



## **ChildrensHospitalLosAngeles**

*International Leader in Pediatrics*

### **H1N1 Pandemic Influenza Planning Considerations for Pediatric Patients**

#### **Document Scope**

This document was created by experts at Childrens Hospital Los Angeles as a deliverable for the U.S. Department of Health and Human Services Healthcare Facilities Emergency Care Partnership Program Grant # 1 HFPEP070014-01-00. Information included in this document is based on learnings from the 2009 H1N1 Influenza outbreak that began in early 2009. The information is intended to provide supplementary recommendations for pediatric pandemic influenza planning and can be used as an addendum to a larger pandemic planning document.

#### **Background**

Influenza is a highly infectious viral illness that causes yearly seasonal epidemics reported since at least the early 1500s. In the United States, complications of influenza cause an average of 36,000 deaths each year, primarily among the elderly. Influenza virus is transmitted in most cases by droplets through the coughing and sneezing of infected persons, but it can be transmitted by direct contact. Typical symptoms include:

- abrupt onset of fever (101°F to 102°F)
- cough (fever >37.8C + cough is the CDC case definition for ILI)
- headache
- chills
- fatigue
- muscular pain or tenderness
- sore throat and nonproductive cough
- possibly a runny or stuffy nose

For planning purposes, the facility pandemic influenza plan may be based on levels of influenza such as those from the World Health Organization or Department of Health and Human Services such as:

- Draft Pandemic Influenza Preparedness and Response Plan, Washington D.C.: U.S. Department of Health and Human Services; August 2004.
- WHO global influenza preparedness plan: The role of WHO and recommendations for Childrens Hospital Los Angeles

national measures before and during pandemics, Switzerland, World Health Organization, Department of Communicable Disease Surveillance and Response Global Influenza Programme: 2005.

These plans provide a framework of tiers related to transmission of illness but do not take into account the severity of illness. This may be helpful in overall perspective but during pandemic influenza, determining level of facility response may be better suited using metrics that include comparisons of number of Emergency Department visits to normal for time of year, number of influenza like illness seen over baseline for time of year or severity of illness of patients admitted.

## **H1N1 Influenza**

The H1N1 virus that presented in early 2009 has been characterized by:

- Distribution of cases/hospitalizations/deaths
  - Highest incidence of infections in school aged children
  - Highest hospitalization rates among 5-24 yrs
  - Hospitalization rates April-July 2009 similar to annual cumulative rates for seasonal influenza among school aged children and adults aged 18-49
- Distribution of cases by age group is very different compared to seasonal influenza
  - Higher proportion of hospitalized cases in children and young adults
  - Few cases in older adults
- 70% of hospitalized cases have an underlying medical condition
- High percentage of people affected are less than 24 years old
- Children less than 5 years old have highest hospitalized complications
- The incubation period of influenza in both children and adults is 1 to 4 days. However, the infectious period of the two age groups are different.
  - Adults may shed the virus from 1 day before onset of symptoms up to 7 days after.
  - Children may shed the virus from 4 days before to as long as 10 days after symptoms begin. Thus, children are more efficient spreaders of influenza in communities.
- The signs and symptoms of influenza in adults are well described and recognized (Table 1). In children, the range of expression varies from subclinical disease to severe life-threatening illness. The younger the child, the more difficult it is to distinguish influenza

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from other febrile respiratory diseases in children based on clinical findings. The clinical presentation may mimic bacterial sepsis or present as croup, bronchiolitis or pneumonia. The array of symptoms and signs are similar to adults but vomiting and diarrhea and febrile seizures are more frequent in children than in adults. Otitis media is much more common in children as well.

Table 1: Signs and Symptoms of Influenza

Adults	Children
Abrupt onset	Abrupt onset
Fever	Fever 89-94%
Myalgia	Cough 60-67%
Headache	Rhinorrhea 56-66%
Severe malaise	Vomiting 17-19%
Cough	Diarrhea 8-9%
Sore throat	Headache 23-24%
Rhinitis	Myalgia 6-15%
	Otitis Media 19-26%
MMWR 2003; 52#RR8:2-3	Clin Infect Dis 2003; 36:299-302

- The inability of young children to articulate symptoms that they may be experiencing that are symptoms of influenza i.e. headache, sore throat may prevent early identification and treatment of this illness.
- Complications from influenza in children may include pneumonia due to *S. pneumoniae* or *S. aureus* as in adults but other conditions such as bacterial laryngotracheitis, myositis and encephalitis or encephalopathy may occur more commonly in children.
- Influenza is a serious illness in the age groups at the extremes of life, children less than 5 and adults over 65. In pandemic outbreaks even the healthiest and most robust are at risk for severe disease. In the current epidemic, the average age of infected patients is 15 years old suggesting that children are being disproportionately affected by the infection. Early and accurate identification of influenza in children is important not only for individual patients but for control of the infection in the community.
- Due to the extended nature of this pandemic, organizations need to maintain flexibility to implement and deactivate strategies as continued assessment of influenza status in the hospital and community evolves.

**Communication**

- Strategies should be employed by the hospital to provide messages that are consistent with current Health Department and Center for Disease Control and Prevention recommendations. Hospitals should consider implementing the following :

- Updates from health department on epidemiology, infection control, treatment and prophylaxis posted on hospital intranet and internet sites with links to appropriate reference
- Weekly presentations to Executive Leadership
- Direct patient care staff emails with changes to patient care considerations such as treatment, isolation and testing
- Infection Control staff attend Daily Bed Meeting, managers meeting, and in-services to identify current issues and provide updates as needed
- Weekly conference calls with representatives from Infection Control, Infectious Disease, Patient Care, Administration
  - Review weeks ED census and laboratory data
  - Review details of resources and stock on hand i.e. N95 masks, gowns, gloves, antivirals, vaccine.
  - Discuss any problems/concerns and develop plan and assignments for follow up
- Work with Media Relations department to communicate with local media outlets to inform public with realistic guidance. Most federal guidance informs the public to call your doctor or go to local emergency departments.

### Screening

- **All** patients, visitors and vendors screened prior to entry to the hospital for influenza-like symptoms
  - Patients with influenza-like symptoms and essential need to enter facility should be given mask and instructions for wearing mask while in facility
  - Consider badge identification of patients that should wear masks to alert staff to need for their mask usage. This may include a sticker badge or additional sticker (e.g., green dot) if badges already used.

### Emergency Department

- Coordinate with Patient Care Services/Medical Staff to increase personnel during surge
  - Work with Emergency Department leadership to determine the volume level when operations need to change.

- Monitor total visits and visits of individuals with ILI daily to institute additional treatment protocols to increase throughput.
- Designate space to separate influenza patients from non influenza patients, maintain separation between patients in waiting and treatment areas
- Clearly identify influenza patients that will be admitted to allow for appropriate placement of patient in isolation
  - Due to the nature of H1N1, all patients with fever should be considered suspect for influenza.
- Require staff to wear personal protective equipment for all patients brought to ED in emergency situation where treatment may occur prior to full history being obtained i.e. traumatic injury, full arrest
- Consider alternate care models in ED to promote throughput
  - Consider “Ultra-Fast Track” or low acuity clinic to treat mild cases quickly and discharge
    - It may be difficult to assess children quickly because they are unable to accurately provide information about their own history and symptoms and assessment may need to involve quick but full H & P by MD/PA/NP.
    - Children in high-risk of disease complications such as asthma, chronic respiratory illness, immune-compromised illnesses, neuromuscular illness etc should be excluded from this process to allow for full evaluation
      - Children with high-risk chronic diseases should be considered for early antiviral treatment to avoid influenza related complications.
    - Families that present with multiple children should be triaged to area of care of highest level of treatment needed
    - Children appropriate for this assessment/treatment area may include those with vital signs within normal range (except fever), normal level of activity, good perfusion, near normal respiratory effort.
    - Children that need laboratory testing, x-rays or treatment should be referred for a full evaluation.

## **Patient care areas**

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- Ensure staff is fit tested for N95 masks and review appropriate donning and doffing of personal protective equipment.
  - Identify staff involved in high risk procedures that require N95 respirators; ensure all have been fit tested and properly trained. Maintain a list of staff who have been fit tested and document annual fit testing
  - Consider and evaluate need for additional training/protection for those healthcare workers at greater risk for complications of influenza
    - These employees may include those in the high-risk categories such as pregnant women and those with pulmonary disease, diabetes, immunosuppression, heart disease etc.
- Strictly enforce visitation restrictions and prevent patients/families from comingling
- Evaluate current status of severity of illness in data provided by CDC and patients currently at the facility for consistency and outliers.
- Work with ethics committee to review planning and response in scarce resource situations to ensure adherence to ethical principles
- Consider use of methods to provide additional beds for influenza patients
  - Evaluate early discharge of stable patients and provide out of hospital follow up
  - Consider transfer of low acuity children to adult units with staff support,
  - Consider limitation of some elective admission or surgeries although due to the lengthy nature of this influenza, this method is not likely to be able to be sustained for extended periods of time.

### **Visitation Policy**

- Because it is more difficult to identify influenza like illness in children early and they are likely to transmit disease for 1-4 days prior to overt symptoms, they present a likely source of illness exposure to inpatients.
  - Consider limiting the number of visitors per patient for all units, consider restricting visitors to only those over 16 to decrease risk of high-risk contamination from young visitors
  - Audit compliance of visitation rules to ensure compliance

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## **Events**

- Coordinate with Foundation, Family-Centered Care Support Services, Volunteer Dept for approval of events
- Develop guidelines that restrict large gatherings and limit traffic throughout the hospital
- Require approval for all activities that are not essential to hospital business and include a gathering of people.
- May be necessary to severely restrict access to areas of facility during influenza pandemic to decrease contamination

## **Inventory Assessment**

- Continually evaluate supplies of hand gels, soaps, gowns, gloves, masks, e.g., N95
  - Identify additional resources for obtaining N95 from vendors
    - Consider use of N95 from industrial suppliers to maintain supply
  - Provide staff education to prevent misuse of N95s and other PPE
  - Prepare for “Just in Time” training of employees if a change in mask or PPE supply is needed
  - Coordinate resource requests through county/state/federal contacts for access to county, state and federal resources.
    - Allow sufficient lead time for delivery of such supplies as request and delivery may take several weeks
  - Evaluate current use of in house equipment such as ventilators, ECMO circuits and acquisition additional equipment
  - Ensure that materials management department and pharmacy monitor and usage and supply levels. Information can be used to modify operations.

## **Staffing shortages**

- Identify staff appropriate to care for pediatric patients, develop plan to call upon them quickly to assist in meeting needs of potential increased pediatric patients

- Use of licensed staff that do not do clinical care on a day to day basis such as those assigned to quality review, education etc that have an active license.
- Consider training needs to reorient these employees to specific care that they will be asked to provide
  - Free online pediatric disaster training module is available at [www.chladisastercenter.org](http://www.chladisastercenter.org)
- Ensure staff teach their own children proper respiratory etiquette to remain well

### **Healthcare workers**

- Review fitness for duty policies; refer to current CDC recommendations for length of time staff must remain off work after contracting the influenza.
- Review sick leave policies to ensure staff remains home when ill and does not return until allowed.
- Develop staff vaccination plan prioritized by risk of exposure. Consider those employees likely to come in contact with unidentified influenza patients in high risk category i.e. front desk staff, security.
- Work with Employee Health Services and Departments to monitor number of sick calls related to influenza symptoms and any employees seeking treatment through Employee Health Services.
- Develop a process for staff to report flu-like symptoms to support identification of patients exposed to virus by staff.

### **Illness Prevention Strategies**

- Provide Hand Hygiene/Respiratory Etiquette Stations with appropriate signage on proper procedures
- Post signage (multiple languages) on importance of wearing masks
- Work with Environmental Services to increase cleaning of hospital areas where large groups congregate
- Provide handouts to visitors at front desk on influenza prevention tips (in multiple languages)
- Consider looping videos on closed TV circuits on influenza prevention tips