

POLICY BRIEF

The Massachusetts Health Policy Forum

Findings from the Forum on Pandemic Flu, sponsored by the Massachusetts Health Policy Forum, June 2006

The Pandemic Threat: Is Massachusetts Prepared?

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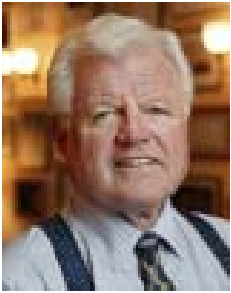
Introduction

On June 8, 2006, a panel of national, state and local experts convened to discuss the pandemic threat and readiness of state and local officials to meet the many challenges that an influenza pandemic would present. Senator Kennedy, who spoke to the participants by video, stressed the importance of intergovernmental coordination in preparing for a potentially disastrous pandemic.

The panel, which was moderated by Dr. Howard Koh from The Harvard School of Public Health, included Dr. Julie Gerberding, Director of the Centers for Disease Control and Prevention (CDC). She opened the conference by suggesting that we need a “seamless network of protection” against this potentially lethal threat noting three major challenges to pandemic planning and preparedness: the scale of the challenge; connectivity of communication; and the danger of complacency.

Although the federal government and the Commonwealth of Massachusetts have developed plans and are continually updating them, it is local public health officials, healthcare providers and emergency responders who will be on the front lines in the event of a pandemic. Whether or not local communities have the resources, direction and capacity to deal with an influenza pandemic or other public health emergency is unclear, although the federal government has approved funding through collaborative agreements with the states for this purpose. To date, Congress has appropriated a total of \$500 million in emergency funding.

The Current Threat: Influenza pandemics happen. The timing, severity, and viral strain of the next influenza pandemic are unknown. Changes in influenza viruses are by nature continuous and unpredictable. Viral strains evolve, adapt, and can combine with other influenza strains to become lethal to humans. According to the World Health Organization



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(WHO), as of July 20, 2006, avian influenza A (H5N1), a current highly pathogenic “bird” or avian flu virus, has infected more than 230 humans in 10 countries in Asia, parts of Europe, and the Middle East, with an overall case fatality rate greater than 55 percent.

Wild birds are the primary reservoir of influenza viruses. These viruses generally do not cause illness in wild birds themselves. However, some avian influenza viruses can infect domestic poultry, causing high rates of death in domestic flocks. Such is the case with the current H5N1 virus which has caused illness and death to humans, primarily among persons who have had close contact with infected birds. Limited human to human transmission of the H5N1 virus has been documented, but transmission of the virus from human to human is very inefficient. Elimination of the H5N1 virus in the near future is unlikely given that it is very widespread and that many poultry in infected countries are raised in backyards as a common source of livelihood. This is the case in Indonesia, for instance, where the H5N1 virus is widespread among poultry and where a number of human illnesses and deaths have occurred. Monitoring for changes in the virus and its ability to transmit efficiently among people is critical given that there is no immunity among human populations against H5N1. The ease and frequency of international travel and transportation of goods means that an evolving threat anywhere is a threat everywhere.

What do we know about the H5N1 virus? The virus is being monitored and studied very closely to look for changes that may alter its ability to transmit more efficiently. For example, research indicates that the H5N1 virus may attach deep in the lung, causing severe disease in which the lungs fill quickly with fluid, similar to the 1918 flu virus that killed nearly 45,000 people in Massachusetts alone and which also had an avian origin. The WHO, CDC, and many other organizations are also studying genetic changes that may occur in the H5N1 virus. Currently, there have been no major changes identified to date, but there is speculation that genetics of the host may play an important role in disease development.

What can be done to minimize the impact of an influenza pandemic? Some valuable lessons were learned during the SARS outbreak that started in China and spread rapidly to North America and other parts of the world. Dr. Gerberding noted that travel advisories seemed to go a long way toward helping to contain a SARS pandemic. Interventions such as social distancing (for example cancellation of large gatherings, quarantining persons infected with influenza, and the use of cough etiquette and masks) could be helpful in mitigating the effects of an influenza pandemic.

We also know some things about seasonal influenza, which can provide lessons for pandemic planning and vice versa. The burden of annual influenza is substantial, causing about 250,000 – 500,000 deaths annually around the world, and nearly 36,000 deaths in the U.S. alone.

Human influenza viruses frequently mutate and based upon recommendations from the CDC, WHO, and other partners, an updated vaccine is manufactured each year based on the viruses thought to circulate most widely in the upcoming season. And although seasonal influenza is not a pandemic, surveillance and collaborations that already exist for annual influenza provide a critical infrastructure for the rapid identification of a virus with pandemic potential and the development of a pandemic influenza vaccine. Investments in the public health infrastructure support prevention and control efforts for both seasonal and pandemic influenza.

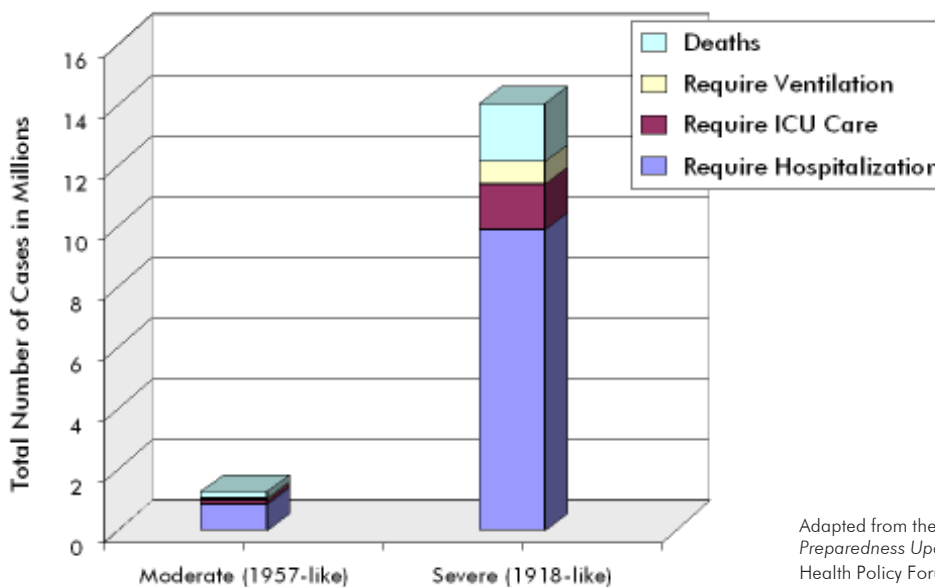
The CDC is studying the effects of past influenza pandemics as part of its research for pandemic preparedness and response, according to Dr. Gerberding. The severity of a pandemic can vary from mild (relatively few deaths) to severe (causing many deaths). *Figure 1: Pandemic scenarios based upon the 1957 and 1918 flu pandemics* provides a comparative illustration of two influenza pandemic scenarios: one based upon the 1957 – 1958 pandemic, and one based upon the more severe 1918 pandemic.

Both scenarios assume that 30 percent of the current U.S. population will become ill and that half of those who are ill will require outpatient medical care.



Dr. Howard Koh,
Associate
Dean and
Director,
Division of
Public Health
Practice at the
Harvard
School of
Public Health,
moderated
the panel
discussion.

FIGURE 1: Pandemic Scenarios
Based Upon the 1957 and 1918 Flu Pandemics



Adapted from the CDC *Pandemic Planning and Preparedness Update*, Presented to the Massachusetts Health Policy Forum, June 8, 2006.



Dr. Julie Gerberding, Director, Centers for Disease Control and Prevention (CDC):
 “A threat anywhere is a threat everywhere!”

The major difference is the severity of the illness. If the pandemic is moderately severe, as it was in 1957, then approximately 209,000 people could die. However, if the pandemic causes severe disease, as was the case in 1918, healthcare and public health systems would be dangerously taxed. Estimates show that almost 10 million people would require hospitalization, with 1.5 million requiring ICU care. The studies use data from the 1918 pandemic which indicate that close to 2 million deaths could occur in the U.S. alone, and millions more world-wide, as a result of a severe pandemic.

The Federal Government’s Plan: “A threat anywhere is a threat everywhere!” Eliminating H5N1 will not be easy, particularly in countries like Indonesia. The complicated migration of birds, isolation of certain communities and missing links in the global network of public health infrastructure make it difficult to identify and contain initial outbreaks quickly in some countries. And while it is important to understand these global challenges, state and local governments must also focus on protecting the public’s health within local communities. The federal government has made it clear that, in the event of a pandemic, it will not be able to respond to each and every community. Rather, state and local jurisdictions must take responsibility for preparedness planning and response efforts.

Dr. Gerberding suggests that the real emphasis must be at the local level, where the bulk of the work will occur. Within the first 6 months of a pandemic, slowing of disease transmission will allow the public health infrastructure time to respond. Basic public health tools, including good risk communications, individual/family/community preparedness, isolation, identification and quarantine of confirmed cases and social distancing (avoiding contact with others by working and staying at home, avoiding crowds etc.) could be most useful during the initial stages of a pandemic. Schools and businesses may choose to designate “snow days” or temporarily close offices and use telecommuting and other technologies to reduce direct contact between people.

Effective communication during a pandemic is paramount, otherwise any plan is bound to fail, warned Dr. Gerberding. International, national, state and local governments, agencies and officials must be connected and in constant communication. For example, emergency risk communications guidance is and will continue to be available on www.pandemicflu.gov, as well as on CDC and state websites. There are a number of preparedness checklists and other tools already available on these websites. Since it is possible that the supply chain of services, goods and food will be disrupted during a severe pandemic, it is recommended that individuals and families store a two-week (or even a one-month) supply of water and food, nonprescription drugs and other health supplies including pain relievers, stomach remedies, cough and cold medicines, fluids with electrolytes, and vitamins as noted on www.pandemicflu.gov (accessed August 18, 2006).

On the federal level, vaccines against H5N1 and new methods to speed vaccine production are being developed. In addition, antivirals are being stockpiled for distribution to the states when needed. However, vaccine and antiviral production capacity during the inter-pandemic period must increase and indications for their use be made clear. For instance, vaccine manufacturers still use chicken eggs in production, and this could prove to be a real problem if laying hens that provide eggs used for vaccine production have to be culled to prevent spread of the virus. In consideration of this possibility, vaccine manufacturers have been developing contingency plans to expand the number of suppliers of fertilized hens' eggs, should the flocks that they normally rely on become infected with avian influenza. Vaccines that do not use chicken eggs for production are also being developed. It is critical, according to Dr. Gerberding, for markets to expand and improve vaccine production. The greatest threat to pandemic planning and preparedness, she warned, is complacency.

Dr. Julie Gerberding:
 "The greatest threat to pandemic planning and preparedness is complacency."

The Massachusetts Plan: In Massachusetts, the state's pandemic preparedness plan is intended to ensure that essential services are maintained, there is minimal discomfort and loss of life, the most vulnerable are cared for and that individuals, families and first responders are protected. The goal, as relayed by Commissioner Cote, is to look back and to know that Massachusetts did everything it could do in the face of a pandemic. The plan takes into account hospital and health care facility surge capacity and staffing issues, surveillance and identification of influenza, the health and safety of vulnerable populations, timely and effective communication, and societal continuity of government and essential services during a crisis.

Those executive branch agencies that oversee critical services are required to submit "continuity of government" (COG) plans to ensure that critical operations will continue during a pandemic. Businesses, schools, colleges and universities, providers and municipal governments all should be preparing "continuity of operations plans" (COOPs) in order to ensure that operations continue and contingencies be made in the event of a pandemic. Individuals and families are also encouraged to make emergency plans and to stockpile a supply of food, non-perishables and medications to last for about one month.

So far all Massachusetts state agencies responsible for essential services, such as healthcare, transportation, energy, food and water, have prepared COOPs. Educational outreach programs have begun and, to date, a number of impact estimates have been done in the state detailing the possible outcomes of an influenza pandemic. Based upon CDC estimates that 30 percent of the population will become ill, there will likely be about 80,000 hospitalizations in the Commonwealth and 20,000 deaths during a moderate pandemic. If the pandemic is more severe, as it



Commissioner Paul Cote: "Our goal is to look back and know that Massachusetts did everything it could do in the face of a pandemic."

was during 1918, as many as 42,000 people could die in Massachusetts. Since the same percentage of healthcare staff will also become ill in the event of a pandemic, a system for registering volunteer clinical and administrative staff has been put in place. Legislation is pending that would indemnify these workers and make them eligible for workers' compensation, which is important to recruiting voluntary healthcare staff.

Commissioner Cote agreed with Dr. Gerberding that timely and effective communication is critical in planning for a pandemic. The Governor has asked the legislature for a \$36.5 million supplemental budget for pandemic planning and preparedness. In addition, five regional pandemic planning conferences have been held across the Commonwealth that brought together representatives from key sectors of society including public health and public safety, business, healthcare, local government, primary and secondary schools, higher education, and the faith and human services communities. Amongst Cote's recommendations were improved hospital surge capacity and recruitment of volunteer healthcare staff, increased state laboratory surveillance capabilities and stockpiles of antivirals. For hospitals and other healthcare facilities, a one-month supply of food, water and needed medications should be stockpiled.

The Administration, according to Cote, will disseminate directives on how quarantine should be declared and when and why closures or lock-downs should occur, what travel restrictions might result in the event of a pandemic and where influenza specialty care clinics (ISCUs) are located. During the summer and early fall of 2006, a number of simulation exercises will take place and public information campaigns will begin. In the meantime, Cote encourages individuals to take action by making emergency plans, stockpiling a 30-day supply of food, water, non-perishables and medications and generally maintaining good health habits in order to be ready to meet the challenges of a pandemic or any public health emergency.

Local Plans: Within the Commonwealth, there are a number of agencies and institutions that will be involved in the initial stages of a pandemic. Communities, businesses, schools and individuals must be kept informed, in real time, as a pandemic unfolds. A challenge at the local level is for public health officials to communicate effectively with other emergency responders including firefighters, police and a host of other organizations and entities that do not necessarily speak the same "public health" language.

While they see progress, both Representative Peter Koutoujian, House Chair of the Joint Committee on Public Health and Harold Cox, Chief Public Health Officer from the Cambridge Department of Public Health, both expressed concern over a lack of leadership: Who is in charge in the event of a pandemic? Is it the federal

government, the state, or local authorities? Without strong leadership and guidance, how can local officials know best how to plan and prepare? Who will be responsible and liable if things go wrong?

Koutoujian believes that the Boston Public Health Commission has done a great job preparing, having been empowered by Mayor Thomas Menino to improve the public health infrastructure. Perhaps, the administration should do the same at the state level, by empowering, providing adequate resources and vesting authority in state and local health officials. Dr. Gerberding stated that there will not be one single “flu Czar,” but rather “meta-leadership” across organizations and governments, because everyone has to be involved in pandemic planning. She noted that the Harvard School of Public Health is on the leading edge of this, creating a pandemic planning curriculum for state leaders.

Both Koutoujian and Cox also voiced concerns about inadequate funding and staffing at the local level. Koutoujian suggests that the legislature can help by reallocating the resources needed for planning, stockpiling supplies and bolstering regional and local public health infrastructures. The legislature needs to know how to help local and public health officials, with a view to improving the public health infrastructure. The state and local public health officials are being asked to do more in preparation for a pandemic with less public health funding than they have had in the past.

Local public health officials are also being asked to conduct trainings, generate plans, and purchase supplies in preparation for a potential flu pandemic. It is not known whether local public health officials have the resources and infrastructure needed to produce these deliverables. Cote says the Massachusetts Department of Public Health (MDPH) recommends increased funding and resources, and enhanced surveillance capabilities of the state laboratory.

In addition to inadequate resources, community officials feel that they are not being included in federal and statewide planning. Local public health agencies have to deal with surge capacity, quarantine issues, communications, protection of first responders, distribution of vaccine and antivirals, and protection of all citizens including special needs populations. It is a tall order, particularly for some of the smallest communities.

To address these issues the state has included each of the 351 local boards of health into one of 15 Emergency Preparedness Coalitions of contiguous municipalities in an effort to facilitate joint planning and resource distribution. In the Cambridge area, the Coalition holds monthly planning meetings, allocates resources to local public health agencies, facilitates collaboration with area hospitals, evaluates



Representative
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Harold Cox,
Chief Public
Health Officer,
Cambridge
Department of
Public Health:

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Well, yes
and no.”

training needs, and holds drills and regional flu clinics. These regional clinics were successful during the past influenza season and exemplified that collaboration within regions is possible.

“So, are we prepared?” Well, yes and no,” replied Harold Cox. Yes, many towns have created emergency plans, identified emergency dispensing sites, are running pandemic influenza drills, have a 24/7 response system in place, and are working on communication improvement with other first responders. Still however, there is insufficient staffing over the long term, there is not enough money to build the needed capacity and communication with other responders, and the emergency personnel pool is inadequate. What is needed, he suggested, is more money, better planning, greater inclusion of local officials in federal and state planning, improved hospital and local public health department planning. And a clear definition of the role of local public health departments and joint planning strategies between towns are required, since there is tremendous variation across communities in terms of needs and resources.

Clearly, the dialogue and the work have begun, but according to federal, state and local officials there is a long way to go. At the international, national, state and local levels, it is critical that planning continue and that plans be tested. This is not an exercise for public health departments and first responders, but rather an opportunity for individuals to become involved and plan for themselves, their families and their communities. It is likely that another pandemic will occur and there is no reason to think otherwise. The nature of the influenza virus is that it is unpredictable, says Dr. Gerberding, and we *all* must be prepared.



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*A copy of the Issue Brief prepared for this event can be found on the MHPF website:
<http://www.masshealthpolicyforum.brandeis.edu>. Desktop publishing by Lisa Andersen.*