

**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



DEPARTMENT OF HEALTH
Republic of South Africa



Contents

1. Background on pandemic influenza A(H1N1) 2009
2. Identification and progression of pandemic influenza A(H1N1) 2009
3. Who should be tested?
4. Case Management & Infection Control
5. Who to contact details if you have questions?

Appendices

1. Home Care Guidance:
2. management of adult patients & children
3. WHO Patient Care Checklist

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

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 and www.nicd.ac.za

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

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.

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)
- 2nd bacterial pneumonia (S&S) rapid and necrotizing
- Rhabdomyolysis with renal failure
- Pregnancy, esp 3rdT premature labour.

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

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

4. Case Management & Infection Control

4.1 Mild cases

4.2 Moderate and severe illness

4.3 Treatment

4.4 Prophylaxis

4.5 Pregnant Women

4.6 Children

4.7 People living with HIV and AIDS

4.8 Post-mortem management

4.9 Adverse events and contraindications

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 (whichever 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

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
- 2nd & 3rd trimester or multiple pregnancies
- Brittle /Poorly controlled Asthmatics / COPD / Diabetes 11

4.2 Treatment of SARI - moderate to severe disease

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

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 Only 12 years & older
	15-23	45 mg bd x 5days	
	24-40	60mg bd x 5days	
	>40	75mg bd x 5days	

* Registration: Oseltamivir >1 year olds: Zanamivir ≥ 12 years of age. 13

* 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 ₂ 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

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		75 mg once per day	Two 5 mg inhalations (10 mg total) once per day
Children	15 kg or less	30 mg once per day	Two 5 mg inhalations (10 mg total) once per day (only in children aged 12 years or older)
	15–23 kg	45 mg once per day	
	24–40 kg	60 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 3rd trimester & puerperium

2nd & 3rd trimester + ILI /SARI = antivirals >48 hrs

Don't wait for test results

Oseltamivir preferred

1st 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

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

4.6 Oral solution of oseltamivir for those ≤ 40 kg, 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

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.

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 VTMUse 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.

5. Need more info?

Be aware. Influenza pandemics are unpredictable

WEBSITES

- www.nicd.ac.za
- [www.doh.gov.za /swineflu/swineflu-f.html](http://www.doh.gov.za/swineflu/swineflu-f.html)
- [www.who.int /csr/disease/swineflu/en/](http://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)

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.

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

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

Appendix 2: Summary management of adults and children

Category Clinical	Definition	Treatment	Diagnostic Tests
MILD-ILI (MILD Influenza- like illness)	Recent onset of temperature $\geq 38^{\circ}\text{C}$ PLUS 1 or more of: Sore throat, Rhinorrhoea, Nasal congestion, Dry cough, Myalgia, Diarrhoea, Vomiting	NO CO-MORBIDITY Symptomatic treatment Avoid aspirin <18yrs CO-MORBIDITY Oseltamivir 75mg orally bd x 5 days within <48hrs ‡	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 3rd Trimester / Puerperium / Multiple.

Appendix 2: Summary management of adults & children

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

Appendix 2: Summary management of adults & children

Category Clinical	Definition	Treatment	Diagnostic Tests
SARI (Severe Acute Respiratory Infection)	Sudden onset of T $\geq 38^{\circ}\text{C}$. PLUS: Cough or sore throat +: Impaired breathing. <u>with or without:</u> Clinical or X-ray evidence of pneumonia.	Oseltamivir 75mg/os bx 5 Antibiotics Early oxygen Monitor: <ul style="list-style-type: none"> • O₂ saturation • Hydration • Renal function 	Send nasopharyngeal and throat swabs for H1N1 testing†

Patient Care Checklist

New influenza A (H1N1)

June 2009

Replaces 15 May 2009
Expires: December 2009.

UPON ARRIVAL TO CLINICAL SETTING/TRIAGE

- Direct patient with flu-like symptoms to designated waiting area
- Provide instruction and materials to patient on respiratory hygiene/cough etiquette
- Put medical/surgical mask on patient if available and tolerable to patient

UPON INITIAL ASSESSMENT

- Record respiratory rate over one full minute and oxygen saturation if possible
- If respiratory rate is high or oxygen saturation is below 90% alert senior care staff for action[#]
- Record history, including flu-like symptoms, date of onset, travel, contact with people who have flu-like symptoms, co-morbidities
- Consider specialized diagnostic tests (e.g. RT-PCR)
- Use medical/surgical mask, eye protection, gloves when taking respiratory samples
- Label specimen correctly and send as per local regulations with biohazard precautions
- Consider alternative or additional diagnoses
- Report suspected case to local authority

INITIAL AND ONGOING PATIENT MANAGEMENT

Supportive therapy for new influenza A (H1N1) patient as for any influenza patient including:

- Give oxygen to maintain oxygen saturation above 90% or if respiratory rate is elevated (when oxygen saturation monitor not available)
- Give paracetamol/acetaminophen if considering an antipyretic for patients less than 18 years old
- Give appropriate antibiotic if evidence of secondary bacterial infection (e.g. pneumonia)
- Consider alternative or additional diagnoses
- Decide on need for antivirals[#] (oseltamivir or zanamivir), considering contra-indications and drug interactions

This checklist is intended for use by hospital staff treating anyone with a medically suspected or confirmed case of new influenza A (H1N1) per local definition. This checklist highlights areas of care critical for the management of new influenza A (H1N1).

It is not intended to replace routine care.

BEFORE PATIENT TRANSPORT/TRANSFER

- Put medical/surgical mask on patient if available and tolerable to patient

BEFORE EVERY PATIENT CONTACT

- Put on medical/surgical mask
- Clean hands
- Put on eye protection, gown and gloves if there is risk of exposure to body fluids/splashes
- Clean and disinfect personal/dedicated patient equipment between patients
- Change gloves (if applicable) and clean hands between patients

IF USING AEROSOL-GENERATING PROCEDURES ALSO (e.g. intubation, bronchoscopy, CPR, suction)

- Allow entry of essential staff only
- Put on gown
- Put on particulate respirator (e.g. EU FFP2, US NIOSH-certified N95) if available
- Put on eye protection, and then put on gloves
- Perform planned procedure in an adequately ventilated room

BEFORE PATIENT ENTRY TO DESIGNATED AREA (isolation room or cohort)

- Post restricted entry and infection control signs
- Provide dedicated patient equipment if available
- Ensure at least 1 metre (3.3 feet) between patients in cohort area
- Ensure local protocol for frequent linen and surface cleaning in place

BEFORE ENTERING DESIGNATED AREA (isolation room or cohort)

- Put on medical/surgical mask
- Clean hands

The above applies to visitors also

BEFORE LEAVING DESIGNATED AREA (isolation room or cohort)

- Remove any personal protective equipment (gloves, gown, mask, eye protection)
- Dispose of disposable items as per local protocol
- Clean hands
- Clean and disinfect dedicated patient equipment and personal equipment that has been in contact with patient
- Dispose of viral-contaminated waste as clinical waste

The above applies to visitors also

BEFORE DISCHARGE OF CONFIRMED OR SUSPECTED CASE

- Provide instruction and materials to patient/caregiver on respiratory hygiene/cough etiquette
- Provide advice on home isolation, infection control and limiting social contact
- Record patient address and telephone number

AFTER DISCHARGE

- Dispose of or clean and disinfect dedicated patient equipment as per local protocol
- Change and launder linen without shaking
- Clean surfaces as per local protocol
- Dispose of viral-contaminated waste as clinical waste

[#] See instructions on the back side for additional information and references. Equipment on this checklist is recommended if available.

This checklist is not intended to be comprehensive.

Additions and modifications to fit local practice are encouraged.