

**REVISED HEALTH WORKERS HANDBOOK  
ON  
PANDEMIC INFLUENZA A(H1N1) 2009  
“SWINE FLU”  
Version 3, 19 August 2009  
+ NICD update on Pregnancy, 1 Sept 2009**

**NICD, NDOH, WHO, ID & HIV Medicine-UCT**



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**NB Prefix and disclaimer on any errors or omissions** – health workers must exercise own professional judgment in confirming and interpreting the findings presented in these guidelines.

**This slide presentation is a summary. Please go through the full copy of the Handbook and check regularly for updates on [www.nicd.ac.za](http://www.nicd.ac.za)**

## 1. Background on pandemic influenza A(H1N1) 2009: for own reading

- 1.1 What is pandemic influenza A(H1N1) 2009 virus?
  - 1.2 Transmission
  - 1.3 Typical signs and symptoms of infection
  - 1.4 Public health concerns about the new virus
  - 1.5 Recent changes in South Africa
- See [www.who.int](http://www.who.int) and [www.nicd.ac.za](http://www.nicd.ac.za)

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## 2. Identification and progression of pandemic influenza A(H1N1) 2009

### 2.1 ILI (Influenza Like Illness) – Mild Disease:

Fever  $\geq 38^{\circ}\text{C}$  PLUS ANY of the following acute respiratory symptoms (sore throat, blocked / runny nose, cough, myalgia, diarrhoea) No evidence of lower respiratory tract disease (LRTI.)

### 2.2 SARI (Severe Acute Respiratory Infection) Moderate-Severe Disease

- >3mths old. *Suspected* sepsis / LRTI with or without signs & symptoms
- 3mths - 5yrs LRTI (bronchiolitis, pneumonia, bronchitis/ pleural effusion)
- >5 yrs sudden onset fever ( $>38^{\circ}\text{C}$ ) + cough/ sore throat & shortness of breath or difficulty in breathing

**Presentation < 7days**

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## 2.3 Features of severe illness

### Child age 2 months up to 5 years with:

- o Cough or difficult breathing, AND with
- o Any general danger signs (unable to drink or breast-feed, vomits everything, convulsions, lethargy or unconsciousness)
- o Chest in-drawing or stridor in a calm child.

### Adults of any age group include:

- o respiratory distress,
- o dyspnoea,
- o hypotension
- o hypoxia.

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## 2.3 Features of severe illness: Complications

- Exacerbation of chronic medical conditions,
- URTI (sinusitis, otitis media, croup),
- LRTI(primary viral pneumonitis => ARDS, bronchiolitis, pulmonary emboli with hypercoagulable state (esp in obese patients)
- Cardiac disease (myocarditis, pericarditis, hypotension)
- Musculoskeletal disease (myositis, rhabdomyolysis)
- Neurologic disease (encephalopathy/itis & febrile seizures)
- 2<sup>nd</sup> bacterial pneumonia (S&S) rapid and necrotizing
- Rhabdomyolysis with renal failure
- Pregnancy, esp 3rdT premature labour.

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## 3. Who should be tested?

Only conduct testing

- If it will make a ***Difference to Treatment***
- For Surveillance
  - Clusters of unusual cases (only first 2 -3 patients)
  - SARI
  - Deaths suspected due to H1N1

**NB Lab confirmation not needed before starting treatment**

Rapid tests are not recommended

See Handbook for information about laboratories, specimen collection, swabs, VTM storage and transportation

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## 3.5 Individuals at high risk for serious complications

### A. Adults and children with underlying medical conditions:

- chronic lung disease including asthma, kidney, liver and heart disease (but not hypertension), diabetes,
- immune suppression (AIDS?)
- which makes breathing or swallowing difficult
- Children & adolescents on long-term aspirin treatment

### B. Severe Obesity BMI>30 esp if slightly short of breath.

### C. Residents of nursing homes & other chronic-care facilities

(while elderly in nursing homes do not seem especially at risk – however if oseltamivir is available err on the side of caution)

### D. Pregnant women in the second and third trimester

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## 4.1 Mild cases

### Mild cases should

**NOT have confirmatory laboratory testing  
NOT be admitted to hospital  
NOT be given antivirals**

Stay at home 7 days or well >24 hours (which ever longer)

Supportive care and rest

Plenty of fluids

Paracetamol for pain (not aspirin <18yrs)

No need to quarantine contacts, if become ill stay at home

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#### 4.1 Treatment of ILI - mild disease

1. **ILI (mild disease) WITHOUT significant co-morbidity:**  
Antivirals **NOT** recommended (use physician discretion)
  2. **a. ILI (mild disease) WITH co-morbidity: <48 hrs**  
See above 3.5 Individuals at high risk for complications
  - b. ILI (mild disease) WITH co-morbidity: >48 hrs**  
Use physician discretion 3.5 in those at higher risk
- HIV: CD4 < 200 OR WHO Stage 4 (AIDS)
  - HIV + active TB on treatment / other pulmonary infection
  - On long-term immuno-suppressants: Transplant recipients, Steroids >20mg/day >2 months, Chemotherapy
  - 2<sup>nd</sup> & 3<sup>rd</sup> trimester or multiple pregnancies
  - Brittle /Poorly controlled Asthmatics / COPD / Diabetes <sup>10</sup>

#### 4.2 Treatment of SARI - moderate to severe disease

- During pandemic : H1N1 should be in ΔΔ of SARI
  - Community acquired pneumonia,
  - Acute Respiratory Distress Syndrome (ARDS)
  - Severe Acute Respiratory Infection (SARI)
  - Myocarditis
- Consider neurominidase inhibitor <24 - 48 hours  
oseltamivir or zanamivir  
Don't wait for lab test

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#### 4.3 TREATMENT Recommended dosage of antiviral agents. Recommended duration: 5 days

Age Group	Weight kg	Oseltamivir dosage*	Zanamivir dosage*
Adults		75 mg bd x 5days	Two 5 mg inhalations (10 mg total) bd x 5 days
Child-ern	<16	30 mg bd x 5days	Two 5 mg inhalations (10 mg total) bd x 5days
	15-23	45 mg bd x 5days	
	24-40	60mg bd x 5days	Only 12 years & older
>40	75mg bd x 5days		

\* Registration: Oseltamivir >1 year olds: Zanamivir ≥ 12 years of age. 12

\* Table 1: Summary of clinical management of pandemic influenza A(H1N1) 2009 virus infection

Modalities	Strategies
Antibiotics	In case of pneumonia, empiric treatment for community acquired pneumonia (CAP) per published guidelines must include antibiotics to treat <i>Staphylococcus aureus</i> and <i>Streptococcus pneumoniae</i> , pending microbiologic results and tailored therapy thereafter if pathogen(s) identified.
Antiviral therapy	Only indicated for individuals with moderate to severe disease, and individuals at risk for development of severe disease. The pandemic influenza A(H1N1) 2009 virus is currently resistant to amantadine and rimantadine.
Corticosteroids	Moderate to high dose steroids are NOT recommended. They are of unproven benefit and potentially harmful.
Infection control	Standard plus Droplet Precautions. For aerosol-generating procedures use particulate respirator (N95, FFP2 or equivalent), eye protection, gowns, gloves.
NSAIDS, antipyretics	Paracetamol can be administered for fever. Avoid administration of salicylates (aspirin and aspirin containing products) in children and young adults (< 18 years old) due to risk of Reye's syndrome.
Oxygen therapy	Monitor oxygen saturation and maintain SaO <sub>2</sub> over 90% (95% for pregnant women) with nasal cannulae or face mask.

\* Page 10 - Should be table 2:

#### Infection control in Hospital

##### Staff should observe - community precautions and when nursing a patient with possible H1N1: Standard Respiratory Droplet & Contact Precautions

- Patient nursed in side-room or with other patients ill with H1N1 as far as possible
- Patient should, if well enough, wear a Surgical mask
- When within 2 meters of patient staff should wear a properly fitted N95 mask, gloves and gown PLUS wash hands with soap and water / Alcohol spray

**NB For aerosol-generating procedures** use particulate respirator (N95, FFP2 or equivalent), eye protection, gowns and gloves

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#### 4.4 Prophylaxis

- Antiviral post-exposure prophylaxis should NOT be offered routinely to contacts.
- Physician discretion for high-risk close contacts of suspected or confirmed cases of pandemic flu.
- A(H1N1) 2009 (see section 3.5). Dosage of agents for antiviral prophylaxis is described in Table 3.
- Duration 10 days after the last known exposure to an ill confirmed case. Dosage as for treatment but once a day

Table 3: Recommended dosage of antiviral agents for prophylaxis of high risk contacts of confirmed, probable or suspected pandemic influenza A(H1N1) 2009 cases\*

Age Group	Weight	Oseltamivir dosage*	Zanamivir dosage*
Adults	15 kg or less	75 mg once per day	Two 5 mg inhalations (10 mg total) once per day
	>15 kg	30 mg once per day	
Children	15-23 kg	45 mg once per day	Two 5 mg inhalations (10 mg total) once per day (only in children aged 12 years or older)
	24-40 kg	60 mg once per day	
	>40 kg	75 mg once per day	
	>40 kg	75 mg once per day	

\*Recommended duration of prophylaxis is 10 days. Oseltamivir is not currently licensed for use in <1 year old and zanamivir is only registered for children ≥ 12 years of age.

#### 4.5 Pregnant Women & Newborns\*

High risk in Pregnancy esp 3<sup>rd</sup> trimester & puerperium  
**2<sup>nd</sup> & 3<sup>rd</sup> trimester** + ILI /SARI = antivirals >48 hrs  
Don't wait for test results

Oseltamivir preferred

**1<sup>st</sup> trimester** + mild ILI not at risky unless + risk factor  
Zanamivir preferred

##### Newborns

Oseltamivir 3mg/kg bd x 5 (treat) or daily x10 (prophy)

**Breast feeding** = encouraged

\* Special NICD Communiqué August 2009 <sup>16</sup>

#### 4.6 Children

Oseltamivir or zanamivir are not registered for certain age groups, but there are no alternatives.

No significant adverse effects reported to oseltamivir in children <1yr

Potential benefit justifies potential risk if Pandemic Influenza A(H1N1) suspected or confirmed in a child with SARI

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#### 4.6 Oral solution of oseltamivir for those ≤40kg, younger than 8 years, or those unable to swallow a capsule

- Empty content of the capsule into 5ml of clean (not hot) water in a syringe.
- Mix > 1 minute.
- Use the mixture immediately according to weight specifications.
- Discard remainder.
- Add a small amount of flavored food or liquid (e.g. sugar, honey, or syrup) if necessary to mask the bitter taste (avoid fruit juice, fizzy drinks, and dairy products).

Weight	Oseltamivir dosage	Volume
<16kg	30mg	2ml
15-23 kg	45 mg	3ml
24-40kg	60mg	4ml
>40kg	75mg	5ml

For treatment twice a day x 5 days  
For prophylaxis once a day x 10days

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#### 4.7 People living with HIV and AIDS

Still little info on the effect of pandemic (H1N1) in HIV co-infected persons.

People with HIV infection and disease should be given the benefit of the doubt and be treated with oseltamivir if pandemic H1N1 is suspected.

See also slide 12: 4.1 Treatment of ILI - mild disease

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#### 4.8 Port-mortem management

- a. Notify NICD hotline
  - b. Send specimens (See Handbook)
    - swab nose and mouth in VTM
    - Lung biopsy or Lung aspirate with wide bore needle and send in VTM
- Use properly fitted N95 mask when taking biopsy

#### 4.9 Adverse events and contraindications

Consult manufacturers' package inserts on adverse events and contraindications for these agents.

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#### 5. Need more info?

**Be aware. Influenza pandemics are unpredictable**

##### WEBSITES

- www.nicd.ac.za
- www.doh.gov.za /swineflu/swineflu-f.html
- www.who.int /csr/disease/swineflu/en/
  - **NB See the WHO Briefing notes Briefing note 9: Preparing for the second wave**
- www.cdc.gov/h1n1flu

##### TELEPHONE:

For health professionals only:

- NICD Influenza Hotline (8am to 5pm Mon to Fri) - 082 477 8026
- A/h-hours NICD Hotline - 082 883 9920
- For additional information on VTM and swabs: Amelia Buys/Cardia Fourie, 011 386 6373).

General public and all other queries :

Cape Gateway: 0860 142 142  
National DOH Hotline: 0861-DOH-CDC (0861-364-232)

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#### Appendix 1: Home Care for Patients /Parents

1. You will probably be sick for several days with fever and respiratory symptoms
2. Take medicines for symptoms (paracetamol or ibuprofen), and if applicable: Antivirals
3. Cold medicines not for children < 4 years of age except on doctor's instructions.
4. No aspirin or products that contain aspirin <18yrs
5. Continue medicines for chronic diseases (e.g. ART).
6. Drink /ensure Plenty of fluids
7. Dishes can be washed in hot soapy water.

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#### Appendix 1: Home Care for Patients / Parents

7. Household members should as far as possible:
  - Catch cough or sneeze in tissue or into sleeve
    - Put tissue into bin immediately after
  - Wash hands with soap and water or use alcohol hand rub, esp after coughing / sneezing and before eating.
  - Avoid touching eyes, nose or mouth
  - Those ill with flu should stay at home for 7 days or until symptom free for 24 hours
  - When nursing: keep as far as possible >1 meter away.
    - Do not sit on the bed.
8. Contacts who are well should continue with usual activities

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#### Appendix 1: Home Care for Patients / Parents When to seek medical help urgently

**IN ADULTS & CHILDREN if there is:-**

- **Shortness of breath, or breathing is difficult or fast**
- Bluish or grey skin colour
- Pain or pressure in the chest or abdomen
- Sudden dizziness
- Confusion
- Severe or persistent vomiting
- **Flu-like symptoms which improve but then return with fever and worse cough**

**IN CHILDREN if they are**

- Not drinking enough fluids
- Not waking up or not interacting
- So irritable that they do not want to be held

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#### Appendix 2: Summary management of adults and children

Category Clinical	Definition	Treatment	Diagnostic Tests
<b>MILD-ILI (MILD Influenza-like illness)</b>	Recent onset of temperature $\geq 38^{\circ}\text{C}$ <b>PLUS</b> 1 or more of: Sore throat, Rhinorrhoea, Nasal congestion, Dry cough, Myalgia, Diarrhoea, Vomiting	<b>NO CO-MORBIDITY</b> Symptomatic treatment Avoid aspirin <18yrs <b>CO-MORBIDITY</b> Oseltamivir 75mg orally bd x 5 days within <b>&lt;48hrs</b> †	Contra-indicated!

- † NB after 48 hours of mild ILI, oseltamivir should be considered in patients with:
- a.) **Chronic disease** of liver, kidney, heart (but not HPT) or lungs (eg asthma, COPD or lung damage or other chest infection);
  - b.) **Immunosuppression:** HIV+ patients with CD4 <200 or WHO stage 4 AIDS or HIV infection with TB, or Transplant or on Chemotherapy);
  - c.) **Brittle** /poorly controlled **diabetes**,
  - d.) **Obesity** (BMI >30)
  - e.) **Pregnancy** in 3<sup>rd</sup> Trimester / Puerperium / Multiple.

#### Appendix 2: Summary management of adults & children

Category Clinical	Definition	Treatment	Diagnostic Tests
<b>Progressive - ILI (Progressive Influenza like illness)</b>	previously MILD-ILI, plus: Difficult breathing Chest pain, Productive cough, Altered mental state, new neurological symptom or sign, Hypotension, $\geq 38^{\circ}\text{C}$ > 3 days, Persistent vomiting with dehydration	Oseltamivir 75mg orally bd x 5 days Start ASAP <48 hours  Early referral for ventilation C-amoxiclav or ceftriaxone	Nasal and throat swabs <b>NB Do not await lab result to give oseltamivir</b>

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#### Appendix 2: Summary management of adults & children

Category Clinical	Definition	Treatment	Diagnostic Tests
<b>SARI (Severe Acute Respiratory Infection)</b>	Sudden onset of T $\geq 38^{\circ}\text{C}$ . <b>PLUS:</b> Cough or sore throat +: Impaired breathing. <b>with or without:</b> Clinical or X-ray evidence of pneumonia.	Oseltamivir 75mg/os bx 5 Antibiotics Early oxygen <b>Monitor:</b> • O <sub>2</sub> saturation • Hydration • Renal function	Send nasopharyngeal and throat swabs for H1N1 testing†

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