The Role of Technology Transfer in Sustainable Access to Vaccine Innovation:
Conditions for Success
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Meeting country and community needs: how technology transfer can deliver better adapted and affordable vaccines

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Rising to the challenge
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GAVI CSO Constituency
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Vaccines: limitations of the current tools

- Most vaccines still require
  - Multiple doses
  - Needle-injection
  - Cold chain / heavy logistical capacity
- Most vaccines still designed for disease epidemiology of industrialized countries
- Despite non-ideal products, there are supply shortages of preferred vaccine presentations
  - Limited 10-dose liquid pentavalent vaccine (2 WHO pre-qualified suppliers)
  - Postponed rotavirus vaccine introductions due to country requests for 2-dose GSK product
- Lack of competition keeps vaccine prices high

Technology transfer: the context

- Significant reduction in global vaccine suppliers since 1970s

- Limited number of suppliers - <40 manufacturers, with 90% of vaccines produced by 15 companies

- Large *volume* of vaccine sales from developing country suppliers; vast majority of *value* of sales from developed country suppliers

- Most technology transfer agreements to China, India, Brazil, Indonesia; few to African countries

- Numerous technology transfer models

Source: Increasing access to vaccines through technology transfer and local production, WHO 2011

Technology transfer: promising deliveries

- MenAfriVac
- Technology transfer: SynCo BioPartners (Amsterdam), US FDA, Serum Institute of India, Aerial (France)
- Facilitated by PATH, WHO, with Gates Foundation funding
- Delivered an affordable (<$0.50/dose) vaccine, for Africa's needs

Source: http://www.meningvax.org/

Vaccines: limitations of the current tools, rotavirus vaccine

Rotarix (GSK)

- Volume: 17.1cm^3
- Stability: VVM 14
- GAVI Price: course $5.00
- Doses: 2

RotaTeq (Merck)

- Volume: 46.3 cm^3
- Stability: No VVM
- GAVI Price: course $10.50
- Doses: 3

GAVI -supported intros: Nicaragua, Bolivia, Honduras, Guyana, Sudan, Ghana, Rwanda, Yemen, Armenia, Moldova, Georgia, Malawi, Tanzania

Vaccines: limitations of the current tools, rotavirus vaccine

- Rotarix and RotaTeq : 85% vaccine efficacy (VE) in industrialized countries

Lower efficacy in developing countries

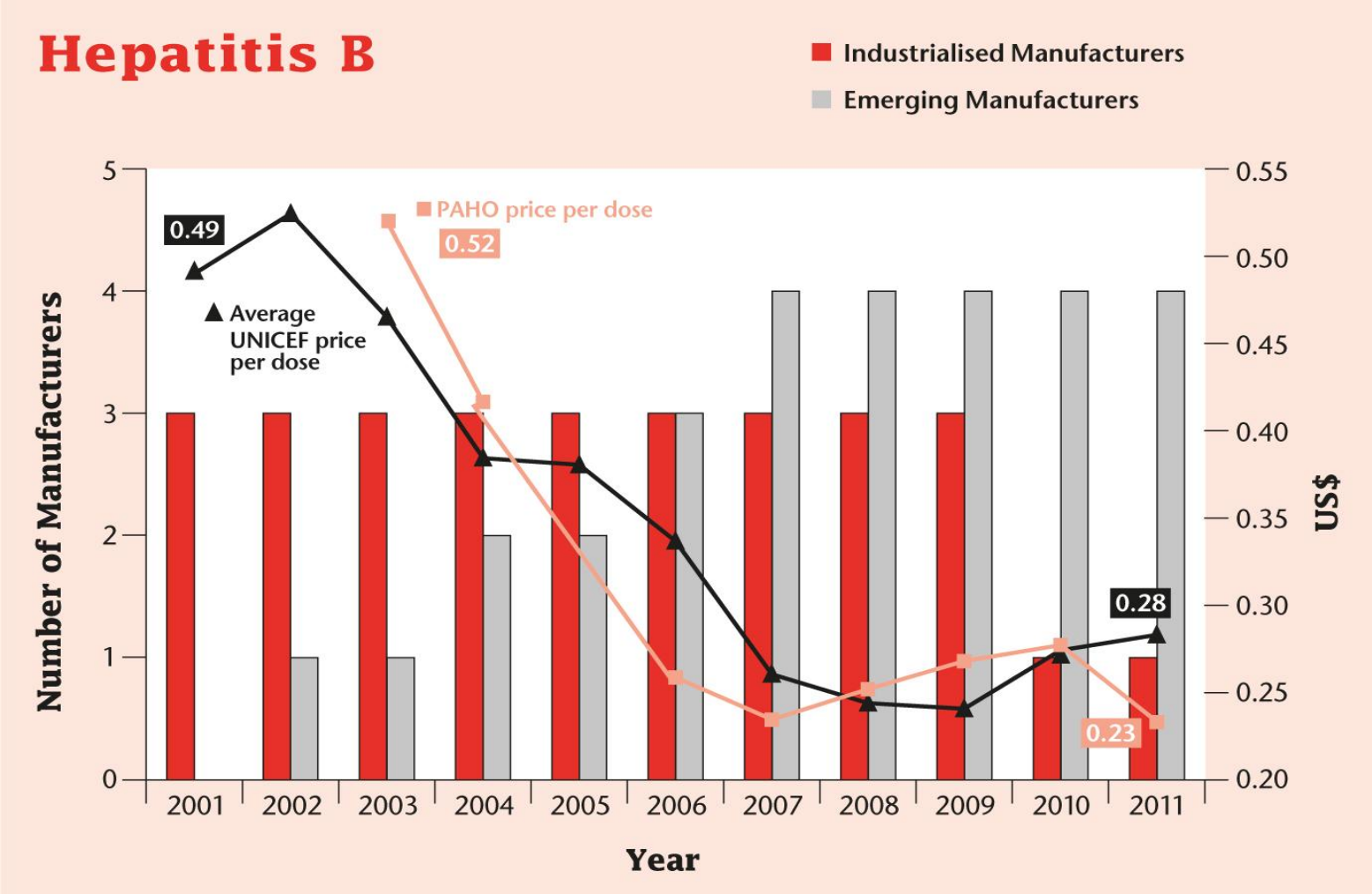
Asia & Africa: consistent study results

- Rotarix: 49.4% vaccine efficacy (VE) in Malawi and 76.9% VE in South Africa during the first year of life
- RotaTeq: 64.2% VE in rural Ghana, Kenya and urban Mali
- RotaTeq: 51% in rural Bangladesh and urban Vietnam

More studies on reasons for lower efficacy needed

1. Madhi SA et al. The New England Journal of Medicine, 28 January 2010; 2. Armah GE et al. The Lancet, 4 December 2010; 3. Zaman K et al. The Lancet, 4 December 2010; 4. Cunliffe et al. Vaccine 2012

Vaccines: increasing competition to reduce price



Questions: technology transfer to develop better products?

- How can we bring manufacturing closer to the places that best know their needs?
- How can we use technology transfer to further this goal, understanding the ‘vaccines business’ context?
- What additional resources are in these places that can accelerate their manufacturing potential (research, public resources, political will?)
- What steps are needed to make this a reality? Role of global institutions (WHO), donors (GAVI), private sector, procurement agents (UNICEF SD), regulators (NRA), civil society, etc.

Moving beyond the current model: making the most of technology transfer

- Advocate for technology transfer to be used for adapted product development
- Broaden the group involved in technology transfer: purchasers (GAVI), governments, regulators, advocates/civil society, etc.
- Pursue technology transfer arrangements that prioritize government/ public sector involvement; demands should come from countries
- Call for greater transparency around technology transfer agreements
- Utilize technology transfer for greater vaccine price reduction goals
- Prioritize creating the markets in the places where products are used (products developed in Africa for Africa)

Technology transfer not a magic solution

Thank you

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