Gateway Immunization Coalition

“Lickety Split”
Update on Flu Vaccine
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Saralou Hendrickson RN, MSN, MPH
Influenza/ Flu

- Highly infectious viral illness
- First pandemic in 1580
- At least 4 pandemics in 19th century
- Estimated 21 million deaths worldwide in pandemic of 1918-1919
- Virus first isolated in 1933
2009 Influenza A (H1N1)

- April 2009, novel influenza A (H1N1) appeared; spread across North America
- Cause of the first influenza pandemic since 1968
- Ninety percent of hospitalizations and deaths occurred in persons younger then 65 years of age
- Pandemic monovalent influenza vaccine produced and deployed nationwide
Influenza Virus

- Single-stranded RNA virus
- Orthomyxoviridae family
- 3 types: A, B, C
- Subtypes of type A determined by hemagglutinin and neuraminidase
Influenza Virus Strains

Type A - moderate to severe illness
- all age groups
- humans and other animals

Type B - milder disease
- primarily affects children
- humans only

Type C - rarely reported in humans
- no epidemics
Influenza Pathogenesis

- Respiratory transmission of virus
- Replication in respiratory epithelium with subsequent destruction of cells
- Viremia rarely documented
- Virus shed in respiratory secretions for 5-10 days
Influenza Clinical Features

- Incubation period 2 days (range 1-4 days)
- 50% of infected persons develop classic symptoms
- Abrupt onset of fever, myalgia, sore throat, nonproductive cough, headache
Influenza Complications

- Pneumonia
  - Secondary bacterial
  - Primary influenza viral
- Reye syndrome
- Myocarditis
- Death is reported than less than 1 per 1,000 cases
Impact of Influenza - United States, 1976-2007

- The number of influenza-associated deaths varies substantially by year, influenza virus type and subtype, and age group.

- Annual influenza-associated deaths ranged from 3,349 (1985-86 season) to 48,614 (2003-04 season), with an average of 23,607 annual deaths.

- Persons 65 years of age and older account for approximately 90% of deaths.

- 2.7 times more deaths occurred during seasons when A(H3N2) viruses were prominent.
Impact of Influenza - United States

- Highest rates of complications and hospitalization among persons $\geq 65$, young children, and persons of any age with certain underlying medical conditions
- Average of more than 200,000 influenza-related excess hospitalizations
- 37% of hospitalizations among persons younger than 65 years of age
- Greater number of hospitalizations during years that A(H3N2) is predominant
Influenza Among School-Aged Children

School-aged children

- Typically have the highest attack rates during community outbreaks of influenza
- Serve as a major source of transmission of influenza within communities
Influenza Diagnosis

- Clinical and epidemiological characteristics
- Isolation of influenza virus from clinical specimen (e.g., throat, nasopharynx, sputum)
- Significant rise in influenza IgG by serologic assay
Influenza Epidemiology

- Reservoir
  - Human, animals (type A only)
- Transmission
  - Respiratory
  - probably airborne
- Temporal pattern
  - peak December - March in temperate climate
  - may occur earlier or later
- Communicability
  - 1 day before to 5 days after onset (adults)
Influenza Vaccines

Inactivated (IIV) – Given intramuscularly
Age requirements depend on brand
- Quadrivalent
- Cell-culture based quadrivalent
- Trivalent
- Adjuvanted trivalent - age 65 and over
- High-dose trivalent – age 65 and over
- Recombinant trivalent – age 18 and over
- Quadrivalent intradermal – ages 18 through 64
- Live attenuated intranasal – not recommended this year
Inactivated Influenza Vaccine Efficacy

- About 60% effective among healthy persons younger than 65 years of age
- 50-60% effective in preventing hospitalization among elderly persons
- 80% effective in preventing death among elderly persons
Pregnancy and Inactivated Influenza Vaccine

- Risk of hospitalization 4 times higher than nonpregnant women
- Risk of complications comparable to nonpregnant women with high-risk medical conditions
- Vaccination (with IIV) recommended if pregnant during influenza season
- Vaccination can occur during any trimester
Inactivated Influenza Vaccine
Contraindications and Precautions

- Severe allergic reaction (e.g., anaphylaxis) to a vaccine component or following a prior dose of inactivated influenza
- Moderate or severe acute illness
- History of Guillian-Barré syndrome (GBS) within 6 weeks following a previous dose of influenza vaccine
Influenza Vaccine Adverse Events

IIV
- Local reactions – common
- Guillain-Barré syndrome – expected to be greater among persons with a history of GBS than among persons with no history of GBS

LAIV
- Nonspecific systemic symptoms – common
Inactivated Influenza Vaccine Adverse Reactions

- Local reactions (soreness, redness) 15%-20%
- Fever, malaise, myalgia less than 1%
- Allergic reactions (hives, angioedema, anaphylaxis) rare
Source:


- Prevention and Control of Seasonal Influenza with Vaccines Recommendations of the Advisory Committee on Immunization Practices – United States, 2016-2017 Influenza Season