Swine Flu (H1N1)

Pediatric Office-Hours Version

Schmitt-Thompson Clinical Content

DEFINITION

* Swine Flu is a viral infection of the nose, throat, trachea, and bronchi
* Parent thinks child has Swine Flu because other family members have it
* Parent thinks child has Swine Flu and it's prevalent in the community
* Use this guideline only if the patient has symptoms that match Swine Flu (H1N1 Flu)

SYMPTOMS OF SWINE FLU:
* The symptoms of swine flu are the same as those seen with regular human influenza
* The main symptoms are fever, cough, sore throat and runny nose
* Fever is usually present (Exception: immune-compromised children)
* Other common symptoms are muscle pain, headache and fatigue
* Some people also have vomiting and diarrhea, but never as the only symptom

BACKGROUND

HIGH RISK CHILDREN FOR COMPLICATIONS FROM SWINE FLU (CDC)
* 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 H1N1 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. Tamiflu can be called in for the other High Risk patients without seeing them.
* 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

SWINE FLU (H1N1 FLU): GENERAL INFORMATION
* Definition: Swine flu viruses normally do not infect humans. The novel H1N1 virus is a combination virus that contains genes from swine flu, avian flu and human flu. Cases of swine flu in humans were first detected in Mexico during March 2009. An outbreak of swine flu in humans occurred in the U.S. and Canada in April 2009. By June 2009, the WHO declared it a global pandemic.
* Symptoms: The symptoms of swine flu are similar to those of regular human influenza. Main symptoms are sore throat, bad cough and fever. Other common symptoms are a runny nose, muscle pain, headache and fatigue. The onset of symptoms is usually abrupt. Some people also have vomiting and diarrhea, but never as the only symptom.

* Severity of Symptoms: Symptoms of swine flu can be mild to severe, just as with regular human flu. Thus far in the US and Canada, the symptoms have generally been mild to moderate. Like seasonal influenza, severe illness and death may occur with Swine Flu.
* Complications: The worst complications are pneumonia, respiratory distress or failure and death. Complications are more likely to occur in patients with chronic diseases or other risk factors (see HIGH RISK PATIENTS list)
* Transmission: The swine flu virus is spread via airborne droplets, from sneezing and coughing, just like other influenza viruses. It also can be transmitted by hands contaminated with secretions. It no longer has anything to do with pigs; it is only spread person-to-person. Swine flu is NOT transmitted by eating pork.
* Expected Course: Like regular flu, the fever lasts 2-3 days, the runny/congested nose 1-2 weeks and the cough 2-3 weeks. With some flu viruses, the fever lasts 4 or 5 days.
* Contagious Period: A person is contagious for 1 day prior to and for 7 days after the onset of symptoms (e.g., the fever and cough)
* Incubation Period: After exposure, a person will come down with swine flu symptoms in 4 to 6 days (5 days on the average). An outer limit rarely could be 7 days. This virus has a longer incubation period than seasonal flu (1 to 3 days).
* Attack Rate: The chance of getting swine flu depends on the degree of exposure and is always higher for household contacts. While the attack rate is unknown for this virus, it should be high (20-50%) because there is no natural immunity to swine flu viruses.
* Diagnostic Test: At this time, testing is mainly indicated for patients with severe disease (CDC, May 2009). Testing has limited value. Offices and EDs only have a rapid test for influenza. It has a sensitivity of less than 50% and will not identify all infected people. However, if it is positive, that doesn't prove the patient has Swine Flu. An additional swab of nasal secretions needs to be sent to the State Public Health Department to test for Swine Flu. Accurate testing takes 2 or 3 days.
* Treatment: The Swine Flu virus currently is sensitive to oseltamivir (Tamiflu) and zanamivir (Relenza). For best results, it needs to be started within 48 hours of symptom onset, but it can be given later for severe cases. Indications for treatment of swine flu include HIGH-RISK patients and severely ill patients, especially those who require hospitalization. Since the disease is usually mild to moderate, most people with swine flu do not require antiviral medicine. Tamiflu resistance has been reported. (CDC, 8/2009)
* Prevention: Some flu viruses are more contagious than others. It is not yet clear how quickly this swine flu virus will spread. Prevention measures include avoiding sick people and crowds (social distancing). Hand washing is very important. A complete list of preventive tips is available on the CDC website.
* Vaccine: The H1N1 vaccine is available. This is the best way to prevent swine flu. The yearly seasonal flu vaccine offers no protection against swine flu.

SWINE FLU WITHOUT FEVER
* The CDC (September 2009) has reported that Swine Flu can sometimes occur without fever.
* However, fever remains a valuable aid in triage, and without it the telephone diagnosis of suspected Swine Flu could double or triple. That would overwhelm the health care delivery system.
* Premise: anyone who has Swine 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 SWINE FLU
* Illnesses caused by strains of influenza usually have 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

SWINE FLU: 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)

PRESCRIPTION ANTI-VIRAL MEDICATIONS FOR SWINE FLU (CDC)
* Two medications licensed in the U.S. and Canada are believed to be effective against the swine influenza virus: oseltamavir (Tamiflu) and zanamivir (Relenza). Tamiflu is given orally. Relenza is given by inhalation.
* TREATMENT: Treatment should strongly be considered for patients with illness severe enough that require hospitalization and symptomatic patients at HIGH RISK for complications (see that list).
* Treatment IS NOT generally recommended for influenza-like illness in most healthy patients. In summary, the CDC recommends to 'treat patients with severe flu illness'. (CDC: May 2009) If Swine Flu becomes more severe, the indication for antiviral treatment may change.
* PREVENTION: These medications can also be taken prophylactically to prevent illness. Two groups that may especially benefit from prophylaxis are health care workers and patients at HIGH RISK for complications. The CDC only recommends antiviral prophylaxis if the exposure is 'close contact' type (e.g., embracing, close conversation, within 3 feet or 1 meter)

SWINE FLU AND TAMIFLU
* Oseltamivir (Tamiflu) has become the drug of choice for treating severe influenza in children.
* Tamiflu is licensed for children over 1 year of age. It has authorization for emergency use in infants 3-12 months 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. It appears to be effective for this strain of Swine flu.
* 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 optimal impact. However, for Swine Flu, starting it later is also recommended for severe cases.
* 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.

RETURN TO SCHOOL
* If you or your child get sick with swine flu, the CDC recommends that you stay home from work or school.
* Limit contact with others to keep from infecting them.
* Stay home for at least 24 hours after the fever is gone (CDC: August 2009).

INTERNET RESOURCES FOR U.S.
* Centers for Disease Control and Prevention, United States (CDC)
* For most up to date information, visit CDC's Swine Flu web site at: http://www.cdc.gov/swineflu
* Also, the AAP website at: www.aap.org/swine flu

INFORMATION FROM THE WORLD HEALTH ORGANIZATION (WHO) ABOUT SWINE FLU

* WHO Swine Influenza (H1N1) Website: http://www.who.int/csr/disease/swineflu/en/index.html
* WHO complete list of guidance documents:
http://www.who.int/csr/disease/swineflu/guidance/en/index.html

TRIAGE ASSESSMENT QUESTIONS FOR SWINE FLU (H1N1 FLU)

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

- Swine Flu EXPOSURE (Close Contact) but has NO fever or respiratory symptoms

  Go to Protocol: Swine Flu (H1N1 Flu) Exposure (Pediatric)
- Cough AND NO EXPOSURE (Close Contact) OR begins over 7 days after Swine Flu EXPOSURE

  Go to Protocol: Cough (Pediatric)
- Cold symptoms AND NO EXPOSURE (Close Contact) OR begins over 7 days after Swine Flu EXPOSURE

  Go to Protocol: Colds (Pediatric)
- Sore throat AND NO EXPOSURE (Close Contact) OR begins over 7 days after Swine Flu EXPOSURE

  Go to Protocol: Sore Throat (Pediatric)
- Influenza vaccine reaction suspected

  Go to Protocol: Immunization Reactions (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 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 hrs

  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, etc) (see that List) with Swine 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 Swine Flu Symptoms (including fever) present < 48 hours AND caller requests antiviral medicine

  Reason: Treatment with anti-virals generally 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
- Swine Flu symptoms last > 3 weeks

Home Care

- Probable Swine Flu with no complications and child LOW-RISK

  Reason: Swine Flu EXPOSURE within last 7 days and respiratory symptoms WITH fever

- Probable URI (common cold) with no complications

  Reason: Swine Flu EXPOSURE within last 7 days and respiratory symptoms WITHOUT fever

HOME CARE ADVICE FOR SWINE FLU (H1N1 FLU)

Treatment for Swine Flu Symptoms

1. REASSURANCE:
   * Since Swine Flu is widespread in your community and your child has flu symptoms (cough, sore throat, runny nose) with fever, your child probably has Swine Flu.
   * Special tests are not needed.
   * For healthy people, the symptoms of Swine Flu 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 Swine Flu depends on your child's main symptoms and is usually 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. PRESCRIPTION ANTIVIRAL MEDICATION FOR SWINE FLU:
    * For best results, antiviral drugs should be started within 48 hours of the onset of flu 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 CDC recommends they be used for 1) any patient with severe symptoms with fever AND for 2) HIGH-RISK children (see that list).
    * Most pediatricians don't prescribe antiviral drugs for LOW-RISK children with mild or moderate Swine Flu illness. These children recover with supportive symptom care.

12. OUR OFFICE POLICY FOR PRESCRIBING TAMIFLU FOR PATIENTS WITH H1N1 INFLUENZA:
    * 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:_____

13. CONTAGIOUSNESS FOR SWINE FLU:
    * Symptoms usually start within 4-6 days of exposure to a person with Swine Flu (7 days is an outer limit).
    * Your child can return to child care or school after the fever has been gone for at least 24 hours (CDC, August 2009).

14. 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 famly needs to call the High Risk patient's HCP within 24 hours. (Reason: may need anti-viral medication).

15. EXPECTED COURSE: The fever lasts 2-3 days, the runny nose 7-14 days and the cough 2-3 weeks.

16. CALL BACK IF:
    * Breathing becomes difficult or rapid
    * Dehydration occurs
    * 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

Tamiflu Questions

1. TREATING SWINE FLU - TAMIFLU:
    * Tamiflu is effective in treating the current Swine Flu virus.
    * Indications: Severe symptoms OR underlying health problems (HIGH-RISK group)
    * For HIGH RISK children, call your doctor at the start of flu symptoms.
    * Most patients have mild to moderate symptoms and Tamiflu treatment is not necessary.
    * Unnecessary overuse of Tamiflu causes resistant strains of the virus. (8/2009 some resistance has occured)
    * Tamiflu also has side effects: Vomiting in 10% of children.

2. PREVENTING SWINE FLU - TAMIFLU:
    * The drug Tamiflu may help prevent swine flu (prophylaxis).
    * Indications: Recent close contact with person with confirmed Swine Flu AND the exposed person is in HIGH-RISK group (see that List) (CDC)
    * It is effective only while your child is taking it and ceases once your child stops taking it.
    * Your child should only take Tamiflu if your child's physician recommends it.

3. PERSONAL STOCKPILING OF TAMIFLU - NOT RECOMMENDED:
    * Some callers request a prescription for Tamiflu for all family members just in case they come down with flu symptoms. They currently are well and have not been exposed to Swine Flu.
    * Your child's doctor is opposed to this practice, as is the CDC and your State's Public Health Department.
    * The supply of Tamiflu is limited and needs to be kept available for patients who have severe symptoms OR have underlying health problems.

Prevention of Swine Flu

1. HOW TO PROTECT YOURSELF FROM GETTING SICK:
    * Wash hands often with soap and water.
    * Alcohol-based hand cleaners are also effective.
    * Avoid touching the eyes, nose or mouth. Germs on the hands can spread this way.
    * Try to avoid close contact with sick people.
    * Try to avoid unnecessary visits to the ER and urgent care centers because those are the places where you are more likely to be exposed to Swine Flu, if you don't have it.

2. HOW TO PROTECT OTHERS - STAY HOME WHEN SICK:
    * Cover the nose and mouth with a tissue when coughing or sneezing.
    * Wash hands often with soap and water, especially after coughing or sneezing.
    * Limit contact with others to keep from infecting them.
    * Stay home from school or work for at least 24 hours after the fever is gone (CDC, August 2009).

3. FACE MASKS:
   * Face masks refer to disposable masks labeled as surgical or dental masks.
   * For healthy people, face masks may help reduce the risk of getting swine flu in crowded settings, if swine flu becomes prevalent (CDC).
   * Avoiding sick people and frequent handwashing are more effective preventive measures.
   * At the present time, face masks are not needed in the U.S. for healthy people. (Possible exception: households where a family member has Swine Flu).
   * Sick people should wear a face mask if they must leave their home to seek medical care.

4. SWINE FLU VACCINE:
   * The Swine Flu vaccine is available.
   * This is the best way to prevent Swine Flu.

5. ANTI-VIRAL MEDICATION:
   * Tamiflu can be used for prevention following close contact with a person who has Swine Flu.
   * It is only recommended for HIGH-RISK patients (CDC).

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Author: **Barton D. Schmitt, M.D.**

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