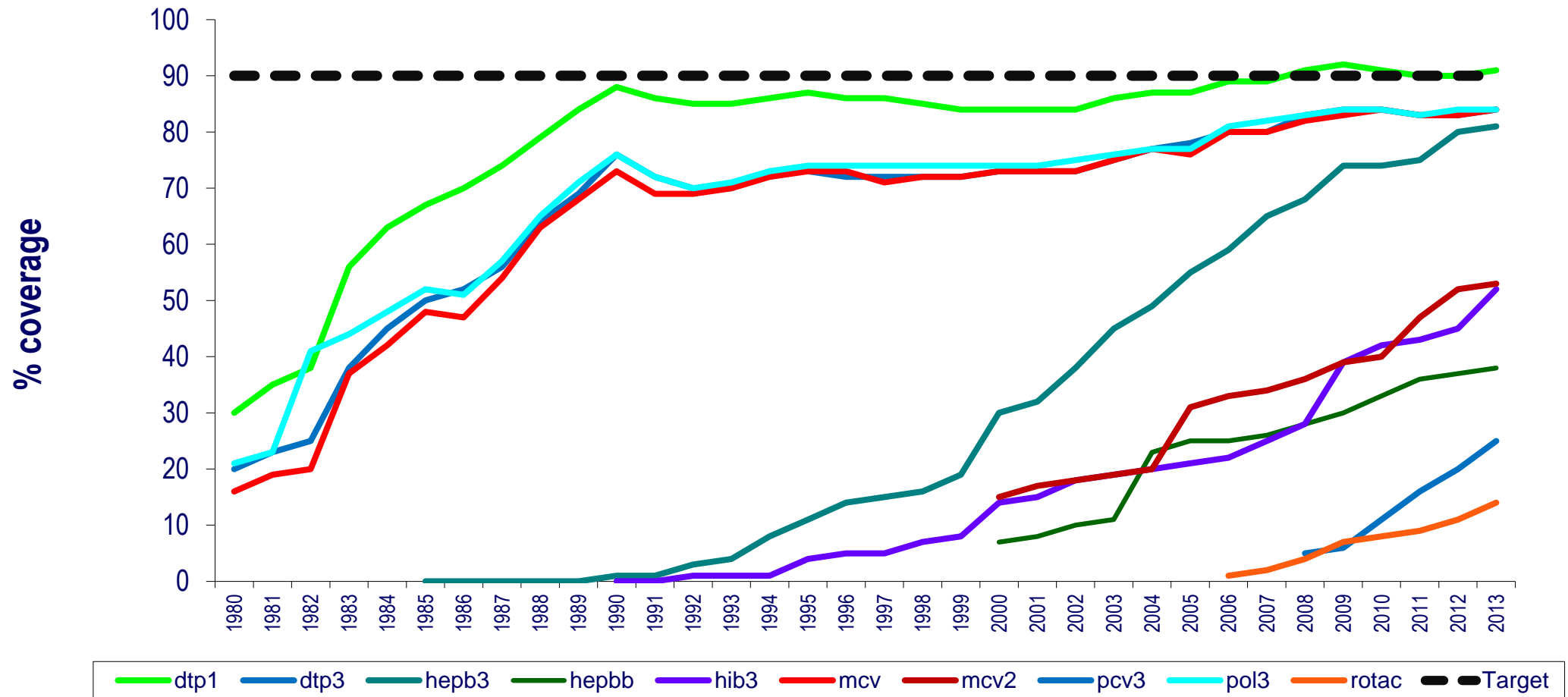# Global vaccination coverage and gaps

Marta Gacic Dobo, WHO
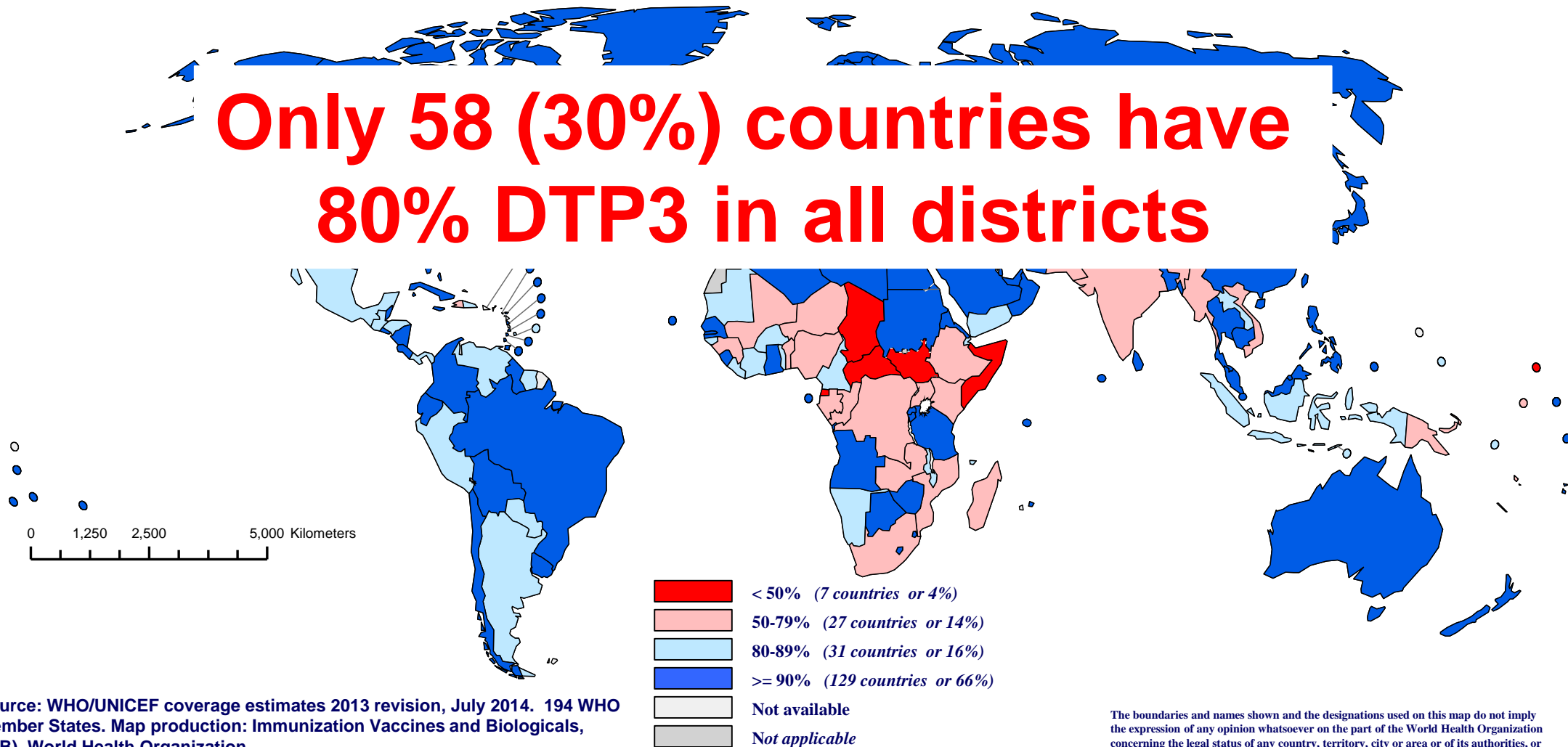
World Health Organization

Great progress in immunization, but still challenging to reach "the fifth child"…

World Health Organization

Only 66% of member states reached coverage target in 2013 (DTP3 containing vaccines)

Only 58 (30%) countries have 80% DTP3 in all districts

Legend:
- **< 50%** (7 countries or 4%)
- **50-79%** (27 countries or 14%)
- **80-89%** (31 countries or 16%)
- **>= 90%** (129 countries or 66%)
- Not available
- Not applicable

0 1,250 2,500 5,000 Kilometers

Source: WHO/UNICEF coverage estimates 2013 revision, July 2014. 194 WHO Member States. Map production: Immunization Vaccines and Biologicals, (IVB). World Health Organization
Date of slide: 16 July 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 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 2014. All rights reserved
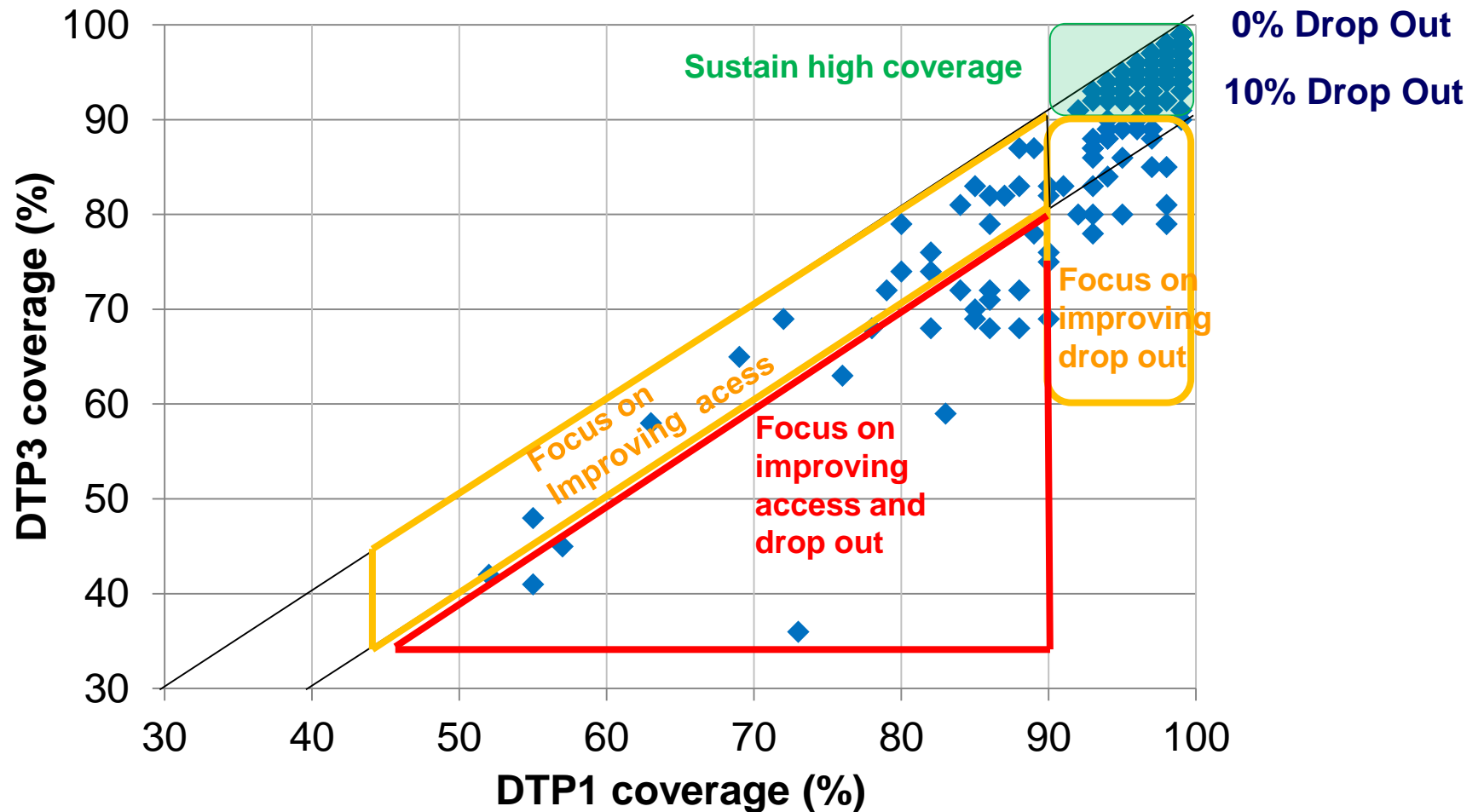
World Health Organization

21.8 million infants un or partially immunized (DTP3 containing vaccines, 2013)

Pie chart data:

- India; 6,86
- Nigeria; 2,79
- Pakistan; 1,2
- Ethiopia; 0,83
- DR Congo; 0,72
- Indonesia; 0,69
- Viet Nam; 0,58
- Mexico; 0,38
- South Africa; 0,37
- Kenya; 0,35
- Rest of the world; 7,03
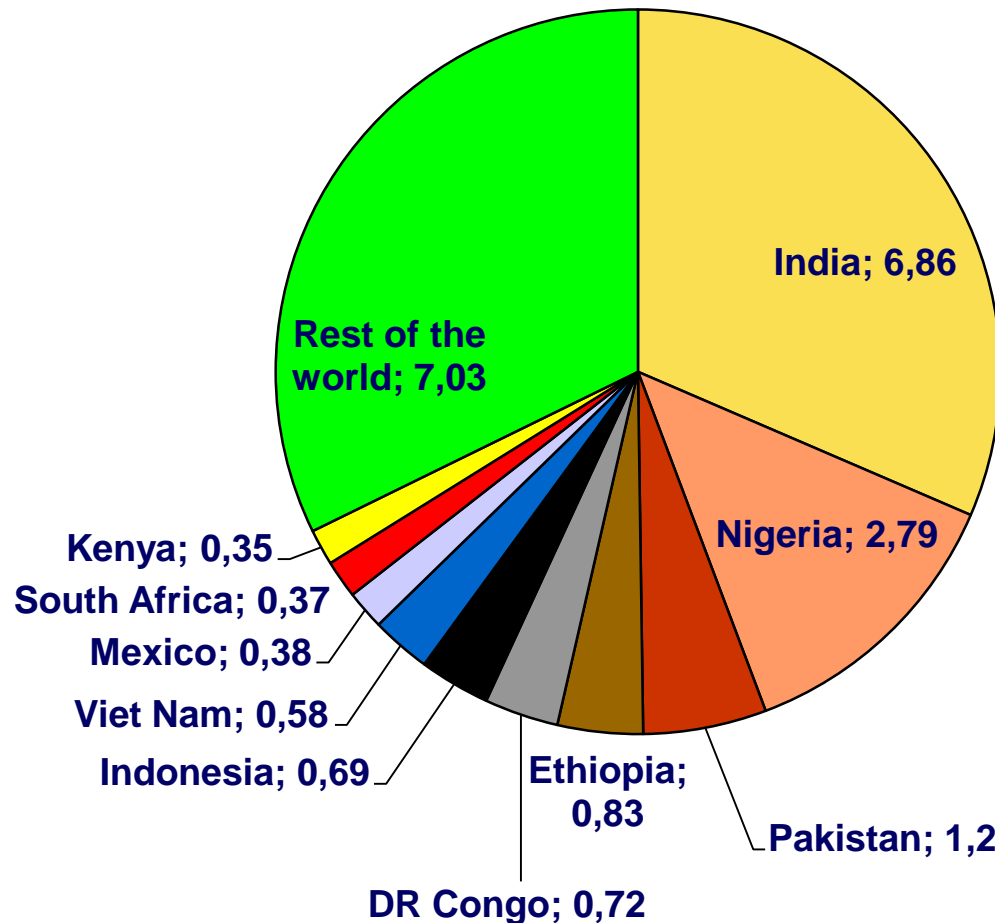
Almost 70% in 10 countries

World Health Organization

Pathways to achieving 90%

Potential reason for suboptimal coverage
National Level Stock out for at least one vaccine in 2013

No stock out (*52 Member States or 27%*)

At least one stock out of at least 1 vaccine for at least 1 month (*39 Member States or 20%*)

Data not reported (103 Member States or 53%)

Not applicable

World Health Organization
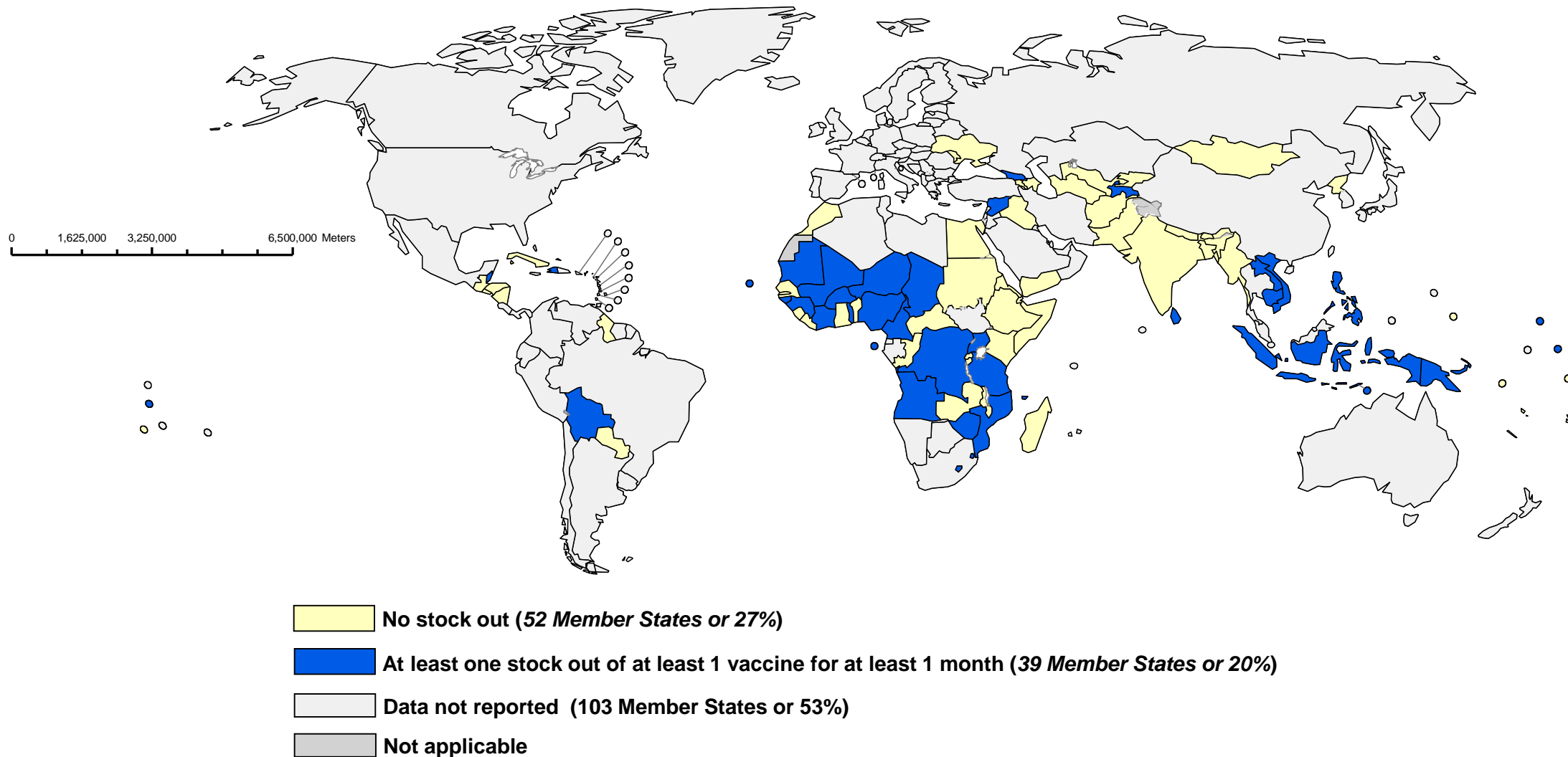
Need for high quality data to manage immunization programs

World Health Organization

Data for Action

- **Strategic decision**
  - Coverage and drop out rates by country /district / health center
  - Root-causes for non-vaccination:
    - Parental refusal?/ Vaccine availability?/ Health worker attitudes?/Access?

- **Operational decision**
  - Children to be immunized this week / month and vaccines needed ?
  - Lists of unvaccinated children, Reminder system

- **Managerial decision**
  - Stock availability at all levels / % wastage and reasons
  - % of fridges in disrepair
  - Workload per vaccinator
  - Cost and funding decisions

**World Health Organization**

How to diagnose potential data quality issues?

- Regular data review and data triangulation
  - Completeness and timelines of data
  - Internal consistency: time series of coverage, numerator and denominator
  - Use information from multiple sources (diseases surveillance, stock data)

- Periodic data quality assessments (DQS / DQA)
  - Link findings to action
  - Integrate recommendations to annual plan of action
  - Include review of monitoring tools and information system in EPI and PIE reviews

- Training / Supervision
  - Include data quality as core component

World Health Organization

Internal consistency:
Coverage, vaccinated and target population
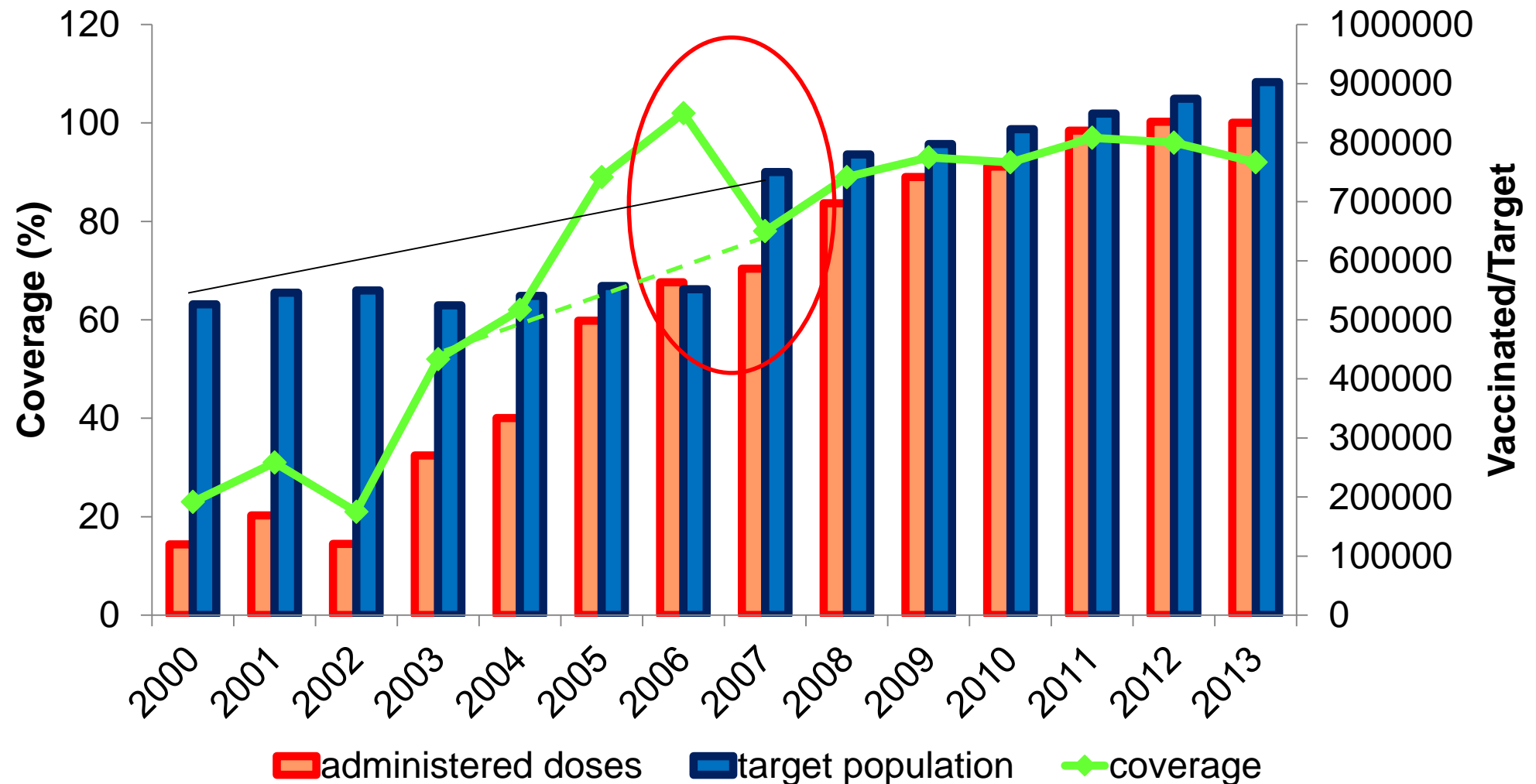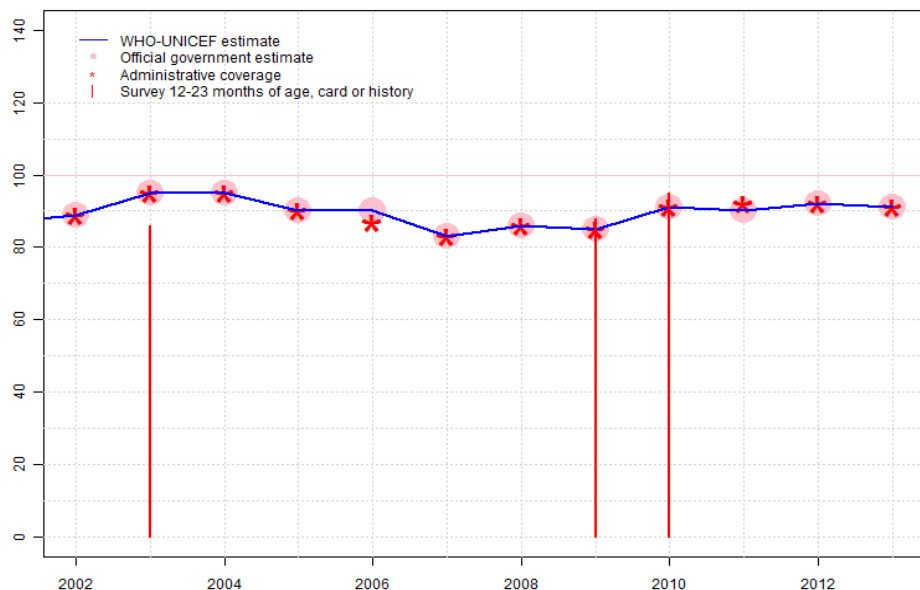
World Health Organization

Effect of +/- 10% error in target population estimates on coverage estimates

Year	Target Population True	Estimated	Coverage True	Estimated
1970	100			
1980	100			
1990	100			
2000	100			
2010	100	90-110	90	82-100

Challenges to estimate high coverage with precision
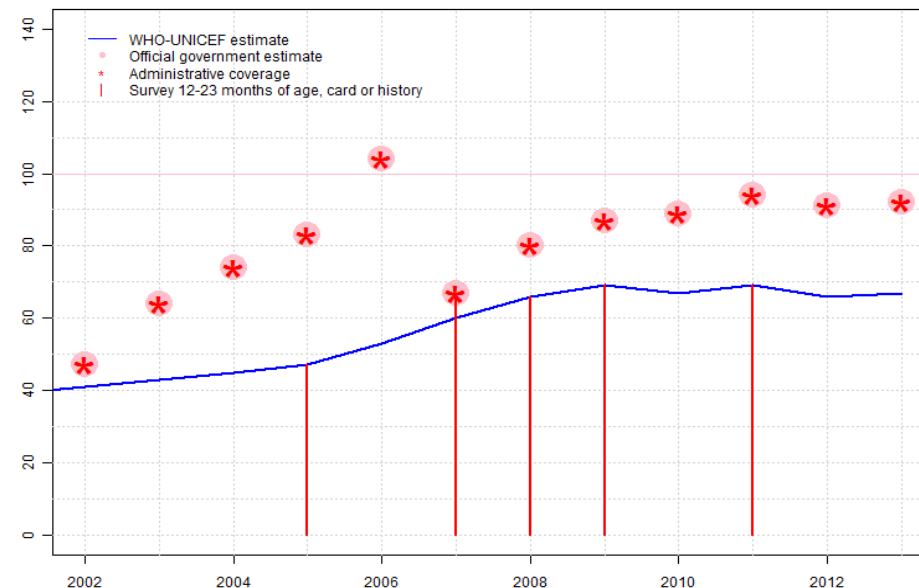
World Health Organization
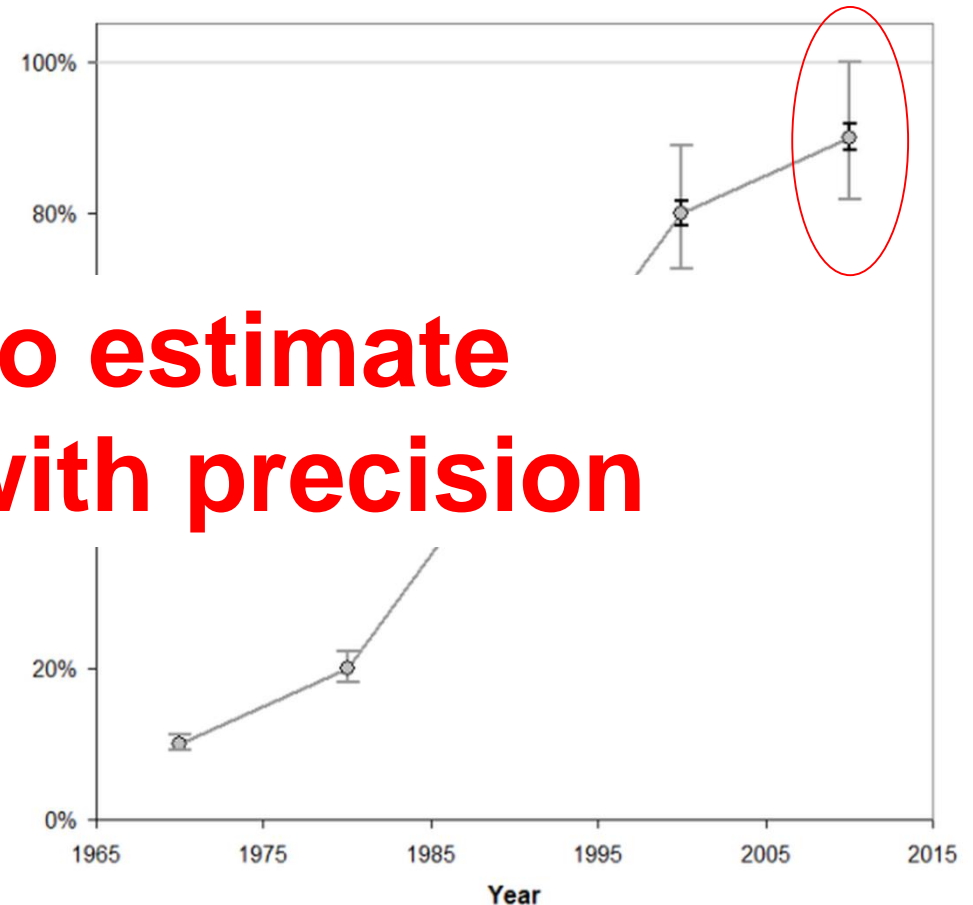
External consistency with coverage surveys

Survey results support administrative coverage data
→

Well performing programme with high coverage

Survey results challenge administrative coverage data
→

Review administrative data system to detect and correct problems

Source: WHO and UNICEF estimates of immunization coverage: 2013 revision, July 2014

World Health Organization
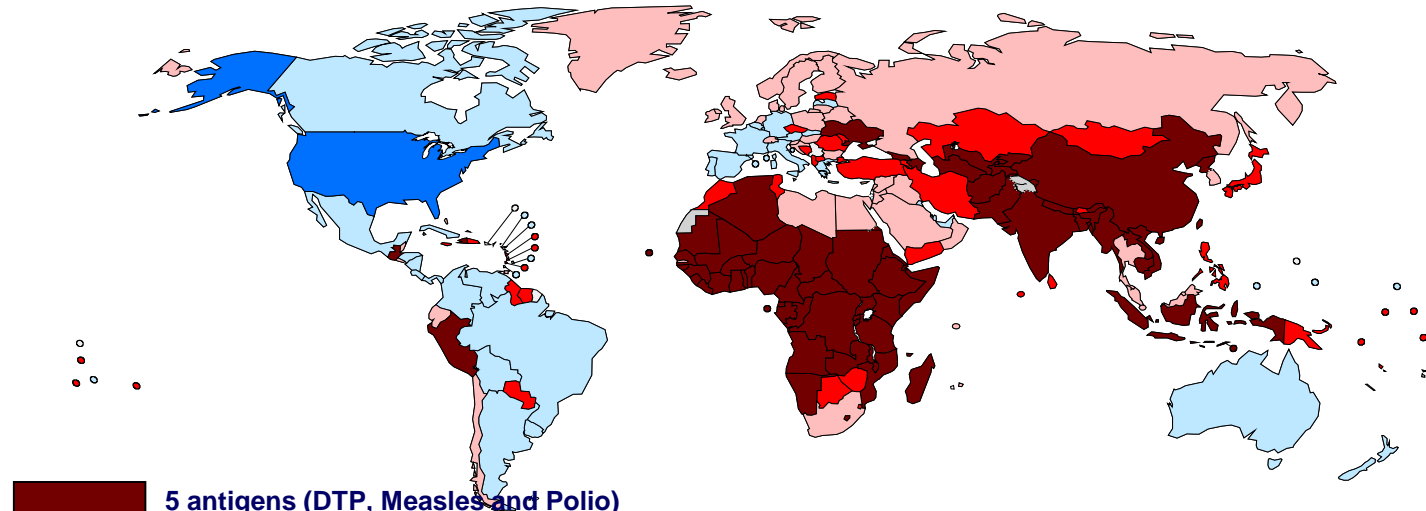
Coverage surveys – WHY?

- Three main household surveys to measure immunization coverage (DHS, MICS and EPI cluster surveys)

- Periodic validation of administrative system

- Provides additional information

  - Missed opportunities

  - Timely vaccination

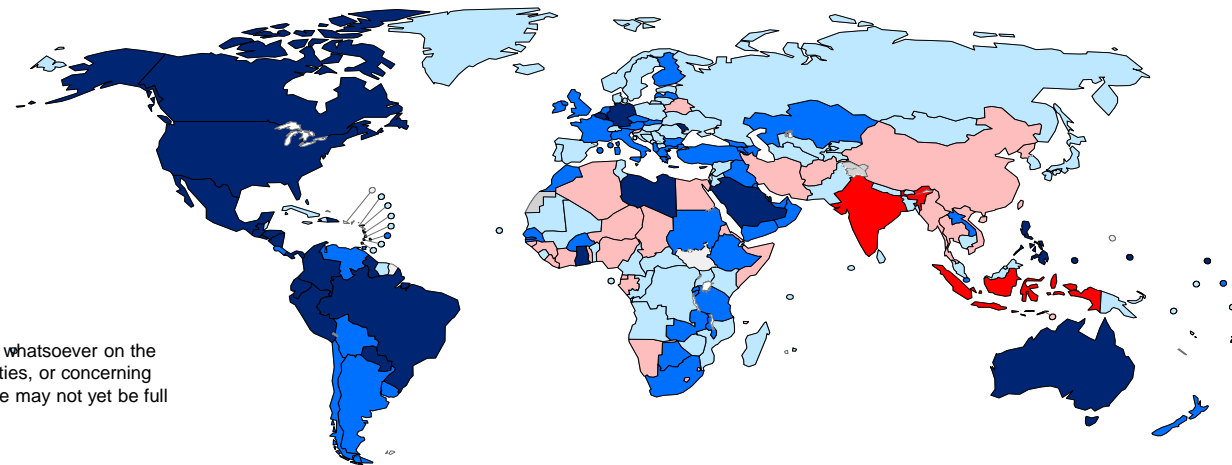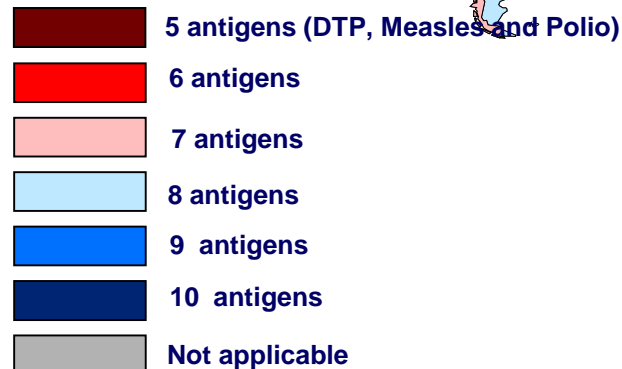**Usefulness of survey data depends on quality of survey**

World Health Organization

Increased number of antigens/vaccines
Caregivers recall?

2000

2013

Legend:
- 5 antigens (DTP, Measles and Polio)
- 6 antigens
- 7 antigens
- 8 antigens
- 9 antigens
- 10 antigens
- Not applicable

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Data Source: WHO/IVB Database, as at 08 July 2014

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Home-based vaccination records the forgotten tool

- Foster **coordination and continuity** of immunization service delivery within and between service providers

- Facilitate **communication** between health care providers and individuals/caregivers

- **Empower parents and caregivers** in the healthcare of their children

- Support **public health monitoring** including coverage surveys

http://www.immunizationcards.org/

World Health Organization

Potential for ICT

- **Data collection**: **facilitates collection** of **transactional data**; for example in child **immunization registers** and **transactional stock management systems**

- **Transmission:** on-line or **mobile reporting** systems make the data available in **real time** and without the need for aggregation, so it becomes **more granular** and possibly **less distorted**

- **Analysis**: producing **visualizations** that were not feasible or easy with manual systems. **Several sources can also be analysed together** for richer analysis (GIS to look at coverage, cases, and access to PHC)
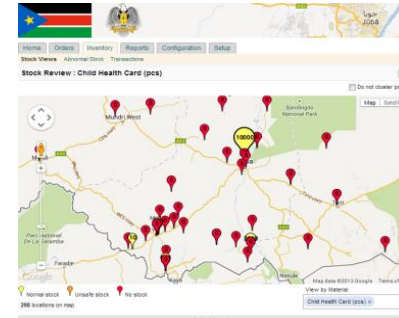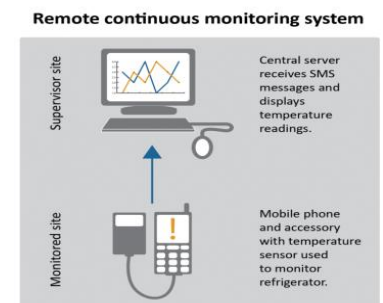

Stock Management Systems can track vaccines through supply chain

Registry Systems can track individual children and their vaccinations

Barcodes on vaccine packaging can improve traceability across the supply chain

Remote temperature monitoring systems can track temperatures in fridges in real time

World Health Organization

Limitations of ICT

- Better systems = technology **and** people working together

- Technology cannot easily change incentives and behaviour by itself

- When well done, it can empower motivated and well trained individuals to do a better job

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Electronic nominal immunization registries

- Inclusion of all persons at birth, or as early as possible, Unique ID

- Information about each person, including info on geographical area of residence

- Information about the vaccines given, dates, and provider

- Allowing aggregation of data by geographical level, social economic status as required

- Allowing timely individualized follow-up

- Data entry as close to vaccination as possible (time and place)

- Data security and protection of patient confidentiality

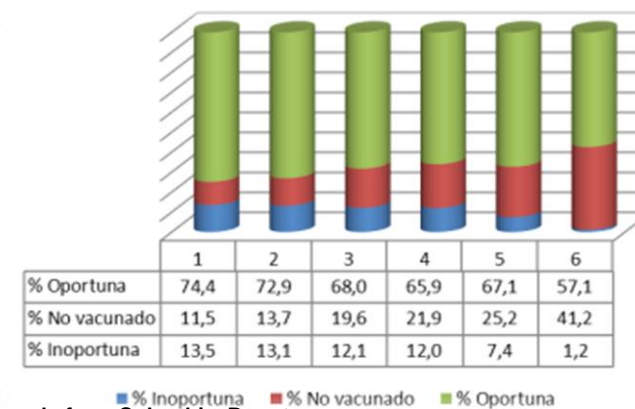**List Not Immunized Children - IIS**

Health Center   DSHP Shkoder   Find

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | ... | E Fundit |

LastName	FirstName	Health Center	District	Caretaker	BirthDate
	Albert	Nicaj-Shoshe	Shkoder		20/02/2000
	Diella	Nicaj-Shoshe	Shkoder		27/05/2000
	Mira	Nicaj-Shoshe	Shkoder		01/04/2002
	KLEVIST	Vau Dejes fshat	Shkoder		28/01/2005
	Klaus	Perlat Rexhepi	Shkoder		23/03/2005
	Kledisa	Melgush	Shkoder		06/06/2005
	Tea	Partizani	Shkoder		15/07/2005
	Ergi	Melgush	Shkoder		31/07/2005
	Diana	Nicaj-Shoshe	Shkoder		04/09/2005
	Odesa	Partizani	Shkoder		18/05/2006
	Flavio	Koman	Shkoder		

Example form Albania

Coverage and timeliness by social stratum

	1	2	3	4	5	6
% Oportuna	74,4	72,9	68,0	65,9	67,1	57,1
% No vacunado	11,5	13,7	19,6	21,9	25,2	41,2
% Inoportuna	13,5	13,1	12,1	12,0	7,4	1,2

■ % Inoportuna   ■ % No vacunado   ■ % Oportuna

Example form Colombia, Bogota

World Health Organization

Conclusion

- Global coverage still hasn't reached the targeted 90% in all countries and 80% in all districts

- For successful immunization programmes timely and high quality data are essential

- Regular assessment, desk reviews, data visualisation help improving data quality

- Periodic coverage surveys needed to validate administrative data system

- HBR is a simple but important tool to capture immunization status

- ICT can help if appropriately used

- Capacity building is essential at all level

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THANK YOU