

**Preventing the Next Pandemic: Vaccine Diplomacy in a Time of Anti-Science**

by Hotez Peter J.

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Review by Dr Jennifer K. Bowerman, Editor of *Leadership in Health Services*. A Contribution for Special Issue of *Leadership in Health Services* with Special Editor Dr Randolph Quayle

I am one of the editors for *Leadership in Health Services*, and a former University lecturer on the subject of leadership, global ethics and business. I have watched news interviews with Dr Peter Hotez on various television stations talking about the COVID-19 pandemic and the power of vaccines. With that background and familiarity of his work, it is, therefore, an honor and a privilege to review his latest book on this timely topic for this special issue.

The COVID-19 pandemic has disrupted our global health systems, our food distribution channels, our commerce systems, our social lives and brought to the forefront the subject of science and its application to everyday life. The focus of this journal, *Leadership in Health Services* is on leadership as it occurs and is developed in health services. Theories such as transactional, transformational and servant leadership amongst others, are often researched in terms of their contributions to better health service delivery and its related organizations. But as Dr Hotez reminds us, there is a need for another kind of leadership activity, one based on diplomacy, where leaders are not always seen on the front lines, but where their activities and interests form a safety net as a backdrop to the global panic and chaos caused by a pandemic. Their interactions and the depth and brilliance of their research help us to realize that in this world we are all truly interconnected. The stories that Hotez recounts in his career as a global ambassador and vaccine researcher based out of the Texas, remind us of the power of the personal passion and brilliance driving the scientific and humanitarian endeavors necessary for decent and livable global present and future. Starkly, Hotez's book reminds us that there can be no future for some of us if it fails to include all of us. Global poverty and inequality threaten not just those who suffer it but the rest of us who witness it. This is a view also echoed by Paul Farmer *et al.* (2009) in *Global Health in Times of Violence*.

First, allow me to explain the concept of leadership diplomacy, though Dr Hotez here calls it by its subject name, "vaccine diplomacy." In plain language, written in a compelling narrative, Dr Hotez explains vaccine diplomacy as having two aspects:



- (1) “A subset or specific aspect of global health diplomacy in which large scale vaccine delivery is employed as a humanitarian intervention, often led by one or more of the UN agencies” and
- (2) “The development or refinement of new vaccines achieved jointly between scientists of at least two nations...the actual scientists lead both the vaccine science and diplomacy even where nations are in opposition or even in outright conflict with each other” (p. 20).

While some of us remember the cold war with fear, we are reminded that “vaccine diplomacy reached its full expression during its 20-year period between the USA and Soviet Russia that mostly ended with the eradication of small pox in 1977. Likewise, the incredible discovery of the polio vaccine in the 1950s was a result of major collaboration between USA and Soviet scientists resulting in the close to eradication of global polio.

Dr Hotez’s account of the polio vaccine development resonated starkly for me. I lived through the polio pandemic. I have memories of children in iron lungs. Banned from enjoying myself in a favorite swimming pool out of fear of the virus one summer, I saw many children in our community in leg braces, dragging their legs behind them. These were the lucky ones, our parents told us, because they had not succumbed to total paralysis and or death. As a child, I received the polio vaccine on a sugar cube. I received many other vaccines and immunizations at my primary school including small pox. For me personally, the polio vaccine changed my life. Drs Salk and Sabin are names forever etched in my memory. It never occurred to our families that vaccines could be harmful or dangerous. They were part of our national recovery after a terrible war. We were all so grateful and I don’t remember anyone refusing the service. Before the measles vaccine, a real live bout of measles when I was three, according to my mother, nearly killed me. Today, just when we thought measles had been defeated, it is an increasing threat to human life. During the 1970s and 1980s, measles killed over two million children annually. Thanks to the vaccine, those numbers by 2010 were brought down to 100,000. These numbers are regarded as a public health triumph in large part due to the work of the World Health Organization. But now the number of measles cases has started to climb significantly, a consequence of declines in childhood vaccine coverage and the activities of the well-funded anti-vaccine movement. Dr Hotez discusses this in some detail as a major threat to today’s vaccine programs.

As Hotez says:

the strength of vaccines is not just that they represent ‘unparalleled instruments for reducing human suffering but as humankind’s greatest invention, they are potent vehicles for promoting international peace and prosperity. (p. 21)

Unfortunately, they are not viewed this way by everybody. Today, in an age of anti-science, social media has allowed the development of a well-funded anti-vaccine movement founded on a myriad of conspiracy theories. These have resulted in an unprecedented anti-vaccine hesitancy that is one of our leading global threats. Even today, as I announced my own scheduled appointment for the COVID-19 vaccination on social media, a former colleague responded publicly citing his own doubts about the efficacy and safety of the vaccine.

Dr Hotez introduces us to the concept of Anthropocene, a term contending that our human species:

is entering its first new geological epoch since the end of the ice age...relying on geological evidence that humans have so profoundly changed our planet that we can now mark our time as a distinct epoch. (pp. 46-47)

It suggests that human activities that may drive disease introductions or spread include climate change, urbanization and war, resulting in and also promoting emerging and neglected diseases (p. 47).”

The fact is that the COVID-19 pandemic and its variations and many other deadly viruses within this Anthropocene context are global threats to the entire world as we know it. The success in developing the COVID-19 vaccine represents a kind of global leadership and cooperation at a speed never known before. Thanks to the knowledge and research passion of scientists from around the world such as Dr Hotez and his colleagues and funding from many sources including governments, the World Health Organization, in cooperation with private foundations including the Gates foundation, many new vaccines for illnesses that have the potential to ravage our planet, are emerging. Many have yet to be developed. The speed with which the COVID-19 vaccine has been developed is a new model for health science innovation.

The increasing urgency of this mission is exacerbated as our planet copes with increasing violence, misogyny, government and private militias, global warming, poverty and the resultant movement of people. All of these are major drivers of familiar and new diseases. The familiar ones Hotez refers to as Neglected Tropical Diseases. Many of us in our comfortable middle-class worlds never think of them impacting us but they are a reality that we are increasingly facing. For as people are forced to move to escape horrific wars, desertification and violence causing living conditions that are increasingly harsh, their diseases travel with them. Diseases such as chagas, leishmaniasis and helminth infections and cholera and many others, are increasingly common, even in our industrialized nations such as those in the G20 where inequality exists. As Dr Hotez reminds us, “those G20 nations, comprising 19 countries and the European Union, represent almost 90% of the global economy, yet they also harbor most of the world’s poverty neglected diseases” (p. 154).

Inequality is far more than wealth and politics. It is also about global health conditions that impact all of us. In my observation we share a tendency to view our world in terms of disparate national entities. These become part of our political belief systems especially when we see the interest of others as threatening our own interests. So often, diseases as a result of poverty and lack of infrastructure and clean-living conditions in another country tend not to appear on our immediate horizon as long as we ourselves are comfortable. The realization that we are truly all in this together is quite paradigm changing and the knowledge that third world diseases could be here at any time is a shock to the system. This is the power of this book by Dr Hotez. It is a call to understanding that vaccines and their development through science are not just another innovative initiative around particular health issues. They are absolutely essential for all our well-being. The COVID-19 pandemic and its variants happen to be just the virus we are now most familiar with at the present time, but as Bill Gates warns us, and Dr Hotez makes eminently clear, unless we work together in our efforts to improve the health and safety of all people, none of us escape the impact of deadly viruses, either those we know, or those we do not know.

Dr Hotez has traveled around the world in his work as an ambassador and researcher. He is a living example of global vaccine and research diplomacy. He describes his collaborative work with Russian, Chinese, Arab and Latin American research scientists, all passionate in their pursuit of vaccines against viruses, new and old, that are killing their people. This book brings to the fore that it isn’t just Western Scientists who are doing this work, all scientists working in these endeavors are motivated by their desire to make their populations healthier, particularly children. As he reminds us, children have an essential right to grow up with health. Today’s extreme activities of the anti-vaccine movement

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represent major threats to these rights. Even Dr Hotez's own personal safety has been threatened as a result of his work. The anti-vaxxers will stop at nothing to prevent the global work on vaccines even as the threats from viruses increase.

The work of Dr Hotez and other vaccine researchers emphasize the increased need and support for vaccine diplomacy as essential requirements for global health leadership. This book reminds us that such international cooperation and diplomacy should never be merely add-ons to global politics and trade. They are integral to the very well-being of our planet. As Hotez himself says "we need to elevate the role of science and expand vaccine diplomacy as a central alliance between nations" (p. 161).

This is an eminently readable book, and I recommend it to all who can play a diplomatic leadership role, whether as Public Health specialists, or those whose work straddle between infectious diseases and health policy. In doing so, we must withstand the extreme politics and the many threats from social media, as we work together to develop solutions to the very real viral pandemics that increasingly menace our existence. Thank you Dr. Hotez for your timely reminder that as we face the COVID-19 pandemic, this is not one nation pitted against another, we are all in this together, and that solutions for one must be solutions for all. Leadership in all its forms, but most of all emphasizing cooperation, collaboration and sharing, is an increasingly necessary facet of our existence as we work to maintain our health equilibrium for the future.

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