

# Public Health System Must be Prepared for Lethal Disease Outbreak

---

Copyright 2011 by Virgo Publishing.

<http://www.infectioncontroltoday.com/>

By:

Posted on: 09/08/2011

---

 PRINT

Infectious disease and disaster preparedness experts at Johns Hopkins Medicine say the premise of the soon-to-be-released Hollywood movie *Contagion*, in which a lethal airborne virus spreads quickly around the globe, is realistic and should serve as a reminder that the United States has much work to do to prepare for a serious national emergency posed by a deadly virus that spreads quickly.

In fact, the Department of Homeland Security lists pandemic and plague as one of 15 likely national emergencies that the United States should prepare to respond to in its Catastrophic Disaster Planning document.

Gabor Kelen, MD, director of the Johns Hopkins Office of Critical Event Preparedness and Response, says the movie, regardless of whatever dramatic license may have been taken with how a lethal virus might be spread or contained, spotlights the fact that hospitals, health care workers and public health agencies will be on the front lines of a major deadly disease outbreak. Thus, they should be well trained and prepared to respond.

Kelen, who has published a number of scholarly research papers and editorials on hospital surge capacity and disaster planning, says that although medical institutions are much better prepared than a decade ago, much work remains at many centers to effectively prepare and respond to a rapidly spreading lethal virus that would tax all resources. Capacity restraints and the ability to isolate infectious patients are major concerns. In addition, doctors and other health care workers need a clear set of policies to help make urgent ethical decisions to allocate equipment, medicine and manpower during a major disaster with potentially large numbers of affected patients, says Kelen, who is also a professor and the director of the Johns Hopkins Department of Emergency Medicine.

The country also needs a dedicated discipline of knowledgeable and well-trained scientists to test different policies and practices and determine how best to ready for future catastrophic events, says Kelen, who is heading up an effort to launch a new professional society dedicated to disaster medicine.

Trish Perl, MD, MSc, a leading epidemiologist and infectious disease expert and a professor in the departments of Medicine, Pathology and Epidemiology at Johns Hopkins, says the movie, which debuts Sept 9., starkly reminds us that global pandemics do occur and can result in enormous casualties. The Spanish Flu of 1918 killed an estimated 50 million worldwide.

Perl, the author of a number of research papers on flu transmission and prevention, says more work needs to be done to determine the best practices for preventing the spread of emerging new infections, especially among healthcare workers who are often on the front lines of a deadly disease outbreak, such as SARS or swine flu.

Developing such effective practices, Perl says, will ensure that the healthcare workforce isn't decimated by a deadly new virus and will be able to respond adequately to those in need.

Joshua Epstein, PhD, professor of emergency medicine and a social and behavior modeling expert at Johns Hopkins, says the film's theme of exploring the nature of fear, and what happens when fear and panic take hold in a disaster situation, is a subject worth serious scientific investigation.

Fear can be highly contagious in disaster situations and can cause people to act in highly unpredictable ways, said Epstein, an internationally recognized pioneer in agent-based computational modeling and director of the Johns Hopkins Center for Advanced Modeling in the Social, Behavioral and Health Sciences.

This contagion of fear is not fully understood, yet such human emotions as fear and distrust can have a profound effect on whether people follow government or other official guidance—such as a request for vaccinations—and it can cause them to behave in a way that makes the crisis worse, says Epstein, who has developed advanced computer models simulating how a novel pathogen would spread around the globe and across the United States.

A deeper understanding of fear and other human emotions and behaviors in emergencies could help develop smarter policies and plans for responding to major public health crisis, says Epstein, who has published numerous scholarly papers and articles on how computer modeling can help stem disease transmission.

A pandemic such as the one depicted in the movie will bring a host of ethical challenges, such as the equitable distribution of scarce resources, notes Holly Taylor, PhD, MPH, of the Johns Hopkins Berman Institute of Bioethics and an assistant professor in the Department of Health Policy and Management at the Johns Hopkins Bloomberg School of Public Health.

While many efforts have been made post 9/11 to prepare the nation for a major disaster, additional consideration ought to be given to how best to make the public aware of the plans made. A public made aware that plans have been made and what their role is if such plans have to be implemented may serve to immunize some from the fear to which Epstein refers, says Taylor.

"It's always better to plan in advance how scarce resources may be allocated or in what way the freedom of movement may be restricted rather than address them in the midst of a disaster, notes Taylor. The more the public is aware that there are plans in place to help make difficult ethical decisions, says Taylor, the more likely the public will view official response to the crisis as credible.