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Why We Still Need Smallpox

By KATHLEEN SEBELIUS APRIL 25, 2011

In a few weeks, member states of the World Health Organization will consider the destruction of the last known samples of smallpox virus, currently held in secure labs by the United States and Russia. Some have sought to publicly frame this issue as a contentious disagreement between our two countries and the rest of the world over whether the virus should be destroyed. This is misleading.

We fully agree that these samples should — and eventually will — be destroyed. However, we also recognize that the timing of this destruction will determine whether we continue to live with the risk of the disease re-emerging through deliberate misuse of the virus by others.

Those who advocate immediate destruction would have us believe that another smallpox outbreak is unthinkable. They want us to believe that there is no need to ensure the global community is adequately prepared to deal with an outbreak and that the only risk comes from maintaining the highly secured samples. For these reasons, they argue that the World Health Assembly should set an immediate date for destruction.

It should not. Although keeping the samples may carry a miniscule risk, both the United States and Russia believe the dangers of destroying them now are far greater.

Smallpox was one of the most devastating diseases humanity has ever faced, killing more than 300 million people in the 20th century alone. The victims it didn't kill were often left scarred and blind. But thanks to the most successful global vaccination campaign in history, the disease was completely eradicated by 1980.

At that time, the WHO called on all nations to destroy their collections of smallpox virus or transfer them to the WHO-sanctioned collections at one of two labs in Russia or the United States. The global public health community assumes that all nations acted in good faith; however, no one has ever attempted to verify or validate compliance with the WHO request.

It is quite possible that undisclosed or forgotten stocks exist. Also, 30 years after the disease was eradicated, the virus' genomic information is available online and the technology now exists for someone with the right tools and the wrong intentions to create a new smallpox virus in a laboratory. Furthermore, there are additional pox viruses that infect humans, and while they are not likely to produce the same degree of suffering that smallpox historically inflicted, they could still be dangerous.

In other words, we've beaten smallpox once, but we must be ready and prepared to beat it again, if necessary.

Today, most of the world's population has no immunity to the disease. Once it was eradicated, we stopped routine civilian vaccination for smallpox. In fact, people under the age of 30 have little or no immunity to smallpox. Should an outbreak occur, we do have effective vaccines that could be deployed to protect most Americans. But global supplies are limited and some people cannot safely use the current vaccine for medical reasons.

Fortunately, in the three decades since eradication, science has come a long way. The vaccine used until the 1970s was little different from the crude vaccine developed by Edward Jenner more than 200 years ago. Today, new technologies and advances in vaccine development exist that could allow us to produce a vaccine without the rare but dangerous side effects of the original. Globally, work is under way to develop and test these vaccines. We should not stop now.

Even with an improved vaccine, vaccination alone will not save those who have already been infected once an outbreak has begun. That is why we are also working on developing, testing and licensing effective new drugs to treat smallpox for those patients with the disease. Scientists in laboratories in a number of countries are making progress on these new antiviral drugs and alternative therapeutic agents that, in the event of a new smallpox outbreak, could control the disease's progression and greatly reduce the risk of death.

We have more work to do before these safe and highly effective vaccines and antiviral treatments are fully developed and approved for use. Once they are ready, we intend to share the fruits of this research with the world. Destroying the virus now is merely a symbolic act that would slow our progress and could even stop it completely, leaving the world vulnerable.

Destruction of the last securely stored viruses is an irrevocable action that should occur only when the global community has eliminated the threat of smallpox once and for all. To do any less keeps future generations at risk from the re-emergence of one of the deadliest diseases humanity has ever known. Until this research is complete, we cannot afford to take that risk.

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