

Global vaccine-development fund could save thousands of lives, billions of dollars

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A \$2 billion global vaccine-development fund is needed to prevent the world's deadliest infectious diseases, according to an essay published in the *New England Journal of Medicine*. Credit: Princeton University, Woodrow Wilson School

Ebola is a preventable disease, and yet a safe and effective vaccine has not been deployed. As with many vaccines, financial barriers persist: pharmaceutical companies see high costs with limited market potential, and government support is lacking. But there may be a solution to this vaccine crisis with the ability to save at-risk populations, according to a perspective piece written by physicians based at Princeton University, University of Pennsylvania and the Wellcome Trust.

The article, published in the *New England Journal of Medicine*, proposes

the creation of a \$2 billion global [vaccine](#)-development fund - supported by governments, foundations and [pharmaceutical companies](#) - that would carry promising vaccines through development to deployment. With initial support, the global vaccine fund could help make vaccines available for emergency use.

In the case of Ebola, [vaccine candidates](#) were available well before the time of the outbreak, but there were no funds to test them. Had one been tested, public health workers could have vaccinated people from the start, saving thousands of lives.

"Preventing infectious diseases should not be held back by a lack of funds. And the economic reality today is that strategic support from government and other investors is needed to address the most difficult infectious disease problems," said essay author Adel Mahmoud, professor at Princeton's Woodrow Wilson School of Public and International Affairs and Department of Molecular Biology.

The writers - who also include Jeremy Farrar, director of the U.K.-based Wellcome Trust, and Stanley Plotkin, emeritus professor at the University of Pennsylvania - liken their proposal to that of the antibiotic-resistance fund supported by President Barack Obama's 2016 budget. The two funds could work in tandem to address some of the world's most pressing global health issues, the authors write.

"The fundamental challenges facing the discovery and development of new vaccines are growing in significance and can no longer be ignored," Farrar said.

In their perspective piece, the physicians examine the barriers related to [vaccine development](#). First, the complexity of a disease often requires substantial funding for a vaccine, and there are now only four vaccine manufacturers in the developed world: GlaxoSmithKline, Merck, Pfizer

and SanofiPasteur. Likewise, pharmaceutical companies must also grapple with a vaccine's market potential. In the case of many vaccine-preventable diseases, the vaccine reach is low. This causes manufactures to be less eager to invest in a vaccine's development.

Perhaps above all else, cost is one of the biggest obstacles to vaccine development. Depending on the disease, a vaccine costs between \$500 million and \$1. This includes research and development, and three phases of clinical trials - the last being necessary for licensure and the most costly. Given the substantial capital needed at the onset, few companies are willing to buy in.

"So many vaccine ideas have been shelved due to a lack of funding," Mahmoud said. "In the case of Ebola, there have been numerous vaccine discoveries over the past few decades, and yet no vaccines were deployed until very recently."

But a global vaccine-development fund could help shoulder the financial burden. The \$2 billion needed at the onset would cover what the authors label "death valley," the phases between vaccine discovery and late-stage development.

"Our proposal has received a positive response so far, but I can't predict what will happen. We still need to have a conversation with philanthropists and governments regarding funding for such an initiative," Mahmoud said.

The authors conclude that the Ebola crisis should serve as a lesson for other infectious diseases and global health crises.

"Vaccine development is presently in a crisis," Mahmoud said. "In the case of Ebola, a relatively modest, strategic investment could have saved thousands of lives and billions of dollars. Going forward, we cannot let

financial burdens stand in the way of solving deadly global health crises."

More information: Plotkin, S. A., Mahmoud, A. A. F., & Farrar, J. (2015). Establishing a Global Vaccine-Development Fund. *N Engl J Med*, 373(4), 297–300. [DOI: 10.1056/nejmp1506820](https://doi.org/10.1056/nejmp1506820)

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