Management of ILI in Children

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Influenza-Like Illness
Case Definition

- Fever $\geq 38.0^0$ C and a cough &/or a sore throat in the absence of a known cause other than influenza
- Clinically may be difficult to differentiate from other causes of RTI
- However, in pandemic setting more likely due to influenza A/H1N1
Confirmed Case novel Influenza A/H1N1 Infection

- Child < 12 yrs with ILI and +ve laboratory test, either by
  a) RT-PCR
  b) Viral culture
Novel Influenza A/ H1N1 Infections in Children

- Majority are mild & self limiting
- Most common Sx are fever (100%), cough (100%), sore throat (66%), myalgia (44%), vomiting & diarrhea (25%)
- Uncommon: altered conscious level (10%), hypotension
- Mild cases do not need admission or Ix
Assessment of Children with ILI in Primary Health Care Setting

- Signs of life threatening illness including conscious level
- Fever
- Signs & severity of respiratory distress
- Dehydration

Source: Paediatric Intensive Care Society UK
Criteria for Admission

Moderate-Severe Disease

- Severe respiratory distress
- Increased respiratory rate
- Oxygen sat. < 92% (air or oxygen)
- Absence of cyanosis is a poor discriminator for severe disease
- Resp. exhaustion or apneic episode (≥20” pause in breathing)
- Severe dehydration or shock
- Altered conscious level

Source: Dept of Health UK, 2009
Signs of Life Threatening Illness

- Pallor, cyanosis, mottling
- Severe respiratory distress
- Weak, thready pulses

Source: Paediatric Intensive Care Society UK, 2009
Assessment of Conscious Level

- Alert
- Responds only to voice
- Responds only to pain
- Unresponsive
- Score of P or U correspond to GCS <8 & suggest urgent referral to hospital

Source: Paediatric Intensive Care Society UK 2009
Severe Respiratory Distress in Children

- Lower chest wall indrawing
- Sternal recession
- Grunting
- Noisy breathing when calm
Increased Respiratory Rate in Children

- Measured over at least 30”
- $\geq 50$ breaths per min if under 1 yr old
- $\geq 40$ breaths per min if $\geq 1$ year old

Source: Dept of Health UK, 2009
Severe Clinical Dehydration or Clinical Shock

- Capillary refill time $\geq 2''$
- Reduced skin turgor
- Sunken eyes or fontanelle
CNS Involvement

- Irritable
- Unconscious
- Drowsiness
- Confusion
- Seizures
- Weakness or paralysis
- Floppy infant
Severe Illness following Influenza Manifestations

- Early onset of a severe viral illness with respiratory failure
- Secondary bacterial pneumonia: frequently staphylococcal or pneumococcal
- Destabilisation of a pre-existing chronic condition eg. bronchial asthma

Source: Dept of Health & Ageing, 2009, Australia
Sx of Severe Disease in Children

- Apnea
- Tachypnea
- Dyspnea
- Cyanosis
- Dehydration
- Altered mental status
- Extreme irritability

Source: www.cdc.gov/h1n1flu/
Co-morbid Factors in Children

- Cardiac disease: congenital heart dis.
- Chr. resp. disease: asthma, BPD
- Chronic renal failure
- Haemoglobinopathies
- Diabetes mellitus
- Chr. neurological disease: ms, Dystrophy
- Impaired immunity: HIV, malignancy, Rx
- Malnutrition or obesity

* Children < 5 yrs: Higher risk of severe disease & mortality
Complications of Influenza in Children

- Bacterial pneumonia
- Bacterial otitis media
- Seizures
- Encephalitis/meningitis
- Myocarditis
Mortality of Severe novel Influenza A/ H1N1 Pneumonia

Home Assessment Tool for Parents & Caregivers

- Lethargy or poor oral intake
- Change in mental status or behavior
- Signs of dehydration
- Signs of respiratory distress
- Fits
- Cyanosis
- Persistent fever > 2 days
Use of Antivirals for Rx of Pandemic Influenza H1N1 Infections

- Children with severe or progressive illness should be Rx with oseltamivir.
- Rx should be initiated asap.
- Children in “at-risk” groups (children < 5yrs & chr. co-morbid conditions) with uncomplicated illness should be Rx with oseltamivir or zanamivir.
- Children not in “at-risk” groups with uncomplicated illness need not be Rx with antivirals.

Source: WHO Guidelines for Pharmacolo. Mx of Pandemic H1N1 2009
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<thead>
<tr>
<th>Weight (kg)</th>
<th>Dose for 5 days</th>
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<tr>
<td>≤ 15</td>
<td>30mg BD</td>
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<tr>
<td>15-23</td>
<td>45mg BD</td>
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<tr>
<td>&gt;23-40</td>
<td>60mg BD</td>
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<td>75mg BD</td>
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<tr>
<td>&lt; 3</td>
<td>12mg BD</td>
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<tr>
<td>3-5</td>
<td>20mg BD</td>
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<tr>
<td>6-11</td>
<td>25mg BD</td>
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Oseltamivir
Side Effects

- **Gastrointestinal (40%)**: nausea, vomiting, stomach pain/cramps, diarrhea

- **Neuropsychiatric (18%)**: sleep problems, insomnia, poor concentration, delirium, feeling confused, hallucinations, bad dreams, nightmares, abnormal behavior

Source: Eurosurveillance 2009;14:1-4
Zanamivir

Doses

- 5-9 yrs : 10mg (2 inhalations) BD
- 10-12 yrs : 10mg (2 inhalations) BD
- Side effects:
  - bronchospasm in asthma
  - diarrhea
  - nausea
  - cough
  - dizziness / headache

Source: www.cdc.gov/flu
Mx of infant born to mother Rx for suspected influenza H1N1

- Breastfeeding should be continued due to antiinfective properties of breast milk & low conc. of antivirals in milk
- Mother to wear surgical mask & practise hand hygiene
- Oseltamivir & zanamivir compatible with breastfeeding
- Limited data suggest oseltamivir is not a major human teratogen

Source: Tanaka T et al. CMAJ 2009;181:55-8
Dept of Health UK 2009
Conclusions

- Careful clinical assessment of the child with ILI in primary healthcare setting is imperative
- Parents should be duly advised on home monitoring for those Rx as outpatient
- Antivirals recommended for at-risk children
- Breastfeeding to continue for infants born to mothers Rx for ILI but with advice on surgical masks and hand hygiene for mothers