

# **CLOSING THE IMMUNIZATION GAP:**

## ***IMMEDIATE CHALLENGES AND WAYS FORWARD***

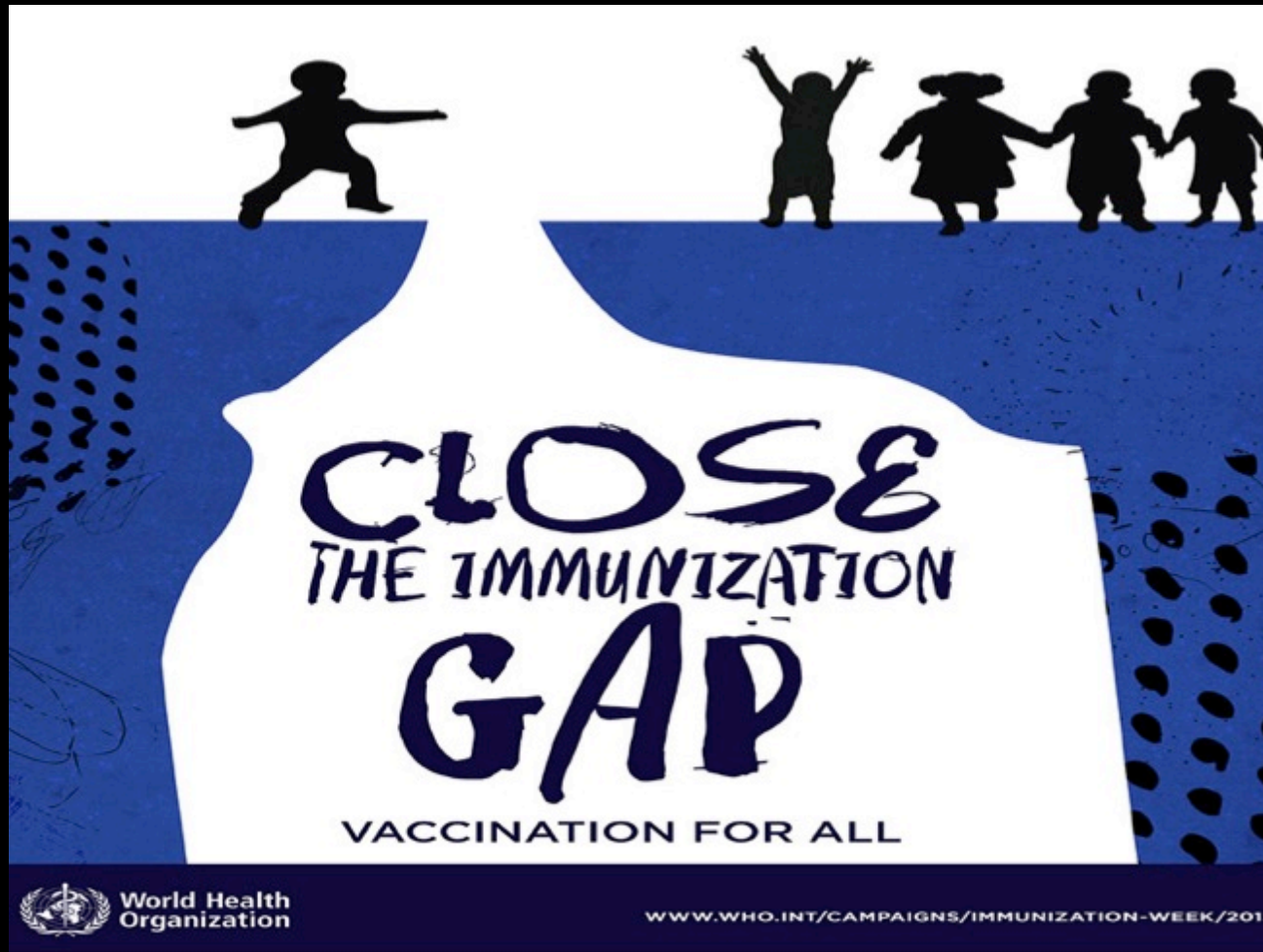
**JM Okwo-Bele**

**14 Apr 2015**



**World Health  
Organization**

# World Immunization Week 24-30 April 2015



<http://www.who.int/campaigns/immunization-week/2015/en/>

# Outline

1

GVAP ASSESSMENT  
REPORT 2014 – the  
responses

Feedback from EB and Plan for WHA  
Brief regional updates  
Current Programmatic Priorities

2

IMPLEMENTATION OF  
SELECTED SAGE  
RECOMMENDATIONS

Updates on Hep A; Cholera Men A;  
Post-Ebola vaccines lessons; Dengue;  
RTS,S

3

SAGE PROCESSES

Topics for next meetings  
Active Working Groups

# **Key Messages:**

**Meeting the GVAP goals is resources intensive (human and financial)**

**Urgently increase routine immunization coverage**

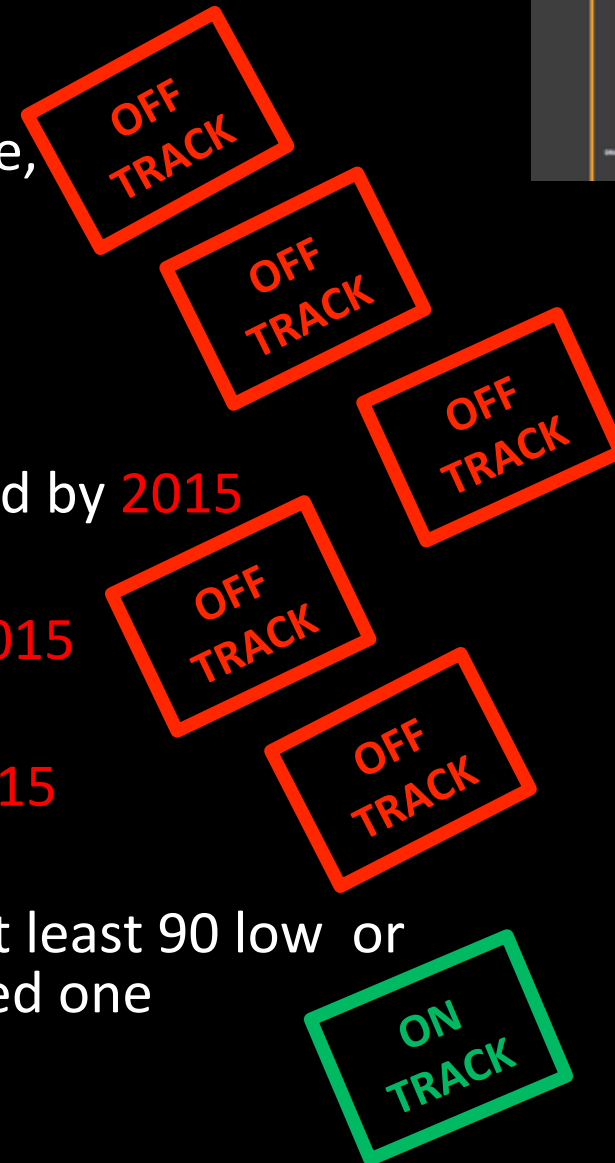
**Collective efforts & expanded partnerships very much required**



# The report card

## GVAP mid-point targets

- **DTP3:** All countries >90% national coverage, and >80% in every district by **end 2015**
- **Polio:** transmission stopped by **end 2014**
- **Maternal and neonatal tetanus:** eliminated by **2015**
- **Measles:** eliminated in 4 regions by **end-2015**
- **Rubella:** eliminated in 2 regions by **end-2015**
- **Introduction of under-utilized vaccines:** At least 90 low or middle income countries to have introduced one or more such vaccines by **2015**



A large, glossy red sphere is positioned on the left side of a solid blue background. The sphere has a bright white highlight on its upper right surface, giving it a three-dimensional appearance. The text is overlaid on the left side of the sphere.

# GVAP

at global and  
regional  
Governance levels

# GVAP session at Jan 2015 WHO EB

## 27 speakers

(22 Member States, 4 CSOs and 1 pharmaceutical manufacturer association)

SAGE highly commended for  
the quality of the GVAP assessment report

EB took note of the report

# GVAP at EB : Highlighted issues

- **Increase RI coverage, focusing on strengthening health systems and addressing inadequacies in the health workforce;**
- **Provide clear guidelines and support for sustaining immunization programmes when health services are affected due to conflict, civil unrests, or disease outbreaks;**
- **Ensuring countries have access to sustainable supply of vaccines at affordable prices;**
- **Access to sustainable financing of immunization programme, especially in countries as they graduate out of Gavi support;**
- **Enhancing the quality of immunization data and strengthening National Immunization Technical Advisory Groups (NITAGs) to enable evidence-informed decisions on policies and strategies.**

# GVAP at upcoming WHA

Technical session – WHA standing agenda item

Country scores card available to all Member States  
in addition to full report of SAGE on the GVAP

Side technical meeting convening the countries  
with DPT3 coverage <80%

# Regional Vaccine Action Plans



## PAHO

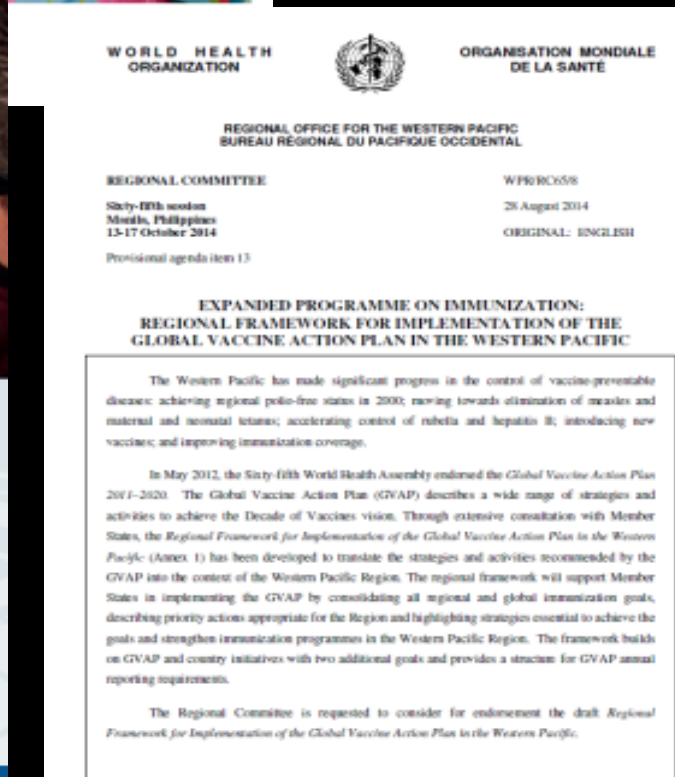
Next strategic plan  
“Immunization Action Plan for the Americas 2016-2020” to be discussed later in 2015

## EMRO

RVAP will be developed at the end of 2015 based on cMYPs

## SEARO

“South-East Asia Region Immunization Strategic Plan, 2014-2017”, developed, to be discussed soon



# The next steps...

## **Vision and Mission for WHO's work in Vaccines and Immunization**

### **Finalization of analytical inputs**

Expectation's survey and historical review to be completed and used to inform Vision/Mission

### **Drafting of Vision/Mission**

Define WHO core work, its work with partners and the technical areas of focus

### **Validation of draft**

Input from regions, HQ and selected country staff

### **Completion by end of Q2/2015**



# Where

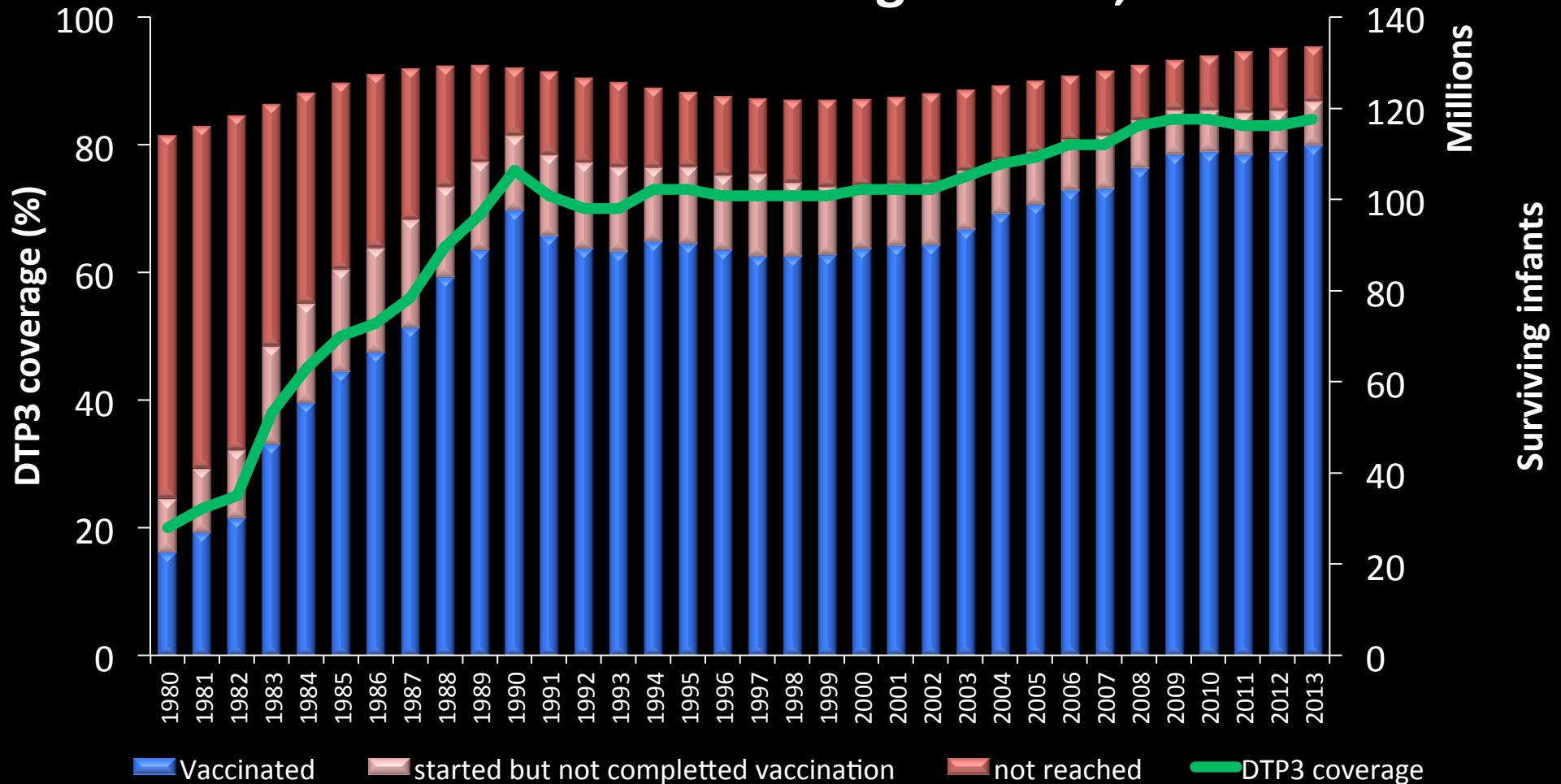
are we today ?

The status of the  
global programme...



# Global Coverage is flat since 2009

Global coverage, immunized and under or unimmunized infants with DTP containing vaccine, 1980-2013

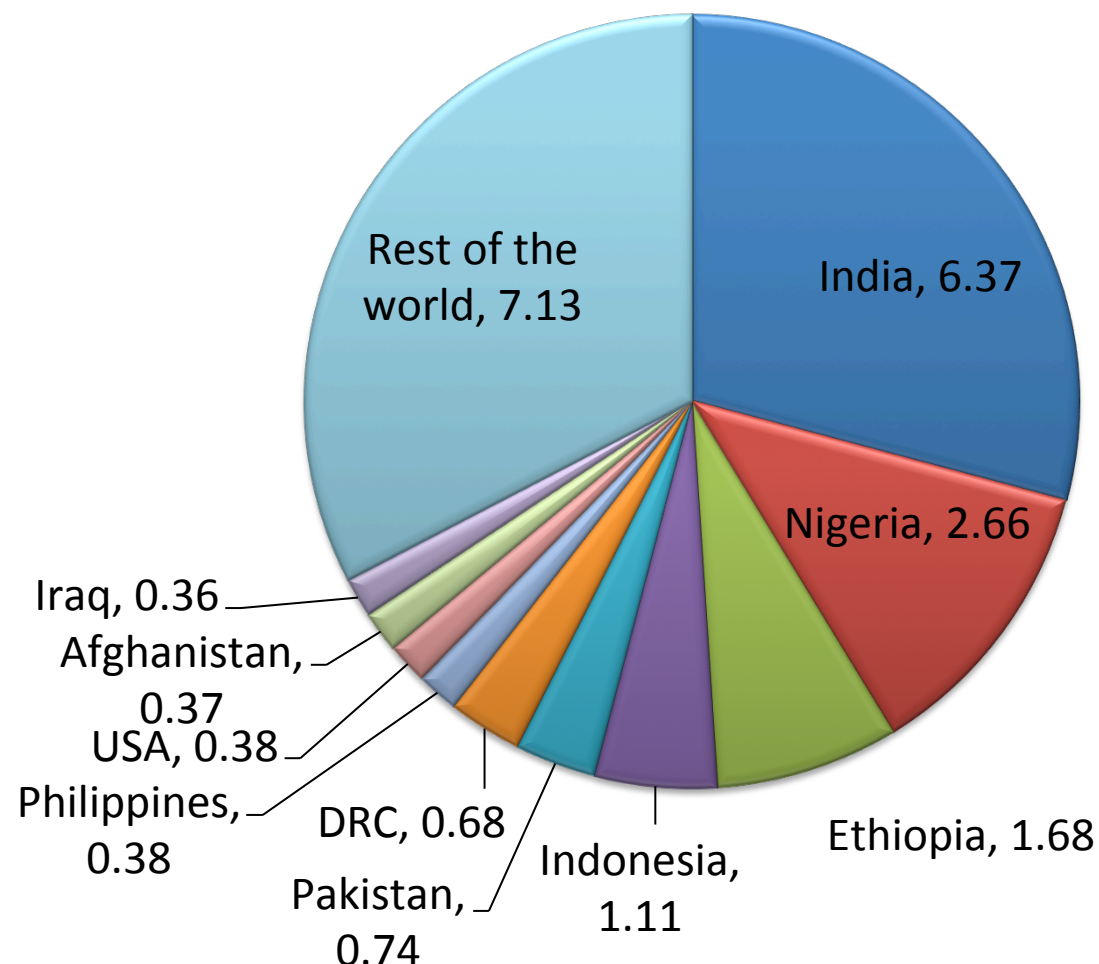


Source: WHO/UNICEF coverage estimates 2013 revision. July 2014 / United Nations, Population Division. The World Population Prospects - the 2012 revision". New York, 2013.

Immunization Vaccines and Biologicals, (IVB), World Health Organization.

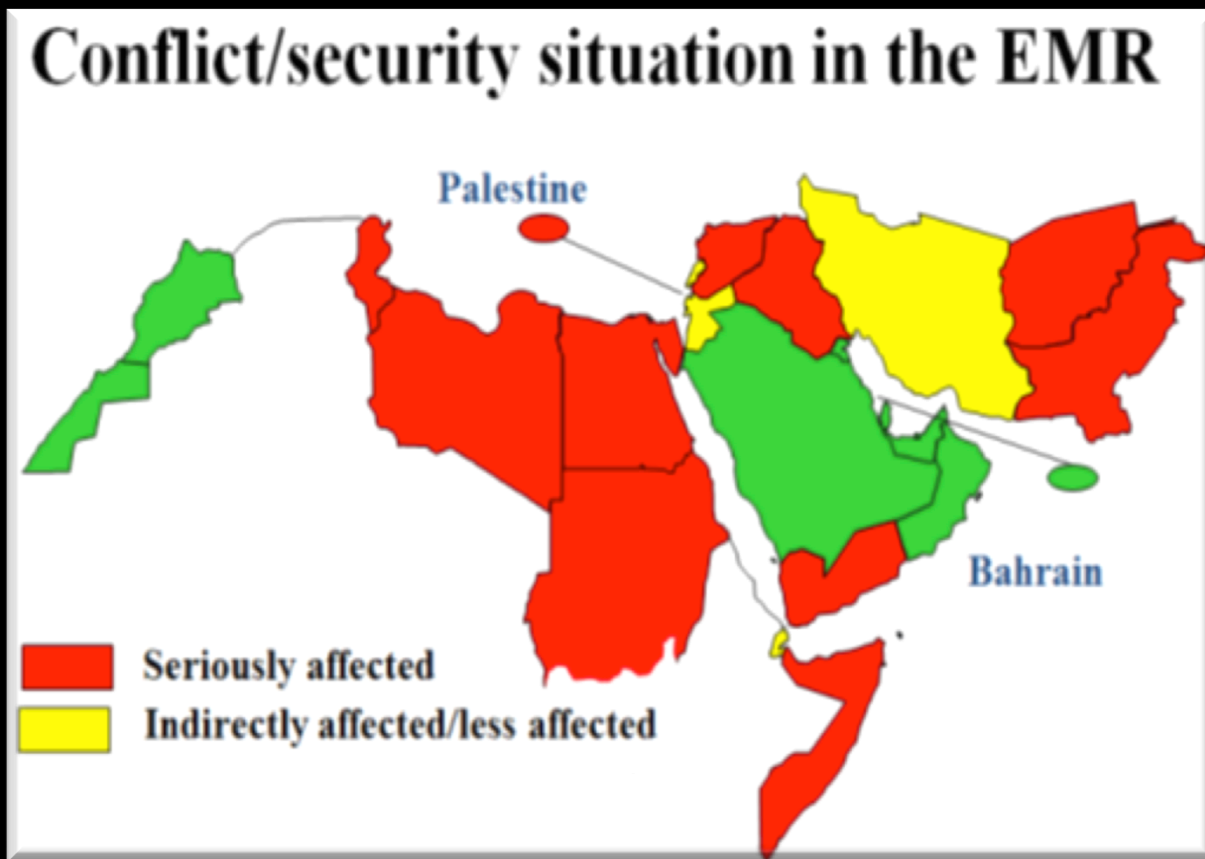
194 WHO Member States

# 21 million infants missed the 1<sup>st</sup> routine dose of Measles Containing Vaccine in 2013

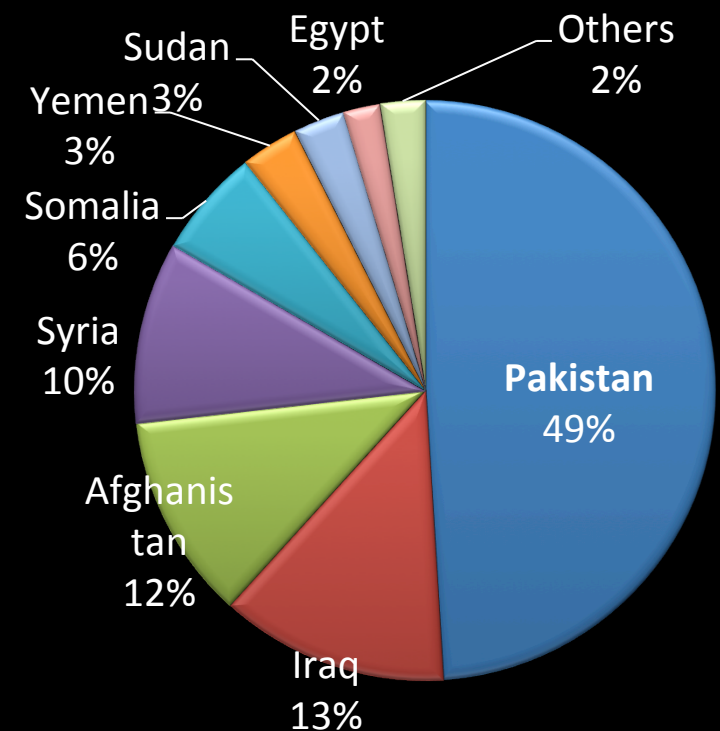


6 countries with over 60% of un-immunized

**15/22 countries in the EMR are under conflicts/insecurity**  
**98% of the DTP3 unvaccinated children in 2013 are in security compromised countries**

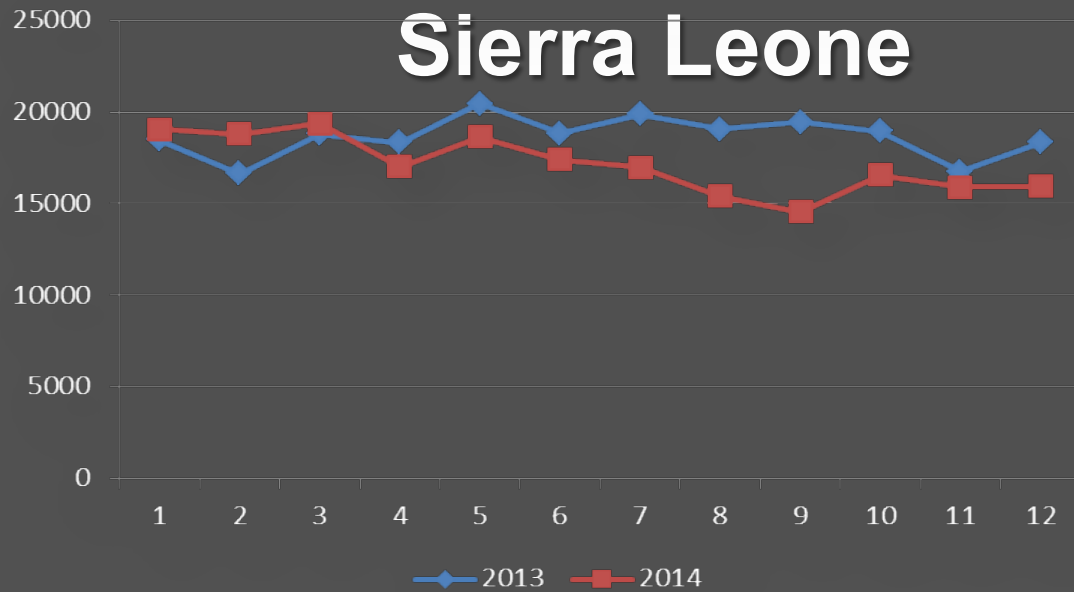


**3.1 million DTP3 unvaccinated children in the EMR**

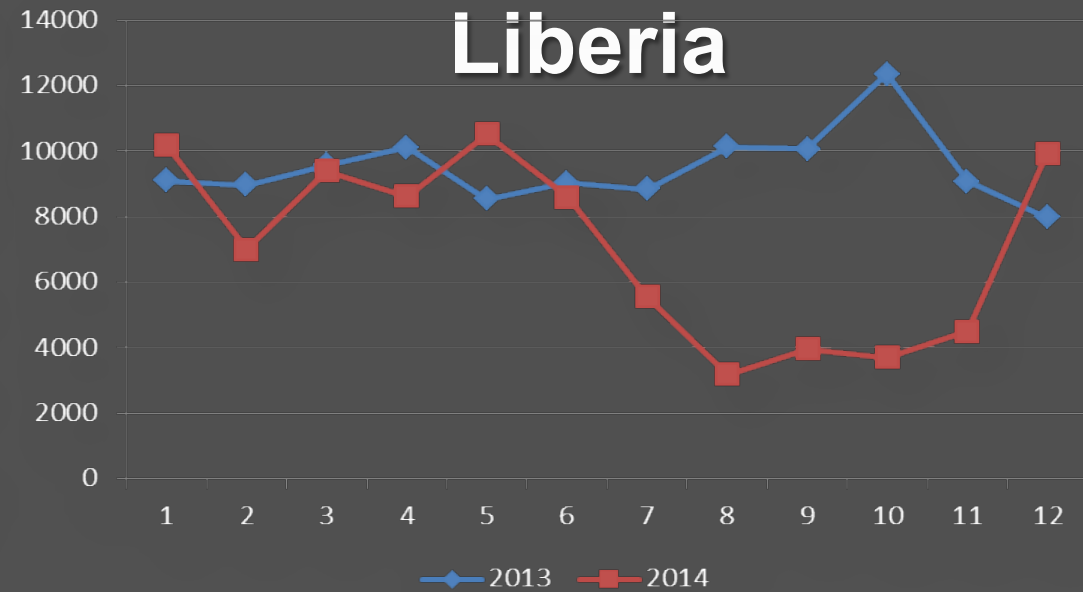


# Number of measles doses administered by month in 2013-2014

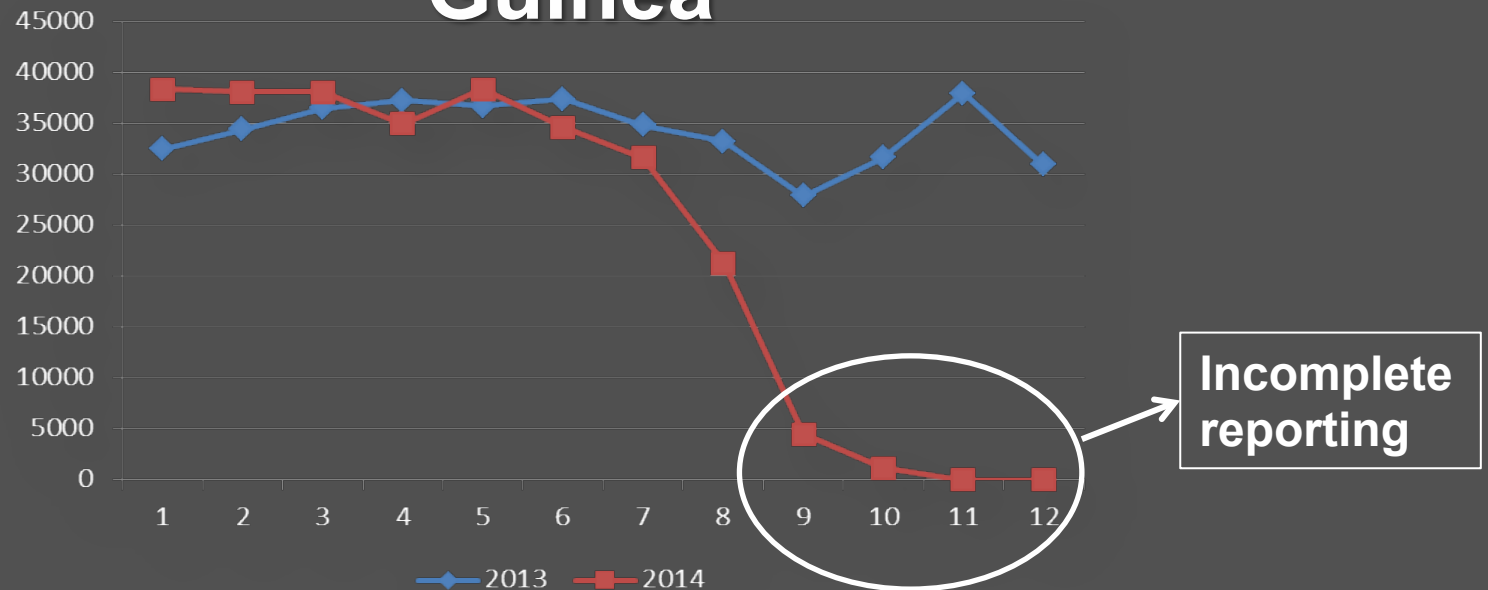
## Sierra Leone



## Liberia



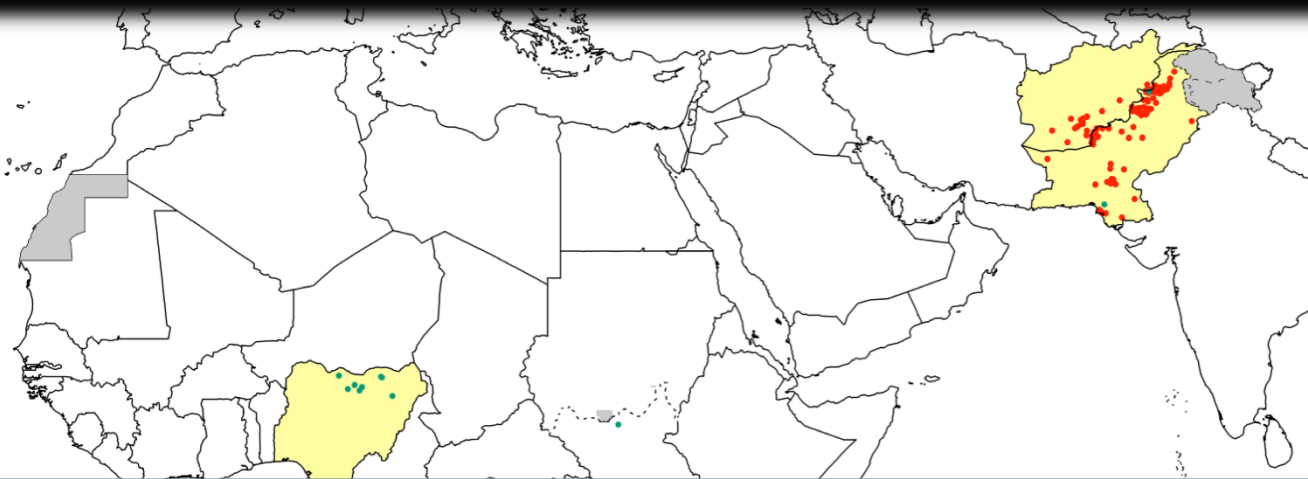
## Guinea



Source : AFR monthly district RI coverage database 8 Apr 15

# Polio eradication: the end in sight?

**Wild Poliovirus & cVDPV<sup>1</sup> Cases<sup>2</sup>, Previous 6 Months<sup>3</sup>**



**No wild poliovirus reported in the African Region for more than 7 months**



- Wild poliovirus type 1
- cVDPV type 2
- cVDPV type 1
- Endemic country

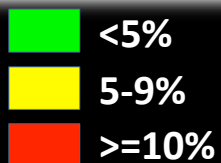
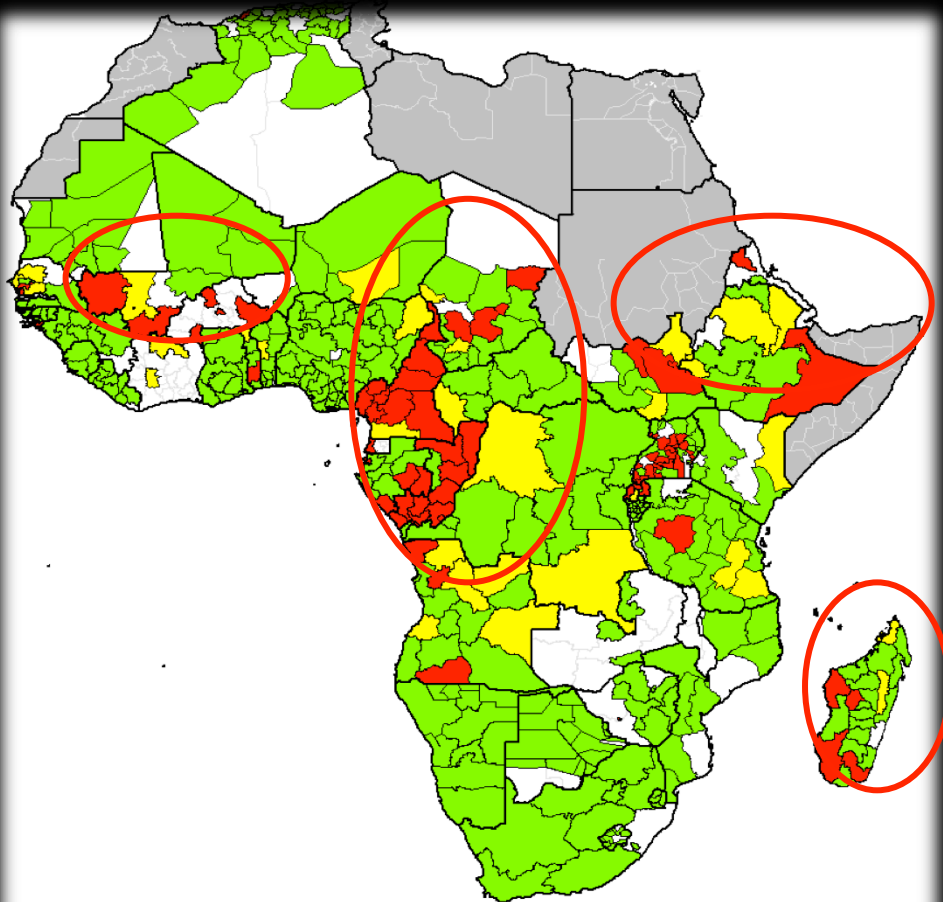
<sup>1</sup>cVDPV is associated with  $\geq 2$  AFP cases or non-household contacts. VDPV2 cases have  $\geq 6$  ( $\geq 10$  for type1) nucleotides difference from Sabin in VP1.

<sup>2</sup>Excludes viruses detected from environmental surveillance.

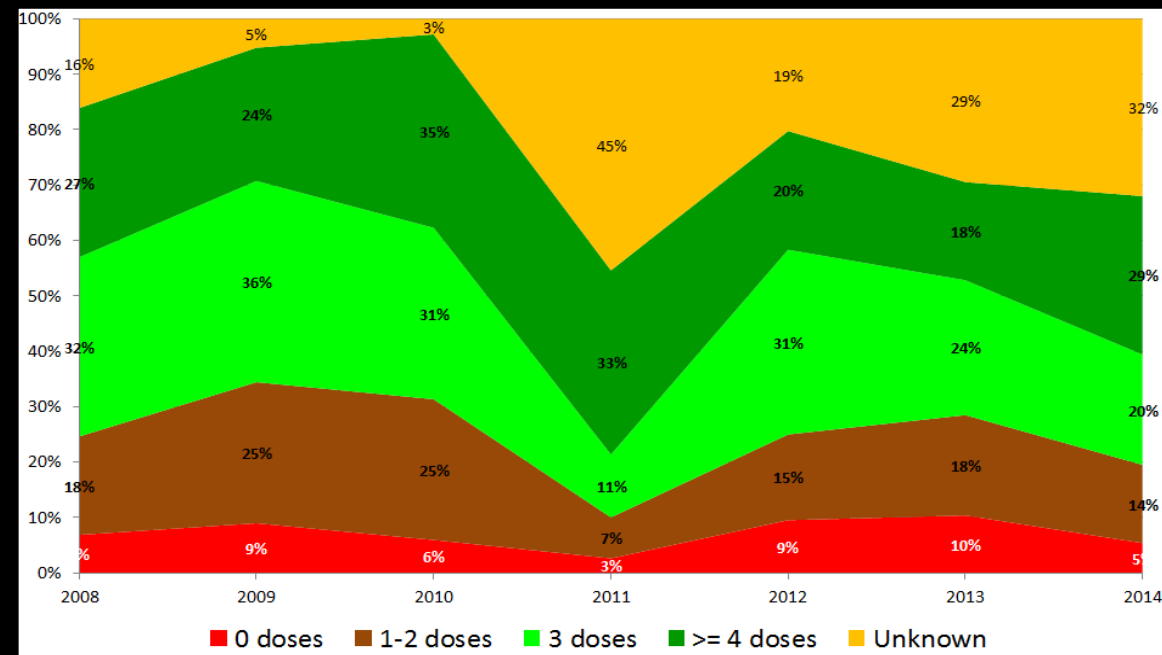
<sup>3</sup>Onset of paralysis 11 September 2014 – 10 March 2015

# Immunity Profile, Polio Vaccination Status of Non Polio Acute Flaccid Paralysis Cases, AFR Region

NP AFP Cases with Zero Doses  
Last 12 months

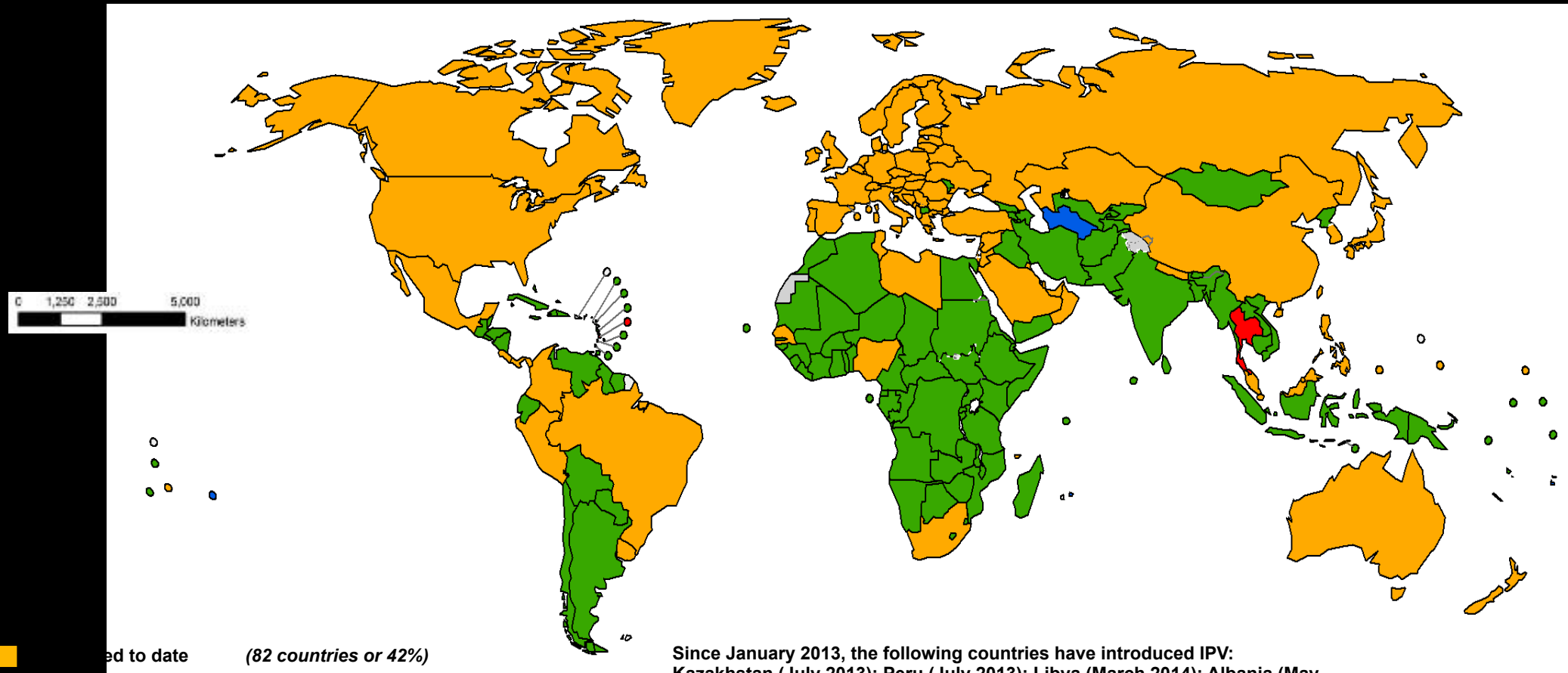


Polio vaccination Status of NP AFP Cases, 6-59 Months  
AFR 2008-2014



# IPV Introduction status - March 2015

14 introductions  
110 commitments/intents to introduce in 2015



- Introduced to date (82 countries or 42%)
- Formal commitment to introduce in 2015
- Intend to introduce in 2015 (Cook Islands, Fiji, Mauritius, Turkmenistan)
- Intend to introduce in 2016 (Thailand)
- Formal commitment to introduce in 2016 (Saint Lucia)
- Not Available
- Not applicable

Since January 2013, the following countries have introduced IPV:  
Kazakhstan (July 2013); Peru (July 2013); Libya (March 2014); Albania (May 2014)

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

Date of slide: 3 March 2015



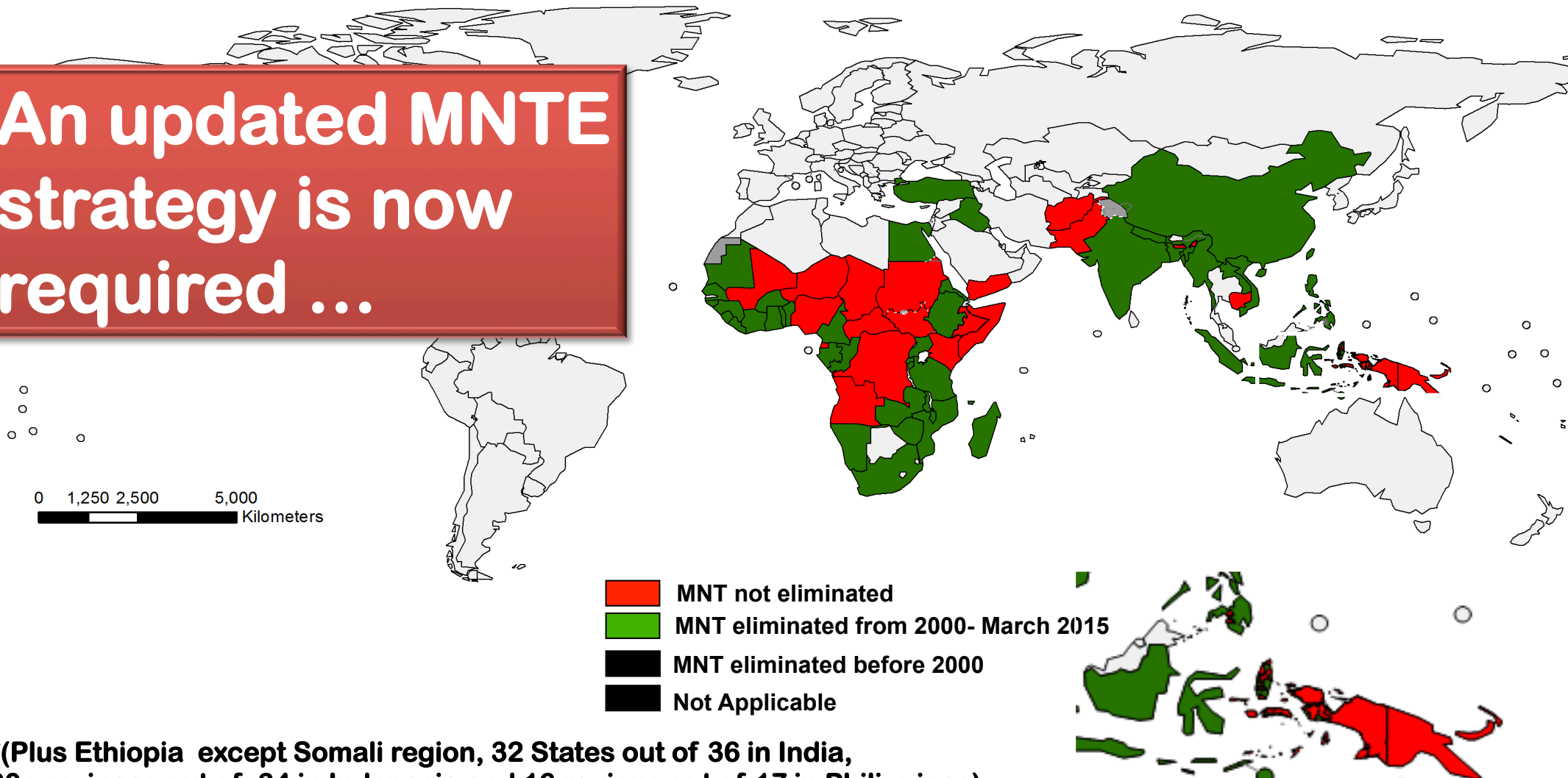
EPI

POLIO  
GLOBAL  
ERADICATION  
INITIATIVE



# 36\* Countries eliminated MNT between 2000 and 2015, leaving 23 countries yet to eliminate MNT

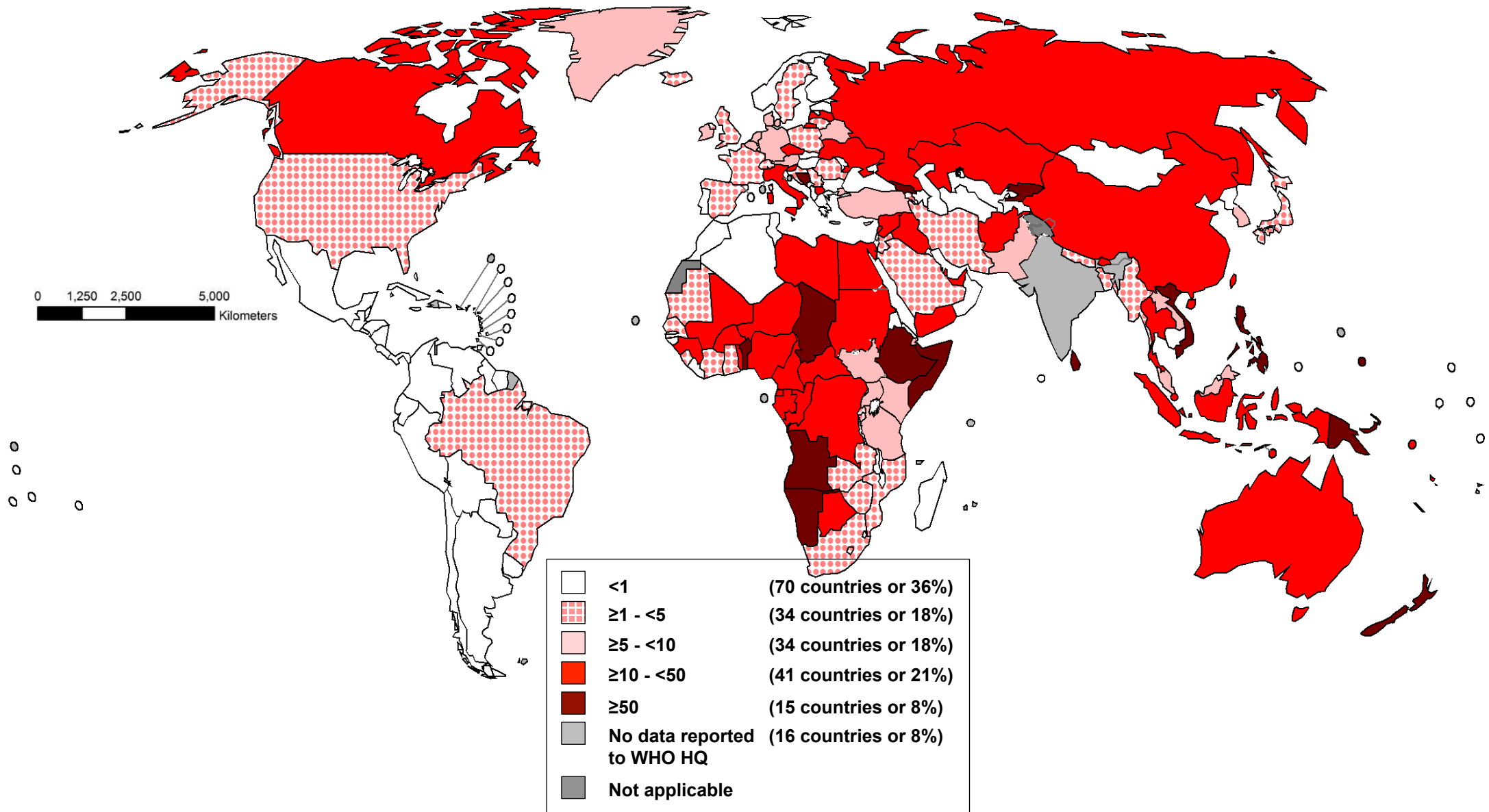
**An updated MNTE strategy is now required ...**



**\*(Plus Ethiopia except Somali region, 32 States out of 36 in India, 30 provinces out of 34 in Indonesia and 16 regions out of 17 in Philippines)**



# Reported Measles Incidence Rate\*, Feb 2014 to Jan 2015



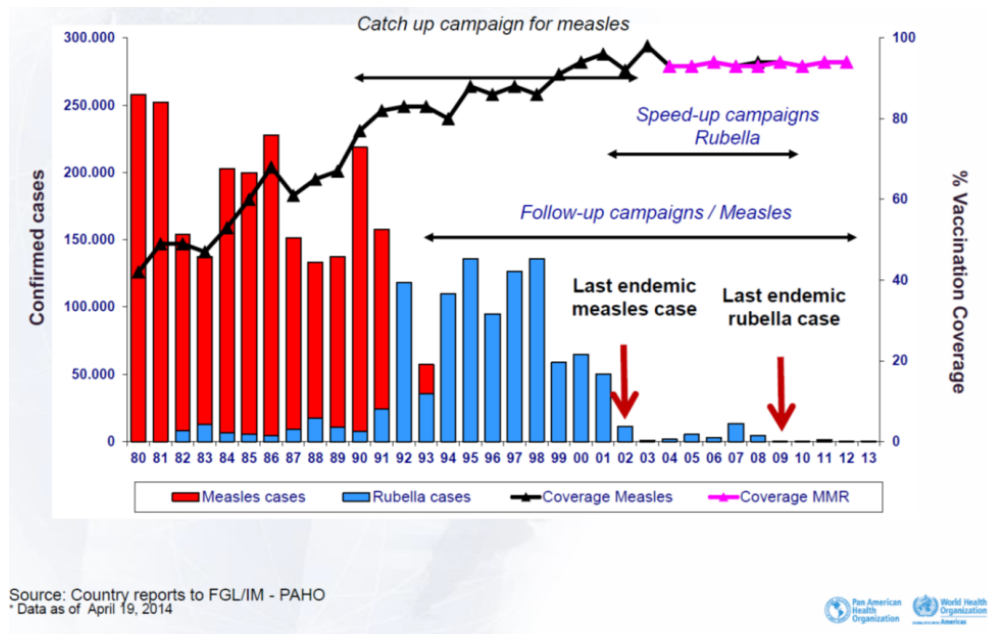
Data source: surveillance DEF file  
Data in HQ as of 9 March 2015

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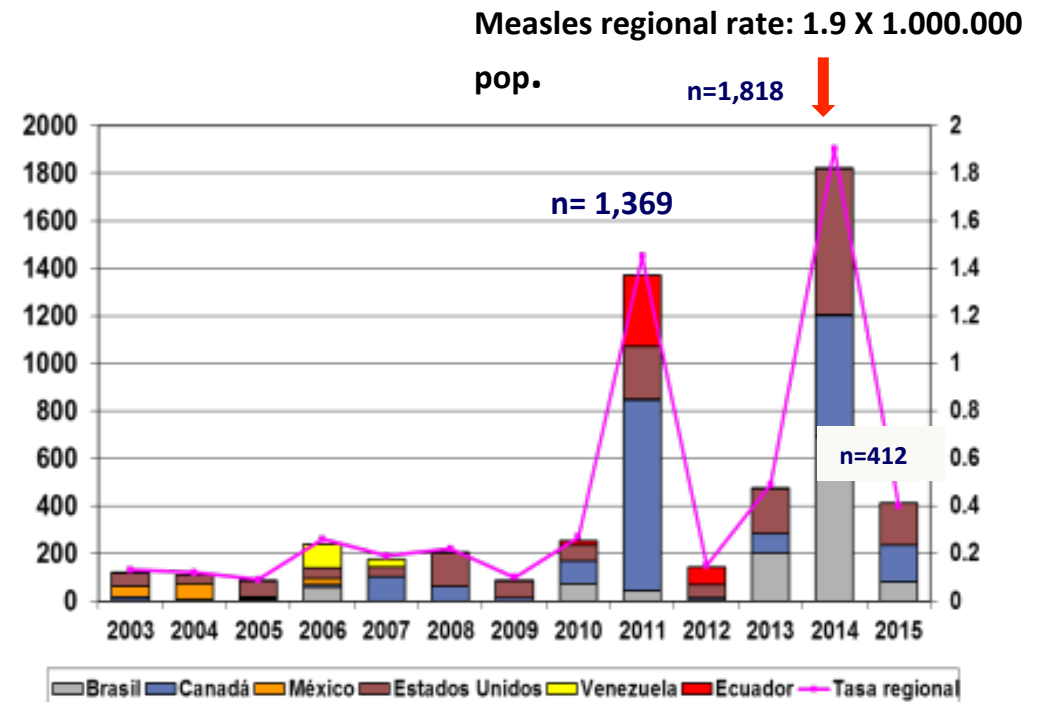
# AMR: Progress in the elimination era

## 2002-2015

### Pre elimination measles era



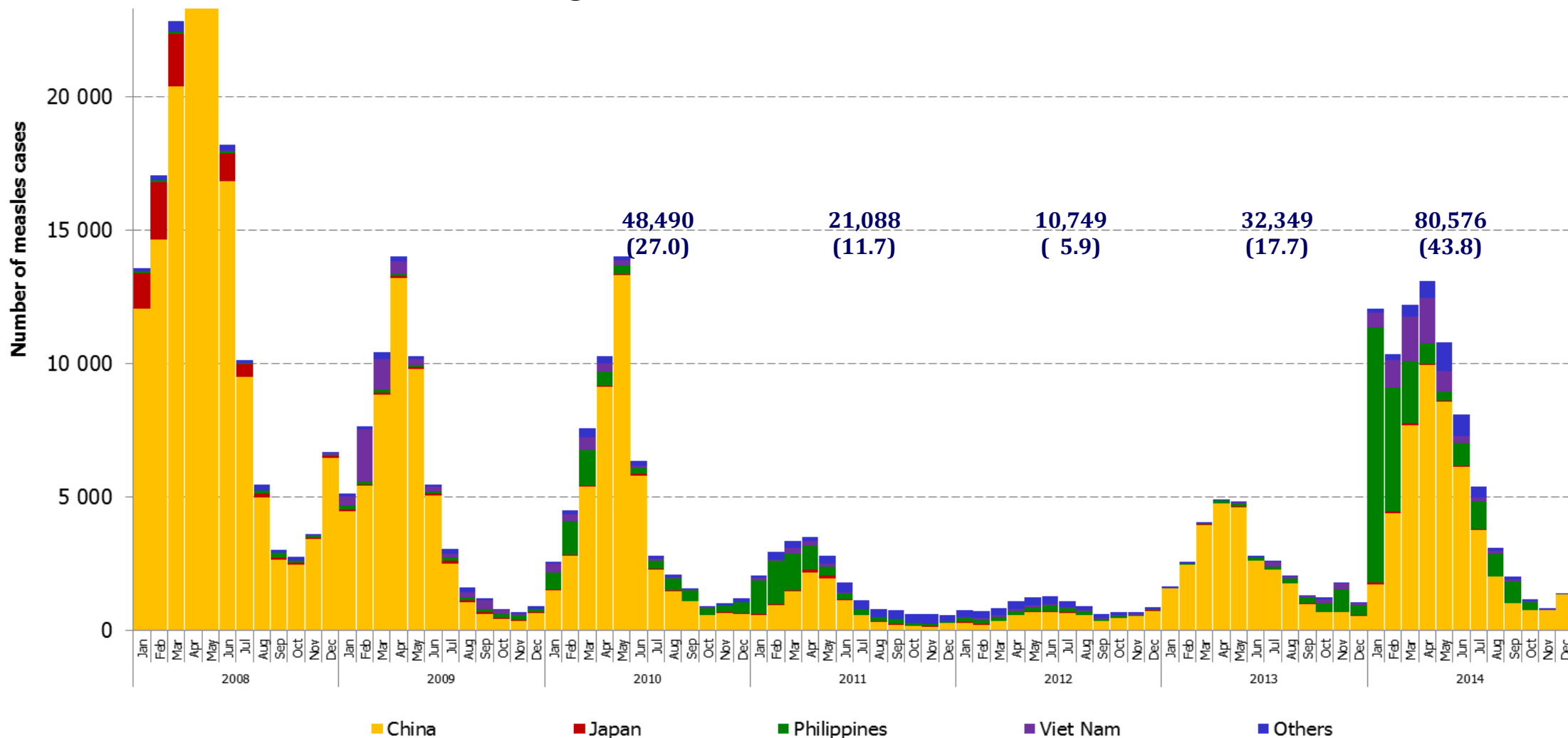
### Post elimination measles era



# WPR - 7 countries & areas verified:

Australia, Brunei Darussalam, Cambodia, Japan, Macao SAR (China), Mongolia, and the Republic of Korea

## Measles Cases\* by Month of Onset, WPR, 2008-2014



Source: Measles and rubella monthly country reports to WHO by 20 January 2014

\* Includes laboratory confirmed, epi-linked and clinically confirmed measles cases for 2008-2012

# Suggested Measles SIAs, selected countries, WPR, 2015-2017

Year	Country	Confirmed or Suggested SIA
2015-2017	Philippines	Annual intensification of routine immunization for ensuring high MCV-2 coverage in children 12 - 35 m
2015-2017	Philippines	Region-wide, wide-age-range, SIA (5-40 yr) in 2015-2017 (Regions 6 & 7 in 2015)
2015-2017	Viet Nam	Annual district risk-asessment followed by high-risk district or province-wide SIA (for children missed in the routine immunization programme)
2015-2017	Lao PDR	Annual district risk-asessment followed by high-risk district SIA (for children missed in the routine immunization programme)
2015	PNG	A nation-wide MR-SIA targeting children 9 m – 15y to introduce RCV (MR) into the routine immunization programme

# Suggested Measles SIAs, WPR, 2016-2018

Year	Country	Confirmed or Suggested SIA
2016	Solomon Islands	A nation-wide SIA targeting children aged 9 m - 35 m
2017	Cambodia	A nation-wide SIA targeting children aged 9 m - 59 m
2017	Kiribati	A nation-wide MRCV-SIAs (targeting children aged 1 y - 5 y)
2018	Lao PDR	A nation-wide SIA targeting children aged 9 m - 4 y
2018	Philippines	A nation-wide SIA targeting children aged 9 m - 59 m
2018	Solomon Islands	A nation-wide SIA targeting children aged 9 m - 35 m
2018	Viet Nam	A nation-wide SIA targeting children aged 1 y - 4 y

# Progress towards verification of measles elimination for 2013, EUR

	Categories	Countries	# countries
1	Countries with interrupted transmission, $\geq 36$ months (verified as having achieved elimination)	--	--
2	Countries with interrupted transmission, $< 36$ months	Andorra, Armenia, Azerbaijan, Belarus, Bulgaria, Cyprus, Czech Republic, Estonia, Finland, Hungary, Israel, Latvia, Luxembourg, Malta, Norway, Portugal, <b>Republic of Moldova</b> , Slovakia, Slovenia, Sweden, <b>Tajikistan</b> , Turkmenistan	22
3	Countries with endemic transmission (re-established)	--	0
4	Countries with endemic transmission (never interrupted transmission)	Belgium, France, Georgia, <b>Germany</b> , Ireland, Kazakhstan, <b>Lithuania</b> , Poland, Romania, Switzerland, <u>Russian Federation</u> , Turkey, United Kingdom of Great Britain and Northern Ireland	B
5	Inconclusive (e.g., poor quality, inconsistent, or incomplete data)	Austria, Croatia, Denmark, Greece, Montenegro, <b>Netherlands</b> , Spain, Uzbekistan	8
6	Not reviewed by the RVC	Albania, Bosnia and Herzegovina, <b>Iceland</b> , Italy, <b>Kyrgyzstan</b> , <b>Monaco</b> , San Marino, <b>Serbia</b> , The former Yugoslav Republic of Macedonia, <b>Ukraine</b>	10

*Countries noted in RED have moved down on scale from 2012 to 2013,*

*GREEN have moved up. Underlined are pending final RVC conclusions.*

# Myanmar success of MR SIAs held in Jan/Feb 2015: A key step forward in SEAR elimination activities

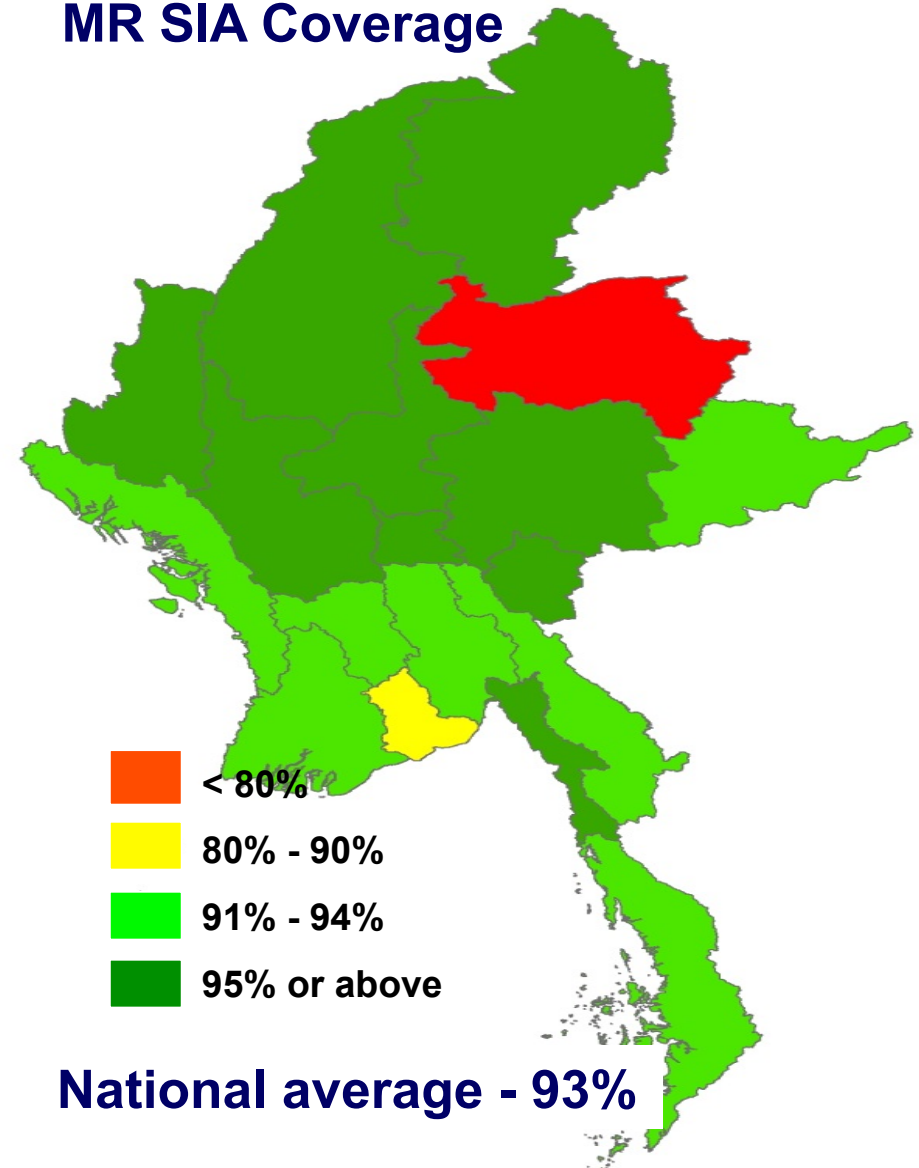
For the country:

This is the largest ever vaccination campaign targeting schools

Many areas / communities were accessed for first time with MR vaccine,



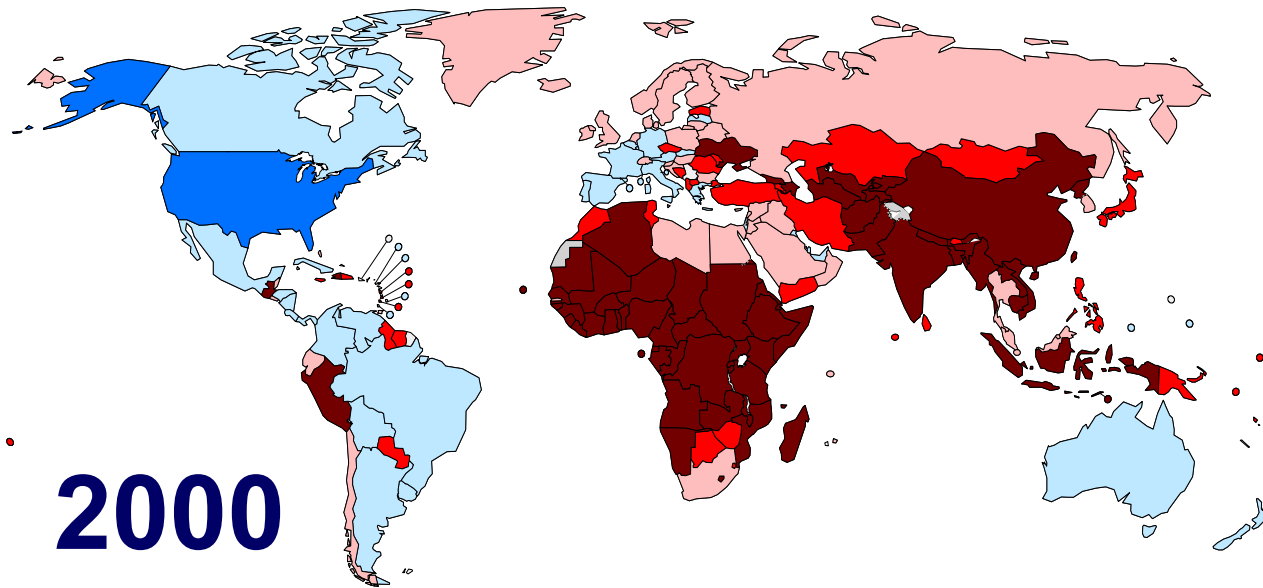
## MR SIA Coverage



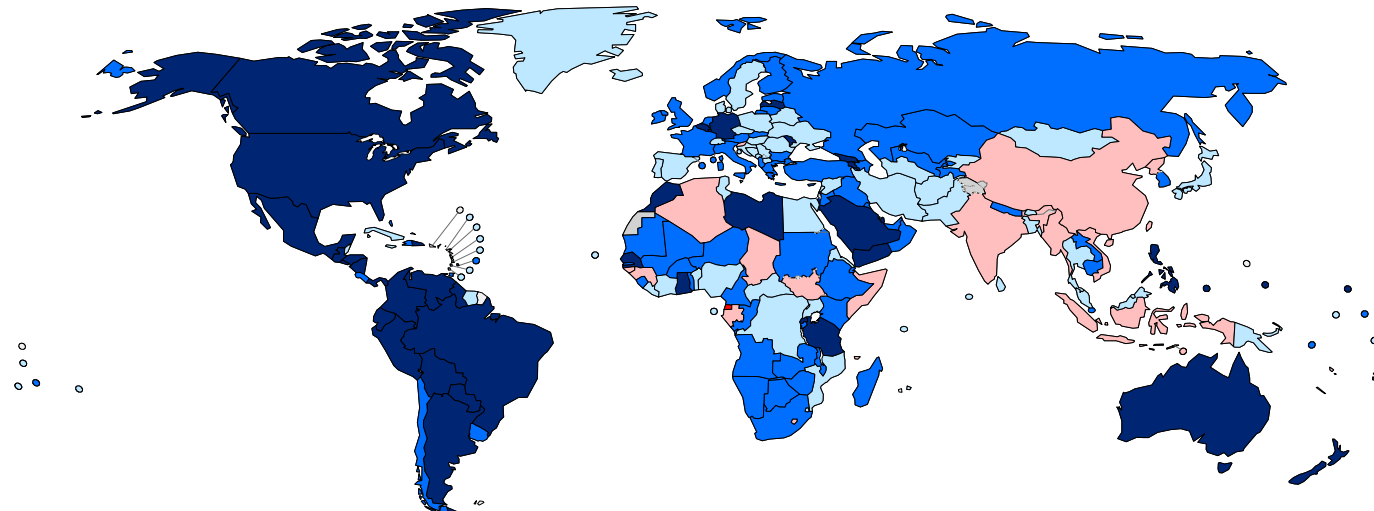
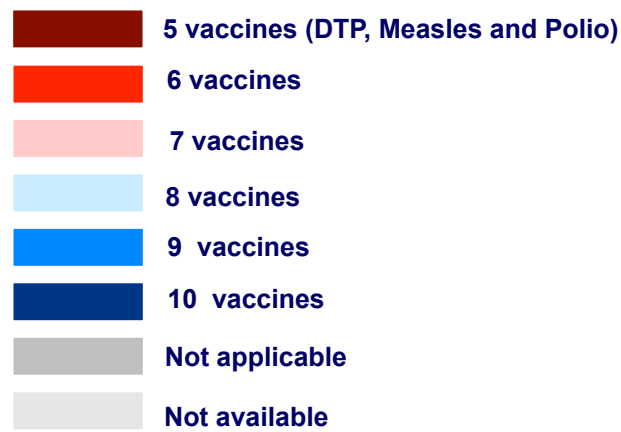
**National average - 93%**



# Number of Vaccines Introduced in Immunization Schedules



**Selected vaccines are :**  
**Diphtheria, Tetanus, Pertussis,**  
**Measles, Polio -** **Hepatitis B,**  
**Haemophilus influenza type b,**  
**Pneumococcal conjugate**  
**Rotavirus - Rubella**



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# The new “reality” of EPI

1980s realities    ■    ■ 2010 reality

Diseases vaccinated against



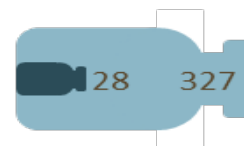
↑ 2.5x

Vaccine doses per child (#)



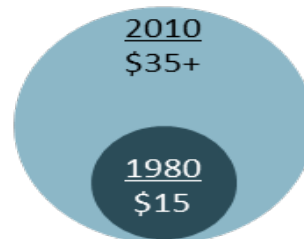
↑ 3.0x

Vaccine volume per fully immunized child (cm<sup>3</sup>)



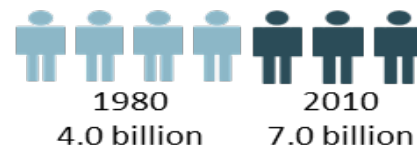
↑ 11.0x

Immunization cost per child (\$)   
 (including delivery cost)



↑ 2.5x

Population growth



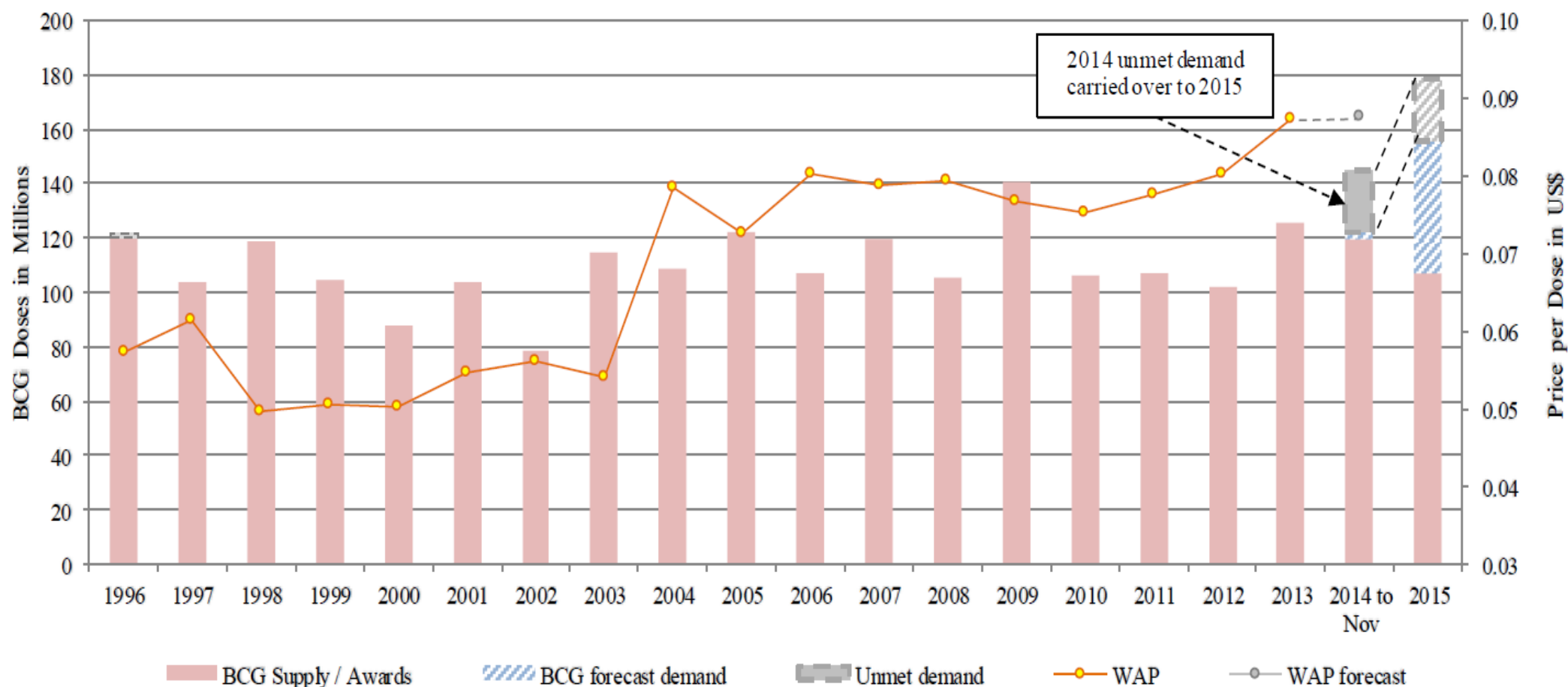
↑ 1.7x

Age groups targeted for vaccination



Life course

# Global BCG shortfall



Source: UNICEF Supply Division.

# Actions

## So far

Communication: Internal and External

Secure additional quantities from:

Increased production of PQ vaccines (**additional 7 million doses produced**)

New producer entry to supply UNICEF (**max 8 -10 million doses in 2015**)

Using reported data on current stocks and annual usage manage the shortfall:

Allocating available vaccine on priority basis to countries at **risk of stock out**.

Making **partial shipments** to some countries in order to maximise the global buffer with suppliers rather than at country levels. Shipments do not result in country stocks of more than 3 months.

## Possible remaining actions

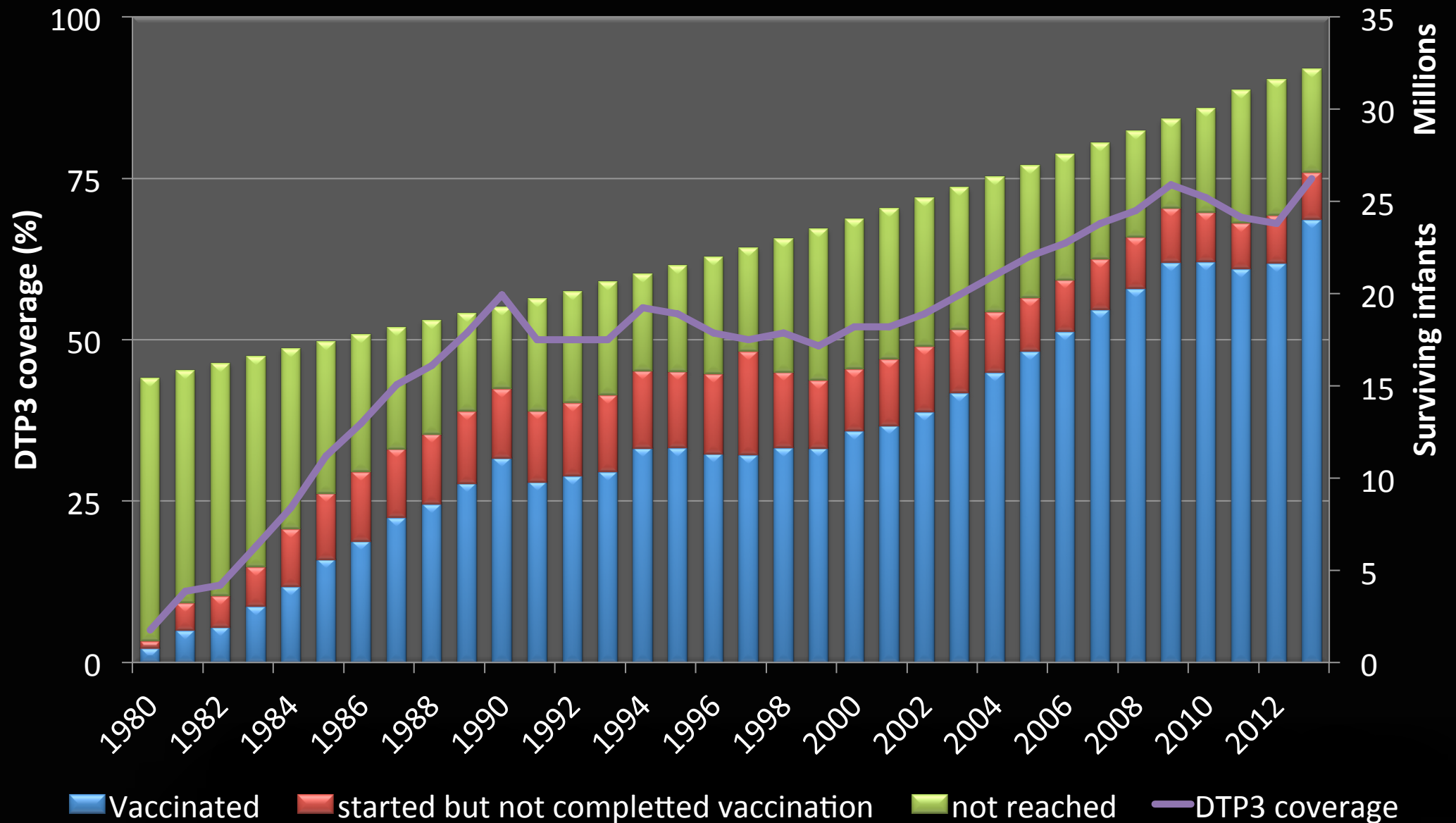
Support countries to **reduce wastage** rates

**Prioritize** countries with higher incidence of tuberculosis - guidance note produced with Global TB programme and UNICEF SD



Programmatic  
**priorities**

# Routine Immunisation coverage in Africa - 8,2 million African infants not reached with 3 doses of DTP containing vaccine in 2013



Source: WHO/UNICEF coverage estimates 2013 revision. July 2014



# Meeting the GVAP goals requires “TO REACH EVERY COMMUNITY”

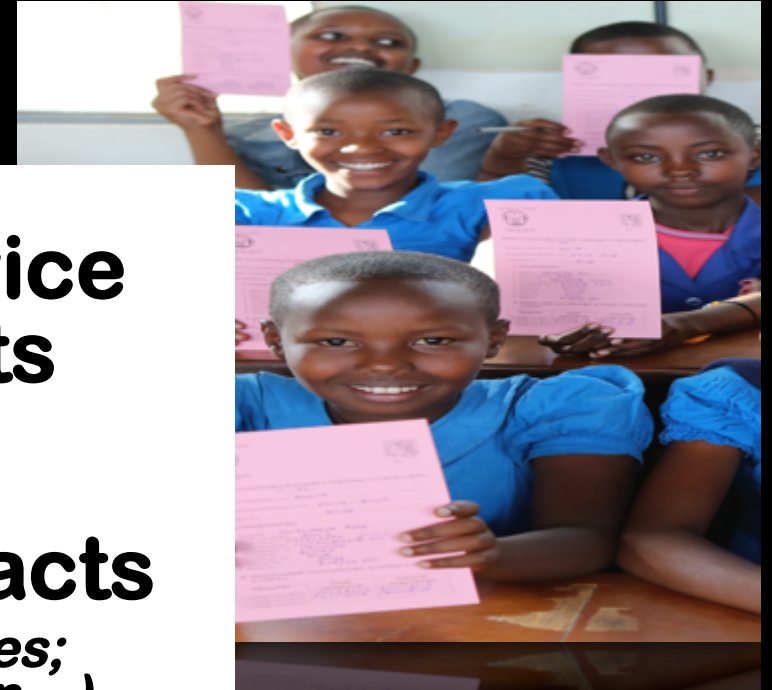


**Additional service  
delivery points**

**Additional contacts**

*(2<sup>nd</sup> year booster doses;  
Adolescent vaccination...)*

**Increased managerial  
capacity**



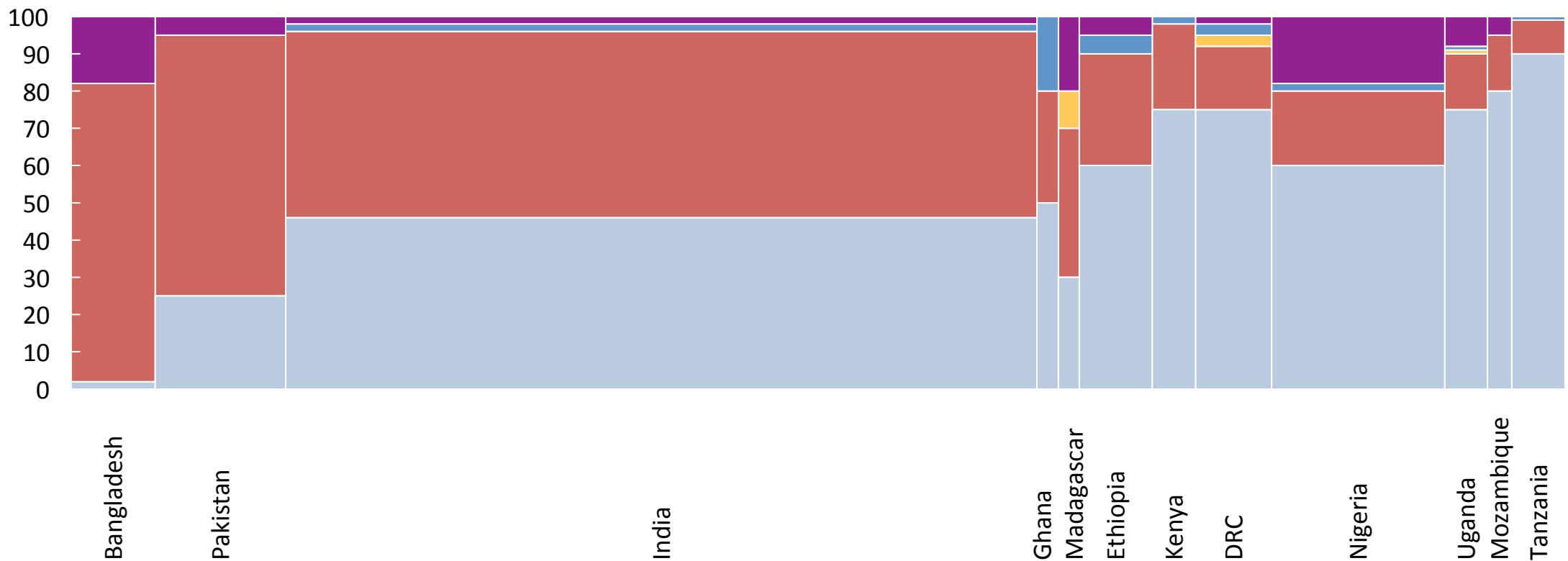
# The mix of RI types varies widely across countries, though most countries primarily rely on fixed and single-day outreach

PRELIMINARY

## Breakdown of immunization by type

Y-axis: Percent of immunizations by type

X-axis: Surviving birth cohort

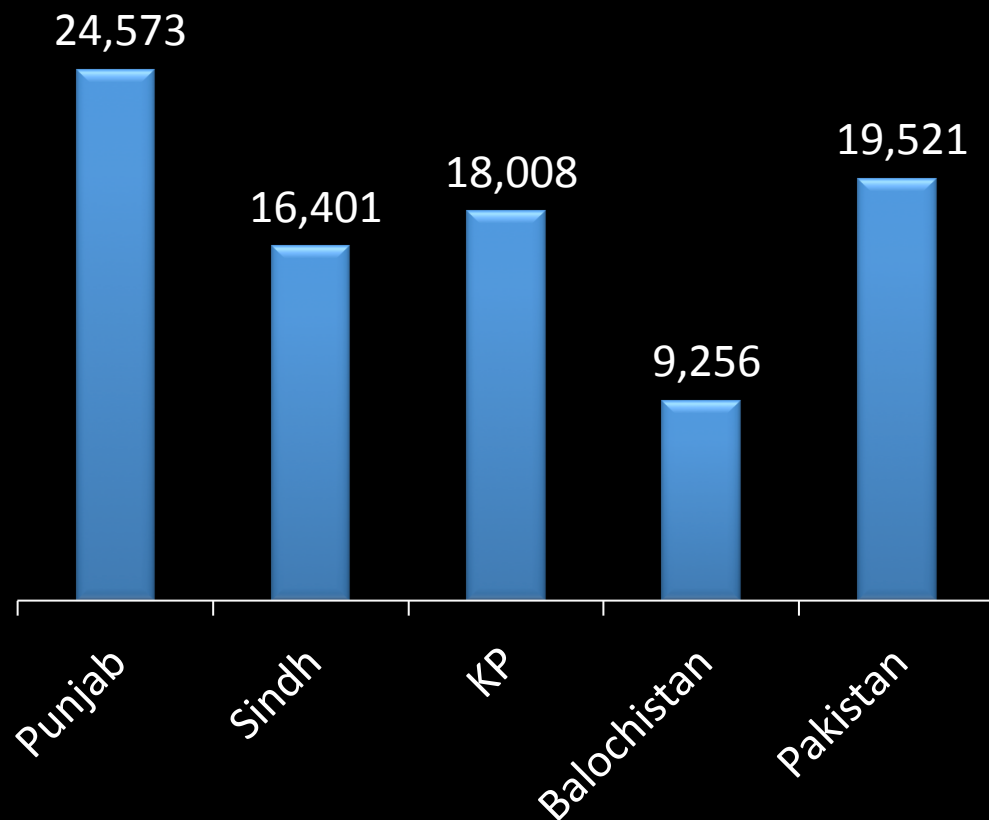


1 Surviving birth cohort numbers are from GAVI 2012; 2. Bangladesh: Government of the People's Republic of Bangladesh's Comprehensive multi-year plan 2011-2016; 3. Pakistan: Masud et. Al. Expanded program of immunization in Pakistan, HNP; Pakistan cMYP 2011-2014; Hasan et. Al A review of EPI; "Health policy and programs in India" by Dr D K Taneja 4. India UP & Bihar TBD 5. Ghana Red Approach in Ghana, WHO, 2005; Badu et. Al. Assessment of Expanded Programme on Immunization Service Utilization in Sekyere West District of Ashanati Region, Ghana, 2010; 6. Breakdown of fixed vs. outreach percentage in Ethiopia from 2012 National Immunisation Survey; specific mix of outreach based on interviews with in-country UNICEF 7. Kenya mix of outreach based on interviews with McKinsey team & global JSI team 8. DRC mix of outreach based on interviews with local JSI team 9. Madagascar breakdown of fixed vs. outreach percentage from UNICEF data; specific mix of outreach based on interviews with local UNICEF team 10. Nigeria National Immunization Strategic Plan 2013-2015; 11. Uganda mix of outreach based on expert interviews with UNICEF global and local teams; 12. Senegal TBD 13. Mozambique mix based on expert interviews with UNICEF 14. Tanzania breakdown of fixed vs. outreach percentage based on McKinsey team interviews and CMYP data; specific mix of outreach based on anecdotal evidence from articles written by UNICEF / GAVI

**SOURCE:** World Bank Indicators, WHO, GAVI, expert interviews – McKinsey analysis

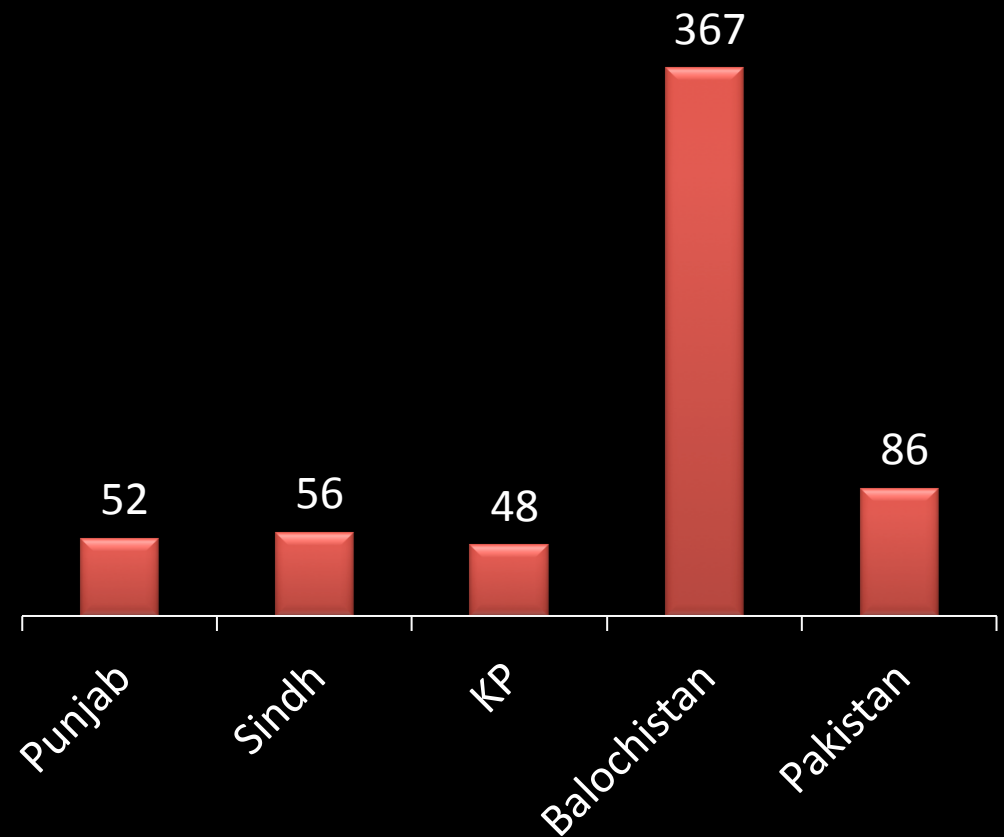
# Additional Vaccinators (in thousands) urgently needed in Pakistan

Population per vaccinator



PAK policy - 1:5000 (U) or 1:10.000 (R)

Average catchment area  
(Sq Km) per vaccinator



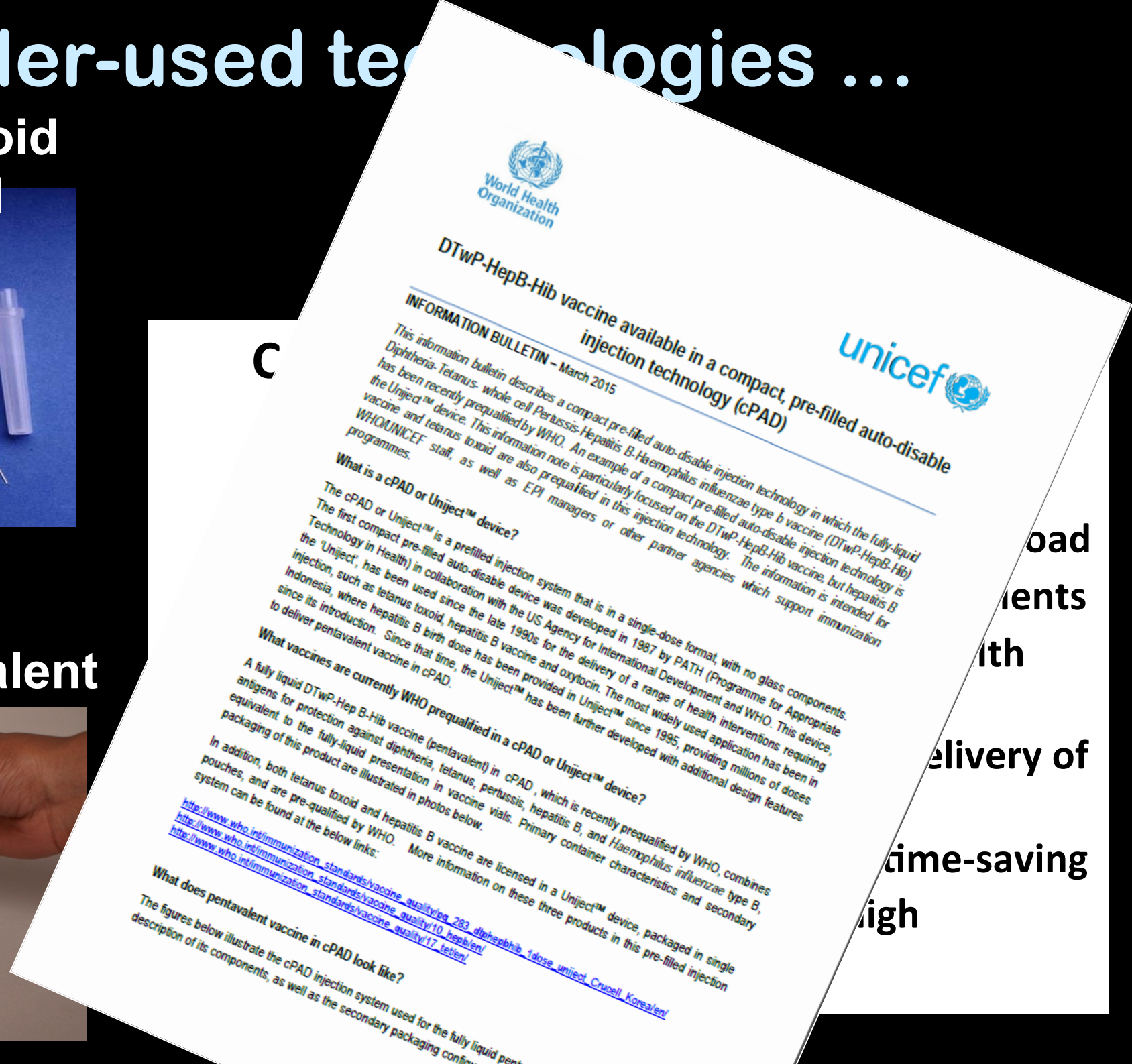
PAK policy – 1:13-28 Sq Km



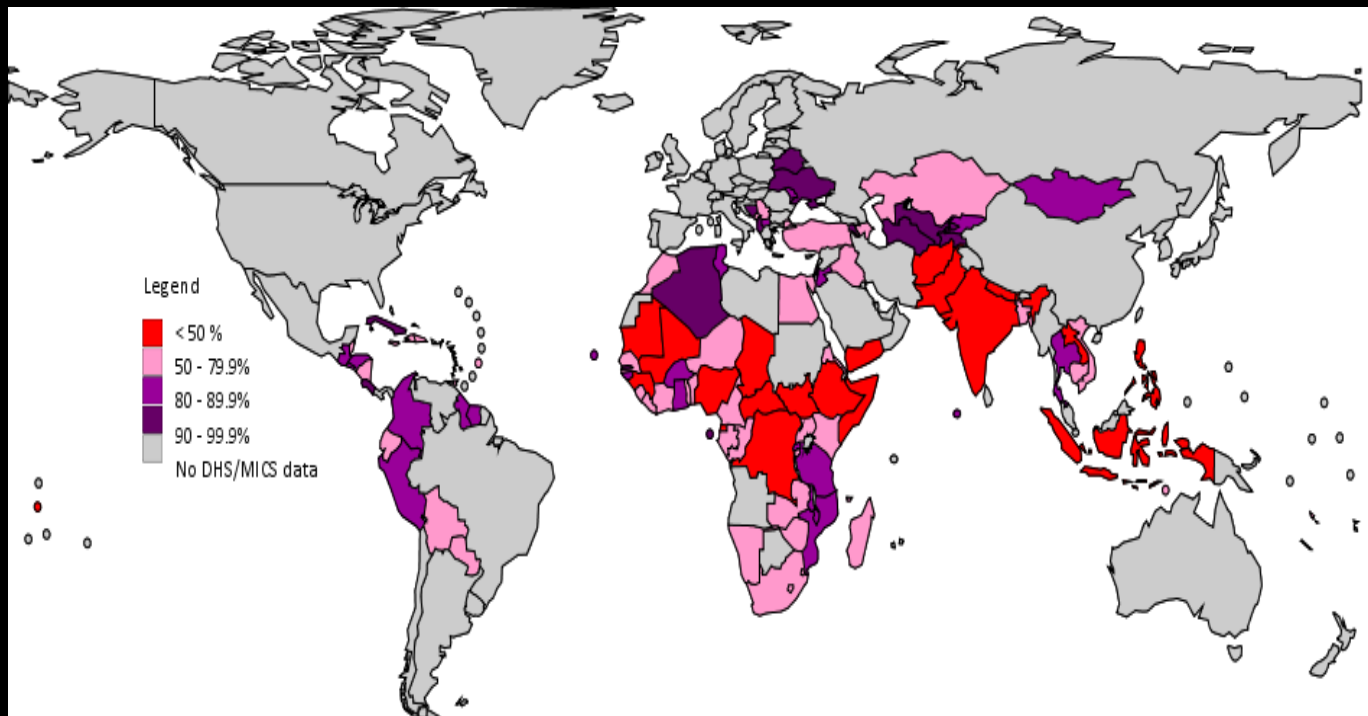
# Tetanus Toxoid Uniject™



# cPAD Pentavalent



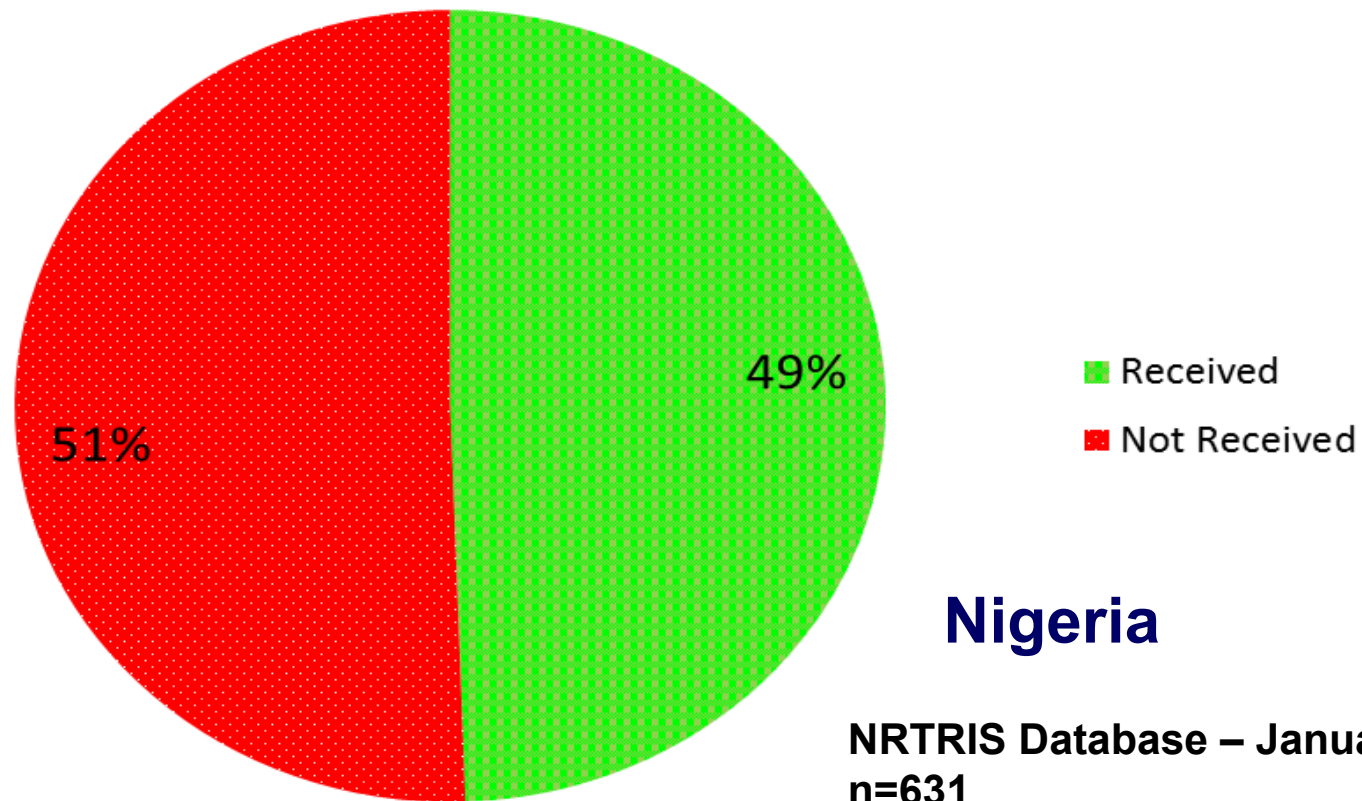
# Need to continue work to improve quality of EPI data



**Latest national estimated prevalence of home-based vaccination cards based on MICS or DHS survey results - 2000-2013**

# Timely availability of funds ... at peripheral levels

Proportion of HFs that received timely funds to conduct  
RI services in the last 3 months (Jan - 2015)



# **Gavi/UNICEF/WHO**

## **Framing Joint Partnership Engagement**

**Division of responsibilities and  
prioritization**

**Technical Assistance**

**Oversight of deliverables at global,  
regional and country levels**

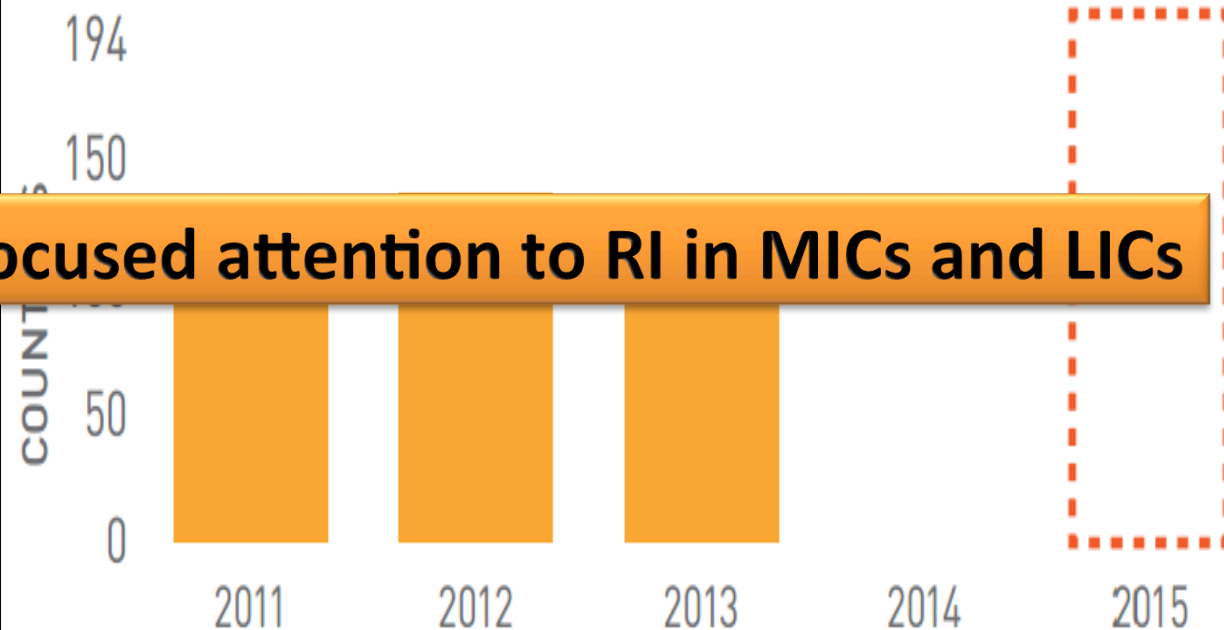


# Your report card on coverage...



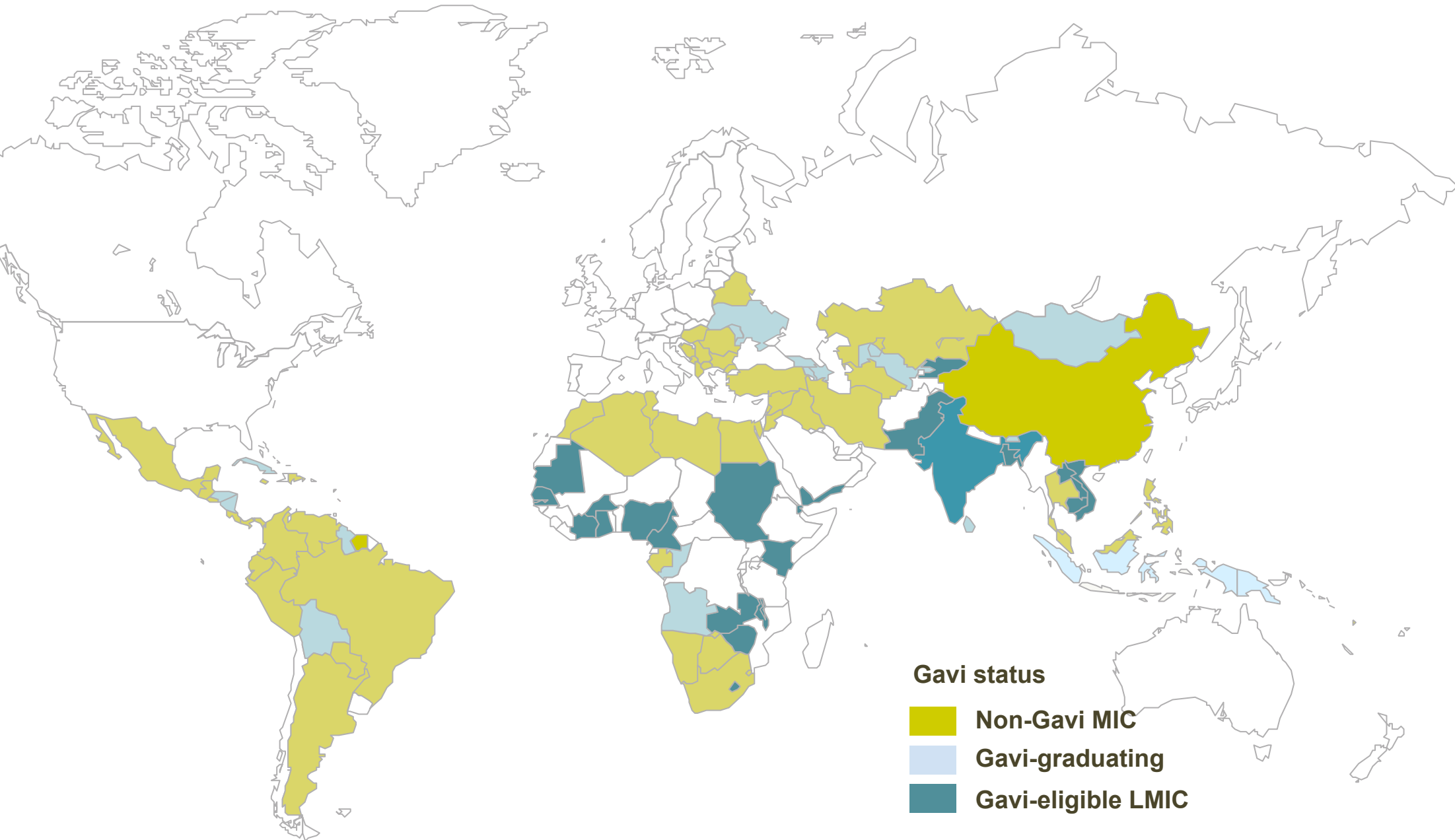
## DTP3: NATIONAL VACCINATION COVERAGE OF 90%

TARGET: ALL 194 COUNTRIES BY 2015



**Need focused attention to RI in MICs and LICs**

# The MIC Strategy - focus on 63 non-Gavi MICs (out of 103 MICs)



# Proposed MLC strategy 2015-2020

## Focus areas

- ① **Strengthened decision-making for timely and evidence-based immunization policy and programmatic choices**
- ② **Increased political commitment and financial sustainability**
- ③ **Enhanced demand for and equitable delivery of immunization services**
- ④ **Improved access to affordable and timely supply**



# Some actions to get back on track ...

**Commitment by countries** to increase capacity for programme management and service delivery

**Transition Polio staff** & surge to support broader EPI

**Accelerated access** to technology solutions

**New funding** support to implement MIC strategy

**Enhanced Culture** of Accountability at all levels

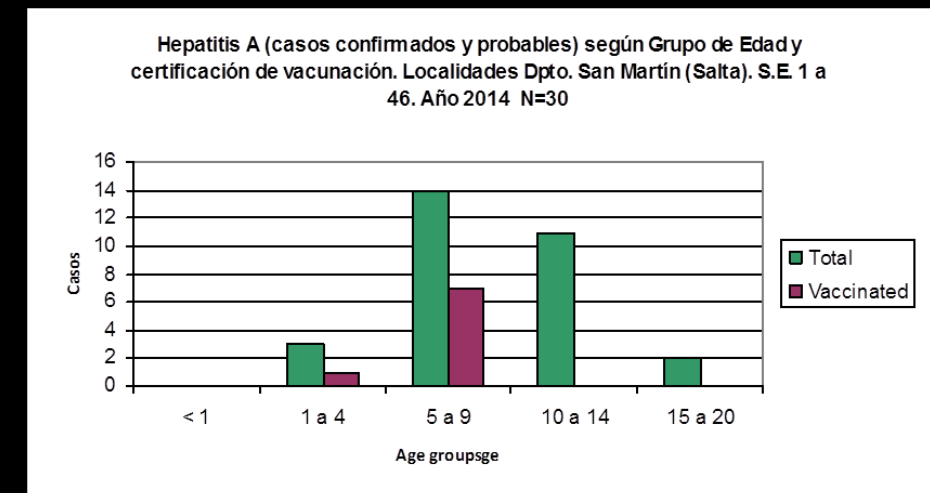
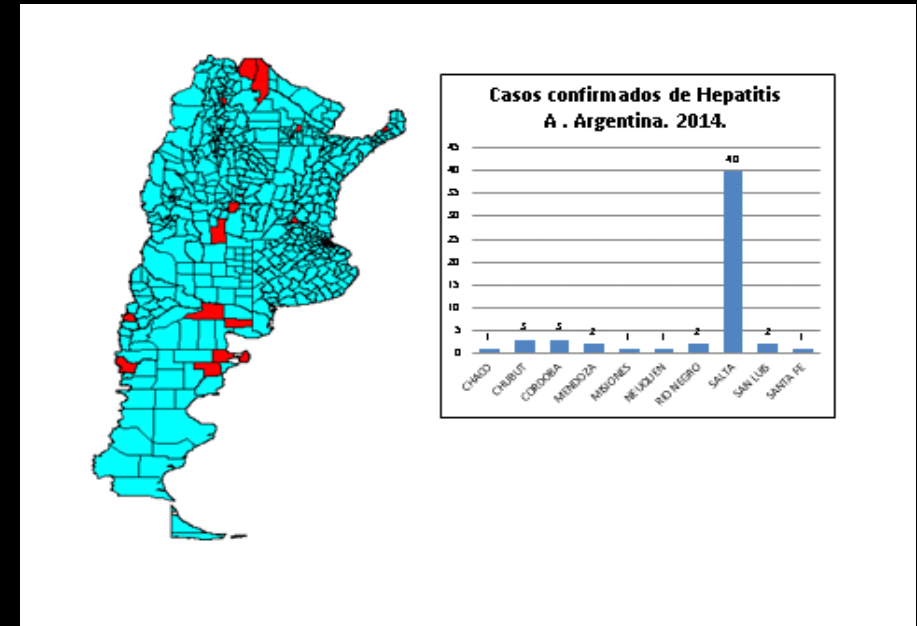


**Other Updates**



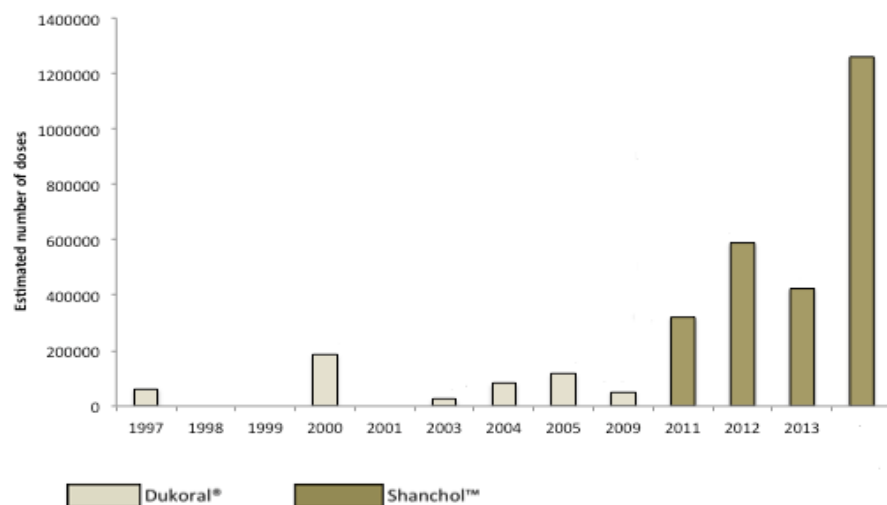
# Hepatitis A in Argentina: continued surveillance to monitor the impact of the one dose vaccination programme

- Incidence continues to be low in 2014
- In the context of a localized outbreak in a border area with poor sanitation and low coverage, 8 potential vaccinated cases identified (upon verification, vaccination not confirmed)
- Still no evidence of waning immunity.: With screening method effectiveness assessed at > 95%
- Transversal seroprevalence study in 9 yr old age shows 97% with protective titers



# Roll-out of cholera vaccines....at last

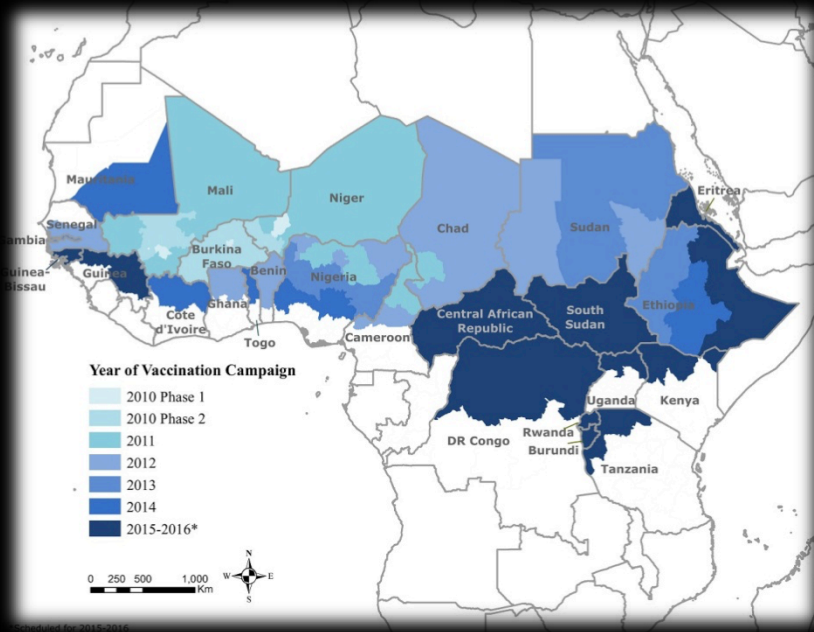
In 2013-4, nearly 1.0 million doses used in S Sudan, DRC, Guinea, Ethiopia



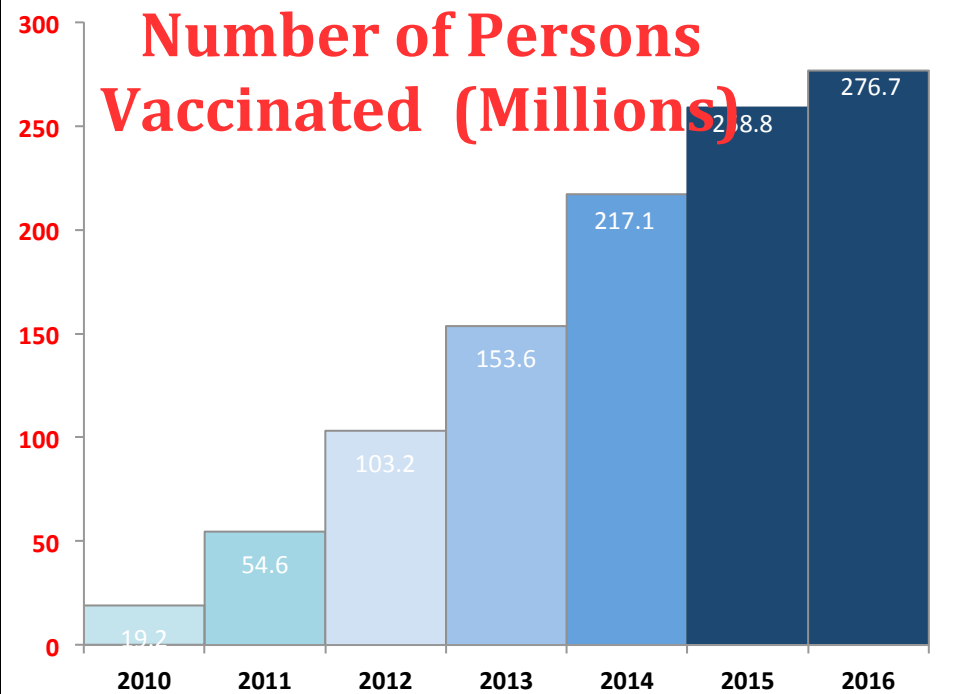
Doses of OCV used per year



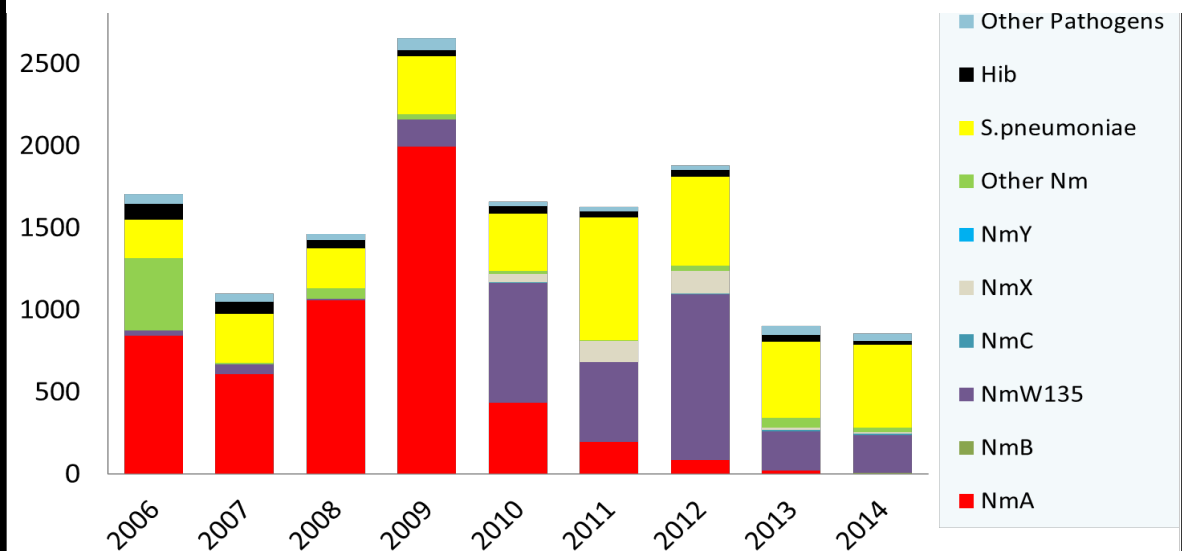
# MenAfriVac roll-out 2010 – 2014



## Number of Persons Vaccinated (Millions)



## Men A cases declined from 75% in 2009 to 2% in 2014 in African meningitis belt



# Menafrivac introduction in Routine EPI during 2015–2017

SAGE Updated Guidance. WER 2015; 90: 57–68: <http://www.who.int/wer/en/>

- **Countries completing mass vaccination campaigns to introduce Men A conjugate vaccine into routine childhood immunization programme**

**1-dose schedule, with vaccine administration at 9-18 months of age**

**A one-time catch-up campaign to be conducted for birth cohorts born since the initial mass vaccination**

- **Ghana** – 1st to plan introduction in RI in 2015

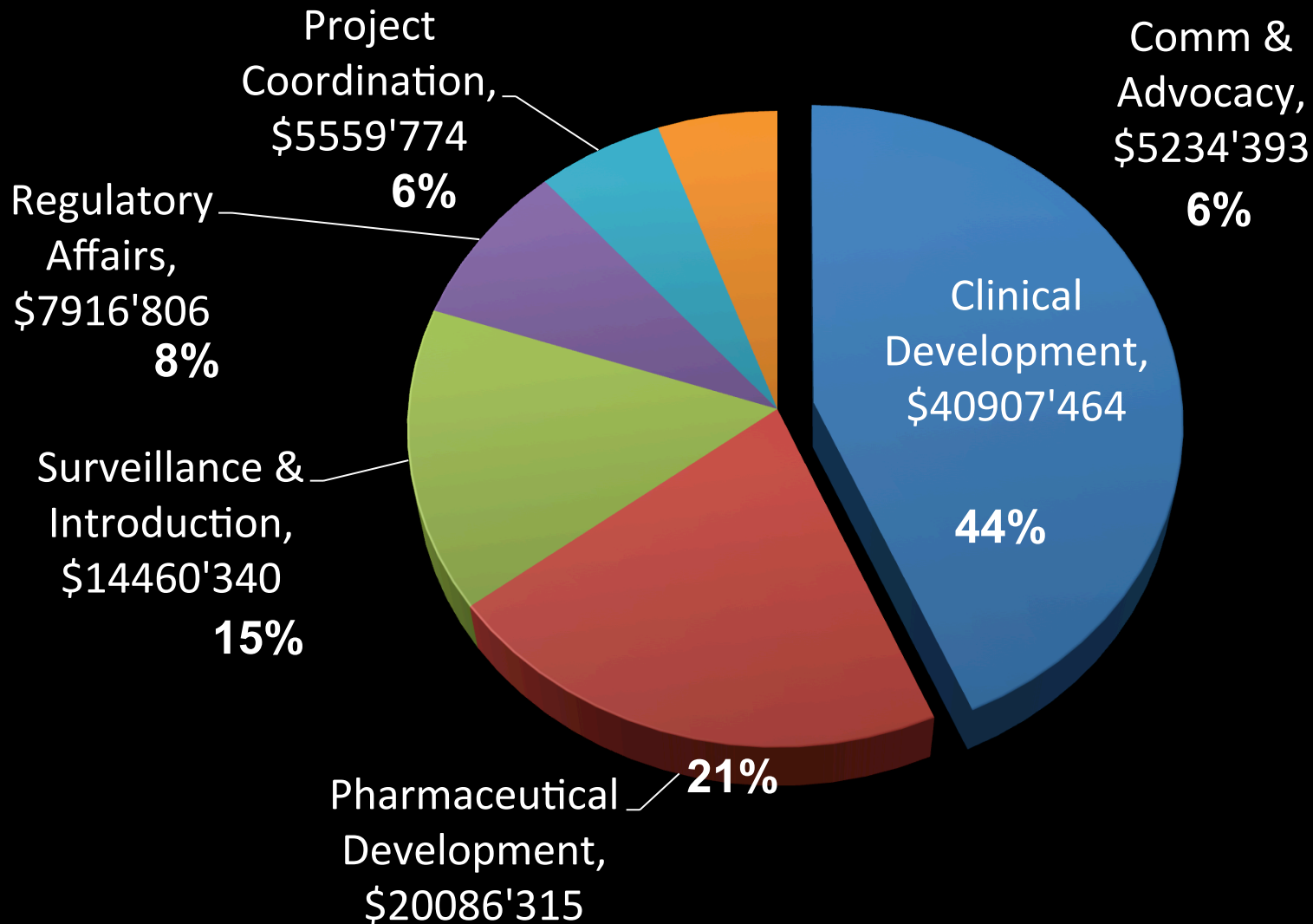
**1-dose schedule at 18 months with second dose Measles/Rubella**

**Nationwide absolutely preferable !!**



# Men A Vaccine Project -

## Total expenditure 2001-2014: \$94,165,092



**MVP – Confidential & Proprietary  
information**



# **Developing vaccines against emerging infectious diseases: Lessons learned from outbreak of Ebola**

At last EB, Member States endorse resolution for pre-emptive development of drugs, diagnostics and vaccines

Resolution tasks WHO in providing leadership in supporting a prioritized research agenda in relation to Ebola, emerging and other neglected infectious diseases

# A framework for actions

- Public health criteria for diseases to be considered
- Potential utility of vaccines in disease control vs. other interventions
- Technical feasibility of developing vaccines
- Development of PPC's
- Pre-agreed late stage clinical development steps and regulatory pathways
- Financial and economic evaluation of candidate development & Seeking Commitment of various partners

Committee  
involvement

SAGE

PD-VAC

ECBS

# Dengue Vaccine Update

CYD-TDV: 3-dose, live recombinant vaccine, YF17D backbone

## 1st Phase 3 trial of a dengue vaccine

Data available for 25 months follow up, post dose 1 from 5 countries in Asia + 5 countries in Latin America

Overall VE estimates:

56.7% (Asia) and 60.8% (Latin America)

VE varied by serotype, serostatus at baseline and severity of disease

### SAGE WORKING GROUP

- Co-Chaired by T. Nolan and J. Farrar
- SAGE decision for April, 2016
- Complementary activities
  - Dengue vaccine impact modelling comparison
  - Assessment of programmatic feasibility
- Collaboration with WHO ROs, NTD, NTD-STAG

# **RTS,S/AS01**

**Proposed timings for policy recommendations**

**File under review with EMA**

**Assessment report may be made available in Sept. 2015.**

**SAGE/MPAC Joint session will occur in Oct 2015.**

**If EMA has provided a positive assessment,**

**If no EMA is available by Oct 2015, then SAGE/MPAC session will be deferred to March-April 2016**

**Final JTEG meeting to occur June 29-30**

# **RTS,S/AS01: New results – Efficacy**

**Vaccine efficacy over 4 years in 5-17 month old children who received a 0, 1, 2, 20 month schedule was:**

- Clinical malaria 36.3% (95% CI 31.8; 40.5)**
- Severe malaria 32.2% (95% CI 13.7; 46.9)**
- Malaria hospitalization 34.6% (95% CI 22.5; 44.9)**
- All-cause hospitalization 16.5% (95% CI 7.2; 24.9)**



# **SAGE PROCESSES**

# **Update on SAGE processes and position papers**

- **Meningococcal A conjugate vaccine: updated guidance published on 20 Feb 2015**
- **Position papers on Japanese encephalitis vaccines published on 27 Feb 2015**
- **Position paper on the use of hepatitis E vaccine to be published on 1 May**
- **Issue of long standing working group. Membership challenge**
- **Wikipedia project**
- **Resuming of methodological discussions (GRADE, good practice statements, adaptation)**



# SAGE 2015-2016 meetings

## Selected topics on the horizons

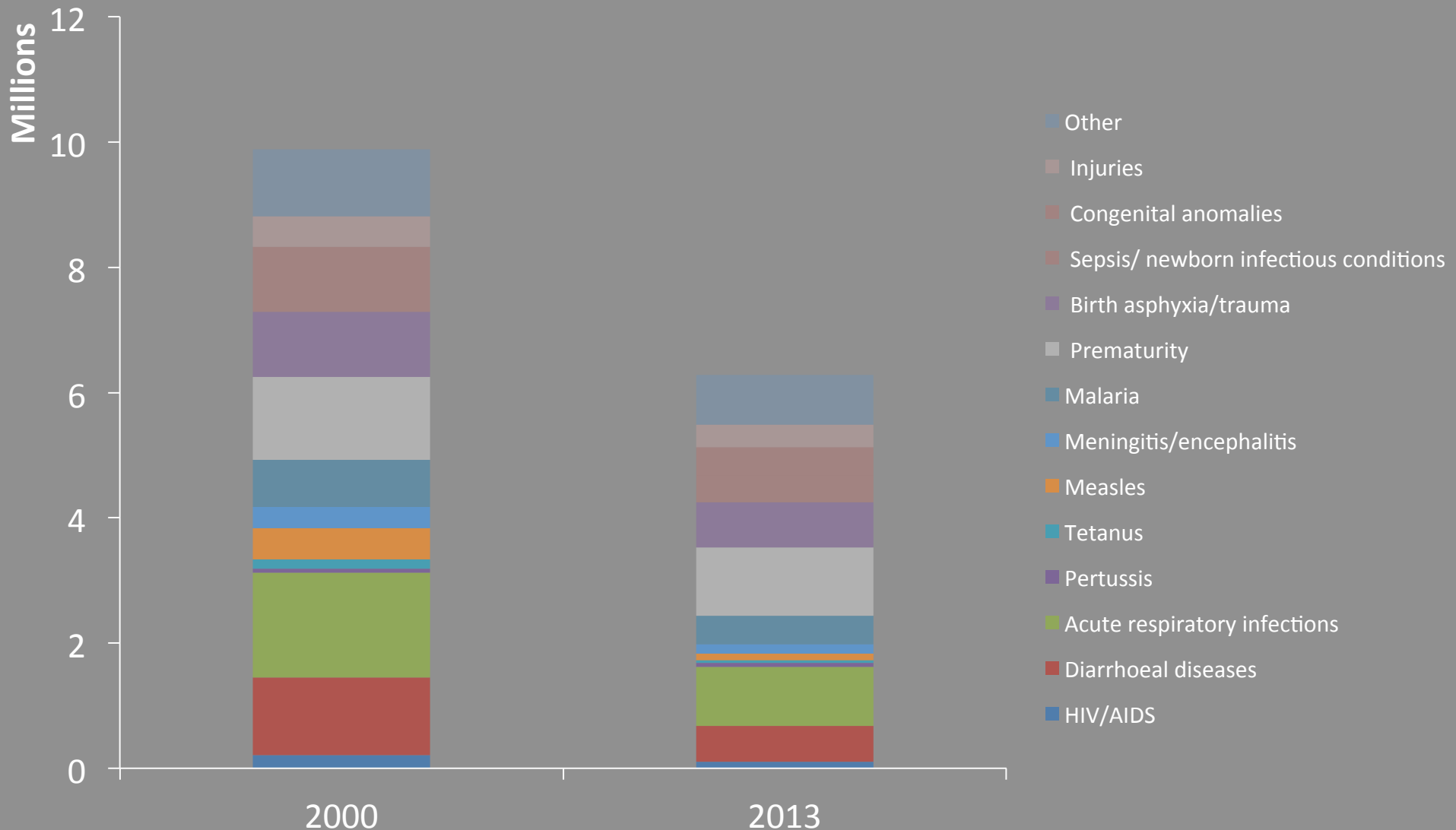
### Cross-cutting

- **GVAP monitoring of implementation**
- *Immunization platform in 2<sup>nd</sup> year*
- Use of vaccines in immunocompromised populations
- Strategies to reach older age groups
- Involvement of the private sector
- Strengthening NITAGs
- Maternal vaccination
- Emergency vaccine development
- Implementation of immunization in emergency situations
- Implementation policies

### Vaccine specific

- **Polio eradication**
- **Malaria**
- **Measles and rubella elimination**
- *Optimizing immunization schedules (**hepatitis B**, TT)*
- *MNT elimination strategy*
- **Ebola**
- **Impact monitoring**
- **Dengue**
- **Typhoid**
- **TB**
- **HPV**
- **Rotavirus**

# Major causes of under 5 deaths, 2000 and 2013



Source: WHO-CHERG estimates for child causes of death, 2000-2013.

# Together we can close the immunization gap

