

Current Topics in HIV Care and Prevention

A publication of the ICAP Clinical Unit



OCTOBER 2009
Vol. 1 No. 3

Director's Corner

In direct response to your requests, we are inserting into our planned flow of *Topics* this special issue on 2009 H1N1 Influenza [also known as novel swine-origin influenza A (H1N1) virus (S-OIV), or more informally "swine flu"].

This update gives you the most recent information on the epidemiology, prevention, diagnosis, and management of H1N1. Of particular importance is the prevention piece, which should immediately be included as part of a universal, holistic approach to infection control in healthcare settings. This is particularly relevant in light of our last issue of *Current Topics*, which focused on tuberculosis infection control. You will notice that many aspects of the infection control approaches overlap, and some are unique to the mode of transmission of the specific organism. Nonetheless, given the presence of known ubiquitous infections, and also as new infections emerge or become more prevalent, a comprehensive approach to infection control will prove most effective and flexible in the long run. Concern about the spread of 2009 H1N1 Influenza is perhaps an excellent motivation to quickly design and implement such a comprehensive approach, with durability and sustainability in mind.

We will continue our planned sequence of *Topics* in our November issue, in which we will discuss monitoring and management of antiretroviral therapy.

Do let us hear from you!

Yours as always,

Robin Flam, MD, DrPH
Director, ICAP Clinical Unit

Andrea Howard, MD, MS
Deputy Director, ICAP Clinical Unit

Send ideas, comments and questions to:
Kjersti Schmitz at kcs24@columbia.edu.

Please put "Clinical Topics" in the subject line.

Responding to Pandemic H1N1 Influenza in Resource-Limited Settings

The 2009 H1N1 influenza virus was first detected in people in April 2009. It has been spreading from person-to-person worldwide, and is now the dominant influenza strain in most parts of the world. In June, WHO signaled that a pandemic of 2009 H1N1 flu was underway, and will persist in the coming months. As countries in the northern hemisphere prepare for a pandemic spread, WHO is advising countries with tropical climates to also prepare for an increased number of cases, and for countries in temperate parts of the southern hemisphere to remain vigilant.

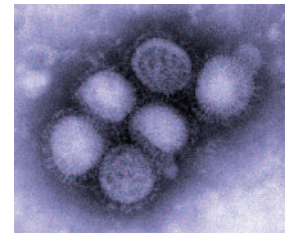
Like other influenza viruses, H1N1 virus is spread mainly from person-to-person through coughing or sneezing. People may also become infected by touching surfaces or objects with virus on it and then touching their mouths or noses. Infected people shed virus (are infectious) from one day before to seven days after illness onset. The estimated incubation period ranges from one to seven days.

Symptoms of 2009 H1N1 influenza include fever, cough, sore throat, runny or stuffy nose, body aches, headache, chills and fatigue. A significant number of people have also reported diarrhea and vomiting. While most people have experienced mild disease and recovered without treatment or medical care, others have had more serious consequences, including death. Of those who have died, the most common report is of a sudden and rapid deterioration in clinical condition, usually on day 5 or 6 following the onset of symptoms, characterized by primary viral pneumonia and the failure of multiple organs, including the heart, kidneys, and liver.

To date, the most severe cases and deaths have occurred in adults under age 50, with deaths in the elderly comparatively rare. This is unlike seasonal influenza. Groups at high risk

for complications include pregnant women, children less than 5 years old, immuno-

suppressed individuals, and those with medical conditions such as respiratory diseases (notably asthma), diabetes, and cardiovascular disease. Young, healthy people have also developed serious complications from H1N1 influenza. Early data suggest that HIV infected persons on antiretroviral therapy are not at increased risk of severe or fatal illness from H1N1 influenza.



A microscopic view of the H1N1 influenza virus

Prevention and Treatment

There are key actions that can be taken to prevent or mitigate the spread of respiratory infections like H1N1 influenza. These actions are listed in the text box on the next page.

A vaccine to protect against 2009 H1N1 virus has been developed and will be available shortly. A number of countries and manufacturers have announced that they will donate vaccine to developing countries. Use of the vaccine in specific countries will depend on both national guidelines, as well as availability.

The 2009 H1N1 virus is sensitive to neuraminidase inhibitors (oseltamivir and zanamivir), but resistant to adamantanes (amantadine and rimantadine). Antiviral drugs can decrease the severity of illness and duration of virus excretion when used for treatment of ill patients, and may also prevent illness when used for prophylaxis. Like the vaccine, use of these medications is dependent on national guidelines and recommendations, as well as availability.

continued on back page

Patient Management

The objectives of managing patients with H1N1 influenza are to provide supportive care, such that severe morbidity and mortality, as well as disease transmission, are decreased.

Patients are likely to be managed in two distinct settings: in healthcare facilities, and in homes.

Admissions to healthcare facilities should be reserved for severe cases most likely to benefit from hospital-based supportive care.

Inpatient treatment should include:

- Treatment of dehydration with intravenous or oral rehydration fluids.
- Supplemental oxygen therapy (if available) by face mask.

- Non-aspirin antipyretics for pain and fever.
- Antibiotics for secondary bacterial infections.
- Nutritional supplementation as needed.
- Antiviral medicines (oseltamivir or zanamivir), if available, with prioritization of use as per national protocol.

Patients with mild illness should be provided with supportive care at home by designated caregivers. Individuals who are pregnant or HIV-infected should not act as caregivers, if possible.

Caregivers should be advised on

supportive care including uses of antipyretics, oral fluids, good nutrition, bed rest, and antibiotics, if prescribed. Instructions for accessing healthcare facilities, if there is clinical deterioration or emergence of severe symptoms, should be given. These symptoms may include: very difficult breathing or shortness of breath, altered mental status, inability to drink fluids and dehydration, and high fever that persists for more than three days.

Key Principles for Pandemic Influenza Prevention and Mitigation in Low-Resource Settings

- Effective public health measures which are highly recommended include:
 - Social distancing. Reduce time in crowded settings, if possible. Avoid contact with sick people.
 - Respiratory etiquette. Cover the nose and mouth with a tissue when coughing and sneezing. Throw tissues in the trash after use.
 - Avoid touching the eyes, mouth, and nose.
 - Hand hygiene. Clean hands often with soap and water, or an alcohol-based rub.
 - Good ventilation. Improve the airflow indoors by opening windows, if possible.
- In healthcare facilities, systems that should be put in place include:
 - Triage to identify patients with respiratory symptoms.
 - Patient separation, with confinement in a separate ward of patients admitted with suspected influenza, and separation of beds by > 1 meter (or head-to-toe positioning if space is limited).
 - Adherence to Standard and Droplet Precautions when working in direct contact with suspected and confirmed cases of influenza, including:
 - Use of surgical masks
 - Hand hygiene
 - Use of face shields, gowns, and clean gloves, if there are splash risks.
 - Use of a particulate respirator (e.g. N95 or FFP2), goggles, long-sleeved gown, and gloves if performing an aerosol-generating procedure
 - Limiting numbers of health care workers (HCWs), family members, and visitors exposed to influenza patients.
 - Placing masks on patients with suspected or confirmed influenza for transport.
 - Monitoring HCWs exposed to influenza patients, prioritizing use of vaccine in HCWs, and confining of HCWs with influenza-like symptoms to their homes, for supportive care and antivirals (if available).
 - Regular cleaning of soiled and frequently touched surfaces with disinfectants.
 - Use of rubber gloves when washing dishes, eating utensils, and laundry.
 - Treating waste from influenza patients (e.g. used masks) as infectious clinical waste.
- Infection control measures in the home should include:
 - Confinement of ill individuals to the home until at least 24 hours after their fever is gone.
 - Supportive care by designated caregivers.
 - Separation of sick from well individuals.
 - Use of respiratory etiquette and hand hygiene for all household members.
 - Providing patients with masks to use when in close contact with caregivers. Masks should be disposed of safely if wet with secretions. If masks are unavailable, tightly-fitting scarves or cloths covering the mouth and nose can be used. They should be changed if wet and washed with soap and water.
 - Keeping windows and doors open to allow ventilation.
 - Cleaning household surfaces regularly with soap and water or disinfectants.