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Vaccine Diplomacy

The multinational effort to eliminate disease might not only save lives but prevent conflict.

By Peter J. Hotez

Vaccines are arguably one of humankind's greatest creations. Because of vaccines' remarkable ability to halt great plagues and eliminate disease, few other peacetime inventions have had as much influence on human history. Within the last 20 years alone, vaccines have eradicated smallpox, with polio soon to follow. But inoculations that eliminate disease could have an impact well beyond improving global health. Throughout the developing world, vaccines could also be transformed into powerful agents of conflict resolution.

Vaccine diplomacy is nearly as old as vaccines themselves. In 1798, British doctor Edward Jenner published his research on the use of the cowpox (vaccinia) virus to vaccinate (from the Latin word for cow) against the human smallpox virus. By 1800, the Jenner smallpox vaccine was used widely in England and shipped across the channel to France. Within a decade, Napoleon decreed that vaccine departments should be established in all of the major cities of the French empire. And in 1811 Jenner was elected as a foreign member of the Institute of France. Strikingly, Jenner's participation in the use and development of the smallpox vaccine in France occurred during a time of almost continuous war between England and France. But, as Jenner himself observed in a letter to the National Institute of France, "The sciences are never at war."

Similarly, in the early 1950s, polio epidemics raged on both sides of the Iron Curtain. The dreadful nature of these epidemics (they struck young children particularly hard) could have been the deciding factor in compelling the Soviets to break their Cold War silence in 1956 when they realized, in the words of medical historian Saul Benison, "they could no longer afford the comfort and sustenance that ideology provided." Soviet virologists subsequently collaborated with U.S. researcher Albert Sabin to develop a "live" polio vaccine that improved upon the one developed by Jonas Salk in 1954. To this day, many Americans are astonished to learn that the Sabin polio vaccine was introduced into the United States only after its safety and efficacy had first been tested in millions of Soviet children.

The legacy of Cold War vaccine diplomacy is now felt in polio-endemic regions of Africa and Central Asia where, during the last five years, the United Nations Children's Fund and the World Health Organization have negotiated cease-fires in order to conduct successful polio immunization campaigns. Through the efforts of United Nations agencies, mass vaccinations during so-called days of tranquility have been brokered every year in Afghanistan since 1993. In Sudan, former U.S. President Jimmy Carter

helped negotiate a six-month cease-fire in 1995 to reduce the incidence of drancunculiasis, a parasitic disease caused by the guinea worm. (The "guinea worm cease-fire" was, at that time, the longest cease-fire in the history of the Sudanese civil conflict.) National immunization days also temporarily halted hostilities in Sierra Leone.

Today, the part of the world most in need of both vaccines and diplomacy is South Asia. Three years ago, the Indian government renewed underground nuclear testing in part because of a perceived threat from China. But India and China share more than a disputed border and expanding nuclear capabilities: These two nations, which together comprise approximately 40 percent of the world's population, also share one of the highest rates of tropical infectious diseases. Illnesses caused by animal parasites living in the human intestine are especially endemic to the region. Diagnostic surveys conducted by the Chinese Ministry of Health between 1988 and 1992 revealed more than 500 million cases of ascariasis (an infection caused by a large intestinal roundworm), 212 million cases of whipworm infection, and 194 million cases of hookworm infection. India is equally plagued by these parasites, which cause devastating problems among both children and adults, especially pregnant women.

The technology exists to make a vaccine to control worms in India and China, but the resources available for this task are pathetically meager. Despite the enormous burdens of disease, both nations still spend much of their scientific budget on the physical and mathematical sciences necessary to develop nuclear arsenals. If these nations diverted even one tenth of their nuclear-weapons budgets to vaccine research, diseases like hookworm might be eradicated in the 21st century. Now is the time to advocate a new peacetime mission for the Chinese and Indian scientific communities—to shift their intellects and their resources to eradicating the infections that currently trap their rural citizens in a perpetual cycle of poverty. As Sonia Gandhi, the leader of the Congress Party (and daughter-in-law of former Prime Minister Indira Gandhi), remarked, "science should be used for removing poverty and backwardness in the country."

A multilateral vaccine development program that focuses on tropical infectious diseases highly endemic to South and East Asia might foster a spirit of regional cooperation. Such a program would draw scientists and government health officials from countries engaged in nuclear saber rattling together for a common cause. Moreover, this effort could serve as a model to cope with the next health crisis that will soon ravage the region. Although much of the media coverage of HIV/AIDS has focused on Africa, a newer and possibly more frightening HIV/AIDS epidemic has started to roll through densely populated areas of the Indian subcontinent and China. Through government agencies and private foundations, developed countries can commit critical resources to accelerate the development of new vaccines. Along the way, we might acquire an immunity to war.

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