2009 H1N1 FLU - MINIMIZING RISKS
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2009 H1N1 Flu (Swine Flu)
What is Influenza A?

Influenza A is a group of viruses that cause contagious respiratory disease.

Many different strains of influenza exist.

Strains typically infect different animals:
- Highly pathogenic avian influenza H5N1 continues to circulate among birds in certain regions.
- H1N1 is one of the most common Influenza A strains that infects pigs.

In 2009, an influenza A H1N1 strain developed the ability of transmission among humans:
- 2009 H1N1 Flu (Swine Flu)
- Transmission is progressing human to human, without involvement of pigs!
2009 H1N1 Flu

- Contact with pigs is **not associated** with 2009 outbreak

- **No transmission** from consumption of properly handled and prepared pork or other products derived from pigs.

- Primary mode of transmission in this outbreak is still under investigation
2009 H1N1 Flu Outbreak

- Mexico is the epicenter
- Confirmed cases in Asia Pacific, Europe, North America & South America
2009 H1N1 Flu

- Symptoms typical of seasonal influenza
  - Fever (usually high), headache, extreme fatigue, dry cough, sore throat and chills

- Some reported diarrhea and vomiting

- Rare cases, progression to pneumonia and respiratory failure, leading to death
Control of Influenza Flu in Humans

- Seasonal influenza vaccine not likely to protect humans from the 2009 H1N1 flu virus
- Antiviral drugs oseltamivir (Tamiflu®) and zanamivir can lessen the symptoms of this virus
- Follow precautions for seasonal influenza to control spread of disease:
  - Vigilant personal hand hygiene and use of alcohol based hand sanitizers
  - Additional infection control precautions
    - Thorough disinfection of contaminated surfaces in areas with ill individuals
    - Cough etiquette
    - Proper hand hygiene
    - Social Distancing (greater than 3 feet = 1 meter)

Source: http://www.cdc.gov/swineflu/general_info.htm
Pandemic
What is Pandemic Influenza?

A Global Epidemic

Result from the emergence of a new virus to which the overall population possesses no immunity

Influenza pandemics are a rare but recurring event (occurred in 1918, 1957 and 1968)

Source: World Health Organization
How Do Viruses Mutate?

Variety of routes

Multiple point mutations

Reassort in pig, human, or other mammal

Bird virus

Human virus
## WHO Influenza Pandemic Phases

<table>
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<tr>
<th>Phase</th>
<th>Description</th>
<th>Number</th>
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<tbody>
<tr>
<td>Inter-pandemic phase</td>
<td>Low risk of human cases</td>
<td>1</td>
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<tr>
<td>New virus in animals, no human cases</td>
<td>Higher risk of human cases</td>
<td>2</td>
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<tr>
<td>Pandemic alert</td>
<td>No or very limited human-to-human transmission</td>
<td>3</td>
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<tr>
<td>Pandemic</td>
<td>Efficient and sustained human-to-human transmission</td>
<td>6</td>
</tr>
</tbody>
</table>

World Health Organization Raised the Pandemic Threat Level to Phase 6 on June 11, 2009

What does this mean?

- Human-to-human spread of the virus has occurred in at least two countries in one WHO region
- Community level outbreaks are occurring in at least one other country in a different WHO region.

Why The Concern About Pandemic Influenza?

- Influenza pandemics are inevitable: naturally recur at cyclical intervals

- Can cause:
  - High levels of sickness and potentially death
  - Drastic disruption of critical services
  - Severe economic losses

- There will be little warning time between the onset of the spread of a pandemic and its spread around the world

- Outbreaks occur simultaneously in many areas

- Impact can last for weeks to months

- Can occur in waves
Seasonal Human Influenza
What is Human Influenza?

- A respiratory infection with fever and often respiratory complications
  - More frequent in immunocompromised and elderly populations

- It is transmitted human-to-human

- Each year a flu vaccine cocktail is assembled for the expected “flu” strains
  - 2008 vaccine did not include H1N1

- Each year, approximately 36,000 people die from the flu in the US

Source: CDC 2004 http://www.cdc.gov/mmwrhtml/rr54e713a1.htm
When is Human Influenza Transmitted?

- One day prior to showing symptoms
- Up to seven days after symptoms first appear
- Most infectious during first three days of illness
How is Influenza Transmitted?

△ Droplet transmission
- Large droplets generated by sneezing, coughing or talking
- Occurs over a distance of 3-4 feet

△ Contact transmission
- Direct
  - Touching an infected human
- Indirect
  - Touching an object that an infected human touched or contaminated with droplets

△ Airborne transmission
- Due to small droplet nuclei
- Occurs over many feet
How Long Does Influenza Virus Survive?

- **Stainless steel and plastic**
  - Survived 24-48 hours
  - Transferred to hands up to 24 hours

- **Cloth, paper, tissues**
  - Survived 8-12 hours
  - Transferred to hands up to 15 minutes

- **Hands**
  - Survived up to 5 minutes

# How Do Seasonal and Pandemic Human Influenza Differ?

## Differences
- Initially no human vaccine or natural immunity
- Potentially higher virulence, affecting broader age groups
- Potentially more people infective

## Similarities
- Personal hygiene is critical
- Same products
- Same procedures
- Same mode of transmission
- Similar survival

**Net result:**
Increase frequency of cleaning and disinfection
Influenza is a Respiratory Illness

- Not transmitted through consumption of food
- Virus must be inhaled
Prevention
General Influenza Prevention Methods

**Medical**
- Vaccination
- Antiviral medications
  - Must start within 2 days of illness

**Non-medical**
- Personal hygiene
  - Cough etiquette
  - Hand washing
  - Hand sanitation (Alcohol rub/gel)
- Hard surface cleaning and disinfecting
- Other steps to minimize risks

Contact your local health care provider

Additional information follows
Cough Etiquette

Posters available in several languages

http://www.cdc.gov/flu/protect/covercough.htm
General Influenza Prevention
Personal Hygiene –
Proper Hand Washing Procedures

- Wet hand with warm water
- Apply soap to hands
- Rub hands together vigorously for 15 – 20 seconds, covering all surfaces of hands and fingers
- Rinse hands with warm water
- Thoroughly dry hands with disposable towel or air blower
- Use towel to turn off faucet
General Influenza Prevention

Personal Hygiene –
Use of Hand Sanitizer

- Apply product to palm
- Rub hands together covering all surfaces of hands and fingers
- Rub until dry (15-20 seconds)
- Use on visibly clean hands
- Consider offering in public areas
EPA states: “Currently registered influenza A virus products will be effective against the 2009-H1N1 flu strain.”

- Must follow label instructions
- [http://www.epa.gov/oppad001/influenza-disinfectants.html](http://www.epa.gov/oppad001/influenza-disinfectants.html)
General Influenza Prevention

Hard Surface Cleaning and Disinfecting

**CLEAN**
- Organic material could protect the virus from sanitizers
- Removal of the organic material is a key part of effective disinfection

**RINSE**
- Detergents should be rinsed off to avoid dilution or inactivation of disinfectant

**DISINFECT**
- Follow directions for use on the product label of a properly registered disinfectant which has claims of effectiveness against influenza viruses listed on the label
General Influenza Prevention
Hard Surface Disinfection – Procedure Overview

▼ Wipe down frequently touched surfaces with a properly registered disinfectant
   ▪ Light and air control switches
   ▪ Faucets and toilet flush levers
   ▪ Door knobs, TV and radio controls and telephones
   ▪ Public restroom doors
   ▪ Other surfaces as needed

▼ Disinfect all surfaces in the bathroom that may have contacted respiratory secretions, urine or feces according to standard infection control procedures

▼ Carefully read and follow all product directions according to the product label
General Influenza Prevention

Personal Protective Equipment

- Wear disposable gloves while cleaning and disinfecting
- Discard gloves after use
- Wash hands frequently before and after gloving, with soap and water and/or use an alcohol based hand sanitizer
- Masks advised for direct contact with influenza patients in healthcare settings
- Additional equipment (respirators, protective clothing, etc.) advised when splashing or aerosol of known infective material is likely
General Influenza Prevention

Other Steps to Minimize Risks

- Wash your hands often
- Avoid touching eyes, nose and mouth
- Avoid close contact
  - Avoid contact with people who are sick
  - Keep distance from others to protect from getting sick (at least 1 meter)
- Cover your mouth and nose when coughing or sneezing
- Stay home when you are sick
  - With cold or flu symptoms, stay home and get plenty of rest
  - Check with your local health care provider as needed
Additional Resources
Additional Resources

- www.ecolab.com

Ecolab brings you the most up-to-date information with links to the WHO, CDC and other news sites.

Ecolab representatives can provide site specific procedures for influenza mitigation and pandemic preparedness suggestions.
The information contained in this presentation is in accordance with U.S. Centers for Disease Control and Prevention (CDC) and World Health Organization (WHO) recommendations.

These recommendations offered are as a set of best practices to help lower the probability of contracting influenza type A viruses.