

# Access to vaccination in GAVI countries and at global level

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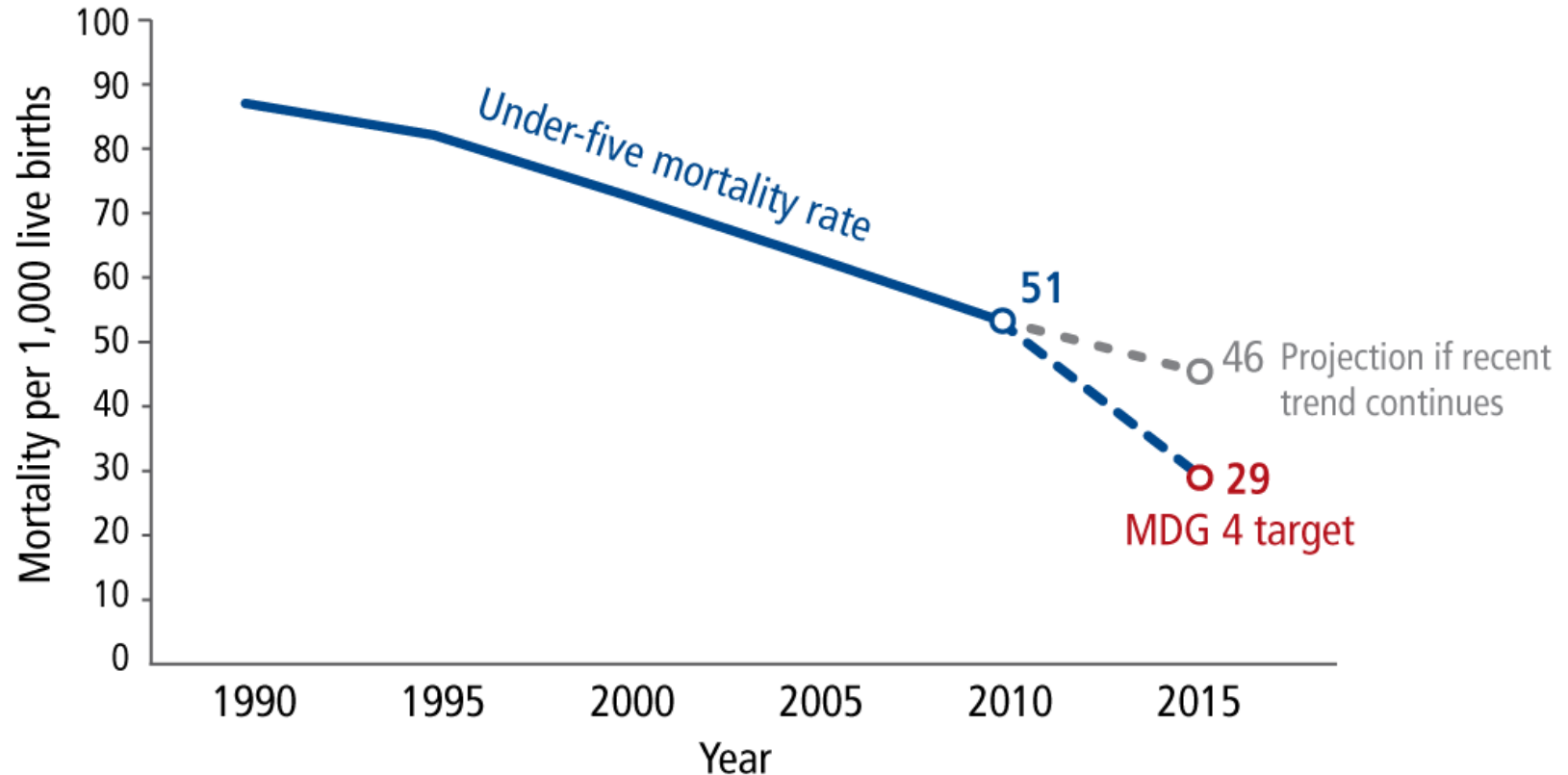
15th ADVANCED COURSE OF VACCINOLOGY

May 12, 2014



# Global progress to MDG 4 for child survival

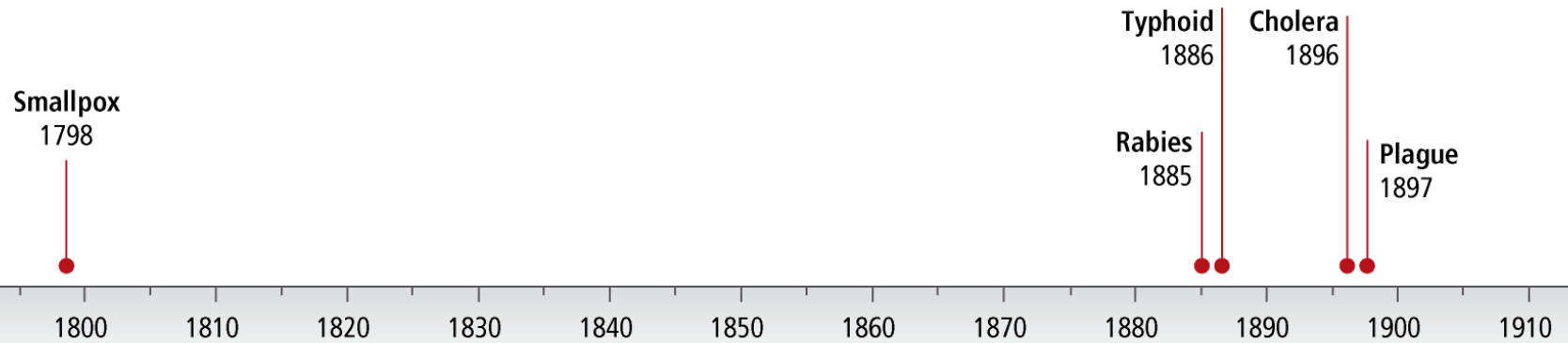
The global under-five mortality rate fell by 41% from 1990 to 2011



Source: The UN Inter-agency Group for Child Mortality Estimation (IGME), Levels and Trends in Child Mortality: Report 2012. UNICEF, New York, 2012.  
[http://www.WHO.int/gho/child\\_health/en/index.html](http://www.WHO.int/gho/child_health/en/index.html)



# Vaccine development timeline: 1798-1910



With Thanks to Stan Plotkin



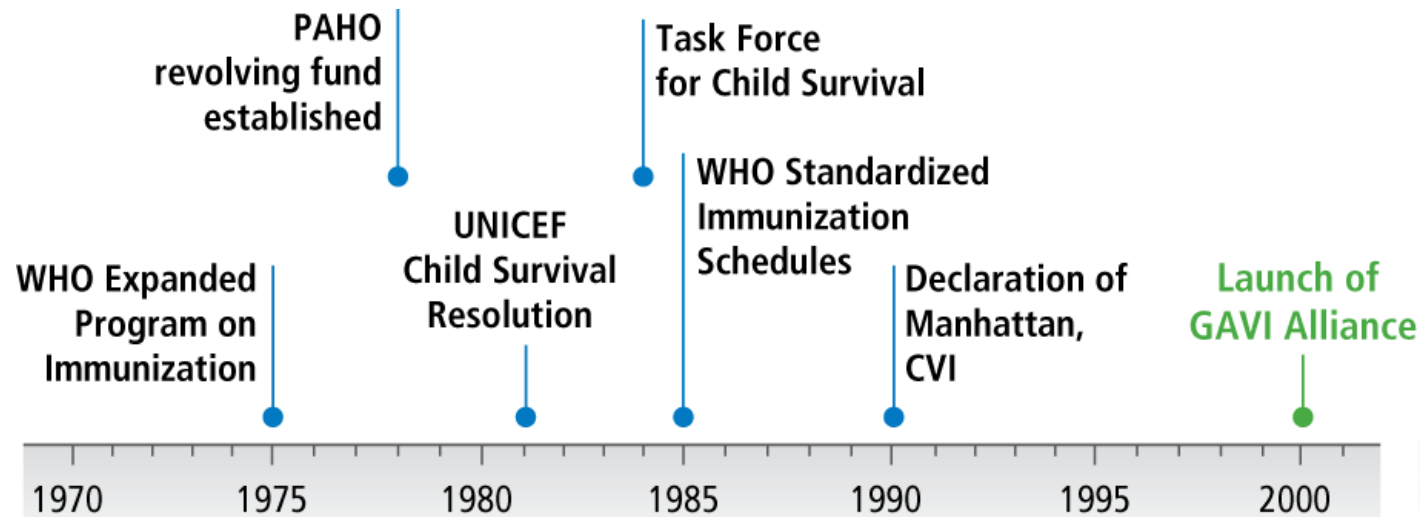


# New commitments, new mechanisms 1975-2000

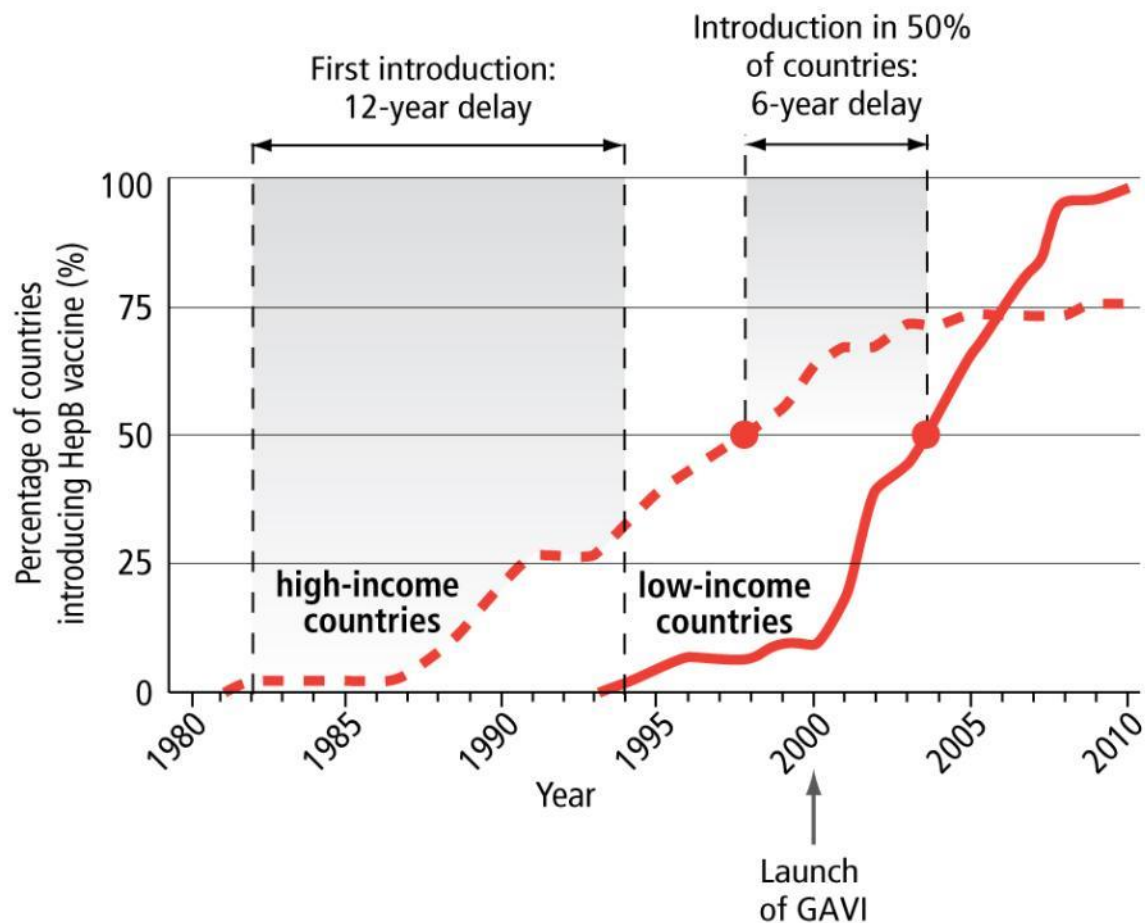
*“Preventable childhood diseases... against which there are effective vaccines... are currently responsible for the great majority of the world's 14 million deaths of children under 5 years and disability of millions more every year.”*

***“Effective action can and must be taken to combat these diseases...”***

*UNICEF 1990 World Summit for Children*

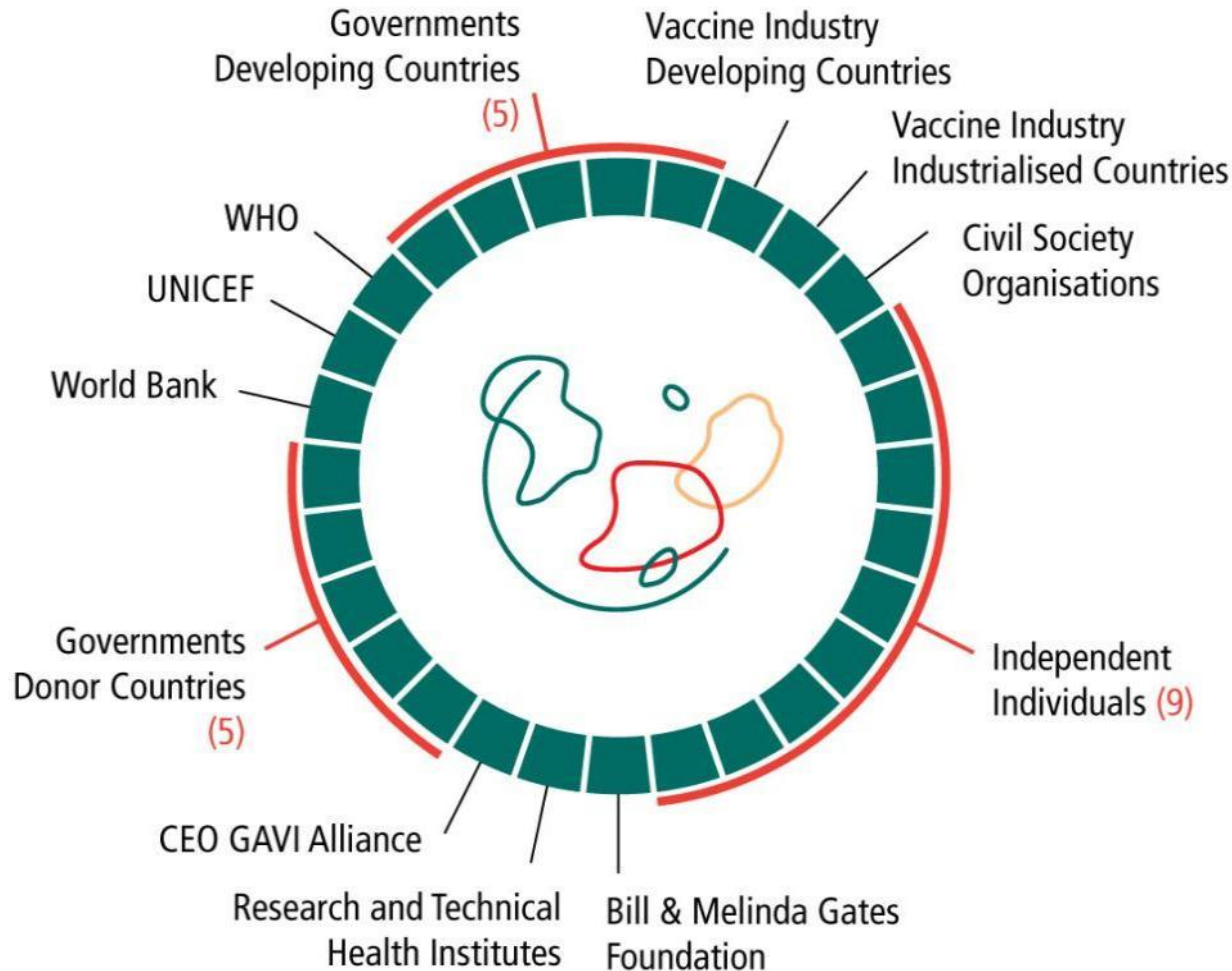


# Accelerating Hepatitis B vaccine introduction in low-income countries



Source: WHO, Vaccine introduction database

# The GAVI Alliance: an innovative partnership



# GAVI Alliance: a real partnership



**THE WORLD BANK**



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# GAVI mission and strategic goals 2011–2015

*To save children's lives and protect people's health by increasing access to immunisation in poor countries*

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**1 The vaccine goal**  
Accelerate the uptake and use of underused and new vaccines

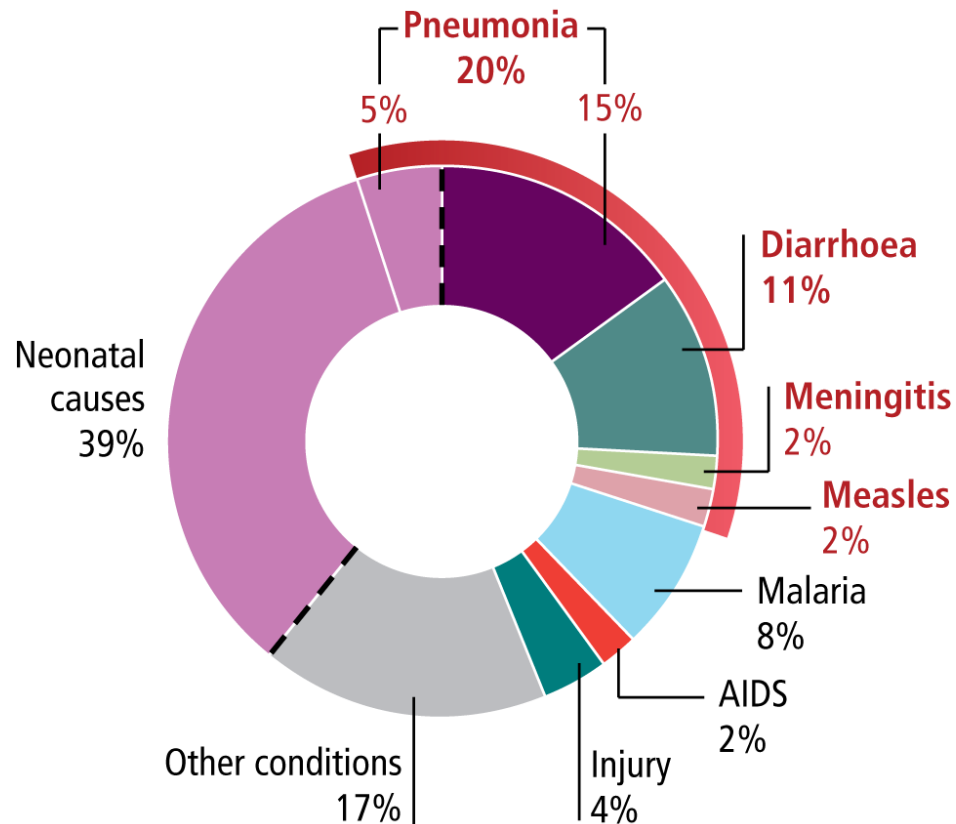
**2 The health systems goal**  
Contribute to strengthening the capacity of integrated health systems to deliver immunisation

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**3 The financing goal**  
Increase the predictability of global financing and improve the sustainability of national financing for immunisation

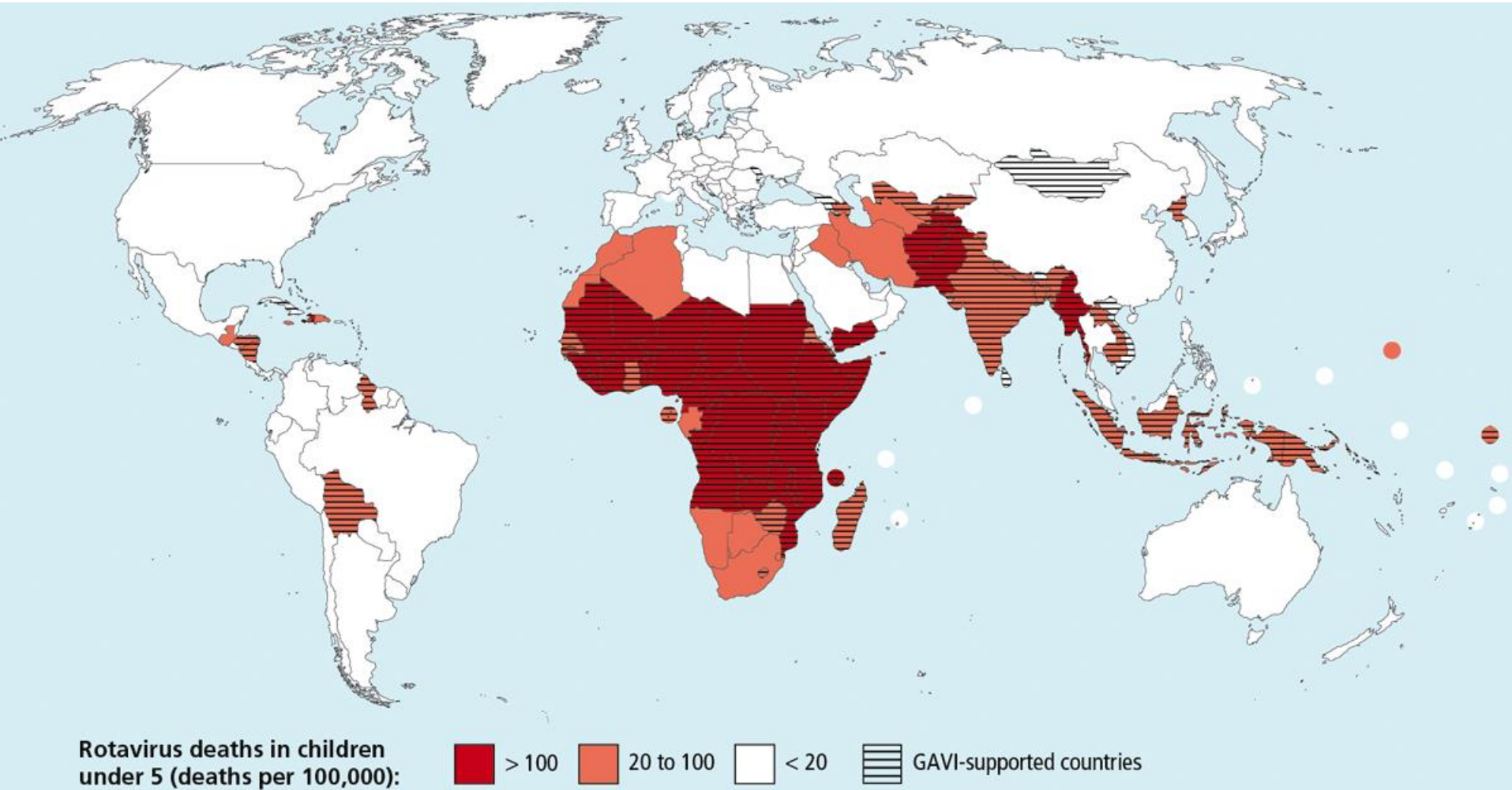
**4 The market shaping goal**  
Shape vaccine markets to ensure adequate supply of appropriate, quality vaccines at low and sustainable prices

# Causes of under-five deaths in GAVI-eligible countries – 2010 estimate



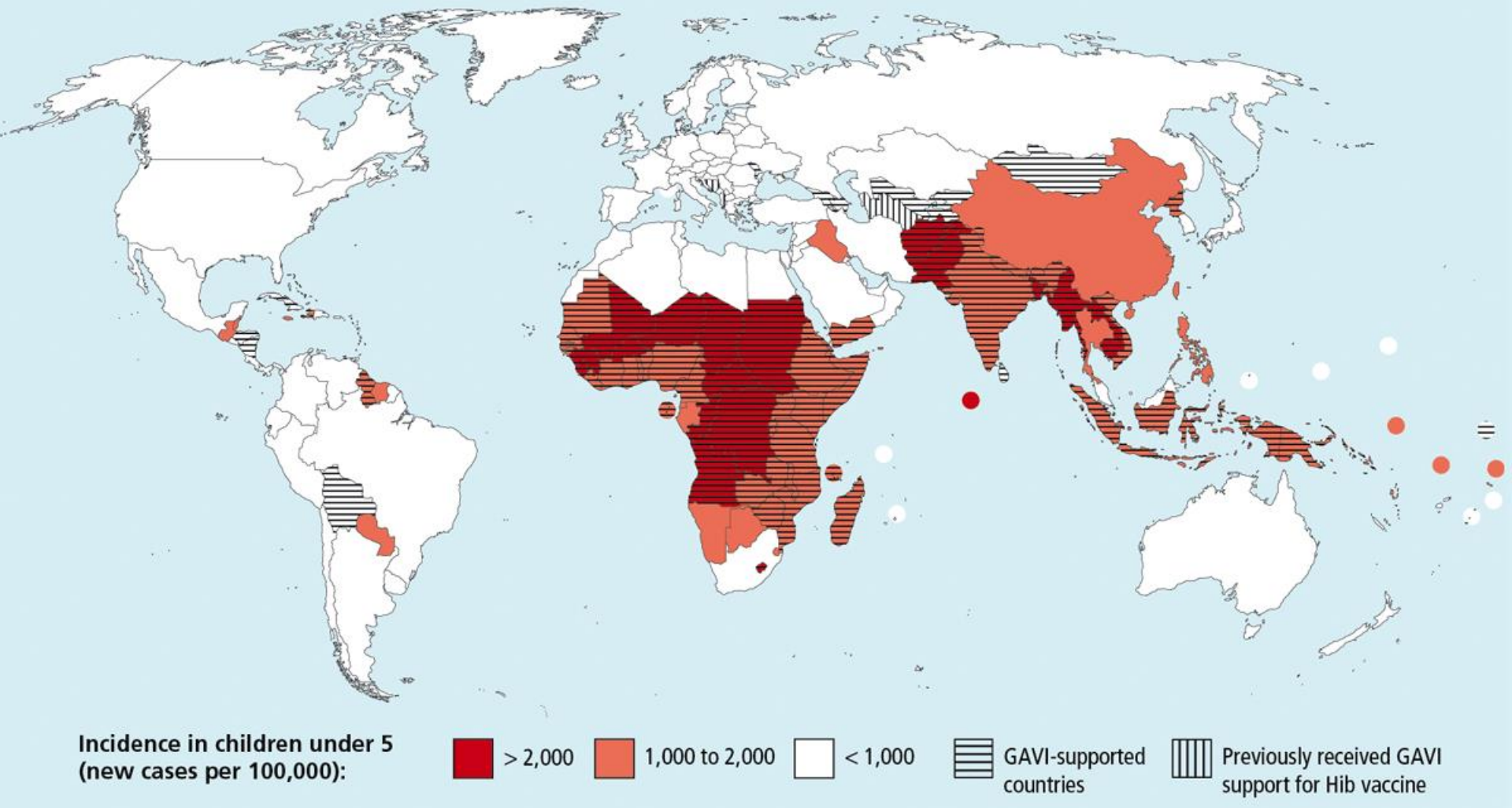


# Rotavirus deaths in children under five



Source: WHO, Estimated rotavirus deaths for children under 5 years of age, 2008

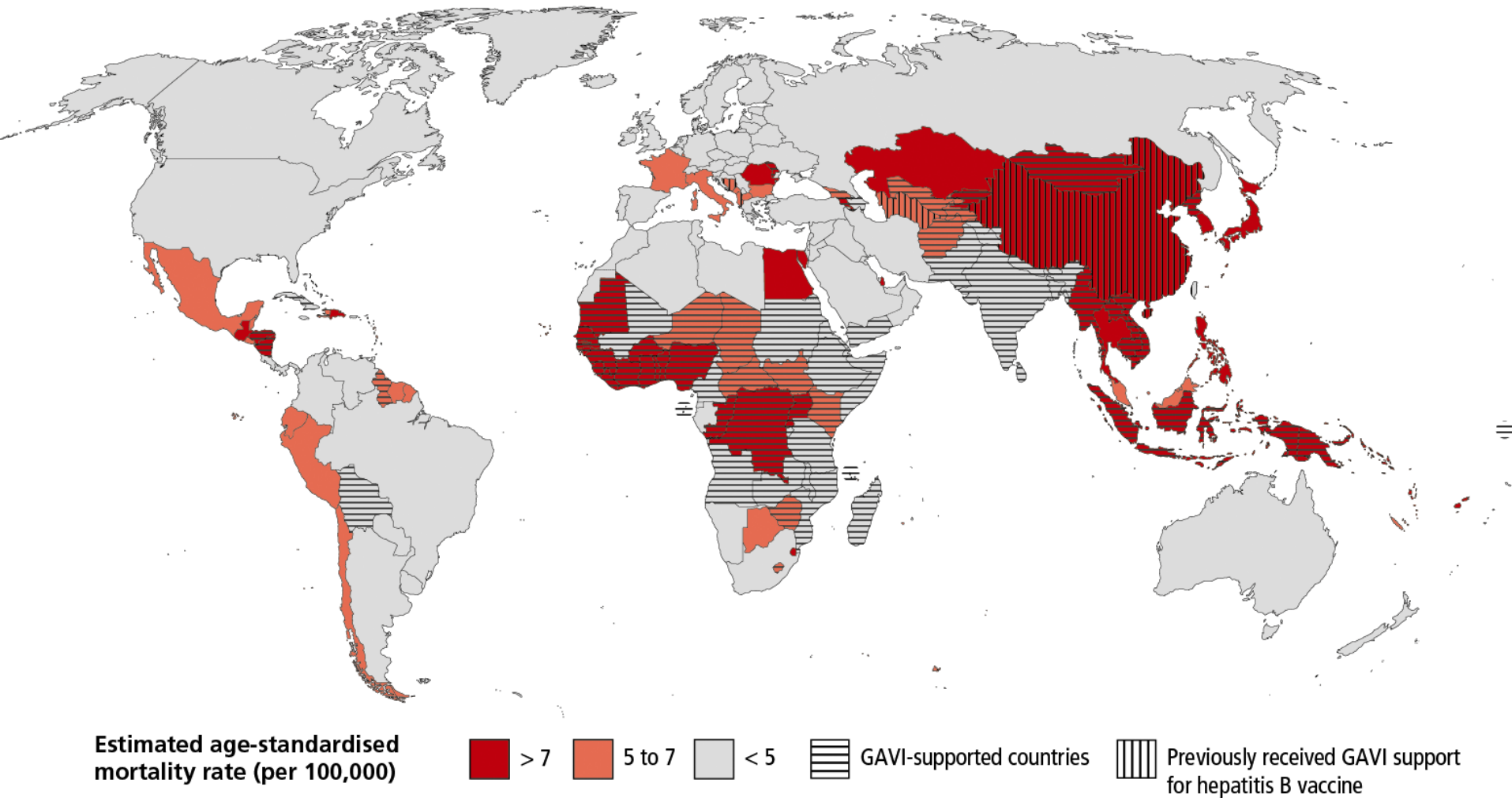
# Hib disease cases in children under five



Source: WHO, Estimated Hib and pneumococcal deaths for children under 5 years of age, 2000



# Liver cancer mortality

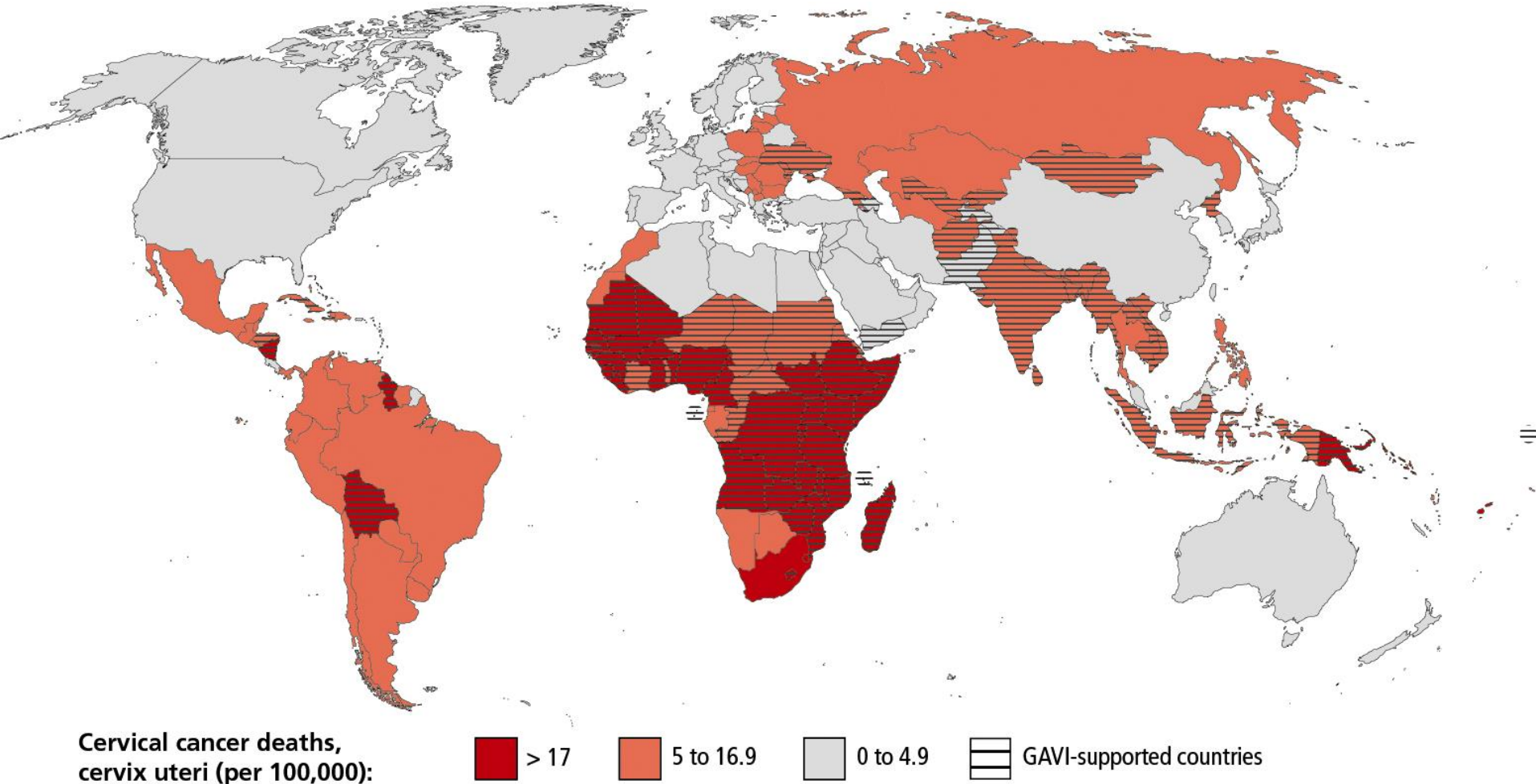


Source: GLOBOCAN 2012 (International Agency for Research on Cancer)

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# Cervical cancer mortality



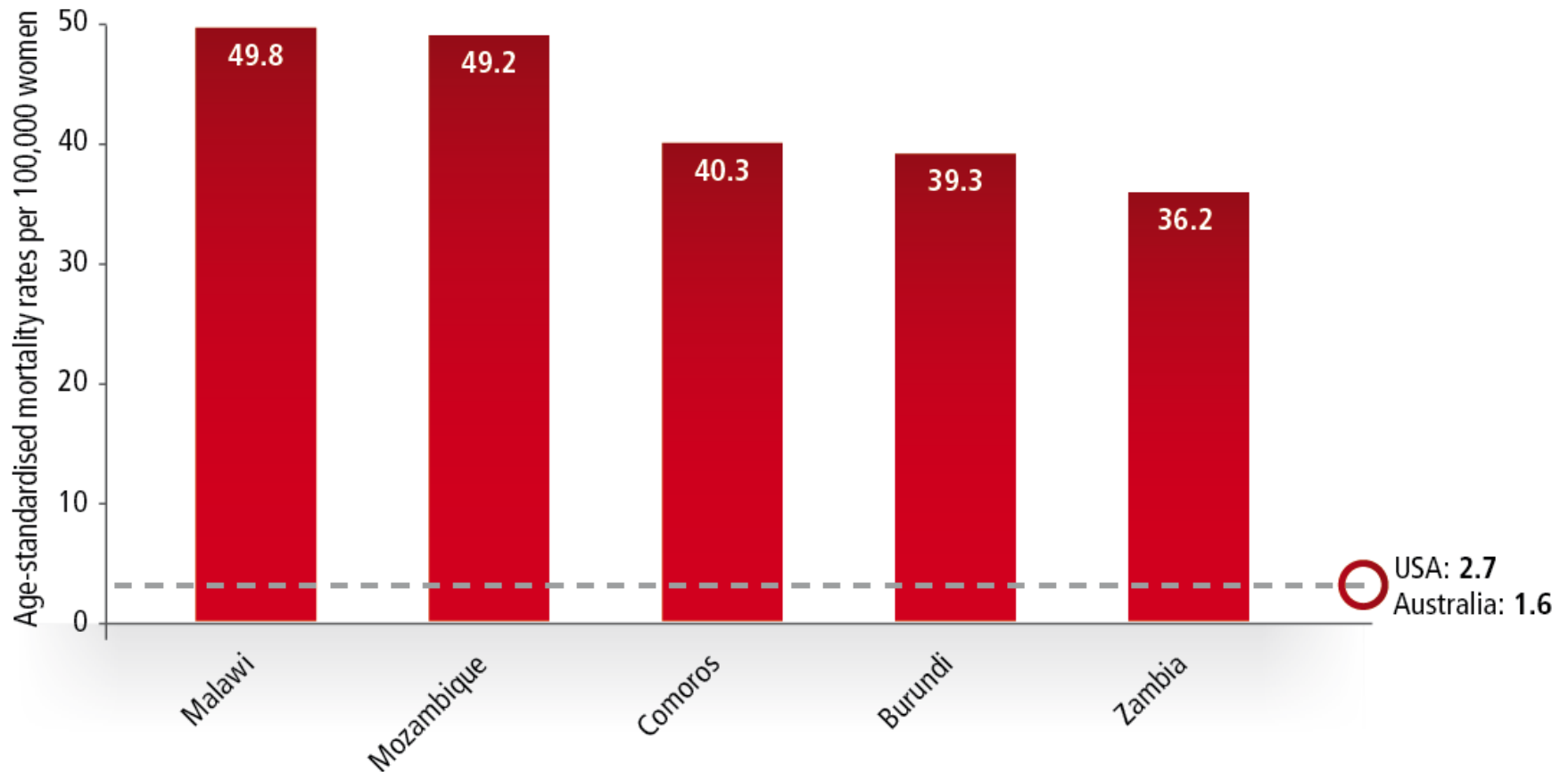
Source: GLOBOCAN 2012 (International Agency for Research on Cancer)

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# Highest global cervical cancer mortality rates are in GAVI-eligible countries

Age-standardised mortality rates of cervical cancer - top 5 countries globally





# Overview of GAVI vaccination programmes

2014	Japanese encephalitis
2014	Cholera
2013	IPV
2013	Measles rubella
2013	HPV
2011	Meningitis A
2009	Pneumococcal
2008	Rotavirus
2007	Measles
2006	Pentavalent
2002	Hib
2001	Yellow fever
2001	Hepatitis B

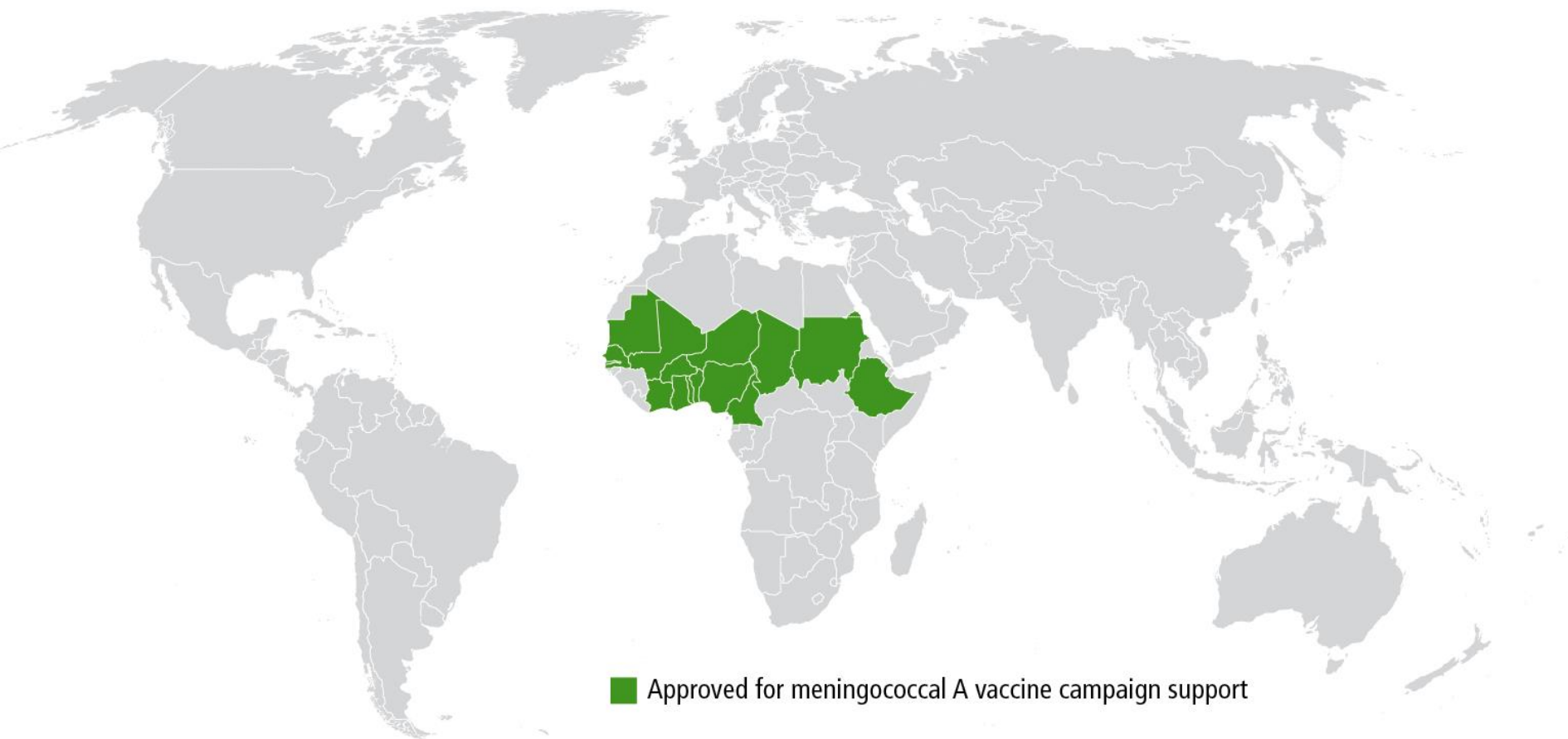








# Meningococcal A vaccine support

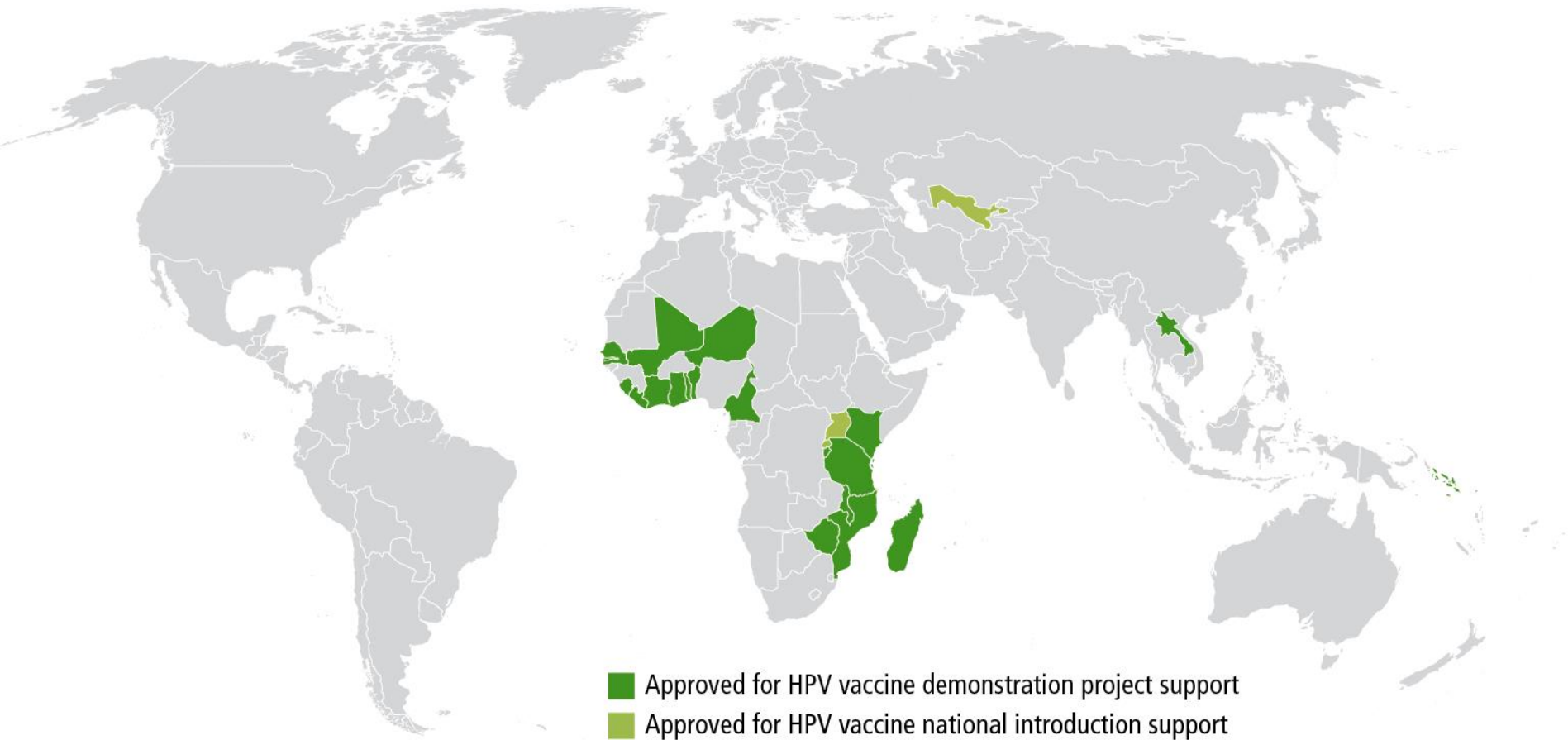


Source: GAVI Alliance data as of March 2014

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# Human papillomavirus (HPV) vaccine support

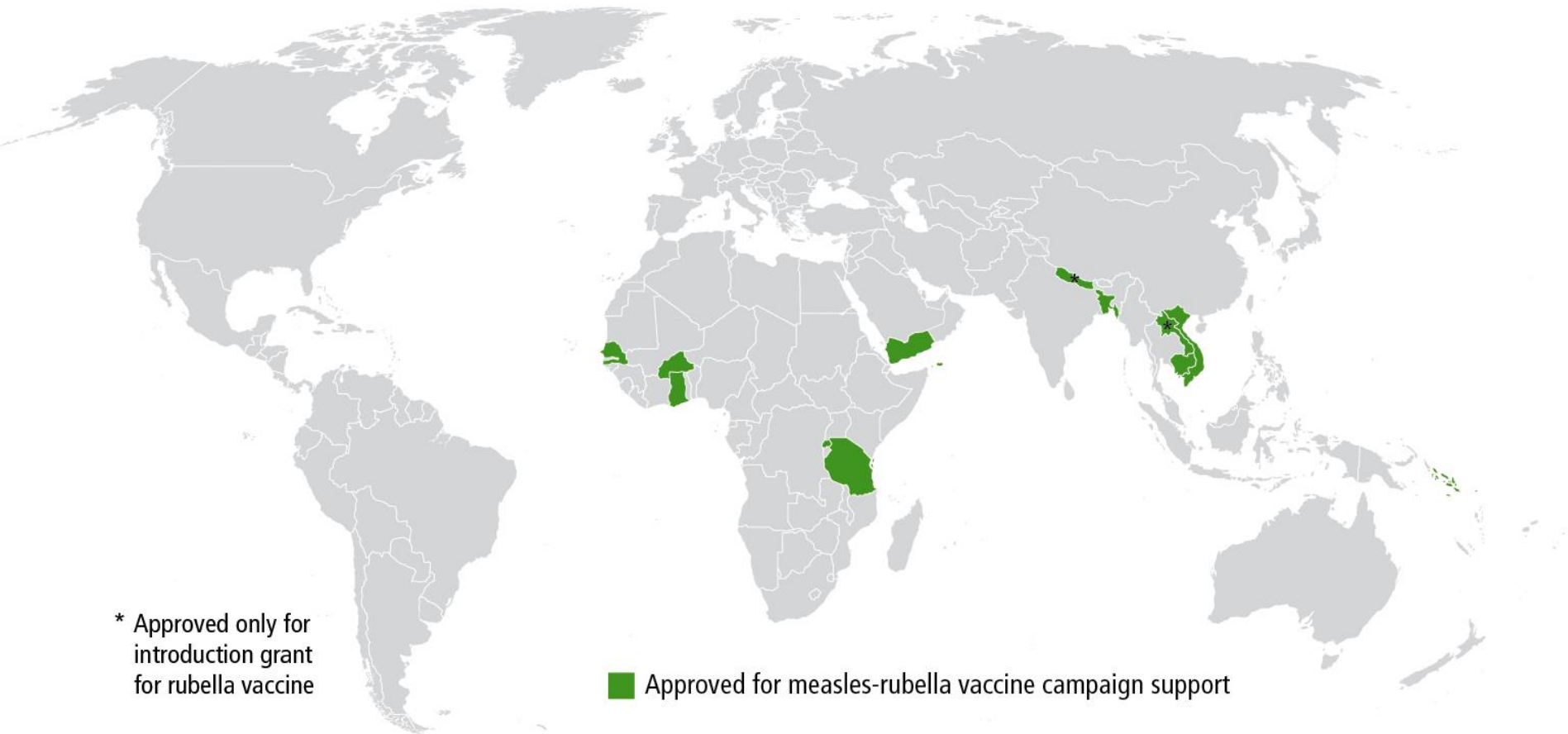


Source: GAVI Alliance data as of March 2014

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# Measles-rubella vaccine support



\* Approved only for introduction grant for rubella vaccine

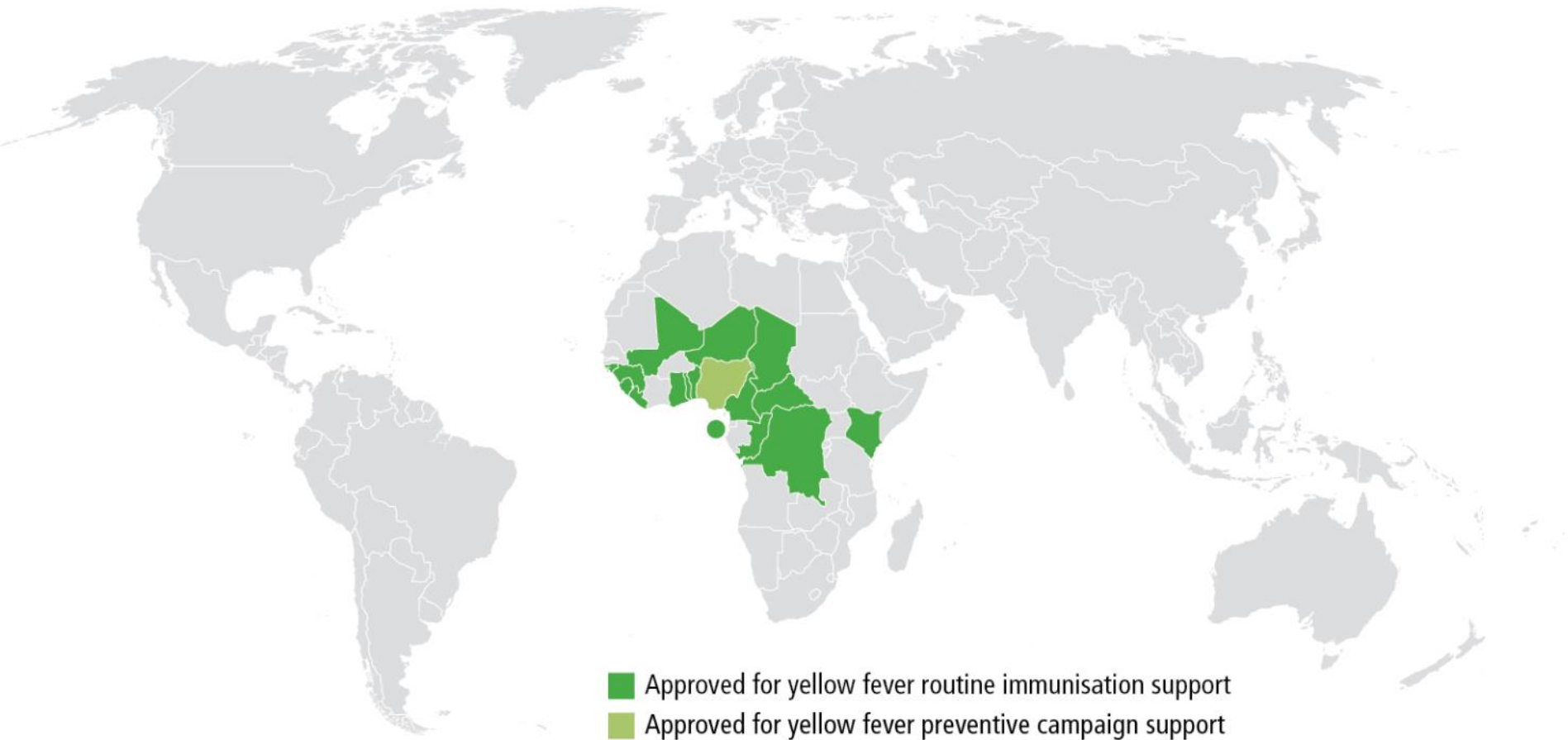
Approved for measles-rubella vaccine campaign support

Source: GAVI Alliance data as of March 2014

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# Yellow fever vaccine support



Source: GAVI Alliance data as of March 2014

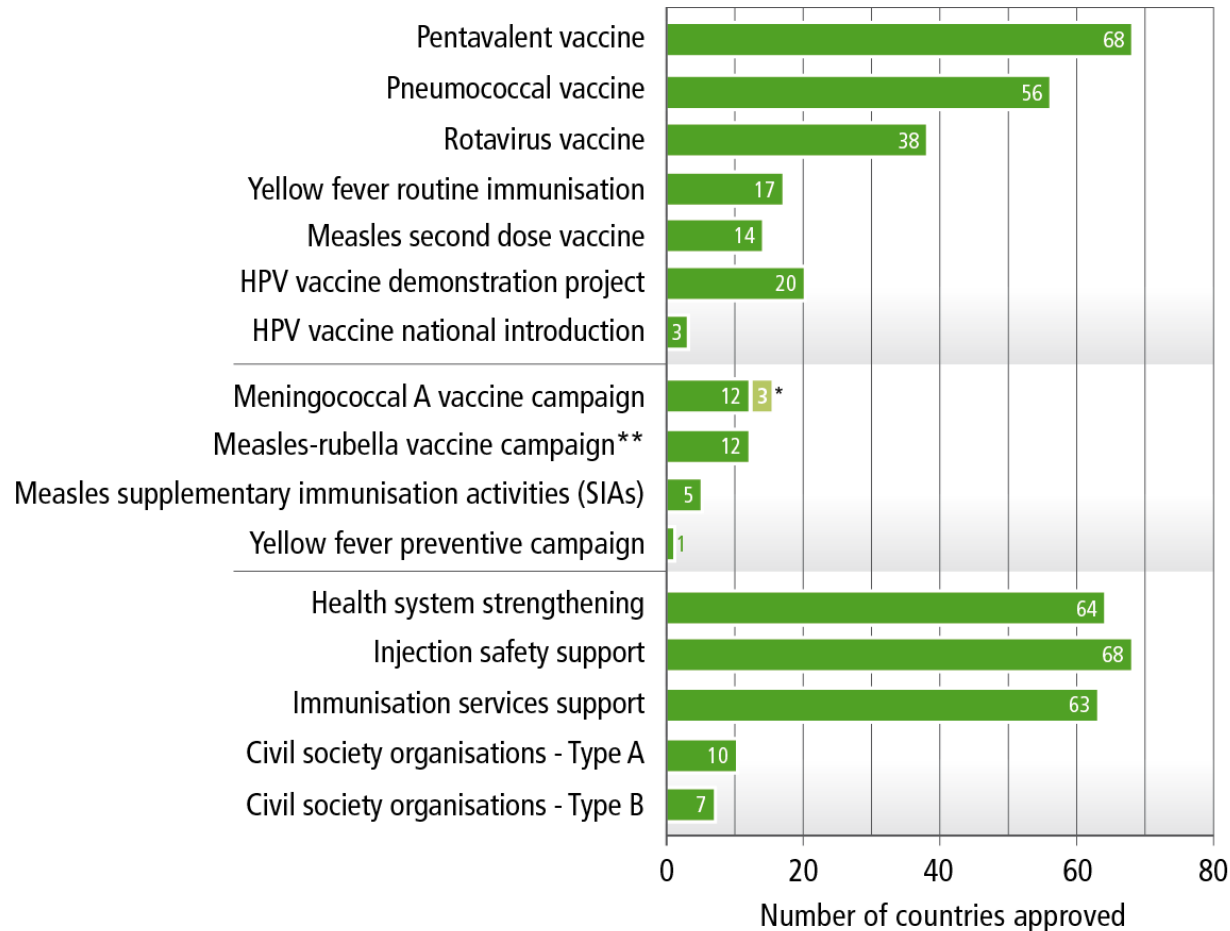
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# Rising country demand

## Countries approved for GAVI support

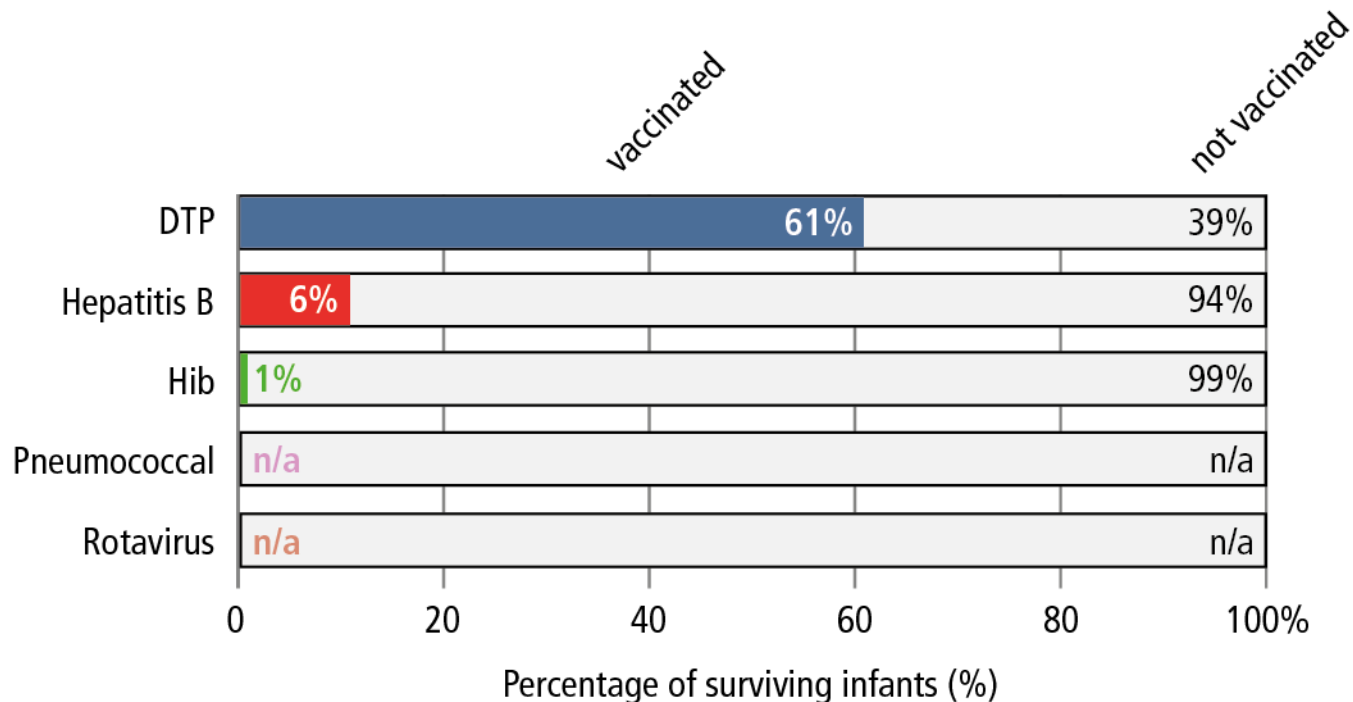


\* Burkina Faso, Mali and Niger approved through initial investment case

\*\* Lao People's Democratic Republic and Nepal approved only for introduction grant for rubella vaccine introduction

# Taking stock: the immunisation gap (73 GAVI-supported countries)

75 million surviving infants in 2000

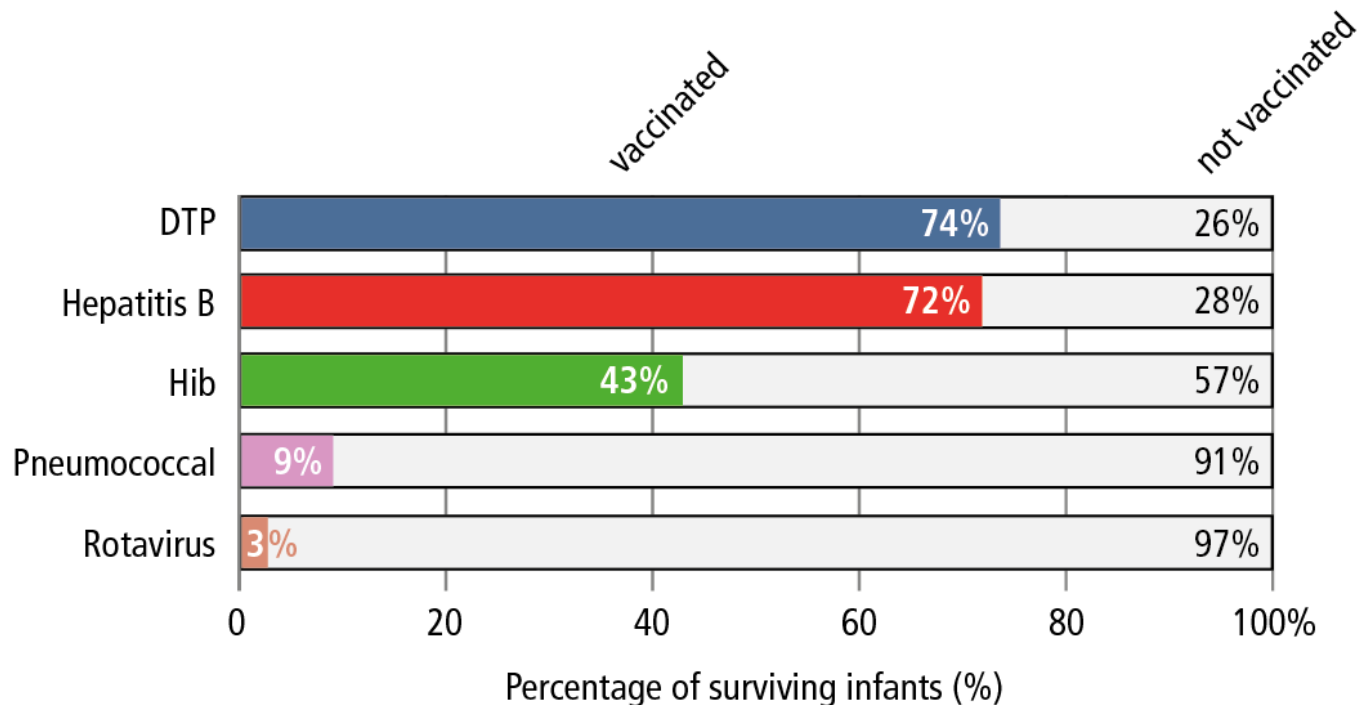


Note: Coverage refers to the final dose of each vaccine.

Sources: WHO/UNICEF coverage data from July 2013; United Nations, Department of Economic and Social Affairs, Population Division (2013). World Population Prospects: The 2012 Revision, CD-ROM Edition.

# Taking stock: the immunisation gap (73 GAVI-supported countries)

81 million surviving infants in 2012

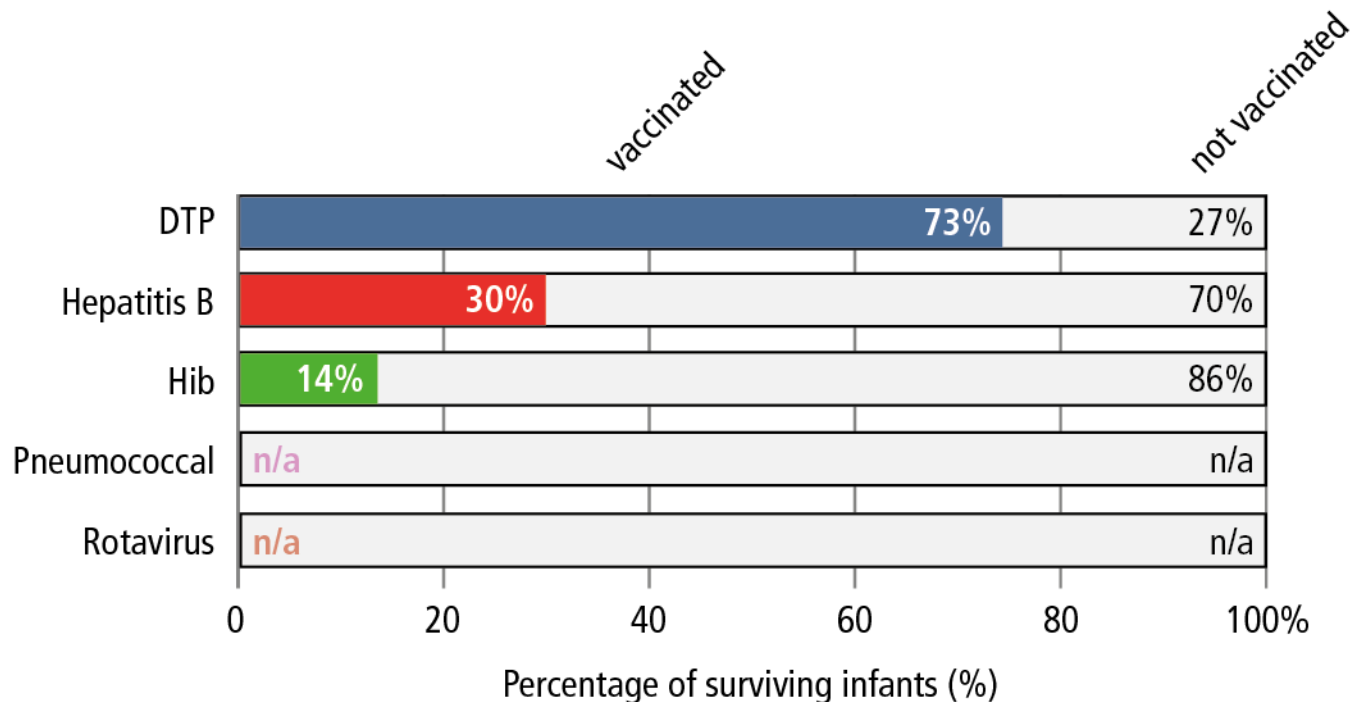


Note: Coverage refers to the final dose of each vaccine.

Sources: WHO/UNICEF coverage data from July 2013; United Nations, Department of Economic and Social Affairs, Population Division (2013). World Population Prospects: The 2012 Revision, CD-ROM Edition.

# Taking stock: the immunisation gap (global)

129 million surviving infants in 2000

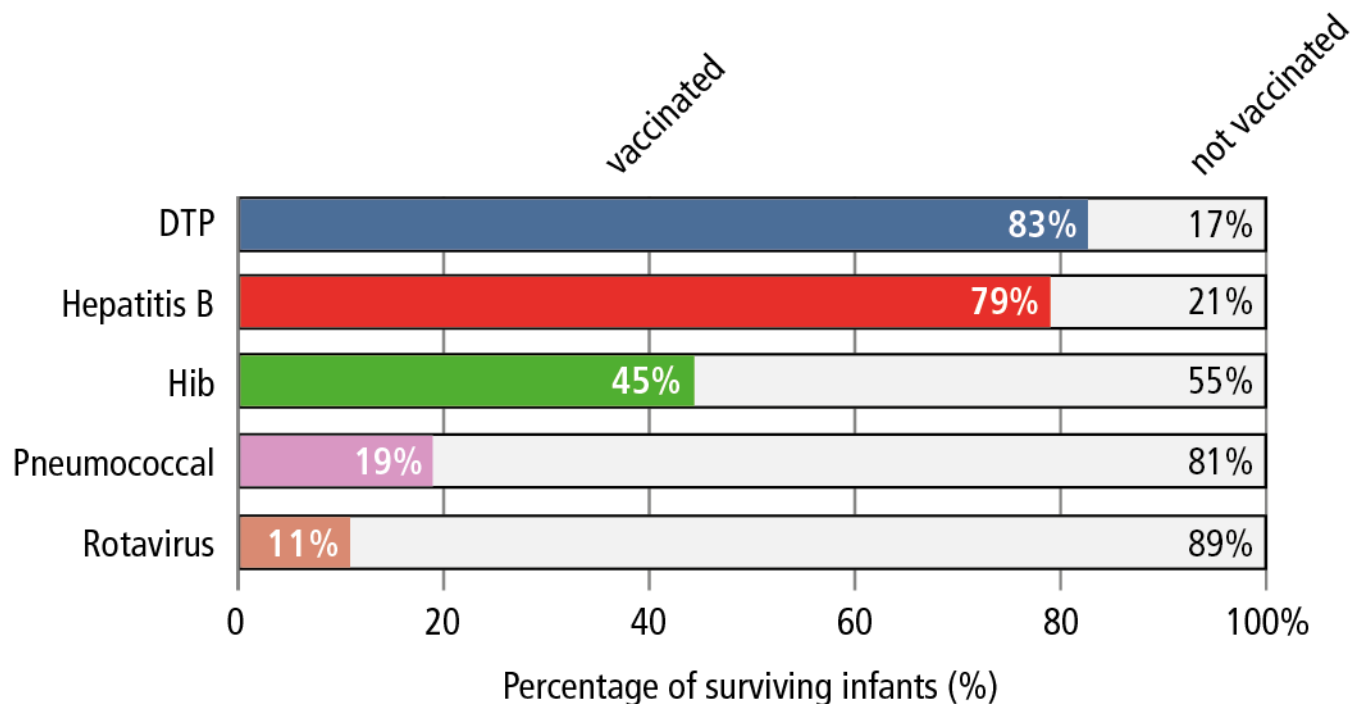


Note: Coverage refers to the final dose of each vaccine.

Sources: WHO/UNICEF coverage data from July 2013; United Nations, Department of Economic and Social Affairs, Population Division (2013). World Population Prospects: The 2012 Revision, CD-ROM Edition.

# Taking stock: the immunisation gap (global)

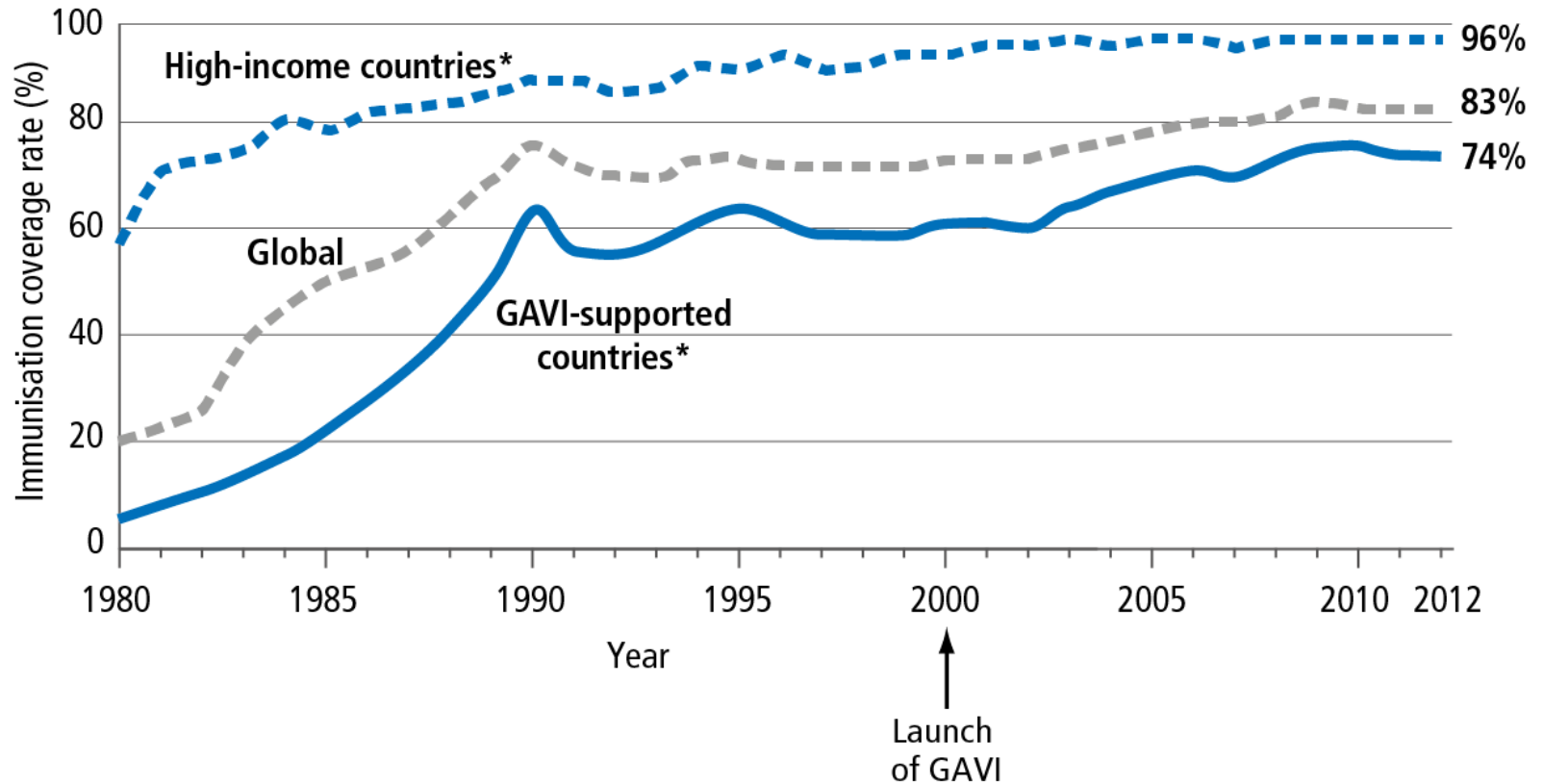
139 million surviving infants in 2012



Note: Coverage refers to the final dose of each vaccine.

Sources: WHO/UNICEF coverage data from July 2013; United Nations, Department of Economic and Social Affairs, Population Division (2013). World Population Prospects: The 2012 Revision, CD-ROM Edition.

# A strong platform



\* Based on data officially reported to WHO and UNICEF by current member states.

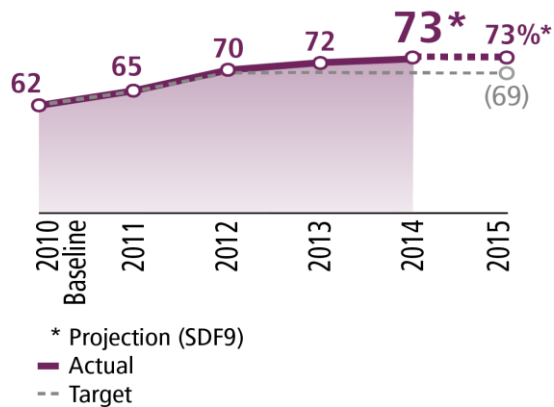
Source: WHO/UNICEF vaccine coverage estimates (July 2013) Country income categories (World Bank) as of July 2013 (2012 GNI per capita)

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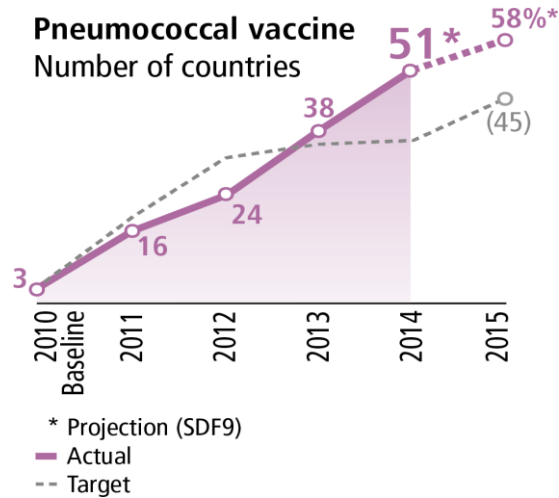


# Implementation work continues towards the reaching 2015 goals

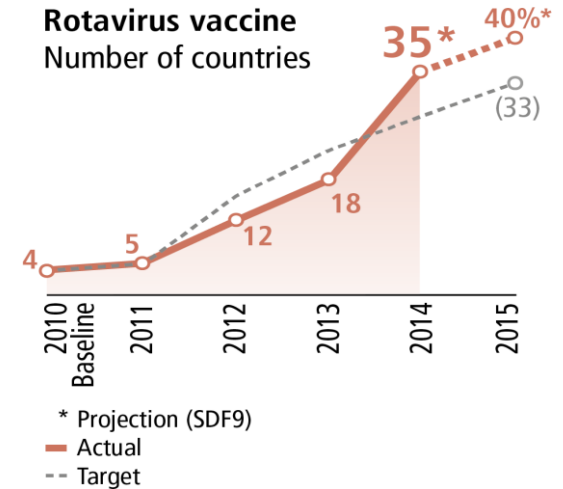
**Pentavalent vaccine**  
Number of countries



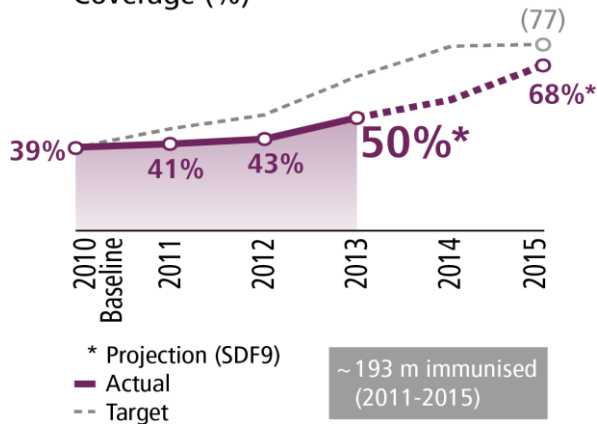
**Pneumococcal vaccine**  
Number of countries



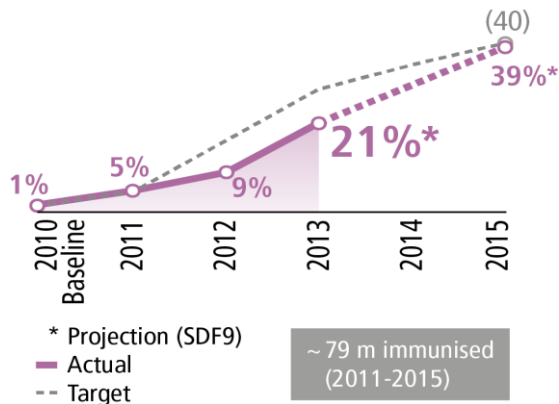
**Rotavirus vaccine**  
Number of countries



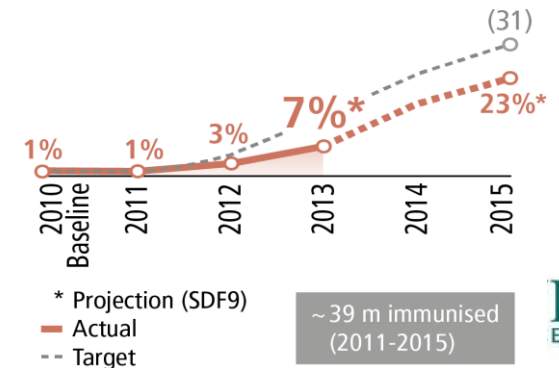
**Pentavalent vaccine, 3rd dose**  
Coverage (%)



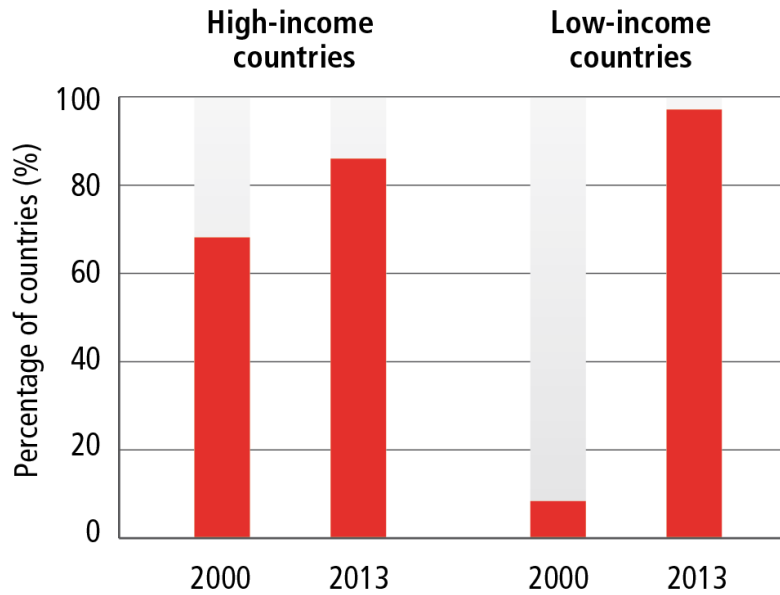
**Pneumococcal vaccine, 3rd dose**  
Coverage (%)



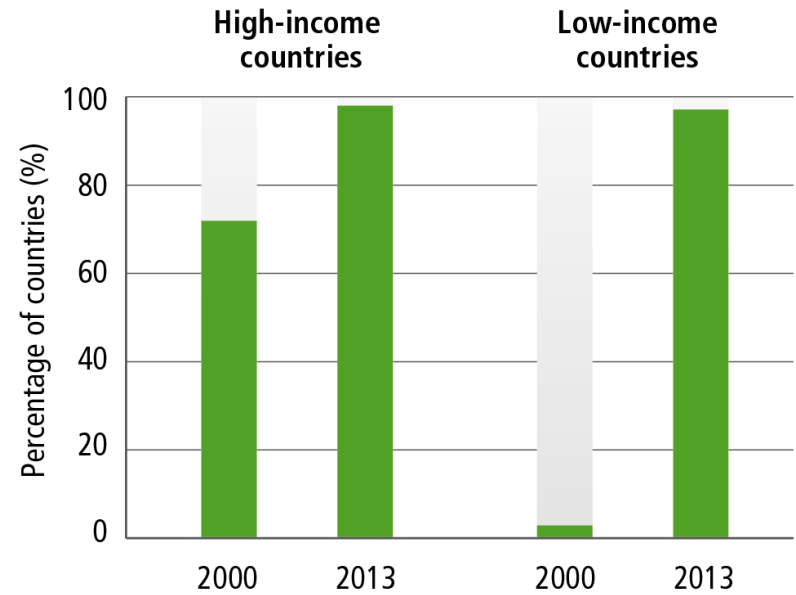
**Rotavirus vaccine, last dose**  
Coverage (%)



# Driving equity in vaccine access



**Hepatitis B**

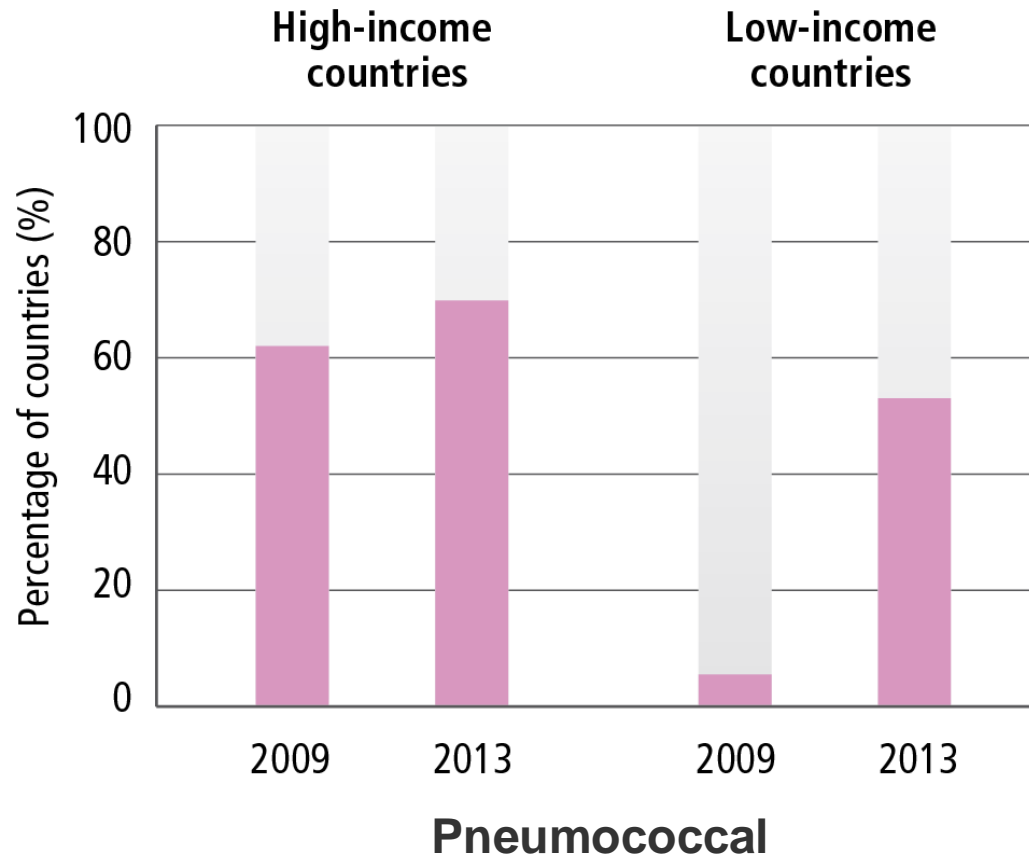


**Hib**

Source: The International Vaccine Access Center (IVAC) VIMS database. Data as of 31 Dec 2013, retrieved 20 January 2014. Note: only countries with universal national introduction are included.



# Driving equity in vaccine access



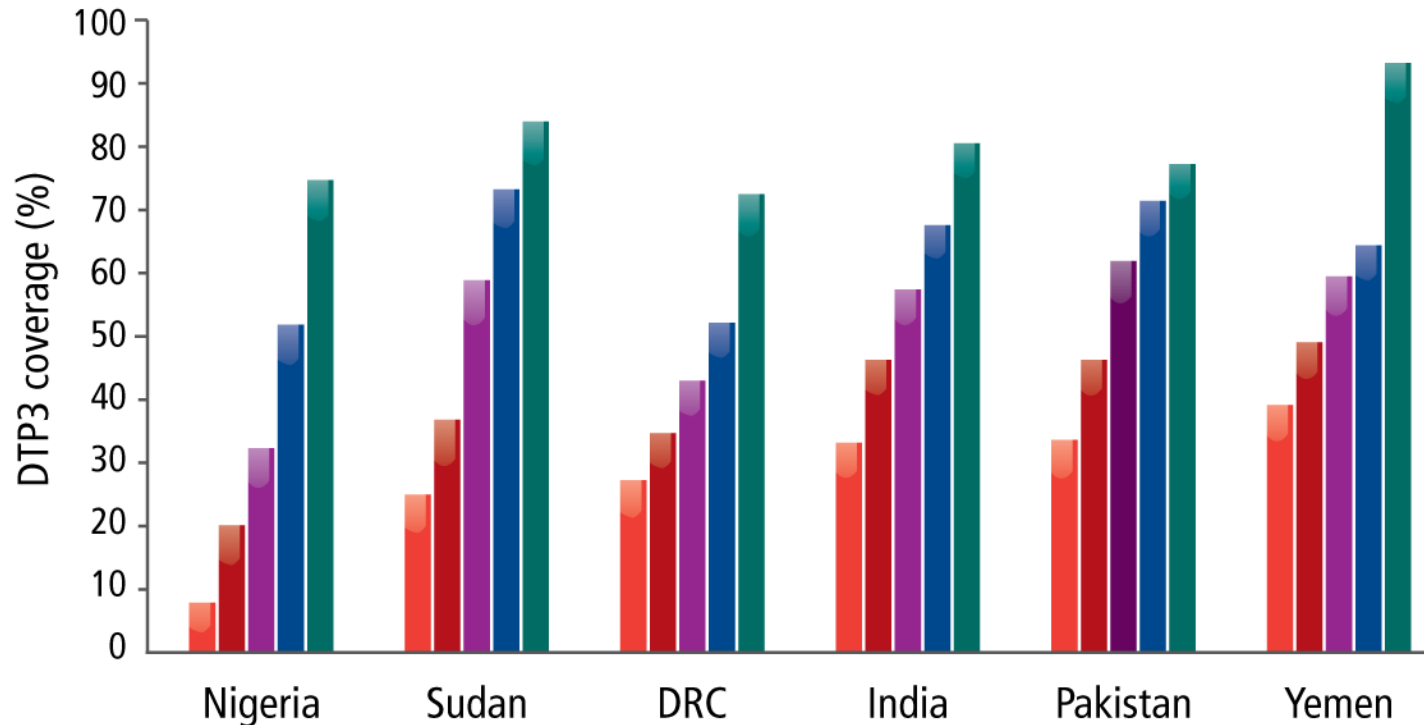
Source: The International Vaccine Access Center (IVAC) VIMS database. Data as of 31 Dec 2013, retrieved 20 January 2014.  
Note: only countries with universal national introduction are included.

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# GAVI challenges: Reaching the hardest to reach

Patterns of DTP3 vaccination coverage across wealth quintiles since 2005

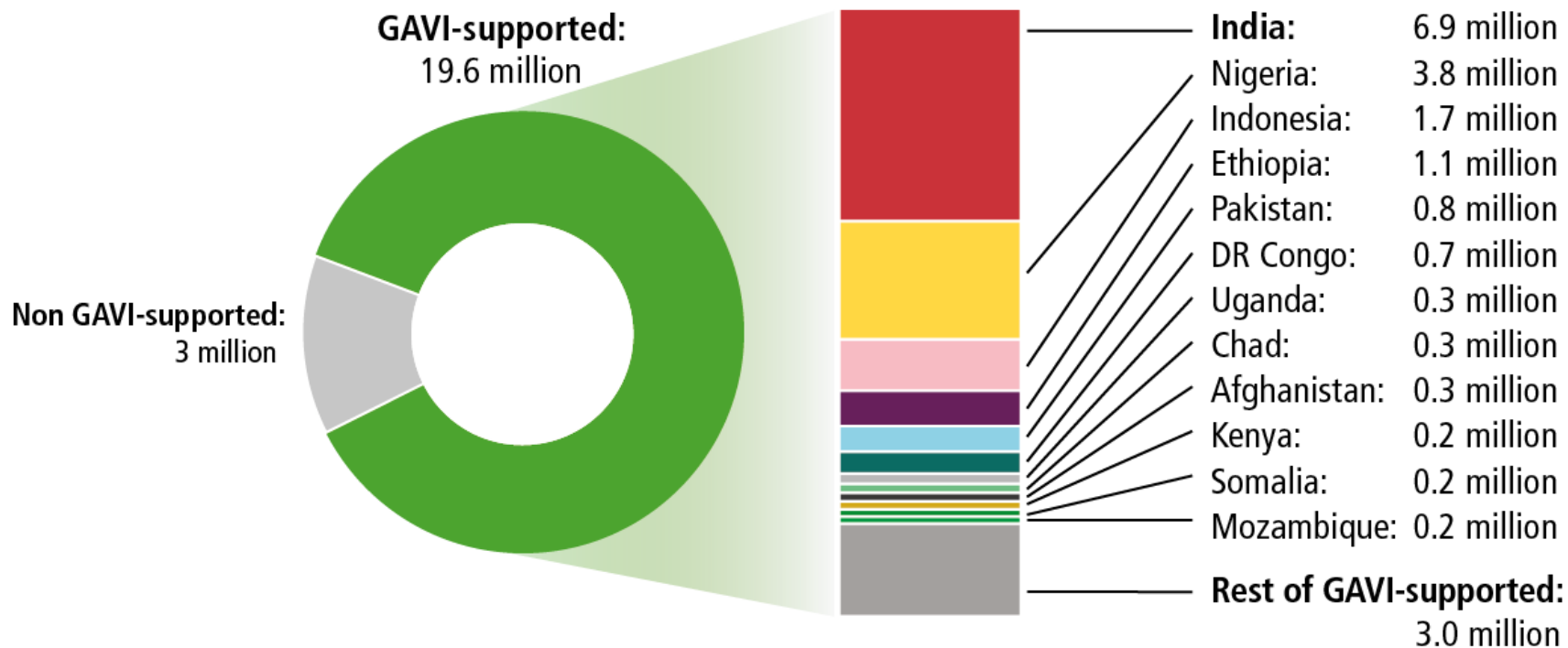


Wealth quintiles:

Lowest Second Middle Fourth Highest

# 22.6 million children still unimmunised

Global number of under-five children unimmunised with 3 doses of DTP, 2012



Source: WHO/UNICEF coverage estimates  
2012 revision. July 2013

# The fully immunised child



DTP3 long considered best indicator of the reach of routine immunisation & the strength of health systems



DTP3 coverage ~ 80% worldwide

Science has moved on

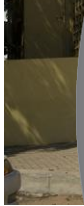
WHO now recommends 11 antigens for universal infant use

Around 5% of children fully immunised

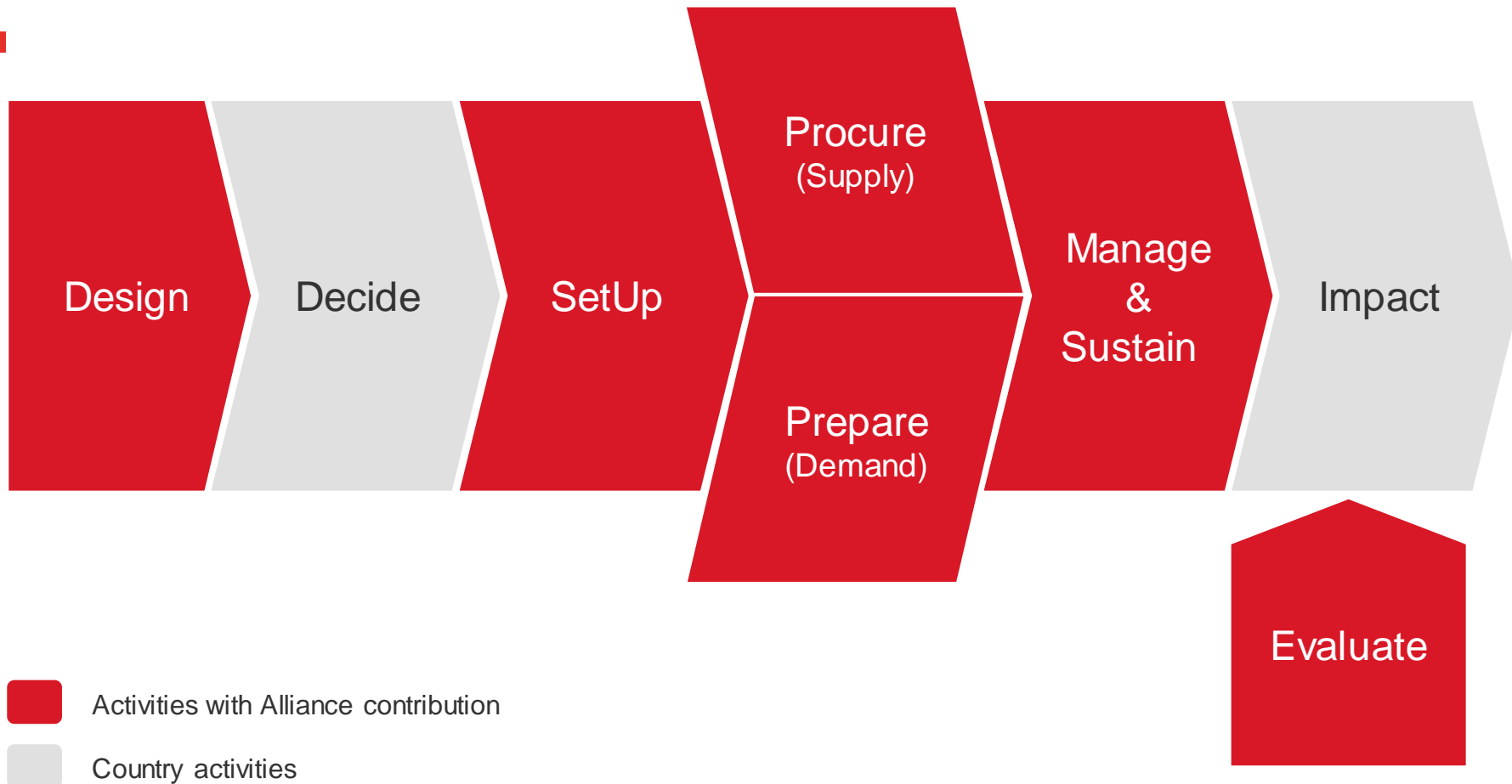




**Time to modernise  
and reset the ambition**

# GAVI model focuses on comprehensive immunisation services

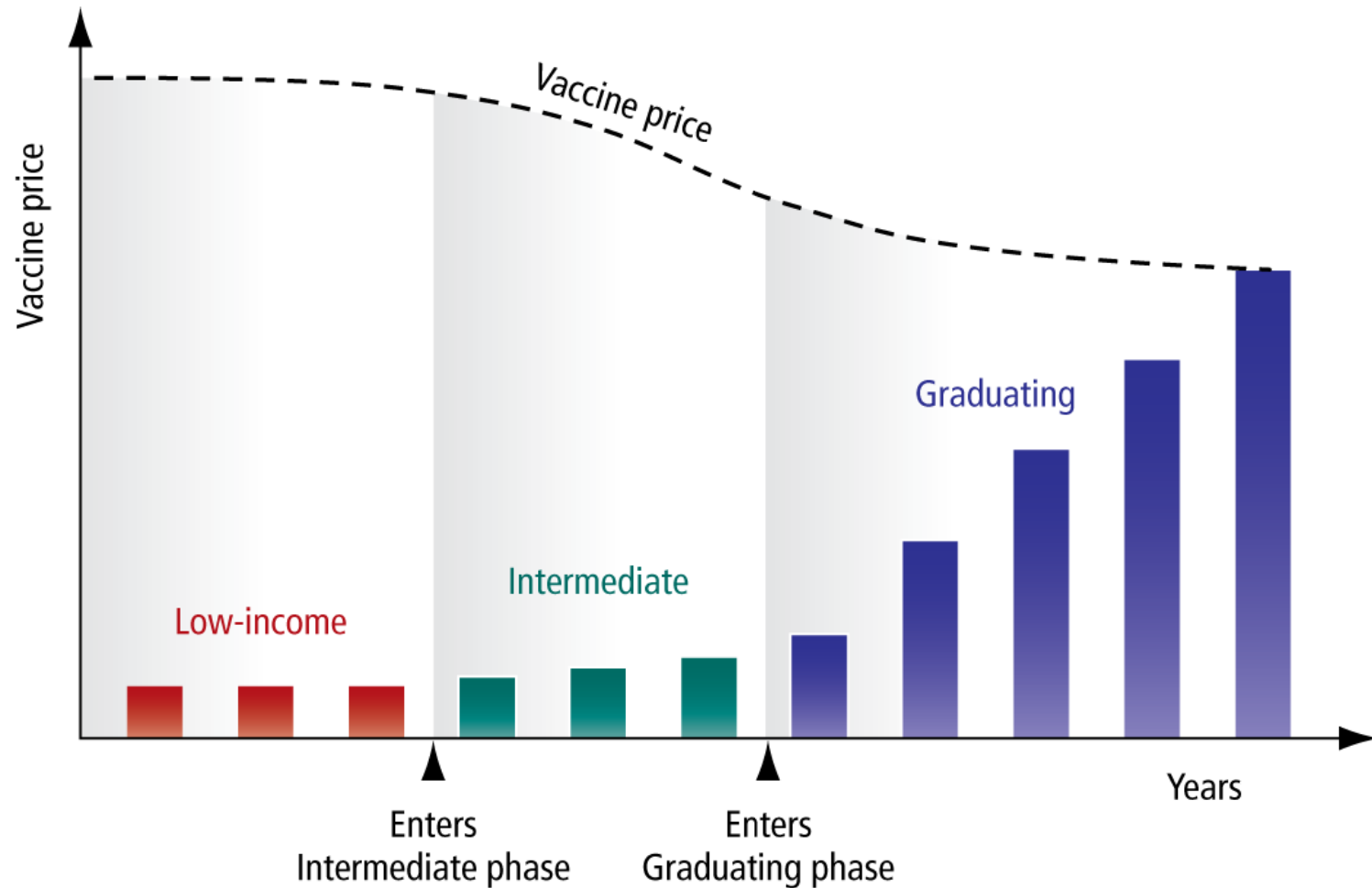


# The Alliance has an established model to manage vaccine implementation



-  Activities with Alliance contribution
-  Country activities

# How the co-financing policy works



# Health system strengthening (HSS) support

- Strong health systems essential to expand and sustain immunisation coverage
- Objective of GAVI HSS: address systems bottlenecks to achieve better immunisation outcomes
- Examples:
  - Health workforce
  - Supply, distribution, maintenance
  - Organisation, management
- More than 50 countries approved for support by end 2012



Courtesy of Aga Khan Health Services, Pakistan



# Support to civil society organisations (CSOs)

- CSOs deliver up to 60% of immunisation services in some countries
- GAVI provides support:
  - to involve local CSOs in planning and delivery of immunisation and other child health services
  - to encourage cooperation and coordination between the public sector and civil society



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# GAVI Challenges

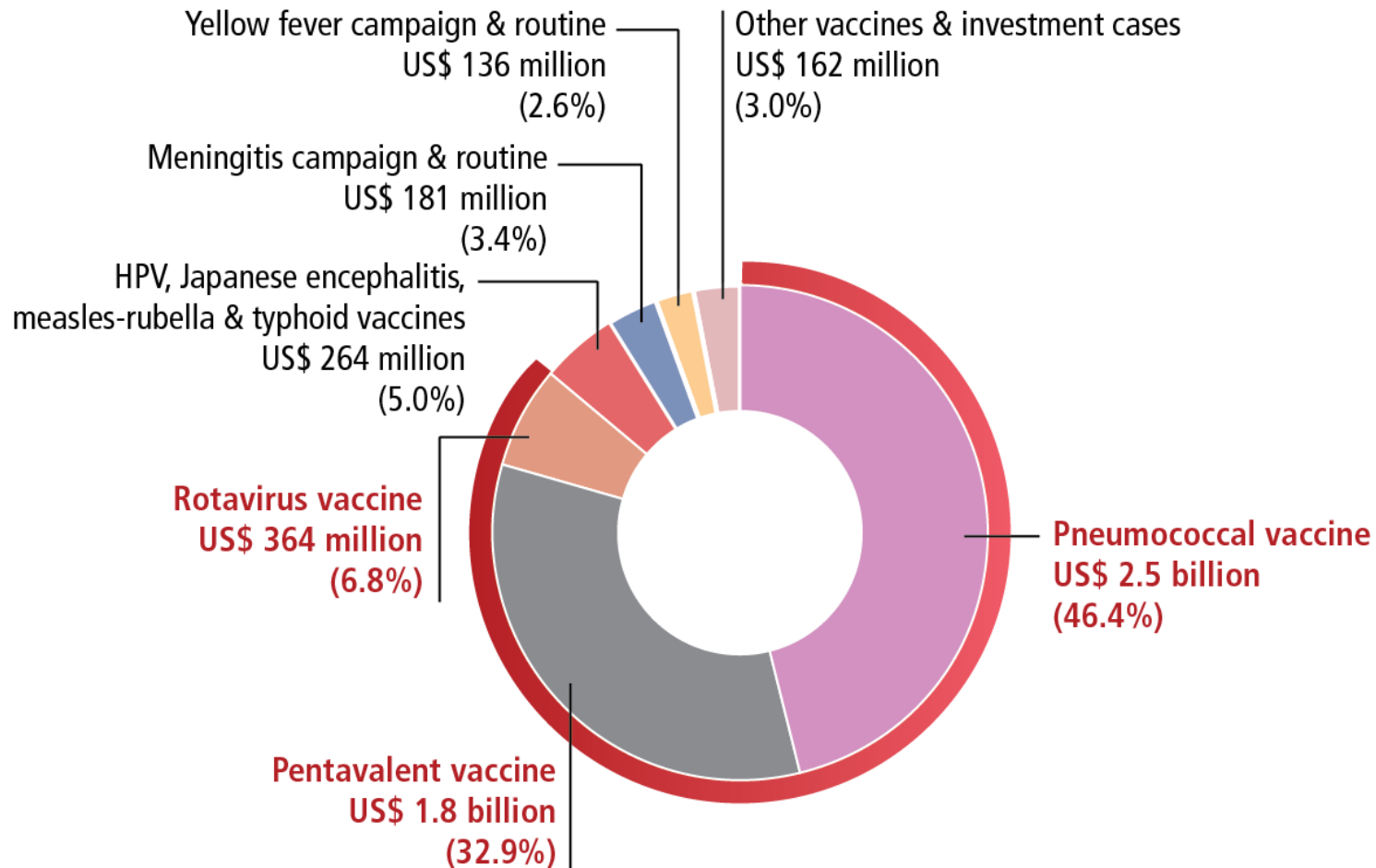


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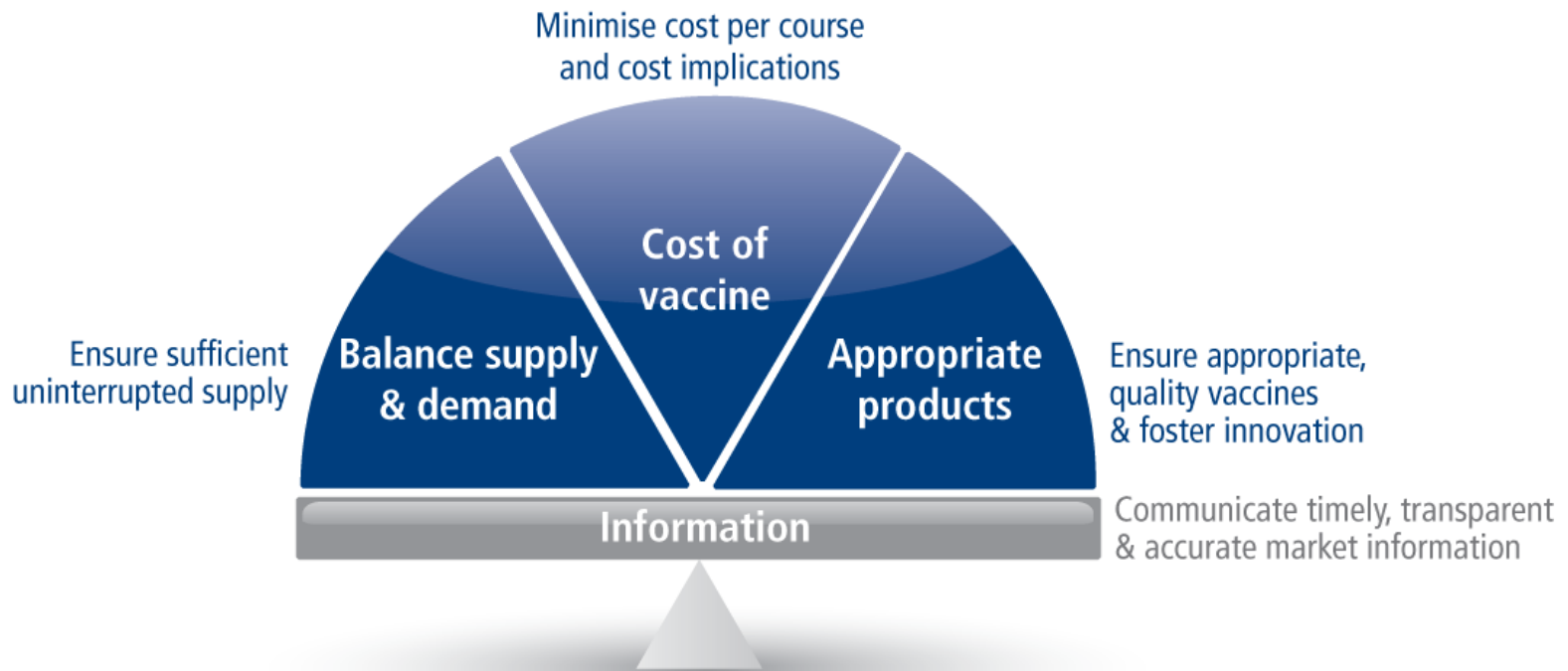


# Vaccines against major child killer diseases

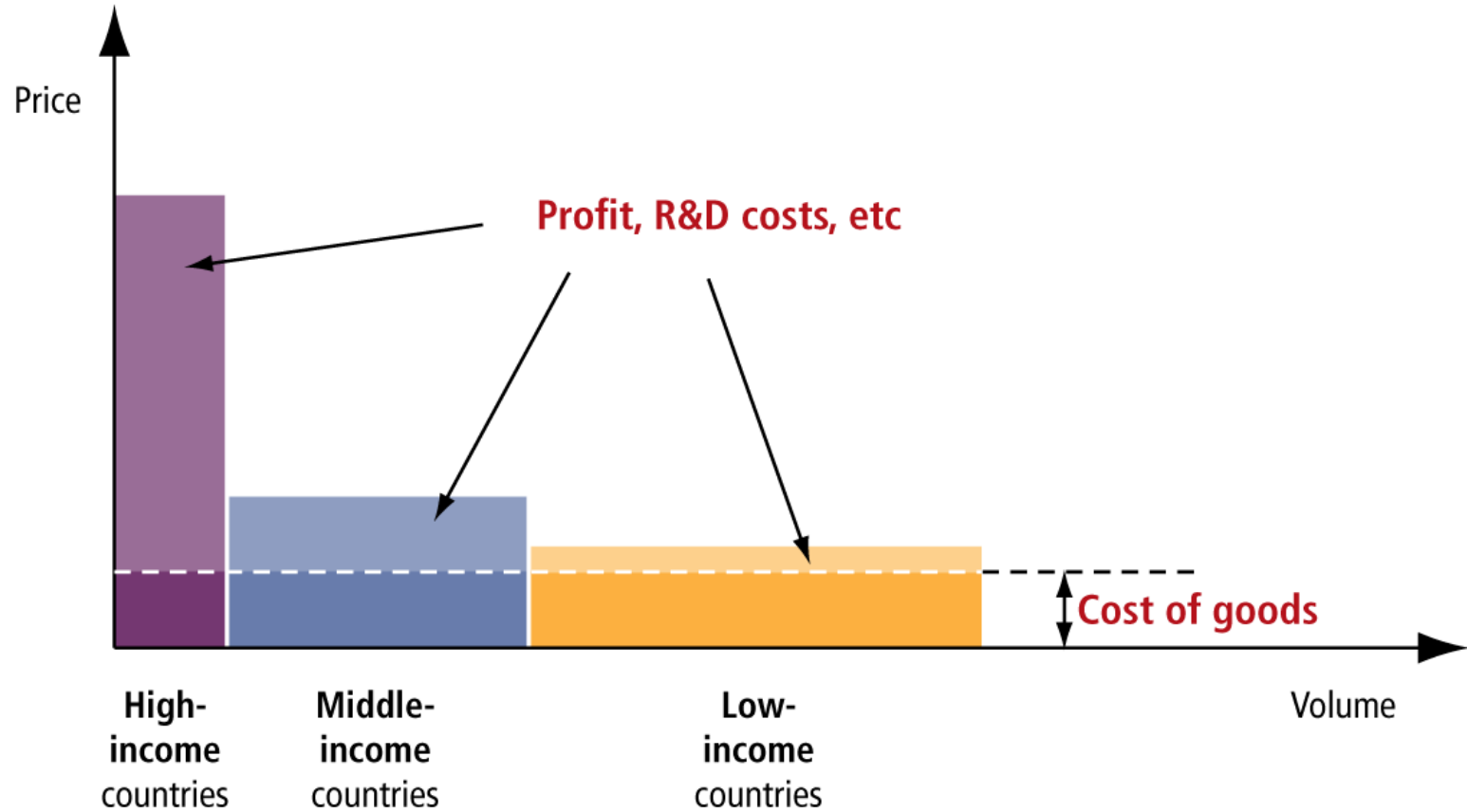
Projected GAVI vaccine expenditure 2011–2015



# Market shaping objectives

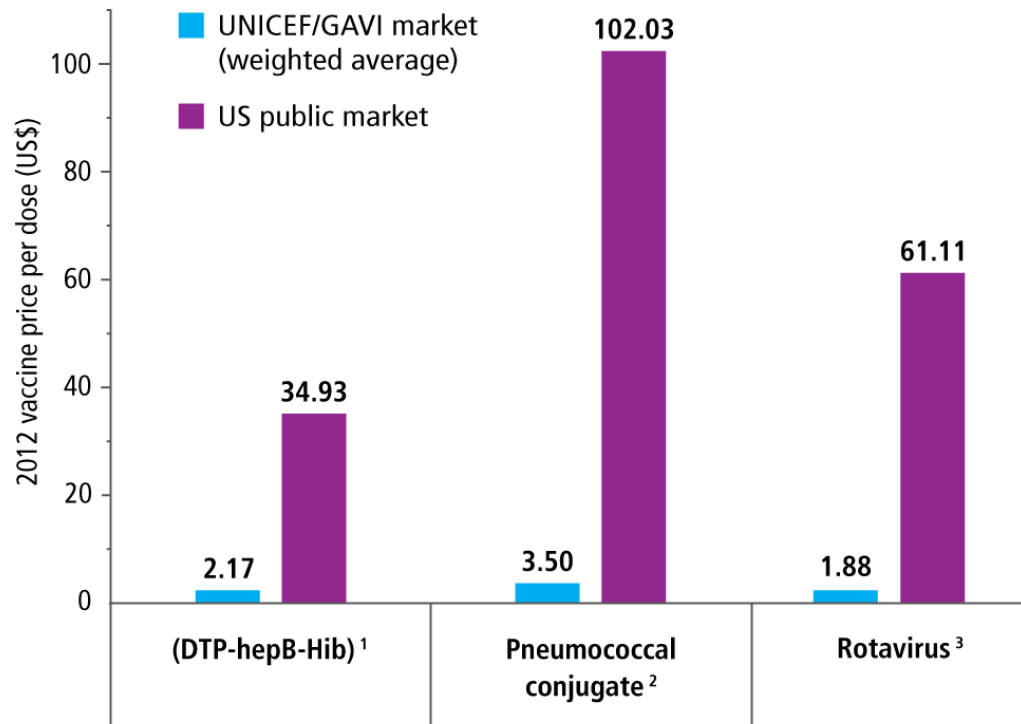


# Ramsey pricing



Source: GAVI Alliance, 2012

# Tiered pricing



<sup>1</sup> The UNICEF/GAVI price is the weighted average across suppliers and presentations of pentavalent vaccine and reflects the cost of whole-cell pertussis vaccine; the US public market price is lowest total price per dose for separate DTP, hepB and Hib vaccines and reflects the cost of acellular pertussis vaccine.

<sup>2</sup> The UNICEF/GAVI price is the tail price under the Advanced Market Commitment (AMC); the US public market price is for 13-valent vaccine.

<sup>3</sup> The UNICEF/GAVI price is the weighted average assuming 3-dose equivalence; the US public market price is the average assuming 3-dose equivalence.

# Market shaping long-term vision: Creating an environment that ensures an appropriate supply of quality vaccines at sustainable cost

## Few manufacturers:

Risk for low competition/  
high prices, insufficient  
supply and low supply  
security



Market shaping activities

## Mature market:

Multiple manufacturers, healthy  
competition, sufficient supply at  
low and sustainable prices

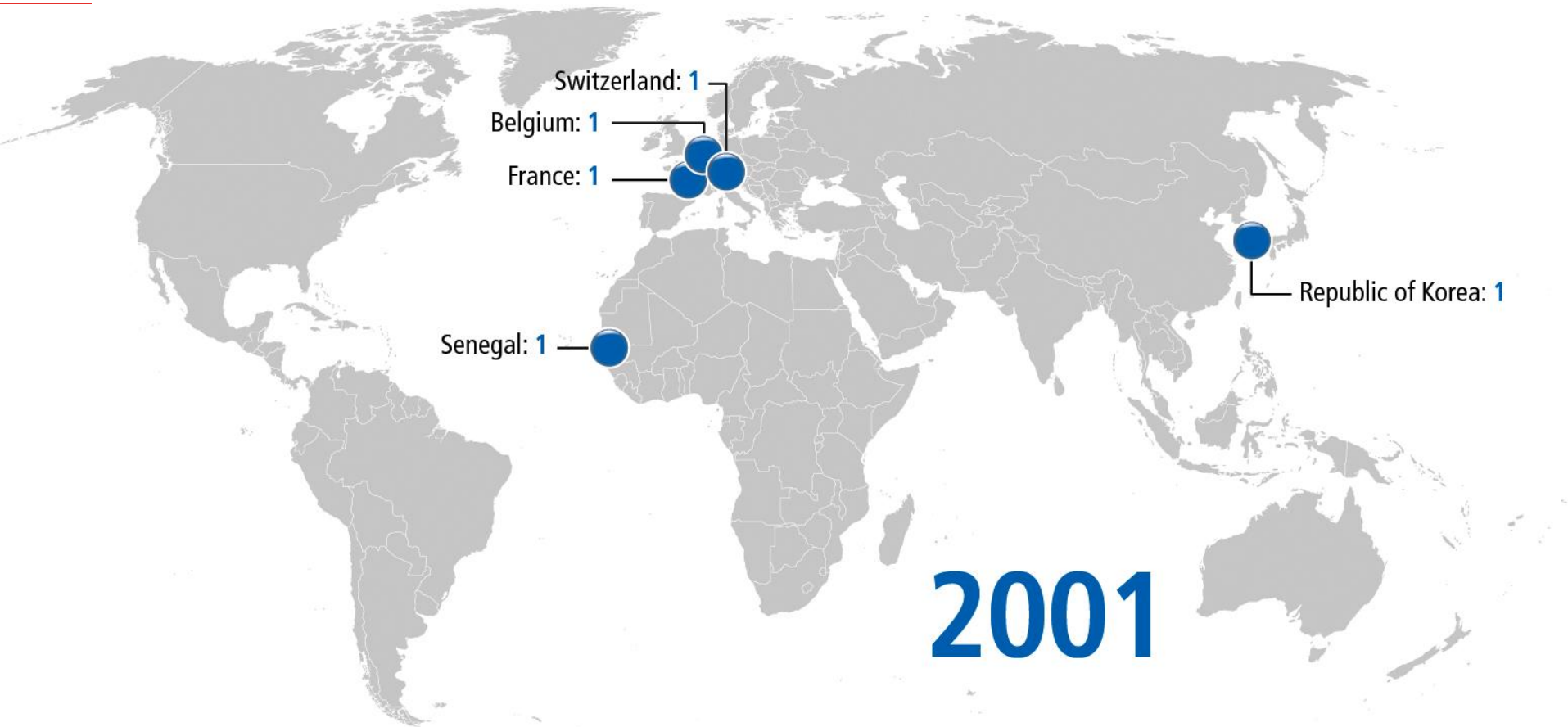


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# Vaccine supply

2001 – Vaccine supply:  
5 suppliers from 5 countries  
of production



2001



# Vaccine supply

2013 – Vaccine supply:  
13 suppliers from 10 countries  
of production



2013

# Changing the mindset of the vaccine manufacturing industry



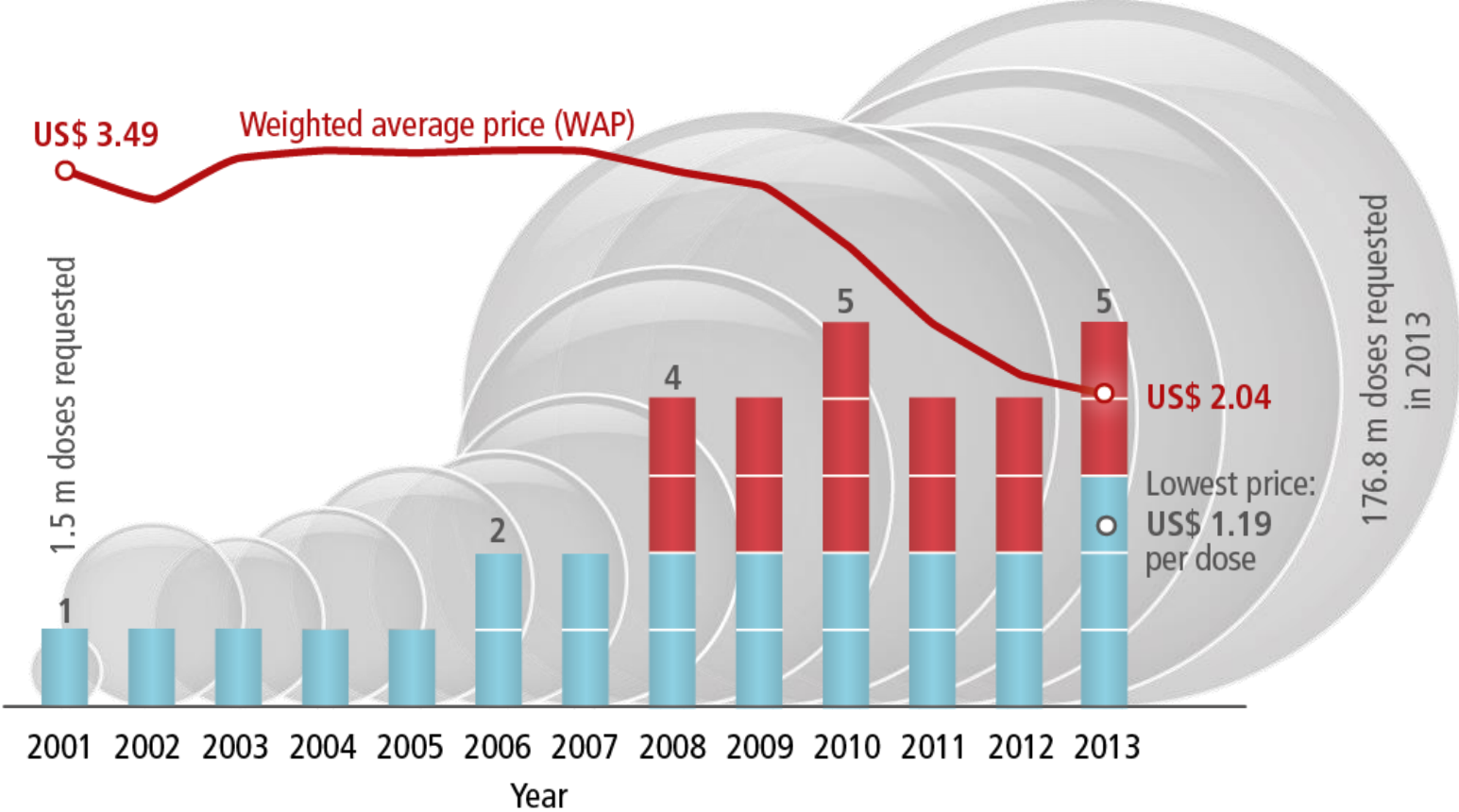
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# Changing the mindset of the vaccine manufacturing industry



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# Pentavalent vaccine: increasing volumes, growing number of suppliers, lower price



Manufacturers from which GAVI procured vaccines:

- based in low-/middle-income country
- based in high-income country

Approved number of doses requested:

● 1 million

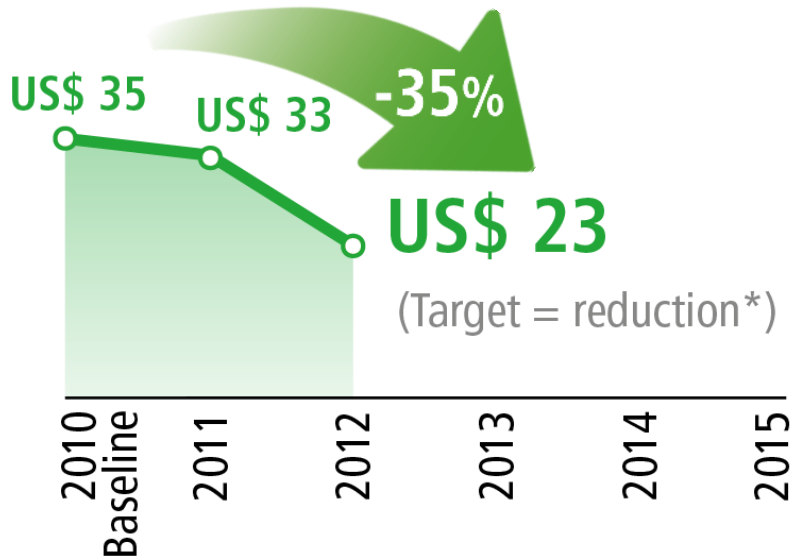
Sources: UNICEF Supply Division 2014; country annual progress reports 2012 (requested doses)



# Price of vaccine package falls

**Change in the total cost to fully immunise a child with pentavalent, pneumococcal and rotavirus vaccines**  
Selected vaccine package price (US\$)

- *April 2013:*  
new lowest price for pentavalent vaccine:  
**US\$ 1.19 per dose**

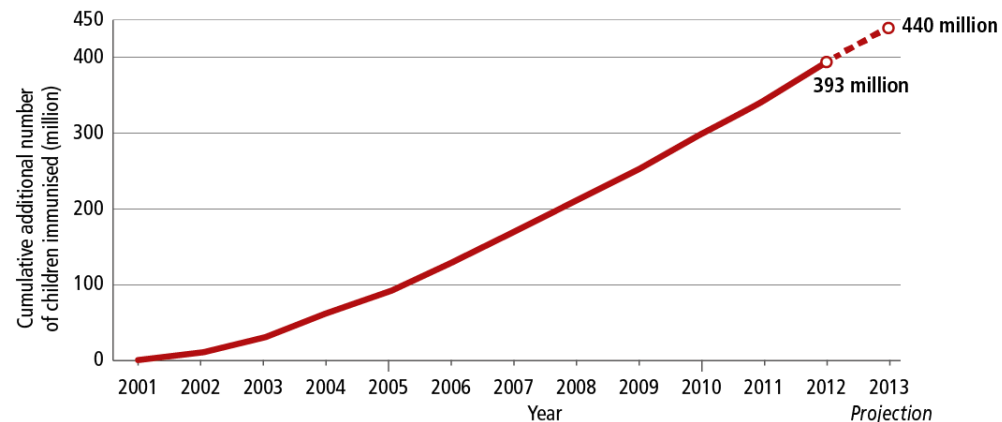


\* Future targets are not publicised to avoid setting a minimum price.

# What developing countries have achieved with GAVI support

- Immunised an additional 440 million children
- Prevented an estimated 6 million future deaths
- Accelerated vaccine introductions in over 70 countries
- Strengthened health systems to deliver immunisation
- Helped shape the market for vaccines

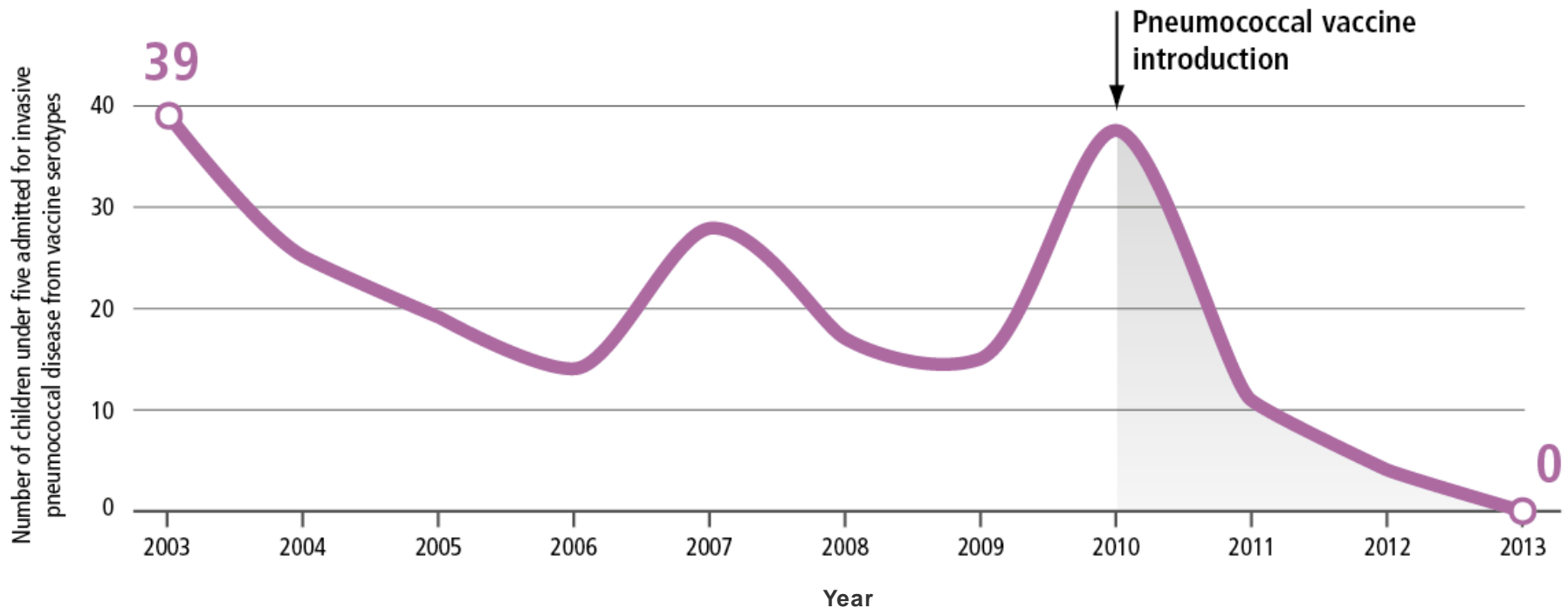
## Additional children immunised



Sources: WHO/UNICEF Estimates of National Immunization Coverage 2013; United Nations Population Division, World Population Prospects, the 2012 revision

# Early impact of pneumococcal vaccine in Kenya

Admissions of children under five with invasive pneumococcal disease from vaccine serotypes, Kilifi District Hospital, 2003–2013



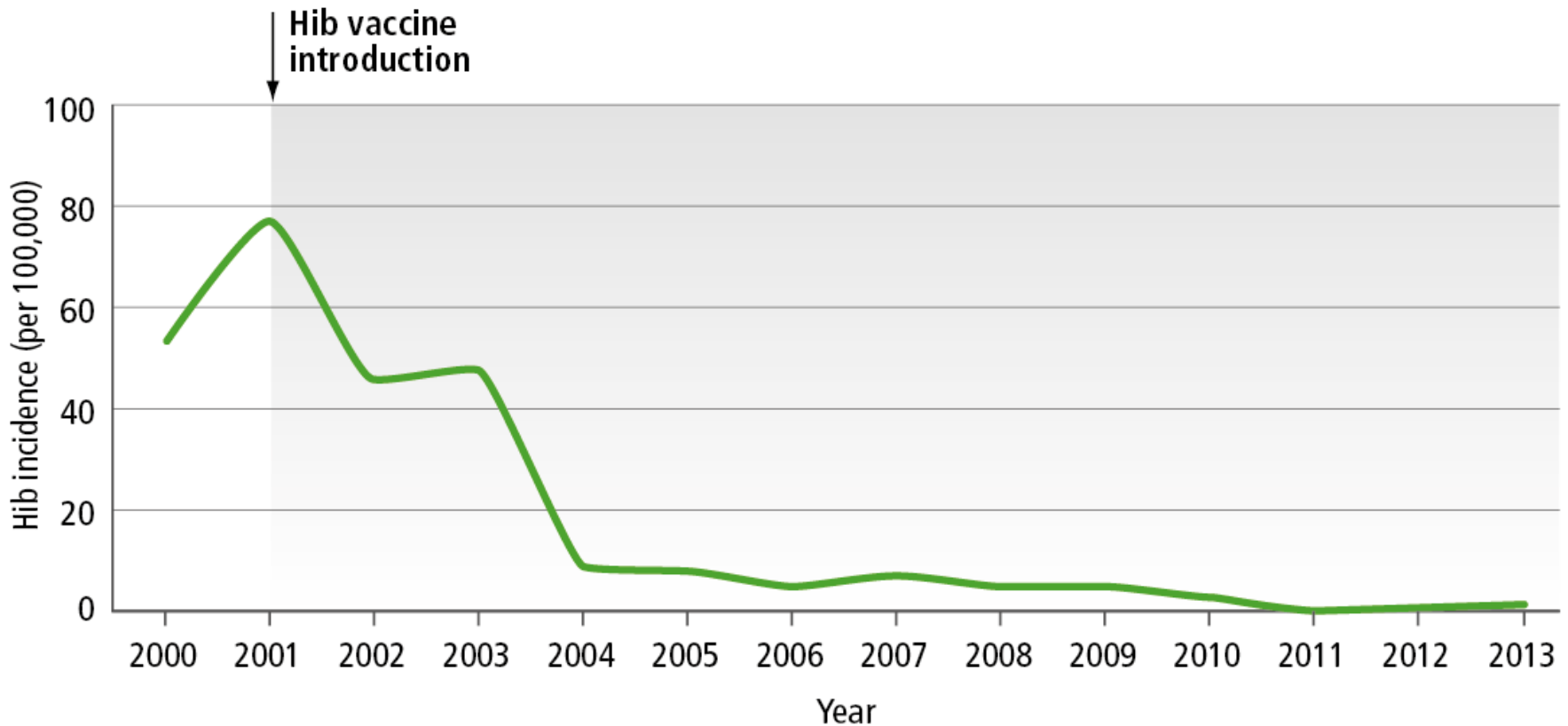
Source: Anthony Scott, KEMRI-Wellcome Trust Research Programme, Kilifi, Kenya, January 2014

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# Impact on the ground

## Eliminating Hib meningitis in Kenya (Kilifi district)

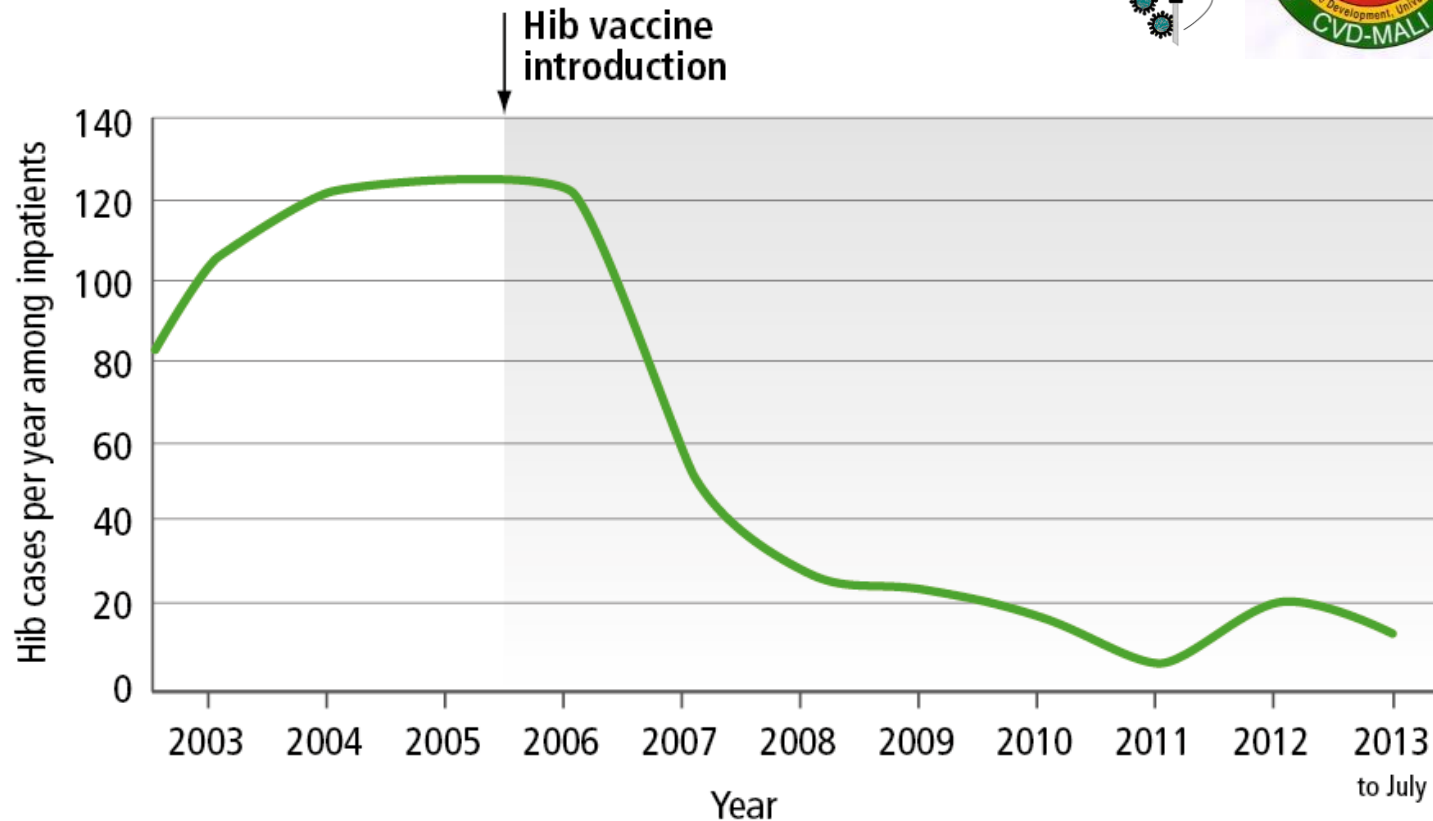
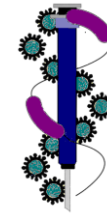


Source: Anthony Scott, Wellcome Trust Senior Research Fellow in Clinical Science  
KEMRI-Wellcome Trust Research Programme, Kilifi, Kenya, January 2014



# Impact on the ground

## Reducing Hib meningitis in Bamako, Mali



Source: Courtesy: Centre pour le Développement des Vaccins – Mali, 2013

# Impact in the meningitis belt

**150 million**  
people immunised

## Impact:

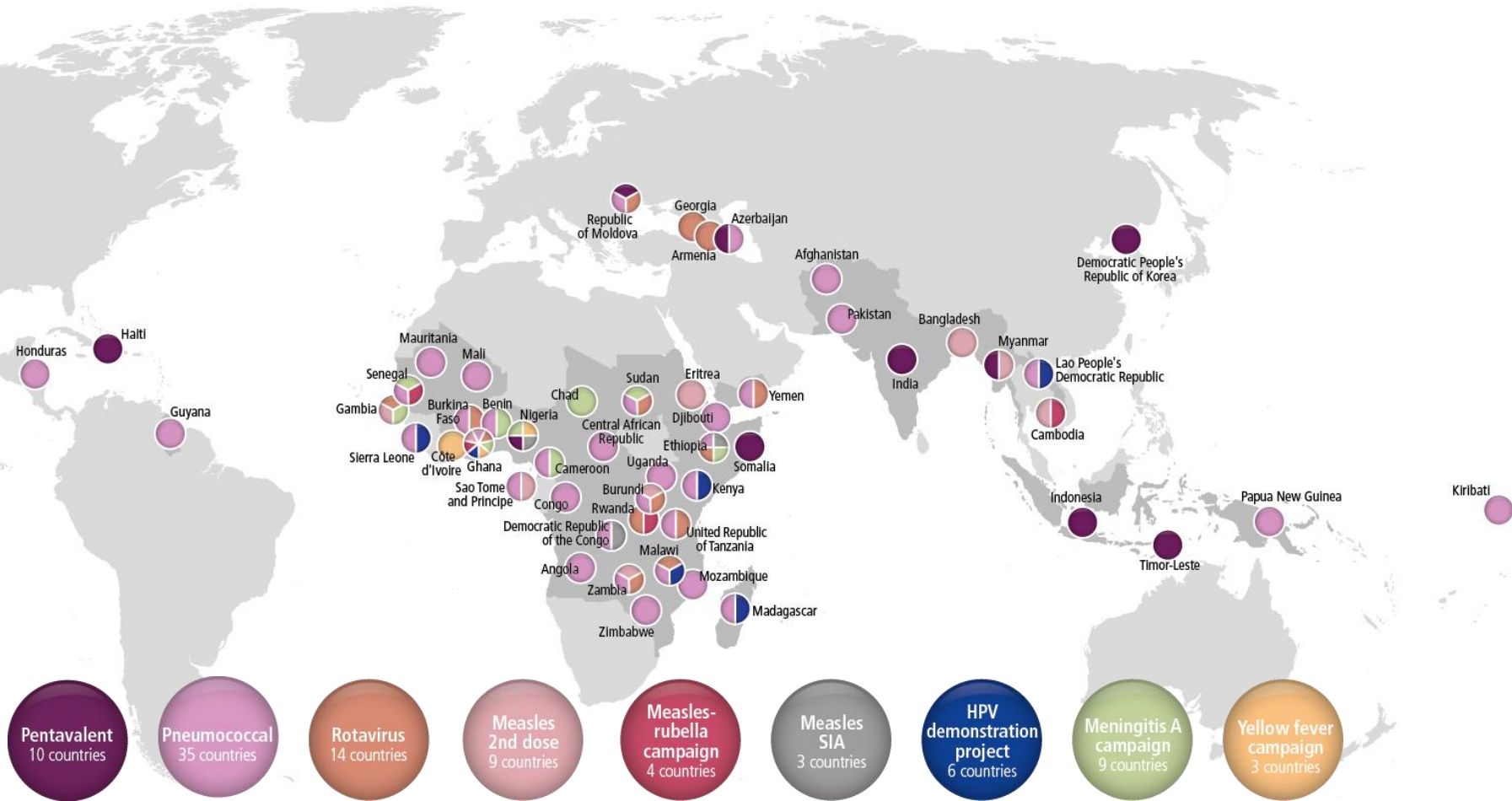
*Number of MenA cases:*

	2008	2012
Niger	842	0
Burkina Faso	156	0
Mali	16	0

Source: Preliminary WHO data as of January 2014. Impact data: Meningitis A Conjugate Vaccine Immunization Campaign. Joint WHO/UNICEF Progress Report: January to December 2012.



# GAVI-supported vaccine introductions and campaigns, 2011–2013



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Thank you





[www.gavialliance.org](http://www.gavialliance.org)