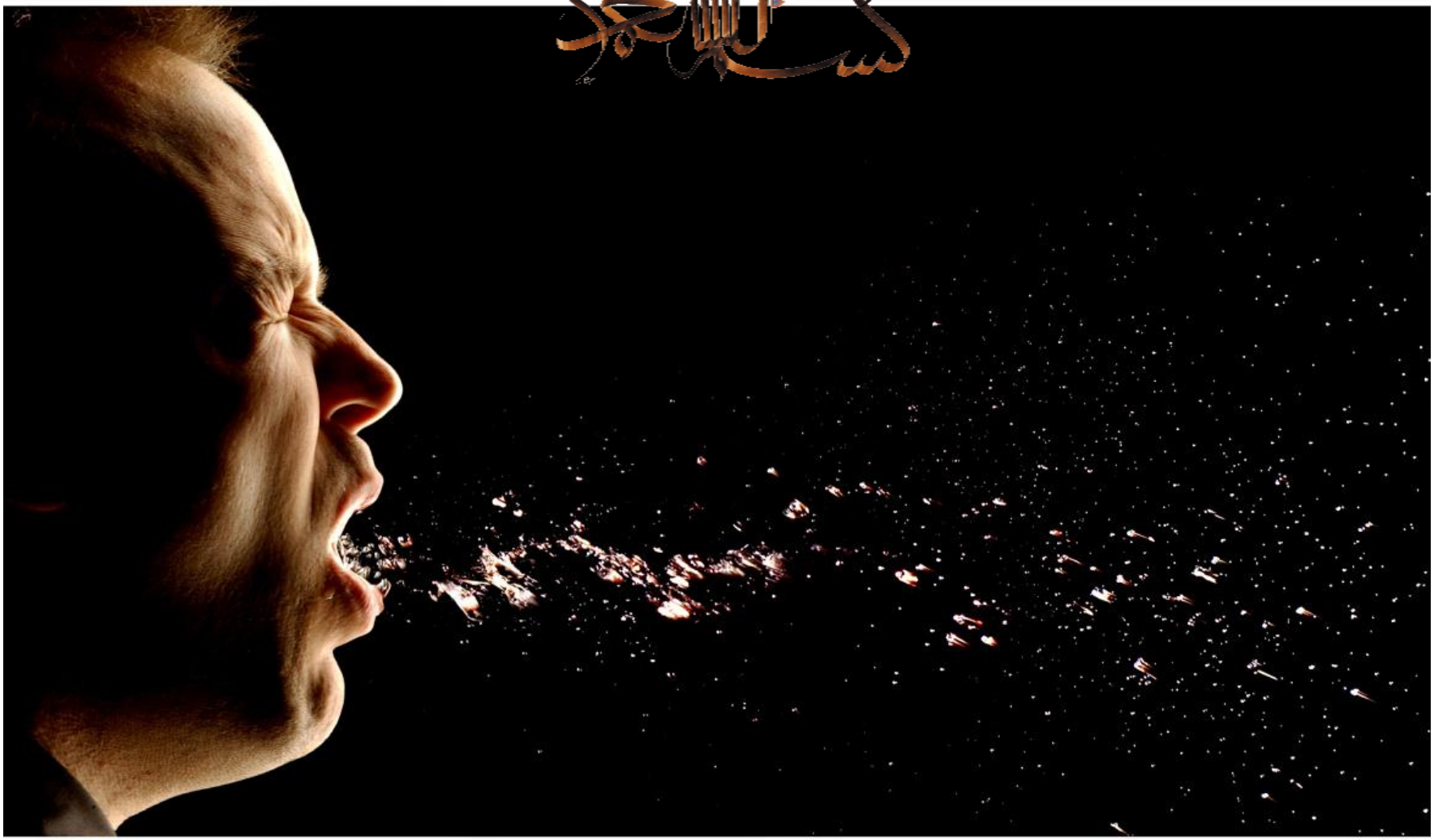
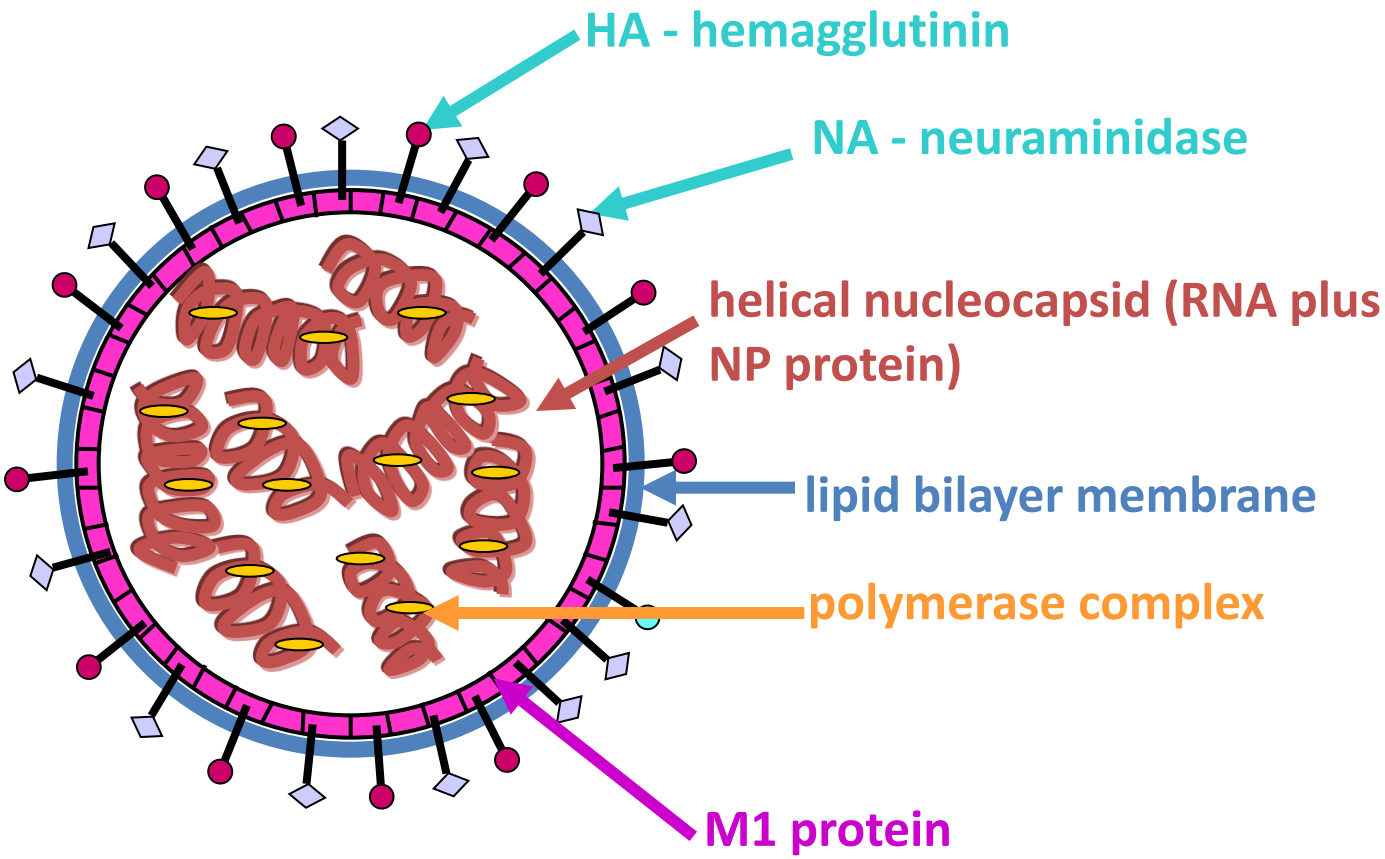


موضوع: انفولانزا

تدوین: دکتر جمالی

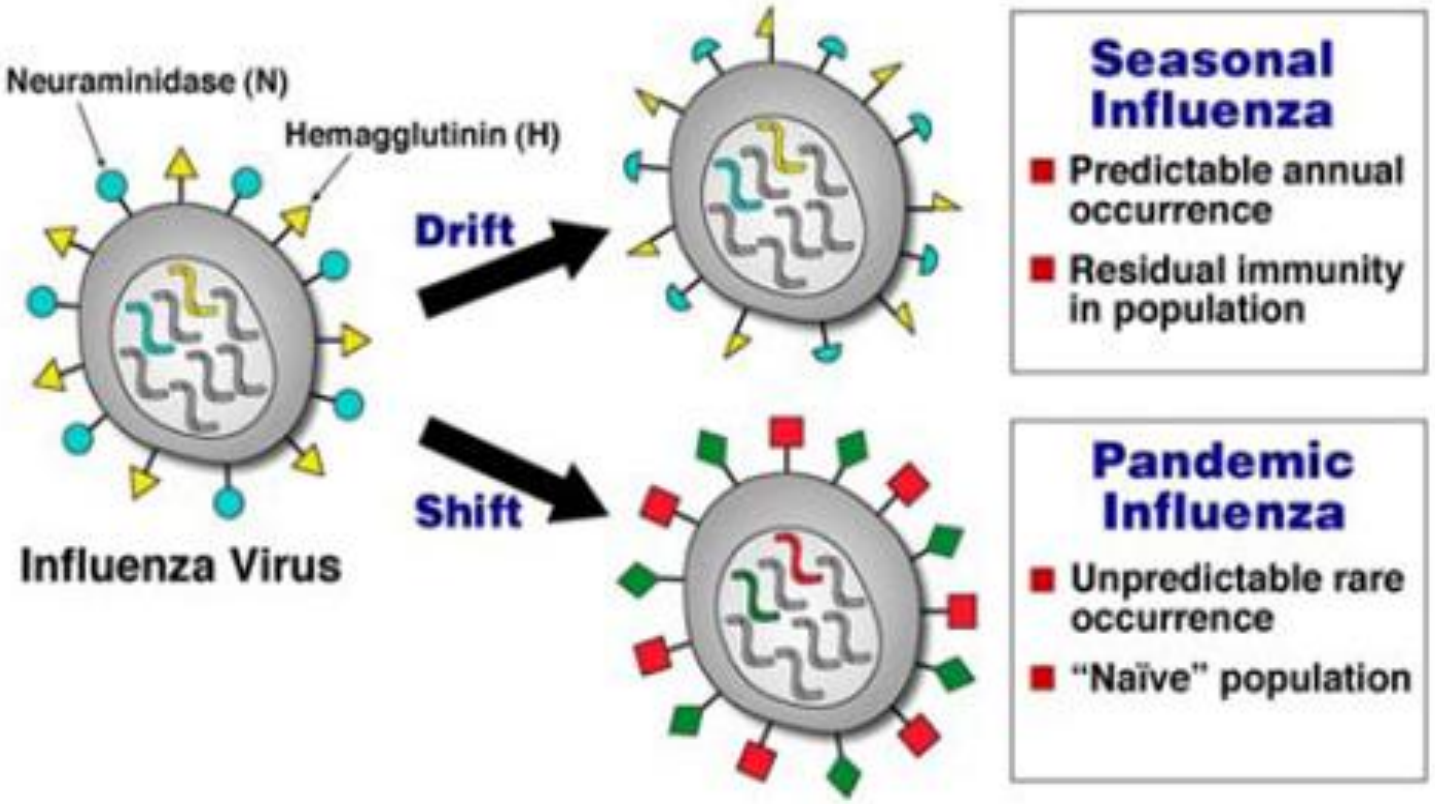
ORTHOMYXOVIRUSES



type A, B, C : NP, M1 protein

sub-types: HA or NA protein

Pandemic vs Seasonal



http://www3.niaid.nih.gov/topics/Flu/Research/vaccineResearch/seasPanIllustration.htm

TABLE 165-1 Differences among Influenza A, B, and C Viruses

	Influenza A	*Influenza B*	*Influenza C*
Genetics	8 gene segments	8 gene segments	7 gene segments
Structure	10 viral proteins M2 unique	11 viral proteins NB unique	9 viral proteins HEF unique
Host range	Humans, swine, equine, avian, marine mammals*	Humans only	Humans and swine
Epidemiology	Antigenic shift and drift	Antigenic drift only; two main lineages cocirculate	Antigenic drift only; multiple variants
Clinical features	May cause large pandemics with significant mortality in young persons	Severe disease generally confined to older adults or persons at high risk; pandemics not seen	Mild disease without seasonality

Peak incidence

- Influenza historically is in February in the northern hemisphere , influenza season may start earlier and last into early spring

- Avian influenza (H5N1) has a **nonseasonal distribution.**

- swine influenza (H1N1) has occurred in summer and winter

Who is at Highest Risk of Complications?

- Children under 5 years old, especially under 2
- Adults 65 and older
- Persons with chronic diseases including those with lung or heart disease or diabetes
- Immunosuppressed individuals
- Pregnant women
- Nursing home residents

CLINICAL FEATURES

Vomiting or diarrhea (not typical for influenza but reported by recent cases of swine influenza infection)

CLINICAL PRESENTATION

- influenza A patients often can recall the exact time of onset of the illness
- Severe human seasonal influenza A is accompanied by fever higher than 39C/102F and chills, accompanied by severe myalgias
- dry cough with or without hemoptysis

CLINICAL PRESENTATION

- Prostration is profound and is accompanied by headache and prominent myalgias
- myalgias of influenza are peculiarly severe and are localized to the neck and back
- Retro-orbital pain is common
- Gastrointestinal symptoms (ie, nausea, vomiting, or diarrhea) are more common with avian and swine influenza (H1N1) than with human influenza

laboratory test

- nonspecific laboratory test hallmark of influenza A (human, avian, and swine) is otherwise unexplained relative **lymphopenia**

- Leukopenia in swine influenza (H1N1) when present usually occurs with relative lymphopenia and thrombocytopenia

laboratory test

- Serum aspartate and alanine transaminases (AST,ALT) are often mildly/transiently elevated in avian (H5N1) and swine influenza (H1N1)
- Another key laboratory finding in swine influenza (H1N1) patients is an elevated creatine phosphokinase (CPK). Some patients with highly elevated CPKs may also have rhabdomyolysis
- Seasonal human influenza A and avian influenza A (H5N1) may have mild to moderate elevations of the serum lactate dehydrogenase (LDH)

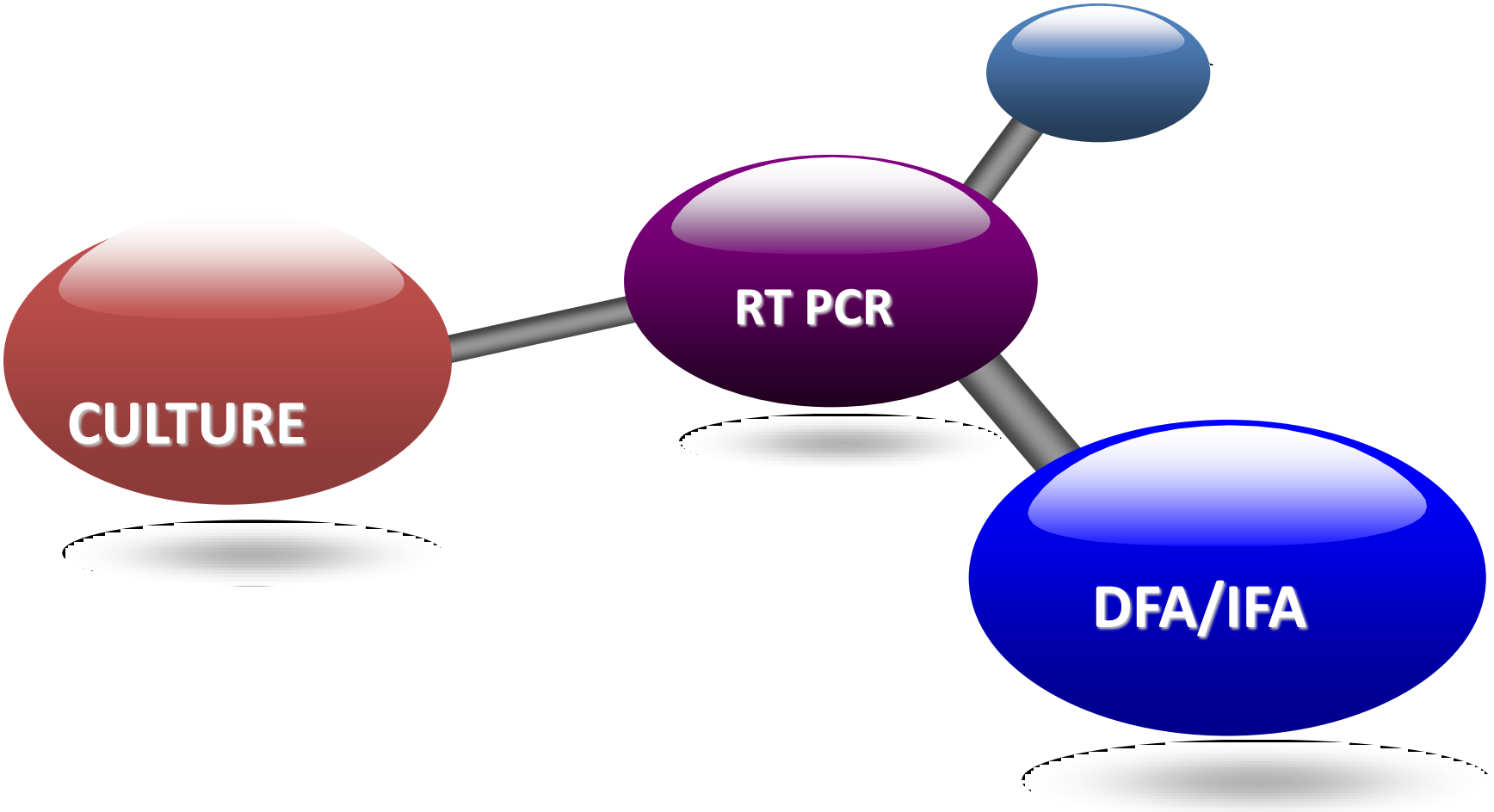
Education and Prevention is Key

- Stay home if sick (**24hr after fever resolves**)
- Send sick employees **home** (consider mask while exiting)
- **Handwashing**
- Clean common surfaces
- Avoid touching hands to mouth or nose
- **sneeze into tissue**
- Social distancing when possible
- flu vaccine when available

- **Incubation period** is 24 to 72 hours after exposure.

- Potentially infectious 1 day before symptoms occur and up to 6 days after.

DIAGNOSTIC TESTS



- Rapid influenza antigen tests & Direct or indirect immunofluorescent antibody testing (DFA or IFA) can distinguish between influenza A and B but negative test does not exclude infection.

COMPLICATIONS

Similar to those of seasonal influenza

- Exacerbation of underlying chronic medical conditions
- Upper respiratory tract disease (sinusitis, otitis media, croup)
- Lower respiratory tract disease (pneumonia, bronchiolitis, status asthmaticus)

- Cardiac (myocarditis, pericarditis)
- Neurologic (Acute and post-infectious encephalopathy, encephalitis, febrile seizures, status epilepticus)
- Toxic shock syndrome
- Secondary bacterial pneumonia with or without sepsis

Contact transmission

- Influenza virus can survive on a variety of surfaces :
  - Steel and plastic: 24-48 hours
  - Cloth and tissues: 8-12 hours

Droplet precaution

- Healthcare Infection Control Practices Advisory Committee (HICPAC) recommended
  - Use standard and droplet precautions for care of patients with suspected or confirmed 2009 H1N1 influenza infection (23 July 2009)

Anti-influenza agents

- Neuraminidase inhibitors
  - Oseltamivir (Tamiflu®)
  - Zanamivir (Relenza®)
- Adamantanes
  - Amantadine (Symmetrel®)
  - Rimantadine (Flumadine®)

Good news

	Influenza viruses			
Antiviral	**2009 H1N1**	**Seasonal H1N1**	**Seasonal H3N2**	**B**
Adamantanes	Resistant	Susceptible	Resistant	Resistant
Oseltamivir	Susceptible	Resistant	Susceptible	Susceptible
Zanamivir	Susceptible	Susceptible	Susceptible	Susceptible

8 of 1372 (0.6%) 2009 H1N1 viruses have been oseltamivir-resistant

www.cdc.gov/flu

Oseltamivir (Tamiflu®)

- 75mg po twice daily for 5 days for treatment
- 75mg po daily for 10 days for prophylaxis
- Side effects: nausea and vomiting
- Reduce dose for renal impairment

Zanamivir (Relenza®)

- 10 mg (2 inhalations) twice daily for 5 days
- 10mg (2 inhalations) once daily for 10 days
- Side effects: wheezing
- Cautions: chronic pulmonary diseases (bronchospasm)

Consider treatment

Treatment with oseltamivir or zanamivir is recommended for:

- persons with suspected or confirmed influenza with severe illness (e.g. hospitalized patients)
- persons with suspected or confirmed influenza who have risk factors for severe illness

CDC: Updated Interim Recommendations for Obstetric Health Care Providers Related to Use of Antiviral Medications in the Treatment and Prevention of Influenza for the 2009-2010 Season, 17 September 2009

Persons at higher risk for complications

- Children younger than 2 years old
- Persons aged 65 years or older
- Pregnant women
- Persons with certain chronic medical or immunosuppressive conditions
- Persons younger than 19 years of age who are receiving long-term aspirin therapy

CDC: Updated Interim Recommendations for Obstetric Health Care Providers Related to Use of Antiviral Medications in the Treatment and Prevention of Influenza for the 2009-2010 Season, 17 September 2009

High risk medical conditions

- Chronic pulmonary (including asthma), cardiovascular (except hypertension), renal, hepatic, hematological (including sickle cell disease), or metabolic disorders (including diabetes mellitus)

- Disorders that that can compromise respiratory function or the handling of respiratory secretions or that can increase the risk for aspiration (e.g., cognitive dysfunction, spinal cord injuries, seizure disorders, or other neuromuscular disorders)

- Immunosuppression, including that caused by medications or by HIV;

CDC: Updated Interim Recommendations for Obstetric Health Care Providers Related to Use of Antiviral Medications in the Treatment and Prevention of Influenza for the 2009-2010 Season, 17 September 2009

Post exposure antiviral chemoprophylaxis

Post exposure antiviral chemoprophylaxis can be considered for persons at higher risk for severe illness and health care workers

- Close contact
- At high risk for severe illness
- Chemoprophylaxis generally is **not recommended** **if more than 48 hours** **have elapsed** since the last contact with an infectious person

CDC: Updated Interim Recommendations for the Use of Antiviral Medications in the Treatment and Prevention of Influenza for the 2009-2010 Season, 22 September 2009

Influenza Vaccine

Trivalent flu vaccines:

- an A (H1N1),
- an A (H3N2)–like virus, and
- a B (Victoria lineage).

Quadrivalent flu vaccines:

- the same three antigens and
- an additional influenza B virus (Yamagata lineage)

People who can't get the flu vax

- Children younger than 6 months
- People with severe, life-threatening allergies to flu vaccine or any ingredient in the vaccine.

People who should talk to their doctor before getting the flu shot:

- If you have an allergy to eggs or any of the ingredients in the vaccine.
- If you ever had Guillain-Barré Syndrome (a severe paralyzing illness, also called GBS).
- If you are not feeling well.

Information for Pregnant Women

routine influenza vaccination is recommended for all women who are or will be pregnant (in any trimester) during influenza season

Thank you!