

# Novel Influenza A (H1N1)

H1N1 Healthcare Briefings

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# What is Influenza?

- Acute, febrile respiratory illness affecting nose, throat, bronchi and lungs
- Epidemics caused by influenza viruses A and B
- Occurs worldwide, with considerable morbidity/mortality each year
- Symptoms often rapid onset



# Symptoms of the Flu

- Influenza-like illness
  - Fever ( $\geq 100^{\circ}\text{F}$ ) AND cough or sore throat
- Other symptoms
  - Chills, muscle aches, headache, lack of energy, runny nose, shortness of breath, nausea, abdominal pain, diarrhea
- Incubation period (time from infection to illness)
  - 1-7 days, more likely 1-4 days
- Viral shedding and transmission
  - Can begin 1 day before symptom onset
  - Virus is spread by both droplets and indirect transmission
- Symptoms similar to other upper respiratory diseases (common cold, pneumonia, etc.)

# Conditions that place people at high-risk for flu complications

- Children <5 years
- Persons with the following underlying medical conditions:
  - Chronic lung disease, including asthma
  - Chronic heart (except hypertension), kidney, or liver disease
- Pregnant women
- Residents of nursing homes and other chronic-care facilities
- Adults  $\geq 65$  years

The classification of these groups as high risk for novel H1N1-related complications may be subject to change based on accumulating epidemiologic information.

# Rapidly Evolving Picture

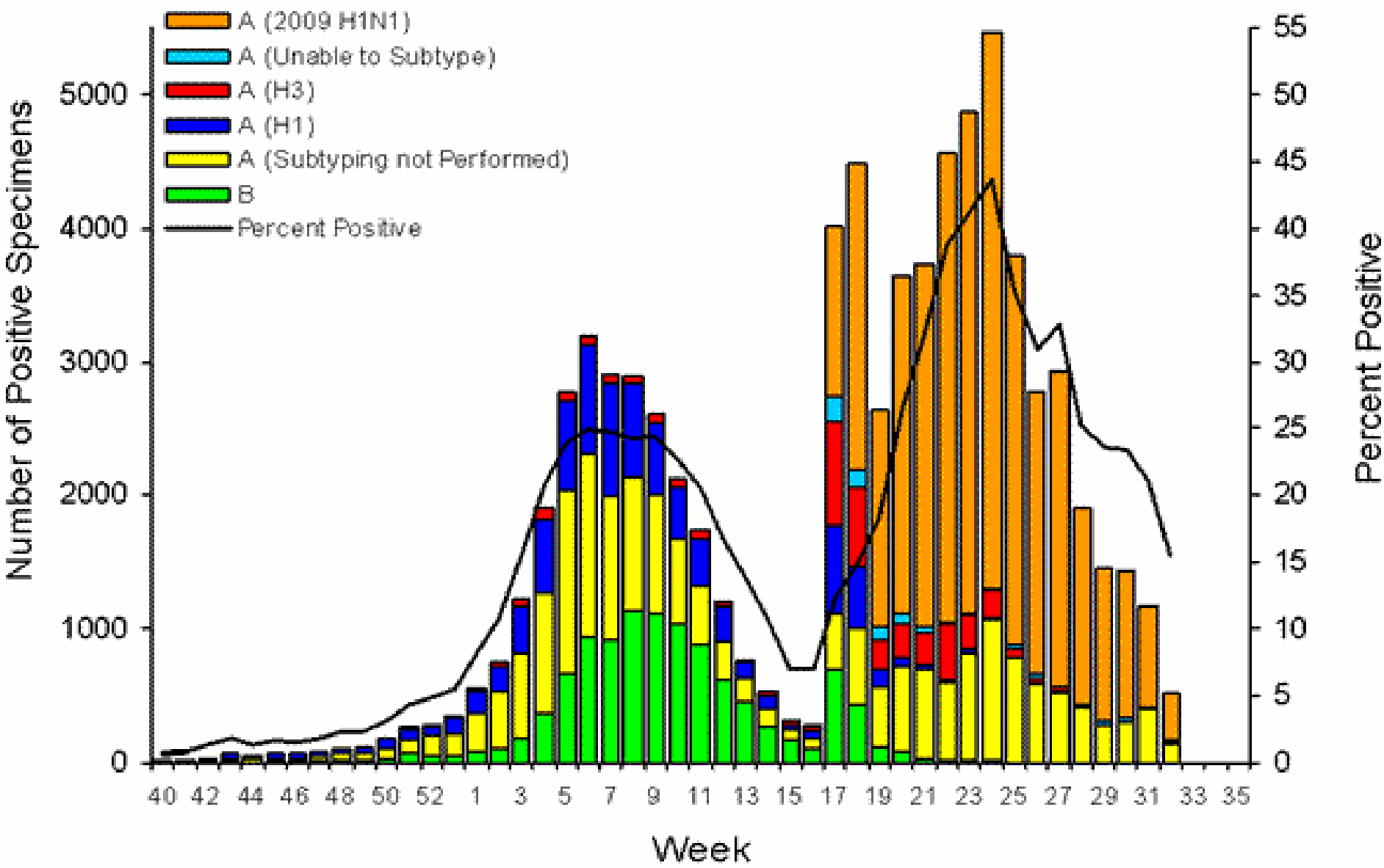
- Novel Influenza A (H1N1), “Novel flu”
- First reported April 21 in an MMWR on cases in California and Texas; recognized in Mexico
- April 24 - recognition of large outbreak at a school in Queens
- Virus contains genetic material from Asian swine flu, N. American swine flu, human flu, bird flu
- Virus is NON-SUB-TYPEABLE by standard laboratory protocols
  - Initially, only a few labs in the country (CDC, Public Health Labs) could subtype this virus
  - Commercial labs have now begun testing for novel flu

# Novel Influenza A (H1N1)

## Key Points

- Person-to-person transmission
  - Droplet and indirect transmission
- Antivirals
  - Most isolates sensitive to oseltamivir, zanamivir
  - Resistance being closely monitored
- Most cases relatively mild – low mortality
  - Behavior to date resembles seasonal flu
- Affecting younger age groups
  - Median age US – 12 years
  - Older adults >age 60 may have some immunity

# Influenza Positive Tests Reported to CDC by U.S. WHO/NREVSS Collaborating Laboratories, National Summary, 2008-09

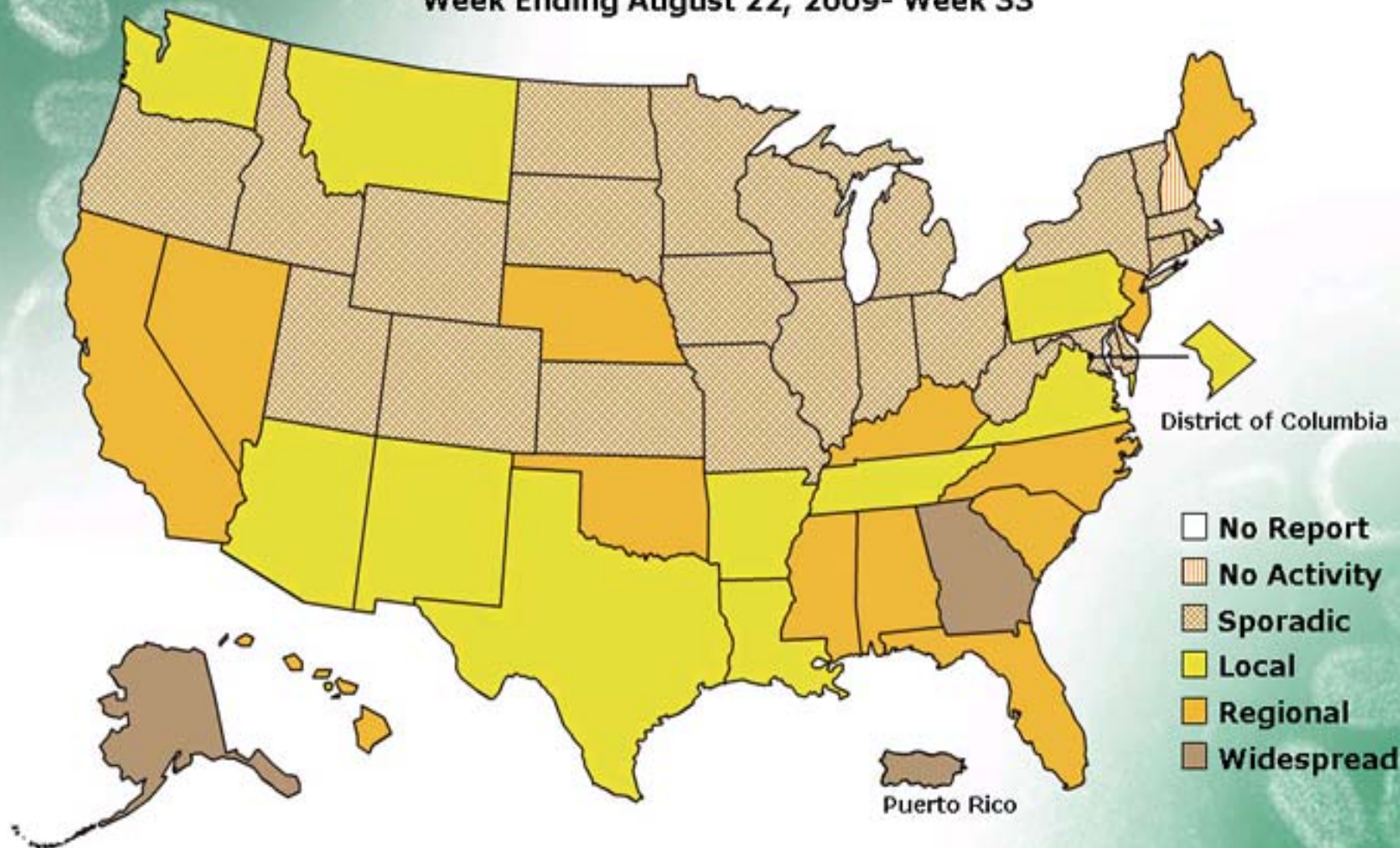


# FLUVIEW



**A Weekly Influenza Surveillance Report Prepared by the Influenza Division**  
**Weekly Influenza Activity Estimates Reported by State and Territorial Epidemiologists\***

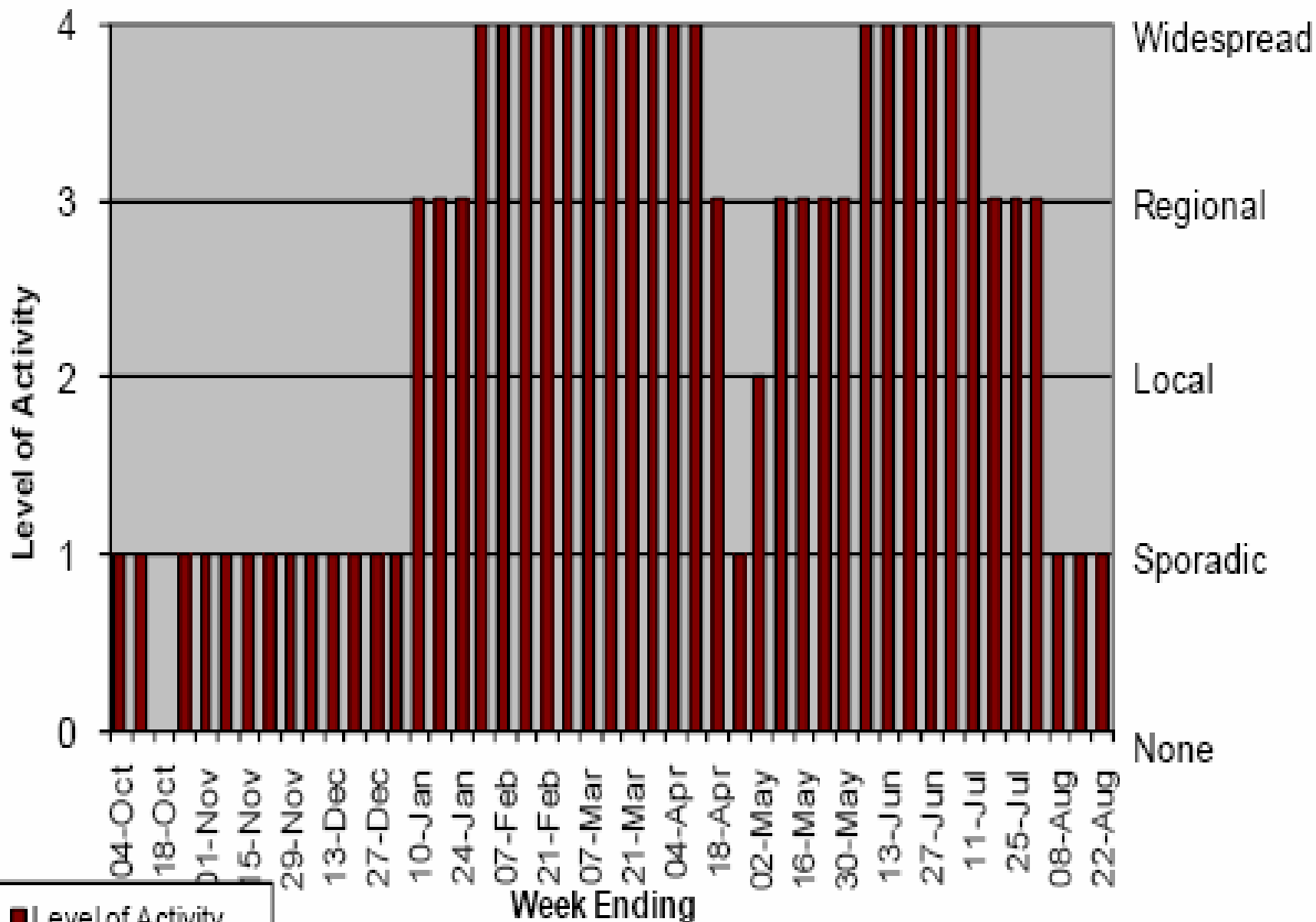
**Week Ending August 22, 2009- Week 33**



\*This map indicates geographic spread and does not measure the severity of influenza activity.

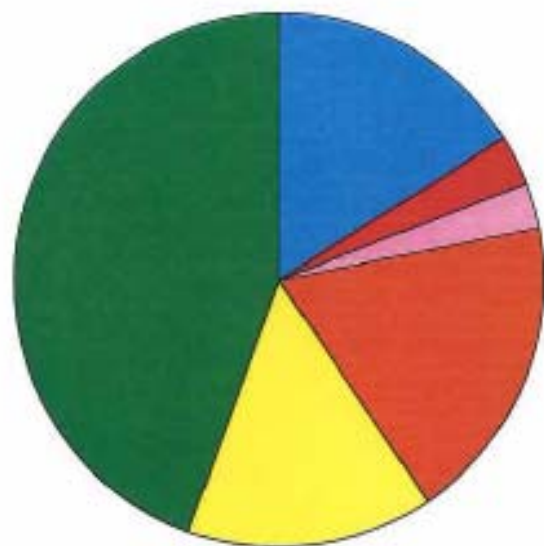
# New York State Epidemiologist's Reporting System

## Weekly Report of All Influenza Activity to CDC, 2008-09



# Teens and Young Adults Disproportionately Affected -- Few Cases Among Elderly

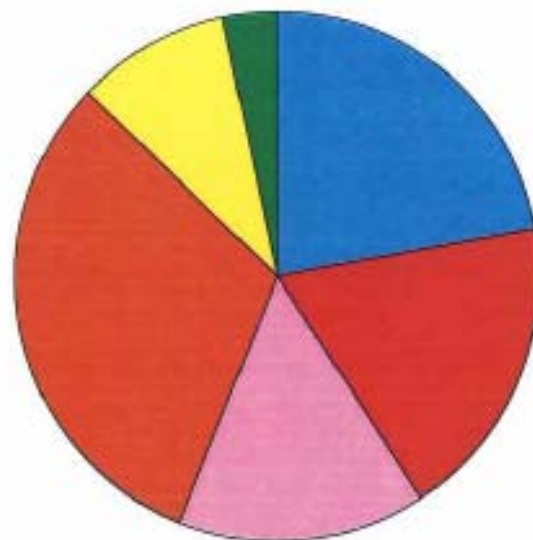
Seasonal 2007-08



N=3,930

- 0-4 yrs
- 5-9 yrs
- 10-17 yrs
- 18-49 yrs
- 50-64 yrs
- 65+ yrs

2009 H1N1 (April - Jun)



N=312

- 0-4 yrs
- 5-9 yrs
- 10-17 yrs
- 18-49 yrs
- 50-64 yrs
- 65+ yrs

\*April 12-June 30



# National Case Characteristics

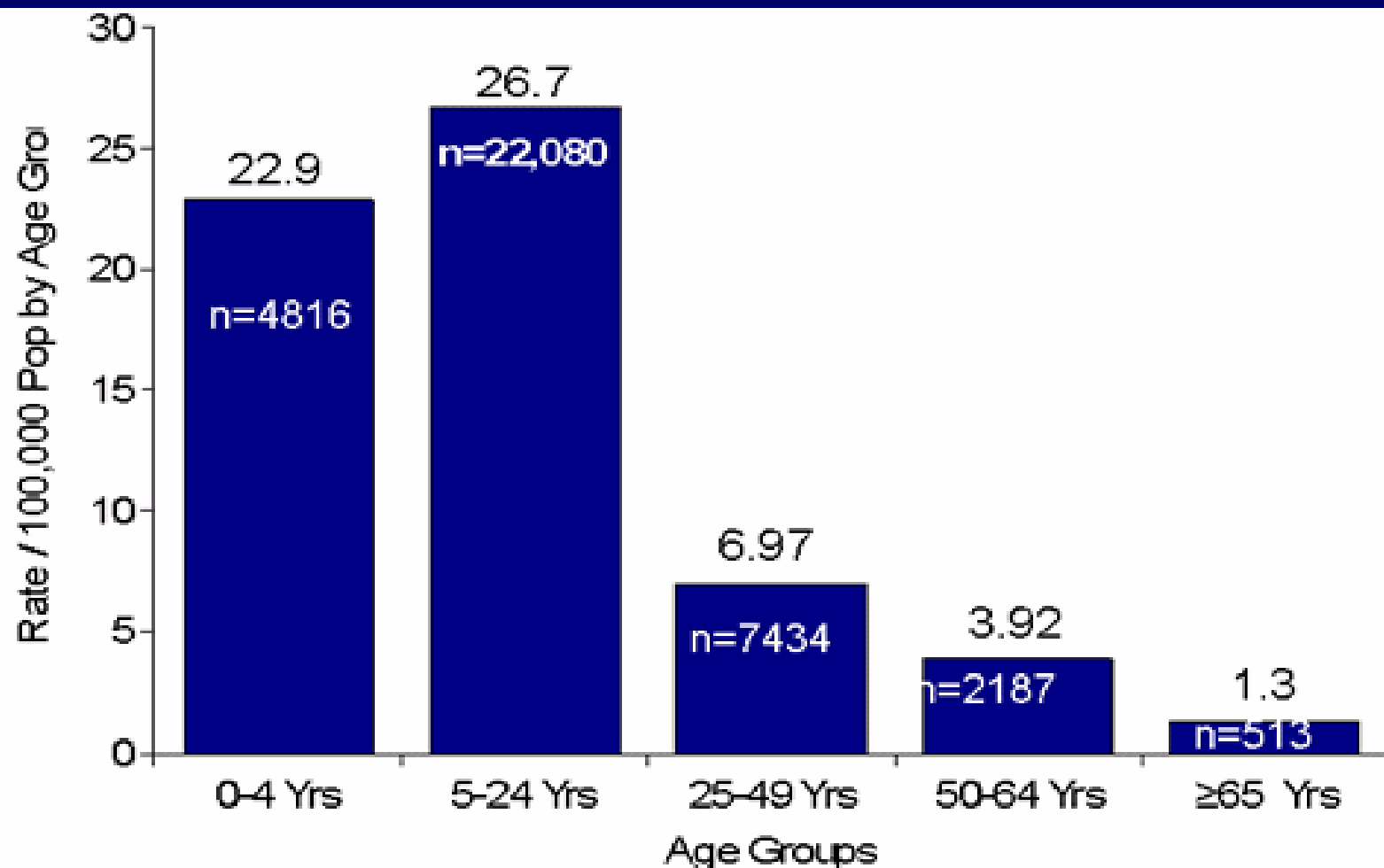
(July 16, 2009)

- 50% male
- Median age
  - All cases: 12 years
  - Hospitalized cases: 20 years
  - Deceased cases: 37 years
- Counts of confirmed cases do not reflect actual number of cases due to limited testing capabilities

# Individual Case Counts Do Not Represent True Burden of H1N1

- Reported cases significantly underestimate actual number of cases
  - People did not seek care for mild illness
  - Not all patients were tested
  - Limited laboratory capacity for testing
  - Testing restricted to severely ill or high risk patients
- 43,771 confirmed and probable cases reported to CDC from 4/15 to 7/24
- Estimates of >1,000,000 H1N1 illnesses from April through June

# Estimated Rates of Novel H1N1 Cases April 15 to July 24, 2009

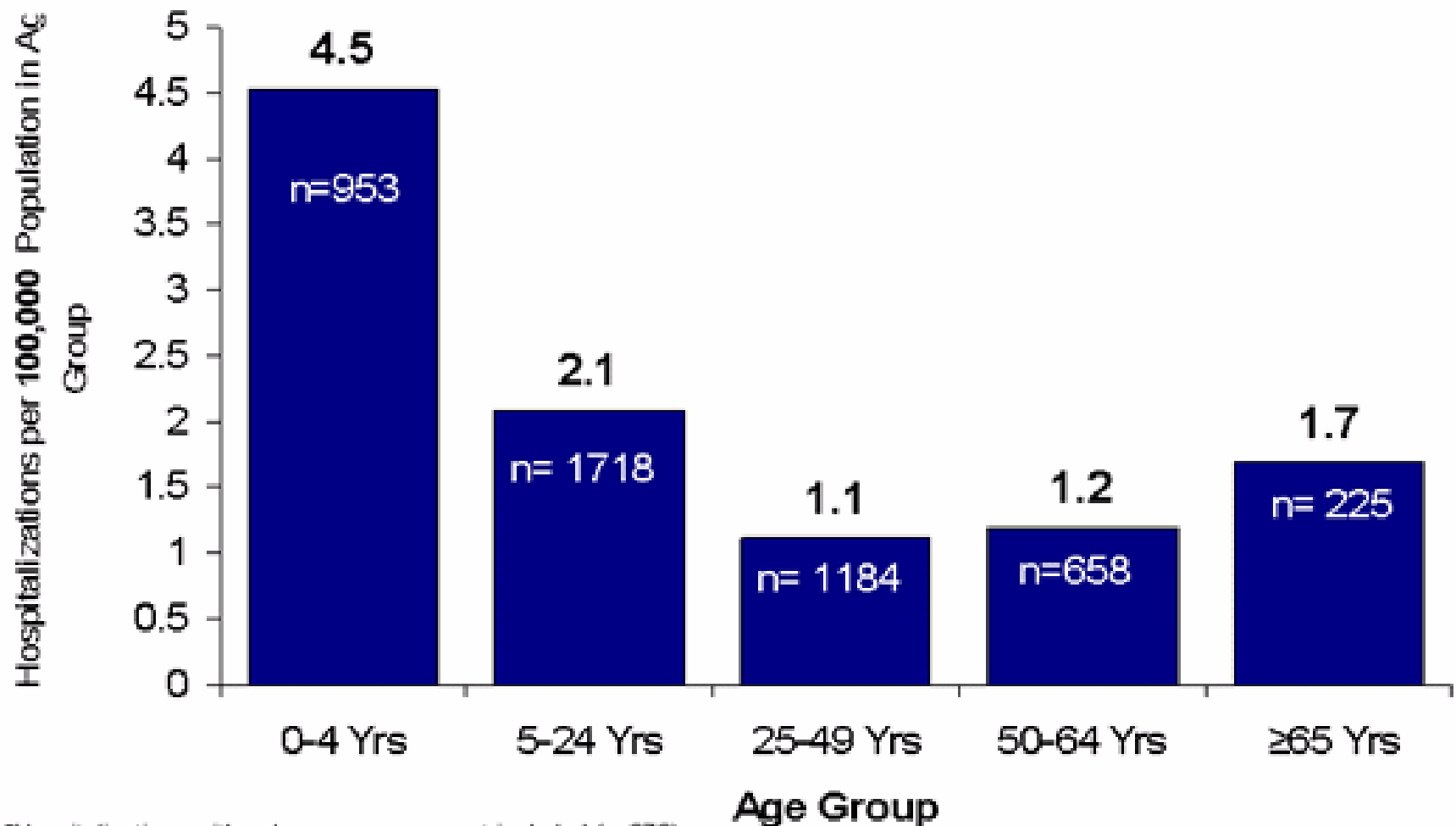


\*Excludes 6,741 cases with missing ages.

Rate / 100,000 by Single Year Age Groups: Denominator source: 2008 Census Estimates, U.S. Census Bureau at:

<http://www.census.gov/popest/national/asrh/files/NC-EST2007-ALLDATA-R-File24.csv>

# Novel H1N1 U.S. Hospitalization Rate April 15 to July 24, 2009



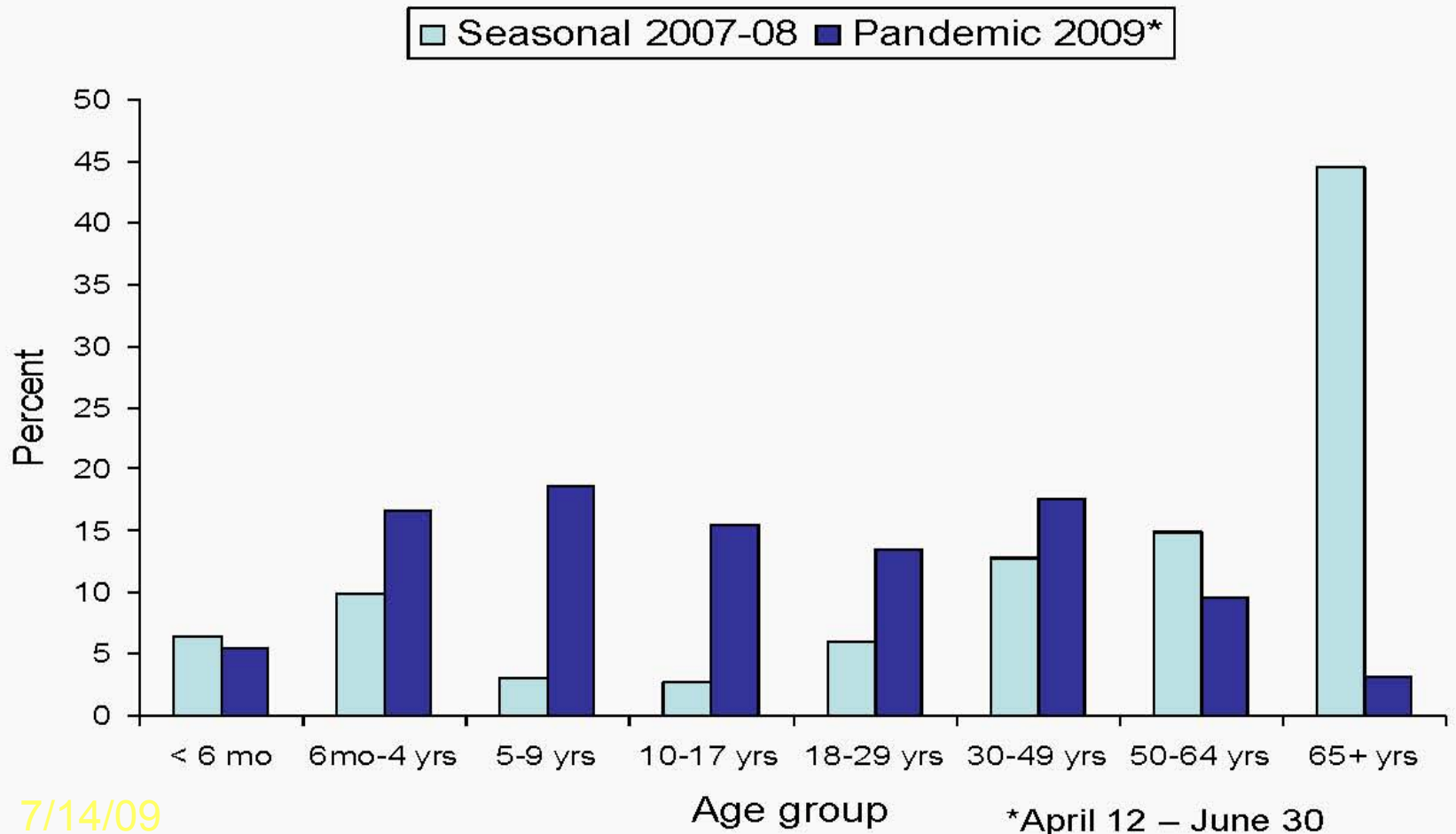
\*Hospitalizations with unknown ages are not included (n=273)

\*Rate / 100,000 by Single Year Age Groups: Denominator source: 2008 Census Estimates, U.S. Census Bureau at:  
<http://www.census.gov/popest/national/asrh/files/NC-EST2007-ALLDATA-R-File24.csv>

# National Data-Hospitalized Cases



Epidemiology/Surveillance  
Distribution by Age Group of Influenza Hospitalized Cases  
Emerging Infections Program - Pandemic H1N1 -14 JUL 2009

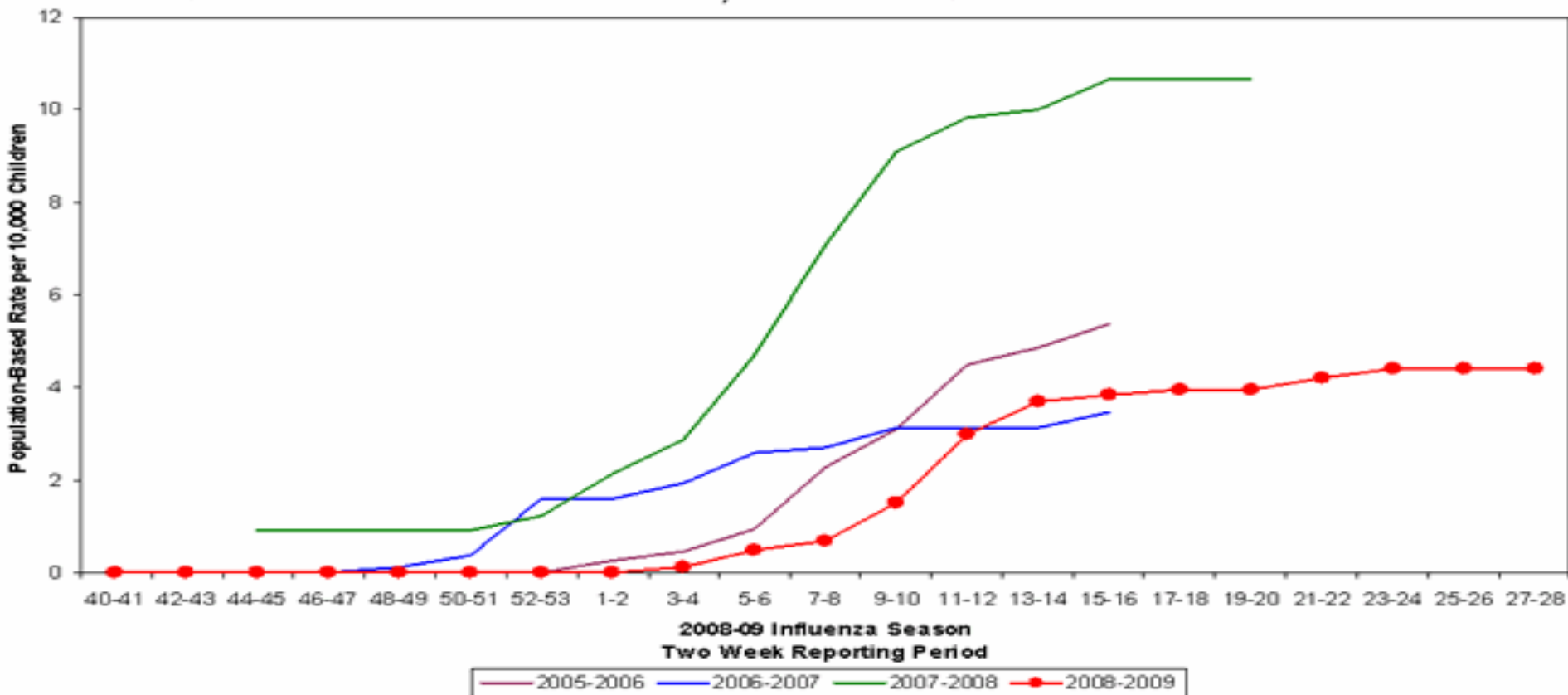


7/14/09

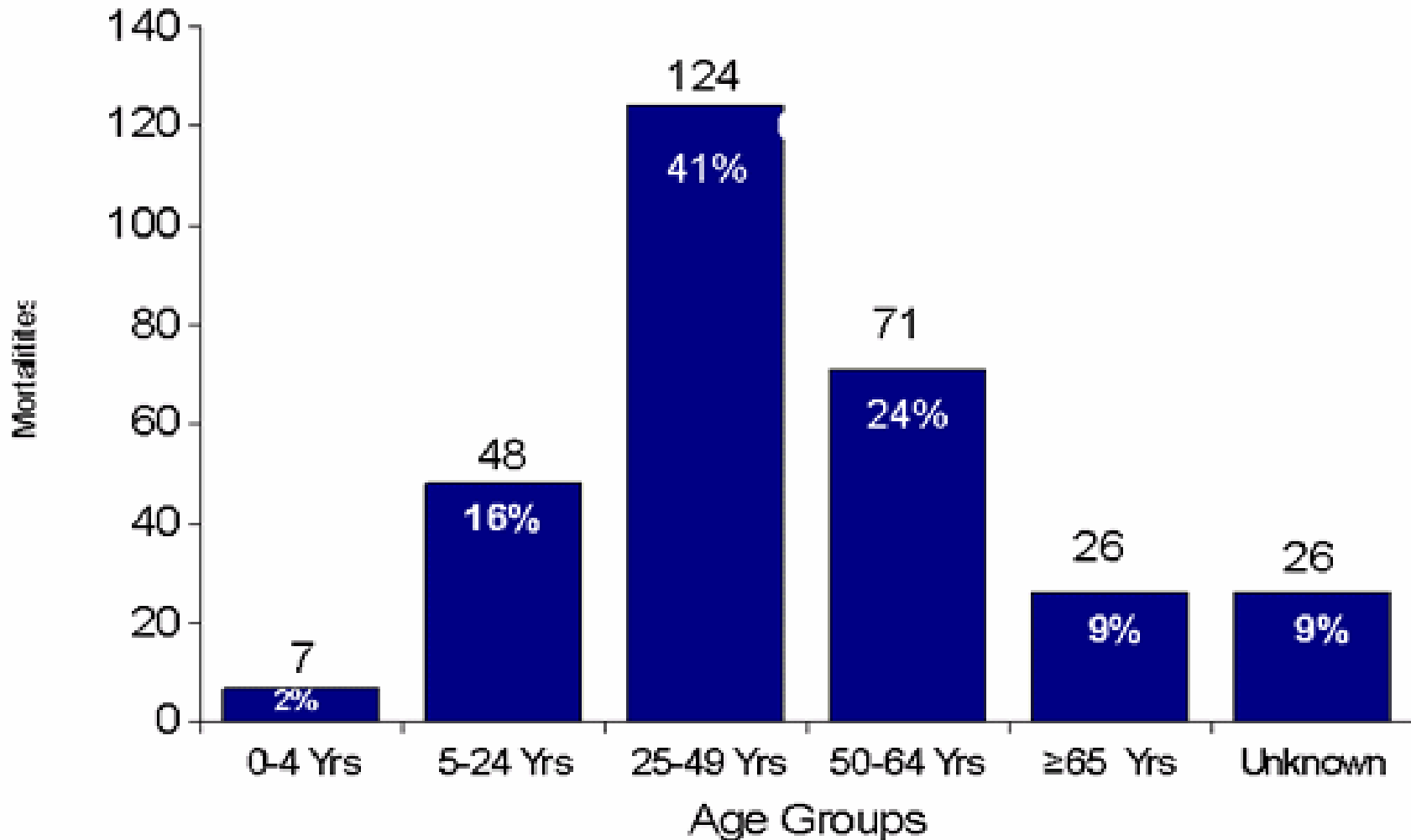
# National Data

## Pediatric Hospitalizations

NVSN Influenza Laboratory-Confirmed Cumulative Hospitalization Rates for Children 0 - 4 Years, 2008- 09 and Previous Three Seasons

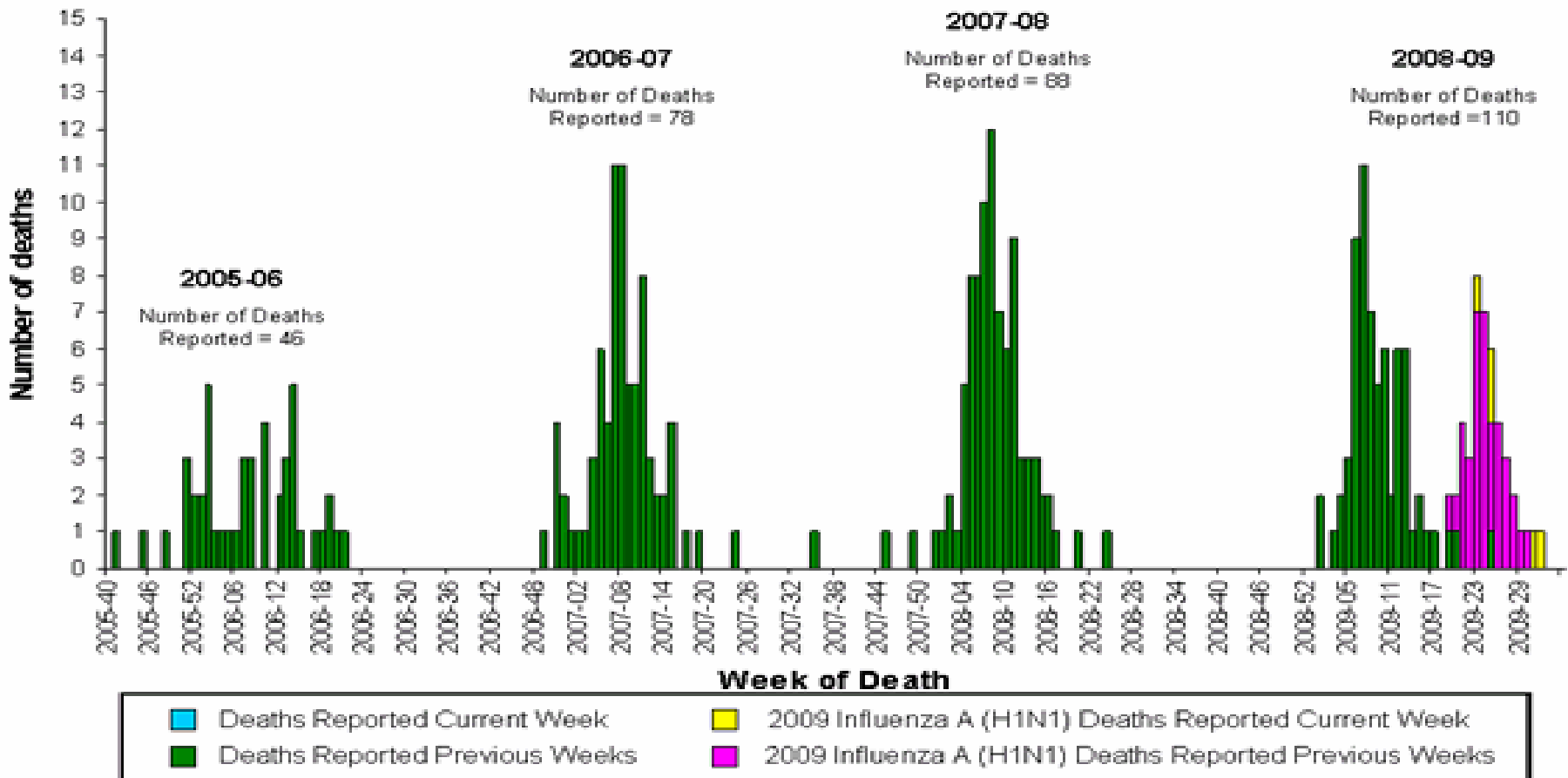


# Novel H1N1 U.S. Deaths, by Age Group



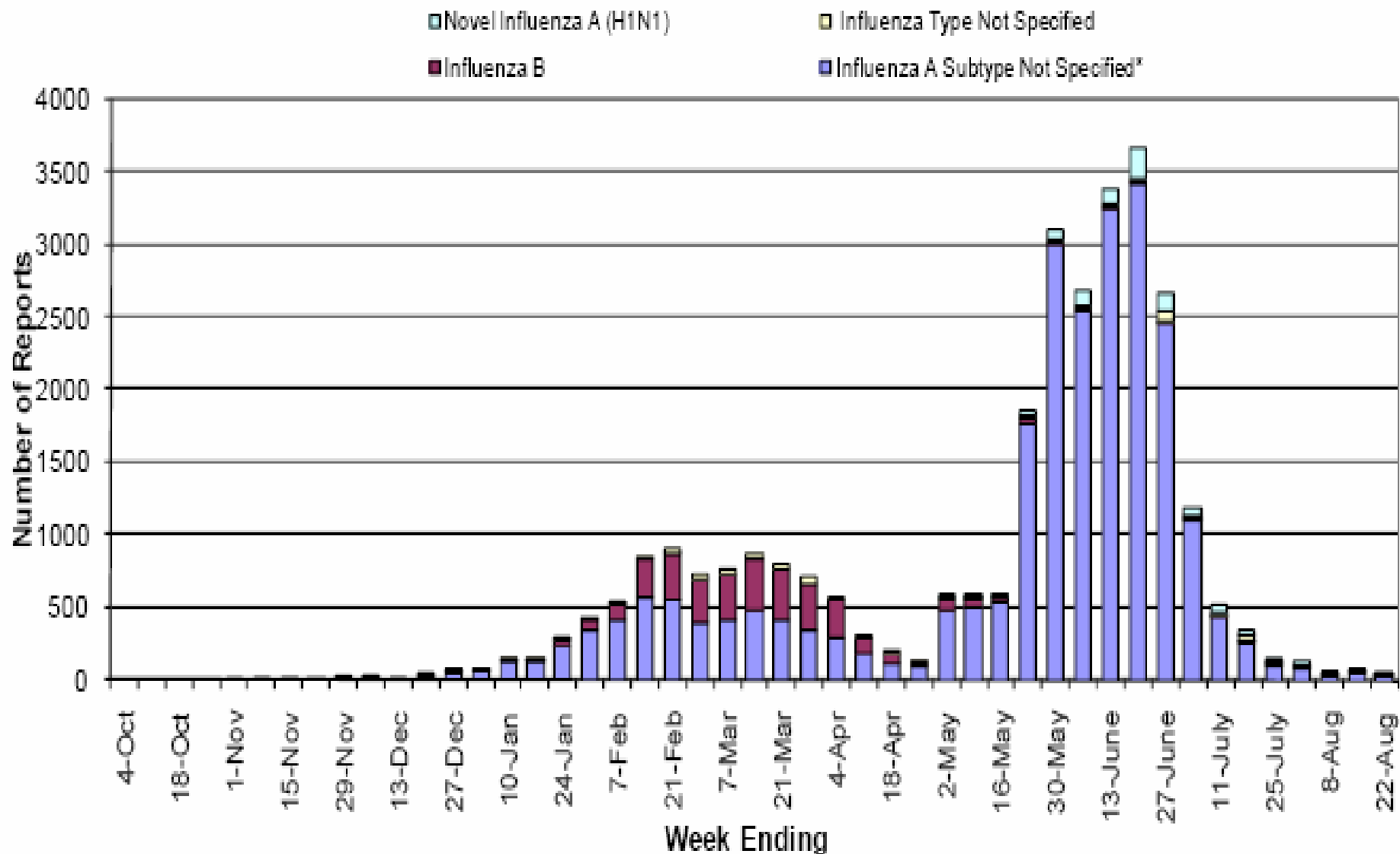
# Influenza-Associated Pediatric Deaths

Number of Influenza-Associated Pediatric Deaths  
by Week of Death:  
2005-06 season to present





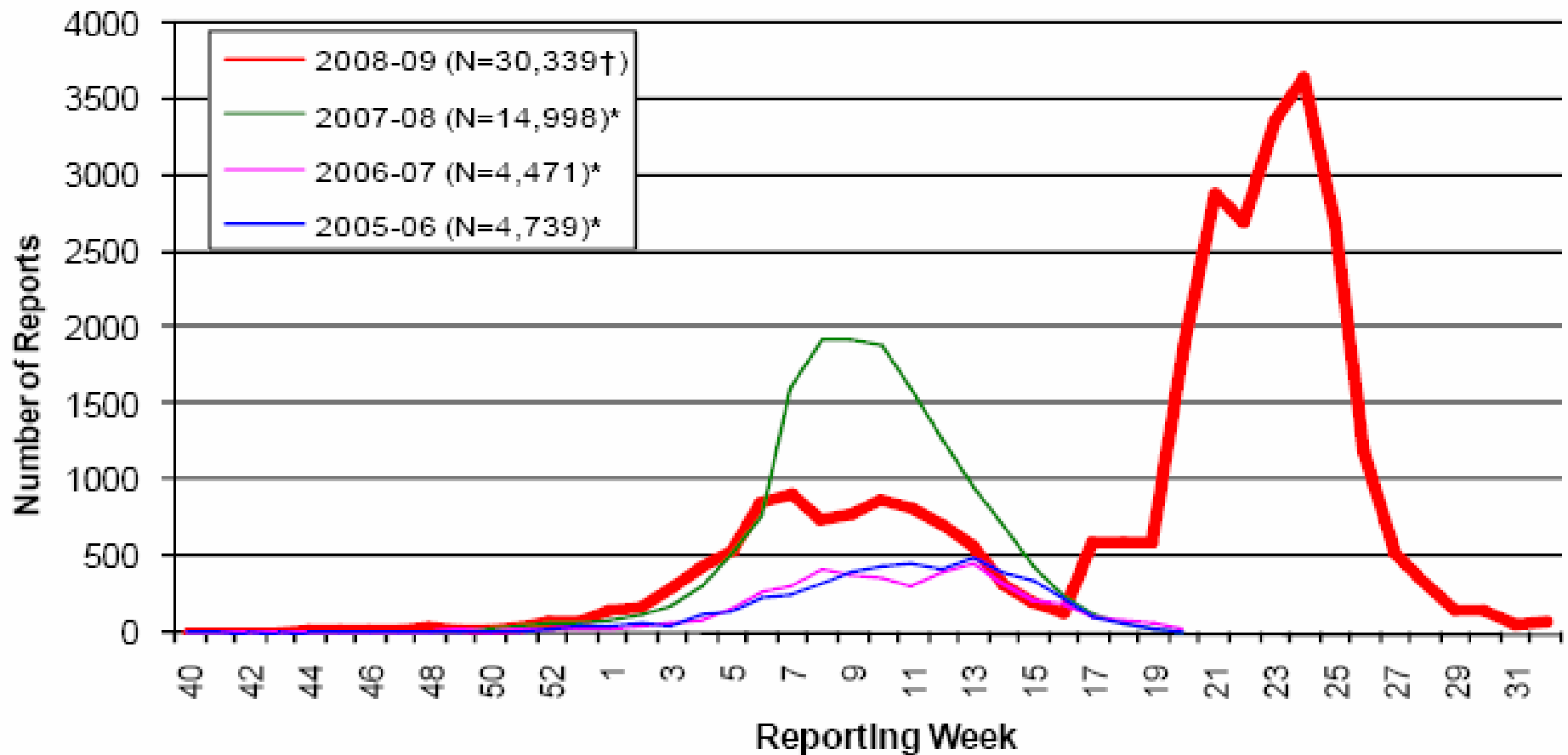
## Positive Influenza Laboratory Results reported on ECLRS, by Week, 2008-09 (N=30,339<sup>†</sup>)



<sup>†</sup>"Influenza A Subtype Not Specified" may include Seasonal Influenza A (H1N1), Seasonal Influenza A (H3N2) and Novel Influenza A (H1N1)

# New York State

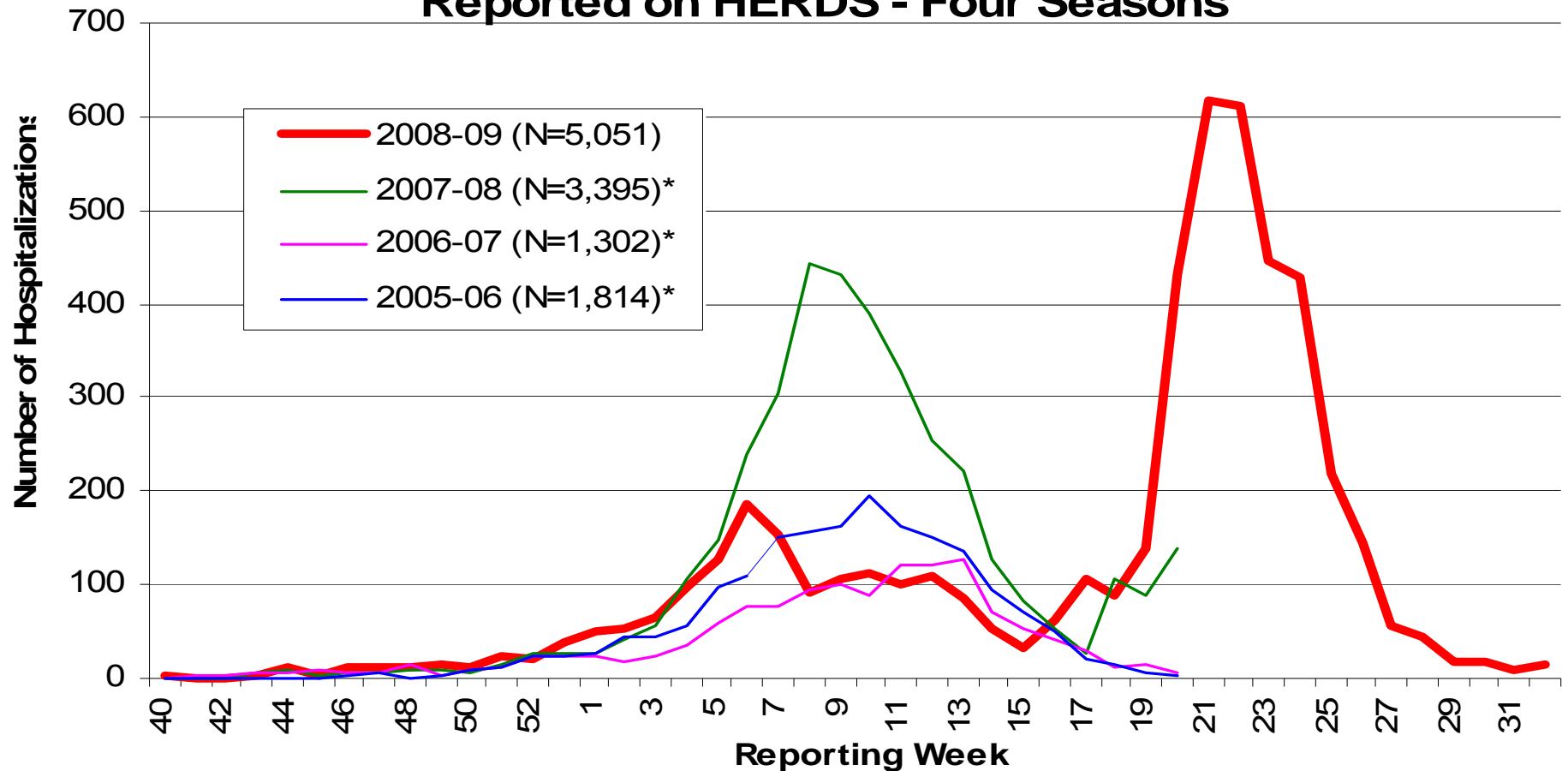
## Positive Influenza Laboratory Results Reported on ECLRS - Four Seasons



\*Note: Routine influenza surveillance during prior seasons ended with week 20.

# New York State

## Patients Hospitalized with Laboratory-confirmed Influenza Reported on HERDS - Four Seasons



Note: Routine influenza surveillance during prior seasons ended with week 20.

# Development of Targeted Guidance for Multiple Audiences

- Local Health Departments
- Hospitals, clinics
- Long Term Care Facilities
- EMS Agencies
- Infection Control
- Information for School Officials and Parents
  - Elementary and Secondary Schools
  - Day care centers
  - Colleges, Universities and Boarding Schools
- Information for Summer Camps
- Physician Guidance including clinical Guidelines for Testing and Treatment
- Bio-safety Guidelines for laboratories
- Guidance for high risk populations including migrant communities, border and tribal health; pregnant women; children

# Epidemiology and Surveillance: Changing Priorities

## Early Objectives:

- Focus: new disease, find out where it is and where it is going
- Identify new geographic areas
- Identify severe illness
- Identify outbreaks/clusters

## Objectives Going into the Future:

- Focus: recognition that this is not going away
- Characterize continuing transmission
- Watch for changes in transmission, severity, antiviral resistance
- Similar to seasonal flu surveillance, with enhancements

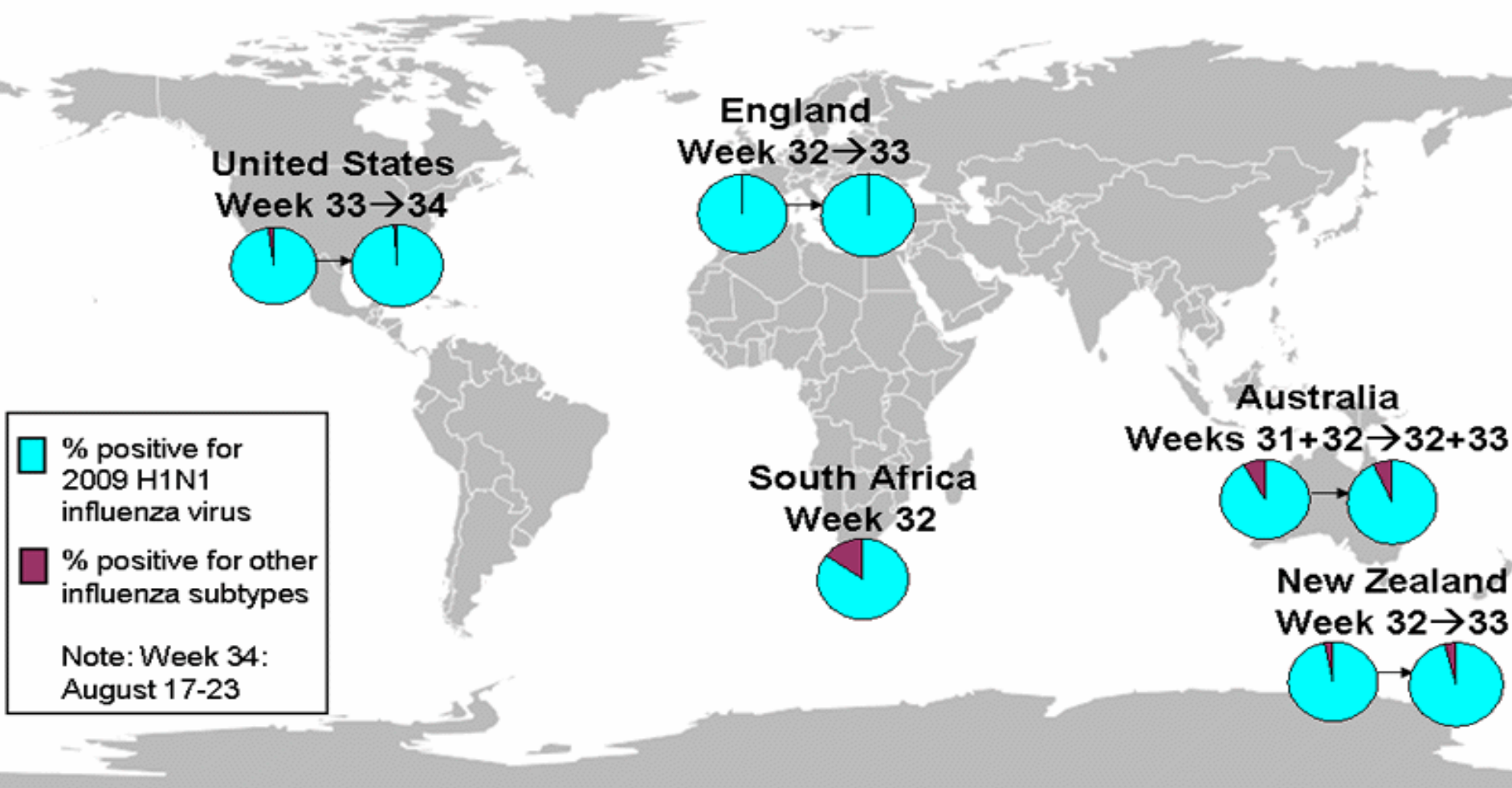
# New York State Surveillance Plans

- Enhanced surveillance over the summer
  - Mild illness=ILI net
  - Severe illness
  - Mortality
- Participated in CSTE - CDC working group to solidify national surveillance plans for fall and winter
- Less focus on case counts as they grow larger and become less representative
- Focus on more severe outcomes, sampling surveillance methods
- Continue to monitor changes in the virus through laboratory testing

# What is next?

- Capture Lessons Learned from this “live fire” exercise.
  - Good news: mild disease, sensitive to antivirals, vaccine do-able
  - Cautions: ?increased virulence; ?antiviral resistance; ?vaccine challenges
- Not back to business as usual: heightened awareness
- Monitoring and surveillance through the summer into the Fall
- Routinize reporting and laboratory testing
- Further development of protocols for:
  - School closure
  - Social distancing
  - Inter agency coordination
  - Communication, Communication, Communication
- Prepare for mass vaccination campaigns in the Fall
- Learn lessons for seasonal influenza

# International Situation Update



# Predictions ---???

- Novel H1N1 Influenza will cycle back this Fall/Winter and disease severity will remain the same.
- Vaccine availability may impact ability to protect persons recommended for immunization or at risk of complications....