

Nature of Influenza Viruses:

- ? Most influenza viruses are non-pathogenic.
- ? Influenza viruses have a wide host range. Infections occur commonly in birds, pigs, horses, whales, seals, and humans.
- ? Influenza viruses have high mutation rates and are constantly changing.
- ? Most flu viruses tend to be confined to a single host species.
- ? Occasionally, mutations occur which increase the virulence or cause a "jump" to another host species.
- ? Wild waterfowl, gulls, and terns harbor unapparent infections and are the "crucible" of numerous new influenza strains, a few of which may jump to other species.

Nomenclature:

- ? There are 16 hemagglutinin (H) types and 9 neuraminidase (N) types, which can occur in any combination. i.e., H5N1, H5N2, H7N9, etc.
- ? This designation does not predict virulence. (For example, the current Asiatic H5N1 strains are highly pathogenic, but many H5N1 strains are not pathogenic).
- ? Strains can be further characterized by sequencing of the genome. This allows detection of lineages of related strains, and allows detection of continuing mutations.
- ? The designations, low pathogenic and highly pathogenic refer to virulence in chickens, not humans or any other species. Strains of H5 or H7 are the most likely to be highly pathogenic, but most H5 and H7 strains are low pathogenic.
- ? Low path strains may mutate and become high path.

Avian Influenza (AI) in the United States:

- ? Commercial poultry production in the U.S. is free of AI.
 - ? Sporadic outbreaks have occurred from time to time. All have been controlled.
- Most have been low pathogenic strains.
- ? We have effective diagnostic tests and competent diagnostic laboratories.

? Surveillance in poultry and wildlife is ongoing.

? We have world class research and diagnostic laboratory support

? Emergency plans are in place to handle outbreaks.

? Vaccines are being stockpiled.

? The most important immediate threat to U.S. poultry is the H7N2 virus that circulates in the live bird market system in New York and New Jersey. (No human cases).

What are the consequences of AI outbreaks in the U.S.?

? Losses due to loss of production efficiency and mortality.

? Disruptions due to disease control measures.

? Interruptions in interstate commerce and international trade.

? Potential (but low) risk to humans.

The Asiatic H5N1 situation:

? A highly pathogenic strain that has existed in chickens since 1997 or before.

? The virus is spreading across Asia, and has been detected in Eastern Europe and the Middle East.

? The primary means of spread is via human traffic, and wild waterfowl are also disseminating virus.

? There have been instances of human infections, with several deaths, but there has been little or no human-to-human spread. Infection is associated with close contact with infected chickens.

? Veterinary infrastructure is poor and production methods are primitive in many affected regions. The prospects for eradication any time soon are poor.

? No one knows if a mutation will occur which enables human-to-human spread, possibly resulting in a highly lethal pandemic in humans.

? The longer the Asiatic H5N1 strains remain uncontrolled, the higher the risk that it will mutate to a strain causing pandemic human disease!!!.

Vaccines:

- ? Vaccines are highly effective in preventing clinical disease.
- ? The vaccine strain must be a close match to the existing field strains.
- ? Vaccines do not prevent infection, but reduce the amount of virus produced.
- ? Vaccinated birds are antibody positive, complicating efforts in detecting infection.
- ? Quality of H5N1 vaccines used in Asia has often been poor.

What is the danger to humans?

- ? The Asiatic H5N1 strains do not exist in the United States.
- ? Low path AI does not infect poultry meat.
- ? High path AI strains may infect the meat, but are highly susceptible to inactivation by cooking.
- ? We do not import poultry or poultry products from affected areas of the world.

We are a poultry exporting country.

? It's highly unlikely that any outbreak in poultry would go undetected. Any outbreak of highly pathogenic AI in U.S. poultry will be handled aggressively.

What are the needs?

- ? Maintain and increase surveillance in poultry and in wild waterfowl.
- ? Sustain and improve diagnostic and veterinary infrastructure.
- ? Continue the development of plans, programs, and capability for early detection and rapid eradication measures.
- ? Effective border security.
- ? Encourage research for improved methods of detection, improved vaccines, and other control measures.
- ? An H5N1 vaccine for poultry workers and eradication teams.

