

Emerging Issue: Novel Influenza A(H1N1)

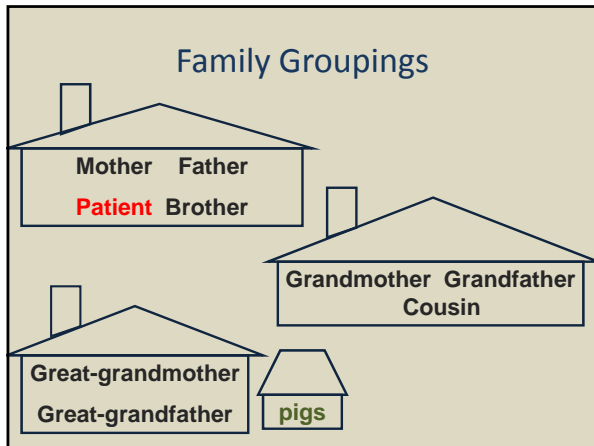
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Iowa History: Reassortant Swine Influenza in a Child with Remote Exposure — Iowa, 2006

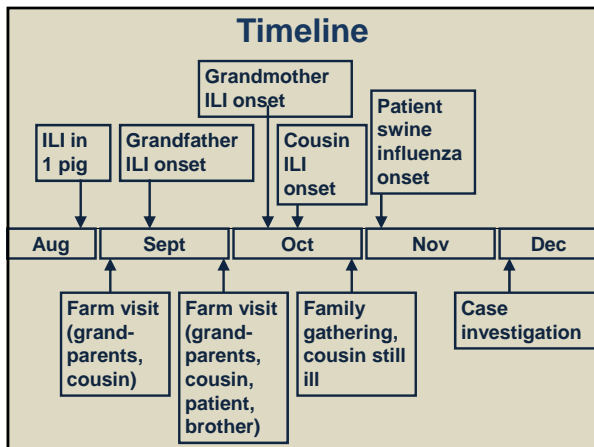


Swine Influenza Case Report

- Female, aged 4 years
- Hospitalized
- Nasopharyngeal swab
- Routine early season surveillance
- Triple reassortant A(H1N1) swine influenza
- No swine exposure in month preceding illness







Environmental Investigation Results

- No other sources of swine contact identified for patient
 - Field trip farm
 - Meat packing plant
 - No increase in swine condemnations for swine influenza
- No increase in human illness reported
 - Mother’s (meat packing plant) workplace
 - Patient’s child care
 - Patient’s preschool

Health Care Workers Results

- No serious illnesses
- 3% incidence of ILI in exposed HCW
- 3% incidence of ILI in unexposed HCW

Hypothesis

- Zoonotic transmission might have occurred from pigs to a grandparent
- Person-to-person transmission to the patient

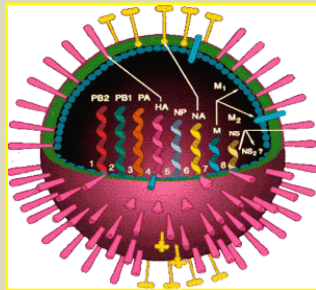


Conclusions

- Rare, triple reassortant A(H1N1) swine influenza virus
- Routine surveillance useful for detecting novel viruses
- Case series will be published soon in NEJM

Virology Results



- Triple reassortant A(H1N1) swine influenza
 - Swine influenza genes
 - Human PB1 gene
 - Avian PB2
 - Avian PA
- A/Iowa/01/2006

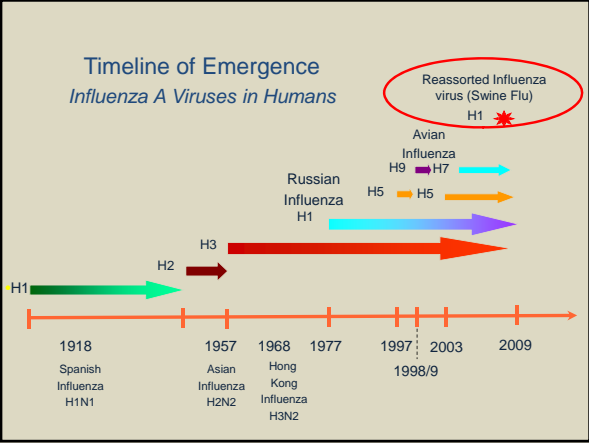


Influenza A(H1N1)


History of Influenza A(H1N1) in the US


- A swine flu outbreak in Fort Dix, occurred in 1976 with > 200 cases with serious illness in several people and one death
 - > 40 million people were vaccinated
 - Program was stopped short after over 500 cases of Guillain-Barre syndrome,
 - 30 people died as a direct result of the vaccination
- In September 1988, a previously healthy 32-year-old pregnant woman in Wisconsin was hospitalized for pneumonia after being infected with swine flu and died 8 days later.
- From December 2005 through February 2009, a total of 12 human infections with swine influenza were reported from 10 states in the United States



Influenza A(H1N1) (Swine Flu): A Global Outbreak





Influenza A(H1N1) *Situation in Mexico May 3*

- A total of approximately 2,498 suspected cases, 165 deaths and 1311 hospitalizations (for pneumonia) have been reported in 31 of 32 States in Mexico, 506 Laboratory confirmed and 19 deaths
- First case in Oaxaca, April 13, 2009
 - Woman died of pneumonia
- The illness outbreak in Mexico City prompted the country's health minister to cancel classes in Mexico City and advised students and adults to avoid crowded public places and large events



Influenza A(H1N1) *Current Situation in Mexico*

- CDC's laboratory analyzed samples from severely ill Mexican patients and found that they had the same swine flu mix as the virus that infected the US patients
- Canada's national laboratory has confirmed swine flu A/H1N1 in isolates from Mexican patients, most of which were genetically identical to the swine flu viruses from California
- The virus in Mexico has primarily struck otherwise healthy young adults, (20-50 years) which is a departure from seasonal influenza, which typically affects the very young and very old



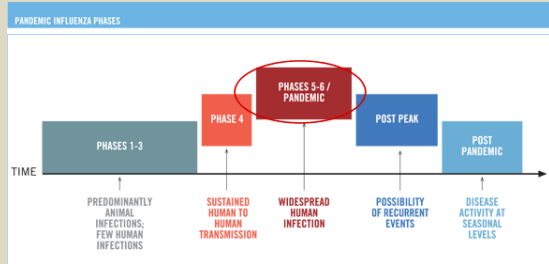
Influenza A(H1N1) *Current Situation in the US*

- Virus is contagious and spreading from human to human
- The virus contains gene segments from 4 different influenza types:
 - North American swine
 - North American avian
 - North American human and
 - Eurasian swine
- The Strategic National Stockpile (SNS) is releasing one-quarter of its
 - Anti-viral drugs
 - Personal protective equipment and
 - Respiratory protection devices
- President Obama asked Congress for an additional \$1.5 billion to fight the swine flu
- On April 27, 2009, the CDC issued a travel advisory that recommends against all non-essential travel to Mexico



Influenza A(H1N1) Current Global Situation

- The WHO raised the alert level to Phase 5
 - WHO's alert system was revised after Avian influenza began to spread in 2004, and April 27 was the first time it was raised above Phase 3 and on April 28 to Phase 5.
- European Union (EU) issued a travel advisory to the 27 EU member countries recommending that "non-essential" travel to affected parts of the U.S. and Mexico be suspended



Novel Influenza A(H1N1) Transmission to Humans

- Not through contact with infected pigs or environments contaminated with swine flu viruses
- Through contact with a person with novel H1N1
- Human-to-human spread has been documented also and is thought to occur in the same way as seasonal flu, through coughing or sneezing of infected people



Influenza A(H1N1) Current Situation in the US

- 1st death reported in a child (22 months) that had came from Mexico who died in a hospital in the Houston area, another death reported yesterday
- All have the same genetic pattern based on preliminary testing
- Virus is being described as a new subtype of A/H1N1 not previously detected in swine or humans

Summary

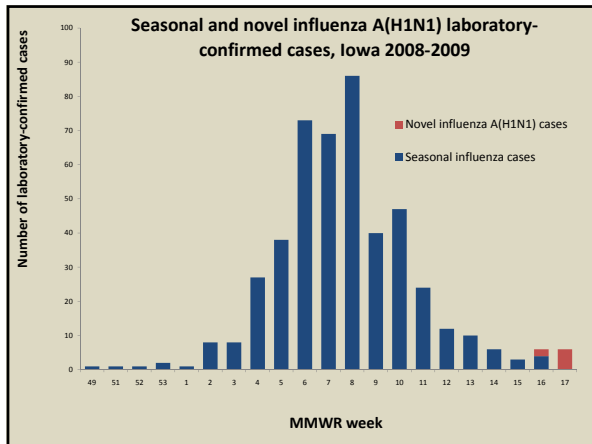
- As of May 5 - 1490 confirmed cases worldwide (21 countries) 30 deaths
- US epidemiological data
 - Median Age 16 years (range: 1-81 years)
 - Over 80% of the cases in <18 years
 - Male Female Ratio = 2:3

Summary

- In Mexico, healthy young adults, (20-50 years) affected by the disease
- In EU, healthy young adults, (20-29 years) affected by the disease
- Disparity of mortality seen between Mexico and other countries such as US
- No vaccine is available
- Anti-virals available: Oseltamivir (Tamiflu) or Zanamivir (Relenza)
- EU issues a travel advisory to the 27 EU member countries recommending "non-essential" travel to affected parts of the U.S. and Mexico be suspended
- US issued a travel advisory that recommends against all non-essential travel to Mexico

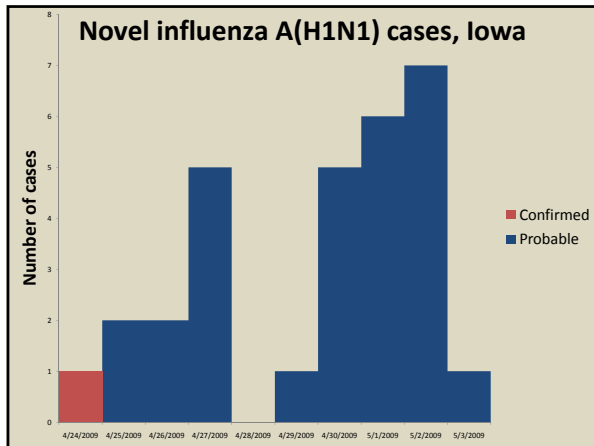


SWINE INFLUENZA IN IOWA



- ### Iowa Activities
- Made H1N1 reportable in Iowa
 - Increased surveillance
 - Continued regular state-wide flu surveillance
 - Add targeted surveillance
 - Laboratory specimens
 - Criteria for testing because of limited resources
 - To CDC, now UHL for confirmation

- ### Influenza A(H1N1) Guidelines for Clinicians
- Signs and Symptoms
 - Influenza-like-illness (ILI)
 - Fever, cough, sore throat, runny nose, headache, muscle aches. In some cases vomiting and diarrhea. (These cases had illness onset during late March to mid-April 2009)
 - Cases of severe respiratory disease, requiring hospitalization including fatal outcomes, have been reported in Mexico
 - The potential for exacerbation of underlying chronic medical conditions or invasive bacterial infection with swine influenza virus infection should be considered
 - Non-hospitalized ill persons who are a confirmed or suspected case of swine influenza A (H1N1) virus infection are recommended to stay at home (voluntary isolation) for at least the first 7 days after illness onset except to seek medical care



Novel Influenza A in Iowa as of May 5, 2009

| Demographics | | |
|--------------|-------------|------------|
| Age | Age range | 1-35 years |
| | Median | 16 years |
| | Mean | 15.4 years |
| Gender | Female | 13 |
| | Male | 17 |
| Symptoms | Fever | 20/24 |
| | Cough | 23/24 |
| | Sore throat | 8/24 |
| | Vomiting | 1/8 |
| | Diarrhea | 2/17 |
| Hospitalized | | 0 |

- ### More Iowa Activities
- Antiviral and PPE distribution
 - Standing orders
 - Counties with imported case(s)
 - Counties with community spread
 - Web page and guidance documents
 - Conference calls with partners
 - Hospitals
 - Local public health

Influenza A(H1N1) Treatment

- No vaccine available
- Antivirals for the treatment and/or prevention of infection:
 - Oseltamivir (Tamiflu) or
 - Zanamivir (Relenza)
- Use of anti-virals can make illness milder and recovery faster
- They may also prevent serious flu complications
- For treatment, antiviral drugs work best if started soon after getting sick (within 2 days of symptoms)
- **Warning!** Do *NOT* give aspirin to children or teenagers (up to 18 years old) who are confirmed or suspected ill case of influenza A (H1N1) virus infection; this can cause a rare but serious illness called Reye's syndrome.

Influenza A(H1N1) Treatment

| | Oseltamivir (Tamiflu) | | Zanamivir (Relenza) | |
|----------|---|----------------------------|--|---|
| | Treatment | Prophylaxis | Treatment | Prophylaxis |
| Adults | 75 mg capsule twice per day for 5 days | 75 mg capsule once per day | Two 5 mg inhalations (10 mg total) twice per day | Two 5 mg inhalations (10 mg total) once per day |
| Children | 15 kg or less: 60 mg per day divided into 2 doses | 30 mg once per day | Two 5 mg inhalations (10 mg total) twice per day (age, 7 years or older) | Two 5 mg inhalations (10 mg total) once per day (age, 5 years or older) |
| | 15-23 kg: 90 mg per day divided into 2 doses | 45 mg once per day | | |
| | 24-40 kg: 120 mg per day divided into 2 doses | 60 mg once per day | | |
| | >40 kg: 150 mg per day divided into 2 doses | 75 mg once per day | | |

Dosing recommendations for antiviral treatment of children younger than 1 year using oseltamivir. Recommended treatment dose for 5 days. <3 months: 12 mg twice daily; 3-5 months: 20 mg twice daily; 6-11 months: 25 mg twice daily

Dosing recommendations for antiviral chemoprophylaxis of children younger than 1 year using oseltamivir. Recommended prophylaxis dose for 10 days. <3 months: Not recommended unless situation judged critical due to limited data on use in this age group; 3-5 months: 20 mg once daily; 6-11 months: 25 mg once daily

Division of Adult Disease Prevention and Emergency Response
Iowa Department of Public Health

Novel Influenza A (H1N1) Update
Iowa Influenza Surveillance Network (ISN)
For May 6th, 2009 to 05/08 - DAILY SUMMARY

General Notes:
ISN data will be updated daily on the Iowa Department of Public Health (IDPH) website at http://www.idph.iowa.gov/emergency_response. For more comprehensive weekly data reports and also available on this website. The general public information hotline is 800-447-1995. The health care professional information hotline number is 888-262-8815.

Quick Stats:

| | |
|---------------------------------------|-------------------------------------|
| Confirmed cases to date* | 36 |
| Probable cases to date** | 21 |
| Number of specimens tested per day | 22 |
| Total tests performed since 4/20 | 888 |
| Outpatient % (N=1) | 0.00% (seasonal flu threshold 2.1%) |
| Influenza-associated hospitalizations | 0 |

Iowa Outbreak Summary:
One case of Novel Influenza A(H1N1) has been confirmed by the Centers for Disease Control and Prevention (CDC). There are 26 probable cases in Iowa as of today. IDPH is working with health care workers, emergency public health partners, clinical labs, and the University of Iowa's Laboratory to identify suspected cases. Suspected cases of novel influenza A (H1N1) should be reported immediately to IDPH by phone at 800-362-8776, option 3.

Iowa case demographics - confirmed and probable cases

| Characteristic | Count |
|----------------|---|
| Age Range | 0-10 years |
| Age | 10-19 years |
| Gender | 10 Males, 16 Females |
| County | 2004, 2005, 2006, 2007, 2008, 2009 |
| Symptoms | 100% Fever, 100% Cough, 100% Sore throat, 100% Fatigue, 100% Headache, 100% Myalgia, 100% Rhinorrhea, 100% Nasal congestion, 100% Anorexia, 100% Malaise, 100% Lymphadenopathy, 100% Conjunctivitis, 100% Diarrhea, 100% Vomiting, 100% Abdominal pain, 100% Rash, 100% Other |

Countries with Confirmed or Probable cases or exposures to cases: Iowa

*Confirmed case definition: a person with acute febrile respiratory illness that has tested positive for novel influenza A by IDPH or other lab.
**Probable case definition: a person with acute febrile respiratory illness that has tested positive for influenza A, but negative for H1N1 and H3N2.
† Reported by IDPH. Includes the following data:

Influenza A(H1N1)
Guidelines for General Population

- Covering nose and mouth with a tissue when coughing or sneezing
 - Dispose the tissue in the trash after use.
- Handwashing with soap and water
 - Especially after coughing or sneezing.
- Cleaning hands with alcohol-based hand cleaners
- Avoiding close contact with sick people
- Avoiding touching eyes, nose or mouth with unwashed hands
- If sick with influenza, staying home from work or school and limit contact with others to keep from infecting them

Iowa Activities continued

Press conferences



Influenza A(H1N1)
Other Protective Measures

Defining Quarantine vs. Isolation vs. Social-Distancing

- *Isolation*: Refers only to the sequestration of *symptomatic* patients either in the home or hospital so that they will not infect others
- *Quarantine*: Defined as the separation from circulation in the community of *asymptomatic* persons that may have been exposed to infection
- *Social-Distancing*: Has been used to refer to a range of non-quarantine measures that might serve to reduce contact between persons, such as, closing of schools or prohibiting large gatherings

Conclusions

1. Past experience with pandemics show that second wave can be worse than the first :
 - More primary viral pneumonia, Acute Respiratory Distress Syndrome (ARDS), & secondary bacterial infections, particularly pneumonia
 - But compared to the past, now have anti-virals and antibiotics
 - By fall attempting to have a vaccine for the second wave
2. At present only 2 deaths have been reported in US.
 - The disease, though spreading rapidly across the globe, is of a mild form (exception Mexico?)
 - Most people do not have immunity to this virus (some suggestion that older people not getting ill..?past experience with seasonal flu virus providing protection, '76 swine flu vaccine?)
 - Disease seems to be affecting the healthy strata of the population

Conclusions

3. Iowa has
 - Have enhanced disease and virological surveillance
 - Develop a plan provide care to deal with sick at home (voluntary quarantine)
 - Healthcare facilities/hospitals surge capacity and stringent infection prevention/control
 - General population needs to follow basic precautions
4. Iowa's influenza season typically stops by the beginning of May but in pandemic years (1957) sporadic outbreaks occurred during summer among young adults
 - Influenza fade in North America within the next 3-5 weeks
 - May reappear in autumn in North America with the possibility of being more pathogenic second wave
 - Will watch southern hemisphere as they go into winter (Australia & New Zealand)

Conclusions

5. Border Closure and Travel Restrictions: may not significantly change the course of the spread of disease
 - Most recently, the 2003 experience with SARS demonstrated the ineffectiveness of such measures
 - In China, 14 million people were screened for fever at the airport, train stations, and roadside checkpoints, 12 were found to have probable SARS
 - Singapore reported that after screening nearly 500,000 air passengers, none were found to have SARS
 - Passive surveillance methods (in which symptomatic individuals report illness) can be important tools
6. School Closures:
 - Iowa had one school close when several probable cases reported on one day (tomorrow will reopen).
 - Preemptive school closures will merely delay the spread of disease
 - Once schools reopen the disease may be spread
 - Problems for single-working parents and to the
 - Now will use seasonal flu guidelines for closing in Iowa (>10% and resources limited)

Conclusions

7. High priority should be given to develop and include the present Novel influenza A(H1N1) virus in next years vaccine
8. At present, trying to achieve balance here in Iowa with response.
9. Will continue surveillance and assess situation, and provide guidance to Iowa

The End (for now)

For more information go to:
www.idph.state.ia.us/h1n1/

Public Hot line number: **1-800-477-1985**

Questions?