

Immunization in a Changing World

leadership, population growth, migration, emerging diseases, polio transition



IVB Director's report to SAGE

17 April 2018



**World Health
Organization**

Outline

WHO management changes

GPW 13 and immunization within GPW

GVAP goals in a changing world

Diphtheria coverage and outbreaks as an indicator of challenges in a changing world

Polio transition as an additional change

Middle income countries

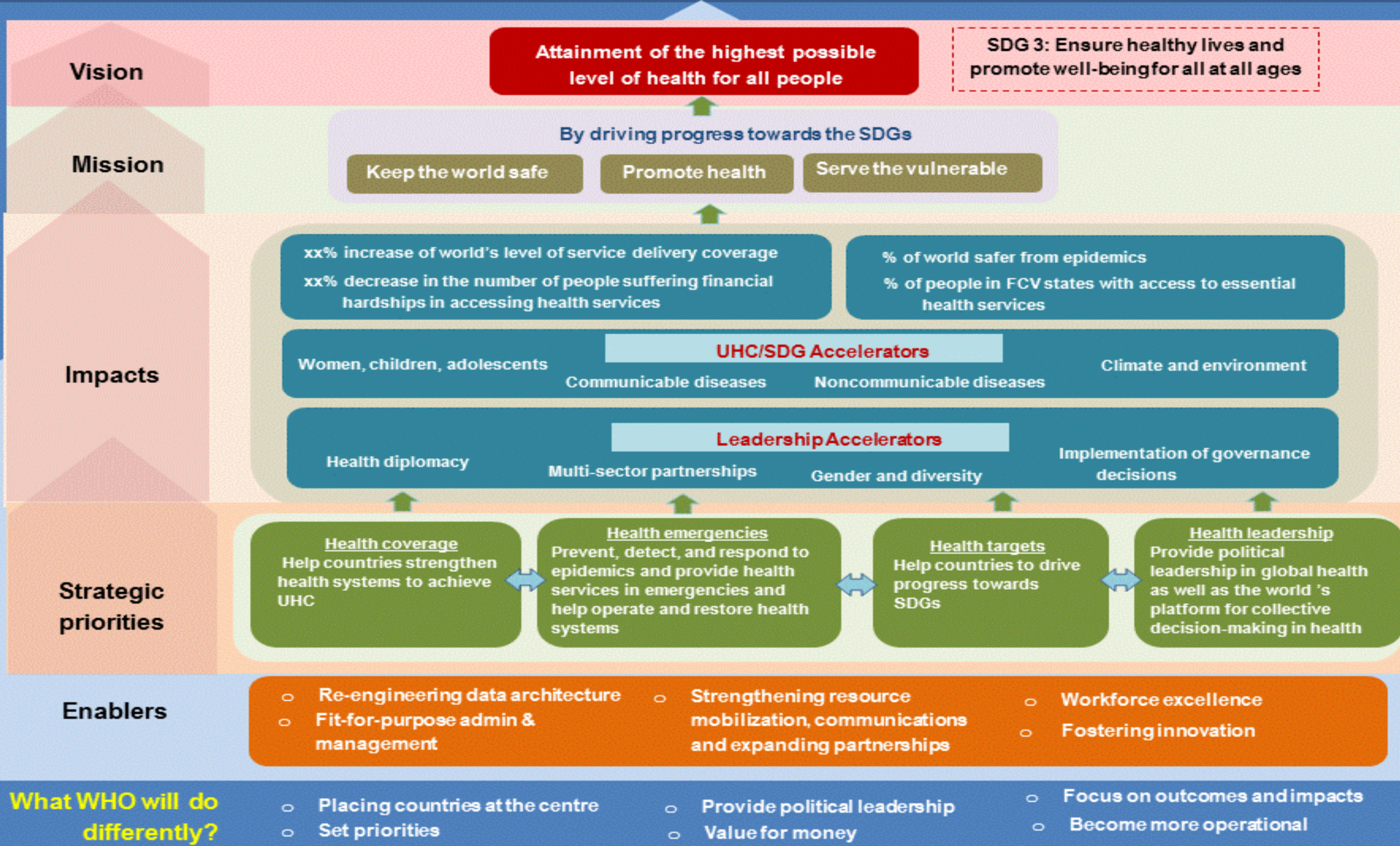
New vaccine introduction

Looking forwards:

Life cycle approach

Integration and UHC

Post-2020



Immunization Contributors to GPW13 DRAFT

WHO Impact Framework



UNIVERSAL HEALTH COVERAGE: 1 billion more people with universal health coverage

Increase availability of essential medicines for primary health care, including the ones free of charge	TBD	TBD	3.b.3	TBD
Increase average coverage of health services among women and girls in the poorest wealth quintile to 70%	51% (2014)	70%	5.1, 17.18	WHO Equity Monitor
Reduce the global maternal mortality ratio by 50%	216 per 100,000 live births (2015)	108 per 100,000 live births	3.1	MMEIG
Reduce the preventable deaths of newborns and children under 5 years of age by 30%	41 per 1,000 live births (2016)	30 per 1,000 live births	3.2	UN IGME
Increase coverage of human papilloma virus vaccine to 50% among adolescent girls	TBD	TBD	3.7, 3.8	TBD
Increase coverage of 2 nd dose of measles containing vaccine to 90%	64% (2016)	90%	3.b.1, 3.8.1	WHO/Unicef

HEALTH EMERGENCIES: 1 billion more people made safer (making us all safer)

Increase number of people in fragile settings with access to essential health services	TBD	TBD	3.d	IHR Reporting
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Vaccines Landscape Contributors to GPW13 Strategic Priorities



WHO Mission 2019-2023

Immunization Mission 2030

To support all countries to deliver quality immunization services as part of an integrated, people-centered platform of disease prevention that spans the human life-course

Keep the world safe

Vaccines for Epidemic Diseases

Cholera
Hepatitis A
Measles
Meningococcal Meningitis
Polio
Yellow Fever

Promote health

Universal Recommended Vaccines for Children and Adults

BCG
DTP-containing vaccine
Hepatitis B
Haemophilus influenzae type b
HPV
Measles
Pneumococcal (Conjugate)
Polio
Rotavirus
Rubella

Serve the vulnerable

Vaccination in Humanitarian Emergencies, Migrants, Special Population Groups, High Risk Populations (incl. for certain regions)

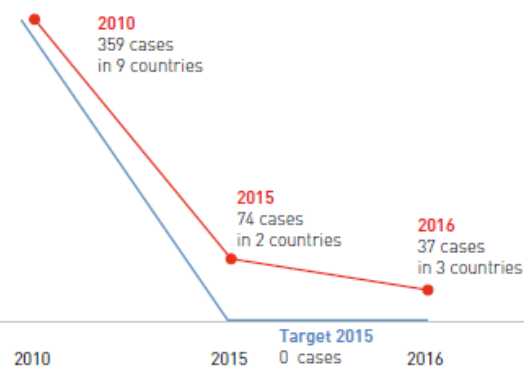
Cholera
Dengue
Ebola
Japanese Encephalitis
Meningococcal
Mumps
Rabies
Seasonal influenza
Typhoid
Malaria

TB, HIV,
Lassa, CCHF, Mers CoV, Nipah, Zika, etc*

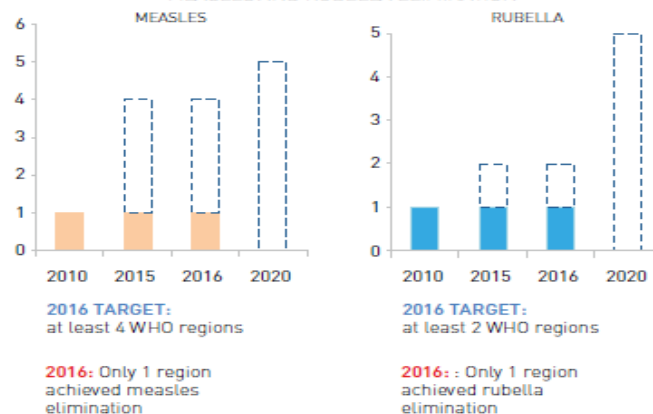
Progress against the GVAP 2020 Goals

To date only 1/6 Goals met: New vaccine introductions

POLIO: NUMBER OF NEW CASES OF PARALYTIC POLIOMYELITIS DUE TO WILD POLIO VIRUS

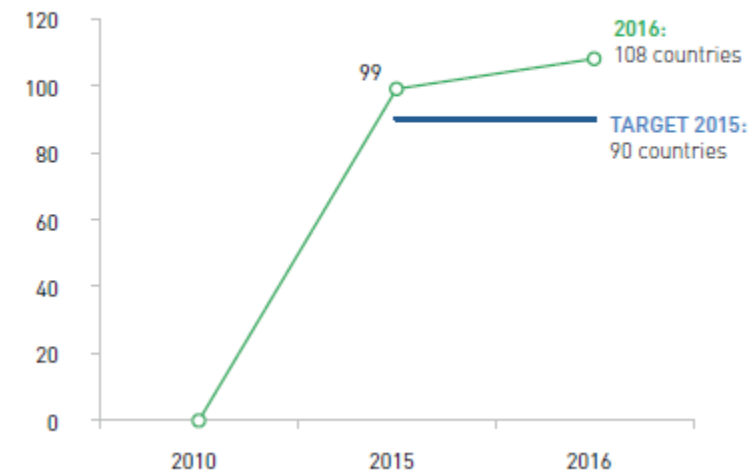


MEASLES AND RUBELLA ELIMINATION

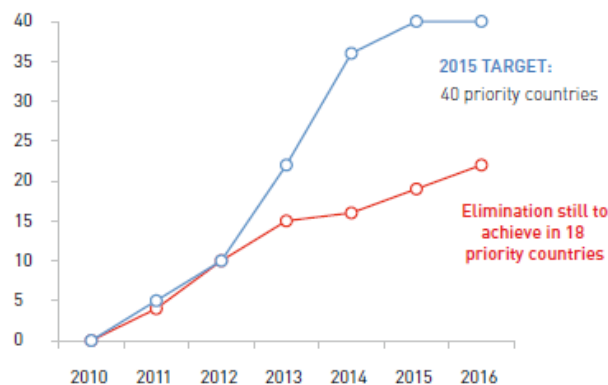


VACCINES INTRODUCTION

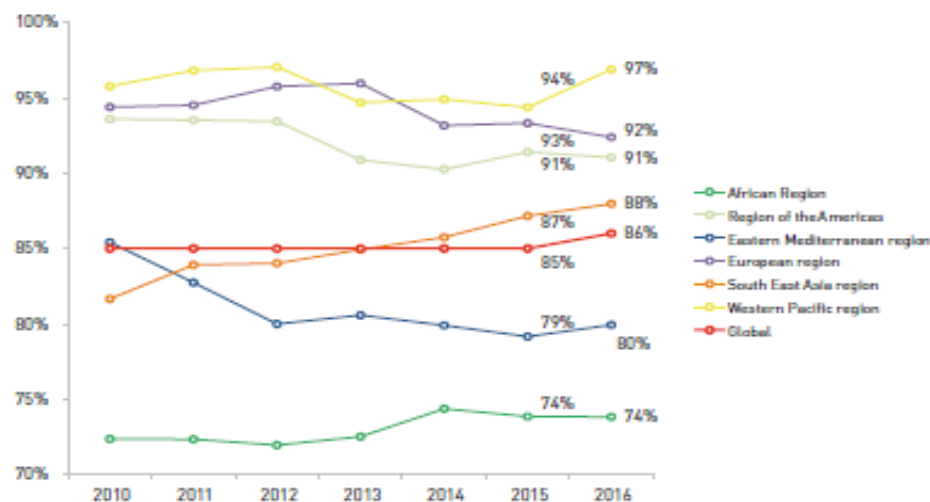
Number of low- or middle- income countries to have introduced one of more new or under-utilized vaccine since 2010



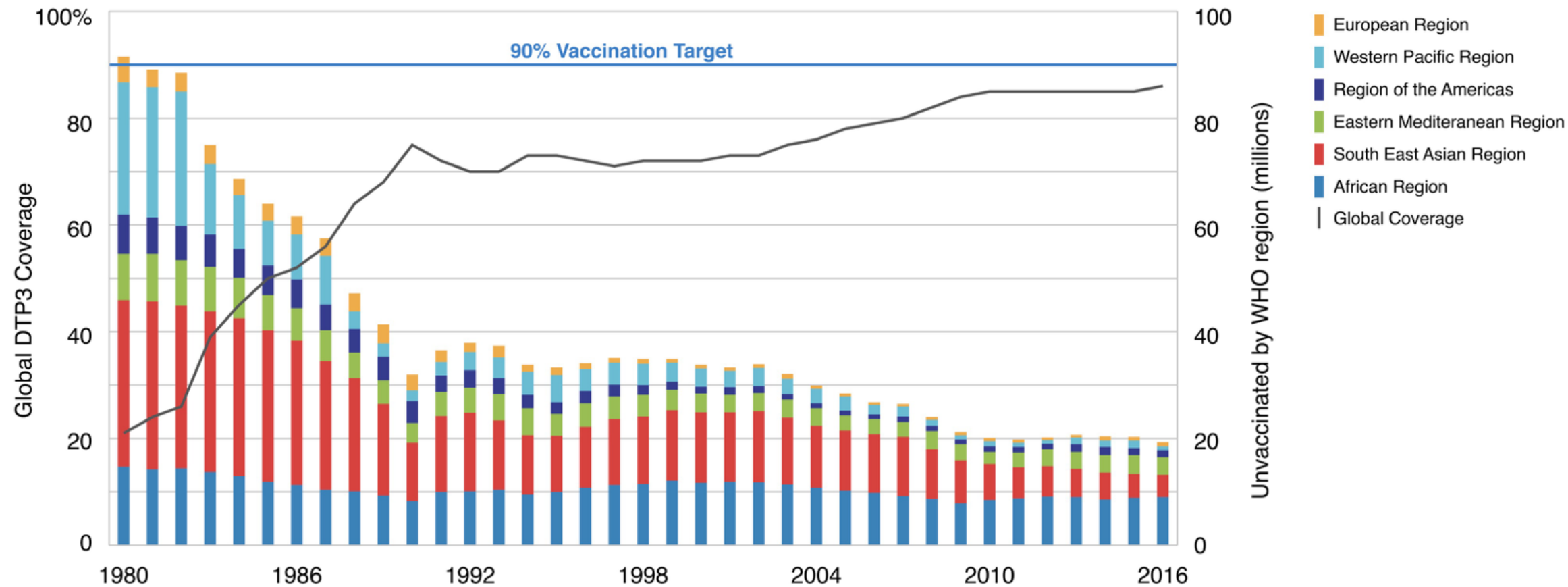
MATERNAL AND NEONATAL TETANUS ELIMINATION



GLOBAL DTP3 COVERAGE STABLE SINCE 2010



Global DTP3 coverage improving steadily, but not fast enough to reach the global goal of 90% -- leaving 20m children vulnerable

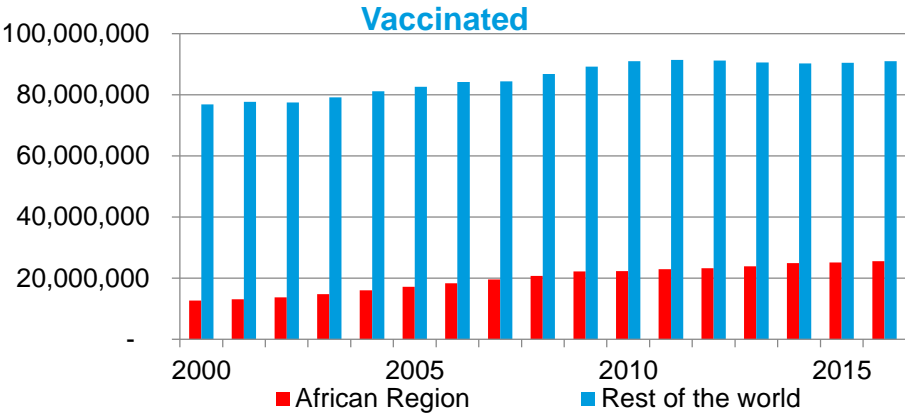
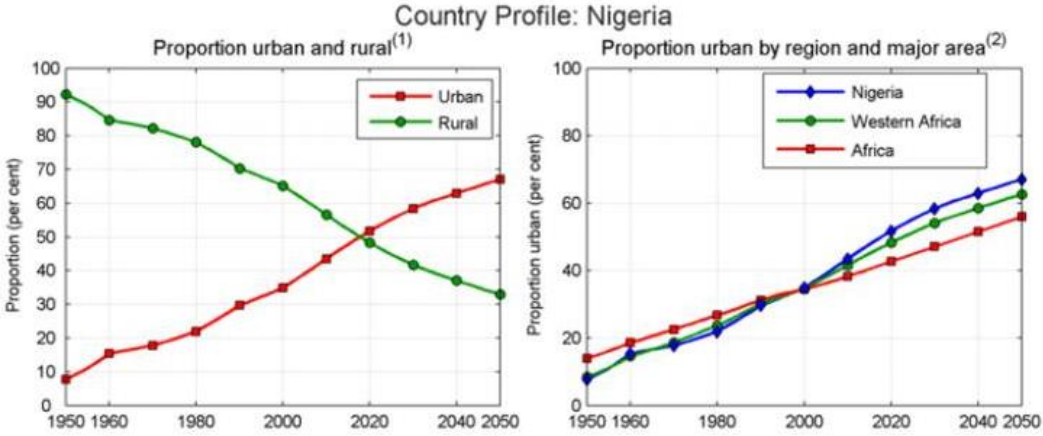
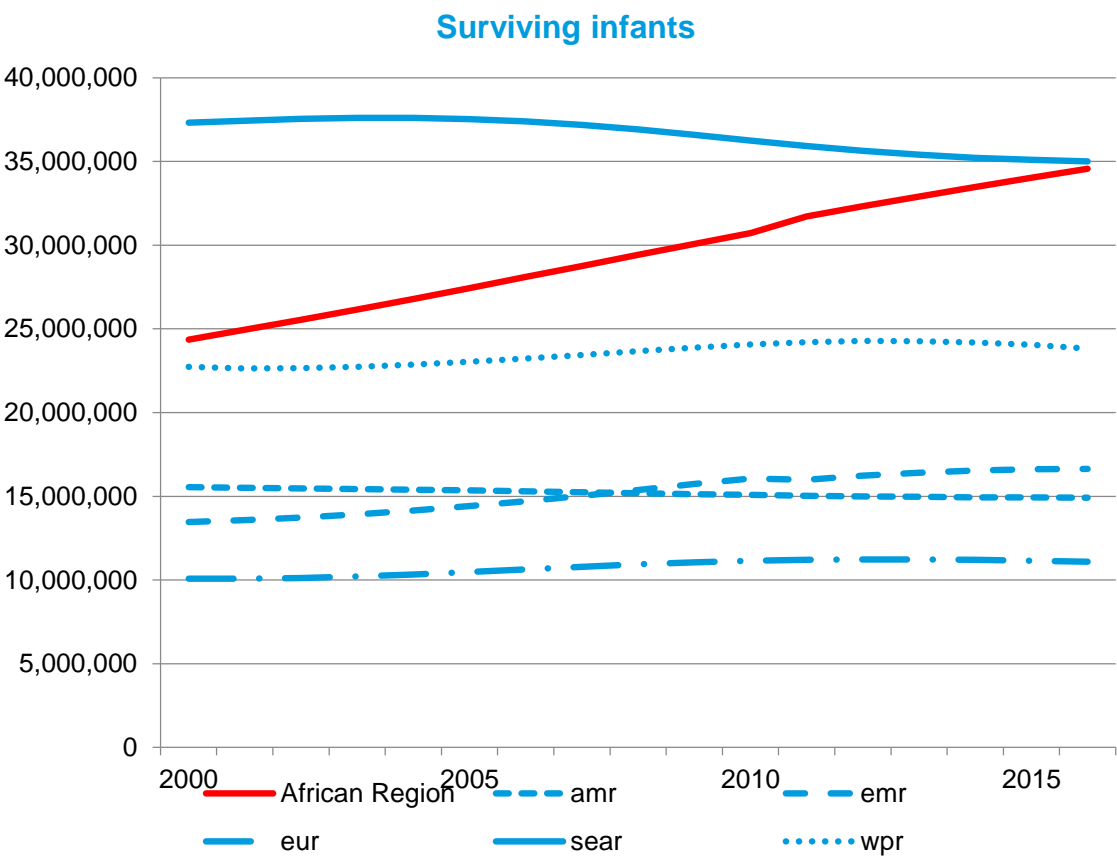


Source: WHO/UNICEF Estimates of National Immunization Coverage, July 2017

Population growth in Africa makes coverage “plateau”, even as ever more children are vaccinated

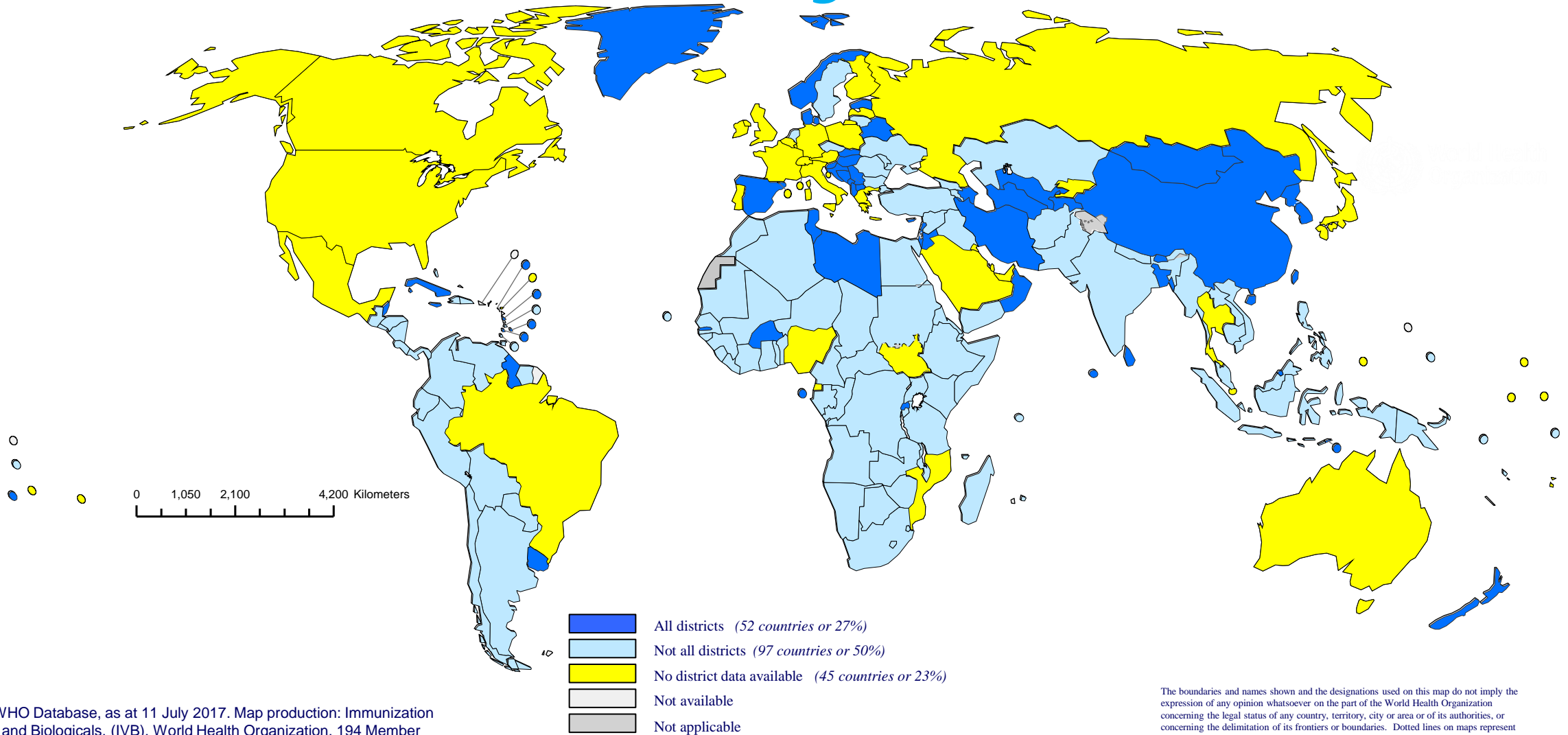


African countries need to vaccinate half a million additional children every year just to keep up with growth



WHO/UNICEF Estimates of National Immunization Coverage, July 2017

Countries with all districts achieving at least 80% DTP3 coverage, 2016



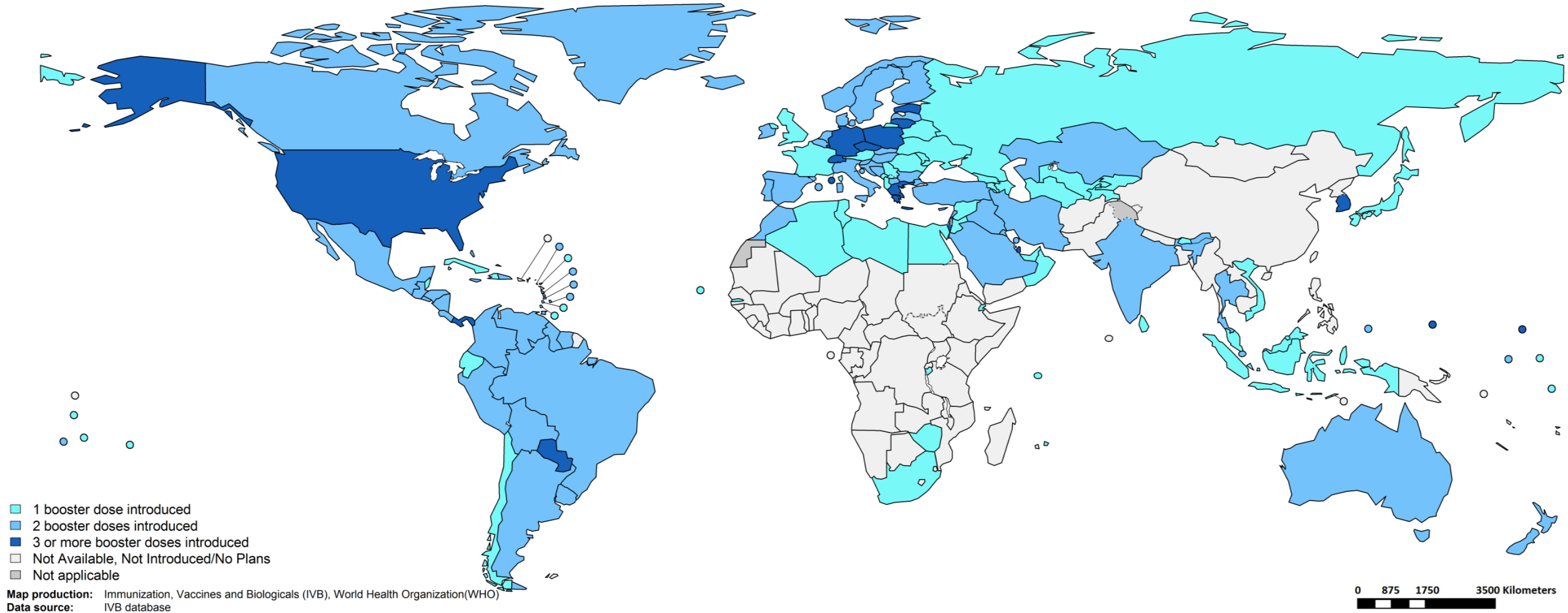
Source: WHO Database, as at 11 July 2017. Map production: Immunization Vaccines and Biologicals, (IVB). World Health Organization. 194 Member States. Date of slide: 26 July 2017

The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted lines on maps represent approximate border lines for which there may not yet be full agreement. © WHO 2017. All rights reserved

Diphtheria Boosters

Number of DTP Booster doses introduced in the national immunization programme

2016



Disclaimer:

The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area nor of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted and dashed lines on maps represent approximate border lines for which there may not yet be full agreement.
World Health Organization, WHO, 2018. All rights reserved

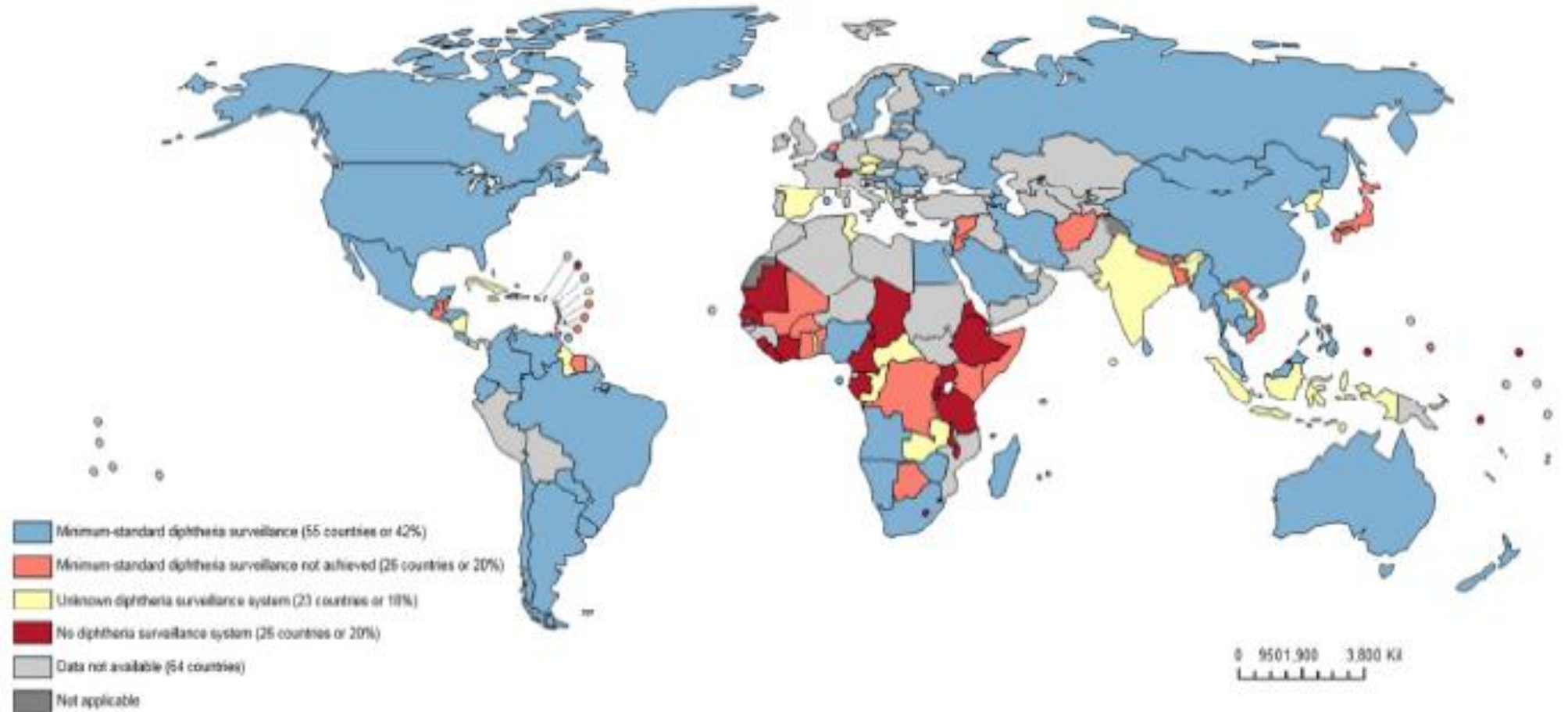
Who is Looking for Diphtheria?

Minimum-standard surveillance

→ *Case-based*

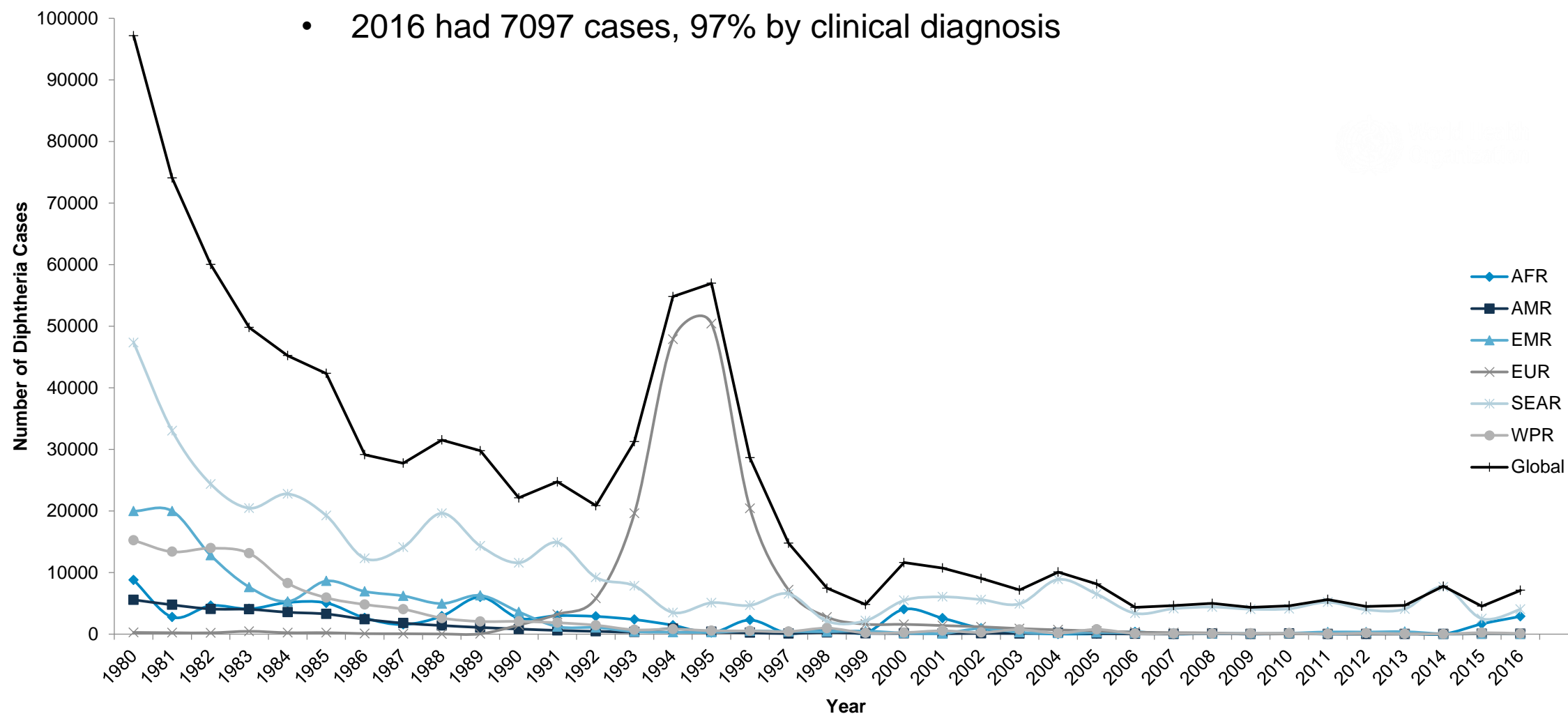
→ *Lab confirmed*

→ *Nationwide*



How Much Diphtheria Is There?

- This is mostly driven by clinical diagnosis
- 2016 had 7097 cases, 97% by clinical diagnosis



Nov 2017- April 2018: Outbreaks of Diphtheria

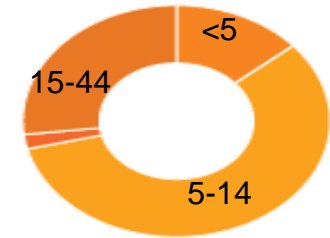
Bangladesh, Yemen, Venezuela, Haiti,
Indonesia,.....



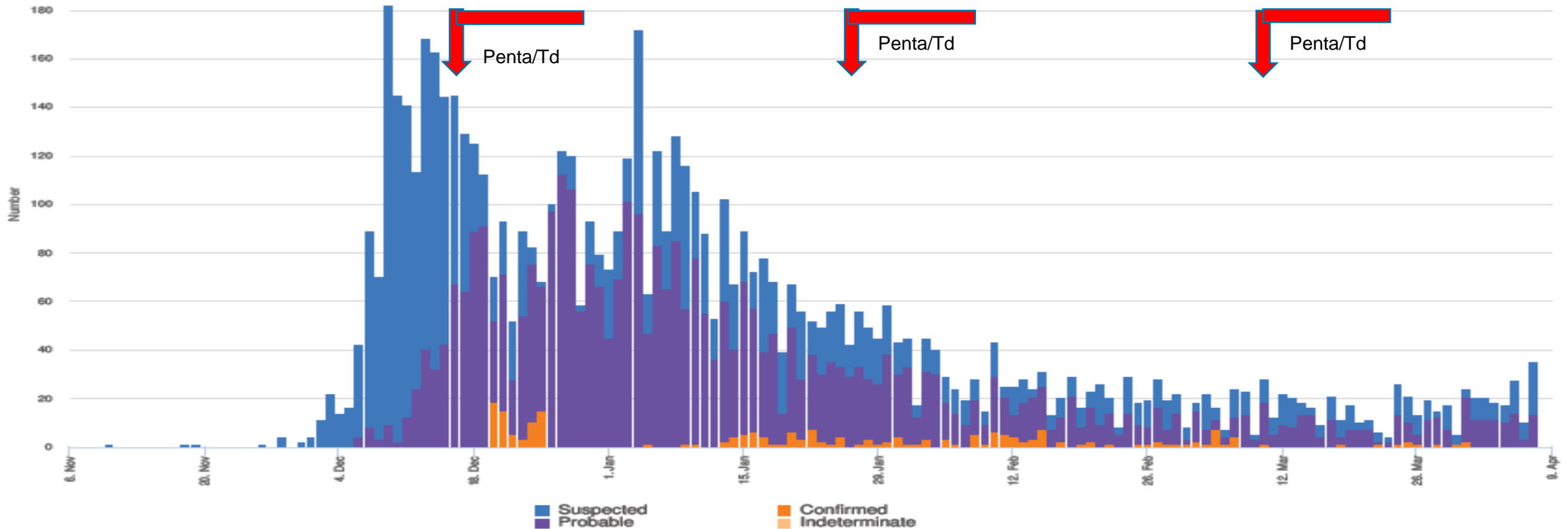
Bangladesh: The Rohingya Crisis

900,377 Rohingya migrant refugees in Bangladesh in makeshift camps

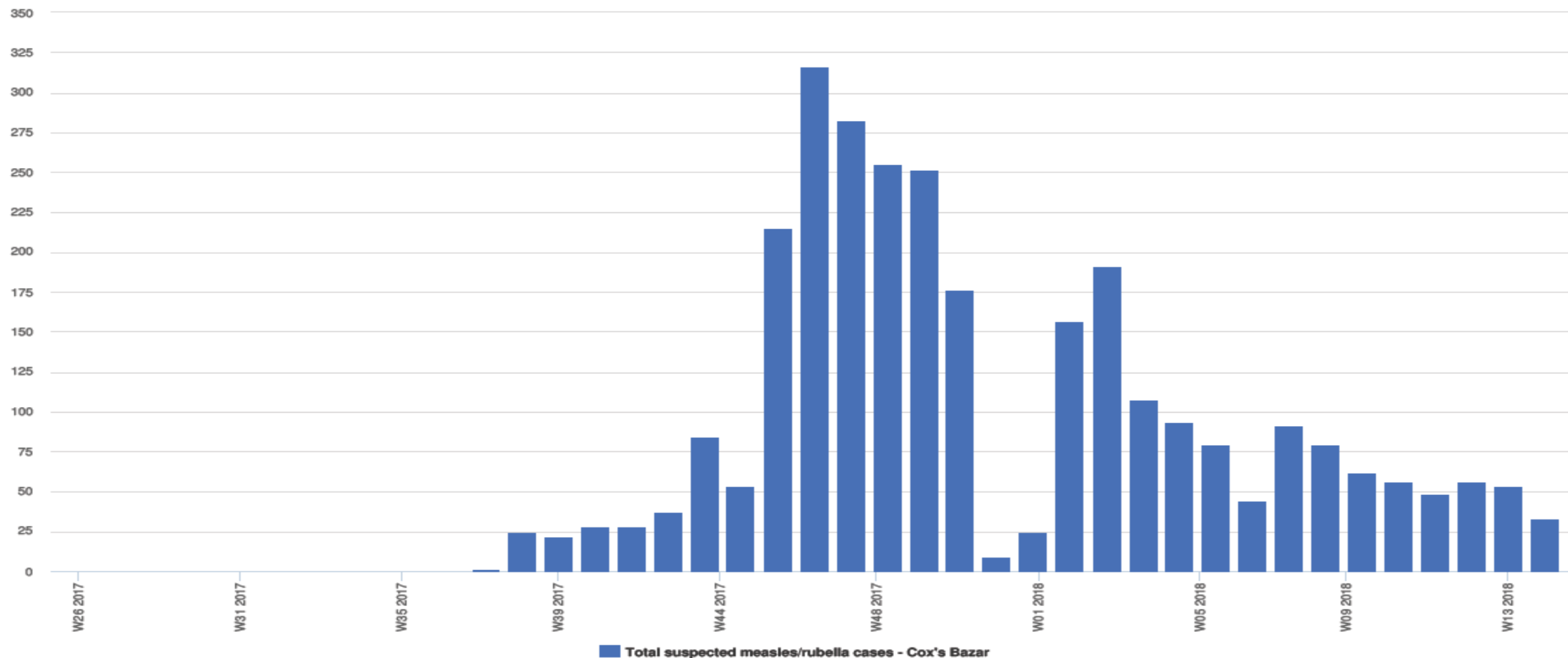
- 688,000 arrived since August 2017, influx ongoing
- Aggressive public health response to diphtheria outbreak
 - Vaccination, case management, contact tracing, chemoprophylaxis, risk communication
- 5710 cases, only 119 (2%) lab confirmed
 - Of 355 samples tested, only 34% positive



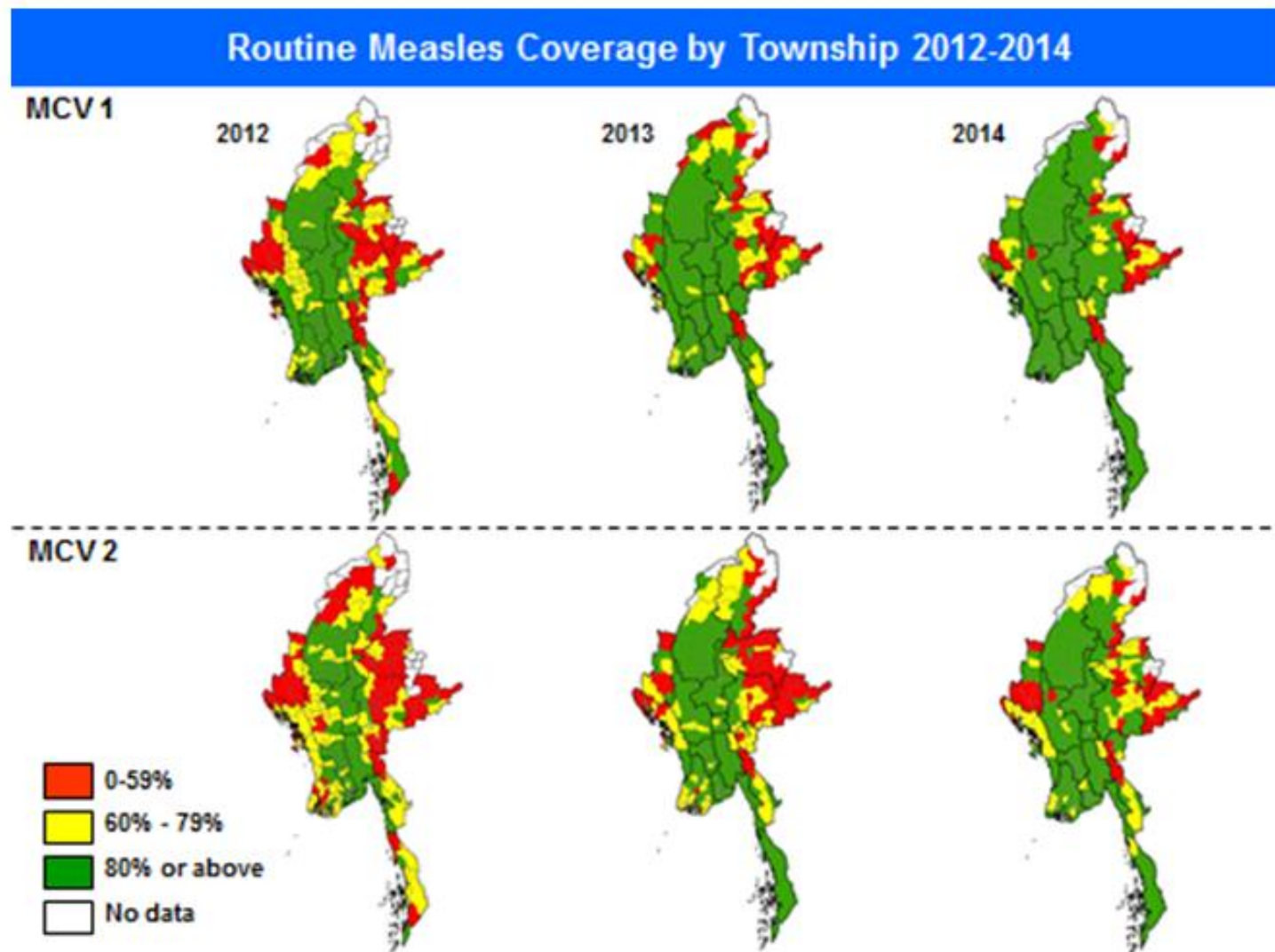
<5 (13.7% ; n = 971)
5-14 (57.1% ; n = 4,058)
15-44 (26.7% ; n = 1,897)
>45 (2.0% ; n = 143)



Accompanied by measles outbreaks in Rohingya camps (2017-18)

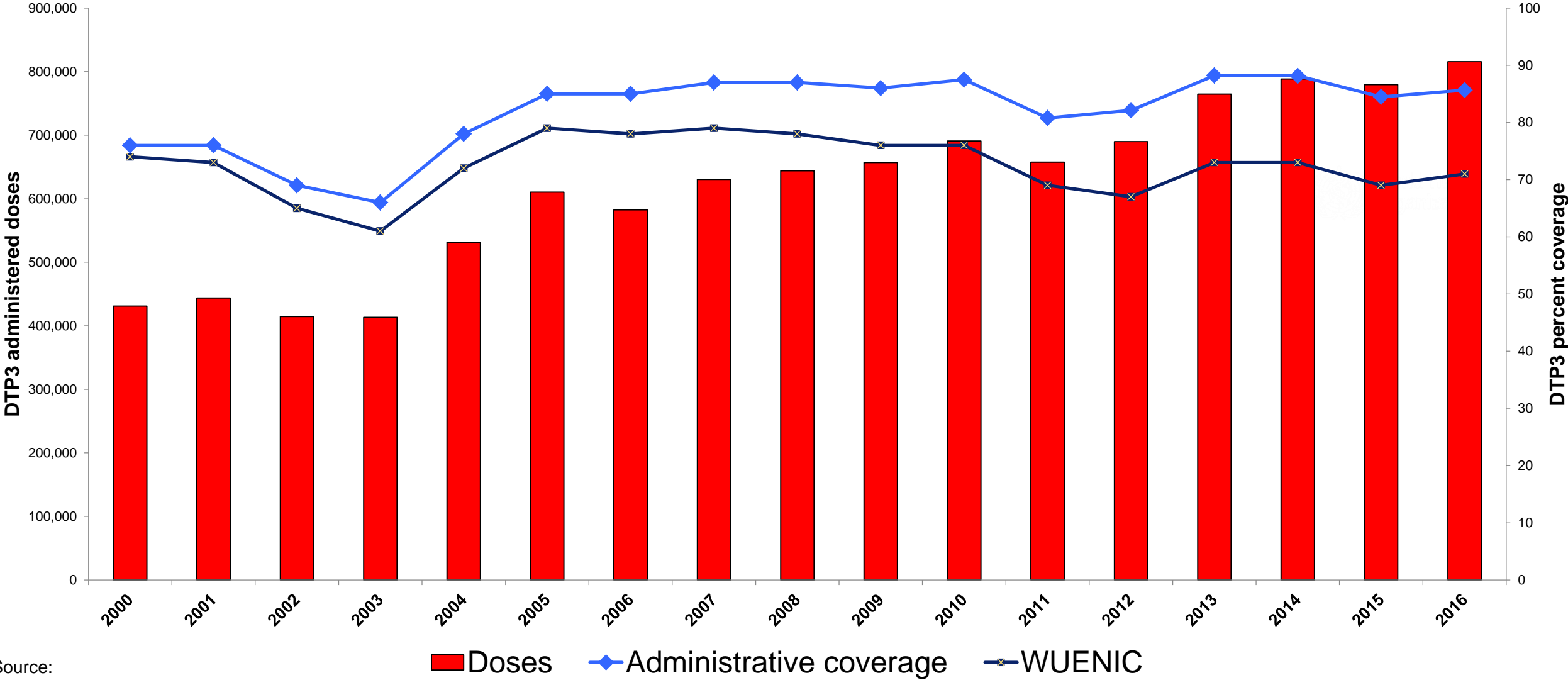


Vaccine coverage in Myanmar prior to Rohingya displaced persons crisis





DTP3 coverage, Yemen 2000-2016



Source:
WHO/IVB database, data reported to WHO by Member States as of 15 July 2017.
WHO-UNICEF estimates of immunization coverage (WUENIC) as of 15 July 2017
http://www.who.int/immunization/monitoring_surveillance/data/administrative_coverage.xls
http://www.who.int/entity/immunization/monitoring_surveillance/data/coverage_estimates_series.xls

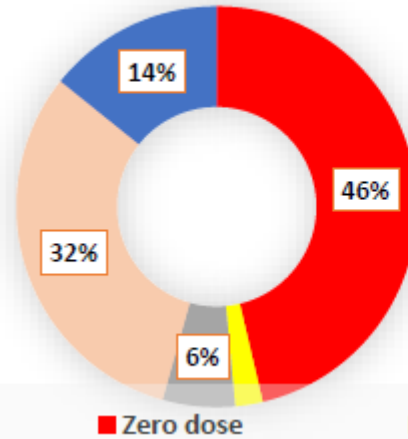


Yemen: Conflict

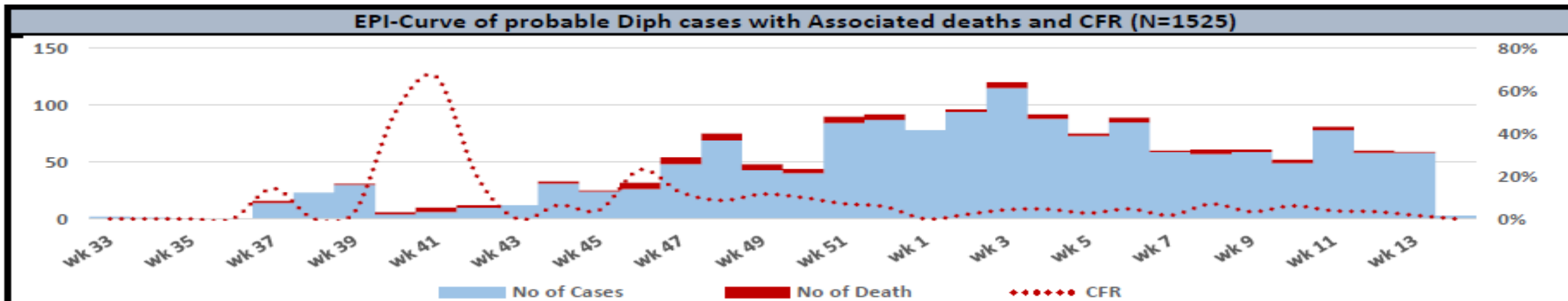
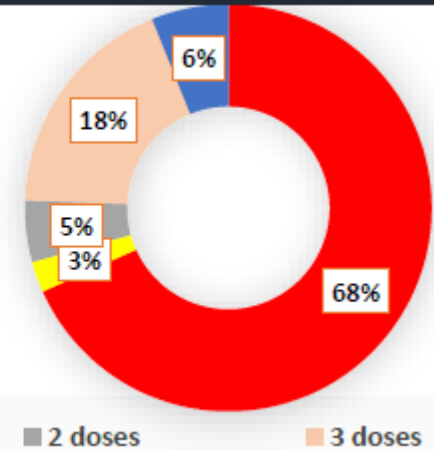
As of 4/3/2018

- 1525 diphtheria cases
 - only 19 (1%) lab confirmed
- 85 deaths
- 20% <5, 44% 5-14
- 86% of deaths in <15

Vaccination Status of Probable cases

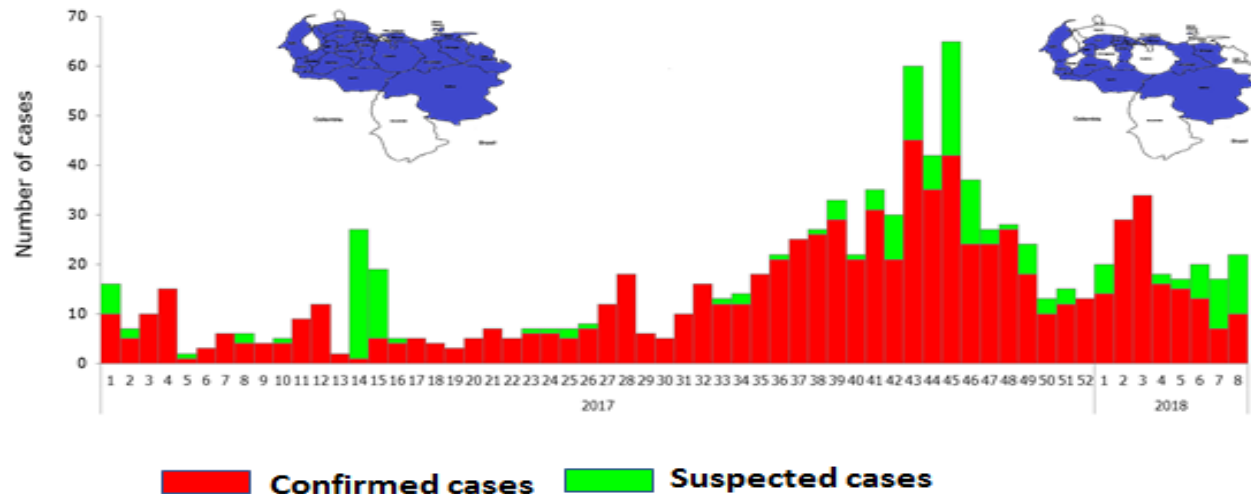


Vaccination Status of Associated Death cases

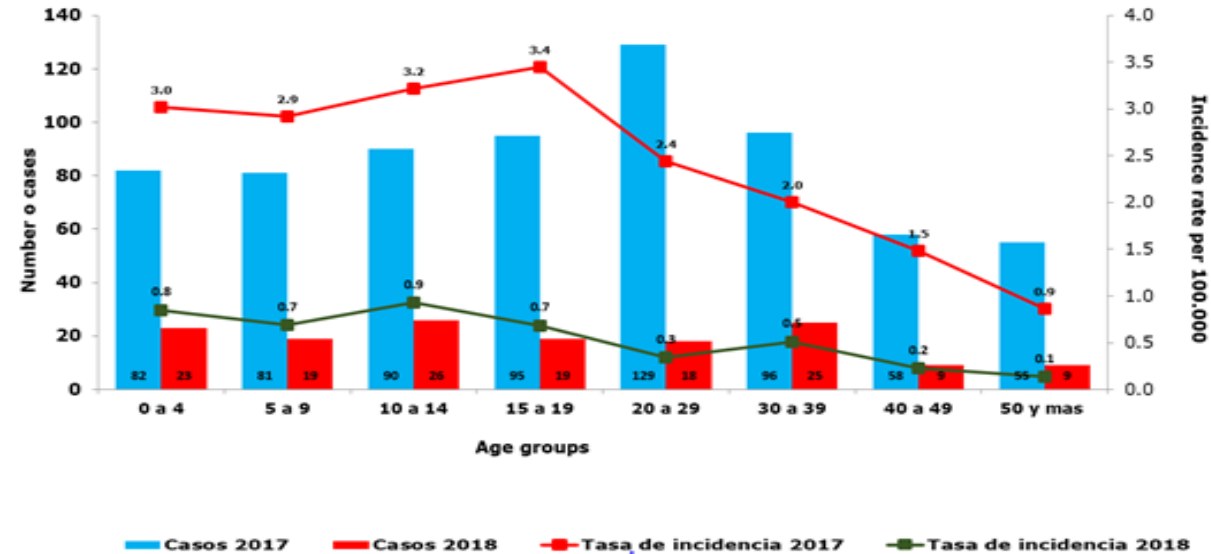


Diphtheria. Venezuela. 2017 -2018

Confirmed and suspected cases



Number and incidence rate



Source: Dirección de Inmunizaciones –SIS MPPS, datos actualizados hasta la SE-08

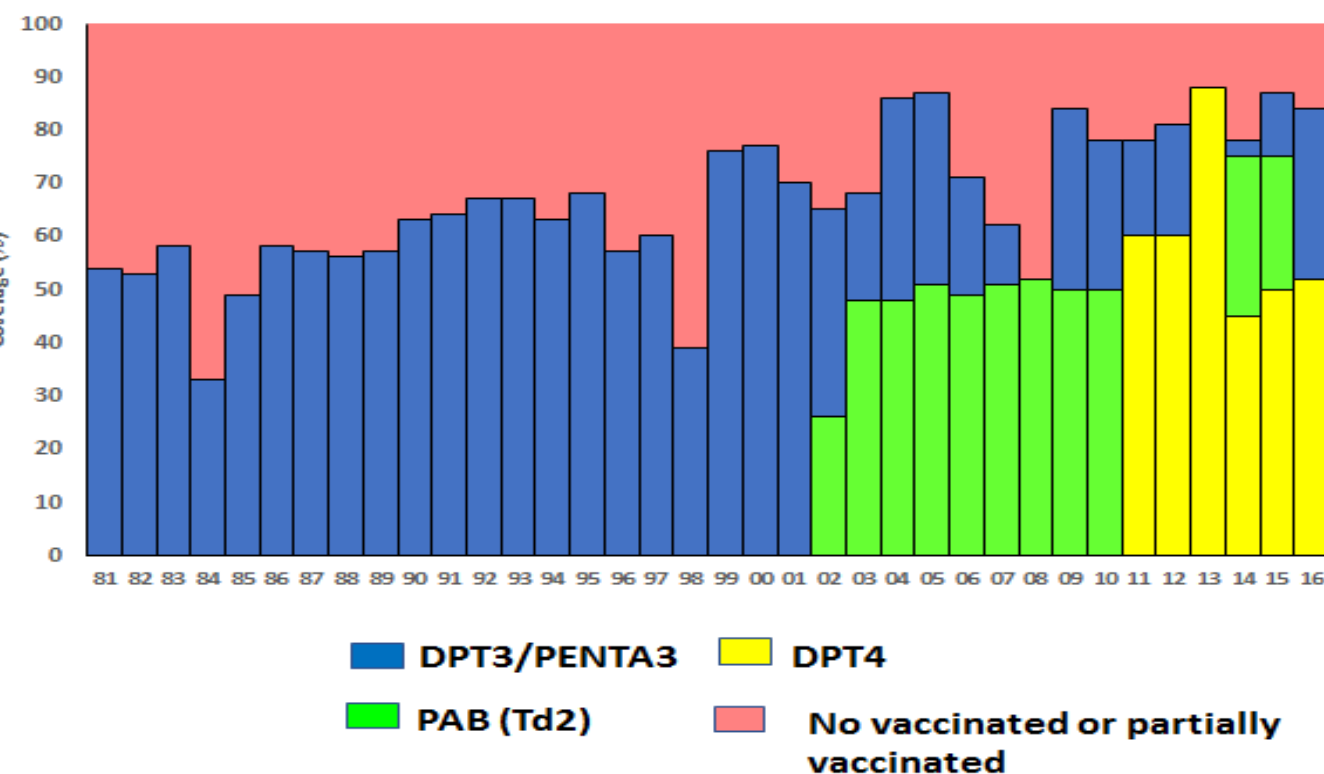
As of 3/20/2018

- 726 cases, unsure how many lab confirmed
 - In 2017 33% lab confirmed
- 113 died
- Has spread to Brazil, Colombia
- 105 <5, 216 5-14

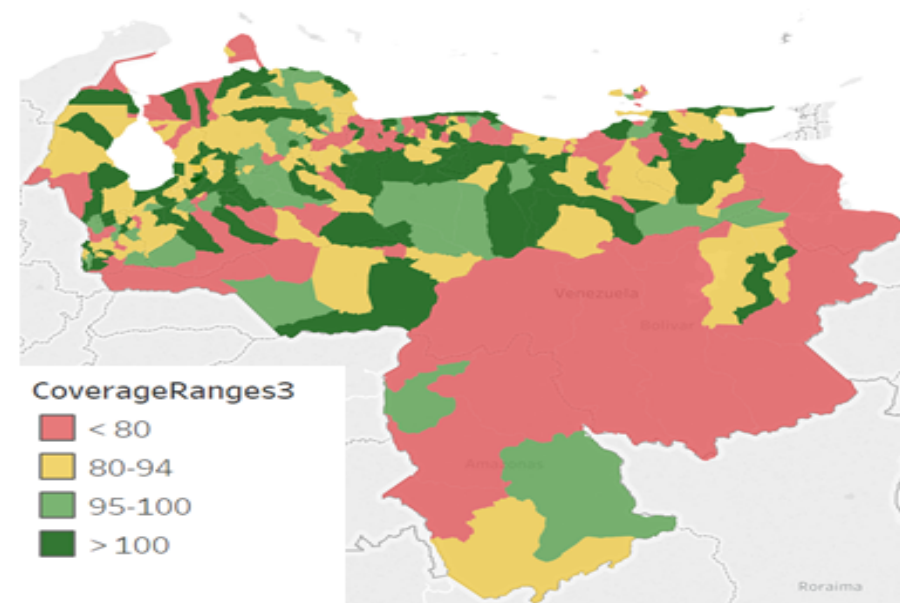
4/20/2018

Venezuela vaccination coverage

DPT3/Penta3 - DPT4 administrative coverage & estimates of protection at birth (PAB)



DPT3/Penta3 by districts. 2016



Fuente: EPI Tables, PAHO-WHO/UNICEF Joint Reporting Form (JRF), and country reports. 2017

Diphtheria anti-toxin use

Country	WHO (vials)	MSF (vials)*	PAHO (vials)*
Venezuela			2000
Haiti			2000
Bangladesh	4950	2000	
Yemen	5900	970	
Indonesia	1000		
Total	11850	2970	4000

2000-2017: Global use approximately 200 vials
 2017-2018: Global use approximately 18,000 vials



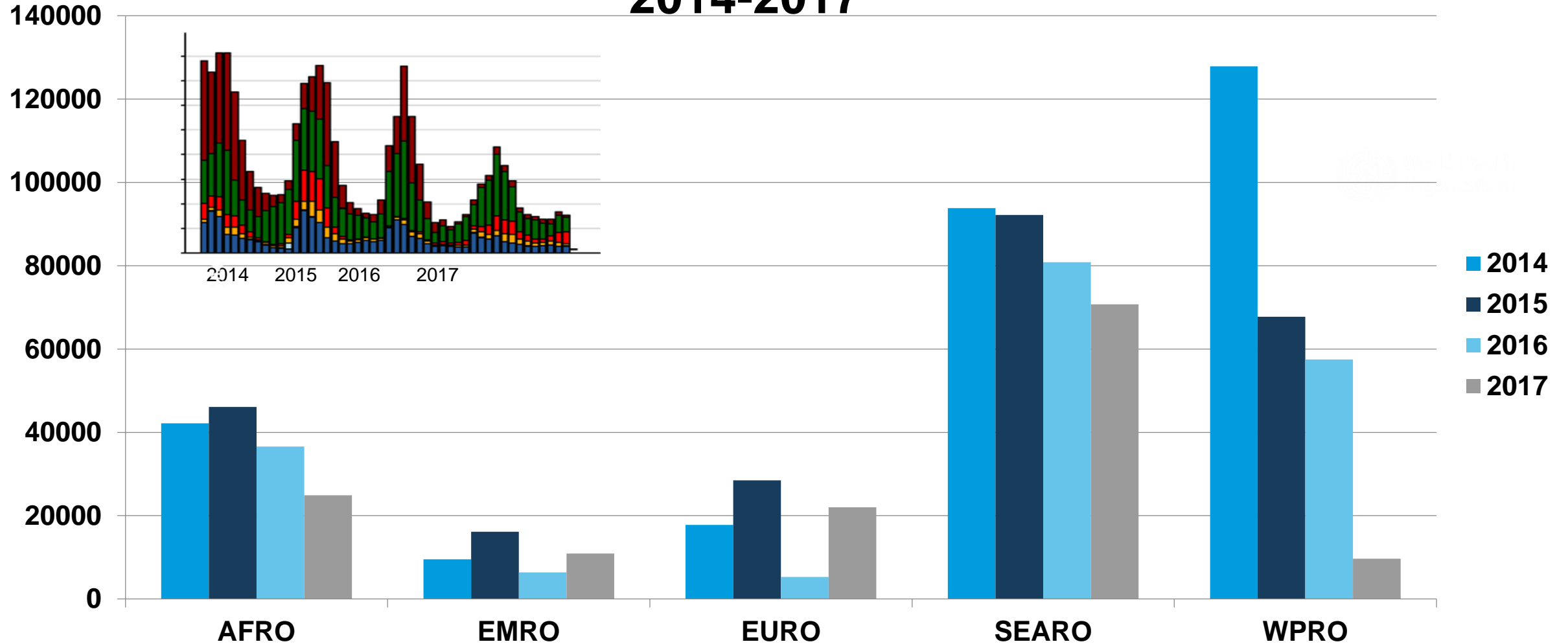
2017-2018: Outbreaks of Diphtheria

Worrying but not surprising because...

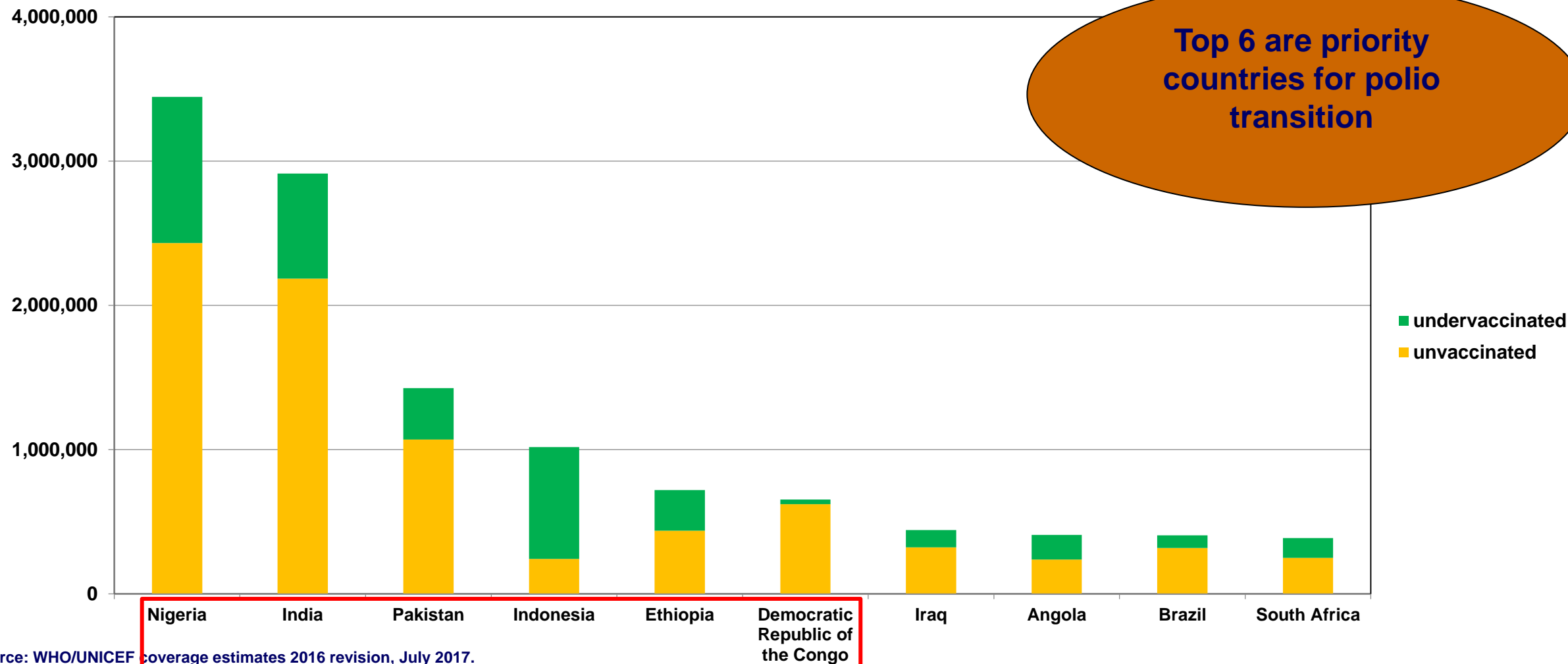
- **Countries have lower than desired diphtheria vaccination coverage, particularly in certain districts.**
 - **Pockets of un- or under-immunized**
- **25% of Member States have no recommendation on booster vaccination**
 - **6 of the top 10 diphtheria countries have no booster**
- **Surveillance for diphtheria is sub-optimal and lab diagnosis is extremely weak**
- **Geopolitical circumstances in 2017-2018 have highlighted the problem**
 - **Refugee crisis bring people into close contact and more transmission**

Reactive emergency response far more expensive than planned routine prevention !!

Measles reported cases (monthly reporting) and AFR, EMR, EUR, SEAR, WPR 2014-2017

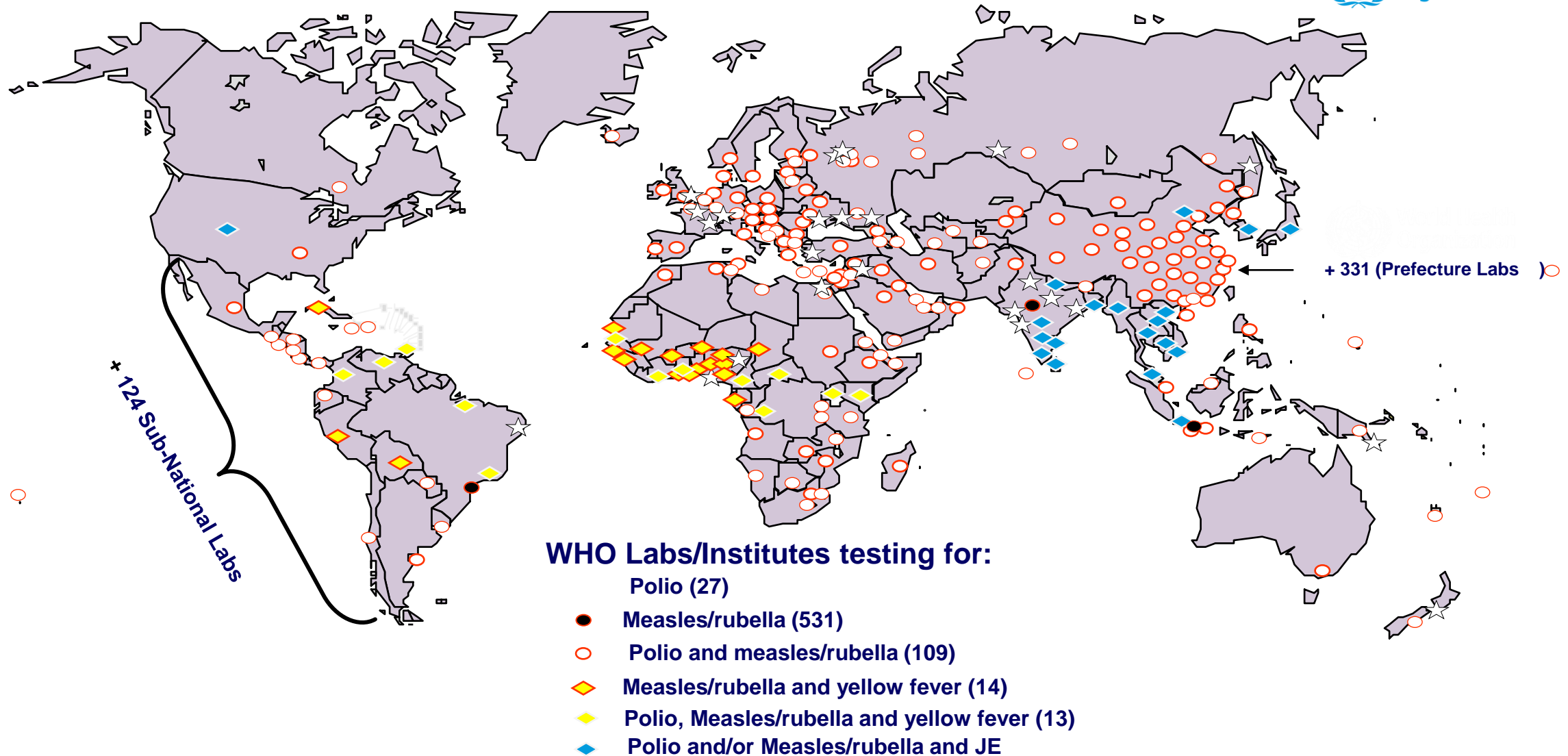


Top 10 countries with most under- and un-vaccinated children (DTP3), in 2016



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.

VPD Surveillance Heavily Depends on Polio Funding



BEFORE EPIDEMIC

Prepare for the inevitable

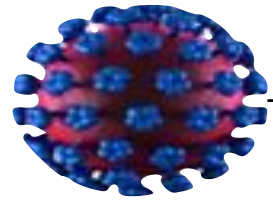


DURING EPIDEMIC

Fast access to interventions



Global level



Lassa

Roadmap
Jan 2018

Critical path for research and potential use
Criteria for candidate products prioritization
Dashboard progress (Taskforce)

TPP
Vax 2017
Dx – June 2018
Tx – Sept 2018

Dashboard of candidate products vs TPPs
R&D Observatory

Generic Protocols
Vx- June 2018
Tx – Sep 2018
Dx – FIND TBD

Deployment
(outside trials)
2018

Non product research
WHE/GOARN

No. of doses for Phase 2b/3 trials
Site selection
Modelling
Method. discussion

GCM

Mapping of stakeholders

SAG

Recommendations
priority research during event

WHE/IMS

Country Operational
Emergency Plan

Country level

NRAs + ERCs - AVAREF joint reviews of protocols

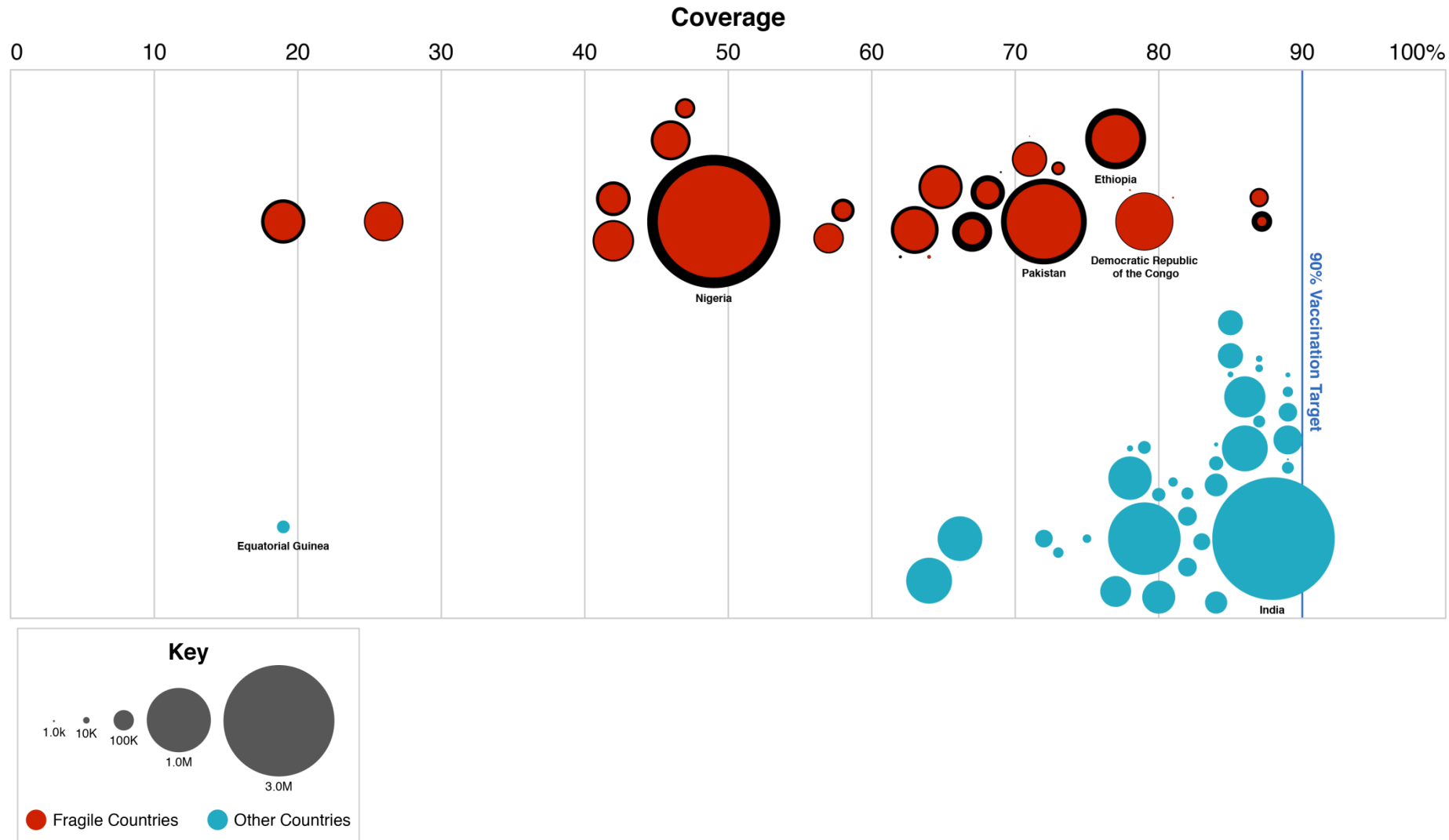
Support to countries for liability and compensation

Tools for review/design of trials at country level

Tools for data sharing and sample sharing

Basic capabilities: surveillance, lab, case management, ...

Fragile and polio endemic countries account for a disproportional share of the un and under vaccinated



Source: WHO/UNICEF Estimates of National Immunization Coverage, July 2017

Middle-income countries without any donor support have highest number of unvaccinated children in the EURO Region



Income level category	Average no. of antigens accommodated/country	Average no. of new vaccines introduced/country	DTP3 Coverage (population weighted average)	Unvaccinated infants (DTP3)		MCV1 ^c Coverage (population weighted average)
				% of Region	# of infants	
HIC ^b (n=33)	12.5	2.0	96.5%	24.7%	182,250	94.2%
MIC^b (no Gavi support) (n=13)	10.4	0.5	88.7%	70.2%	518,850	91.8%
MIC (Gavi support) (n=7)	13.0	2.6	97.3%	5.1%	37,270	97.9%
Regional average or total #	11.9	1.6	93.4%		738,370	93.6%

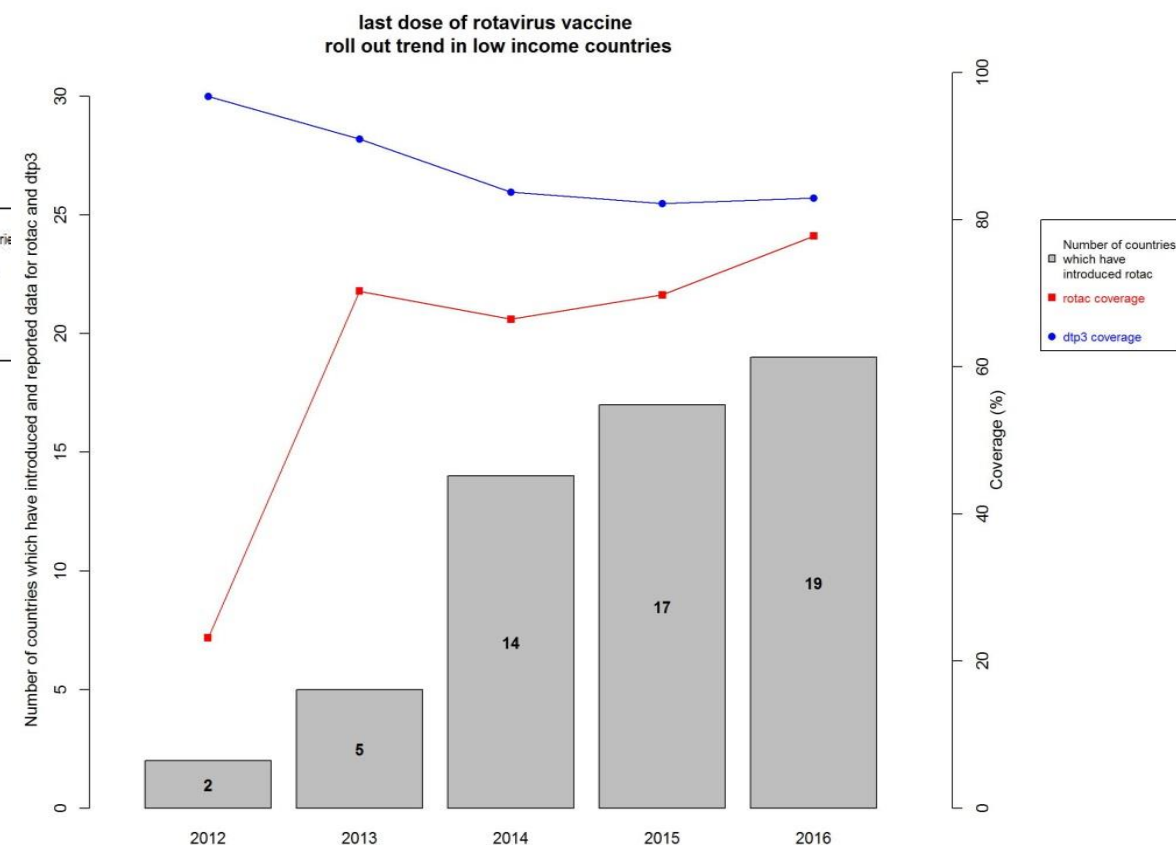
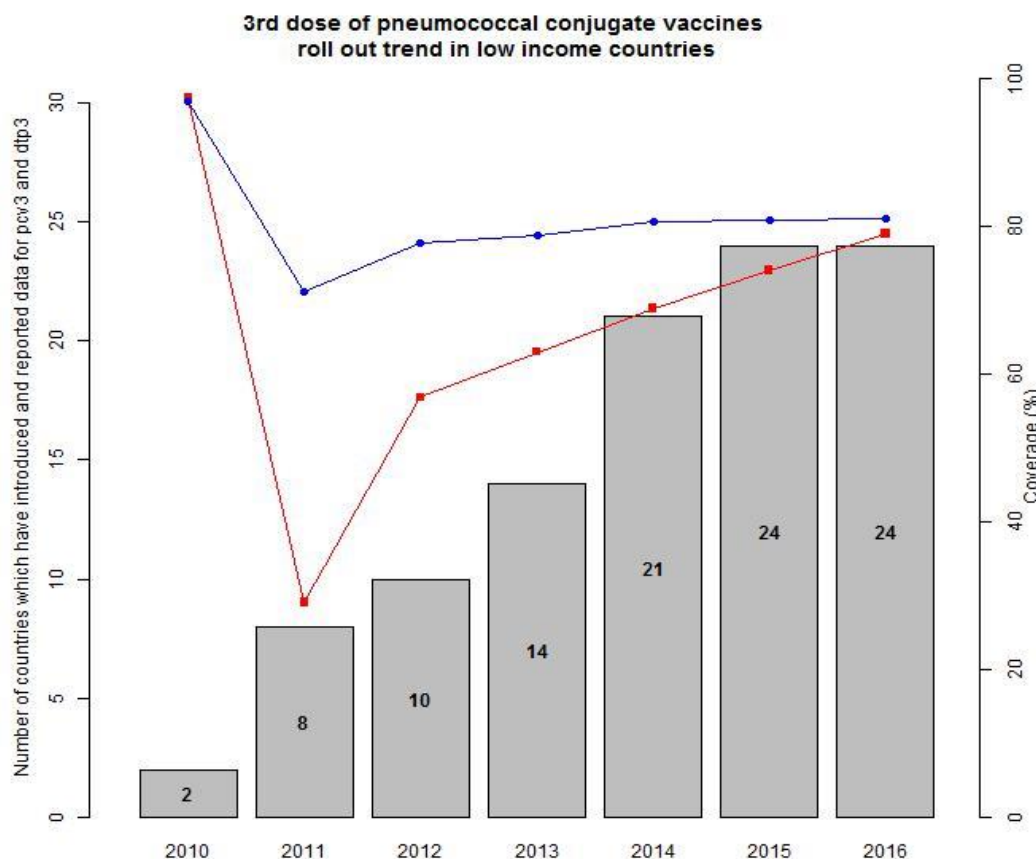
Data source: WHO/UNICEF Joint Reporting Form, 2015

Immunization programme performance by income status and Gavi support 2016 (as per the SDG indicator)



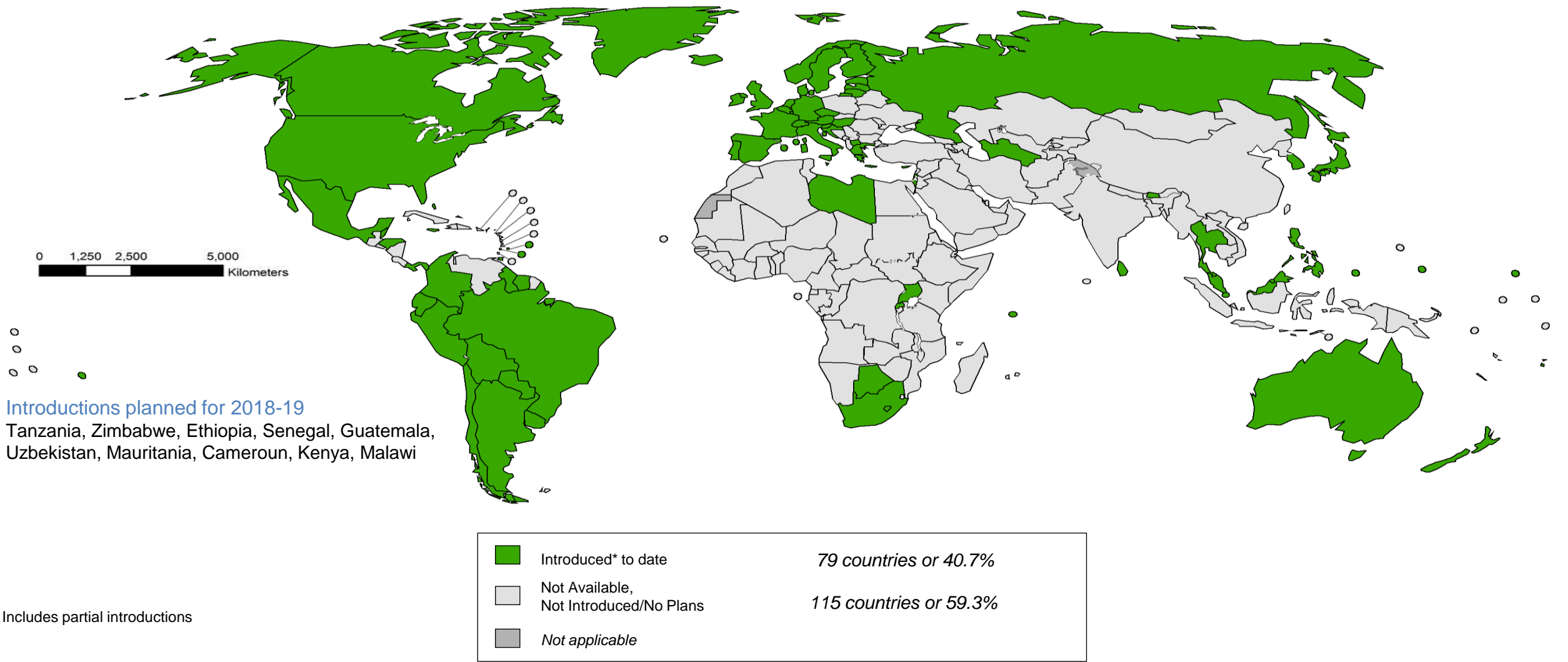
Gavi eligible (73 MS) 82% of under vaccinated	Middle Income non Gavi (64 MS) 16% of under vaccinated	High Income (56 MS) 3% of under vaccinated	Issues
			DTP3 – indicator for health system strength System issues in Gavi eligible countries despite heavy financial investment and donor attention
			MCV2 – indicator of vaccination beyond infancy In Gavi eligible countries lack of platform for vaccination beyond infancy
			PCV last dose – indicator for new (expensive) vaccine uptake All countries are able to introduce new vaccines and on the right trajectory apart from middle income countries
<div><div></div> % Covered by vaccine</div> <div><div></div> % Not covered by vaccine</div>			* Reporting issue, vaccine in schedule but member state does not report

How long does it take for new vaccines to reach coverage levels of traditional vaccines in Low income countries ?



Source: WHO/UNICEF coverage estimates 2016 revision, July 2017. 194 WHO Member States. World Bank list of economies (July 2017)

Countries with HPV vaccine in the national immunization programme



* Includes partial introductions



HPV vaccine : towards more ambitious targets



Current status: (Jan'18): 79 countries (40%) introduced HPV vaccine

- Supply constraints and cost considerations slow introductions
- Unlikely to reach target 70% of countries to introduce HPV by 2020

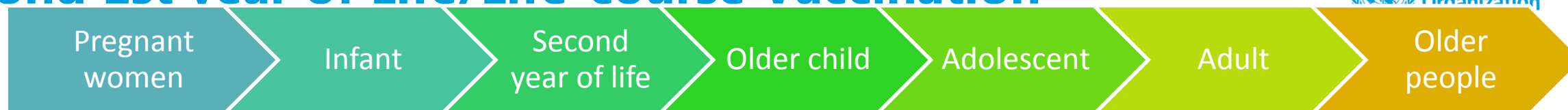
HPV is a target in WHO Global Programme of Work (2018-2023) and SDGs (3.7)

DG Flagship Program - broad alliance towards elimination of cervical cancer as a public health problem

- collaboration across WHO Departments (IVB, RHR, NMH) and IARC
- UN Joint Programme on Cervical Cancer Prevention (UNICEF, UNFPA, IAEA UNWOMEN, UNAIDS, UNODC)
- Civil society partners: GAVI, IUCC, CHAI

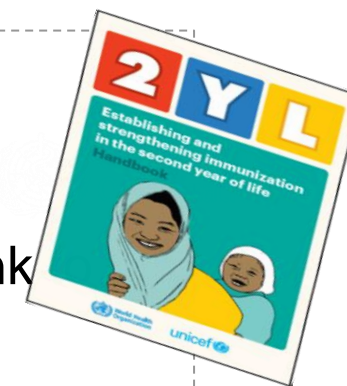
Assess potential contribution of HPV vaccines to an elimination goal

Beyond 1st year of Life/Life-course Vaccination



- Build/strengthen delivery platforms across the life-course
- Shift beyond 1st/2nd year of life (while increasing MCV2!)
- Birth- On-time HepB/BCG thru closer work with maternity services birth registration and receipt of HBR)
- Adolescent: Td, HPV
- Maternal – future new vaccines (Influenza, RSV, GBS)
- Adult – focus on health worker vaccination (HepB, measles, influenza)

(link



Why we need to strengthen 2YL platforms



- **Several vaccines are now scheduled in 2YL** - including MCV2, boosters & new vaccines – e.g. malaria vaccine
- **Most vaccines can be given in 2YL** if missed (catch-up)
- **Most RI systems not well equipped to for vaccinating beyond infancy** – need to pay attention to:
 - Special efforts for social mobilization/ creating demand for vaccination beyond infancy
 - Data systems to monitor 2YL coverage
 - Clear catch-up vaccination policies – improvement in practices
 - Special training of HCW, mid-level managers

Aligning immunization with emerging global health and development agendas

UHC/Health System Strengthening

- Policy level : use of Immunization indicator to track UHC progress; domestic financing
- Position immunization platform to help accelerate coverage with linked UHC interventions
- Support Gavi HSIS processes including fiduciary, supply chain and technical assistance deepened at provincial/district levels

Health Security

- Ensure prioritization of preventive interventions
- Apply existing guidelines and ensure vaccine access
- Risk Assessments and Outbreak Responses, where needed
- Prioritize continuous learning and research activities in context of hum emergencies and emerging pathogens

Post 2020 – Will "more of the same" work ?

- Successes of last decade helped by introduction of new vaccines
 - Few new vaccines coming in next decade
 - What will drive uptake ? How do we keep up with population growth and movement ?
- Innovations for Coverage and Equity (ICE)
 - Granularity (GPS mapping, heat mapping etc)
 - Products (thermostability, patches, etc)
 - Policy (legal frameworks, school checks, product differentiation, TSE) etc
 - Strategies (life-course, social media, client-centred approaches,...)

Getting to a post-2020 agenda ?

- DG will be convening partners to establish mechanism for post-2020 agenda development
- Bottom-up: build from country and regional needs
- We are not short of goals but need to consider:
 - Regional business cases / vaccine action plans
 - Transitions (polio, GAVI graduations, new vaccines)
 - Demographics

WIW 2018

WIW 2018 THEME: Protected Together, #VACCINESWORK

This WIW, we can help **#VACCINESWORK** leave a record-breaking mark on social media.

In 2016, nearly 1 in 10 infants didn't receive any vaccinations – **this must change!**

Join us to highlight **the collective action necessary to ensure everyone is protected** against vaccine-preventable diseases.

TAKE PART IN WIW BY:

PROMOTING
campaign
content and
web banners

ENGAGING
your networks
to support WIW

SHARING
why you
vaccinate

ACTIVATING
champions
you know

STAY UPDATED

FROM MARCH 28, CHECK THE **WIW SOCIAL MEDIA HUB** TO FIND EXCITING DIGITAL CONTENT TO PROMOTE, AND TO FIND OUT HOW TO SHARE YOUR OWN.



[CLICK HERE FOR WHO's WIW WEBSITE](#)

CAMPAIGN FOCUS DAYS

We will spotlight **three key groups of people who are vital** to ensuring everyone is protected with vaccines.



24 APRIL - THE PUBLIC

We Protect Each Other, #VaccinesWork

Recognize the individuals who help ensure that they and their families are protected from vaccine-preventable diseases



26 APRIL - HEALTH WORKERS

On the Frontlines, We Protect Communities, #VaccinesWork

Highlight frontline health workers who ensure people everywhere are protected from vaccine-preventable diseases



27 APRIL - DONORS/LEADERS

Our Commitment Keeps People Protected Together, #VaccinesWork

Spotlight donors and leaders who help fund vaccines and ensure that they are available for people around the world

Thank you