



**SWINE & PANDEMIC  
INFLUENZA  
MINIMIZING RISKS**

**ECOLAB®**

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Swine  
Influenza

# What is Swine Influenza?

- ▲ A virus causing a contagious respiratory disease that primarily impacts pigs
  - Caused by an influenza A virus, classically H1N1
  - Other strains can also be involved (H1N2, H3N2 and H3N1).
- ▲ Different from the “avian flu” virus of several years ago
- ▲ Swine can become infected by both avian (bird) and human strains of influenza
- ▲ If pigs are infected with both human and swine strains, those strains may combine to create a strain more easily transmitted among humans



# Swine Flu Outbreaks Have Occurred

- ▲ Periodically reported around the world
- ▲ Most cases occur in people who have contact with pigs
  - Many pigs are routinely vaccinated against swine flu
- ▲ Not all human cases have required contact with pigs
  - 2009 outbreak is an example

# 2009 Swine Flu Outbreak

- ▲ Epicenter = Mexico
- ▲ Confirmed cases in US, Canada, Europe, New Zealand, and elsewhere
- ▲ 91 cases have been confirmed in the US, with 1 fatality
  - As of April 29, at 11am, EDT
- ▲ In Mexico, there are 26 confirmed cases and 7 confirmed deaths
  - As of April 28, 2009
  - There may be over 1,300 suspect cases and 100 deaths
- ▲ Suggestion to call it “North American Flu”

# World Health Organization Raised the Pandemic Threat Level to Phase 4 on April 27, 2009

## ▲ What does this mean?

- Human-to-human transmission causing community-level outbreaks has occurred
- This does not necessarily mean that a pandemic will occur, but potential for a global spread of influenza has increased

# 2009 Swine Flu Cases

- ▲ Symptoms = typical of seasonal influenza, including fever (usually high), headache, extreme fatigue, dry cough, sore throat and chills
- ▲ Some reported diarrhea and vomiting
- ▲ Rare cases, the disease can progress to pneumonia and respiratory failure, leading to death

# Transmission of 2009 Swine Flu

- ▲ Typically through direct contact with infected pigs, infected people or contaminated surfaces
  - Contact with pigs is not associated with 2009 outbreak!
- ▲ Not transmitted though properly cooked pork or pig meat
- ▲ Primary mode of transmission in this outbreak is still under investigation

# Control of Swine Flu in Humans

- ▲ Seasonal influenza vaccine not likely to protect humans from the H1N1 swine flu strain
- ▲ Antiviral drugs oseltamivir (Tamiflu™) and zanamivir can lessen the symptoms of this virus
- ▲ Following 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

Source: [http://www.cdc.gov/swineflu/general\\_info.htm](http://www.cdc.gov/swineflu/general_info.htm)



Pandemic

# What is Pandemic Influenza?

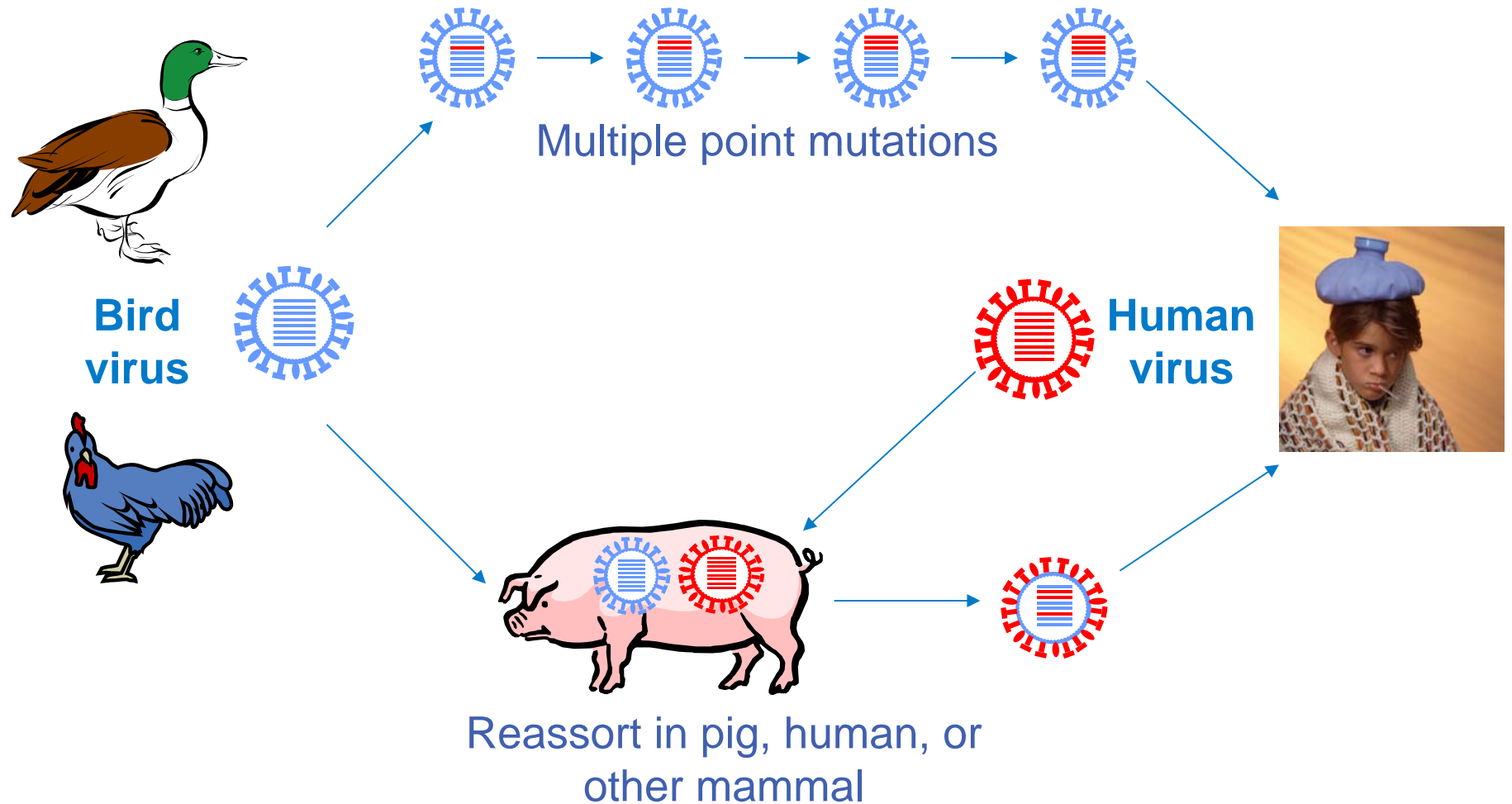
## A Global Epidemic

- ▲ 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)



# How Do Viruses Mutate?

## Most likely routes



# WHO Influenza Pandemic Phases

Inter-pandemic phase	Low risk of human cases	1
<b>New virus in animals, no human cases</b>	Higher risk of human cases	2
Pandemic alert <b>New virus causes human cases</b>	No or very limited human-to-human transmission	3
	Evidence of increased human-to-human transmission	4
	Evidence of significant human-to-human transmission	5
Pandemic	Efficient and sustained human-to-human transmission	6

# Why The Concern About Pandemic Influenza?

- ▲ Influenza pandemics are inevitable: naturally recur at cyclical intervals
- ▲ Can cause:
  - High levels of sickness and 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



# 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 custom - assembled for the expected "flu" strains
- ▲ Each year, approximately 36,000 people die from the flu



# 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



Prevention

# Interventions in Pork Preparation

## ▲Cooking

Cooking all parts of product at or above 160°F (71°C) will inactivate the virus



# 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

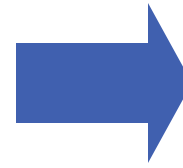
Net result:

Increase frequency of cleaning and disinfection

# General Influenza Prevention Methods

## ▲ Medical

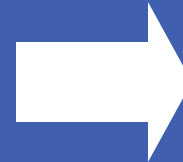
- Vaccination
- Antiviral medications
  - Must start within 2 days of illness
  - 5-day treatment



Contact your local  
health care provider

## ▲ Non-medical

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



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



# 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 an 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
- ▲ 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](http://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

## PUBLIC HEALTH

Ecolab is committed to providing you with the latest public health news.

# Notations

- ▲ 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 viruses.