

Pandemic Flu and You

Pima County Health Department
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www.pima.gov/health

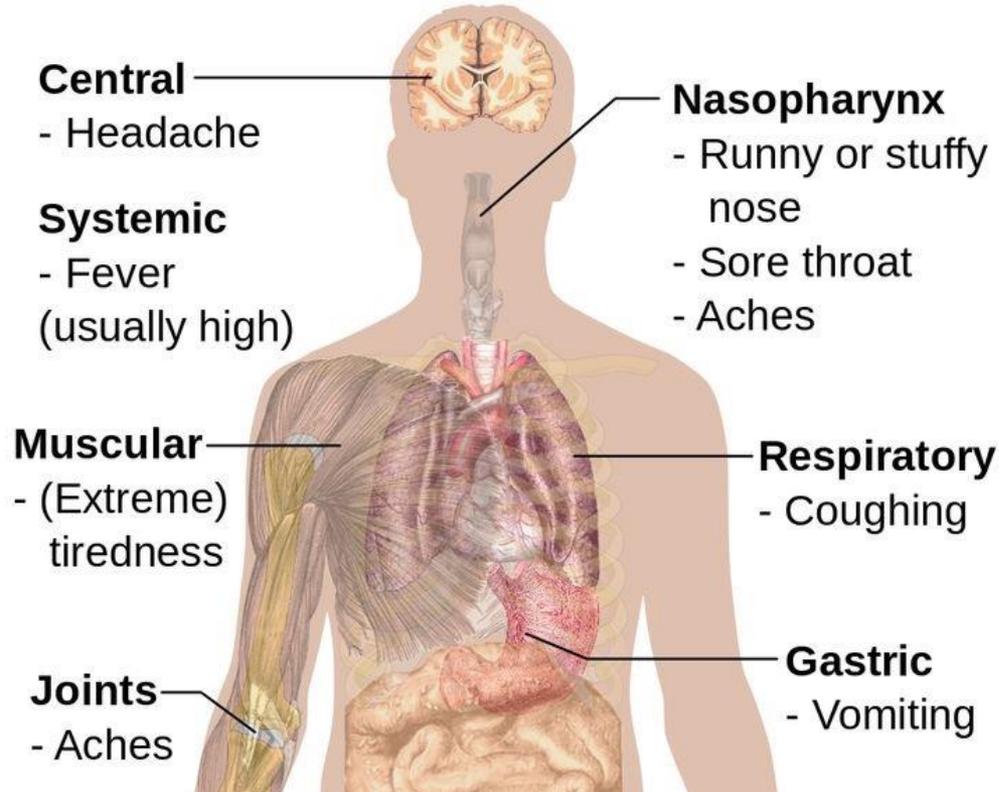


Presentation

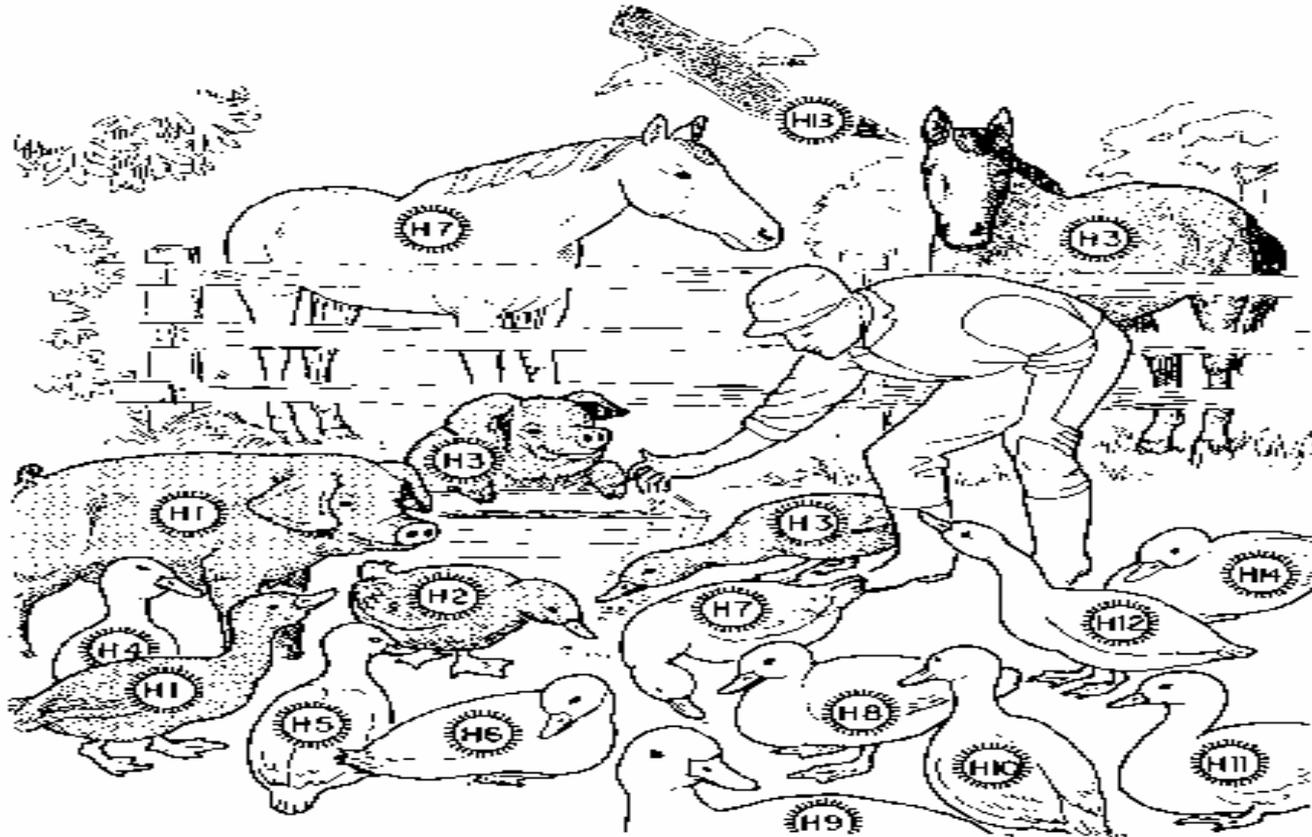
- Symptoms
- Who gets the flu
- How do we know it's a pandemic
- Which ones
- Influenza A
- Infection Control
- Treatment
- Vaccine

Symptoms

Symptoms of Influenza



The Flu and Who



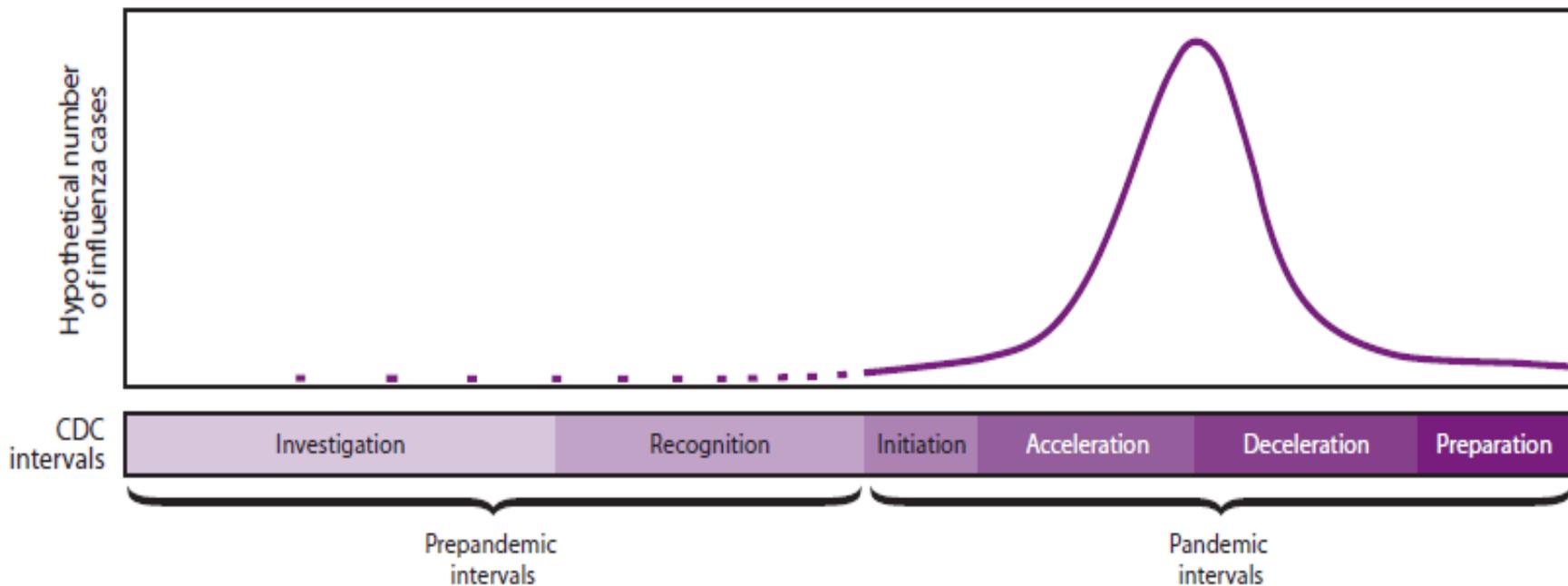
H17 and H18 found in bats in South America

Six intervals 2 pre-pandemic 4 pandemic

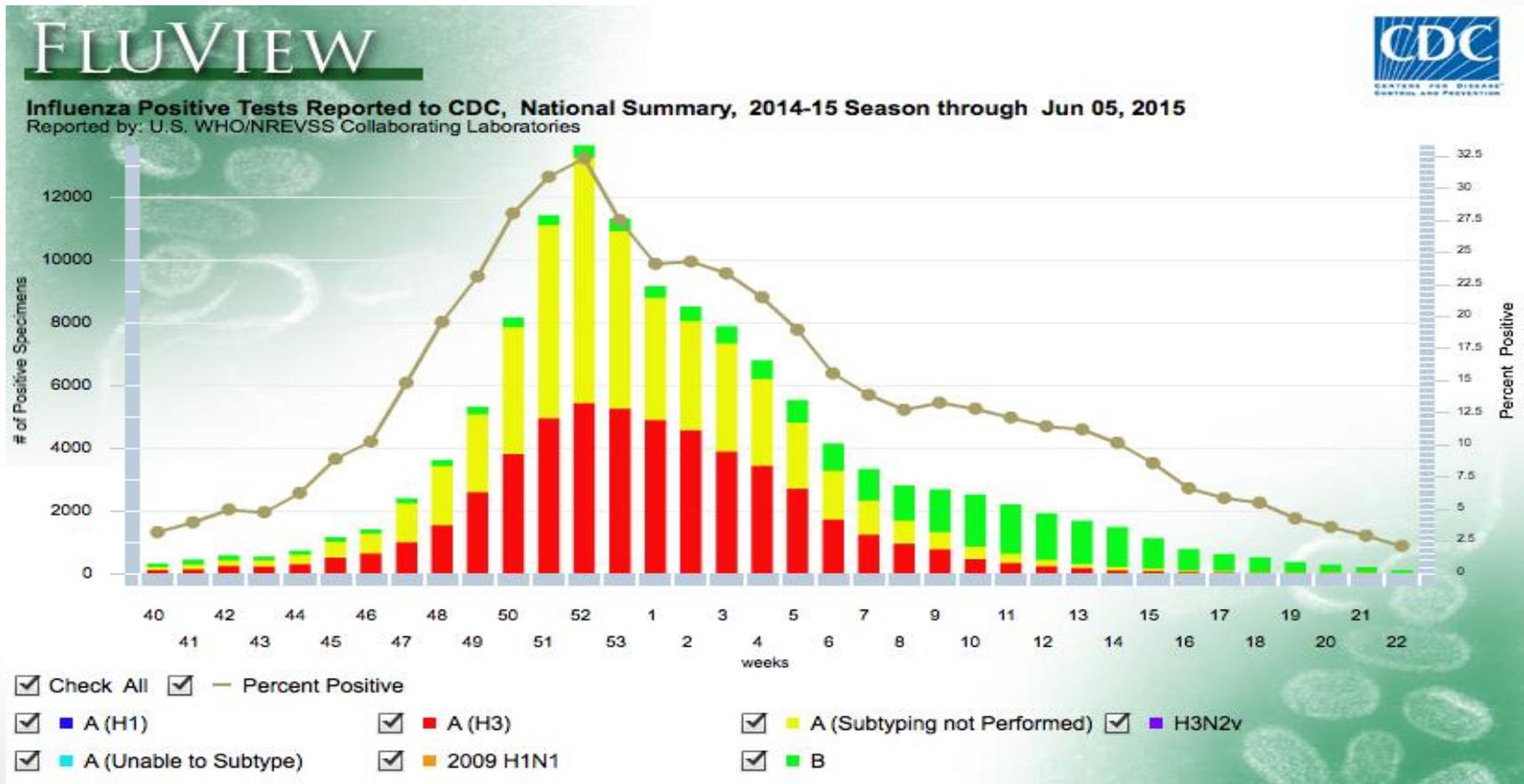
- 1) *investigation of cases of novel influenza*
 - *All influenza A's that are submitted to ASL are subtyped*
- 2) *recognition of increased potential for ongoing transmission*
- 3) *initiation of a pandemic wave*
- 4) *acceleration of a pandemic wave*
- 5) *deceleration of a pandemic wave*
- 6) *preparation for future pandemic waves*

The 6 intervals

- **FIGURE. Preparedness and response framework for novel influenza A virus pandemics: CDC intervals**



- <http://www.cdc.gov/flu/weekly/fluactivitysurv.htm>



eight domains

The following eight domains are used to organize response efforts within each interval:

- 1. incident management*
- 2. surveillance and epidemiology*
- 3. laboratory*
- 4. community mitigation*
- 5. medical care and countermeasures*
- 6. vaccine*
- 7. risk communications*
- 8. state/local coordination*

Influenza Risk Assessment Tool

- IRAT is used by the U.S. government and the WHO Global Influenza Surveillance and Response System as a risk assessment process that involves data gathering, discussion, and consensus building among subject-matter experts to assign a risk score.
- Ten predefined risk elements are given a risk score. These 10 elements fall into three categories: 1) attributes that pertain to the biologic properties of the virus (four elements), 2) attributes of the population (three elements), and 3) attributes of the ecology and epidemiology of the virus (three elements).
- <http://www.cdc.gov/flu/pandemic-resources/tools/risk-assessment.htm>

IRAT

1. Genomic variation
2. Receptor binding
3. Transmission in lab
4. Antiviral treatment susceptibility
5. Existing population immunity
6. Disease severity and pathogenesis
7. Antigenic relationship to vaccine candidates
8. Global distribution (animals)
9. Infection in animal species
10. Human Infections

Potential for Pandemic

1. 2009 H1N1 outbreak was caused by a highly transmissible novel influenza virus that emerged in North America and resulted in a pandemic
2. whereas the H3N2v virus, which also emerged in North America, caused approximately 300 cases in humans and limited outbreaks involving domestic animal-to-human transmission 2011
3. HPAI H5N1 started 2003 China 700+ cases 15 countries
4. The H7N9 outbreak was caused by a novel influenza virus that emerged in China in 2013 and had high mortality 1/3 has only spread to Malaysia in 2014 by a traveler.

H1N1 pandemic

ARIZONA

Epidemiologic Information for confirmed 2009 H1N1 influenza cases:

	Total Confirmed Cases (N=1,684)	Deaths and Hospitalizations (N=320)	
AGE			
• Range	9 Days – 86 Years	9 Days – 86 Years	
• Mean, Median	20 years, 15 years	28 Years, 22 years	
AGE GROUP			
• 0 to 4 years	209 (12%)	71 (22%)	
• 5 to 18 years	808 (59%)	71 (22%)	
• 19 to 49 years	505 (30%)	102 (32%)	
• 50 to 64 years	126 (7%)		57 (18%)
• 65 years or older	32 (2%)	19 (6%)	
• Unknown age	4 (0%)		0 (0%)
MEDICAL HISTORY & INFO			
• At least 1 Underlying Medical Condition*	N/A	202 (63%)	
• Pneumonia at Time of Hospital Admission	N/A	115 (36%)	
• Intensive Care Unit Admission	N/A	74 (23%)	
• Mechanical ventilation required	N/A	45 (14%)	

*asthma, chronic lung disease, chronic heart or circulatory disease, metabolic disease, cancer, pregnancy, immunosuppressive condition, neurologic disease, and other chronic diseases.

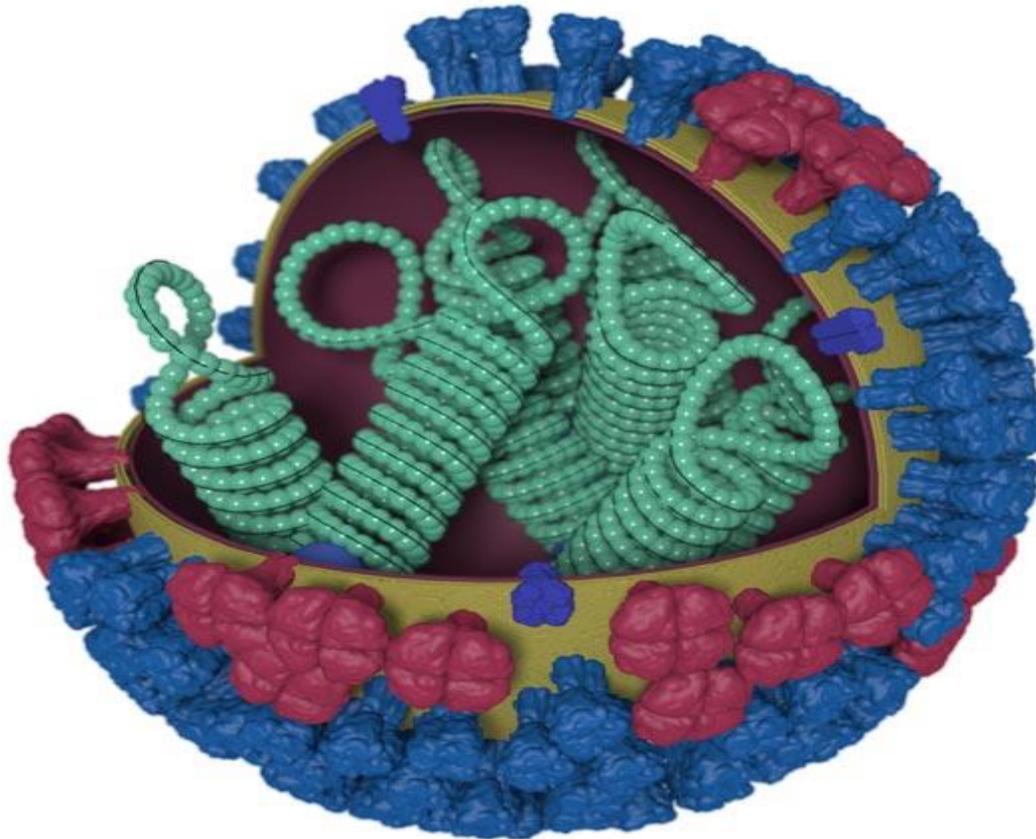
Influenza A

- Influenza A
- Three types found in humans H1, H2, and H3 the Hemagglutinin attaches to the cell the Neuraminidase helps the virus penetrate the cell N1 and N2 are found in humans
- Drift – small antigenic changes as flu virus replicates
- Shift – abrupt, major change in the influenza A virus resulting in new H or new H and N proteins producing a novel virus that most people don't have immunity. This happens occasionally

Influenza A

- Influenza A viruses are named depending on their surface protein subtype, H for hemagglutinin and N for neuraminidase. There are 16 known H subtypes and 11 known N subtypes for influenza A virus,
- all of them infect birds,
- a few such as H1N1, H1N2 and H3N2 can infect human.

AN INFLUENZA VIRUS



Antigenic sites

Hemagglutinin



Neuraminidase



M2 ion channel



Ribonucleoprotein

Environmental Control

- Influenza viruses can be inactivated by disinfectants, such as those containing chlorine or hypochlorite, or alcohols.
- Cover your coughs and sneezes
- Wash your hands
- Don't touch your mucus membranes
- Wash your hands
- Stay home if you have an ILI illness
- Wash your hands
- Infectious 1 day before and 5 after symptoms

What to do if you

- Engage all staff in discussion of importance of infection control in protecting both students and staff
- Employees and students with ILI symptoms should be excluded for 7 days or until 24 hours after symptoms abate, unless another diagnosis is confirmed

Patient Education

- Instructions for supportive care (hydration, fever control)
- Instructions for self isolation for at least 7 days from onset of symptoms or 24 hours after last symptom, whichever is longer
- Instructions to care giver to minimize risk of their acquiring the infection
- Recommend not spend time with anyone other than care giver, and to wear a surgical mask if must be in same room as others
- Respiratory etiquette

COOP Planning

- Every organization/institution should have plans for continuation of operations in face of multiple scenarios (all hazards planning)
- Possibility exists for extensive absences – should make plans on how to operate if 30% - 40% of staff out ill/caring for ill family members – identify key functions and develop plans of succession

<http://www.training.fema.gov/EMIWeb/IS/is547.asp> - general introduction to Continuity of Operations

Treatment



Use of Antiviral Medications

- Antiviral treatment is **recommended** for hospitalized patients and for patients at high risk for complications from influenza
- Antiviral treatment should be **considered** for other patients with confirmed, probable, and suspected cases
- Presumptive and complete Rx for Influenza A might include zanamivir OR oseltamivir + an amantadane (seasonal H1N1 resistant to oseltamivir and H3N2 resistant to adamantanes)

Use of Antiviral Medications

Prophylaxis (oseltamivir or zanamivir or susceptible antiviral for 10 days after last exposure) **recommended** for

- household contacts to a confirmed or probable case with high risk for complications from influenza
- healthcare workers who had not used PPE when in close contact with a suspect, probable or confirmed case

Vaccinate

- Protect the folks around you who may not be able to get vaccine
- Milder Illness
- Especially those with chronic health conditions and children
- Reduce hospitalizations
- Protects pregnant women and their babies up to 6 months after being born.

Questions

