

Is Flu Pandemic Likely?

While there are plenty of sensationalized and contrived moments in the movie “Outbreak,” starring Dustin Hoffman and Kevin Spacey, Robin B. McFee, DO, MPH, a toxicologist and professional training coordinator at the Long Island (New York) Regional Poison and Drug Information Center, says the film offers some useful take-home advice as well. The disease in the movie is a made-up virus that’s like ebola, but with airborne transmission. There is no cure, and contracting the disease leads to death.

“The scene in which Kevin Spacey’s bio-safety suit tears is a chilling reminder of the danger pathogens pose and the risk of carelessness,” says Dr. McFee. “The overwhelmed hospitals [in the movie] remind us that we have little surge capacity at hospitals, that an airborne pathogen can be especially deadly at healthcare facilities, and that we need to observe precautions and containment strategies early.”

Fast Facts

- ▲ *There have been three pandemics each century over the past 1,000 years; the longest gap between pandemics has been 40 years. The last pandemic was 39 years ago in 1968. Page 76.*
- ▲ *In a pandemic, experts predict that up to 40 percent of people will contract the illness. That means in a community of 20,000 people with 500 hospital beds, as many as 8,000 people will be trying to get into those 500 beds. Page 81.*
- ▲ *Physical illness is just part of the story. Disaster research and experience indicate that in an acute emergency, psychological casualties will exceed physical casualties by a ratio of at least 4:1. Page 82.*



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The case of Andrew Speaker, the Atlanta lawyer who traveled through several countries with extremely resistant tuberculosis in May 2007 illustrates how easily disease can spread in this fast-paced, globalized society. Some also say it indicates how ill-prepared we are to deal with the emerging new breeds of viruses and infections.

“The story underscores the fact that we are living in a global nation, and our borders do not protect us,” says Dr. McFee. “Our airports are portals for every disease on the planet.” Dr. McFee adds that the case is a “perfect example of poor communication between patient, private doctors, and homeland security.” However, she points out, the CDC was successful in tracking down Mr. Speaker’s fellow passengers, who may have been exposed to the disease.

The World Health Organization currently ranks the Pandemic Alert at Phase 3, indicating “No or very limited human-to-human transmission.” But it rates the possibility of a flu pandemic as “likely and possibly imminent.” What infectious disease experts don’t know is how much lead time the United States would have to prepare for a pandemic if it should start on foreign shores.

“That’s the 64-million-dollar question,” says Rossanne M. Philen, MD, Medical Director for the Epidemic Information Exchange (*EPI-X*). “Nobody really knows. It would depend on so much: on the virulence of the particular strain of flu, how contagious it is. If it is very contagious, but people aren’t getting very sick, that’s a different situation from something where people get very sick and die, but it’s not necessarily that contagious, and then there is everything in between.” The pandemic could start in a country with few medical resources or out in the countryside where medical resources are scarce. Or it could launch itself in a highly metropolitan area—New York City, London, Paris, or Tokyo.

One thing we do know is that, compared with the low-tech transportation system in place in the 1918 pandemic, today’s transportation system of giant airbuses, bullet trains, cruise ships, and space shuttles would unfortunately spread the disease faster. “With airplanes and expressways, you’re going to see the disease spread much more easily and more rapid escalation of [the pan-

demical” explains James W. Satterfield, President-Chief Operations Officer of Firestorm Solutions, a risk management consulting firm based in Golden, Colo. “Last year 3 out of 4 people who got [avian flu] died. That is a very scary statistic, and now the federal government is saying that the death rate might be [more like] 1 or 2 percent [in the event of a pandemic]. That is a significant improvement, but we’re still talking about millions and millions of people dying.” At the Pandefence 1.0 conference in November 2005, experts estimated that a pandemic flu crisis could lead to between 500,000 to 6 million deaths in the U.S.

In an effort to promote emergency preparedness for a possible flu pandemic, the Center for Disease Control launched an aggressive public education campaign in February 2006, highlighting educational and user-friendly sites (ready.gov, pandemicflu.gov) via a series of public service announcements on television and billboards.

In June of this year, the Department of Health and Human Services gathered 100 leaders from the business and healthcare communities to discuss how to help the country become more prepared. “Preparing for an influenza pandemic is a shared responsibility,” HHS Secretary Mike Leavitt said at the forum. “By preparing now, individuals will be better able to deal with a pandemic, slow the spread of illness, and lessen the overall impact to themselves and to society.”

At the forum, Joseph Bocchini, Chair, Committee on Infectious Diseases, American Academy of Pediatrics, pointed out the special role that healthcare providers play in this preparation. “The role of the healthcare community in helping individuals prepare for pandemic flu is critical. Healthcare providers can validate that the risk of a pandemic is very real and that taking steps to prepare is beneficial, especially for families and chil-

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The message is getting through, but slowly, a 2006 Harris Interactive poll indicates. The survey found that about 65 percent of adults were familiar with avian flu, up from 47 percent in 2005, and one in five people has researched avian flu or talked about it. But only 32 percent of survey takers say that they have taken any steps to prepare for a potential pandemic.

“People are scared of things that they don’t understand, and the words ‘pandemic flu’ do sound kind of scary,” admits Dr. Philen. “But the physicians have an obligation to educate patients on what is pandemic flu, what it may be like compared with regular flu or avian flu, which could become pandemic.”

The good news is that this kind of preparation builds a stronger healthcare system overall, and increases the ability of healthcare professionals to deal with any type of emergency, large or small. “When you try to build the overall public health response and improve the communication and knowledge between the medical communities and the public health communities, that’s good no matter what you’re aiming for,” says Michael R. Grey, MD, MPH, professor of medicine at Tufts University School of Medicine and co-author of *The Bioterrorism Sourcebook* (McGraw-Hill Medical Publishing Division, 2006). “You’re building up an infrastructure that needs to be built. You’re improving communications between two communities that are essential in any kind of public health circumstance, whether it be biological, chemical, nuclear-related, or something else. Those are good things in themselves, and probably long overdue,” says Dr. Grey.

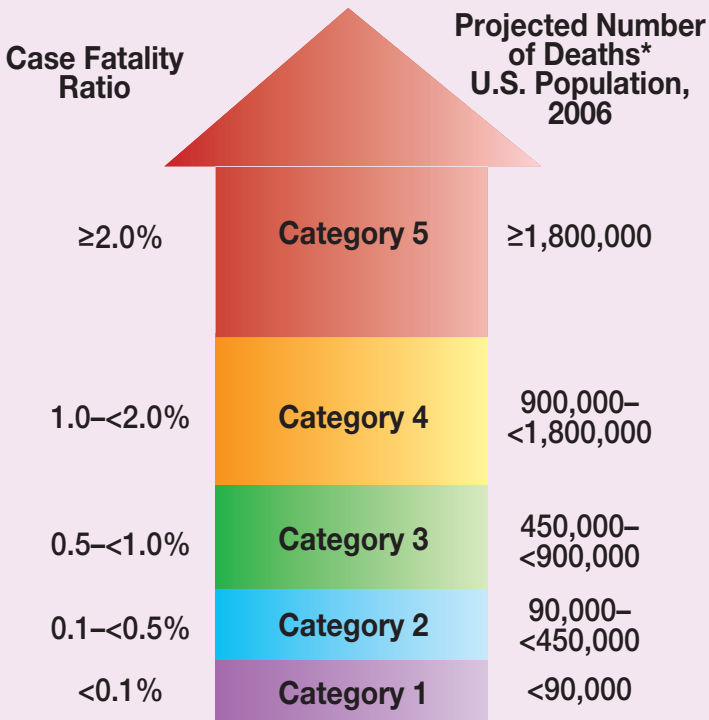
Warning Signs

In this age of 24-hour cable and Internet news, it’s hard to beat the speed of reporters who are in remote areas of the world monitoring the bird flu story as it unfolds. When the news breaks of “sustained human-to-human transmission anywhere in the world,” this will trigger a pandemic response by the United States, says Dr. Philen.

The healthcare system may get no more warning than the rest of the country. “It’s very hard to be far in advance of the reporters. I think doctors and physicians are going to get the

The Pandemic Severity Index

The Pandemic Severity Index uses case-fatality ratio as the critical driver for categorizing the severity of a pandemic (see figure below). The index is designed to enable estimation of the severity of a pandemic on a population level to allow better forecasting of the impact of a pandemic and to enable recommendations to be made on the use of mitigation interventions that are matched to the severity of future influenza pandemics.



*Assumes 30% illness rate and unmitigated pandemic without interventions.

Source: Centers for Disease Control, www.cdc.gov.

warning at about the time the entire population gets the message,” advises Dr. Philen. “Bearing that in mind, it’s even more critical to have a plan ready to roll.”

If someone Mr. Satterfield meets doesn’t believe bioterrorism is much of a threat six years after September 11, he reminds that skeptic that Ayman al-Zawahiri, the number-two Al-Qaida leader, is a surgeon and son of a pharmacologist from a large family of doctors. This is just one of a multitude of reasons that his firm takes an “all-hazards” approach to emergency preparedness.

“Classically in medicine, pre-September 11, one would have considered the idea of bioterrorism an exotic footnote in medical school curricula,” says Daniel J. Barnett, M.D., M.P.H. Instructor, Department of Environmental Health Sciences, Johns Hopkins Bloomberg School of Public Health in Baltimore, Md. “The old adage is that when you hear hoofbeats, you think horses, not zebras. Today it’s critical that physicians be alert to the zebras as well.” Ultimately, it will be the alert clinician who will be first to detect something abnormal that could be an indicator of a bioterrorism attack, Dr. Barnett adds.

Not only do physicians based in major metropolitan areas have to be alert to any suspicious cluster of odd symptoms, but even doctors in rural areas should know where to turn and what to look for. Terrorists will probably not let off a canister of sarin in the middle of North Dakota. Washington and New York are more probable targets. But it’s more complicated than that, warns Dr. Grey. Terrorists may target the food supply, water reservoirs, and other places where security might be less vigilant.

“We need to do a better job of plugging the disenfranchised healthcare provider into a bigger scheme of things,” says Dr. McFee. “There is the assumption that the health department, medical society, or state police will take care of it, but what if you’re one of three doctors in a small town and a couple of patients who have gone traveling to Asia come back with SARS, the avian flu, or God knows what?” All of a sudden, “You’re ground zero,” he says.

Since all the category A bioterrorism agents—anthrax, botulism, plague, smallpox, tularemia, and viral hemorrhagic fevers—as well as the new strains of flu have the same vague initial symptoms that appear like ordinary flu, proper diagnostic recog-

dition can be a huge challenge, explains Dr. Grey. Physicians need to look for unusual clusters of certain disease patterns or flu-like symptoms out of season, he says. Lesions would be present in smallpox. (A picture of smallpox is available on the CDC Web-site). Certain agents can cause high fever and rash, and a doctor who sees these symptoms in groups or individuals should notify the local health department. Even basic x-ray findings, such as a widened *mediastinum* on a chest x-ray, can be significant. (This is how the inhalation anthrax case was detected in 2001.)

“Out of the norm” can also mean an unusual pattern of disease that the doctor has never seen before—for example, an increased

Detection and Diagnosis Red Flags

The first physician treating the avian flu or other highly pathogenic form of influenza in the U.S. may not immediately know that this person is an index patient, the beginning of a pandemic. “A lot of it rests on the doctors being astute,” says Dr. McFee. “We as a profession need to be connected in the wider space.”

Here are some red flags to look for, according to Dr. McFee.

■ **Exaggerated symptoms compared with ordinary flu:** Avian flu causes shortness of breath, whereas typical seasonal flu causes shortness of breath only in rare cases in which the patient has developed secondary pneumonia.

■ **Clusters of patients outside the normal profile:** If a physician starts getting clusters of patients who don’t fit the normal age profile for those symptoms—for example, young adults in their 30s who “look like a train wreck” and have serious shortness of breath—that’s a red flag, Dr. McFee warns. If the patient says that everyone he or she lives with is suffering similar symptoms, another red flag should go up.

■ **Re-emerging pathogens:** Physicians should be on the lookout for re-emerging pathogens like whooping cough, multi- and extreme drug-resistant TB, and variant forms of pathogens that are increasing in virulence and deadliness.

“It’s numbers, the types of symptoms, the history associated with it, and the rapidity with which it occurs,” Dr. McFee says. While most symptoms probably will end up being due to common illnesses, an alert physician should always consider other factors (travel, occupation, population exposures, and others) before dismissing an uncommon or unexpected symptom as a mere anomaly.

number of cases of a certain illness out of proportion with normal trends. “If I see five diarrhea cases this week, and next week I see 35, that’s abnormal. If I normally see flu-like symptoms in the winter, and I see them in the summer, that’s abnormal,” says Dr. Markenson.

The CDC uses different surveillance systems to track flu cases and various aspects of an influenza season (e.g., proportion of cases that test positive for a given strain). Results from CDC’s flu surveillance system are available at www.cdc.gov/flu/weekly/fluactivity.htm. Data are updated weekly during flu season.

History Lessons

The history of flu pandemics offers many sobering statistics. There have been three pandemics each century over the past 1,000 years; the longest gap between pandemics has been 40 years. The last pandemic was 39 years ago in 1968.

In 1916 there were just 155 cases of the Spanish flu worldwide. Two years later, 40 million people died of the disease in the five months between October 1918 and March 1919. More than 50 million people died by the end of the pandemic. In this country, there were 675,000 deaths.

The last flu pandemic (“Hong Kong influenza H3N2”) began in China in July 1968 and made it to the United States in September 1968 as U.S. Marines returned from duty in Vietnam. About one to three million people died worldwide from that pandemic between 1968 and 1970.

Typically flu affects the very young and very old; yet in the 1918 pandemic, it infected people with healthy immune systems more than those with impaired immune systems. One possible explanation is a phenomenon called “cytokine storm.” In this syndrome, a person’s immune system reacts so vigorously to an agent (in this case, the pandemic flu strain) that it leads to severe inflammation and death. If the next pandemic causes the same phenomenon, there would be a clustering of flu in populations you wouldn’t expect to be hit so hard, explains Stephen S. Morse, MD, Director of the Center for Public Health Preparedness at Columbia University’s Mailman School of Public Health and Associate Professor of Epidemiology.

Recent history also presents clues to physicians who might be

in the position of diagnosing symptoms similar to avian flu. On May 28, 2007, *The New York Times* reported that the first human avian flu case since November 2005 had been diagnosed in the Vinh Phuc province, near Hanoi. The man had contracted H5N1 while participating in a ritual chicken slaughter at a friend's wedding a month earlier. There is no current evidence of any sustainable person-to-person spread, but people who come in contact with poultry or feces of poultry may be at risk. "If a doctor knows that a patient works with poultry or in a zoo, then that patient's risk of having avian flu as an occupational hazard is greater, and the doctor should be prepared for that," says Dr. Morse.

If a physician sees a constellation of the right symptoms and risk factors (fever or pneumonia without another explanation in someone who may have been exposed to the disease in a country where there have been known cases of avian flu in birds or people), the physician should consult the local health jurisdiction to find out where testing is available, advises Anita Barry, MD, Director of Communicable Disease Control for Boston Public Health Commission.

In Boston, for example, specimens would be tested at the state laboratory using the polymerase chain reaction (PCR) test. If the

Bird Flu: A Virus of Our Own Hatching

by Michael Greger, MD

Imagine this scenario: "A gentleman checks into a four-star Hong Kong hotel to attend a wedding. He seems to have a bad cold—coughing and sneezing—but actually has something much worse. The wedding ends. Guests depart. The virus coughed by one man spreads to five countries within 24 hours."

This is actually the true story of SARS, the closest the world has come to a pandemic influenza-like scenario in recent years. Within months, the virus spread to 30 countries on six continents. The WHO Global Outbreak Alert and Response team later marveled, "A global outbreak was thus seeded from a single person on a single day on a single floor of a Hong Kong hotel."

Source: Excerpted with permission from Bird Flu: A Virus of Our Own Hatching, by Michael Greger, MD (Lantern Books, November 2006). For more information, go to <http://birdflubook.com>.

test turned out positive, then cultures would be sent to the CDC in Atlanta. “All state health department laboratories have the capability to do PCR testing for regular human influenza as well

Pandemic Facts and Assumptions

- 2006 H5N1 mortality rate was 77%.
- H5N1 has ten times the potency of SARS.
- At the 2005 Pandefense 1.0 meeting, 19 medical experts gave a median estimate of a 15% chance that the avian flu virus could mutate into a strain that could efficiently transfer from human-to-human within the next 36 months.
- Significant national restrictions on travel and movement can be expected in an attempt to prevent transmission.
- When sick, people will be unable to work for approximately six to twelve weeks.
- Susceptibility to the outbreak is universal, and people may be asymptomatic while infectious.
- Simultaneous or near-simultaneous outbreaks in communities across the U.S. will limit the ability of any jurisdiction to provide support and assistance to other areas.
- Persons who become ill may shed virus and transmit infection for one-half to two days before the onset of illness.
- Viral shedding and the risk for transmission will be greatest during the first two days of illness.
- At the onset of a pandemic, vaccines and antivirals will be in short supply and will be distributed to state and local health departments.
- Some persons will become infected without developing clinically significant symptoms. Asymptomatic or minimally symptomatic individuals can transmit infection and develop immunity to subsequent infection.
- On average, each infected person will transmit infection to approximately two other people.
- Epidemics will last six to eight weeks in affected communities, multiple waves (periods during which community outbreaks occur across the country) of illness are likely to occur, with each wave lasting two to three months.
- An informed and responsive public is essential to minimizing the health effects of a pandemic and the consequences to society.

Source: Firestorm Critical Decision Support.

as for H5N1. PCR for H5N1 testing is currently available at public health labs in the U.S.," says Carolyn Bridges, MD, Associate Director of Science, National Center for Immunization and Respiratory Diseases (NCIRD), part of the CDC.

According to Dr. Barry, rapid influenza tests may be helpful in detecting avian flu; but data

from human cases in countries outside the United States suggest that those rapid tests are not very sensitive, indicating that one can get a negative result in someone who actually has the disease. A recent study conducted by the University of Colorado at Boulder and the CDC reports that the M-Chip test, an inexpensive "gene chip" based

on a single influenza virus gene, is proving more efficient than the previously developed FluChip test.

If a pandemic occurs, experts predict there might be multiple waves over 18 to 24 months, with individual communities impacted for about 6 to 8 weeks. Although scientists are already working on a vaccine, the final version can't be made until the outbreak actually occurs. "The good news is that we have a vaccine which is being stockpiled for the avian flu," says Dr. McFee. "The question mark is, if there is an epidemic, will this vaccine match the virus closely enough? Will we be able to get it out to everybody in time?" The answer, says Dr. McFee: "Probably yes."

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In May 2007, the Associated Press reported optimistic news about a possible vaccination for avian flu. Scientists are finding clues for a bird flu vaccine for humans in the cells of blood donated by four bird flu survivors in Vietnam. By examining the immune-system molecules from these adult survivors, researchers are hopeful that they may be able to find the genesis for a possible protection from the H5N1 flu strain. So far the evidence has been reported only in tests with mice, but the news is nonetheless exciting the medical community.

In the event of a terrorist attack, significant influenza out-

Summary of the Community Mitigation Strategy by Pandemic Severity

Interventions by Setting	Pandemic Severity Index		
	1	2 and 3	4 and 5
Home			
Voluntary isolation of ill at home (adults and children) combined with use of antiviral treatment as available and indicated.	Recommend	Recommend	Recommend
Voluntary quarantine of household members in homes of ill persons (adults and children). Consider combining with antiviral prophylaxis if effective, feasible, and quantities sufficient.	Generally not recommended	Consider	Recommend
School Child social distancing			
Dismissal of students from school and school-based activities, and closure of child-care programs.	Generally not recommended	Consider ≤ 4weeks	Recommend ≤ 12 weeks
Reduce out-of-school social contacts and community mixing	Generally not recommended	Consider ≤ 4weeks	Recommend ≤ 12 weeks
Workplace/Community Adult social distancing			
Decrease number of social contacts (e.g., encourage teleconferences, alternatives to face-to-face meetings)	Generally not recommended	Consider	Recommend
Increase distance between persons (e.g., reduce density in public transit, workplace)	Generally not recommended	Consider	Recommend
Modify, postpone, or cancel selected public gatherings to promote social distance (e.g., stadium events, theater performances)	Generally not recommended	Consider	Recommend
Modify workplace schedules and practices (e.g., telework, staggered shifts)	Generally not recommended	Consider	Recommend

Source: Centers for Disease Control

break, infectious disease outbreak, or natural catastrophe, the National Stockpile (NSP) is maintained by the CDC as a rapid response to anything that depletes local supplies and equipment. It is designed to provide, within 12 hours, a large number of materials, vaccines, antidotes, diagnostic tools, information, etc., that would replenish the local infrastructure.

“The Strategic National Stockpile is preparing for a potential influenza pandemic by purchasing antiviral drugs, personal protective equipment, intravenous antibiotics, and additional medical supplies specific to responding to a pandemic event,” says Carolyn Bridges, MD, Associate Director for Science for the CDC. “The federal government’s plan currently calls for the purchase of 81 million regimens of antiviral drugs, which includes 50 million purchased and maintained in the CDC’s Strategic National Stockpile and an additional 31 million purchased on a pro-rata basis by the states.”

“Surge Stress”

Healthcare organizations—including private medical practices—need to be prepared to contain a pandemic while dealing with a frightening public health crisis. When people are panicked in a particular community, Mr. Satterfield explains, they are going to rush to their doctors or local hospitals to seek help. For example, say a community population is 20,000 and the local hospital has 500 beds. If 40 percent of the people in that area become sick, that’s 8,000 people trying to get into those 500 beds. This surge will stress emergency rooms and hospital facilities as well as the residents of that area.

“Hotels might be taken over by the government as makeshift hospitals because of the surge of sick people. Our system is not able to handle that level of surge,” says Mr. Satterfield.

Dr. Grey agrees that in a widespread pandemic or bioterrorism attack, emergency rooms would get swamped. He believes that in order to effectively respond to this type of public health crisis, more cross-training and cooperation are needed between medicine and public health communities.

He also believes that the response to an emergency goes beyond hospital emergency rooms and public health departments. Dr. Grey was inspired to write *The Bio-Terrorism Source-*

book for healthcare workers and doctors because he felt that someone needed to focus on the next ring of defense: helping doctors and their staffs understand their responsibilities in the same way the emergency room doctors, EMTs, hospital staff members, firefighters, and police are gearing up for a possible national disaster.

A physician's staff may have to handle telephone calls from the sick and determine over the phone the patient's next step. By listening to their answers, a nurse can figure out if the patient can get the appropriate care at home, or if he or she needs to go to the emergency room. Dr. Markenson says that due to infection control and volume issues, most patients will be told to stay home. However, doctors should develop clear instructions for how staff can determine if the patient can be managed at home and for how patients and their families should treat the disease.

Healthy adults tend not to go to hospitals for influenza unless they are quite sick, explains Dr. Morse. However, parents will often bring their children in at any sign of disease. In the case of a flu pandemic or bioterrorism event, there could be the opposite trend. "There will inevitably be a surge of patients self-reporting to emergency departments in the aftermath of a disaster/terrorism event," Dr. Morse says.

But it's not all about incident response, explains Dr. Grey. Obviously, the healthcare system needs to be prepared to deal with acute cases, but the situation will be more complicated than that, Dr. Grey says. "I think what people often fail to recognize is the ripple effect that you will get from an event. If you look at the SARS event in Canada or the Tokyo subway attacks, for every individual directly affected, there were anywhere from five, ten—some people say even 200 people—who thought they may have been affected," says Dr. Grey. He hopes front-line personnel will arm themselves with the ability to respond to that second wave of patients, the worried well.

"This is where the term 'surge capacity' applies," agrees Dr. Barnett from the Bloomberg School of Public Health at Johns Hopkins. "Importantly, disaster research and experience indicate that psychological casualties will exceed physical casualties by a ratio of at least 4:1." It's also important to remember that even during a pandemic, life goes on, along with the ordinary life

events and emergencies that require the healthcare system. “We shouldn’t forget that this isn’t happening in a vacuum,” says Dr. Morse. “There are going to be people with congestive heart failure or something else life threatening. Normal emergencies will occur and put the same stress on the system that they always do.”

Current WHO Phase of Pandemic Alert

Inter-pandemic phase	Low risk of human cases	1
New virus in animals, no human cases	Higher risk of human cases	2
Pandemic alert New virus causes human cases	No or very limited human-to-human transmission	3
	Evidence of increased human-to-human transmission	4
	Evidence of significant human-to-human transmission	5
Pandemic	Efficient and sustained human-to-human transmission	6

Experts at the World Health Organization (WHO) and elsewhere believe that the world is now closer to another influenza pandemic than at any time since 1968, when the last of the previous century’s three pandemics occurred. WHO uses a series of six phases of pandemic alert as a system for informing the world of the seriousness of the threat and of the need to launch progressively more intense preparedness activities.

The designation of phases, including decisions on when to move from one phase to another, is made by the Director-General of WHO.

Each phase of alert coincides with a series of recommended activities to be undertaken by WHO, the international community, governments, and industry. Changes from one phase to another are triggered by several factors, which include the epidemiological behavior of the disease and the characteristics of circulating viruses.

The world is presently in phase 3: a new influenza virus subtype is causing disease in humans, but is not yet spreading efficiently and sustainably among humans.

Source: World Health Organization, www.who.int/csr/disease/avian_influenza/phase/en/index.html

Pandemic Influenza Planning Checklist for Medical Offices and Clinics

Planning for pandemic influenza is critical for ensuring a sustainable health-care response. The Department of Health and Human Services (HHS) and the Centers for Disease Control and Prevention (CDC) have developed the following checklist to help medical offices and ambulatory clinics assess and improve their preparedness for responding to pandemic influenza. This checklist is modeled after a pandemic preparedness checklist for hospitals and should be used in conjunction with guidance on healthcare preparedness planning in Supplement 3 of the HHS Pandemic Influenza Plan. Many of the issues included in the checklist are also relevant to other outpatient settings that provide episodic and chronic healthcare services (e.g., dental, podiatric, and chiropractic offices, ambulatory surgery centers, hemodialysis centers). Given the variety of healthcare settings, individual medical offices and clinics may need to adapt this checklist to meet their unique needs. Further information can be found at www.pandemicflu.gov.

This checklist identifies key areas for pandemic influenza planning. Medical offices and clinics can use this tool to identify the strengths and weaknesses of current planning efforts. Links to websites with information are provided throughout the document. However, actively seeking information that is available locally or at the state level will be necessary to complete the development of the plan. Also, for some elements of the plan (e.g., education and training programs), information may not be immediately available and it will be necessary to monitor selected websites for new and updated information.

1. Structure for planning and decision making

Com- pleted	In Pro- gress	Not Started	
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- | | | | |
|--------------------------|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Pandemic influenza has been incorporated into emergency management planning for the organization. |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | A planning committee ¹ has been created to specifically address pandemic influenza preparedness for the medical office or clinic. |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | A person has been assigned responsibility for coordinating preparedness planning for the practice or organization (hereafter referred to as the pandemic influenza response coordinator). (Insert name, title and contact information) |
| <hr/> | | | |
| <hr/> | | | |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Members of the planning committee include the following: (Insert below or attach list with name, title and contact information for each) |

¹ The committee could be very small (e.g., two or three staff members) or very large, depending on the size and needs of the organization.

Com- In Pro- Not
pleted gress Started

Administration: _____

Medical staff: _____

Nursing: _____

Reception personnel: _____

Environmental services (if applicable): _____

Clinic laboratory personnel (if applicable): _____

Other member(s): _____

- A point of contact (e.g., person assigned infection control responsibility for the organization or an outside consultant²) for questions/consultation on infection control measures to prevent transmission of pandemic influenza has been identified. (Insert name, title, and contact information)

2. Development of a written pandemic influenza plan.

- Copies of relevant sections of the Department of Health and Human Services Pandemic Influenza Plan have been obtained from www.hhs.gov/pandemicflu/plan; copies of available state pandemic plans also should be obtained.
- A written plan has been completed or is in progress that includes the elements listed in #3 below.
- The plan describes the organizational structure that will be used to operationalize (i.e., lines of authority) the plan.
- The plan incorporates and complements the community response plan.

3. Elements of an influenza pandemic plan.

- A plan is in place for surveillance and detection of pandemic influenza in the population served.**
- Responsibility has been assigned for monitoring public health advisories (federal and state) and informing mem-

²Formal memorandum of understanding or contract may be needed if an outside consultant is used.

Pandemic Influenza Planning Checklist for Medical Offices and Clinics

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bers of the pandemic influenza planning committee and/or the pandemic influenza response coordinator when pandemic influenza is in the United States and when it is nearing the geographic area (e.g., state and/or city). (For more information, see www.cdc.gov/flu/weekly/fluactivity.htm) (Insert name, title and contact information)

- A system has been created to monitor and review influenza activity in patients cared for by clinical staff (i.e., weekly or daily number of patients calling or presenting to the office or clinic with influenza-like illness) and among medical office or clinic staff. (For more information see www.cdc.gov/flu/professionals/diagnosis/) (Monitoring for seasonal influenza activity is performed to ensure that the monitoring system for pandemic influenza will be effective and will ensure that organizations can detect stressors that may affect organizational capacity, such as staffing and supply needs, and hospital and emergency department capacity [and supply needs] during a pandemic)
- A system is in place to report unusual cases of influenza-like illness and influenza to the local or state health department. (For more information see www.hhs.gov/pandemicflu/plan/sup1.html#outpat and www.hhs.gov/pandemicflu/plan/sup5.html#nov)
- A communication plan has been developed.**
 - Key public health points of contact for pandemic influenza have been identified and arrangements have been made for telephone, facsimile, or e-mail messaging. Local health department contact: (Insert name, title and contact information) _____
 - _____
 - State health department contact: (Insert name, title and contact information) _____
 - _____
 - The office or clinic's point person for external communication has been assigned. (Insert name, title and contact information) _____
 - _____

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(Having one person who speaks with the health department, and if necessary, media, local politicians, etc., will help ensure consistent communication is provided by the organization)

- A list has been created of healthcare entities and their points of contact (e.g., local hospitals/health facilities, home health care agencies, social service agencies, emergency medical services, commercial and clinical laboratories, relevant community organizations [including those involved with disaster preparedness]) with whom the medical office or clinic anticipates that it will be necessary to maintain communication and coordination of care during a pandemic. (Attach or insert location of contact list)
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- The pandemic response coordinator has contacted local or regional pandemic influenza planning groups to obtain information on communication and coordination plans, including notification when updated plans are created. (For more information on state and local planning, see www.hhs.gov/pandemicflu/plan/part2.html#overview)
 - A list or database has been created with contact information on patients who have regularly-scheduled visits and may need to be contacted during a pandemic for purposes of rescheduling office visits or assigning them to another point of care. (Insert location of list/database)
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- A plan is in place to provide an education and training program to ensure that all personnel understand the implications of, and control measures for, pandemic influenza.**

- A person has been designated to coordinate education and training (e.g., identify and facilitate access to education and training programs, maintain a record of attendance at education and training programs). (Insert name, title and contact information)
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- Current and potential opportunities for long-distance (e.g., web-based) and local (e.g., health department or

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- hospital sponsored programs, programs offered by professional organizations or federal agencies) education of medical and nursing personnel have been identified. (www.cdc.gov/flu/professionals/training/)
- Language and reading-level appropriate materials on pandemic influenza (e.g., available through state and federal public health agencies and professional organizations) appropriate for professional, allied and support personnel have been identified and a plan is in place for obtaining these materials. (For more information see www.cdc.gov/flu/professionals/patiented.htm)
- Education and training includes information on infection control measures to prevent the spread of pandemic influenza. www.hhs.gov/pandemicflu/plan/sup4.html
- Informational materials for patients on pandemic influenza that are language and reading-level appropriate for the population being served have been identified, and a plan is in place to obtain these materials. (For more information see www.cdc.gov/flu/professionals/patiented.htm)**
- The roles of medical and nursing personnel in providing health care guidance for patients with pandemic influenza have been established.
- A plan for triage and management of patients during a pandemic has been developed.**
- A system is in place for phone (and e-mail, where appropriate) triage of patients to determine who requires a medical evaluation, to limit office visits to those that are medically necessary.
- Plans have been developed to manage patient care at the height of the pandemic including the following possibilities:
- Temporarily canceling non-essential medical visits (e.g., annual physicals).
 - Designating separate blocks of time for non-influenza and influenza-related patient care.
- Local plans and criteria for the disposition of patients following a medical evaluation (e.g., hospitalization, home health care services, self- or family-based care at home) have been discussed with local hospital and

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- health care agencies and local health department. (Flexibility will be necessary based on hospital bed capacity)
- An infection control plan is in place and includes the following: (For information on infection control recommendations for pandemic influenza see www.hhs.gov/pandemicflu/plan/sup4.html)**
 - A specific waiting room location has been designated for patients with symptoms of pandemic influenza that is segregated from other patients awaiting care. (This may not be feasible in very small waiting rooms, in which case the emphasis may be on use of masks as noted below)
 - A plan for implementing respiratory hygiene/cough etiquette is in place. (For more information see www.cdc.gov/flu/professionals/infectioncontrol/resphygiene.htm)
 - Signage (language appropriate) directing patients and those accompanying them to notify reception personnel if they have symptoms of pandemic influenza has been developed or a source of signage (e.g., CDC website above) has been identified.
 - Signage (language appropriate) on Respiratory Hygiene/Cough Etiquette instructing symptomatic persons to use tissues to cover their cough to contain respiratory secretions and perform hand hygiene has been developed or a source of signage (e.g., CDC website above) has been identified.
 - The plan includes distributing masks to symptomatic patients who are able to wear them (adult and pediatric sizes should be available), providing facial tissues, receptacles for their disposal and hand hygiene materials in waiting areas and examination rooms.
 - Implementation of Respiratory Hygiene/Cough Etiquette has been exercised during seasons when influenza and other respiratory viruses (e.g., respiratory syncytial virus, parainfluenza virus) are circulating in communities.
 - If patients with pandemic influenza will be evaluated in the same location as patients without an influenza-like illness, separate examination rooms have been designated for evaluation of patients with symptoms of pandemic influenza.

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- A policy is in place that requires healthcare personnel to use Standard (www.cdc.gov/ncidod/dhqp/gl_isolation_standard.html) and Droplet Precautions (i.e., mask for close contact) (www.cdc.gov/ncidod/dhqp/gl_isolation_droplet.html) with symptomatic patients.
 - The policy includes protection of reception and triage personnel at initial points of patient encounter.
- **A vaccine and antiviral use plan has been developed.**
 - Websites where current federal and/or state health department recommendations for the use and availability of pandemic influenza vaccines and antiviral medications have been identified. (For more information see www.hhs.gov/pandemicflu/plan/sup6.html)
 - An estimate of the number of personnel and patients who would be targeted as first and second priority for receipt of pandemic influenza vaccine or antiviral prophylaxis, based on HHS guidance for use, has been developed. (www.hhs.gov/pandemicflu/plan/appendixd.html) (This estimate can be used for considering which patients may need to be notified first about vaccine or antiviral availability, anticipating staffing requirements for distribution of vaccines and antivirals, and for procurement purposes)
- **An occupational health plan has been developed and includes the following:**
 - A liberal/non-punitive sick leave policy for managing personnel who have symptoms of or documented illness with pandemic influenza. The policy considers:
 - The handling of staff who become ill at work.
 - When personnel may return to work after recovering from pandemic influenza.
 - When personnel who are symptomatic, but well enough to work, will be permitted to continue working.
 - Personnel who need to care for their ill family members.
 - A system for evaluating symptomatic personnel before they report for duty and tested during a non-pandemic influenza period.
 - Mental health and faith-based resources that are available to provide counseling to personnel during a pandemic.

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- The management of personnel who are at increased risk for influenza complications (e.g., pregnant women, immunocompromised healthcare workers) by placing them on administrative leave or altering their work location.
- The ability to monitor seasonal influenza vaccination of healthcare personnel
- The offer of annual influenza vaccine to medical office or clinic personnel.
- Issues related to surge capacity (i.e., dealing with an influx of patients and staff and supply shortages) during a pandemic have been addressed. (For more information see www.hhs.gov/pandemicflu/plan/sup3.html#surge)**
 - Plans for managing a staffing shortage within the organization due to illness in personnel or their family members have been addressed.
 - Staff have been encouraged to develop their own family care plans for the care of dependent minors and seniors in the event community containment measures (e.g., "snow days," school closures) are implemented. (www.pandemicflu.gov/planguide/checklist.html; www.pandemicflu.gov/planguide/familyhealthinfo.html)
 - The minimum number and categories of personnel necessary to keep the office/clinic open on a given day have been determined.
 - Plans for either closing the office/clinic or recruiting temporary personnel during a staffing crisis have been addressed.
 - Anticipated consumable resource needs (e.g., masks, gloves, hand hygiene products, medical supplies) have been estimated.
 - A primary plan and contingency plan to address supply shortages have been developed and each details procedures for acquisition of supplies through normal channels, as well as requesting resources when normal channel resources have been exhausted.
 - Plans include stockpiling at least a week's supply of consumable resources, including all necessary medical supplies, when there is evidence that pandemic influenza has reached the United States.

Source: CDC, www.pandemicflu.gov/plan/healthcare/medical.html.