

Pandemic influenza

What You Need To Know Today



2009 H1N1 Influenza

Welcome

- Introductions
- Why H1N1 Awareness?

What You Need To Know Today



Overview

- Chronology
- Defining Influenza
- Seasonal Flu
- Seasonal vs. Pandemic Flu
- H1N1 Flu Concerns
- Preparing for a Pandemic
- Frequently Asked Questions (FAQs)
- Resources

Chronology

- **March 18, 2009** - the World Health Organization (WHO) reported an outbreak of Influenza Like Illness in Mexico. Laboratory analysis confirmed a (Novel) H1N1 Influenza virus had emerged.
- **April 24, 2009** – WHO reported Influenza Like Illness in Mexico & U.S.
 - Mexico (854 cases / 59 deaths)
 - U.S. (7 cases / 0 deaths)
 - Healthy Young Adults
- **April 28, 2009** – University of Delaware – Public Health Responds
Estimates from CDC Team - potentially 2,315 students and 300 faculty/staff may have had been infected
- In Delaware 84% of confirmed H1N1 cases under age 29

What You Need To Know Today



Chronology

- **June 11, 2009 – WHO Reported:**
 - 74 Countries
 - 28,744 Cases
 - 144 Deaths
 - U.S. 13,217 Cases (46%) / 27 Deaths (19%)

W H O Declares “Global Pandemic”

- **By August 2009: WHO Reports:**
Millions of Cases / 1,000 + Deaths

Chronology

WHO Region (9/13/09)	Cases	Deaths
Africa	8,125	40
Americas	124,126	2,625
Eastern Mediterranean	10,533	61
Europe	52,000+	140+
South-East Asia	25,339	283
Western Pacific	76,348	337
Total	296,471	3,205



WHO - Pandemic Periods/Phases

<p><u>Phase 1 (Inter-Pandemic)</u></p> <p>Humans – No Animals – Maybe Human Risk Low</p>	<p><u>Phase 2 (Inter-Pandemic)</u></p> <p>Humans - No Animals –Yes Human Risk – Substantial</p>
<p><u>Phase 3 (ALERT) ***</u></p> <p>Human –Yes Human-Human Spread – No or Rare</p>	<p><u>Phase 4 (Alert)</u></p> <p>Small clusters human-human Transmission Localized spread</p>
<p><u>Phase 5 (Alert)</u></p> <p>Human-Human Transmission Larger Clusters Localized</p>	<p><u>Phase 6 (Pandemic)</u></p> <p>Increased and Sustained Transmission in General Population</p>

Influenza

- The flu is a contagious respiratory illness caused by a virus.
- It can cause mild to severe illness, and at times can lead to death.
- A person infected with the flu virus can transmit it one – two days before they have symptoms.
- A person infected with the flu virus can transmit it five – seven days after symptoms start.

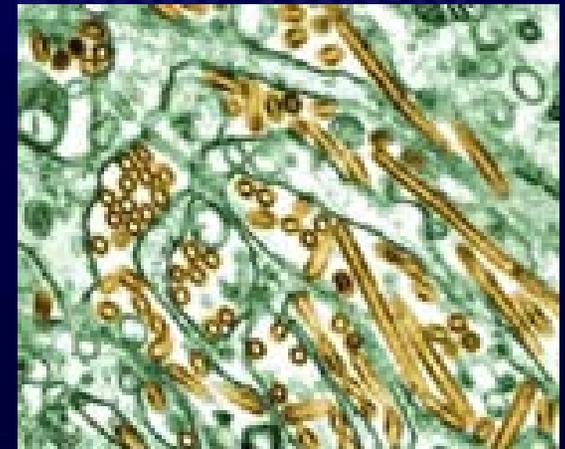
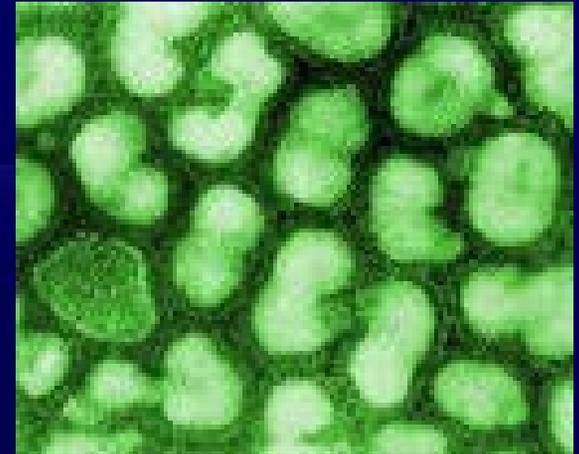
INFLUENZA

3 Types

“A” - Various Animals
(Pandemic)

“B” – Human (Epidemic)

“C” - Human (Mild Infection)



Type “A” Influenza Viruses

Identified by 2 Surface Protein Structures
Combinations

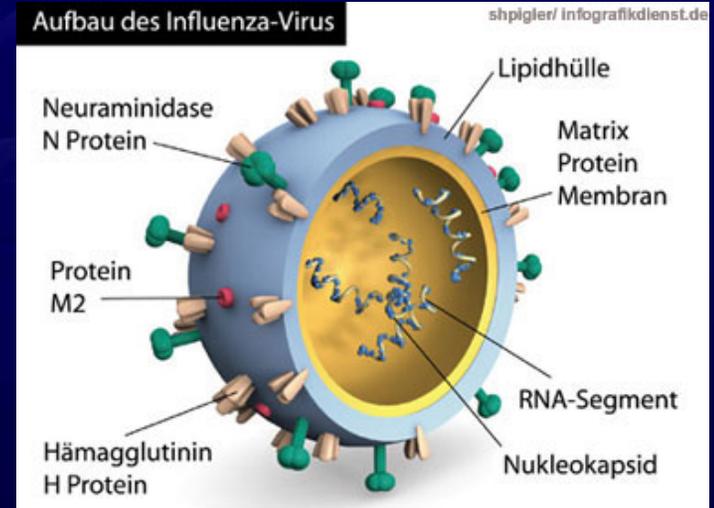
“H” - Hemagglutinin (1 – 16)

Entry into Cell

“N” - Neuraminidase (1- 9)

Exit from Cell

144 Possible combinations



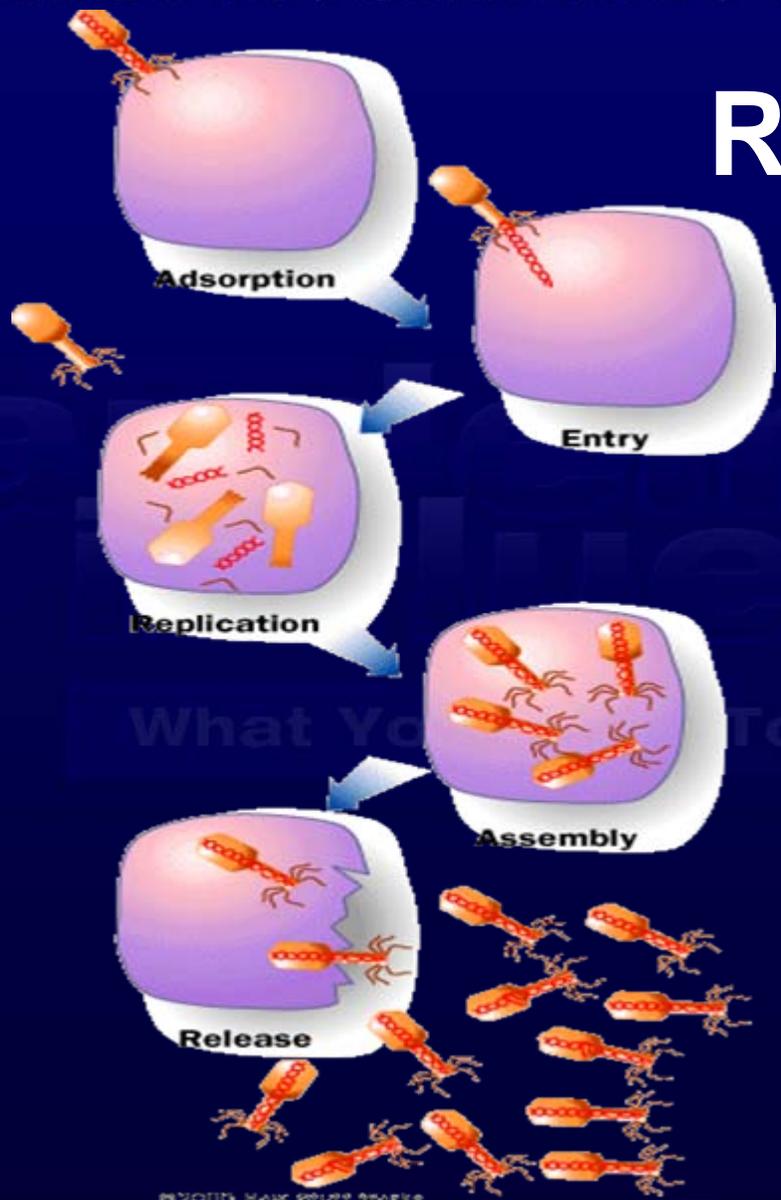
The Influenza Virus



Zygot Media Group / PR N

Viral

Replication



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Influenza Viral Replication

- Size: 1/10,000 of a millimeter
- RNA viruses mutate faster than DNA viruses
- Within 10 Hours (Adsorption to Release)
 - “Swarm” of 100,000 to 1 million viruses produced
 - 99% too defective to replicate – Junk
 - Still leaves between 1,000 to 10,000 that can attack other cells
 - “Mutant Swarm” – drug resistance and immune response

Influenza Spread

- Spread by contact with an infected person through:
 - Sneezing
 - Coughing
 - Touching items recently contaminated by a person with the flu virus



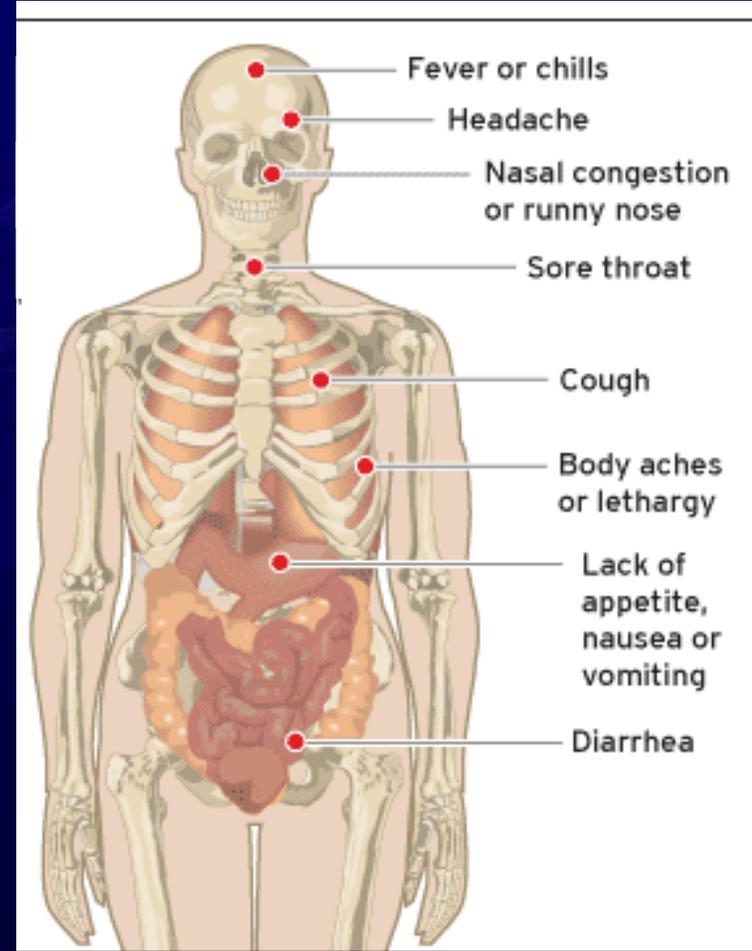
Transmission

- Droplet (coughing, sneezing)
- Contact
 - Direct touching or contaminated surfaces
 - Virus may persist 2 – 8 hr on surfaces



Symptoms

- Fever (typically ≥ 100 F)
- Cough (usually nonproductive)
- Headache, body aches
- Severe fatigue
- Runny nose
- Sore throat
- May have diarrhea, nausea, vomiting



and Prevention

MSNBC.com

Treatment

- Symptomatic
 - Rest
 - Plenty of fluids
 - *Acetaminophen (Tylenol) for pain/fever
- Antiviral medications
 - Tamiflu and Relenza



Seasonal Flu

- The seasonal flu usually occurs annually between December and March
- Every Year in the U.S. on the average
 - 5 to 20% Incidence Rate
 - 200,000 Hospitalized
 - 32,000 - 36,000 Deaths (Very Young, Old, Immune Compromised)
 - Most recover within 1 – 2 weeks no medical treatment

Seasonal Flu Mortality

- **Low** – Many cases, Few deaths
60,000,000 Cases (20% Incidence)
32,000 deaths = 0.05 %
- **High** – Few Cases, Many Deaths
15,000,000 Cases (5% Incidence)
36,000 Cases = 0.24%



Seasonal Flu

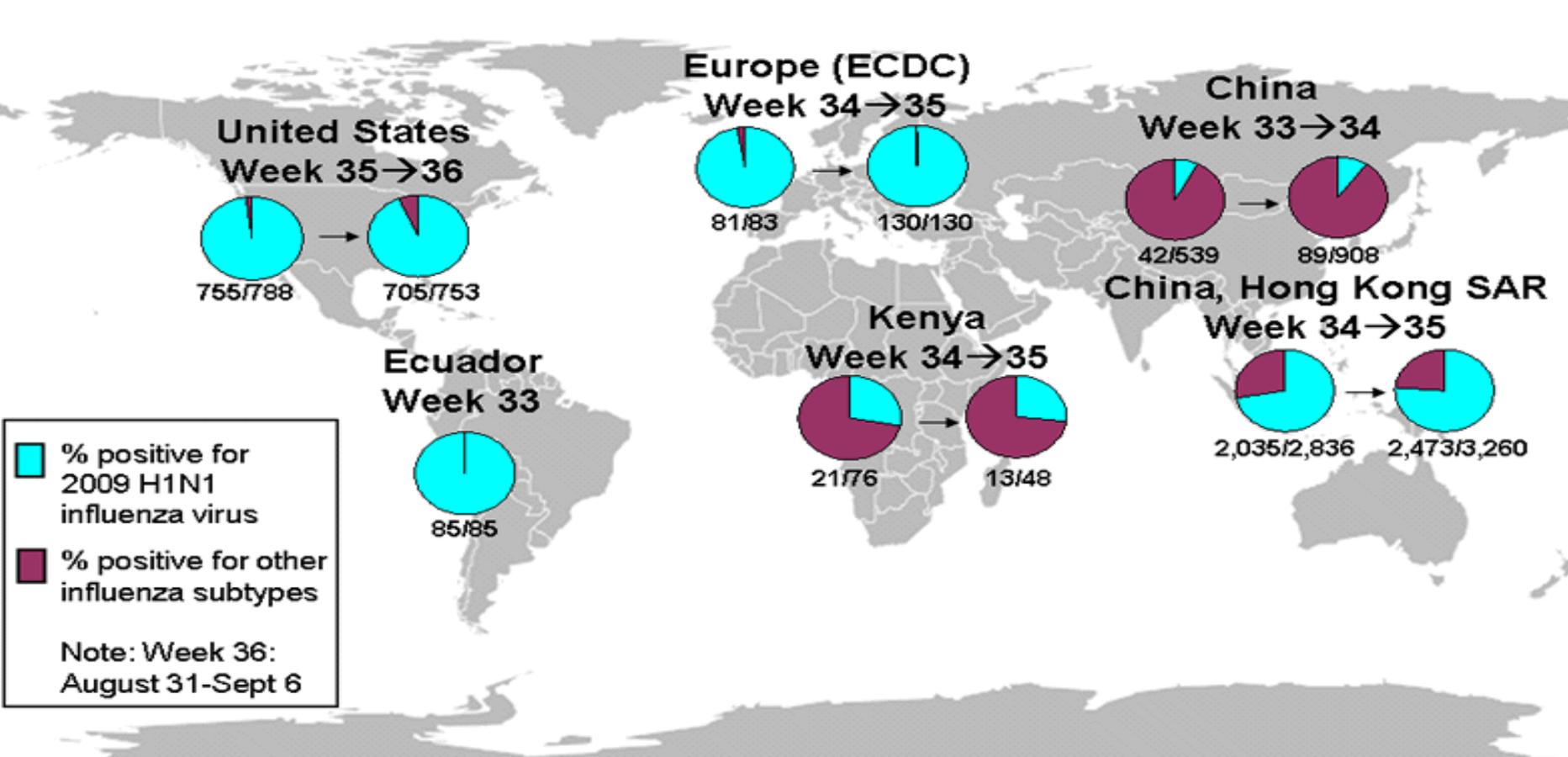
- Global:
 - Millions infected
 - Between 250,000 to 500,000 deaths per year
- **Current Vaccine (2009-2010):**
 - A/Brisbane/59/2007 H1N1
 - A/ Brisbane/10/2007 H3N2
 - B/ Brisbane/60/2008 like virus

Seasonal vs. Pandemic Flu

- Seasonal flu is predictable – Pandemic flu is not
- Pandemic flu is caused by a novel virus strain that humans have no resistance against
- Pandemic flu infects large numbers of people of different ages globally and can cause serious illness and deaths

Global Seasonal versus H1N1 Influenza

per CDC as of September 4, 2009



Pandemic

- A disease outbreak spreads easily as most people are susceptible
- Effective human to human transmission is necessary
- Measure by how fast the virus spreads
- Wide geographic spread

What You Need To Know Today

Influenza Pandemics 20th Century



1918 “Spanish Flu”

A (H1N1)

20-40 Million Deaths

675,000 U.S



1957 “Asian Flu”

A (H2N2)

1-4 Million Deaths

70,000 U.S



1968 “Hong Kong Flu”

A (H3N2)

1-4 Million Deaths

34,000 U.S

Pandemic Waves

- Pandemics occur in multiple waves of disease outbreaks
- The first wave in a local area is likely to last six to eight weeks
- The time between pandemic waves varies and cannot be easily predicted



H1N1 Concerns

- Global expansion of cases
- Mutation of virus could raise Mortality Rate
- H1N1 replacing seasonal flu globally
- Continued Effectiveness of Anti-Virals
- Availability and Effectiveness of Vaccines

H1N1 Concerns

Mortality Rate of novel H1N1?

- Assume 1% of Global Population = 67,000,000 Cases
- Assume 5,000 Deaths
- Mortality Rate of 0.007 %
 - Seasonal = 0.05 % to 0.24 %
 - H5N1 (Bird Flu) = 59.82%



H1N1 Concerns

“Although the virus is currently pretty stable, it could potentially transform into a more threatening form, conceivably combining with the widespread H5N1 bird flu virus found in poultry.”

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Dr. Margaret Chang

Director-General, World Health Organization (WHO)

June 22, 2009 Reuters





H1N1 Concerns

“It’s possible the virus has mutated. In autumn the mutated form could spread to the northern hemisphere and back to Germany.”

Joerg Hacker — Head of Robert Koch Institute for Infectious Diseases – Germany – July 2009

Preparing for a Pandemic

What can you do?

What You Need To Know Today



Preparing for a Fall Resurgence



July 9, 2009 – ABC News

Per President Obama-

- “We want to make sure that we are not promoting panic, but we are promoting vigilance and preparation.”
- “Where it’s well-handled, state and local officials have complete ownership over this issue. They are providing good ideas to the federal government. They are critical links to inform us what’s working and what’s not.”

Prevention

- Clean hands frequently
- Avoid touching eyes, nose, mouth
- Try to avoid close contact with sick people
- Vaccines



Vaccines

- Annual/Seasonal – EVERYONE

H1N1 Vaccine Priorities:

- Pregnant women
- People live/ work with Children under 6 Months Old
- Healthcare and EMS
- 6 Months – 24 Yr Old
- 25 – 64 Yrs w/ Chronic Health disorders or Compromised Immunity
- Non- High Risk

Prepare at Home

- Plan now – how to care for yourself or loved one who becomes ill with the flu
- Determine what supplies you will need to provide care at home
- Plan for isolation of sick family members at home
- Build a Kit
 - Medical records
 - Prescriptions and over-the-counter cold remedies
 - Water / Food
 - Alcohol-based hand rubs
 - Tissues
 - Build a Kit Flyer

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Prepare at Work

- Ask about plans and policies:
 - Employees should be encouraged to follow public health guidance re: school closing, avoiding crowds, etc.
 - To provide guidance to employees
 - who get sick and need to stay home
 - who need to provide care to a sick family member
 - To keep business functioning
 - Sick leave, benefits, and wages when employees are asked to remain at home

Prepare at School

- Ask about plans
 - At your child's school or day care regarding an influenza pandemic
 - To encourage parents to keep children who are sick at home to reduce the spread of the outbreak
 - Prepare for School based Immunizations

What to Expect

- Unlike other disasters, a pandemic does not damage homes, utilities, buildings and other structures
- If the people who maintain facilities, transportation and similar public system are unable to work, daily life can be disrupted
- You will be asked to take personal action to reduce the spread of the outbreak

Frequently Asked Questions

- Will the seasonal flu vaccine protect me from the novel H1N1 virus?
- When/where can I get my seasonal flu shot?
- When / where can I get this new Vaccine?
- Will I really need 1 + 2 = 3 shots?

What You Need To Know Today

Together We Prepare

- Make a plan
- Build a kit
- Get training
- Volunteer
- Give Blood
- Get your vaccines. If you have concerns, contact your family care provider.



Resources

- <http://www.flu.delaware.gov>
- <http://www.pandemicflu.gov>
- www.cdc.gov
- www.who.int
- Epidemiology: 1-888-295-5156 (24hr)
- Immunization: 1-302-744-1060 (leave message after hours)