

PANDEMIC INFLUENZA



PAST, PRESENT, FUTURE

COMMUNICATING TODAY BASED ON THE LESSONS
FROM THE 1918-1919 INFLUENZA PANDEMIC



WORKSHOP PROCEEDINGS



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Workshop Proceedings

Pandemic Influenza—Past, Present, Future:

Communicating Today Based on the Lessons from the 1918–1919 Influenza Pandemic

**U.S. Department of Health and Human Services
Centers for Disease Control and Prevention**

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The Oak Ridge Institute for Science and Education (ORISE) is a U.S. Department of Energy facility focusing on scientific initiatives to research health risks from occupational hazards, assess environmental cleanup, respond to radiation medical emergencies, support national security and emergency preparedness, and educate the next generation of scientists. ORISE is managed by Oak Ridge Associated Universities.

Foreword

Influenza pandemics are events that have occurred in the past and will undoubtedly occur in the future. There is uncertainty about when the next influenza pandemic will occur, who will be most impacted, and how many will fall victim to this viral disease. These uncertainties make communicating the risk and consequences of pandemic influenza a greater communication challenge than the usual public health threats.

The Pandemic Influenza—Past, Present, and Future Workshop looked at the impact of the 1918–1919 influenza pandemic from the perspective of family life, local communities, and societal and governmental perspectives in an attempt to use the lessons of the past to help prepare for the communication challenges we may face during future influenza pandemics.

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Executive Summary

On October 17, 2006, the U.S. Department of Health and Human Services (HHS) Office of the Assistant Secretary for Public Affairs (ASPA) and the Centers for Disease Control and Prevention (CDC) National Center for Immunization and Respiratory Diseases presented a historical retrospective review of the impact of the 1918–1919 influenza pandemic. A panel of experts convened to discuss how the 1918–1919 pandemic affected daily life in the United States and what lessons can be learned and applied to planning today.

The goals of the meeting were to:

- provide participants with a frame of reference and historical background on the 1918–1919 influenza pandemic,
- identify contemporary pandemic influenza issues and questions, and
- present guidance for the development of communication materials and messages that can be used in the event of an influenza pandemic.

Historical perspectives were provided during the day-long meeting by a panel of renowned experts and historians. The panelists reviewed literature and “fugitive data” (data that is not commonly cited). They also analyzed themes and issues that arose during the 1918–1919 influenza pandemic that are relevant to current pandemic communication planning efforts. The themes and issues covered fell under three broad questions:

1. How did the 1918–1919 influenza pandemic affect family life?
2. How did the 1918–1919 influenza pandemic affect local communities?
3. How did the government respond and society adjust to disruptions caused by the 1918–1919 influenza pandemic?

Workshop participants were federal, state, and local public health personnel. They discussed presentations made by the expert panel and generated questions they thought likely to be asked by the public during an influenza pandemic.

The panelists included:

- **John M. Barry:** Mr. Barry is a prize-winning and *New York Times* best-selling author with recognized expertise in an unusual variety of areas, including infectious disease, rivers, crisis management, and the media. Mr. Barry is a member of several advisory boards, including the Johns Hopkins Bloomberg School of Public Health and a federal government Infectious Disease Board of Experts. He has served as an advisor to federal and state agencies, as well as World Health Organization (WHO) officials.
- **Richard Hatchett:** Dr. Hatchett is the Associate Director for Radiation Countermeasures Research and Emergency Preparedness at the National Institute for Allergy and Infectious Diseases (NIAID). Dr. Hatchett previously served as a Senior Medical Adviser for the HHS Office of Public Health Emergency Preparedness (OPHEP), and as Director for Biodefense Policy for the White House Homeland Security Council. Since March 2006, he has worked intensively on the development of a community pandemic

mitigation strategy and has coordinated interagency modeling efforts to test the strategy under consideration.

- **Howard Markel:** Dr. Markel is the Director of the Center for the History of Medicine at the University of Michigan; the George E. Wantz, M.D. Distinguished Professor of the History of Medicine; and a Professor of Pediatrics and Communicable Diseases, Medical History, Health Management and Policy, and Psychiatry. Dr. Markel has or currently sits on several editorial and executive boards of scholarly publications and academic societies. He is also a Fellow of the American Academy of Pediatrics, an elected member of the American Pediatrics Society and the Society for Pediatric Research, and a member of the American Association for the History of Medicine.

These Proceedings provide a summary of the *Pandemic Influenza—Past, Present, Future Workshop: Communicating Today Based on the Lessons from the 1918–1919 Influenza Pandemic*. Speakers' remarks were summarized from notes taken at the workshop and notes provided to the editors. The workshop agenda, a resource list, summaries of probable stakeholder questions, audience feedback, and a participants list are included as appendices.

Morning Session

Charge to Group

Alan Janssen, Health Communication Specialist, U.S. Department of Health and Human Services

Alan Janssen welcomed approximately 100 attendees to the workshop. Mr. Janssen described the goals and objectives of the workshop and encouraged all the attendees to take an active role in helping to generate questions to assist with future pandemic event communication activities. He introduced Suzy DeFrancis, ASPA, and Dr. Bruce Gellin, National Vaccine Program Office (NVPO) prior to their providing opening remarks and comments. Dr. Richard Tardif, Oak Ridge Institute for Science and Education (ORISE), was also introduced as the moderator for the workshop activities.

Welcome and Opening Remarks

Suzy DeFrancis, Assistant Secretary for Public Affairs, Office of the Secretary, U.S. Department of Health and Human Services

John Barry is required reading at HHS headquarters. He has sold a lot of books and has spoken a number of times to senior staff. Congratulations to all of you for being here, because it is what we do beforehand that is important when a disaster strikes. This is why President Bush launched the national strategy for responding to an influenza pandemic. All government agencies are working hard to implement the strategy.

HHS has a leadership role in many of these implementation activities. Therefore, Secretary Leavitt went all over the country to conduct pandemic flu summits to “kick-off” planning efforts at the state and local level. This was quite an undertaking, as he conducted 50 state summits in three months! The goal of the summits was to encourage planning at all levels of government throughout the country.

One of the things the Secretary has recognized is that communication is as important as any other part of the response. Communication has been referred to as the “social Tamiflu.” We at HHS recognize that if an influenza pandemic occurs, we will be the first generation to be faced with the additional demands of the 24-hour news cycle. Therefore, we must inform, but not inflame.

We have been working on a number of tools in order to meet today’s communication challenges:

- Our government-wide Web site, www.pandemicflu.gov, is being translated into other languages. We are constantly adding to it and updating it as well. We have recently added new planning checklists with assistance from CDC.
- We have provided risk communication training around the country (by CDC). This is very useful because we have continued building relationships through the process.
- We have conducted audience research and message testing.
- We are working on outreach, especially to the most vulnerable populations. We are creating special programs to meet these populations’ needs.

- We met with members of the media, including network executives, and gave them a “Pandemic 101” overview. It was very well-received and those who attended mentioned that they (the media) want to be responsible, but the “blogs” are going to push them. This led us to convene a conference call with the “bloggers,” and we discovered that they are a tough audience.
- We are looking at embedding HHS public affairs and subject matter experts (SMEs) within the media to help get the right information out.
- We are developing a large video library because we know that many pictures the public sees are frightening. We are working on media images that help the public better understand the “whole picture.”
- We are conducting a series of five exercises across the country with the media. We will have more information on that later in January, 2007.
- We are collaborating with international partners to gather lessons learned.
- We are working on Public Service Announcements (PSAs) now, to tell people where they can get information and what they can do about pandemic flu.

Today’s workshop will help us understand what communication was like during the 1918 pandemic so that we can apply lessons learned from history to today’s planning efforts. I expect this to be a very thought-provoking session.

Opening Comments

Bruce Gellin, Director, National Vaccine Program Office (NVPO)

I went to the bookstore recently and did a search on pandemic publications—71 titles that came up in that search. Amazing. Influenza pandemics have occurred in the past and certainly will occur in the future, but still there are a number of uncertainties that make it more difficult to communicate the risks. Today’s panelists will be presenting their own research efforts.

We are going to be learning from the lessons of the past and coming up with critical questions about the future. Today is not about trying to reach a consensus, but rather trying to come up with the critical questions that we need to consider. I encourage all of you to ask questions of the panelists because we need you to help us craft our policies and communication efforts.

The Effects on Society at Large

John Barry, Historian and Author

Quote: “What we learn from history is that we do not learn anything from history,” George Bernard Shaw.

Numbers: No one really knows how many people died, but the first contemporary estimates put deaths at 21 million worldwide. That estimate is often still quoted, but it was certainly far worse than that. MacFarlane Burnett spent much of his life studying influenza, and he concluded that the worldwide death toll (from the 1918–1919 pandemic) was a minimum of 50 million, possibly 100 million. He may well have been right.

If you adjust for population, that could be 300 million today. In three weeks, it killed more people than AIDS has in 24 years. In the U.S., a reasonable estimate starts at 500,000 deaths. Personally, I am inclined toward a higher estimate of 700,000.

There was 15–53% morbidity. In San Antonio, over 90% of households had at least one family member with the illness. Most of the deaths occurred in healthy adults. In Army camps, the death toll was routinely over 5%, sometimes as much as 10%, and in some communities as high as 30%.

A human face: One physician at Camp Devens outside Boston wrote a colleague:

“These men start with what appears to be an ordinary attack of LaGrippe or Influenza, BUT when brought to the Hosp. they very rapidly develop the most vicious type of Pneumonia that has ever been seen. SOON YOU see the Cyanosis extending from their ears and spreading all over the face, until it is hard to distinguish the coloured men from the white.”

“It is only a matter of a few hours then until death comes... It is horrible. One can stand it to see one, two or twenty men die, but to see these poor devils dropping like flies... We have been averaging about 100 deaths per day... Pneumonia means in about all cases death... It takes special trains to carry away the dead. For several days there were no coffins and the bodies piled up something fierce. It beats any sight they ever had in France after a battle... Good By old Pal, God be with you till we meet again.”

That letter reflected the typical experience in 1918 army camps. It was sure that these men would end up in death. It was a horrible sight to look upon because the cyanosis was such that most physicians had never seen it before.

A big problem was you never knew if you were going to have the lethal kind, or normal flu. Regardless, it was gruesome. There were many with broken ribs from violent coughs. Air pockets also formed outside the lungs, and when you'd move these people it would sound like popping bubble wrap. Nose bleeds were common, less common was bleeding from mouth, and even bleeding from the eyes and ears.

In 1957 during the Asian Flu pandemic, 25% of all deaths were directly from viral pneumonia. In 1918, there were probably more than that. Antibiotics, while useful, are not necessarily a solution if the cause of pneumonia is viral.

There were enough anecdotal reports from reliable observers that prove some deaths were extraordinarily rapid, occurring in 24 hours or less. While most, even from acute respiratory distress symptoms, would succumb four to six days after their first symptoms, for others death would occur in two to three weeks.

Context: We were at war. It was the first total war. It was the first time the government tried to fully control the public. The pandemic was known as Spanish flu, but we know it did not start in Spain. It was called Spanish Flu because Spain was not at war, so there was a free press. Most of Europe had a censored press. The U.S. press was more open, but still the new Sedition Act was passed. This was a law that made the Patriot Act look like it was written by the ACLU (American Civil Liberties Union).

To enforce the law, the Justice Department issued badges to the “American Protective League” (APL), who was identified as Secret Service. Within a year, the attorney general said 200,000 APL members were operating in 1,000 communities.

In Chicago, a “flying squad” of league members and police trailed, harassed, and beat members of the International Workers of the World (IWW). In Arizona, league members and vigilantes locked 1,200 IWW members and their “collaborators” into box cars and left them on a siding across the state line in the New Mexico desert. Throughout the country, the league's American Vigilance Patrol targeted “seditious street oratory,” sometimes calling upon the police to arrest speakers for disorderly conduct, sometimes acting more directly. Everywhere, the league spied on neighbors, investigated “slackers” and “food hoarders,” and demanded to know why people didn't buy—or didn't buy more—liberty bonds.

At the same time, states outlawed the teaching of German. In Providence, Rhode Island, the *Providence Journal* carried a banner warning that “every German or Austrian in the United States unless known by years of association should be treated as a spy.” The problem was that the single largest ethnic group in the United States was German. 1918 was a time when there was a well-run propaganda machine. The government created the Committee for Public Information (CPI). It was intended to create one white-hot mass of determination. A quote by Arthur Bullard (who directed the CPI's Russian Division) summarizes the tenets of propaganda at the time, “Truth and falsehood are arbitrary terms... There is nothing in experience to tell us that one is always preferable to the other... There are lifeless truths and vital lies... The force of an idea lies in its inspirational value. It matters very little if it is true or false.”

Part of the propaganda machine included the energetic direction of Mississippi newspaper editor George Creel, an advisor to President Wilson. Under Creel, the CPI churned out national propaganda through diverse media. Creel organized the “Four-Minute Men,” a virtual army of volunteers who gave brief speeches wherever they could get an audience. There were 150,000 of the Four-Minute Men, who would propagandize for “four minutes” prior to any kind of public gathering. These men were charged with creating fear in the population because it was “an important element to be bred in the civilian population. It is difficult to unite a people by talking

only on the highest ethical plain. To fight for an ideal, perhaps, must be coupled with thoughts of self-preservation.”

There was intimidation that was enforced by the law; in fact a U.S. Congressman went to jail for 15 years for violating the law. Several journalists and editors were jailed too.

The 1918–1919 influenza pandemic swept across the U.S. during a time when patriotism was more important than truth. Thus, intimidation and propaganda were part of the communication culture.

A pandemic meets the propaganda machine: During this time at least 25% of doctors and nurses were in the military. Additionally, national, local, and state officials all operated in the same way. At best, they communicated half-truths, or even out-right lies. As terrifying as the disease was, the officials made it more terrifying by making little of it, and they often underplayed it. Local officials said things like “if normal precautions are taken, there is nothing to fear” but then they would close all businesses.

“Worry kills more people than the disease itself,” a Chicago public health official was quoted as saying. Other quotes were: “Don’t get scared,” and “The so-called Spanish influenza is nothing more or less than old fashioned grippe.”

Communication was rarely honest, because honesty would hurt morale. One of the first newspapers that started telling the truth in Milwaukee saw its editor jailed, so they stopped telling the truth. In Philadelphia, after a public health official finally closed all public gatherings and public funerals, the newspaper said, “This is not a public health measure.”

There was a lot of cognitive dissonance. People heard from authorities and newspapers that everything was going fine, but at the same time, bodies were piling up. Imagine your spouse lying dead in bed for six to eight days. There were coffin shortages. The dead were piled up where they died. There were police going around asking people to “bring out their dead.”

Panic was incipient. Even if there was war, the war was removed from us. The fear was so great that people were afraid to leave home or talk to one another. Everyone was holding their breath, almost afraid to breathe, for fear of getting sick.

Army camps were shut down. People didn’t want to let soldiers return home. People were afraid to have any intimacy with their community and loved ones. Nobody would bring food in or come to visit.

In the hills of Kentucky, there were hundreds of cases. People were panic stricken and many were starving, not even for lack of food, but for fear of going near each other.

In Phoenix, a rumor started that dogs carried influenza, and people were shooting their pets. They’d give their pets to the police to kill them, because they couldn’t kill them themselves.

At that time, the economy was controlled. The national government did little to help. The Public Health Service (PHS) was given \$1 million, but did next to nothing and ended up returning most of the money.

There were four groups (local charitable organizations) that did help. This was actually the American Red Cross' "golden age." At that time, Red Cross groups were headed by people of great prominence. They begged people to come in to volunteer. They took out a paid half-page advertisement that said: "The safety of this country demands that all patriotic available nurses, nurses' aids [sic] or anyone with experience in nursing place themselves at once under the disposal of the Government... Graduate nurses, undergraduates, nurses' aids, and volunteers are urged to telegraph collect at once... to their local Red Cross chapter or Red Cross headquarters, Washington, D.C."

Liberty Loan groups were in communities trying to help. This was one extraordinarily organized group. They had a "captain" for every block and every large apartment building. Other private sector organizations were horizontally integrated so that everyone talked to each other. In many ways, it was better than today.

Despite these efforts, absenteeism remained a problem. At the L.H. Shattuck Company, 45.9% of the workers stayed home. At the George A. Gilchrist shipyard 54.3% stayed home. At Freeport Shipbuilding 57% stayed home. At Groton Iron Works 58.3% stayed home. Even in an industry that was crucial to the war effort, absenteeism was high. Fear and terror was akin to the Black Plague. An internal American Red Cross report concluded, "A fear and panic of the influenza, akin to the terror of the Middle Ages regarding the Black Plague, [has] been prevalent in many parts of the country."

One report noted that not a single automobile was moving on the street in Manhattan. In Philadelphia, a medical student was able to count cars on the way in and said the city was dead. It seemed at the time like civilization could easily disappear from the face of the earth.

Is this an over-statement of how the pandemic affected our country? Probably; there was one woman I met who had no recollection of the pandemic. However, it is important to note that society worked better in places where authorities told the truth. San Francisco was an example. In San Francisco authorities took out advertisements that said: "Wear a mask and save your life." Masks probably didn't help, but people trusted government more and they organized to feed people. San Francisco just seemed to keep operating better.

In 1918, Departments of Public Health were often referred to as Departments of Public Assurance.

Take away message: False reassurance is the worst thing you can do. Don't withhold information, because people will think you know more. *Tell the truth— don't manage the truth. If you don't know something, say why you don't know, and say what you need to do to know. Drown people with the truth, rather than withhold it.*

Panel Discussion

Richard Hatchett:

- The previous speaker set the context well. It is important to understand that it was a special time in our history. WWI was at a crisis. It wasn't clear that the war was about to end. Spanish Flu showed up right at the time that the German lines were breaking.

- At that time it was the equivalent of “9-11” happening every day. For example, assassination attempts against Lenin were on page 12, ahead of this story...the Czar had been executed.
- The pressure to maintain the war effort made so many other things lose importance.
- The overall case fatality rates were extremely high in younger populations. Background fatality rates for children were quite different than today.
- 1918 case fatality rates in one-to-four year-olds is equivalent to what it would take now for 15–16 years of fatalities. This relates to a huge surge. It is unfathomable, really.
- Public messaging: Disease was so widespread, nothing good would result from public action. Fear was more fearsome to the officials than the disease.
- By the time they closed schools in Baltimore, it was too late. It was important to do something about it, right away (e.g., need to not have a lag at all in taking action).
- To put this in perspective, the median time between onset and time of death was eight to 10 days. Additionally, the interpretation of data was delayed.
- Remember that at that time, nothing was done to interfere with public morale.

John Barry:

- Many times public health officials knew the truth but did not tell it. This was the case in Philadelphia.
- Boston had already exploded in chaos several weeks earlier.
- In many cases they were just plain lying.
- Newspapers were pretty much unbelievably bad sources.
- Newspapers were writing about it when it was far away, but went silent when deaths came to their own city.
- The attitude of authorities was: “This isn’t happening, don’t worry about it.”

Questions from the Audience

Q: A significant amount of data show that pregnant women died disproportionately. Of course, back then many women gave birth in the home. Can you tell us how the pandemic affected pregnant women?

A: (*Hatchett*) There was certainly an additional strain on pregnancy.

- Maternal mortality rates peaked in 1918 with 916 per 100,000 births. That means one per 1,000 births. The multiplying factor is enormous. There is not, however, a lot of specific data about pregnancy during that time.
- We’ve run several flu exercises to look at a number of different issues, including pregnancy, because back then hospitals were different than today. In these exercises,

we have run scenarios from crisis to Katrina-like problems. In all of these exercises a key issue has been “transparent communication.” Today, we have the opportunity to frame how the public perceives what is happening. What seems to be the problem early on is they aren’t able to shift rules of engagement for behavior, so we miss opportunities to act until it is too late.

- Today, I think, as opposed to back in 1918, we don’t have as much of a problem with misinformation as the lack of transparent information. We also have a situation in which institutions will need to operate under different sets of rules in the case of treatment protocols, including those for pregnancy.

A: (*Barry*) I want to emphasize that it is not likely that public health officials would tell outright lies. However, it is just as important not to hold back information. I was just at an exercise last week and a public health official said, “The last thing I want to do is have a press conference.” This is the wrong approach. You really need to get out in front right away. For example, you could get out and say we know it is in the Orient, but we don’t know if this individual is the first case, so we need to start getting ready right now. Don’t wait. We need to worry about being too conservative. I can’t emphasize enough how much you need to get out in front of it.

Q: While there were no definite countermeasures known to be effective, could you say that even anecdotally there would be better outcomes in places that had better communication?

A: (*Barry*) The key is trust. It is when people feel totally alienated and isolated that the society breaks down. Telling the truth is what held society together.

- Today we should look at the nonpharmaceutical interventions and emphasize them early on.
- There is a lot of work being done to determine if the risk communication provided actually improved social issues.

A: (*Hatchett*) There is a tremendous amount of wishful thinking that the virus won’t come here. In 1918 the shaping of the cognitive environment varied dramatically from location to location. In some places elected officials and public officials locked arms on some things. Some tentative evidence shows that social distancing interventions did help. However, Baltimore is a case example of how to do it wrong (e.g., not close the schools). In Baltimore there were fights between elected officials and public health officials. Another example of doing it wrong was Pittsburgh. In Pittsburgh, the Mayor actually told the public to ignore the public health officials.

Q: Can you expand on the issue of mortality and morbidity for healthcare workers?

A: (*Barry*) There is no definitive data. I can say that often death notices for doctors and nurses showed up in tiny print in the newspapers. In many places the rates were high; morbidity over 50%. Logic suggests that social distancing measures helped, but I am not convinced that those interventions had an effect that was anything more than random. One can’t really generalize, because morbidity and mortality rates varied so much from community to community.

A: (*Hatchett*) There is no aggregate data on physician and nurse deaths. However, I too wouldn’t be surprised if it wasn’t over 50%.

Exercise: Note cards were turned in from audience members to collect thoughts and concerns from the group. A summary of these audience-generated questions and issues can be found in Appendix D of this document.

The Effects of Infrastructure and Government

Dr. Richard Hatchett, Associate Director for Radiation Countermeasures Research and Emergency Preparedness at the National Institute for Allergy and Infectious Diseases

Note about the speaker: While most people are involved in preparing for a pandemic in one capacity or another, Dr. Hatchett has devoted the last five years to public health emergency preparedness and a considerable amount of attention to disease containment, particularly in an environment where there may not be adequate stockpiles of medications.

Navy midshipmen learning example: In Trafalgar, Lord Nelson was outnumbered and outgunned, so he split his fleet and came alongside the French and Spanish line to achieve his comparative advantage because his ships were much more maneuverable. In doing so, he destroyed the French and Spanish fleet. Although he died in battle, he achieved through tactics and maneuvers what he could not achieve through brute force. This can be applied to our context today for our analysis of 1918. Context is important because environment and circumstances change. What may work in one time and place may not work in another.

Another military example: General Grant advanced on Vicksburg very quickly. In Virginia, he developed a completely different strategy...to grind down Lee's Army. He used totally different strategies in each campaign because he was in completely different environments. In both cases he faced foes with different sets of preoccupations. The point is that Grant understood his opponents. He devised the correct strategy for each campaign. He did not try to fight the previous battle of Vicksburg in Virginia. Fighting the previous war is often a good recipe for disaster if used to fight the next war. This could be applied to creating strategies of approach for planning for a pandemic today.

To take what was done in 1918 and apply that to today is to learn to deal with handling a pandemic in our environment and communities. Historical perspective is critical for deriving plans for today. For example, deriving generalizations from a close reading of the historic record is beneficial because:

- a poorly mitigated pandemic will overwhelm medical resources;
- in the absence of prior planning and an agreed upon plan of action, conflicts may emerge that may retard the emergency response;
- figuring out ways to gathering information in a timely fashion during difficult circumstances will be crucial;
- it is better for political leaders to be truthful rather than minimize what is happening; and

- public health leaders need to realize that you can't make everyone happy in a pandemic.

Another question that policy makers will want answered from history may be whether or not schools should be closed. Framed in the 1918 experience, that leads to a series of other questions:

- Is there evidence that closing schools made a difference?
- Is the timing of school closings important?
- If it made a difference in 1918, would it make a difference today, given the changes in demographics?

Today, we have a much more developed sense of critical infrastructure and interdependency between the structures than our grandparents did. Our grandparents:

- had a clear concept of the war effort,
- knew what industries fit into the war effort,
- had a developed notion of public health and medical infrastructure, and
- had more advanced local level concepts, which have been eroded over the last several decades.

How the 1918 pandemic affected infrastructure:

- Infrastructure was less complex than today.
- There was less dependence on just-in-time delivery of key resources and materials.
- There were more natural firewalls, as opposed to cascading firewalls.
- National power grids did not exist.
- Americans were not dependent upon foreign oil.
- Food distribution was more extended.
- Communities were more self-sufficient and more insulated from each other.

Today, extended networks create the potential for cascading failures, but also increase the resiliency for critical infrastructure against local failures. Today, we should not focus on the critical first weeks; instead, we should focus on the aggregate effect over time.

It is important to note that sectoral failures did not occur in 1918. So, while the October draft was postponed for about three weeks and productivity in shipyards was compromised, the war effort continued. The war effort continued even when New York City reported a 40% decline in productivity in shipyards on October 18th.

Los Angeles introduced interventions during the first few weeks of the epidemic, much earlier than New York, so they did not suffer the types of problems New York experienced. Baltimore newspapers published appeals to the public to minimize the use of telephones, but even at the height of the pandemic the phone system did not fail. Chicago attempted to estimate absenteeism.

They estimated absenteeism averaged about 5% over a two-month period, not quite double the normal average. Absenteeism peaked on October 22. However, the aggregate impact of absenteeism was significantly reduced. Economic impacts were modest, below 5%, when averaged out. A major recession did not ensue. Retail sales did decline in October, but they rebounded in November. New York City transit use, the Dow Jones, and business failures were indiscernible and modest when compared to the volatility of the period. Because of the short duration of the pandemic and human resiliency, it was characterized as a hit-and-run disease that only produced brief slowdowns.

Panel Discussion

John Barry:

- Courts did not meet in every community.
- It is important to understand how quickly the pandemic moved in military camps (two and a half weeks) and in the civilian community (five to six weeks). The peak was a matter of days.
- There were three waves in 1918. The first wave was widely missed because symptoms were mild, with little complications (four deaths). The second wave came six months after the first wave was noticed, and it was lethal. It rolled across the country and around the world in 8 days to 3 weeks.
- Communication was very important in terms of the first wave. Adequate attention was not paid regarding the complexity the first wave represented. A first wave is very complicated in terms of messaging.
- Communities were more resilient in 1918. In Philadelphia, a manufacturer of street cars was asked to make coffins when the city ran out of coffins. That wouldn't happen today due to specialization.
- The economic impact would be much more severe today.
- Dependence on transportation is enormously different today.

Richard Hatchett:

- The velocity of the 1918 pandemic did not compare with those in 1957 and 1968. The 1918 pandemic moved much faster through communities.
- It is important to understand all pandemics are different. In 1918, cities that were comparatively successful in mitigating the first wave were pressured to relax interventions. When relaxed, cities experienced that it never really went away.
- The key is early implementation of all interventions; however, once implemented, the trigger has been pulled, and cities needed to do a good job of managing messages to keep the public on board.
- It is tricky for communities to organize human behavior and maintain public compliance.

Questions from the Audience

Q: It has been a fascinating discussion about sectoral value. It is surprising that there would be so little economic impact when so many of the workers in the prime of their productive years died. How many people in their prime actually died?

A: (*Hatchett*) Excess mortality was 0.4%, which implies a case fatality rate of 1.75 to 2.0% and there was a cumulative morbidity of 18–20%. Although a lot of deaths were in the productive population, there were children and seniors who died as well. Estimates would be about 0.2% for the general population.

Q: In terms of not affecting government, how is that so?

A: (*Barry*) Richard [Hatchett], was talking systematically about structure. There were not a lot of government functions in 1918, and there was a more robust public health system. While many courts did close down, police departments did continue to function.

Q: In terms of transportation, communities were isolated from each other in 1918. Now we don't have that. Have any prospective pieces of work been done?

A: (*Hatchett*) Cities were more isolated from each other. The pattern of the spread of the virus in 1918 was related to troop movements. There has been a considerable amount of work on modeling from Department of Transportation (DOT) looking at connectivity of major urban centers to estimate how infectious diseases would spread now. In recent work looking at real world data, the geographic diffusion process is driven more by work-related travel. The ability to make definitive statements will be limited by caveats.

A: (*Barry*): Remember, we don't need airplanes to spread influenza. Work is being done on the impact of border crossings to delay entry by two weeks. I do not believe the potential benefits outweigh the clear negative impacts of shutting down the borders...the economic impacts would be significant. Look at the impact of SARS [Severe Acute Respiratory Syndrome]. It was pretty intense, but only for a relatively short period of time.

Q: What is your idea of community members and businesses purchasing antiviral doses? Is it the role of business?

A: (*Hatchett*) CDC and HHS have been engaging businesses on how to handle influenza. As opposed to privately stockpiling antivirals, creating liberal leave policies would be more useful. Some companies (privately held) have made the decision that it is in their best interest to keep employees with sick family members out of the work place.

A: (*Barry*) Keep in mind that the H5N1 virus can become resistant to Tamiflu, especially the more it is used as a prophylactic. The more this happens, the more rapidly a resistant strain will emerge. It may help some, but we don't know how much. It is not a magic bullet that many people would hope it to be. I do not personally believe that H5N1 will be the next pandemic; having said that, yes, I do have a personal cache of Tamiflu.

Q: Is there a Plan B aside from Tamiflu?

A: (*Barry*) I have heard that Relenza may be better as a prophylactic. I know that there is a lot of work and research going into developing and producing antivirals.

Q: There is a tremendous emphasis on preparedness for pandemic influenza, but there seems to be the potential for a wide range of other public health emergencies. Do we risk public confidence if the next public pandemic is different?

A: (*Hatchett*) Certain aspects of pandemic preparedness are specific to an influenza threat, but a lot of what we're doing has the potential for broad application. In terms of dealing with a respiratory virus, a lot of what we're doing will serve us.

Exercise: Note cards were turned in from audience members to collect thoughts and concerns from the group. A summary of these audience-generated questions and issues can be found in Appendix D of this document.

Afternoon Session

The Effects on Individual and Family Life

Dr. Howard Markel, Director of the Center for the History of Medicine at the University of Michigan

This is not one overarching story, but thousands of stories with separate outcomes. It is difficult to concisely answer the question of how all Americans attempted to protect themselves and what this global disaster meant, in human and scientific terms. Record keeping in 1918 was vastly different compared to this era. This is a tale of many cities, towns, and hamlets, multiplied by all kinds of individual experiences. Looking at American society in 1918, it was a very different country compared to today, with 50% of Americans living in rural settings. We need to be familiar with the social, cultural, and economic history of the region of study and try to understand the differences and similarities.

Differences between 1918 and today: Some of the striking differences between 1918 and today include:

- The train was the rapid form of transportation.
- The telegraph and telephone were the rapid forms of communication.
- Less than 50% of the population was city dwelling.
- There was a different kind of 24-hour news cycle; at that time there were as many as two to five daily newspapers.
- People wanted and needed their news information from written sources.
- There was a wide spectrum of quality among health agencies.
- The legal understanding of privacy, and civil and constitutional rights was different.
- Mass vaccination programs have changed. Public support and trust of these measures and medical professionals have changed, especially in regard to vaccines.
- As far as the political landscape of 1918 goes, the majority of Americans had different views of federal and local government in their lives.
- Civics or Government courses have left the high school curricula. At that time, these were routinely drummed into the heads of young Americans. This must have had an impact on what people thought of their responsibilities.
- Daily commercial transactions were different: there were no supermarkets, refrigeration was primitive, there was a limited supply of preserved foods, and there was daily market-going activity at multiple locations (e.g., grocer, butcher).
- Finance: there were no credit cards or personal checking accounts, which meant far more frequent visits to the bank. In 1918, there was almost exclusively a cash economy. Closure of banks might be explained as a response to a pandemic, but it could have been perceived that the closure meant the bank did not have funds.

- Nonpharmaceutical interventions included closures of schools and public parades. Banks would have been one of the last institutions to close, and of course, saloons were the very last institutions to close.

Modern developments: Today our modes of travel and communication have changed:

- We have a high volume of commercial aviation, instead of mass transit such as railways and steamships.
- There is immediate access to the Internet and personal computers.
- We have advances in medical technology and therapeutics that have changed the landscape of how to approach a pandemic.
- Connectivity means many financial transactions can be done from home.

However, America's least wealthy still have the most difficulty getting access to these things. Those with the most limited resources are often hardest hit by natural disasters or pandemics.

The greatest differences between 1918 and today are the state of medical care and the role of hospitals. In the early 1920's, even the best of medical centers or hospitals amounted to basic nursing care. Intravenous fluids and mechanical ventilators were not available. Many other facilities were makeshift institutions. Gyms, school halls, or armories were commandeered to set up cots, which would never be the case today. When the flu crisis was over, very little was done to rectify problems in basic health care that were identified during the crisis.

Physical experience: The “flu” term is overused. Many people say they have the “flu” when really it is a common cold or virus. “Stomach flu” is really overused. Influenza A or B is not subtle. Symptoms include high fever, muscle aches, hacking cough. Postviral symptoms include continued difficulty in breathing and painful chest wall muscles. The word influenza has its origins in fifteenth-century Italy, where the cause of the disease was ascribed to unfavorable astrological *influences*. An evolution in medical thought led to its modification to *influenza di freddo*, meaning “influence of the cold.”

As bad as a bout of real seasonal influenza is, the H1 strain was far worse. It killed two percent or more of those stricken. In 1918, postmortem examinations helped understand if it was a case of flu. The performance of those autopsies was harrowing. Influenza defiled the lungs with bloody, frothy fluid. Instead of floating, the lungs plummeted to the bottom of water buckets during autopsies. The bronchials were fluid-filled, which explains the air hunger patients experienced. They frequently died from suffocation within 24–48 hours of developing symptoms. Some died later from secondary infections.

Psychological effects: Youngsters were sent away from homes because they were either sick and required isolation, or were well and needed to be protected from those sick in their household. Some were isolated from the outside world in orphanages. Newspapers carried long lists of the dead, with only names and dates of death.

Literature: There are very few biographies of famous people who contracted influenza. An example includes F. Scott Fitzgerald. He contracted influenza and was disappointed that it caused him to not be able to go overseas. He did not write about it in his later works.

Thomas Wolfe wrote a literary masterpiece about the death of his brother. More fabled is how influenza altered the decision-making abilities of President Woodrow Wilson and his chief aide, Colonel Edward House. Both were in Europe to attend the Paris Peace Conferences—the famed gathering where Wilson hoped to sell his 14 Points and establish a League of Nations. Colonel House, who arrived in Europe just weeks before the Armistice, contracted a severe bout of flu as he was negotiating with the other nations. In late February, as he was recuperating from his serious illness, Colonel House noted that, “When I fell ill in January, I lost the thread of affairs and I am not sure that I have ever gotten fully back.” To make matters worse, when Wilson was in Paris in mid-March, to work with the Big Four in the final stages of a comprehensive peace treaty, he, too, was stricken by influenza. Volumes have been written on how influenza may have altered the terms and negotiations of the Treaty of Versailles as it ravaged the bodies and thoughts of Woodrow Wilson and Edward House, among others.

While social historians of medicine warn against focusing too heavily on the illnesses of great men or the landmark cures of great doctors, the fact remains that when a world leader is struck down by influenza, in the midst of a pandemic that is accompanied by other global crises, the microbes’ power can be amplified above and beyond the symptoms it produces or the death it causes.

A masterpiece: In another case, influenza had the power to create a literary masterpiece through the experience and pen of a brilliant writer named Kathryn Ann Porter. At the time of the pandemic, Porter found herself in Denver as a newspaper reporter for the *Rocky Mountain News*. Both Porter and her Army lieutenant lover contracted the flu. Porter’s case was dire and her death seemed certain. Porter recovered months later only to learn that the love of her life died.

Almost twenty years later, she published one of the most eloquent descriptions of how flu tore family life asunder—through the eyes and emotions of a young girl named Miranda. Her magisterial novella, *Pale Horse, Pale Rider*, should be required reading for all who wish to know something about the social impact and personal impact of contagious disease; it also serves as a remarkably accurate description of what life was like in the U.S. during 1918. In the novella, Miranda makes a harrowing recovery from her grave illness, thanks to the attentive care of her nurses and physicians, only to learn (as Porter discovered in real life) that her new-found love, Adam, died of influenza at the camp hospital. Yet in a wonderfully optimistic declaration, Porter’s alter-ego, Miranda, concludes:

“No more war, no more plague, only the dazed silence that follows the ceasing of the heavy guns; noiseless houses with the shades drawn, empty streets, the dead cold of tomorrow. Now there would be time for everything.”

Conclusion: Like Porter’s Miranda, I remain ever hopeful that there will be time for everything—including productive, ethical, and socially appropriate strategies that mitigate the microbial threats that inevitably loom on our horizon.

Panel Discussion

Richard Hatchett:

Wide array of public health agencies: There is concern in the policy making arena about the attempt to develop guidance. Local public health agencies may not realize the degree of support they could receive from the public health community. The challenge is to think of ways to mobilize pillars of support so that communities don't feel that they are making profound decisions alone, absent of input from other institutions that will be there to support them. Whether or not we are prepared for the next pandemic, we are better positioned. We have tremendous mechanisms in the absence of direct face-to-face contact, so we must figure out how to take advantage of ways to stay connected. Even while disconnected, there is opportunity to mitigate. One way we begin to understand the psychosocial impacts is when we consider the impact of dozens of deaths in a single school.

Howard Markel:

Death issue: In 1918, the childhood mortality rate for children under five-years-old was one in five. Every household knew of a child who died at a very young age, often of a contagious disease or dehydration issues. Back then, the care of the ill was almost exclusively at home. Today, death has been taken out of the household. Very few people have seen someone die today. In 1918, it was probably 90%. Death issues need to be talked about. For example, what should we do if public gatherings for funerals are cancelled? How will that affect people? There are social effects of quarantine, although now we have some resources to mitigate the effects. Public health departments (municipal, state, and federal) are all funded very differently. Post 9-11, bioterrorism preparedness efforts have been good for public health, because they are not mutually exclusive problems. Whether man-made or ecological, the strategies we need to use to address these problems are not that different.

John Barry:

There are two great tragedies: The death of a child, or the death of a young child's parent. Society saw a lot of both in 1918. There were many orphans in 1918. Several states put together orphan trains for adoption stops, which led to the establishment of the Child Welfare Department. I recently attended a tabletop exercise that included faith-based organizations. They can barely maintain the current agenda and feel that it would be almost impossible to take on additional tasks due to lack of resources. A problem we have is that volunteers are often double-counted. Plus, they may also be sick in the event of a pandemic. We need to think hard about parallel organizations that need help.

Howard Markel:

In talking with those in the front lines about potential problems down the road, the response is typically that they are very busy right now. This brings up a broader issue of the risk that people may tune out if a threat never does occur. Since we can't say when a pandemic will happen, there may be a potential problem in getting people to do something about preparedness now.

Questions from the Audience

Q: Thoughts on the public—we are expecting more from government. Will people be less patient and expect more than they did in 1918?

A: (*Barry*) The public does expect a lot more, and we expect technology to solve everything. I am appalled by the lack of attention paid to influenza in preceding decades. We have spent more on West Nile than influenza, which will never be as serious a threat. I believe that technology will eventually solve influenza. There has been enough work done to demonstrate that it is probable that we will have a vaccine that works for all influenza viruses. In general, people are not as self-sufficient as they used to be. The lack of flexibility today is a problem. We expect structures to do more for us and take care of us more than people did back then.

A: (*Hatchett*) It is true that people expect quite a bit from government. People have an affinity for magic bullets and an immediate vaccine. It is unfortunate that the single most effective intervention that people can take is individual action. This requires a tremendous imperative for government and public health authorities to communicate information effectively. It is critical that if we are to coordinate efforts to reduce transmission, people must take responsibility for their own actions and for their families. Individuals can reduce their own risk, and this must be a large component of our planning.

A: (*Markel*) Medical communities have a vested interest in pushing medicine. It is critical to understand what we have, what we can do, and what we hope to do.

Q: It is an unfair question about maintaining trust when it may be impossible to do. You spoke on the importance of truth-telling for maintaining trust. When the message is “we do not have enough masks” or “you are not the priority person for antivirals,” clearly, most human beings who hear that message will not trust because they don’t like the answer. What do you think can be done to maintain trust in that kind of situation?

A: (*Hatchett*) That is a powerful question. There is certainly concern about rationing medical resources. This became clear early on in our planning efforts. This situation would fracture public trust. The driving concern over the last year has been to look at the overall strategy and think about any conceivable way to sufficiently reduce transmission so that we can push the need to prioritize off the table. We plan to act aggressively in a coordinated fashion, using all available tools to reduce the degree of transmission so rationing does not need to be applied. This has not been done before. However, there is accumulating evidence from a variety of sources (historical, epidemiological studies, modeling studies) that we may be able to suppress transmission significantly.

A: (*Markel*) It is essential to be honest: say what you know and don’t know. The American people can handle that and do so all the time. There is a real difference between the political and medical worlds. In the political world, we are rewarded for staying on message. In the medical world, plans change depending on symptoms; we are always working with incomplete data sets. We are willing to change our minds as we get more information, and that is good medicine. This is essential to a crisis management plan.

A: (*Barry*) The need for rationing should be explained within the community. People are accepting when reasons for prioritizing are good. Nonsensical rationing cannot be explained, and we need to think hard about whether or not to do so.

Q: Regarding policy, is there going to be a federal policy that will be consistent across the nation? What can we do to have a consistent message?

A: (*Markel*) Looking at the broad history of public health, diseases are not a local phenomena and they don't know boundaries or care about arbitrary states or jurisdictional lines. However, public health mechanisms in the U.S. are based on local incidences and phenomena. We need a global health department and standard criteria for how to manage disease outbreaks. It is a flaw that we rely on local and state health departments for protocols and policing.

A: (*Hatchett*) Local public health officials would welcome specific actionable guidance. HHS is working hard to develop guidance that can be released. At the federal level we recognize that issuing general guidelines has value and would be helpful.

Exercise: Note cards were turned in from audience members to collect thoughts and concerns from the group. A summary of these audience-generated questions and issues can be found in Appendix D of this document.

Closing Remarks

Event host, Alan Janssen, thanked the attendees for participating in the historic review. He appreciated the hard questions that were asked and thanked the panelists for their expertise. He closed by stating that principles don't change in risk communication, but reasons why we do things do. He cautioned the need to tell the truth; we need not be afraid to say we don't know; and we must be prepared to change course when appropriate.

Appendix A: Agenda

Pandemic Influenza—Past, Present, Future Communicating Today Based on the Lessons from the 1918–1919 Influenza Pandemic

October 17, 2006
Washington, D.C.

MORNING SESSION

- 9:00 – 9:30 Welcome and Opening Remarks—Suzy DeFrancis, Assistant Secretary of Public Affairs, Office of the Secretary, U.S. Department of Health and Human Services
- Opening Comments and Charge to Group—Alan Janssen, Health Communication Specialist, U.S. Department of Health and Human Services
- Moderator—Dick Tardif, Senior Scientist, Oak Ridge Institute for Science and Education
- 9:30 – 10:00 John M. Barry, *The Effects on Society at Large*
- 10:00 – 10:10 Panel Discussion
- 10:10 – 10:25 Moderated Q&A session with the panel
- 10:25 – 10:30 Exercise—Generate Questions
- 10:30 – 10:45 Break
- 10:45 – 11:15 Dr. Richard Hatchett, *The Effects on Infrastructure and Government*
- 11:15 – 11:25 Panel Discussion
- 11:25 – 11:40 Moderated Q&A session with the panel
- 11:40 – 11:45 Exercise—Generate Questions
- 11:45 – 12:00 Summary

LUNCH (On Your Own)

AFTERNOON SESSION

1:00 – 1:15	Welcome Back
1:15 – 1:45	Dr. Howard Markel, <i>The Effects on Individual and Family Life</i>
1:45 – 2:00	Panel Discussion
2:00 – 2:15	Break
2:15 – 2:55	Moderated Q&A session with the panel
2:55 – 3:00	Exercise—Generate Questions
3:00 – 3:30	Closing Remarks—Alan Janssen, Health Communication Specialist, U.S. Department of Health and Human Services

Appendix B: List of Historical Resources

Books

Flu: The Story of the Great Influenza Pandemic of 1918 and the Search for the Virus that Caused It

- Author: Gina Kolata
- Publisher: Farrar, Straus and Giroux, November 1999
- ISBN 0743203984

Kolata uses personal stories, modern research, and medical descriptions to depict the devastation caused by the 1918-1919 influenza pandemic. Kolata posits that identifying the causes of the 1918 epidemic is the only way to prepare for and prevent future ones. This book is a 1999 *New York Times* notable book.

When Germs Travel: Six Major Epidemics That Invaded America Since 1900 and the Fears They Have Unleashed

- Author: Howard Markel
- Publisher: New York, Pantheon Books/Alfred A. Knopf Books, 2004. (Simultaneously published in Canada: Toronto: Random House of Canada, Ltd., 2004; paperback edition published by Vintage Books/Random House, New York, 2005.)
- ISBN: 978-0-375-72602-6 (0-375-72602-0)

Markel discusses six epidemics—tuberculosis, bubonic plague, trachoma, typhus, cholera, and AIDS—and offers insight into the American public health system. The book identifies weaknesses in the system, and calls for a globally funded public health system aimed at stopping the spread of epidemics.

The Great Influenza: The Epic Story of the Deadliest Plague in History

- Author: John Barry
- Publisher: Penguin Books, 2005
- ISBN: 0143034480

Barry delves into the history of the 1918 influenza pandemic. He presents statistics and personal accounts that illustrate the emotions of the time and offers his suggestions for the future.

Secret Agents: The Menace of Emerging Infections

- Author: Madeline Drexler
- Publisher: Joseph Henry Press, 2005
- ISBN: 0309076382

Drexler addresses new and emerging infections, and chronicles the achievements of science in the race to prevent future epidemics. Topics include foodborne pathogens, antibiotic resistance, animals and insectborne diseases, pandemic influenza, infectious causes of chronic disease, and bioterrorism.

Plagues and Poxes: The Impact of Human History

- Author: A.J. Bollet
- Publisher: Demos Medical Publishing, 2005
- ISBN: 188879979X

This series of essays focuses on the history of diseases. The book includes discussions of containment and treatment, as well as advances made in the medical community.

Rapid Reference to Influenza, 2nd edition

- Author: Jan Wilschut, Janet Mcelhaney, Abraham Palache
- Publisher: Mosby, June 2, 2006
- ISBN: 0723434336

A clearly written, illustrated reference guide, *Rapid Reference* provides detailed information on influenza— its origin, symptoms, and treatment. The 2nd edition includes an updated section on the H5N1 virus.

America's Forgotten Pandemic: The Influenza of 1918

- Author: Alfred Crosby
- Publisher: Cambridge: Cambridge University Press, 1989
- ISBN: 0521833949

Crosby provides a comprehensive account of the 1918–1919 influenza pandemic that measures the impact on American society. Crosby also questions the lack of interest in the pandemic, maintaining that the keys to the future lie hidden in this forgotten pandemic.

Influenza 1918

- Author: Lynette Izzoni
- Publisher: TV Books, March 1999
- ISBN: 157500108X

Izzoni relies heavily on personal accounts from those who lived through the pandemic. The focus of the book lies not in medical or scientific thought, but rather in individual experience.

Purple Death: The Mysterious Flu of 1918

- Author: David Getz
- Publisher: Henry Holt and Co. (BYR), November 15, 2000
- ISBN: 080505751X

Getz focuses on the medical history of the influenza pandemic of 1918. This historical account discusses the rapid spread and morbidity rates. Included are photographs that help depict the seriousness of the disease.

The Great Epidemic

- Author: A.A. Hoehling
- Publisher: Boston: Little Brown and Company, 1961

Articles

Markel, Howard. The foreignness of germs: the persistent association of immigrants and disease in American society. *Milbank Q.* 2002;80(4):757-88.

- PMID: 12532646 [PubMed - indexed for MEDLINE]. Abstract available at <http://PubMed.gov>.

This article discusses immigrants, and why they are stigmatized during times of national crisis. Spanning two generations, the information in the article suggests that the mistakes of the past must not be repeated.

History of Pandemics – Expert Articles

Steve Perry—Bird Flu: This Thing Just Continues to March . Interview with Osterholm, from *CityPages*, 3/22/06

Howard Markel—The Iraq War and Global Public Health, from *The Globalist*, 4/21/03.

Howard Markel—The Flu Snafu—The Story Behind Strain A (H2N2), from *The Globalist*, 4/18/05

Gina Kolata—New York Times

- *Genetic Material of Virus From 1918 Flu is Found* (3/21/97)
- *Scientists Uncover Clues to Flu Epidemic of 1918* (2/16/99)
- *Experts Unlock Clues to Spread of 1918 Flu Virus* (10/6/05)
- *Hazard in Hunt for New Flu: Looking for Bugs in All the Wrong Places* (11/8/05)
- *The 1918 Flu Killed Millions. Does it Hold Clues for Today?* (3/28/06)
- *How Serious is the Risk of Avian Flu?* (3/27/06)

Videos

Pandemic Influenza—Past, Present, Future Workshop

From FluLab.com—Bird Flu Report 10—1918 Spanish Flu

<http://video.google.com/videoplay?docid=7423997674238499075>

PBS—Influenza 1918

<http://www.shoppbs.org/product/index.jsp?productId=2151690&cp&keywords=1918&searchId=18311413522&parentPage=search>

PBS—Secrets of the Dead IV: Killer Flu

<http://www.shoppbs.org/product/index.jsp?productId=1756740&cp&keywords=1918&searchId=18311413522&parentPage=search>

PBS—Rx for Survival

<http://www.shoppbs.org/product/index.jsp?productId=2248254&cp&keywords=flu&searchId=18311501732&parentPage=search>

Web Sites

1918 Influenza Pandemic Special Report, Nature, October 05, 2005:

<http://www.nature.com/nature/focus/1918flu/index.html>

Influenza>>*Pandemic Influenza Links*, Center for Infectious Disease Research and Policy (CIDRAP):

<http://www.cidrap.umn.edu/cidrap/content/influenza/panflu/websites/index.html>

Preparing for the Next Pandemic—article by Michael T. Osterholm, 2005:

<http://www.foreignaffairs.org/20050701faessay84402/michael-t-osterholm/preparing-for-the-next-pandemic.html>

Influenza Pandemics of the 20th Century—article by Edwin D. Kilbourne, 2006:

<http://www.cdc.gov/ncidod/EID/vol12no01/05-1254.htm>

The Influenza Pandemic of 1918—article by Molly Billings, June, 1997 modified February, 2005:

<http://www.stanford.edu/group/virus/uda/>

The 1918 Spanish Flu Pandemic, and the Emerging Bird Flu Panic: Mankind's most devastating recorded global epidemic, and its latest close call—article by Leonard Crane, 1998-2006:

http://www.ninthday.com/spanish_flu.htm

Influenza 1918: "...the worst epidemic the United States has ever known." PBS:

<http://www.pbs.org/wgbh/amex/influenza/>

The Blue Death—article by Jim Duffy, 2004:

http://www.jhsph.edu/publichealthnews/magazine/archive/Mag_Fall04/prologues/index.html

The Coming Influenza Pandemic: Lessons from the Past for the Future—article by Michael M. Patterson, November 2005:

<http://www.jaoa.org/cgi/content/full/105/11/498>

The Deadly Virus: The Influenza Epidemic of 1918—Selected Records from the National Archives:

<http://www.archives.gov/exhibits/influenza-epidemic/records-list.html>

The Spanish Influenza Outbreak 1918—Sarah Cummings:

http://history-world.org/spanish_influenza_of_1918.htm

Experts fear escape of 1918 flu from lab, New Scientist, October 21, 2004:

<http://www.prisonplanet.com/articles/october2004/211004fearescape.htm>

There Wasn't a Mine Runnin' a Lump O' Coal: A Kentucky Coal Miner Remembers the Influenza Pandemic of 1918-1919, University of Kentucky Oral History Project:

<http://historymatters.gmu.edu/d/107>

Avian and Human Pandemic Influenza—Economic and Social Impacts, World Health Organization, November 8, 2005:

http://www.who.int/mediacentre/events/2005/World_Bank_Milan_Brahmbhattv2.pdf

The Impact of Pandemic Influenza on Public Health—presentation by Rashid A. Chotani, Johns Hopkins Bloomberg School of Public Health:

<http://www.pitt.edu/~super1/lecture/lec21431/001.htm>

Global Health Council:

<http://www.globalhealth.org/>

A Hunt for Life-Saving Lessons from a Grim Past, NPR: All Things Considered—story by Richard Harris, February 20, 2006:

<http://www.npr.org/templates/story/story.php?storyId=5222034>

Appendix C: Probable Stakeholder Concerns List

*List Based on Pandemic Phases and Possible Scenarios

WHO PANDEMIC ALERT PHASES 3, 4, or 5

Scenario 1: Wild Bird H5N1 Infection Discovered in U.S.

- 1-1. What is bird flu? [messages drafted 110605]
- 1-2. How certain are you about this information? [messages drafted 110605]
- 1-3. What is the worst-case scenario? [messages drafted 110605]
- 1-4. Are people in danger?
- 1-5. What should people be doing now to prepare for the worst?
- 1-6. What is being done to keep H5N1 from becoming human pandemic influenza?
- 1-7. How can people protect themselves?
- 1-8. What can we expect to happen next?
- 1-9. What advice do you have for bird hunters?
- 1-10. What advice do you have for people who have pet birds?
- 1-11. What advice do you have for operators of commercial poultry flocks?
- 1-11. What are the symptoms of bird flu in birds?
- 1-12. What should a person do if they find a dead bird?
- 1-13. Is this the start of a pandemic?
- 1-14. What are you doing to protect commercial flocks?
- 1-15. What is being done in response to what happened?
- 1-16. What do you plan to do next to address this?
- 1-17. Who is in charge?
- 1-18. Who else is involved in the response?
- 1-19. How did the bird get here?
- 1-20. Do you expect to find more cases?
- 1-21. Would you describe the situation as under control?
- 1-22. What can I do to protect my family?
- 1-23. What foods (meats) should I avoid?
- 1-24. What can I do to protect my pets?

WHO PANDEMIC ALERT PHASES 3, 4, or 5

Scenario 2: Commercial Poultry H5N1 Infection Discovered in U.S.

- 1-1. Are people in danger?
- 1-2. What should people be doing now to prepare for the worst?
- 1-3. What is being done to keep H5N1 from becoming human pandemic influenza?
- 1-4. Is it safe to eat birds bought at stores?
- 1-5. Is it safe to clean and eat wild birds?
- 1-6. What can we expect to happen next?
- 1-7. What advice do you have for bird hunters?
- 1-8. What advice do you have for people who have pet birds?
- 1-9. What advice do you have for operators of other commercial poultry flocks?
- 1-10. What are the symptoms of bird flu in birds?
- 1-11. What should a person do if they find a dead bird?
- 1-12. Is this the start of a pandemic?
- 1-13. What are you doing to protect other commercial flocks?
- 1-14. What is being done in response to what happened?
- 1-15. What do you plan to do next to address this?
- 1-16. Who is in charge?
- 1-17. Who else is involved in the response?
- 1-18. How did the bird get the disease?
- 1-19. Do you expect to find more flocks infected?
- 1-20. Will people who have their flocks destroyed be reimbursed? By whom?
- 1-21. What is being done to protect poultry workers?
- 1-22. Would you describe the situation as under control?
- 1-23. What do you expect the economic impacts of this to be?

WHO PANDEMIC ALERT PHASES 3, 4, or 5

Scenario 3a. Confirmed Human-to-Human Transmission of H5N1 Influenza Somewhere in the World

The Disease

- D-1. Does this mean an influenza pandemic has started?
- D-2. How long will it take for this new virus to reach the U.S.?
- D-3. What is the worst-case scenario?
- D-4. How sure are you about this information?
- D-5. How is this different from the bird flu virus that's been present?
- D-6. How is the disease transmitted from one person to another?
- D-7. Could this be a false alarm?
- D-8. Is this as bad as the 1918 influenza?
- D-9. How would this disease be likely to get to the U.S.?
- D-10. Could this have been prevented?

Response

- R-1. What is being done to control the spread of the disease?
- R-2. What is HHS doing about this new form of the disease?
- R-3. What are other parts of the U.S. government doing about this new virus?
- R-4. What are other countries doing about this new virus?
- R-5. How effective do you expect the control measures to be?
- R-6. What will happen if control measures don't work?
- R-7. What travel restrictions are you advising or ordering?
- R-8. Is a vaccine being made to protect people against this new virus?
- R-9. How long will it take before there is enough vaccine for everyone in the U.S.?
- R-10. What makes you think the control measures will work?
- R-11. Can this disease be treated?
- R-12. What laboratory testing is being done to confirm this new disease?
- R-13. What research is being done to study this new form of the virus?
- R-14. Are there adequate supplies of medicine to control the outbreak?
- R-15. How will supplies to control the outbreak get to the right place?
- R-16. What will you do if the control measures fail?
- R-17. What will be done to protect U.S. borders to keep this disease from getting in?

Preparation

- P-1. What is the U.S. government doing to prepare for the disease here?
- P-2. How prepared is the U.S. for emergence of this new form of the virus?
- P-3. How worried should people be?
- P-4. What should the public be doing?

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Scenario 3b: Asian Influenza Outbreak in People—There are now hundreds of current, confirmed cases of a new influenza virus in an Asian country.

- 3-1. Would you describe the situation as under control? [messages drafted 110605]
- 3-2. How worried should people be? [messages drafted 110605]
- 3-3. What can we expect next? [messages drafted 110605]
- 3-4. What should people be doing now to prepare for the worst?
- 3-5. Can people travel from the U.S. to Asia?
- 3-6. Will you close the borders?
- 3-7. What is being done to keep this disease out of the U.S.?
- 3-8. What are the symptoms of this disease?
- 3-9. What should someone do if they think they have this disease?
- 3-10. Is this pandemic influenza?
- 3-11. What is being done?
- 3-12. What do you plan to do next to address this?
- 3-13. Who is in charge?
- 3-14. Who else is involved in the response?
- 3-15. Do you expect this disease to get to people in the U.S.?
- 3-16. What will you do if someone in the U.S. is diagnosed with this disease?
- 3-17. What is being done about vaccine development and production for this disease?
- 3-18. How are antiviral medicines being used in the U.S. now to address this?
- 3-19. Will the U.S. provide antiviral medicines from the U.S. stockpile to the affected countries?
- 3-20. Could this have been prevented?

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Scenario 4: General Transmission (WHO Phase 6.1) —There is increased and sustained transmission of a new influenza virus in the general population in the U.S.

- 4-1. How much of our limited resources can we share? [messages drafted 110605]
- 4-2. Overarching message [messages drafted 110605]
- 4-3. What are you doing to protect your family? [messages drafted 110605]
- 4-4. What should people know now?
- 4-5. What should people be doing now?
- 4-6. How long will this go on?
- 4-7. How are you working to adjust your plan to the current circumstances?
- 4-8. What can people do to protect themselves?
- 4-9. What is the federal government doing to address the overwhelming of the health care system?
- 4-10. How many people will get the disease in the U.S.? How many will die?
- 4-11. What are the current travel restrictions?
- 4-12. What should someone do if they think they have this disease?
- 4-13. What is being done?
- 4-14. What do you plan to do next?
- 4-15. Who is in charge?
- 4-16. Who else is involved in the response?
- 4-17. What is being done about a vaccine for this disease?
- 4-18. Who is getting antiviral medicines?
- 4-19. What support can you provide to states and cities?
- 4-20. Could this have been prevented?
- 4-21. How effective do think quarantine, isolation, and travel restrictions will be in controlling the disease?

Appendix D: Audience Questions List

Workshop audience members participated in moderated question and answer sessions with the panelists at the conclusion of each presentation. Themes to the questions emerged surrounding a pandemic event situation. The questions generated during the workshop are categorized below, and can be added to the initial “Probable Stakeholder Concerns List” referenced in Appendix C.

WHO PANDEMIC ALERT PHASE 6

Businesses

- B-1. Will the federal government provide assistance to businesses that suffer significant losses due to the pandemic?
- B-2. How will this affect businesses and daily functions in a community, and are there measures to counteract those affects?
- B-3. What is the threshold on absenteeism?

Coordination and Communication

- CC-1. How is the federal government coordinating planning and response efforts?
- CC-2. How is communication/public information controlled on “blog” Web sites?
- CC-3. How can we address communication strategies internationally?

Government Planning and Authority

- GA-1. Who is in charge?
- GA-2. Who or which office in the federal government is the nearest to absolute authority about pandemic issues?
- GA-3. What universal criteria is/will be used to rank government activities so that a determination can be made to stop certain activities and determine the degree of risk present to employees?
- GA-4. Will there be government funding to aid in implementing these pandemic plans at the local level (i.e., local health departments)?
- GA-5. Has there been any research on which Critical Infrastructure/Key Resources (CI/KR) would be affected most by a pandemic?
- GA-6. What is the expectation of the public in terms of the response to pandemic flu from hospitals, local public health, state, voluntary agencies, federal, etc?

Healthcare

- H-1. How can I protect noninfected patients?
- H-2. How will pandemic flu affect emergency rooms for people with nonflu emergencies?
- H-3. What can be done to prepare emergency rooms, primary care providers, and first responders for a pandemic? How do we discover other critical personnel categories that need resources?

General Pandemic Event

- GP-1. How long does flu last?
- GP-2. How long am I contagious?
- GP-3. How does flu spread?
- GP-4. What is the recovery rate?
- GP-5. Is there an effective treatment?
- GP-6. How should I care for someone who is sick?
- GP-7. Who is most at risk for getting the flu?
- GP-8. How do we dispose of the dead? What should I do if I was around someone who died?
- GP-9. Where can I find information and guidelines about what to do?
- GP-10. How long will it take for government services to reach me?
- GP-11. How are essential services (police, firefighters, hospitals, postal service, government) going to continue functioning?
- GP-12. How will we know when the pandemic is in the United States? How will we know when it is over?

Preparation and Protection

- PP-1. What can I do, both now and during a pandemic, to prepare and protect my family?
- PP-2. How much food and water should I have stored? How can I make sure my water is safe if chlorine runs out? Do I have to boil my water for all uses?
- PP-3. What can I do to reduce the chances of getting the flu? Will antibiotics or the seasonal flu shot help?
- PP-4. How do I disinfect my hands and other materials?
- PP-5. Should I stay home?
- PP-6. Will wearing a mask keep me safe? Will it keep others safe if I am infected?
- PP-7. Where do I go to get the vaccine or a mask?
- PP-8. How can we be a good neighbor but still stay safe?
- PP-9. Will my family be cared for while I'm deployed?

- PP-10. What should I do if I think I have the flu?
- PP-11. When, if at all, should I go to the doctor or emergency room?
- PP-12. How can I protect my staff?
- PP-13. How can I get more than 30 days of my prescriptions?

Pets

- Pets-1. Is it safe to be around my pets?
- Pets-2. Can I catch it from them or give it to them?
- Pets-3. What do I do if my pet gets sick?

Quarantine and Travel

- QT-1. Is the federal government preparing guidelines/recommendations for local and state governments for quarantines?
- QT-2. How will quarantines be coordinated between states?
- QT-3. How will areas get supplies during quarantines?
- QT-4. Is it safe to travel during a pandemic? What kind of precautions are being discussed?

Schools and Children

- SC-1. Who makes the decisions that schools should be closed? How is it decided?
- SC-2. What should I do with my children if school closes? Who will take care of them?
- SC-3. Can the children still go out? Is it safe for them to play in the back yard?

Social Distancing

- SD-1. Is social distancing sufficient to stopping the spread of a pandemic?
- SD-2. How long will social distancing be necessary?

Special Populations and Services

- SP-1. What can senior citizens who live alone do during a pandemic? How do they prepare, stay aware of events, and get vaccinations?
- SP-2. Who will take care of people who live alone?
- SP-3. Who can help homeless people?
- SP-4. Where should a healthy pregnant woman give birth?
- SP-5. In the event of a pandemic, how safe are the prisoners, their guards, and visitors?
- SP-6. As a police officer, how can I safely arrest a symptomatic individual without getting sick if they resist arrest?

SP-7. Has there been an integration of mental health services?

SP-8. Will mental health services be able to handle the surge?

Vaccines

V-1. How should the vaccine process be prioritized? Who will make the decision? Who will be given priority?

V-2. Should family members of first responders get the vaccine?

Questions to consider when developing and delivering messages: The following is a list of questions the audience members generated that they felt communicators should consider when conducting planning and message development activities.

- How can government work with media to help reduce fears and maintain calmness?
- How will we maintain trust when telling people they or their loved ones won't get the antivirals, vaccine, hospital treatment, or respirators that are available?
- How are guidelines and messages coordinated, and who will be the trusted authority to deliver them?
- How can we educate the public so that they have trust in government but are also able to prepare for a pandemic?
- How do we ensure that messaging to the public across the country is consistent and accurate? How do we counter rumors?
- What should be the primary message going out now (prepandemic) to the general public regarding pandemic flu preparation?
- How do we switch the message to cooperation during a pandemic, when resources will be in much shorter supply?
- What are the key messages we should be relaying to the business community on how to prepare for a pandemic?
- Given the lack of consensus on mitigation strategies and all the uncertainty about the long-term effectiveness of antivirals, what tools and advice should be given to the public?
- How do you balance the uncertain nature of these answers with a clear message?
- How do we get the most basic information to those economically challenged people who require government services?
- To elevate the role of public health in terms of credibility, what can be done to facilitate relationships with disparate populations?
- How do we keep xenophobia at bay?

Appendix E: Audience Feedback

Participants were asked to provide feedback about the workshop, in terms of what would be most helpful to them when continuing pandemic preparedness efforts. They were also asked to list additional topics they would like to see addressed in the future when discussing pandemic preparedness and were given an opportunity to provide additional comments. A representative summary of their responses follows.

What topics were discussed today that will be most helpful to you when continuing your pandemic preparedness efforts?

- The workshop highlighted some of the smaller issues (day-to-day activities) that were impacted by the pandemic.
- I appreciated the historical perspective.
- The comparison and contrast of society in 1918 and present.
- The context on pandemics of the past was helpful.
- The characteristics and communication that occurred during the first wave in 1918.
- Learning about mortality rates from 1918 were helpful benchmarks to keep in mind in trying to imagine how a pandemic would affect life today.
- How a pandemic will impact modern society.
- The effects of influenza on the society, individuals, economy, and infrastructure.
- The discussion concerning risk communication and the public's trust in the government's (both local and federal) response.
- The discussion about coordinating messages and efforts.

Please list some additional topics that you would like to see addressed in the future when discussing pandemic preparedness.

- Mental health preparedness and psychological assistance.
- Information on two-way communication, such as text messaging.
- Notification procedures and roles of government levels.
- Consistent key messaging.
- Templates for action for smaller and less-staffed health departments.
- Having a speaker (maybe a sociologist) specifically address social issues such as changes in volunteer organizations, women working outside the home, and the implications for day care, etc.
- Public education efforts.
- Information for children.

- Information on specific industries that will be impacted the most.
- The role of media during a pandemic.
- Vaccine development and supply.

Additional Comments

- Thank you. Excellent!
- Good mix of presenters and different but cohesive perspectives.
- Excellent speakers with pertinent knowledge.
- Thought-provoking!

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