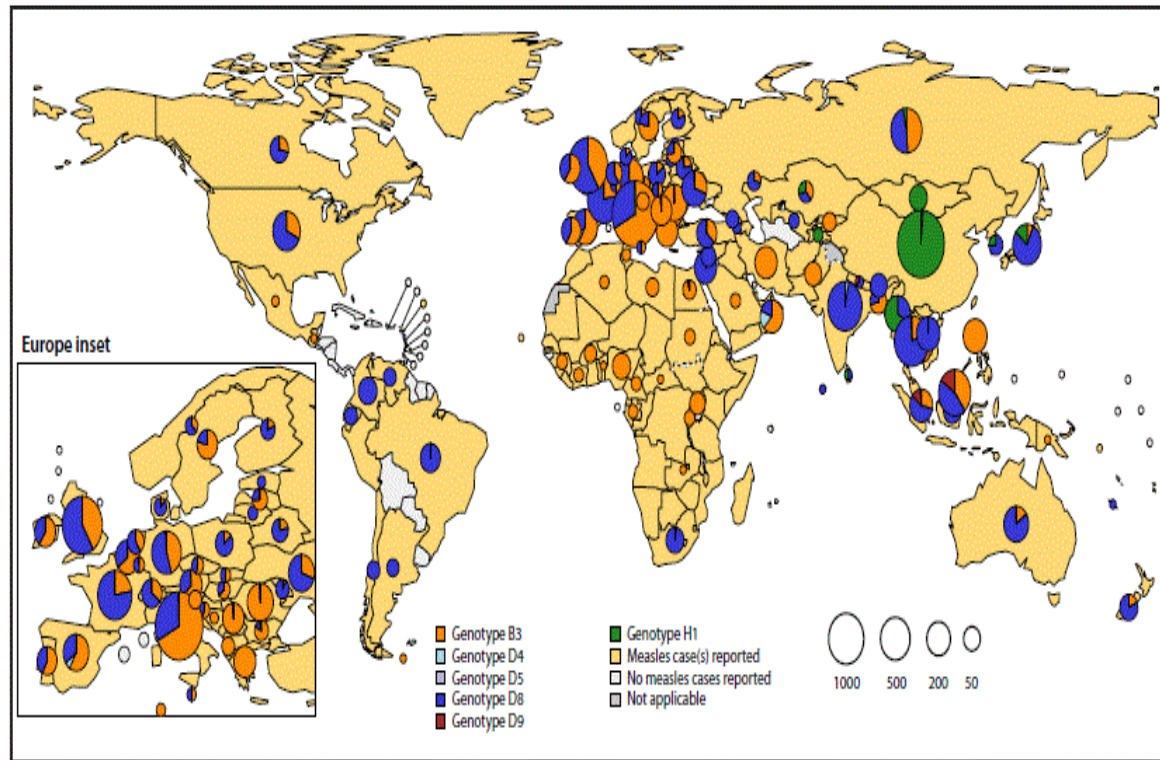
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0 875 1750 3500 Kilometers

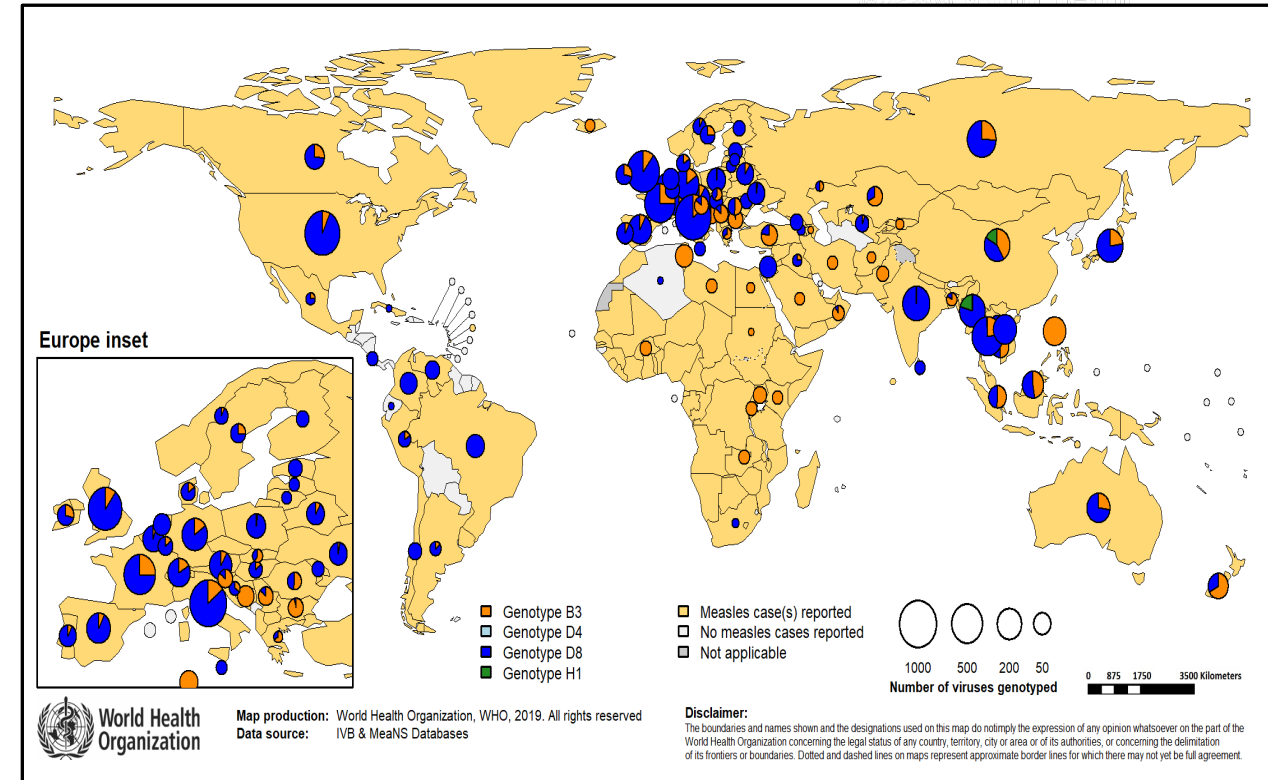
Vaccine Pressure Affecting Genotype Diversity



FIGURE. Global distribution of measles virus genotypes,* 2016–2018



Distribution of measles genotypes (August 2018 – July 2019)

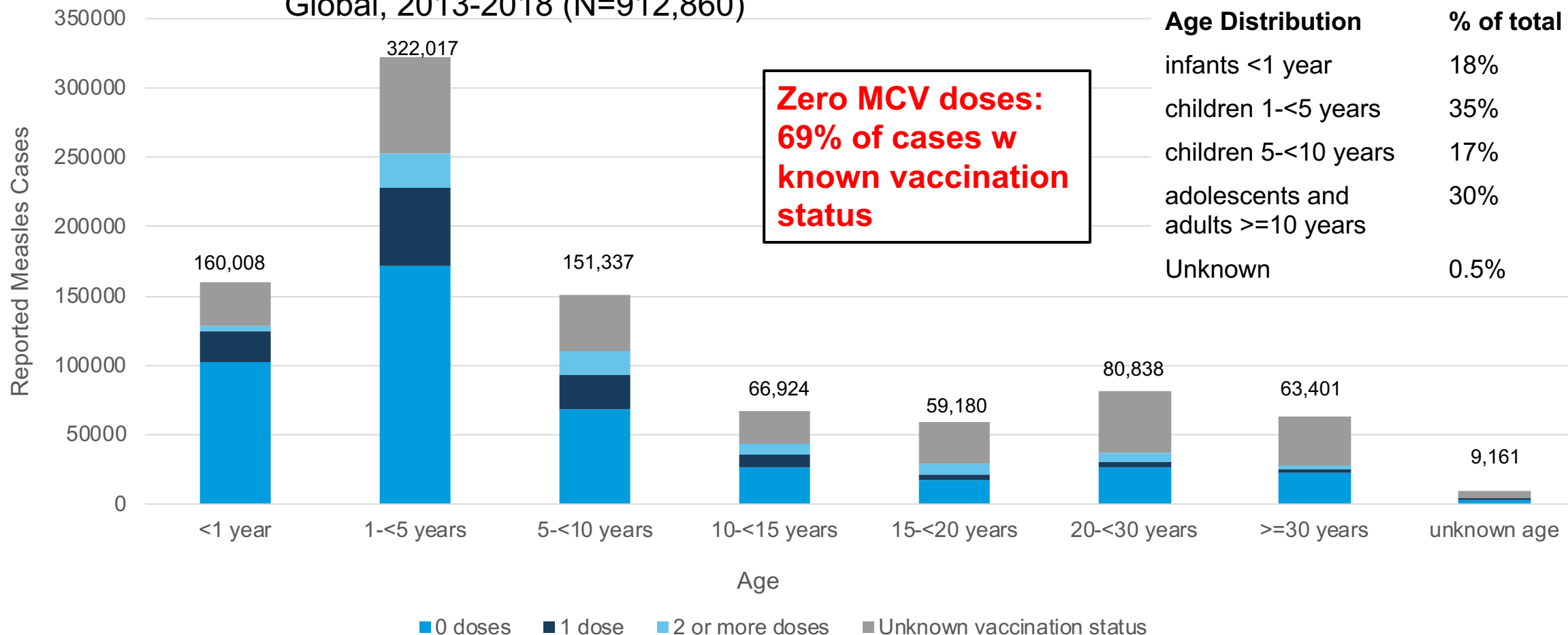


Source: World Health Organization.

* The size of the circles reflects the numbers of replicates reported for each genotype.

Wide Age Distribution of Measles Cases: Most Un- or Under-vaccinated

Age Range and Vaccination Status of Measles Cases, Global, 2013-2018 (N=912,860)



Patel et al. Submitted for publication

Barriers Related to Access or Attitudes?

- Lack of confidence in vaccination may be growing among key subgroups
- Access and practical factors still most predominant barrier
- Under-vaccination requires a valid diagnosis
- Multi-component and tailored strategies are most effective



Measles exportations: a glimpse into an expanding problem

Methods

- Measles Nucleotide Surveillance (MeaNS) of the Global Measles Rubella Laboratory Network (GMRLN) queried
- N450 sequences reported **01/01/2017 – 09/30/2019**

Results

- 18,733 sequences reported
 - 2% of approx 930,000 measles cases reported over same time period
- 780 (4%) sequences with “recent travel history”

Limitations of data

- **Non-representative** due to reporting bias
 - *Limited to reported measles cases with genotype sequence reported AND epidemiologic travel information collected*
- Patient report of travel history may not accurately reflect source of infection

Source country	Separate reports of recent travel from source country	Number of countries with reports from source country
Ukraine	75	22
Thailand	53	20
Venezuela	52	3
Romania	51	15
Philippines	49	13
India	39	12
Italy	38	15
France	31	10
Indonesia	30	9
Pakistan	24	8
Russian Federation	22	10

Measles *anywhere* is measles *everywhere*!



Why Now? Cause(s) of Measles Up-swing



➤ Root Cause: Gaps in population immunity due to insufficient vaccine coverage

- ✓ Weak and fragile health systems in many countries
- ✓ Civil unrest, famine, active conflict, socio-economic/political crisis
- ✓ Changing attitudes, access, and service quality
- ✓ Susceptibility distributed across wide age groups
- ✓ Outbreaks affecting sub-groups: adolescents / adults, migrants, indigenous, religious groups
- ✓ Variable political commitment to vaccination



➤ Global spread

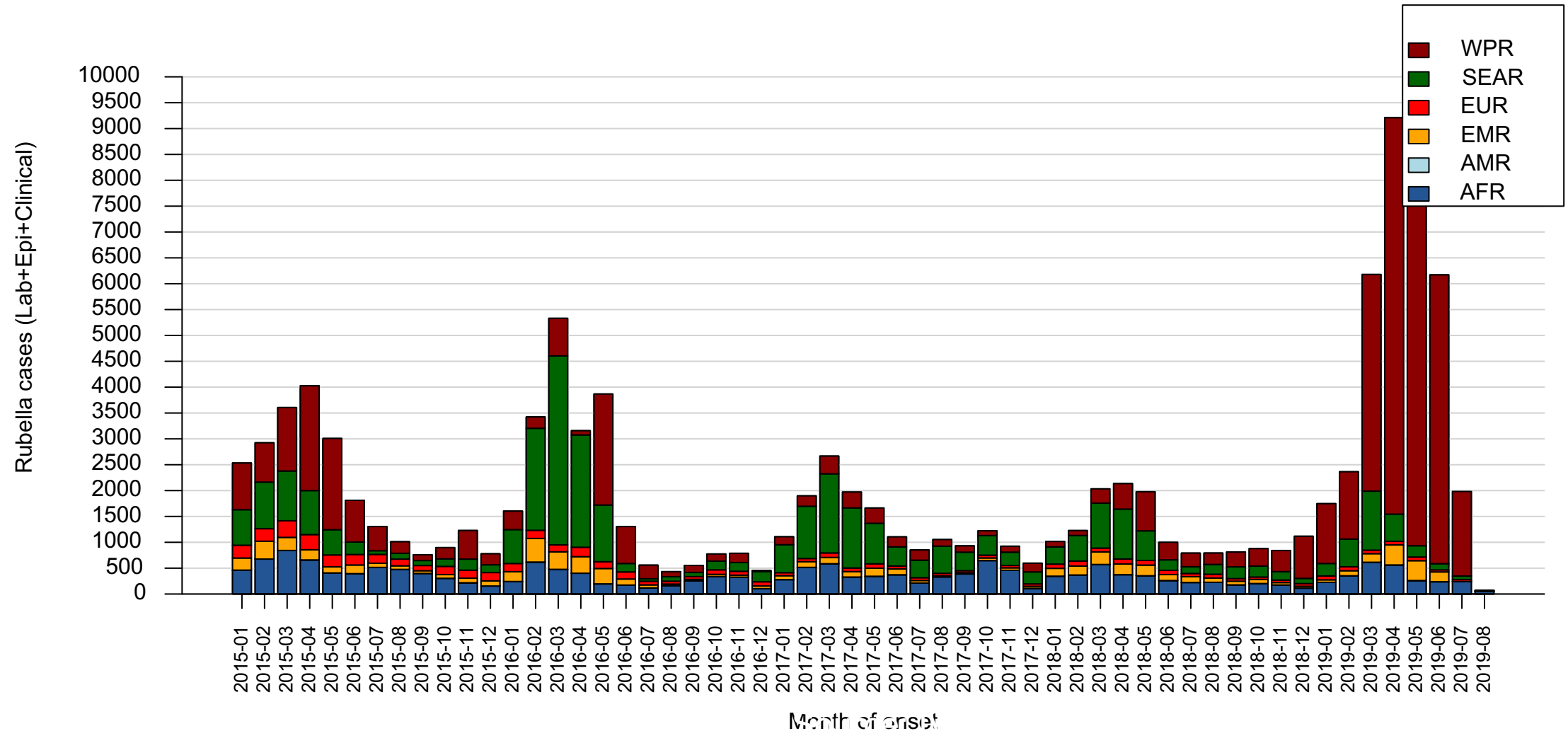
- ✓ Increasing interconnectedness through international travel
- ✓ Measles virus highly infectious; incubation period 7-21 days; infectious up to 4 days prior to rash
- ✓ Outbreaks in countries with high international travel create pressure on high-performing countries

WHO Response to Global Measles Outbreaks



- Director General and World Health Emergencies (WHE) engaged
 - Vaccine Summit (Sept 2019, Brussels, co-hosted with EU)
 - Stronger communications and outreach, e.g., Member States, media, key messages, traveler guidance
- Improved outbreak response
 - Coordination with Regions and partners
 - Grading and response to measles outbreaks (e.g., grade 2 measles emergencies: EUR, Madagascar, DR Congo, Lebanon)
 - Measles Outbreaks Incident Management Support Team (IMST)
- WHO's Strategic Technical Advisory Group for Infectious Hazards (STAG-IH) to review measles situation

Rubella Case Distribution by Month and WHO Region (2015-2019)



Progress and Setbacks in Measles Rubella Elimination

Regional Scorecard on Verification of Elimination, October 2019



WHO Region (No. Member States)	Regional Verification Commissions Established	Elimination Achieved		Re-established
		No. of MS (areas)	% of MS	
Americas (n=35)	Yes	Measles: 33 Rubella: 35	94% 100%	Venezuela Brazil
Europe (n=53)	Yes	Measles: 35 Rubella: 39	66% 74%	Albania, Czech Republic, Greece, United Kingdom
Western Pacific (n=27)	Yes	Measles: 7 (2) Rubella: 4 (1)	26% 15%	Mongolia
Eastern Mediterranean (21)	Yes	Measles: 3 Rubella: 3	14% 14%	
South-East Asia (n=11)	Yes	Measles: 5	45%	
Africa (n=47)	Yes	-	-	
TOTAL (n=194)		Measles: 83 (43%) Rubella: 81 (42%)		

Summary



Substantial progress in measles and rubella control since 2000

- Global number of cases and estimated deaths significantly reduced
- 83 countries verified as measles eliminated; 21 million deaths averted
- 81 countries verified as rubella eliminated
- More countries with rubella vaccine and measles second dose introduced



Concerns

- Resurgence of measles in all regions
- Increasing vulnerability of countries with strong programs and high coverage

Recent trends highlight

- Measles – gains are fragile
 - Very infectious and will find pockets of susceptibility
 - Regional measles elimination can be achieved but difficult to sustain
- Rubella – gains appear to be very robust

Need for concerted global, regional and national commitment to achieve and sustain goals

Acknowledgements

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Thank you!

