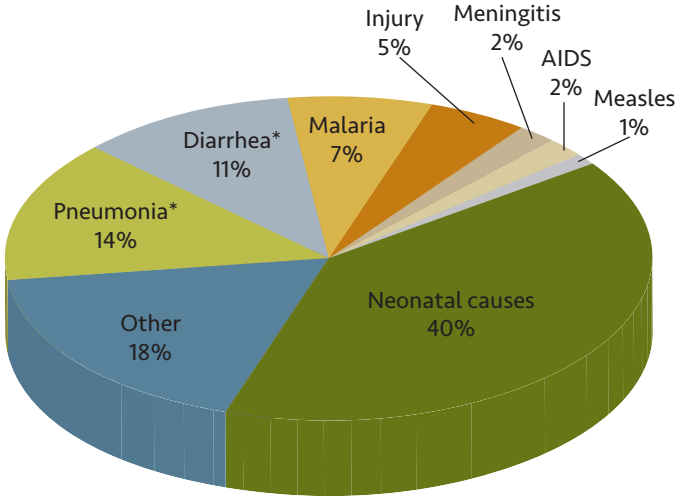
The Cornerstone of Public Health

VACCINES: WHY SHOULD WE CARE?

Vaccines, one of the most successful and cost-effective public health interventions, have saved countless lives and are responsible for preventing more than 2.5 million deaths each year. Without vaccines, disease would become more rampant, the public health system would be overburdened with treatment costs, and child deaths would increase dramatically. The lives of approximately 1.5 million children under five years of age could be saved each year by improving access to available vaccines. Because they are reliable, low cost, and relatively easy to deliver, vaccines are one of the most effective ways of improving health and opportunity in poor countries.

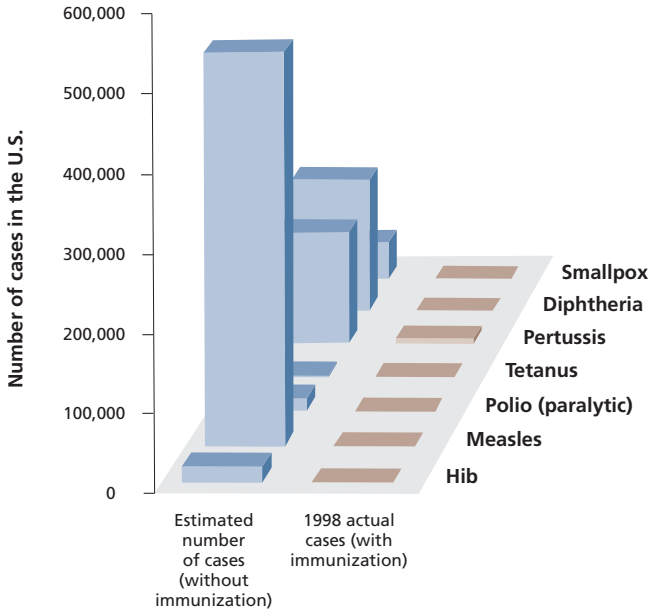
Major Causes of Death In Children Under Five Years of Age



*About 5% of neonatal causes of death are from pneumonia and diarrheal disease. About half of the total deaths are preventable through immunization with existing and newly developed vaccines such as pneumococcal and rotavirus.

Source: Global, Regional, and National Causes of Child Mortality: An Updated Systematic Analysis for 2010 with Time Trends Since 2000. *The Lancet*.

Cases of Vaccine-Preventable Diseases With and Without Immunization, United States



Adapted from MMWR, April 2, 1999, Vol. 48, No. 12.

SAVING CHILDREN'S LIVES

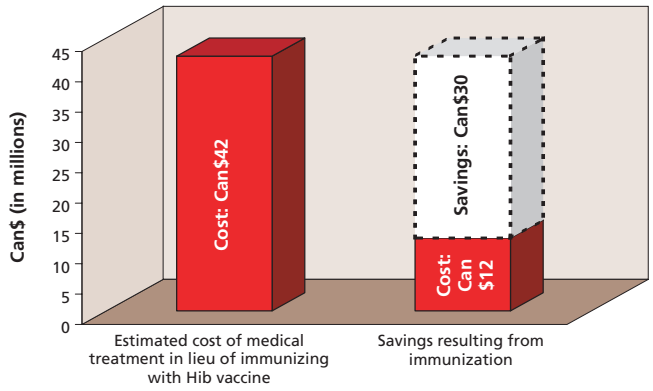
Due to weaker, undeveloped immune systems, children are particularly susceptible to disease and thus benefit the most from vaccines. Since 1980, the percentage of immunized children worldwide has increased from 20 percent to 85 percent. Additionally, countless others have benefited from a decrease in circulating bacteria and viruses, generating "herd immunity."

However, more than 21 million children remain unimmunized, resulting in approximately 1.5 million vaccine-preventable deaths each year.

MAXIMIZING COST EFFECTIVENESS

Vaccines are one of the most cost-effective public health interventions and could save the world billions of dollars each year. In the developing world, the cost of immunizing a child ranges from US$20 to $40, including basic vaccine

Cost Comparison: Immunizing vs. Not Immunizing With Hib Vaccine in Canada



Adapted from "The Value of Vaccines," Aventis Pasteur, 2000.

coverage and administration costs. In the United States, a cost-benefit analysis showed that every dollar invested in a vaccine dose saves $2 to $27 in health costs.

Immunization campaigns have saved, and continue to save, millions of dollars. For example, Canada saves an estimated US$27 million each year in treatment costs since adopting the *Haemophilus influenzae* type b (Hib) vaccine. In addition to savings on disease control and prevention, vaccines can eradicate disease and reduce the financial burden of caring for those infected by diseases. Eradicating smallpox, at a one-time cost of about $100 million, has since been saving the world about $1.3 billion a year in treatment and prevention costs.

PROTECTING HEALTH

Complacency and a reduction in vaccination can cause diseases previously thought to be eliminated from the developed world to reemerge. A 1989 measles outbreak in the United States caused more than 100 deaths; 90 percent of those who died had not been vaccinated against the disease. In the mid- to late-1970s, rates of pertussis vaccination declined from 81 to 31 percent in England and Wales, resulting in two epidemics of whooping cough. An increase in pertussis vaccination brought the disease back under control, but not before many died needlessly. In 1995, Russia experienced an outbreak of diphtheria that resulted in expensive immunization campaigns that took years to bring the disease under control. These outbreaks underscore the importance of continuing progress on vaccines and immunization in both the developed and developing world.

BUILDING VALUABLE NETWORKS

In addition to preventing epidemics, immunization networks can play an integral role in the wake of natural disasters. In October 2005, Pakistan was hit by an earthquake that devastated regions of the country, affecting millions of people. Within 24 hours, Pakistan's polio eradication network responded by providing the worst-affected areas with immediate medical treatment, shelter, blankets, and potable water. The network played a key role in assisting the Pakistani government and aid agencies in assessing and responding to damage. More generally, strong immunization systems help build effective health-care infrastructures to meet other essential health needs in developing countries.

ENHANCING SECURITY AND STABILITY

High rates of infectious disease in developing countries can also pose risks to economic and security interests in the United States. Developing-country populations trapped in disease and poverty can be vulnerable to instability, hindered from pursuing trade with developed countries, and unable to meet development goals or debt obligations. Additionally, in an increasingly connected world, reductions in infectious diseases abroad may reduce health risks to citizens of the United States.

A CRITICAL INVESTMENT

History has shown vaccines to be cost effective, lifesaving investments that can help stabilize countries and strengthen health systems. To make substantial advances in global health, a commitment to vaccines is a critical component of any strategy.

RESOURCES

World Health Organization (WHO): whqlibdoc.who.int/publications/2009/9789241563864_eng.pdf

WHO: http://www.who.int/mediacentre/factsheets/fs378/en/

The Global Value of Vaccination: www.sciencedirect.com/science/article/pii/S0264410X02006230

Economic Analysis of the Global Polio Eradication Initiative: www.sciencedirect.com/science/article/pii/S0264410X10014957

An Analysis of Government Immunization Program Expenditures in Lower and Lower Middle Income Countries 2006-12: http://heapol.oxfordjournals.org/content/30/3/281.full

Médecins Sans Frontières: http://www.msfaccess.org/sites/default/files/MSF_assets/Vaccines/Docs/VAX_The_Right_Shot_Report_2ndEd_2015.pdf

PATH

www.path.org

PATH is the leader in global health innovation. An international nonprofit organization, we save lives and improve health, especially among women and children. We accelerate innovation across five platforms—vaccines, drugs, diagnostics, devices, and system and service innovations—that harness our entrepreneurial insight, scientific and public health expertise, and passion for health equity. By mobilizing partners around the world, we take innovation to scale, working alongside countries primarily in Africa and Asia to tackle their greatest health needs. Together, we deliver measurable results that disrupt the cycle of poor health. Learn more at www.path.org.

455 Massachusetts Ave NW,
Suite 1000
Washington, DC 20001

April 2015