

PROGRAMS: THE IMPORTANCE OF VACCINES

VillageReach is a non-profit social enterprise. Its mission is to save lives and improve well being in developing countries by increasing last-mile access to healthcare and investing in social businesses that address gaps in community infrastructure. To address the healthcare needs of remote, underserved communities, VillageReach delivers two interconnected solutions: a *logistics platform* to improve cold chain performance, delivery of vaccines and other medical commodities, and information management for health systems in rural areas; and an *incubation platform* to launch and develop social businesses that deliver essential infrastructure services required to support health systems.

WHY VACCINES?

While the VillageReach logistics platform can be applied to all parts of the public health system, VillageReach has initially focused on immunization systems because for more than 30 years, childhood immunization has been recognized as one of the most effective and affordable health interventions possible.

BURDEN OF DISEASE

Vaccine-preventable diseases continue to kill 2.4 million children annually and leave millions more severely impaired despite the existence of low-cost vaccines that are readily available in the developed world.¹ In 1974, the World Health Organization (WHO) and its international and national partners launched the Expanded Program on Immunization (EPI) to combat measles, pertussis, polio, diphtheria, tuberculosis and tetanus, resulting in a dramatic increase in immunization coverage from 5% to 78% worldwide in 2004. Millions of lives have been saved because of the leadership, priorities, guidelines and coordination made possible through the EPI. While the success of EPI cannot be overstated, the global average disguises major disparities across geographic and economic barriers. Sub-Saharan Africa and South Asia in particular

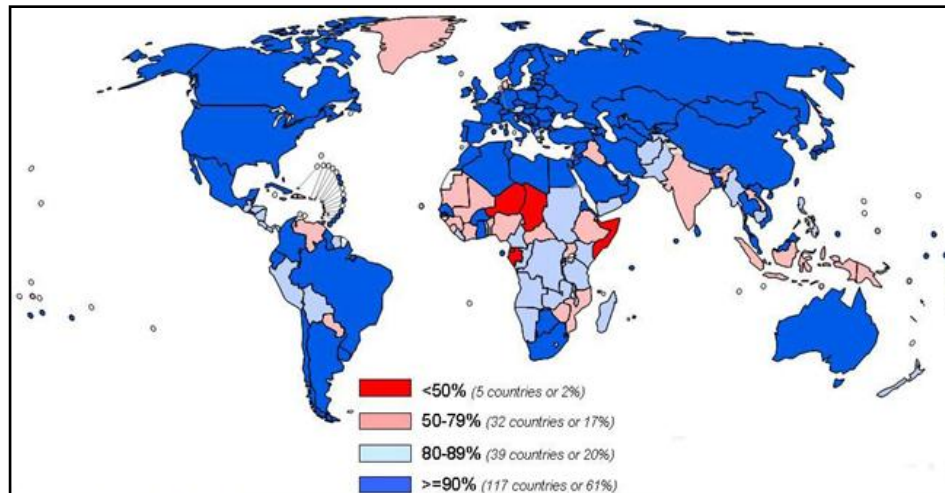


Figure 1: DPT3 Immunization Coverage, 2007. Source: UNICEF, ChildInfo.

continue to lag significantly behind immunization coverage in the rest of the world. Not a single country in Sub-Saharan Africa has achieved the WHO goal of 80% coverage for DPT3 in all its districts.² The negative impact of these gaps in immunization coverage is enormous. Sub-Saharan Africa accounts for 58% of the world's pertussis deaths, 41% of tetanus

COST-EFFECTIVENESS

The WHO uses Disability-Adjusted Life Years (DALYS) as a way to quantify and compare the cost-effectiveness of various health interventions. DALYs combine premature death and disability so that one DALY is equal to one year of healthy life lost. Childhood immunization consistently ranks as the most cost-

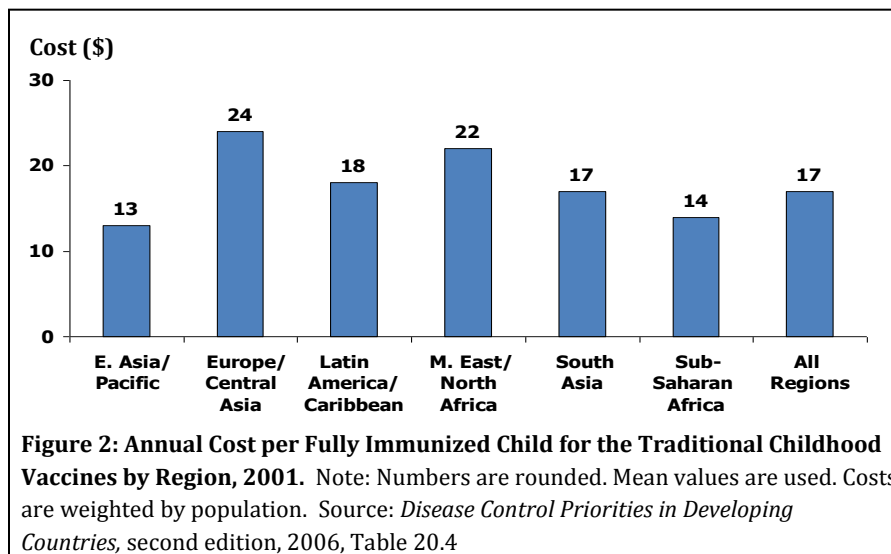
¹ Gates Foundation website (at <http://www.gatesfoundation.org/topics/Pages/vaccine-preventable-diseases.aspx>).

² UNICEF, Immunization Summary 2007.

³ "Vaccine Preventable Diseases Still Take Toll in Developing World" (The World Bank) April 6, 2006.

effective intervention available, costing between USD 1-5 per DALY averted in Sub-Saharan Africa.⁴ This compares to up to USD 377 per DALY averted for HIV and AIDS treatment.

Vaccines are especially cost-effective because they are a preventative health measure. In remote communities around the world, people have extremely limited access to formal medical care. The WHO reports that while Africa has 11% of the world's population and 25% of the global burden of disease, it has only 3% of the world's health workers.⁵ Vaccines, while highly effective, require modest training and almost no equipment to administer.



INFRASTRUCTURE

Immunization infrastructure poses many logistical challenges in low resource countries. Vaccines are temperature sensitive, with certain vaccines spoiling when frozen (-15 C) and others losing potency if they become too warm >8 C. Vaccine services also require waste management systems that protect communities and the environment from the hazards and sheer waste of used syringes and needles. While immunization infrastructure is very complicated, once it is established, it can be leveraged to improve additional health services.

Because of the effectiveness of immunization delivery systems and campaigns, they are increasingly used as a platform for delivering additional child survival interventions. Simple but life-saving treatments such as Vitamin A and Iodine are often administered during immunization outreach campaigns. The CDC reports that “through 2005, nearly 18 million doses of de-worming medicine and 3.5 million insecticide-treated bed nets have been provided during immunization campaigns in Africa.”⁶

THE FUTURE OF VACCINES

Vaccines are widely considered to be the most promising option for eliminating some of the most deadly diseases currently plaguing the world. Vaccines for malaria and rotavirus (the virus that causes the majority of childhood diarrheal deaths in the developing world) are expected to be publicly available in developing countries in the next few years, and scientists around the world continue research on a potential HIV vaccine.

Current initiatives have focused on the discovery, development and financing of vaccines. Given the successes these efforts are generating, it is now time to address the inadequacies of the health systems through which these vaccines are distributed. Absent the necessary improvements and adaptations in the existing logistics systems, we will face an “innovation pile-up.”⁷ Ignoring this severe bottleneck will render the billions of dollars that have been and will be devoted to vaccine discovery, development and procurement a profoundly diminished investment.

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⁴ *Disease Control Priorities in Developing Countries*, second edition, 2006.

⁵ WHO, *Global Shortage of Health Workers and Its Impact*, April 2006.

⁶ CDC, *Global Immunization Strategic Framework*, 2006-2010.

⁷ *Can We Ensure Health is in the Reach of Everyone?*, Christopher J. Elias, *The Lancet*, Volume 368, December 2006.