

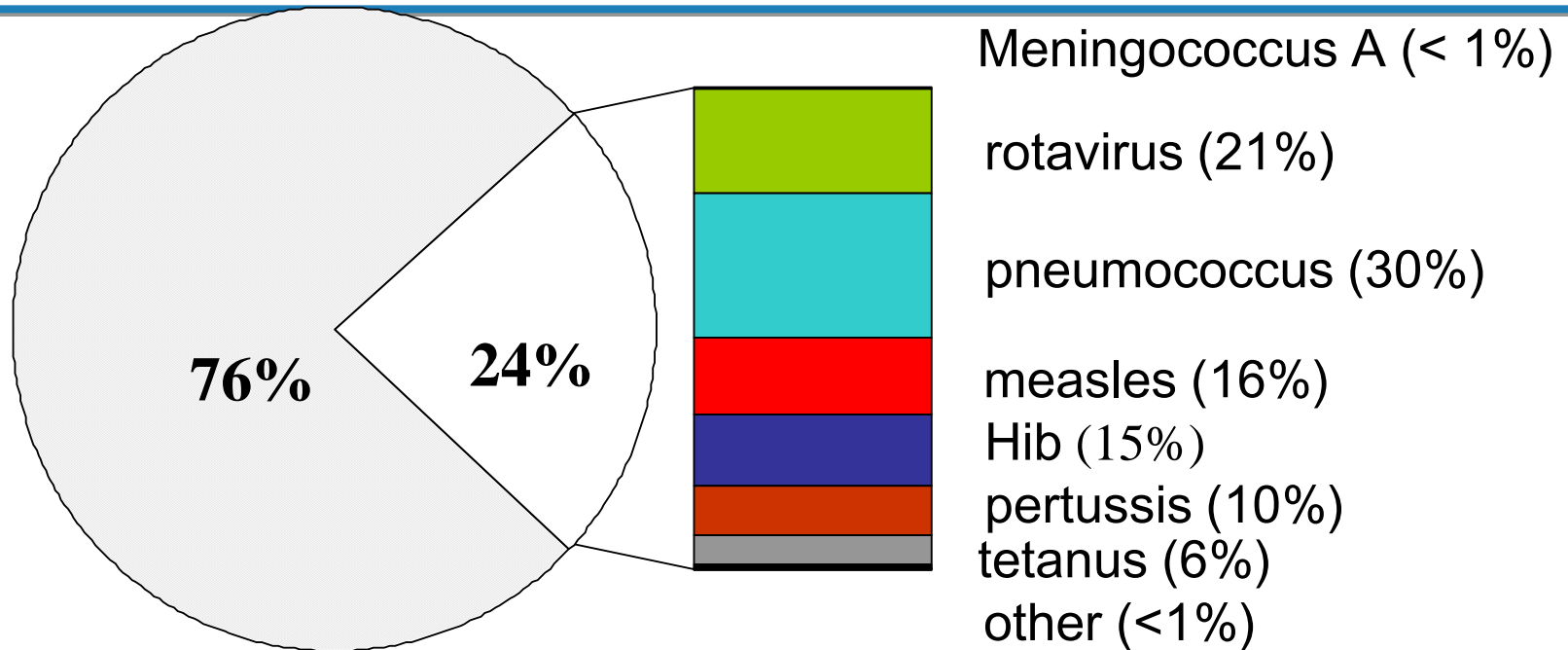
Global Immunization Overview

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Expanded Programme on Immunization
WHO, Geneva



**World Health
Organization**

About a quarter of under-5 deaths globally (Estimated annual childhood deaths, 2004)



10.4 million deaths under 5 years of age

2.45 million or 24% deaths under 5 from vaccine preventable diseases

•1.16 million deaths under 5 years of age from diseases targeted by conventional EPI vaccines

•1.29 million form diseases where licensed vaccine is available

Immunizations are more than just about preventing death

- Health is more than absence of disease or death
- Keeping people healthy has benefits beyond the immediate health benefits and contributes to economic growth

I would be hard-hearted enough to let the sick die if you could tell me how to prevent others from falling sick
- Mohandas Gandhi

Returns on investments in immunization

The rate of return to investment in the GAVI immunization program is *conservatively* estimated at **12%** in 2005, rising to **18%** in 2020.

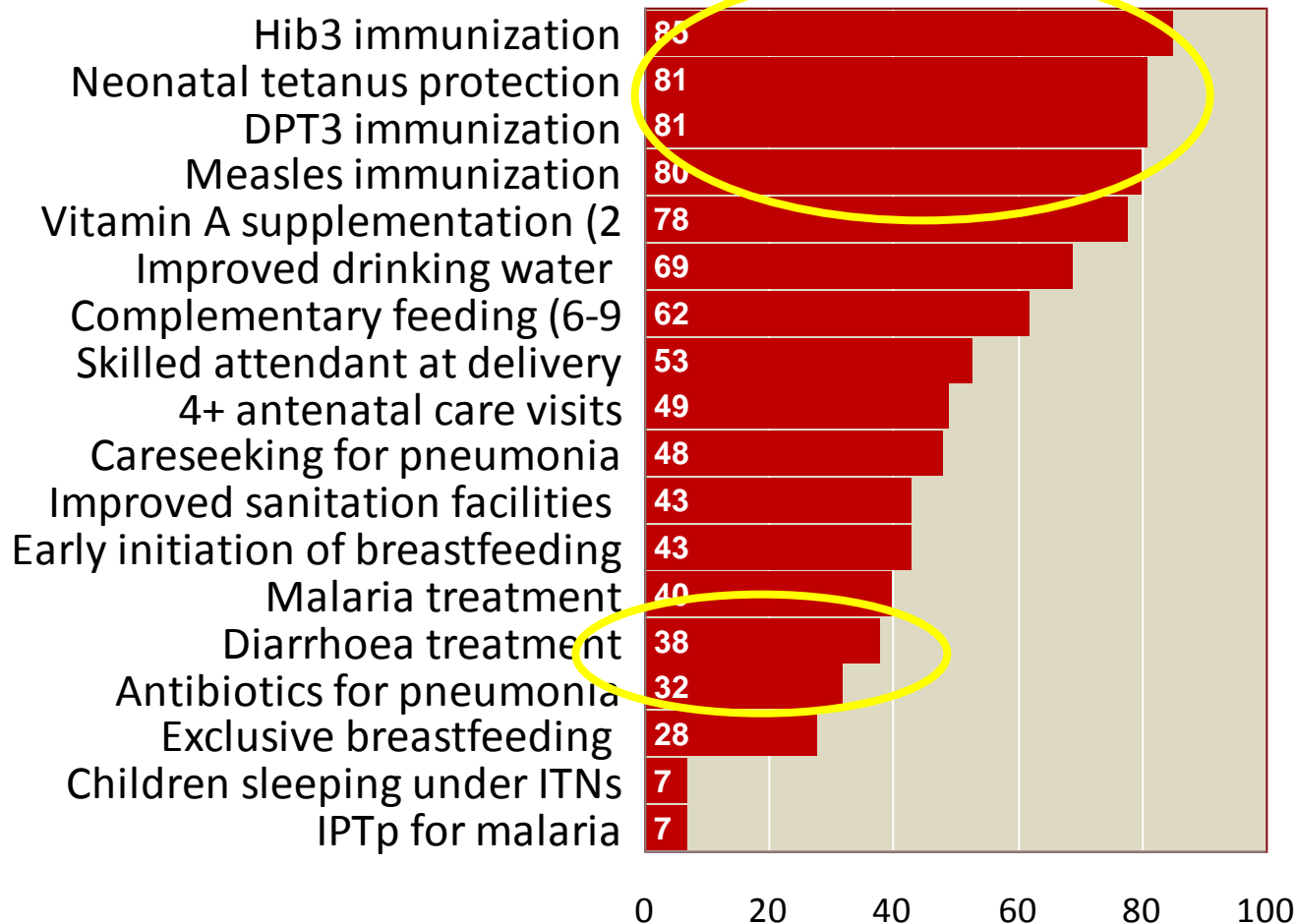
Source: Bloom & Channing 2004

These figures are comparable to average rates of return to investments in schooling (based on a survey of 98 country studies during 1960-97):

primary: **19%**
secondary: **13%**
higher: **11%**

Source: G. Psacharopoulos and H. Patrinos, “Returns to Investment in Education: A Further Update”, World Bank Policy Research Working Paper 2881, September 2002 (social rates of return from Table 1).

Uneven Coverage Patterns Across Interventions



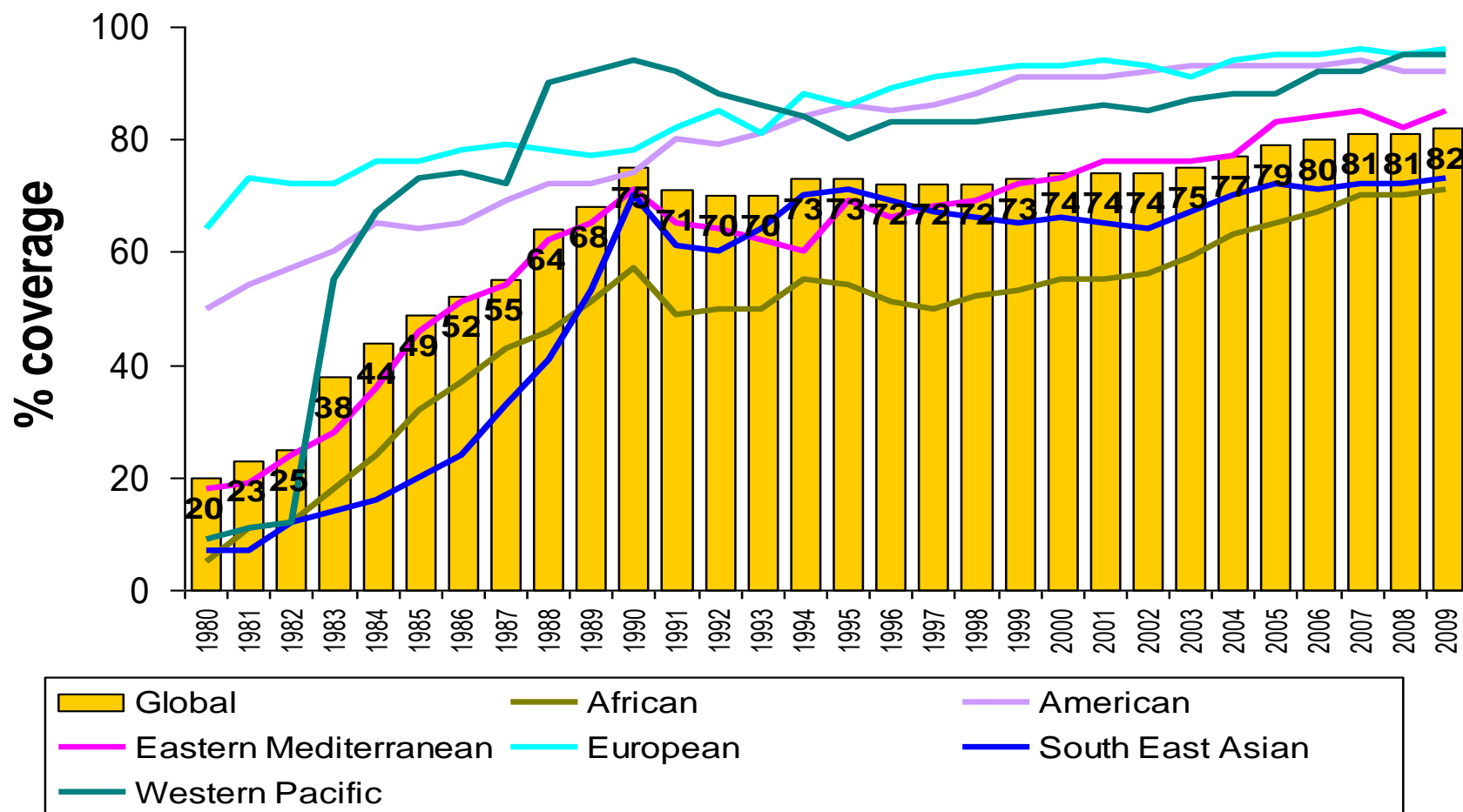
- Only vaccinations reaching 80% coverage
- Interventions able to be scheduled routinely have higher coverage than those needing functional health systems and 24-hour availability

Median national coverage levels for 18 Countdown interventions and approaches, 68 priority countries, most recent estimate.

Current status of immunization programmes

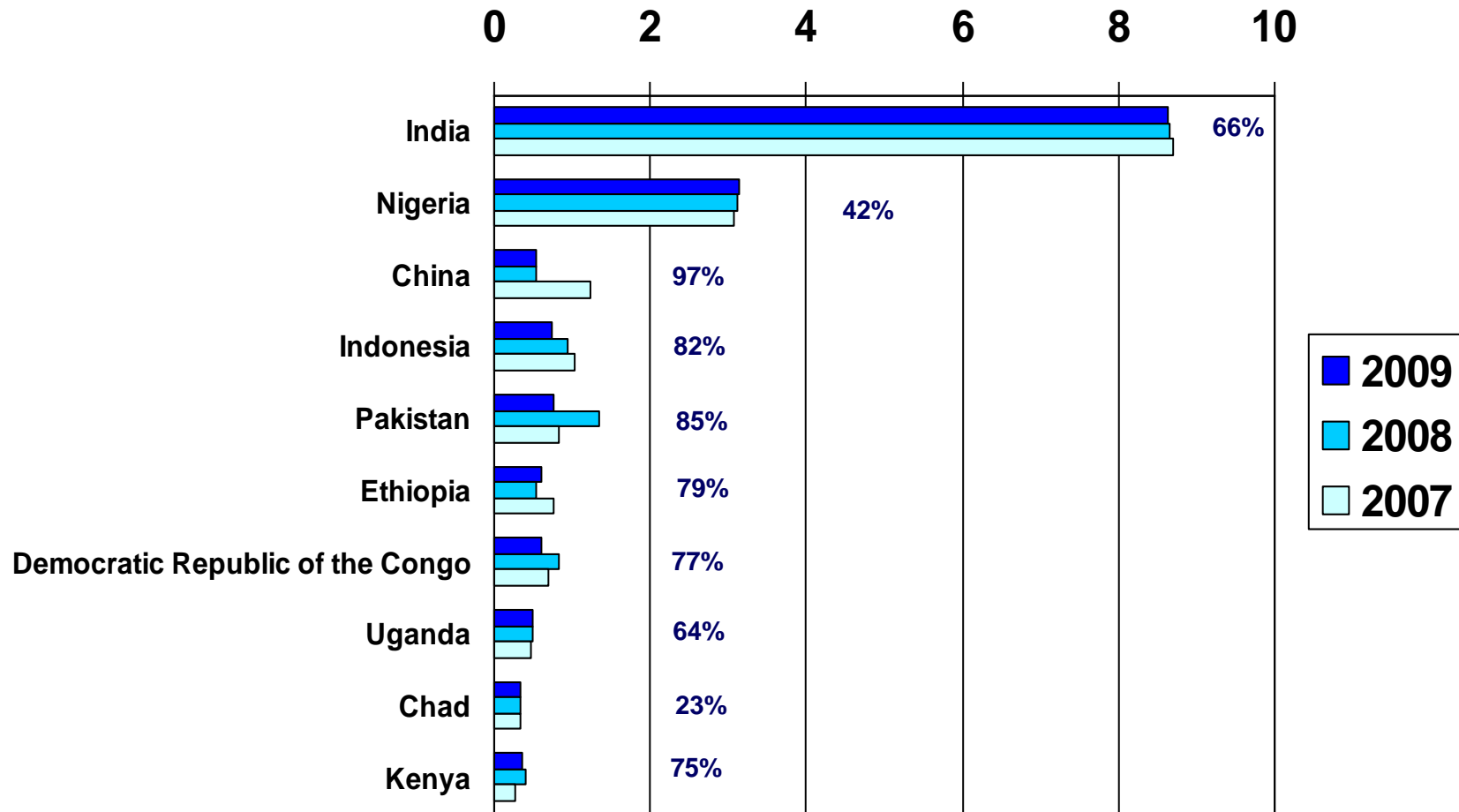
Global Immunization 1980-2009, DTP3 coverage

global coverage at 82% in 2009



Source: WHO/UNICEF coverage estimates 1980-2009, July 2010 Date of slide: 13 July 2010

Countries with most unvaccinated infants DTP3, 2007-2009 (in millions) and DTP3 coverage in 2009



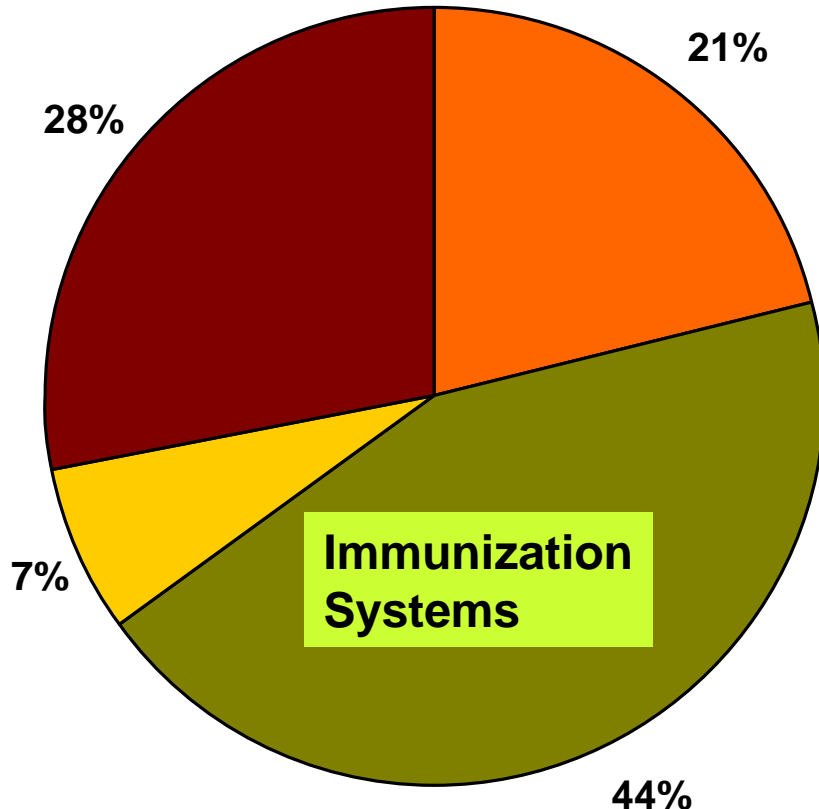
Source: WHO/UNICEF coverage estimates 1980-2009, July 2010 Date of slide: 14 July 2010

Challenges

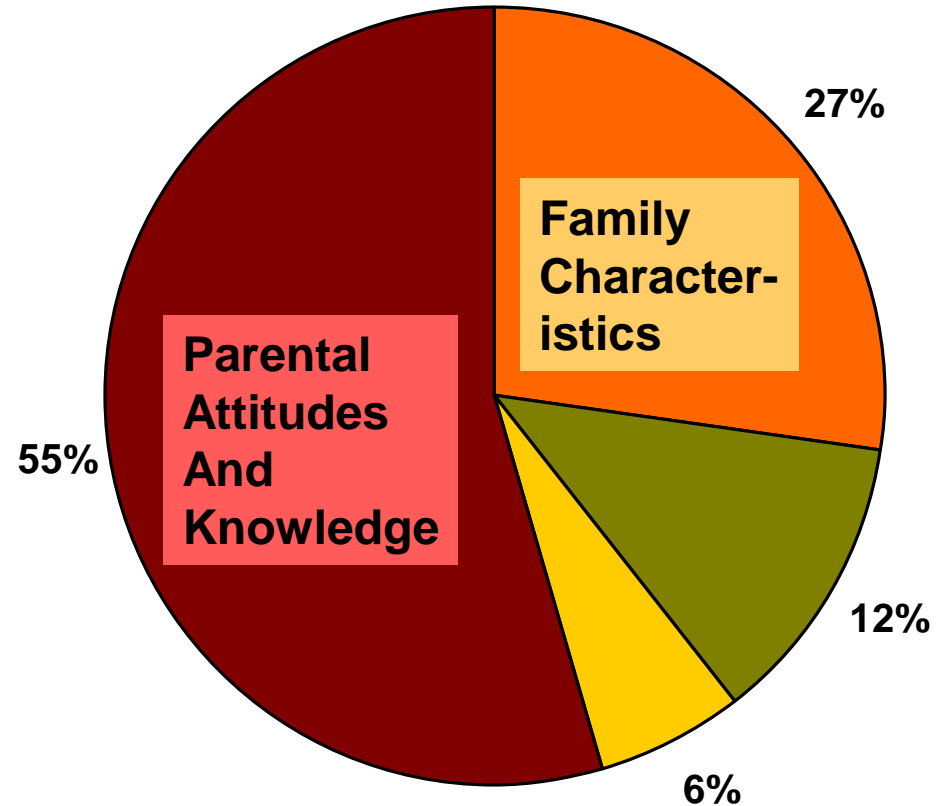
- Uninformed population
- Programme management
 - Human resources: number, training & motivation
 - Immunization delivery (hard to reach populations)
- Issues with data quality
 - Capturing and reporting data on VPDs through administrative systems (numerator and denominator problems)
 - Wide variation between administrative and survey data
 - Low use of data for planning and corrective action
- Vaccine supply
 - Supply chain management (forecasting, procurement and distribution)
 - Storage and transportation in the cold chain

Review of published literature: Reasons for being un-/under-vaccinated

Under-vaccinated



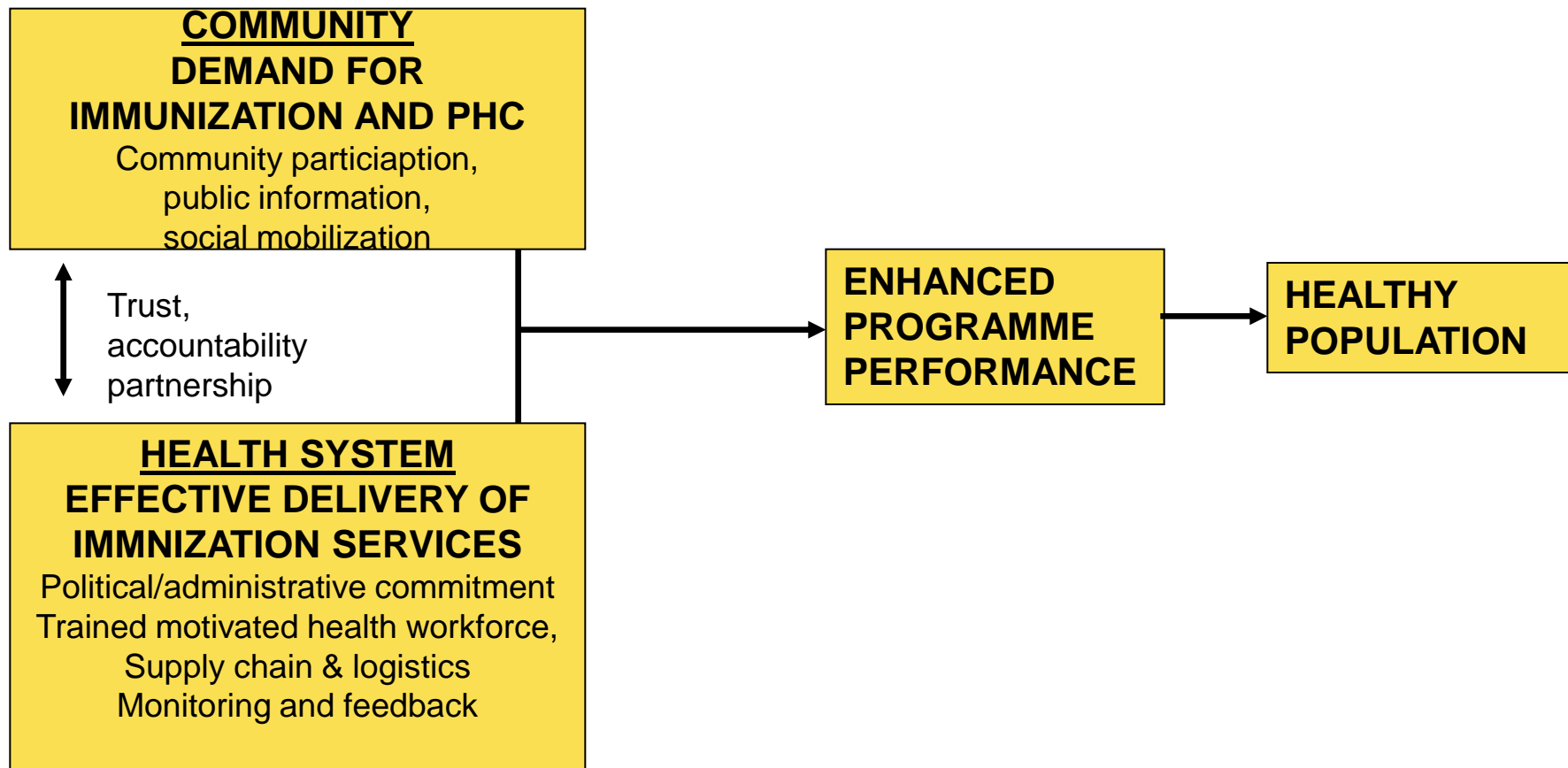
Unvaccinated



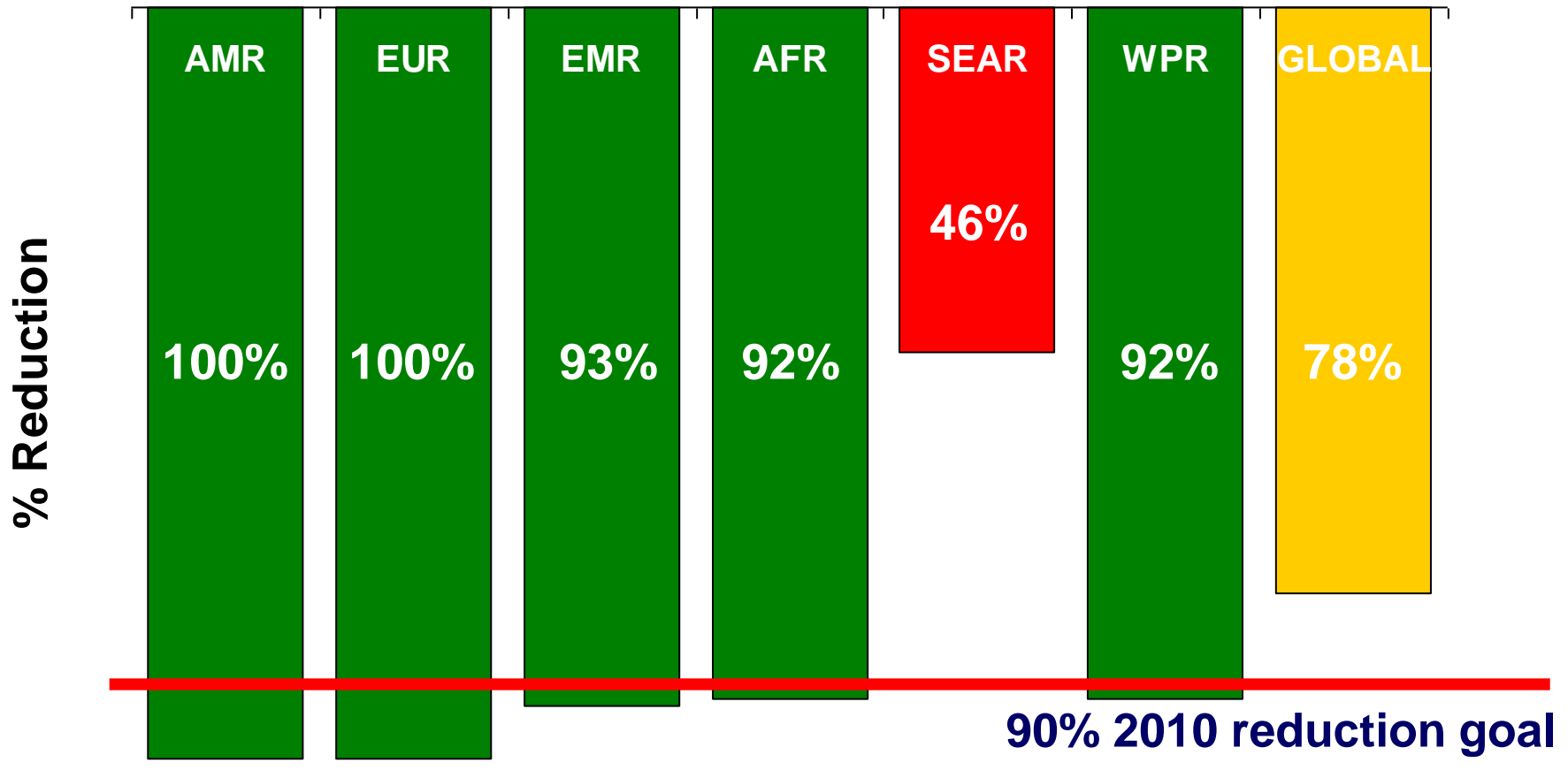
% based on 887 reasons abstracted from 209 relevant articles

% based on 33 reasons abstracted from 12 articles on unvaccinated children

Addressing the challenges



Reduction in Estimated Measles Deaths by WHO Region 2000 to 2008



Source: WHO/IVB, November 2009

World Health Assembly, May 2010

- **Report A63/18: Global Eradication of Measles**
 - 19 Member States made interventions
 - Eradication is a worthy public health goal that can be achieved
 - A major obstacle in many countries is ***inadequate routine immunization systems which must be strengthened*** as an essential building block for achieving and maintaining regional measles elimination.
- **2015 targets as a milestone towards eradication**
 - GIVS coverage goals
 - 95% mortality reduction vs 2000
 - Incidence <5 per million



Expanding Measles Outbreaks in Africa, 2009-2010

- **As of 16 June 2010:**

- Outbreaks in 30 African countries
- Over 79,000 cases and 1,127 deaths reported
- Major resurgence in southern Africa after >10 years of very low incidence following accelerated control efforts

- **Reasons:**

- Weak routine delivery
- Gaps in campaign coverage
- SIAs delayed due to inflated coverage estimates
- Limited target age range due to shortage of funds
- Cross border spread (migrants/nomads) and religious objectors

Recognition of potential and strong demand from

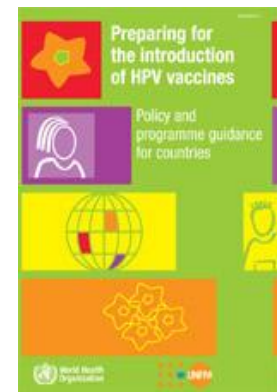
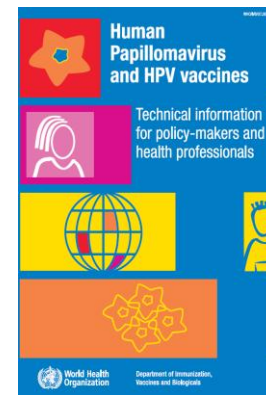
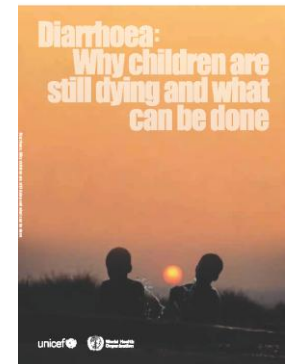
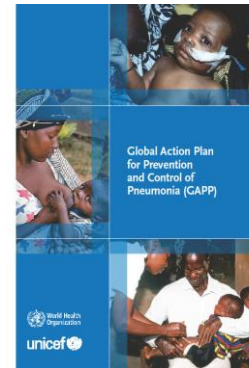
- 165 countries have introduced Hib vaccine, but:
 - Large countries yet to introduce, e.g. India, China, Indonesia and Nigeria
 - Vaccine prices have not dropped to the expected levels
- 42 countries have introduced PCV, including 2 GAVI eligible; 15 other GAVI countries ready to introduce
 - Supply and resource constraints
 - Long term financial sustainability
 - Serotype replacement: is this really a problem?
- 23 countries have introduced rotavirus vaccines; 4 GAVI eligible approved
 - Uncertainties about value given lower efficacy in developing countries
 - Age restrictions for use leading to lower coverage

Challenges of new vaccine introduction

- Uncertainty or scepticism about disease burden
- Weak immunization systems
 - Knowledge and practice of immunization staff
 - Cold chain, logistics, waste management
- Financial sustainability in resource constrained environment
- Surveillance systems
 - Country ownership and investments in surveillance
 - Adverse events surveillance & appropriate response
- Concerns about vaccine safety
- Fears, perceptions and misinformation about new vaccines

Integrated Approaches to Disease Control

- Global Action Plan for Prevention and Control of Pneumonia launched in November 2009
- WHA resolution on Pneumonia Prevention and Treatment passed in May 2010
- Comprehensive WHO/UNICEF Diarrhoea Control Strategy launched in Nov 2009
- Comprehensive Cervical Cancer Control Strategy updated including immunization, reproductive health, cancer screening and control programmes, and adolescent health services



Recent Policy Updates from WHO

Efficacy against severe rotavirus gastroenteritis in the first year of life, by mortality quartile

WHO mortality strata	Under-5 child mortality	Efficacy Estimates	Countries where studies performed
HIGH	Highest (top 25%)	50-64%	Ghana, Kenya, Malawi, Mali
INTER-MEDIATE	High mid (next 25%)	46-72%	Bangladesh, South Africa
LOW	Low mid (next 25%)	72 - 85%	Vietnam Multiple countries in Americas
	Least (lowest 25%)	85 – 100%	Multiple countries in Americas, Europe, WPRO

Pertussis – updated position paper

(Scheduled publication in Oct 2010)

<http://www.who.int/immunization/documents/positionpapers/en/index.html>

- aP and wP are equally efficacious in preventing severe pertussis
- Choice of vaccines
 - Both are safe;
 - aP is less reactogenic but more expensive;
 - In countries where reactogenicity leads to lower coverage; aP may be used; where price is the constraint, wP use should continue
- Schedule
 - 3 dose primary series in infancy (no change)
 - Booster dose in children 1-6 years; preferably 2nd year
 - Insufficient data to recommend immunization of adolescent/adult, pregnant women, health workers or for "cocooning"
 - Only aP for children > 6 years

Polio vaccination in the pre-eradication era: updated position paper June 2010

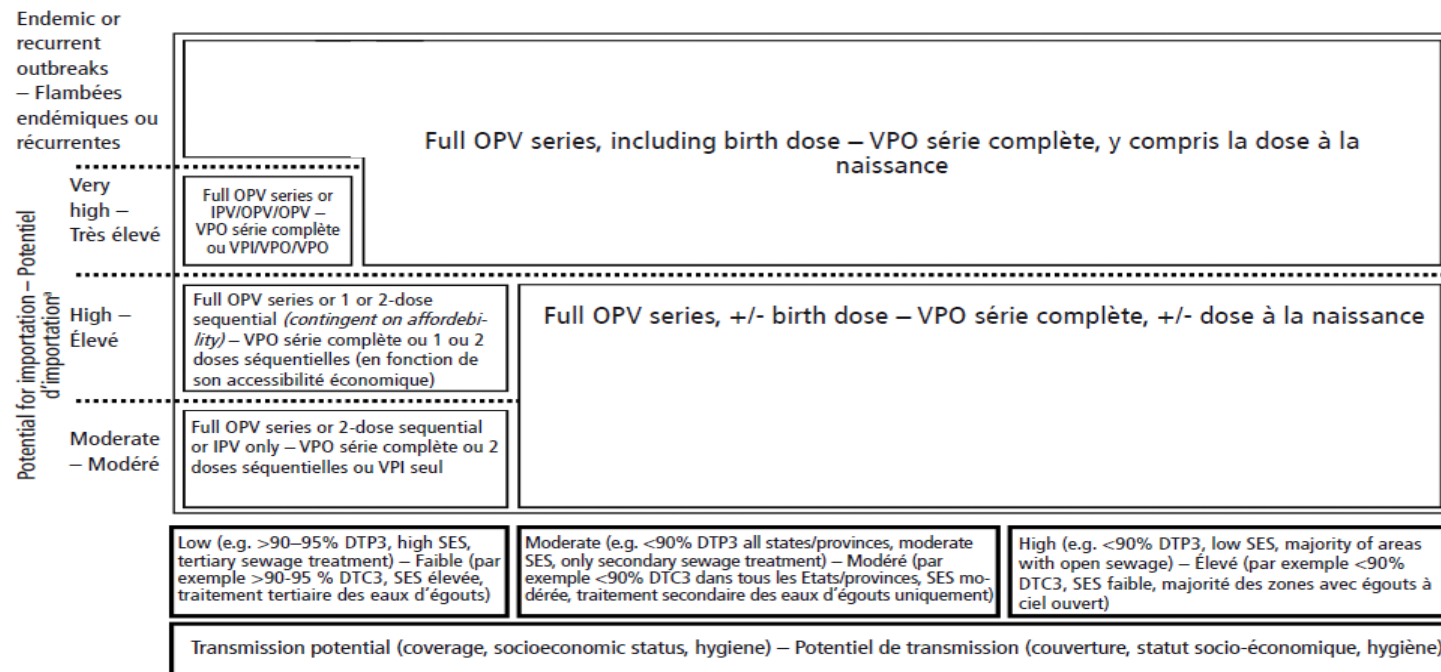
(<http://www.who.int/wer/2010/wer8523.pdf>)

- Choice of vaccine based on:
 - Endemicity (continuing transmission)
 - Risk of importation and spread
- High potential for WPV transmission is determined mainly by level of routine immunization coverage, sanitation and overall socio-economic status
- OPV + birth dose for countries endemic or very high risk for importation
- OPV ± birth dose for countries moderate or high risk for importation
- Sequential IPV-OPV schedule (1 or 2 doses IPV followed by ≥ 2 doses OPV) only with very high routine coverage (~95% with moderate or high risk and ~90% with low risk)
- IPV alone only in the lowest risk countries

Polio vaccination in the pre-eradication era: updated position paper June 2010

(<http://www.who.int/wer/2010/wer8523.pdf>)

Fig. 1 **Countries' choice of polio vaccine and immunization schedule according to potential for WPV importation and transmission^a**
 Fig. 1 **Choix du vaccin antipoliomyélique et du calendrier de vaccination par les pays en fonction du potentiel d'importation et de transmission d'un poliovirus sauvage^a**



^a Potential for importation is considered very high in countries bordering endemic countries or countries that have recurrent outbreaks; the potential is considered high if there is a history of importation plus high traffic across the border; the potential is considered moderate in the rest of the world. – Le potentiel d'importation est considéré comme très élevé dans les pays jouxtant les pays d'endémie ou dans ceux qui ont des flambées récurrentes; ce potentiel est considéré comme élevé s'il y a des antécédents d'importation + un trafic transfrontalier élevé; ce potentiel est considéré comme modéré dans le reste du monde.

OPV, oral poliovirus vaccine; IPV, inactivated poliovirus vaccine; DTP, diphtheria–tetanus–pertussis vaccine; DTP3, 3 doses of DTP vaccine; SES, socioeconomic status. – VPO, vaccin antipoliomyélique oral; VPI, vaccin antipoliomyélique inactivé (VPI), vaccin DTC (antidiphthérique-anticoquelucheux-antitétanique); DTC3, 3 doses du vaccin DTC; SES, situation socio-économique. – VPO = vaccin antipoliomyélique oral; VPI = vaccin antipoliomyélique inactivé; DTC = vaccin antidiphthérique-antitétanique-anticoquelucheux; DTC3 = 3 doses de DTC; SES = situation socio-économique.

New opportunities in immunization

New opportunities for vaccines and immunization

- Mandate from the WHO governing bodies
 - WHA report on GIVS 2005 with report back in 2011
 - WHA resolution on measles control
 - WHA resolution on pneumonia prevention and treatment
- Visible impact of vaccination on mortality and morbidity
 - Pneumococcal and rotavirus vaccines in high and middle-income countries
 - Data from developing countries through ongoing impact monitoring
- Strengthening of national policy & decision making processes
- Decade of vaccines
 - Partnership to communicate the value of vaccination and increase investments in disease prevention through vaccination

Decade of Vaccines



A shared vision and global partnership for realising the potential of vaccines and immunization

DAVOS 29 January 2010

Bill and Melinda Gates Pledge \$10 Billion in Call for Decade of Vaccines to support research, production and delivery of life-saving vaccines to children in developing countries



World Health Assembly May 2010

"....Vaccines are one of the best life-saving buys on offer, preventing an estimated 2 to 3 million deaths each year. WHO and UNICEF, in close collaboration with the Gates Foundation, countries, and partners, are initiating a process to define the ambitions and scope of this Decade of Vaccines."....



THANK YOU