Influenza Pandemic Infrastructure Response in Thailand

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[Ted Pestorius] Welcome to this CDC podcast. I'm your host, Ted Pestorius. Today, I'm talking to Dr. Scott Dowell, Director of CDC's Division of Global Disease Detection and Emergency Response. From 2001 to 2005, Scott established the International Emerging Infections Program in Thailand, a collaborative program between CDC and the Thai Ministry of Health. We're discussing an article about influenza that appears in the March 2009 issue of Emerging Infectious Diseases. Welcome to the show, Scott.

[Scott Dowell] Thanks for having me.

[Ted Pestorius] Scott, tell us about influenza and the possibility of a pandemic strain.

[Scott Dowell] Sure. Influenza viruses change their antigenic properties, or drift, every year and they create seasonal outbreaks. For many years, it was believed that these seasonal outbreaks only occurred in places with cold climates. However, these seasonal influenza outbreaks are increasingly being recognized in the tropics, including countries like Thailand. Now occasionally, influenza viruses change their antigenic coats in a major way, called a "shift." And this means the entire human population is susceptible to the new influenza virus, creating the potential for a pandemic. An influenza outbreak is considered a pandemic when such a novel virus creates outbreaks all over the world. Pandemic influenza can occur in any season and often targets different age groups. For example, the 1918 pandemic affected young, healthy people in the 15 to 35 year old age group. Pandemic influenza has happened three times in the last century, the 1918 pandemic being the worst. Today, the leading candidate for the next pandemic is the influenza A (H5N1) virus, which is commonly called the bird flu virus.

[Ted Pestorius] Tell us about the article.

[Scott Dowell] This article addresses whether Thailand could contain a pandemic. Containing a pandemic is a new idea that was raised in 2004 and 2005 when the H5N1 virus was first recognized in people. On the basis of data from Thailand and elsewhere, investigators first proposed that, in theory, an influenza pandemic might be contained by rapidly deploying public health measures and antiviral drugs, such as oseltamivir, or Tamiflu. The current article takes this a step further and examines whether health system resources in Thai provinces would be enough to contain a pandemic. It uses actual data from Thai provinces, makes certain assumptions, and concludes that health system resources are likely to be sufficient to contain a modest pandemic, but severe resource gaps would become apparent in the event of a major pandemic.

[Ted Pestorius] Why is Thailand of particular interest?

[Scott Dowell] Thailand's been at the epicenter of H5N1 epidemics from the earliest days. And in addition, a lot of the theoretical work was done in Thailand, mostly because their public health infrastructure is very good.

[Ted Pestorius] So what were the primary conclusions of the article?

[Scott Dowell] The article assesses the potential gaps in needed resources to keep a pandemic from spreading in Thailand. The authors mapped out the resources that would be needed during the containment of a moderate-scenario pandemic. And they wanted to determine if there would be gaps, what the gaps might be, and potentially how to close them. Gaps in infrastructure, personnel, and materials were mentioned as potential effects on epidemiologic surveillance of the disease. In addition, the authors concluded that public health planners might need to revise assumptions about what resources would be needed to realistically respond to a moderate pandemic outbreak. For a pandemic on the scale of the 1918 pandemic or a more severe pandemic caused by the H5N1 virus, we may find that containment is not a feasible approach.

[Ted Pestorius] Thanks, Scott. How can people plan for a possible influenza pandemic in the United States or abroad?

[Scott Dowell] Most experts agree that another pandemic is inevitable; we just don't know when. People's primary responsibility is to their families and they need to have a plan that includes, among other things, where to get medical care, what to do about schooling, food, and water. When thinking about how to prepare for a pandemic, people should listen to advice from their local and national health authorities and look for up-to-date information on planning through the CDC web site.

[Ted Pestorius] What is the public health importance of this article?

[Scott Dowell] The article's a nice reality check on several years of hard work in preparing for a pandemic outbreak of influenza. It provides perspective on our progress over the last four years. Substantial progress has been made. For example, as I mentioned earlier, it is theoretically possible to contain a small pandemic. However, even in a moderate pandemic, we may have to scale down our assumptions about the quality of care that we're capable of providing. And more resources might be needed to address the overall public health response. In addition, the behavior of the virus is still an unknown. The speed of transmission and how it would spread from person-to-person is not possible to fully define in advance. If our detection methods improve, we might be able to detect viruses before they acquire the ability to cause a pandemic. We've learned more about how slowly these viruses may evolve and may have underestimated the value of early detection systems.

[Ted Pestorius] This discussion with Dr. Scott Dowell was prompted by an article in the March 2009 issue of Emerging Infectious Diseases. These articles, and others on emerging bacterial and viral diseases, can be read online at www.cdc.gov/eid. You can submit your comments on this interview to eideditor@cdc.gov. For Emerging Infectious Diseases, I'm Ted Pestorius.

[Announcer] For the most accurate health information visit www.cdc.gov, or call 1-800-CDC-INFO, 24/7.