

DEFINITION

- * Influenza is a viral infection of the nose, throat, trachea, and bronchi
- * Parent thinks child has influenza because other family members have it
- * Parent thinks child has regular (seasonal) influenza and it's prevalent in the community

BACKGROUND

SYMPTOMS

- * Main symptoms are a runny nose, sore throat, and bad cough
- * More muscle pain, headache, fever, and chills than with usual colds

CAUSE

- * Influenza viruses that change yearly

HIGH-RISK CHILDREN FOR COMPLICATIONS FROM INFLUENZA

- * Lung disease (e.g., asthma, cystic fibrosis, bronchopulmonary dysplasia)
- * Technology dependent lung disease (e.g., oxygen required, tracheostomy, ventilator)
- * Compromised ability to handle respiratory secretions (e.g., spinal cord or brain injury)
- * Heart disease (e.g., congenital heart disease, rheumatic heart disease)
- * Neuromuscular disease (e.g., muscular dystrophy, cerebral palsy, epilepsy)
- * Metabolic disease (e.g., diabetes mellitus)
- * Sickle cell disease
- * Renal disease (e.g., nephrotic syndrome)
- * Compromised immune system (e.g., cancer, chemotherapy, HIV/AIDS, transplant, taking oral steroids)
- * Diseases requiring long-term aspirin therapy (e.g., Kawasaki's disease and rheumatoid arthritis)
- * Pregnancy
- * Healthy children under 2 years old (CDC 9-2009) are also considered High-Risk (Reason: higher rate of pneumonia).
- * Note: all other patients are defined as LOW-RISK

HIGH-RISK PATIENTS WITH FLU SYMPTOMS: CALL IN AN ANTI-VIRAL PRESCRIPTION OR SEE THE SICK CHILD FIRST

- * In this guideline, this decision is left to each office to decide.
- * Some PCPs/offices want to see all patients before prescribing. Some are selective about which patients they see before prescribing. The following are some practical tips for deciding which patients to see:
- * Healthy children (under age 2 years): See the ones less than 6 months old.
- * High-Risk children of any age with chronic medical problems: See the ones under 2 years old.
- * Tamiflu can be called in for the other High-Risk patients without seeing them.

INFLUENZA WITHOUT FEVER

- * Flu can sometimes occur without fever.
- * However, fever remains a valuable aid in triage, and without it the telephone diagnosis of suspected flu could double or triple. That would overwhelm the health care delivery system.
- * Premise: anyone who has flu without a fever has a very mild case of the infection and doesn't need anti-viral medications. (Exception: immune-suppressed individuals who may not be able to mount a febrile response)

COMPLICATIONS OF INFLUENZA

- * Influenza usually has a higher complication rate than the common cold viruses
- * Ear infections and sinus infections occur in over 10% of children
- * Pneumonia: both viral and secondary bacterial
- * Influenza-induced croup; sometimes with secondary bacterial tracheitis
- * Influenza-induced bronchiolitis
- * Influenza-induced flare-ups in those with asthma
- * Dehydration, often due to a severe sore throat that limits fluid intake
- * Muscle pains (viral myositis) in the legs can be severe and cause limping or refusal to walk
- * Rare complications: Reye syndrome, encephalitis, myocarditis
- * Deaths: For children between 1 and 4 years of age, influenza is the 6th leading cause of death.
- * While children with underlying disease are at much higher risk, 47% of the deaths were in healthy children. (2003-2004 influenza season)
- * Perspective: 36,000 people die of regular human influenza each year in the U.S. alone.

INFLUENZA: SYMPTOMS OF SECONDARY BACTERIAL INFECTIONS

Using telephone triage, we want to select out the 5 to 10% of children who have bacterial superinfections of their influenza illness. Many are identified with specific symptoms and patterns. Most are suspected because symptoms have persisted too long:

- * Earache, ear discharge
- * Sinus pain not relieved by nasal washes
- * Fever present over 3 days (R/O: otitis, sinusitis or pneumonia)
- * Fever that goes away over 24 hours and then returns (R/O: otitis or sinusitis)
- * Nasal discharge present over 2 weeks (R/O: sinusitis)
- * Cough present over 3 weeks (R/O: asthma, etc.)
- * Tachypnea or increased work of breathing (R/O: pneumonia)

INFLUENZA VACCINE (FLU SHOT)

- * Yearly influenza vaccines are strongly recommended for all HIGH-RISK children over 6 months of age. (See the list.) Reason: these children have a high complication rate from influenza, especially pneumonia.
- * Parents, siblings and care givers of high-risk children should also receive the influenza vaccine.
- * In 2008, the American Academy of Pediatrics Committee on Infectious Disease recommended all HEALTHY children age 6 months through 18 years receive the flu shot. Research has demonstrated that HEALTHY children younger than 24 months share the same risk of influenza-associated hospitalization as do HIGH-RISK children.
- * Given annually (in September-November) before the onset of influenza season.
- * The vaccine is 70-90% effective in preventing influenza. It is not 100% protective, as the influenza viruses change yearly.

PRESCRIPTION ANTIVIRAL AGENTS FOR INFLUENZA

- * Oseltamivir (Tamiflu) has become the drug of choice for treating severe influenza
- * Tamiflu is licensed for children over 1 year of age
- * Tamiflu comes in a liquid or pill form and is taken for 5 days
- * Main side effect: nausea and vomiting
- * Tamiflu is useful for both Influenza A and B, but resistance is increasing
- * Limitations of all antiviral agents (including Tamiflu):
- * All antiviral drugs must be started within 48 hours of the onset of influenza symptoms to have an impact.
- * Their benefits are limited: they reduce the duration of symptoms by 1 to 1.5 days. They also reduce the severity of flu symptoms, but they do not cure the disease nor remove all the symptoms.
- * They are not a substitute for the flu vaccine.
- * Most physicians require a positive influenza test before prescribing Tamiflu. The others want to examine the child and make a clinical diagnosis of influenza before prescribing Tamiflu.

INDICATIONS FOR PRESCRIPTION ANTIVIRAL AGENTS FOR INFLUENZA

* The AAP Committee on Infectious Diseases (Pediatrics, April 2007) recommends the following children receive antiviral therapy (currently Tamiflu) for their influenza infection if treatment can be started within 48 hours of onset of flu symptoms:

* HIGH-RISK children for complications (see that list) with influenza infection of any severity and regardless of flu immunization status.

* LOW-RISK children with 'moderate-to-severe influenza infection who may benefit from the decrease in duration of clinical symptoms documented to occur with therapy.' (AAP article in Pediatrics 2007). In telephone triage, most children with severe disease are referred in.

RETURN TO SCHOOL

* Spread is rapid because the average incubation period is about 2 days (range: 1 to 4 days) and the virus is very contagious.

* Your child can return to child care or school after the fever is gone for 24 hours and your child feels well enough to participate in normal activities.

* For practical purposes, the spread of coughs and colds cannot be prevented among people who didn't receive the flu shot.

FIRST AID

N/A

TRIAGE ASSESSMENT QUESTIONS FOR INFLUENZA

Call EMS 911 Now

- Severe difficulty breathing (struggling for each breath, making grunting noises with each breath, unable to speak or cry because of difficulty breathing, severe retractions)
- Difficult to awaken or not alert when awake
R/O: influenza encephalitis
- Very weak (doesn't move or make eye contact)
R/O: sepsis or shock
- Bluish lips or face now
R/O: cyanosis and need for oxygen
- Sounds like a life-threatening emergency to the triager

See More Appropriate Protocol

- Influenza vaccine reaction
Go to Protocol: Immunization Reactions (Pediatric)
- Swine Flu (H1N1 Flu) suspected
go to Protocol: Swine Flu (H1N1 Flu) (Pediatric)

Go to ED Now

- Stridor (harsh sound with breathing in confirmed by triager) occurs at rest
R/O: influenza croup
- Newborn < 4 weeks with fever > 100.4° F (38.0° C) rectally
R/O: sepsis

Go to ED Now (or to Office with PCP Approval)

- Age 4 - 12 weeks with fever > 100.4° F (38.0° C) rectally
R/O: sepsis
- Sounds very sick or weak to the triager
R/O: sepsis

Go to Office Now

- Difficulty breathing (per caller) not relieved by cleaning out the nose
R/O: pneumonia
- Wheezing occurs
R/O: influenza bronchiolitis
- Rapid breathing (Breaths/min > 60 if < 2 mo; > 50 if 2-12 mo; > 40 if 1-5 years; > 30 if 6-12 years; > 20 if > 12 years old)
R/O: respiratory distress
- Stridor (transient) occurs with crying or coughing
R/O: influenza croup
- Chest pain and can't take a deep breath
R/O: pneumonia, pleurisy
- Dehydration suspected (decreased urine output AND very dry mouth, no tears, ill-appearing, etc.)
- Age < 3 months with lots of coughing
R/O: pneumonia
- Fever > 105° F (40.6° C)
R/O: serious bacterial infection

See Today in Office

- Earache or ear discharge also present
R/O: otitis media
- Age < 2 years and ear infection suspected by triager
Reason: recognizes child too young to report earache
- Age > 5 years with sinus pain around cheekbone or eye (not just congestion)
R/O: sinusitis
- Yellow scabs around the nasal openings
R/O: nasal impetigo
- Sore throat is the only symptom (no cough) and present > 48 hours
R/O: strep pharyngitis
- Fever present > 3 days
R/O: bacterial superinfection - usually otitis media

- Fever returns after going away > 24 hours

R/O: otitis media or sinusitis

- Parent wants child seen

Discuss with PCP and Callback by Nurse Today

- HIGH-RISK patient (age under 2 years OR underlying heart or lung disease OR weak immune system- see that list) with flu symptoms

Reason: Treatment with anti-viral medication is recommended for HIGH-RISK patients (CDC); PCP may consider calling in prescription to pharmacy

- LOW-RISK patient with flu symptoms (including fever) present < 48 hours AND caller requests antiviral medicine

Reason: Treatment with anti-virals not needed for LOW-RISK patients, but can be considered

See Within 3 Days in Office

- Age > 6 months and needs flu shot
- Nasal discharge present > 14 days
- Cough present > 3 weeks
- Influenza lasts > 3 weeks

Home Care

- Probable influenza with no complications and child LOW-RISK

Reason: Flu EXPOSURE within last 4 days and respiratory symptoms WITH fever

- Probable URI (common cold) with no complications

Reason: Flu EXPOSURE within last 4 days and respiratory symptoms WITHOUT fever

HOME CARE ADVICE FOR INFLUENZA

Treatment for Influenza Symptoms

1. REASSURANCE:
 - * For healthy people, the symptoms of seasonal influenza are similar to those of the common cold.
 - * With flu, however, the onset is more abrupt and the symptoms are more severe. Feeling very sick for the first 3 days is common.
 - * The treatment of influenza depends on your child's main symptoms and is no different from that used for other viral respiratory infections.
 - * Bed rest is unnecessary.
2. RUNNY NOSE WITH PROFUSE DISCHARGE - BLOW OR SUCTION THE NOSE:
 - * Reassure the parent that the nasal mucus and discharge is washing viruses and bacteria out of the nose and sinuses.
 - * Blowing the nose is all that's needed. For younger children, use nasal suction.
 - * Apply petroleum jelly to the nasal openings to protect them from irritation. (Cleanse the skin first.)
3. NASAL WASHES TO OPEN A BLOCKED NOSE:
 - * Use saline nose drops or spray to loosen up the dried mucus. If not available, can use warm tap water.
 - * STEP 1: Instill 3 drops per nostril. (Age < 1 year, use 1 drop and do one side at a time)
 - * STEP 2: Blow (or suction) each nostril separately, while closing off the other nostril. Then do other side.
 - * STEP 3: Repeat nose drops and blowing (or suctioning) until the discharge is clear.
 - * Frequency: Do nasal washes whenever your child can't breathe through the nose.
 - * Saline nasal sprays can be purchased OTC
 - * Saline nose drops can also be made: add 1/2 tsp of table salt to 1 cup (8 oz) of warm water
 - * Reason for nose drops: suction or nose blowing alone can't remove dried or sticky mucus.
 - * Another option: use a warm shower to loosen mucus. Breathe in the moist air, then blow each nostril.
 - * For young children, can also use a wet cotton swab to remove sticky mucus.
 - * Importance for a young infant: can't nurse or drink from a bottle unless the nose is open.
4. COLD MEDICINES:
 - * Cold medicines are not recommended at any age. (Reason: they are not helpful. They can't remove dried mucus from the nose. Nasal washes can.)
 - * ANTIHISTAMINES are not helpful, unless your child also has nasal allergies.
 - * DECONGESTANTS: OTC oral decongestants (Pseudoephedrine or Phenylephrine) are not recommended. Although they may reduce nasal congestion in some children, they also can have side effects.
 - * AGE LIMIT: Before 4 years, never use any cold medicines. (Reason: unsafe and not approved by FDA) After 4 years, don't recommend them, but if the parent insists on using a one, help them calculate a safe dosage based on the drug dosage tables. (Avoid multi-ingredient products.)
 - * NO ANTIBIOTICS: Antibiotics are not helpful, unless your child develops an ear or sinus infection.

5. **HOMEMADE COUGH MEDICINE:**
 - * Before 1 year of age, only use warm clear fluids (e.g., water or apple juice) to treat the cough. Dosage: 1-3 teaspoons (5-15 ml) four times per day when coughing. Avoid honey.
 - * After 1 year of age, use HONEY 1/2 to 1 tsp (2 to 5 ml) as needed as a homemade cough medicine. It can thin the secretions and loosen the cough. (If not available, can use corn syrup.)
 - * After 6 years of age, use COUGH DROPS to coat the irritated throat. (If not available, can use hard candy.)
6. **SORE THROAT RELIEF:** For mild sore throat, give warm chicken broth over 1 year old and hard candy over 6 years old.
7. **FEVER MEDICINE:**
 - * For fever > 102° F (39° C) or discomfort, use acetaminophen or ibuprofen (See Dosage table)
 - * AVOID ASPIRIN because of the strong link with Reye's syndrome.
 - * FOR ALL FEVERS: Give cold fluids in unlimited amounts. Avoid excessive clothing or blankets (bundling).
8. **PAIN MEDICINE:** For pain relief (e.g., muscle aches or sore throat), give acetaminophen every 4 hours OR ibuprofen every 6 hours as needed. (See Dosage Table)
9. **FLUIDS:** Encourage your child to drink adequate fluids to prevent dehydration. This will also thin out the nasal secretions and loosen the phlegm in the lungs.
10. **HUMIDIFIER:** If the air in your home is dry, use a humidifier. Moist air keeps the nasal mucus from drying up.
11. **CONTAGIOUSNESS FOR SEASONAL FLU:**
 - * Spread is rapid because the incubation period is only about 2 days (range 1 to 4 days) for seasonal flu and the virus is very contagious.
 - * Your child can return to child care or school after the fever is gone for 24 hours and your child feels well enough to participate in normal activities.
12. **EXPECTED COURSE:** The fever lasts 2-3 days, the runny nose 7-14 days and the cough 2-3 weeks.
13. **PRESCRIPTION ANTIVIRAL MEDICATION FOR INFLUENZA:**
 - * For best results, antiviral drugs should be started within 48 hours of the onset of influenza symptoms.
 - * Their benefits are limited: they usually reduce the time your child is sick by 1 to 1.5 days. They reduce the symptoms, but do not cure the disease.
 - * The AAP recommends they be used for: [1] any patient with severe symptoms with fever AND [2] HIGH-RISK children (see that list).
 - * Tamiflu is not approved if under 1 year of age.
 - * Most pediatricians don't prescribe antiviral drugs for LOW-RISK children with influenza. These children recover with supportive symptom care.
14. **OUR OFFICE POLICY FOR PRESCRIBING TAMIFLU FOR PATIENTS WITH SEASONAL INFLUENZA: YES OR NO**
 - * High Risk patients with fever and less than 48 hours since onset: _____
 - * High Risk patients without fever: _____
 - * High-Risk patients and more than 48 hours since onset: _____
 - * Low Risk patients: _____
15. **EXPOSURE OF HIGH RISK PATIENT:** If the Low Risk child with flu symptoms lives with a High Risk person (such as a sibling or adult with a chronic disease, persons under 2 years or over 65 years, a pregnant woman, etc), the family needs to call the High Risk patient's HCP within 24 hours. (Reason: may need anti-viral medication).

16. CALL BACK IF:
- * Breathing becomes difficult
 - * Fever lasts over 3 days
 - * Fever goes away over 24 hours and then returns
 - * Nasal discharge lasts over 14 days
 - * Cough lasts over 3 weeks
 - * Your child becomes worse

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