Fact Sheet

Pandemic Influenza

Medical and Public Health Professionals

What is pandemic influenza?
Annual outbreaks of influenza are due to minor changes in the surface proteins of the viruses that enable the viruses to evade the immunity humans have developed after previous infections with the viruses or in response to vaccinations. When a major change in either one or both of their surface proteins occurs spontaneously, no one will have partial or full immunity against infection because it is a completely new virus. If this new virus also has the capacity to spread from person-to-person, then a pandemic will occur.
The surface proteins monitored for change are hemagglutinnin (H) and neuraminidase (N). The H surface protein is responsible for cell attachment and entry and is the major antigen of the virus against which antibodies are produced. There are 14 subtypes of H and 9 subtypes of N. Each time a new strain is discovered, the strain subtype of H and N are given determined resulting in the strain type. Previous influenza pandemics have been associated with changes in H structure.
In order for a strain of influenza to be distinguished as pandemic, it must meet the following criteria:

- The virus must have the ability to infect humans and cause high mortality (death);
- Existence of a global human population that is immunologically naïve; and
- Efficient and sustained human-to-human spread.

What is the role of livestock and other animals in spreading pandemic influenza?
Animals are often the source of novel strains of influenza for several reasons. First, viruses must change so they have the ability to infect an animal. Second, animals may become infected with several strains of influenza which allows strains to share genes and further mutate. These mutations may either be drifts, which are slight mutations or shifts which are significant enough to allow a virus to infect large numbers of humans or another animal species.

Why do the H5 strains of influenza have the potential to cause pandemic influenza?
All known subtypes of influenza have the ability to infect birds. H5 and H7 subtypes can be further distinguished as either “low pathogenicity” or “high pathogenicity”. H5 viruses have nine potential subtypes and have been documented in humans, sometimes causing severe illness or death. Human infection with H7 is rare, but can occur in people who have close contact with infected birds. H5N1 and H7N7 strains are of particular interest at this time, and the H5N1 strain has caused the most recent cases resulting in severe illness or death.

Will stockpiling of antivirals affect my ability to prescribe antivirals for my patients?
The federal government is purchasing a large amount of antiviral medication from the manufacturer. There have been no indications at this time that this will affect routine medical care.

Will there be a vaccine for pandemic influenza?
There is not a vaccine for avian influenza although there are now researchers working with national governments to develop a vaccine.

Will antiviral medication (such as Tamiflu) be effective against pandemic influenza?
No one knows definitively whether anitivirals such as Tamiflu will be effective against pandemic influenza. It is likely that a pandemic strain will be unlike previous strains and therefore may be resistant to antivirals and existing vaccines.

Do I need to vaccinate patients for pandemic influenza?
There is no vaccine for pandemic influenza and we are not experiencing pandemic influenza anywhere in the world.

What can I do to prepare my practice and my patients for pandemic influenza?
The best way to protect your patients is to educate them on the basics of disease prevention: 1) when and how to wash hands or use alcohol gels, 2) to cover mouth and nose when coughing or sneezing, using disposable tissues, throwing them away after use and than washing hands or using an alcohol based hand gel. Encourage your patients to get the influenza vaccine every year to lower their chances of getting both causes of influenza at once and ensure that your patients in the recommended groups have received the pneumococcal vaccine to lower their chances of getting a bacterial pneumonia along with influenza.

Should I screen patients for exposure to avian influenza? If yes, who should I screen?
Ask about risk factors for acquiring disease. Have they traveled to an area of the world that is currently experiencing avian influenza, were they exposed to poultry or to persons who were ill with influenza like illness (ILI) after exposure to poultry? If yes are they currently ill? If ILI is present you should notify the health department and test for influenza. There is no recommendation or reason to test persons who do not have symptoms.