

PRACTICE ALERT

Public health issues influencing your practice

Pandemic influenza: How it would progress and what it would require of you

An influenza pandemic, or worldwide outbreak, advances through 3 periods—interpandemic, pandemic alert, and pandemic—and their respective phases defined by the World Health Organization (**TABLE 1**). Your responsibilities would be different in each of these periods (**TABLE 2**), requiring you to stay current on the progression of the disease and changing recommendations coming from the Centers for Disease Control and Prevention (CDC) and state and local public health departments.

A pandemic would be caused by the emergence of a new strain of influenza A. This strain could be the avian strain described in the May 2005 Practice Alert,¹ “The growing threat of avian influenza,” or another novel strain.

This column describes the family physician’s role in a pandemic and includes advice on diagnosis, treatment, and prevention of disease transmission. It is based on recent recommendations from the CDC.²

■ Major differences between pandemic flu and a regular flu season

Vaccine shortage. Unless faster vaccine production methods are developed, there will probably be little to no vaccine initially, and once vaccine production commences the amount produced will not keep up with the need. This will necessitate pri-

oritizing vaccine administration, forcing us to weigh societal infrastructure needs (firefighters, health care workers, police, etc) against those of individuals at high risk of complications.

In addition, 2 doses of vaccine 1 month apart will be needed for full protection. (*Note:* There is an approved provisional plan through the Advisory Committee on Immunization Practices [ACIP] and the National Vaccine Advisory Committee [NVAC] for vaccine prioritization.)

Antiviral shortage. There will also likely be a shortage of antiviral medication. Amantadine (Symmetrel) and rimantadine (Flumadine)—antivirals recommended for use against influenza A—have reduced efficacy against avian influenza, and the same may be true with any other novel strain.

Other antivirals if they are effective and available, will be used to treat acute infections and to prevent infection in those exposed and/or at high risk of complications and will be administered according to a prioritization schedule. Recommendations for prioritization of both vaccine and antivirals will come from ACIP/NVAC and the Secretary of the Department of Health and Human Services. The recommendations will be implemented by the CDC and state and local health departments, but may change as the pandemic evolves, depending on the number of people and age groups infected and the rates of morbidity and mortality.

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TABLE 1

WHO global pandemic phases

INTERPANDEMIC PERIOD

Phase 1 No new influenza virus subtypes have been detected in humans. An influenza virus subtype that has caused human infection may exist in animals but the risk of human infection or disease is considered low.

Phase 2 No new influenza virus subtypes have been detected in humans. However, a circulating animal influenza virus subtype poses a substantial risk of human disease.

PANDEMIC ALERT PERIOD

Phase 3 Human infection with a new subtype has occurred but no human-to-human spread has occurred, or at most there have been rare instances of spread to a close contact.

Phase 4 Small clusters with limited human-to-human transmission are detected, but spread is highly localized, suggesting that the virus is not well adapted to humans.

Phase 5 Larger clusters but human-to-human spread is still localized, suggesting the virus is becoming increasingly better adapted to humans but may not yet be fully transmissible.

PANDEMIC PERIOD

Phase 6 Transmission increases and is sustained in the general population.

POSTPANDEMIC PERIOD

Return to **Phase 1**

Complicating factors. A common influenza strain could circulate at the same time as a pandemic strain, complicating the diagnostic and epidemiological picture. Office-based, rapid diagnostic tests cannot distinguish between influenza A strains. Finally, if pandemic flu exhibits the expected high rates of proliferation and mortality seen in past pandemics, our current hospital capacity will be strained and likely exceeded.

■ Back to basics

Even with a limited supply of vaccine and antiviral medication, useful advice can still be given to individuals and the public to help them protect them and others from infection should a pandemic occur. People should be advised to:

- What hands frequently and thoroughly
- Avoid locations where infection is likely to occur
- Avoid close contact with those who have flu-like symptoms
- Cover coughs and sneezes with tissues, properly dispose of used tissue, and wash hands after handling waste
- Use infection control measures in the home if a household member is ill

(TABLE 3)

- Possibly use masks. (No consensus exists on the use of masks by those infected or potentially exposed. Surgical masks may be useful for providers of patient care.)

Physicians can take measures to minimize the chance of spreading the virus in their clinics and to protect themselves and other staff (covered in a previous Practice Alert).³ Infection control guidelines can be implemented in hospitals and other health care facilities, as well as in schools and other high-risk settings.

■ Clinical guidelines: Pandemic alert

The recommended clinical approach to a patient suspected of having a novel flu strain will vary depending on the phase of the pandemic.

Through phase 5, in the pandemic alert period, acute febrile respiratory illness will be caused by a novel influenza virus only rarely. Suspect novel influenza only if the patient meets both clinical and epidemiologic criteria. The *clinical criteria* are fever plus 1 or more of the following: sore throat, cough, dyspnea.

Epidemiologic criteria include travel within the past 10 days to an area affected by highly pathogenic avian influenza outbreaks in poultry or where human cases of

FAST TRACK

In pandemic alert, suspect novel influenza only if clinical and epidemiologic criteria are met

novel influenza have been confirmed; and either direct contact with poultry (touching birds or bird feces or surfaces contaminated by bird feces or eating uncooked poultry products) or close contact with a person with confirmed or suspected novel influenza. Occupational exposure through laboratory work with the novel influenza strain would also be considered an epidemiologic criterion, but this occurrence would be rare. Geographic areas affected by avian influenza can be found on the CDC web site (www.cdc.gov/flu/) and World Health Organization web site (www.who.int/en/).

6 Steps to proper management. Once a patient is suspected of having a novel influenza strain, take the following steps.

1. *Control spread of infection.* Consider admitting the patient to a single-patient hospital room. If this is not possible, take precautions to control infection in the home (**TABLE 3**). Details of hospital infection control precautions can be found on the CDC influenza web site.
2. *Notify local or state public health departments.* Report the suspicious case and ask for advice regarding collecting laboratory specimens and treatment options.
3. *Obtain clinical specimens* requested by the public health department and arrange to have them transported to a designated public health laboratory. These will probably consist of a nasopharyngeal swab, nasal swab, throat swab, and an acute serum specimen (for comparison to a convalescent specimen 2 to 3 weeks later).
4. *Evaluate alternative diagnoses.* Remember that a novel influenza infection can co-infect with a more common organism. Discontinue isolation and antiviral therapy prematurely only if an alternative diagnosis is confirmed with a high-predictive value test, the clinical course is explained by the alternative diagnosis, and the epidemiologic link to the novel influenza strain is not strong.

TABLE 2

Family physician responsibilities

INTERPANDEMIC AND PANDEMIC ALERT PERIODS

- Become familiar with case definitions
- Know procedures for screening, infection control, and laboratory testing
- Know antiviral regimens for Avian and other novel influenza viruses
- Notify local public health authorities about suspected and confirmed novel influenza cases
- Collect recommended specimens for diagnosis of novel influenza strains and have them forwarded to designated public health laboratories

PANDEMIC PERIOD

- Regularly review updates on case definitions and recommendations for screening, laboratory testing and treatment
- Report pandemic influenza cases as requested by the public health department
- Collect specimens as requested by the public health department for ongoing surveillance and have them forwarded to designated public health laboratories
- Report atypical cases, prophylaxis failures, and other abnormal cases to the public health department

5. *Start antiviral treatment.*
6. *Assist the public health department in locating potentially exposed contacts and providing antiviral prophylaxis if recommended.*

■ Clinical guidelines: Pandemic period

During the pandemic period, managing suspected infection differs from the pandemic alert period in several respects.

1. Suspected cases need only meet the clinical criteria: fever with sore throat, cough, or dyspnea. These criteria may

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Even if you suspect novel influenza, rule out possible co-infections

TABLE 3

Infection control measures for patients cared for at home

MANAGING THE PATIENT

Place the patient in a separate room or separate physically from other household members as much as possible

The patient should stay at home while most infectious (5 days after symptom onset) to avoid infecting others. If they have to leave the home they should strictly follow respiratory hygiene

Consider having the patient wear a surgical mask

ADVICE FOR OTHERS IN THE HOME

Non-household members should not enter the home

If non-household members need to enter the home they should avoid close contact with the patient

Limit the number of household members having contact with the patient

Follow hand hygiene after contact with the patient or the patient environment and waste products. This includes hand washing with soap and water or use of an alcohol-based hand rub

Consider having direct caregivers wear a surgical mask

Wash dishes, utensils, and laundry in warm water and soap

Consider antiviral prophylaxis for household members, if it is available

Have household members seek care as soon as they develop symptoms of influenza

FAST TRACK

During the pandemic, hospitalize only those patients with severe complications who cannot be cared for at home

1. be modified as the pandemic evolves.
2. Hospitalize only those patients with severe complications who cannot be cared for at home.
3. Submit clinical specimens to the designated lab only as requested by the public health department. Such monitoring will probably be needed only for a

subset of patients to watch the epidemiology of the epidemic or to investigate unusual presentations or failures of preventive therapy.

4. Report atypical cases, prophylaxis failures, and other abnormal cases to the public health department.

Pre-pandemic planning

If and when another influenza pandemic will occur is difficult to predict. To be prepared, follow sound public health practices: adhere to office infection control practices, insure that patients and staff are current on all immunizations—influenza and pneumococcal vaccines can probably limit the complications from a novel influenza pandemic—maintain a line of communication with the local public health department, report communicable diseases and suspicious presentations to the public health department, and participate in local emergency planning.

Family physicians who serve in leadership positions in hospitals and other health care facilities can also promote planning for a possible pandemic at these facilities, including how to manage a surge of critically ill patients. ■

REFERENCES

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3. Campos-Outcalt D. Infection control in the outpatient setting. *J Fam Pract* 2004; 53:485-487.