

The Promise of Vaccines

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Two health workers carry a refrigerated box containing vaccines during a two-day campaign in Gaza province in Mozambique, as both children and adults wait for immunizations in the background. To retain their potency, vaccines must be stored and transported at a constant, low temperature from the time of production to inoculation, a process known as maintaining the “cold chain.”

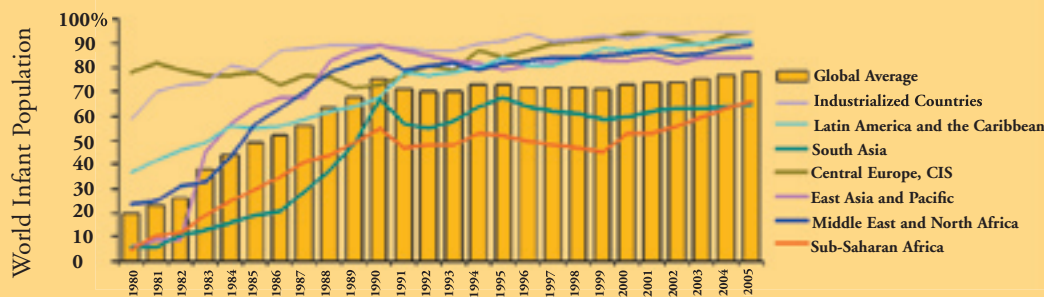
Vaccines are the most cost-effective means of ensuring childhood survival. While immunization rates in developing countries have risen steadily in recent years, health officials continue their efforts to reach more children every year.

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Few health interventions yield greater benefits for children than immunization, a proven, cost-effective way to reduce child death and disability rates. The benefits are indisputable and the consequences of failing to sustain and enhance immunization cannot be overstated: Diseases once under control will reemerge and spread to countries where they had been eliminated. Millions of children in the developing world would become sick or disabled. Millions would die.

Vaccine-preventable diseases are estimated to cause more than 2 million deaths every year. Among those, 1.4 million are children under five. These children are dying from measles (395,000), whooping cough (290,000), and neonatal tetanus (257,000).

Figure 1
**Global Immunization Against Diphtheria,
 Typhoid, and Pertussis**



The graph portrays more than 25 years of progress in boosting the rates of childhood vaccination in increasing numbers of countries. These data focus on completion of a three-dose administration of the combination vaccine against diphtheria, typhoid, and pertussis (whooping cough).

Source: WHO/UNICEF estimates compiled August 2006

Vaccines and Immunization (GAVI) in 1999 and the renewed and concerted efforts of the World Health Organization (WHO), UNICEF, and other immunization partners, global immunization coverage has slowly but steadily improved in the new century. The additional

These numbers represent not merely statistics, but young lives, the human assets of a nation. When the health and futures of a nation's youngest citizens are threatened by disease, the nation cannot thrive.

These deaths are all the more tragic because these diseases can be prevented by vaccines currently recommended by the World Health Organization (WHO). An additional 1.1 million young children die every year from infections of pneumococcus, a bacteria that causes meningitis, pneumonia, or other conditions; and of rotavirus, which causes severe diarrhea.

Building on the success of the globally coordinated smallpox eradication program, achieved in 1977, WHO established the Expanded Programme on Immunization (EPI) in 1974. Over time, the effort has led to steadily increasing levels of routine immunization of children. In fact, since 1990, more than 70 percent of the world's infants have been receiving four vaccines, offering protection against six diseases: tuberculosis, polio, diphtheria, tetanus, pertussis (whooping cough), and measles.

The hundreds of thousands of children still dying from these diseases, as noted above, give urgency to the remaining work that must be completed. Adding the available vaccines for pneumococcus and rotavirus to the routine immunization regimen offers the potential to prevent many more deaths.

With the establishment of the Global Alliance for

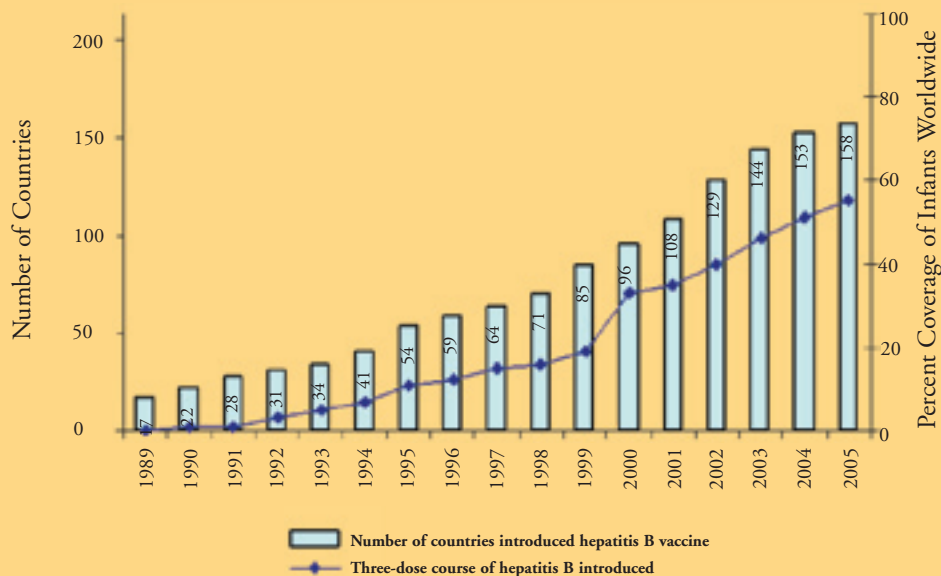
investments generated by GAVI and the heightened attention given to immunization in the poorest countries are yielding results (see Figure 1).

GAVI and its alliance partners are helping to implement the 1992 WHO recommendation that all countries add hepatitis B to their EPI schedule. As a result, by 2005 more than 80 percent of countries had implemented routine hepatitis B infant immunization (see Figure 2). Protecting every child, especially those born of mothers with chronic hepatitis B infection, prevents the development of liver cancer and cirrhosis in later life.

Despite the improvements in the number of children who are routinely vaccinated, much remains to be done. In 2005, WHO and UNICEF developed the Global Immunization Vision and Strategy (GIVS), 2006-2015. The strategy sets a goal for all countries to reach at least 90 percent of infants with all recommended immunizations and at least 80 percent in every district (or equivalent). Achieving the GIVS goals will save the lives of 4 to 5 million children every year by 2015.

The poor and underserved in developing countries are consistently missing out on the life-saving protection of immunization. In 2005 more than 27 million children did not receive the three doses of diphtheria-tetanus-pertussis vaccine (DTP) needed to protect them against those diseases and 30 million were not inoculated with the required doses of measles vaccine.

Figure 2
Immunizing Infants Against Hepatitis



The graph shows progress in vaccination against hepatitis B. A 1992 resolution by the World Health Assembly for the inclusion of protection against this disease in routine programs was a benchmark in the wider availability of this vaccine. The trend took another turn upward with the organization of the Global Alliance for Vaccines and Immunization (GAVI) in 1999.

Source: WHO/UNICEF estimates compiled August 2006

immunization can actually lead to total eradication—as happened with smallpox.

Remarkable progress has been made in expanding immunization coverage and the effort must not wane. Every child, no matter his or her socioeconomic status, deserves to be protected from disease. Immunization programs also serve as a platform to deliver other life-saving interventions such as those against malnutrition, malaria, polio, and intestinal worms. Such an integrated approach is the most effective way to protect the health of all children, including the most marginalized. It is also a cost-effective way to build up health care systems to better ensure that progress becomes sustainable and is not lost.

To improve coverage, national and district planners need to dedicate resources and develop specific strategies to reach the currently underserved populations. Many countries already use the Reach Every District (RED) approach, which seeks greater equity and availability of routine immunization services.

In addition to protecting children from vaccine-preventable diseases, immunization programs reduce the transmission of disease in the community and protect the unvaccinated. For some diseases, such as polio,

When this happens, the overall impact of immunization on child survival becomes far greater than the sum of its parts ■

UNICEF's Ahmed Magan, Jessica Malter, and Jeff McFarland also contributed to this article

The opinions expressed in this article do not necessarily reflect the views or policies of the U.S. government.