

# Don't Panic — Prepare

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Increasing attention is being given to the possibility of an influenza pandemic in the near future. Images from the three influenza pandemics that occurred in the 20th century fuel the present anxiety. The last influenza pandemic occurred in 1968 and caused 34,000 deaths in the United States alone.

For an influenza virus to cause a pandemic it must: 1) possess a new surface protein to which there is little or no pre-existing immunity in the population; 2) have the ability to cause illness in humans; and 3) have the ability for sustained transmission from person to person. While recent outbreaks of human disease were caused by an avian influenza strain, this strain has thus far not demonstrated an ability for sustained transmission between humans.

Modeling studies estimate that a "medium-level" influenza pandemic in the U.S. could cause as many as 89,000 to 207,000 deaths, 314,000 to 734,000 hospitalizations, 18 million to 42 million outpatient visits, and another 20 million to 47 million cases of illness. Fifteen to 35 percent of the U.S. population could be affected.

Concern over an approaching influenza pandemic and the impact it would have both on the population and the health care delivery system have resulted in calls for the major federal entities to declare their state of readiness. Federal public health officials are relying on the existing national influenza surveillance system and the recent modifications to identify the next influenza pandemic. With the current focus on the H5N1 influenza strain, avian flu now thought to be endemic in several Asian countries, there is an increasing effort to coordinate between animal health and public health officials. According to the CDC, nearly 70 percent of emerging infectious disease episodes in the last 10 years have been zoonotic diseases. In addition to surveillance a national plan must include purchase, distribution and administration of influenza vaccine, prioritizing of population groups for receipt of vaccine, quarantine and travel restrictions, health workforce capacity and the deployment of resources. The U.S. Department of Health and Human Services is principally responsible for coordinating the nation's public health emergency response.

Another concern is the inclusion of private and other non-health department based health care delivery sites. What will their role be in addressing an influenza pandemic? Does the current communication platform for the national surveillance system provide for communication with non-health department health care delivery sites? For example, the CDC early warning and response system,

the Health Alert Network (HAN), is designed to ensure that state and local health departments have timely access to emerging health information. Dissemination of this information outside of the health department framework is critical. One important role that migrant and community health centers could play is that of a sentinel surveillance system.

With many of these health centers located both in rural and densely populated urban areas, they are uniquely positioned to witness the early phases of an emerging pandemic. While hospital emergency rooms are likely to receive many of the newly ill at the onset of a pandemic, health centers are seen as the safety net provider of health care services in many communities. A strong communication network between these health centers could produce some of the first surveillance of an influenza pandemic.

## Health Center Preparedness

Health centers must consider a number of actions to improve their readiness for and increase their effectiveness in addressing a possible influenza pandemic.

1. Determine how and by whom decisions will be made concerning resources allocation, including vaccine and antiviral medications in your area. Knowing in advance by whom and how vaccines will be purchased and disseminated limits the delay of implementing an effective response to an emerging influenza outbreak.
2. Educate yourselves on the information stream at the state and local level for outbreak alerts. While there is still some uncertainty over the authority and decision making ability between federal and state public health officials, most communication networks are based on a flow of information from the federal level to state health authorities and on to local public health entities. The existence of a working relationship between the health center and the health department provides for rapid and accurate communication.
3. Segment your existing patient population according to priority group for vaccination. A priority list of population groups who will receive vaccine in the event of an influenza pandemic has been developed and is being presented to Secretary of Health and Human Services, Mark Leavitt, and the Influenza Task Force. While not yet accepted as policy, groupings are likely to remain unchanged and only their priority position altered.
4. Verify that organization infection control policies are updated and practiced
5. Implement patient education on infection

control measures to prevent the spread of disease.

## Diagnosis and Treatment

The abrupt onset of fever, myalgia, headache, malaise, nonproductive cough, sore throat, rhinitis and other constitutional and respiratory signs and symptoms characterize uncomplicated influenza illness. With children, otitis media, nausea, and vomiting are also commonly reported. Young children with influenza infection can have initial symptoms mimicking bacterial sepsis with high fevers, and < 20 percent of children hospitalized with influenza can have febrile seizures. Influenza infection has also been associated with encephalopathy, transverse myelitis, Reyes syndrome, myositis, myocarditis, and pericarditis.

The typical incubation period for influenza is 1–4 days, with an average of 2 days. Adults can be infectious from the day before symptoms begin through approximately 5 days after illness onset. Children can be infectious for > 10 days, and young children can shed virus for several days before their illness onset. Severely immunocompromised persons can shed virus for weeks or months. Influenza illness typically resolves after 3–7 days, although cough and malaise can persist for 2 weeks or more.

Because respiratory illness caused by influenza is difficult to distinguish from illness caused by other respiratory pathogens on the basis of symptoms alone, the use of diagnostic testing can aid clinical judgment and help guide treatment decisions. Diagnostic tests available for influenza include viral culture, serology, rapid antigen testing, polymerase chain reaction (PCR), and immunofluorescence assays. Commercial rapid diagnostic tests are available that can detect influenza viruses within 30 minutes. Some tests are approved for use in any outpatient setting, whereas others must be used in a moderately complex clinical laboratory. These rapid tests differ in the types of influenza viruses they can detect and whether they can distinguish between influenza types. None of the tests provide any information about influenza A subtypes. The types of specimens acceptable for use (i.e., throat, nasopharyngeal, or nasal aspirates, swabs, or washes) also vary by test. Among respiratory specimens for viral isolation or rapid detection, nasopharyngeal specimens are typically more effective than throat swab specimens. Samples should be collected within the first 4 days of illness.

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Rapid influenza tests provide results within 24 hours; viral culture provides results in 3–10 days.

Even with the availability of rapid diagnostic tests, collecting clinical specimens for viral culture is critical. Only culture isolates can provide specific information regarding circulating strains and their compatibility with vaccine strains and subtypes of influenza viruses. This information is also needed to guide decisions regarding treatment and chemoprophylaxis. Virus isolates also are needed to formulate vaccine for the coming year, monitor the emergence of antiviral resistance and the emergence of novel influenza A subtypes that might pose a pandemic threat.

### **Treatment**

Part of the national preparations for a possible influenza pandemic includes the produc-

tion of vaccine for the H5N1 strain. Development is underway so as to accelerate response time should an outbreak occur. The supply of vaccine is still below what would be required for thorough coverage should an outbreak occur soon. But every effort is being made to build the necessary vaccine stockpile for the influenza strain seen as the likely source of the next pandemic.

*Early in an influenza pandemic prior to identification of the specific strain or before vaccine is available, antiviral drugs may have a significant impact. Antiviral drugs could reduce or prevent the number of influenza-related deaths until a vaccine is available. They can be administered as a prophylactic or as a treatment if given within 48 hours of the onset of symptoms. While all four approved influenza antiviral drugs can be used against all strains of pandemic influenza, some strains can become*

*resistant to one or more of the drugs rendering it ineffective.*

*This information is provided in an effort to prepare health centers for a possible influenza pandemic. While considerable planning is underway at the national level, all direct care action will take place at the local level. Health centers will have an important role to play as part of any effective system of prevention, identification and response in a pandemic influenza pandemic.* ■

### **Sources:**

GAO-05-760T Testimony Before the Subcommittee on Health, Committee on Energy and Commerce, United States House of Representatives

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<http://www.cdc.gov/flu/professionals/diagnosis/>

<http://www.cdc.gov/flu/professionals/labdiagnosis.htm>