The Power of Vaccines: where they are needed the most

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Part 1: The power of vaccines



GAVI/09/Olivier Asselin



Vaccine development timeline: 1798-1910





Vaccine development timeline: 1910-2010



Cumulative number of vaccines developed





Unprecedented Results: 1980-2009

	1980	2009	Change
Global population	4,424,952	6,808,999	+54%
Diptheria Cases	97,511	857	-99%
Measles Cases	4,211,431	222,318	-95%
Pertussis Cases	1,982,355	106,207	-95%
Polio Cases	52,795	1,779	-97%
Tetanus Cases	114,251	9,836	-91%





- Today, India is one of four remaining Polio endemic countries
- As of October 11th, 2011, there has only been one reported case of Polio in India this year



Impact on the ground

Hib meningitis in Uganda drops 85% in 4 years (3 sentinel hospitals)





Taking stock: the immunisation gap

136 million surviving newborns in 2010:



Source: Johns Hopkins Bloomberg School of Public Health; UN,DESA, Population Division; WHO/UNICEF



NCDs? Cancer known to be caused by infectious agents worldwide

Agent	Site	#CA	%CA
H Pylori	Stomach	592,000	5.5%
HPV	Cervix, other	561,200	5.2%
HBV, HCV	Liver	535,000	4.9%
HHV-8	Kaposi's sarcoma	54,000	0.9%
Schistosoma	Bladder	9,000	0.1%
HTLV-1	Leukemia	2,700	
Total	1	,900,000	18%

DM Parkin (2006) Int J Cancer; Cancer cases were from 1980 estimates Courtesy Dr Mark A Kane



Hepatitis B carrier prevalence in children before and after immunisation introduction



Children born before hepB introduction Children born after hepB introduction



Part 2: Equity and the developing world



Photo credits: GAVI/09/Dan Thomas



Accelerating Hepatitis B vaccine introduction in low-income countries





Driving equity in vaccine access

Routine use of vaccines in high- and low-income countries





Comparison of cervical cancer incidence and mortality by country-income



Source: World Health Organization, Women and health report 2009



Coverage differences in poorer and rural areas

Full children immunisation in India



Source: Immunization in India, HNP discussion paper, March 2006, data available from 1999



Courtesy of DoV collaboration

Over 19 million children still missing out

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



*From 2011, GAVI has 57 eligible countries.



Source: WHO/UNICEF coverage estimates 2010 revision. July 2011



Part 3: Why GAVI









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



GAVI's mission and four strategic goals

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

- Accelerate the uptake and use of underused and new vaccines
- Contribute to strengthening the capacity of integrated health systems to deliver immunisation
- Increase the predictability of global financing and improve the sustainability of national financing for immunisation
- Shape vaccine markets



The GAVI Alliance: an innovative partnership





GAVI Alliance: a partnership















BILL& MELINDA GATES foundation



GAVI has supported countries in preventing more than 5.5 million future deaths



Source: These estimates and projections are produced by the WHO Department of Immunization, Vaccines and Biologicals, based on the most up-to-date data and models available as of 30 September 2011. *Polio estimate includes deaths averted by vitamin A supplements supported by GAVI.



Country demand: record number of vaccine applications approved



* Includes measles second dose, meningitis A and yellow fever vaccines



Targeting support where it is most needed

Pneumococcal disease cases





Source: WHO

Pneumococcal vaccine introductions: introduced, approved and forecast





Rotavirus mortality in children under five, 2008 estimate

95% of deaths occur in GAVI-eligible countries



Source: *Tate J, Burton A, Boschi-Pinto C et al.* 2008 estimate of worldwide rotavirus-associated mortality in children younger than 5 years before the introduction of universal rotavirus vaccination programmes: a systematic review and meta-analysis. *The Lancet Infectious Diseases*, Early Online Publication, 25 October 2011.



Rotavirus vaccine introductions: introduced, approved and forecast



GAVI

Health system strengthening (HSS) support

- Strong health systems essential to expand and sustain immunisation coverage
- Examples:
 - Health workforce
 - Supply, distribution, maintenance
 - Organisation, management
- Platform for harmonising HSS funding
 - Partnership with the Global Fund, the World Bank and WHO



Courtesy of Aga Khan Health Services, Pakistan



United Kingdom Multilateral Aid Review

March, 2011



Note: 1 includes humanitarian objectives



US\$ 5.7 billion committed to countries

As at 30 April 2011





Source: GAVI Alliance data as at 30 April 2011

Part 4: Long term sustainability





Photo: WHO/Olivier Asselin



Factors Affecting Vaccine Availability





Tiered pricing



- * Average price per dose for 3-dose vaccines between 2006–2009.
- ** 2010 price for 13-valent vaccines (US public market) and price for AMC vaccines (UNICEF/GAVI market). Under the AMC, companies will receive an additional payment of US\$ 3.50 per dose for approximately 20% of the total number of doses they provide. This additional payment is funded by donor commitments.
- *** 2010 average price per dose assuming 3-dose equivalence among available products (US public market). Price through UNICEF not yet available.



The co-financing policy is very successful









Examples of Innovative Financing Mechanisms

- International Financing Facility for Immunisation (IFFIm)
 - Funds GAVI Alliance through sale of donor-backed AAA bonds; raised \$3.4B
- Advance Market Commitment
 - Incentivised development, manufacturing of pneumococcal vaccine for the developing world by guaranteeing a market through donor commitments.
- 1 + 1 + 1 Matching Fund
 - Donor + Corporate + Customer/employee; new champions from the private sector



Part 5: Future challenges and opportunities



GAVI/2011/ Doune Porter



Acceleration of new vaccines development, 1980-2020





Source: Applied Strategies - Project Optimize Vision Workshop, Landscape Overview, June 2010

Potential new vaccines for GAVI

- HPV: The cause of cervical cancer, which kills over 270,000 women every year; 85% of deaths are in developing countries
- Rubella: More than 90,000 Congential Rubella Syndrome cases in GAVI countries
- Japanese Encephalitis: Regional infection; 50-100,000 cases; 30% fatal
- Typhoid: 200,000-600,000 cases per year
- Malaria: major cause of child mortality in Africa, phase III results shortly
- Dengue, TB, etc. all in development, keeping close watch... and of course, HIV which is undergoing a renaissance...



The immunisation landscape



Thank you



