NOVEL INFLUENZA A (H1N1)

CASE MANAGEMENT AND INFECTION CONTROL GUIDELINES FOR THE WESTERN CAPE'S HEALTH CARE FACILITIES

(Based on National and WHO guidelines)

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OVERVIEW:

The World Health Organisation [WHO] and international health authorities recognise the periodic threat of influenza pandemics, which may have serious effects on the health of the human population. Events such as the development of highly pathogenic bird flu (Avian Influenza) in 2005 and the recent identification of a novel influenza A H1N1 virus in Mexico in April 2009, illustrate that human influenza infection is a changing field that requires constant monitoring and the updating of International, National and Provincial policies.

For a global response, WHO has defined six (6) phases in the progression of an influenza pandemic from the emergence of a novel virus, to global spread. The phases allow a step-wise escalation of preparedness planning and response:

INTER-PANDEMIC PHASE (New virus in animals, no human cases)	Low risk of human cases	1
	Higher risk of human cases	2
PANDEMIC ALERT PHASE (New virus causes human disease)	No or very limited human-to-human transmission	3
	Evidence of increased human-to-human transmission sustained within a community	4

	Evidence of significant human-to-human transmission within 2 countries in a single WHO-defined region*	5
PANDEMIC	Efficient and sustained human-to-human transmission in 2 or more WHO-defined regions	6

*http://www.who.int/about/regions/en/

Early history of the Novel Influenza A H1N1 pandemic

On the 24th of April 2009, WHO reported an epidemic of an influenza-like illness with 854 cases of pneumonia in Mexico City and 59 deaths; 18 of these cases were subsequently identified as being caused by a novel virus, influenza A H1N1 (hereafter referred to as 'H1N1' or 'novel H1N1'). This novel H1N1 virus had not previously been found in humans and significantly differed from the influenza A viruses which cause seasonal flu. As a result, humans had not had an opportunity to build up immunity to the novel virus. In the United States 16 cases with similar clinical features were identified, 7 of which were subsequently documented as being caused by novel H1N1. Most cases were in young healthy adults and most were mild.

On 29th April 2009, WHO Director-General, Dr Margaret Chan designated a global pandemic alert, Phase 5. Since then, the number of confirmed cases of novel H1N1 has steadily risen and cases have been reported from numerous countries (http://www.who.int/csr/don/en/) on most continents. However, at the time of writing, no confirmed cases have been reported from Africa. All indications suggest that this is merely a matter of time and that cases of novel H1N1 may have occurred on the continent, but have gone undiagnosed.

Mild, suspected or confirmed cases should be nursed at home. If moderate-severe cases require admission to hospital, the patient should be nursed in a single room whenever possible, employing contact and droplet precautions. Effective antiviral medication should be reserved for moderate-severe cases of novel H1N1 and treatment should be started within the first 48 hours wherever possible.

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1. Introduction

These guidelines are based on current knowledge of novel H1N1 infection and may change as we learn more about the disease. **Hence, they will be appropriately modified as more clinical data become available.**

2. Objectives

The overall objective of these guidelines is to assist health care workers (HCW) in the:

i) Proper management of suspected and confirmed cases of H1N1, to reduce morbidity, mortality and limit further spread of the infection

ii) Early detection and follow-up of individuals at high risk of infection

iii) Early implementation of appropriate infection prevention and control (IPC) measures to minimize nosocomial spread of the infection

3. Clinical Features

i) ***Incubation period***:

The incubation period for classic human influenza viruses is 2–3 days (range 1–7 days). The range of the incubation period of novel H1N1 is currently uncertain.

ii) ***Clinical presentation***

The clinical spectrum of novel H1N1 in humans seems to be similar to disease caused by other influenza viruses. **A sudden onset of fever** and an 'influenza-like' illness (muscle pains, malaise, sore throat and cough) seem to be typical. Diarrhoea and vomiting may occur in up to 25% of cases. Severe cases may have associated signs of primary viral pneumonia, which may or may not be associated with one or more of the following CXR changes; diffuse, multifocal or patchy infiltrates; interstitial infiltrates; segmental or lobular consolidation with air bronchograms.

The frequency of milder illness, sub-clinical infections and atypical presentations is uncertain but should be expected.

iii) ***Clinical course***:

Compared to avian flu, the novel H1N1 virus spreads more easily but the fatality rate seems <u>at this stage,</u> to be much lower.

iv) ***Common laboratory findings***:

The laboratory findings are likely to be similar to other influenza viral infections.

v) ***General considerations***:

Initial symptoms are non-specific and acute respiratory illness has a wide differential diagnosis. This makes early recognition of H1N1 cases difficult. However, all practitioners should have a low threshold for suspecting H1N1 in newly presenting patients (see interim case definitions below).

4. Case detection

The following guidelines are suggested to aid decision making with regard to testing suspected human cases. All cases which meet the criteria outlined below or for whom advice is required, should be discussed with an infectious diseases specialist.

INTERIM CASE DEFINITIONS

Suspected Case of novel Influenza A (H1N1)

An individual with a recent onset of fever ≥ 38^0C, PLUS ONE OR MORE of the following acute respiratory symptoms (sore throat, rhinorrhoea /nasal congestion, cough or myalgia),

AND who gives one of the following histories:

- Travel within **7 days** prior to onset of symptoms to Mexico, the USA, Canada or any other country with confirmed community wide outbreaks caused by the new influenza virus.*
- Close contact** with an individual who is a suspected/confirmed case of H1N1 in the 7 days prior to onset of symptoms.

*****For updates on countries currently reporting confirmed human cases of novel H1N1 visit http://www.who.int/csr/don/en/ or www.nicd.ac.za

****Close contact** includes: having cared for, lived in the same household, or had direct contact within 2 metres of a suspected or confirmed case of novel H1N1.

Confirmed Case of novel Influenza A H1N1

An individual with acute respiratory infection, in whom the novel Influenza H1N1 virus has been confirmed by laboratory testing.

5. ***Infection Prevention and Control measures***

i) **Immunisation**:

Vaccines are being developed against the novel H1N1 virus. However, a vaccine is unlikely to be ready for use within the next few months and even then, will be in short supply.

ii) Clinic /Outpatient / Consultation Rooms

Any person with a 'flu-like' illness who does not need hospitalization should be reassured and treated symptomatically. They should be advised to follow strict cough etiquette, to go home until they are feeling better and no longer coughing. At home they should keep at least a full arms length from other people and if possible, should sleep in a separate room.

iii) ***Hospital Infection Prevention and Control (IPC)***:

As influenza is a well known nosocomial pathogen, existing IPC measures include the application of **standard precautions** as well as droplet and contact precautions to all patients.

Infection Prevention and Control Measures:

To the best of our knowledge, transmission of human influenza occurs through respiratory secretions in the form of droplets and by direct or indirect contact with surfaces contaminated by respiratory secretions. Therefore the following IPC measures should be undertaken:

- Reinforce standard IPC and institute droplet and contact precautions.
- Isolate the patient to a single room. If a single room is not available, cohort patients separately in designated multi-bed rooms or wards; beds should be placed more than 1 metre apart and preferably be separated by a physical barrier (e.g. curtain, partition).
- Hands should be washed hands thoroughly and dried after each patient contact
- Rubbing hands for 20 – 30 seconds with an alcohol based hand rub is an accepted alternative
- Ideally, if available, gloves must be worn for each patient contact
- Washing and drying of hands is particularly important after removing gloves.

Airborne precautions

Based on previous experience, droplet and contact precautions prevent nosocomial spread of influenza. However because of uncertainty about the novel H1N1, WHO is currently recommending airborne precautions in addition to droplet and contact precautions – this includes the use of a **properly-fitted high efficiency N95 mask** for HCWs nursing suspected or confirmed cases of H1N1.

Appropriate personal protective equipment (PPE) - when entering patient's room:

- High efficiency (N95) mask, gown, face shield / goggles and gloves

Limit patient contact:

- Limit the number of HCWs and other hospital employees (e.g. cleaners, laboratory personnel etc.) who have direct contact with the patient(s).

- Restrict the number of visitors and provide them with appropriate PPE.

If the diagnosis of novel H1N1 infection is being considered on the basis of clinical features, it would be prudent to implement airborne precautions until the diagnosis has be ruled out.

HCWs who are unwell should not be involved in direct patient care.

Household contacts:

Ask household contacts of suspected or confirmed cases to seek medical advice by telephone, should they become ill with 'flu-like' symptoms

Disposal of clinical waste:

Clinical waste should be placed in a sealed, impermeable bag. It should be clearly label "Biohazard"; and incinerated.

Linen and reusable materials that have been in contact with patients should be handled separately and disinfected by washing with hot water and soap.

6. Specimen collection and laboratory diagnosis

i) According to current WHO recommendations, the strategy for initial laboratory testing of each specimen should be to diagnose novel H1N1 rapidly (ideally within 24 hours) and to exclude other common viral and bacterial respiratory infections.

ii) Cases meeting the case definition for a 'suspected case' of novel H1N1 should be undergo laboratory testing.

iii) Ppreferably, specimens for virus isolation or for detection of viral nucleic acids or antigens should be taken during the first three days after onset of clinical symptoms. However, they may be taken up to a week after onset, or even later in severely ill or immunocompromised patients.

iv) Investigations should also be undertaken for other potential causes (seasonal influenza, atypical bacterial pneumonia etc.) at the discretion of the attending physician. All laboratory testing must be done under special infection control precautions until H1N1 infection has been ruled out.

vii) Whilst a negative test result for H1N1, with or without laboratory confirmation of a different causative agent normally allows IPC to be lifted, a negative result cannot completely rule out the presence of H1N1. Hence, in cases where there is doubt about the correct diagnosis, the physician is encouraged to discuss the case with an infectious diseases specialist.

NICD guidelines for type of specimens to be collected on suspected cases:

IF AT ALL POSSIBLE, CONTACT THE VIROLOGY LABORATORY PRIOR TO COLLECTING SAMPLES, TO ENSURE THE CORRECT SPECIMENS ARE SENT AND THE METHOD OF TRANSPORT TO THE LABORATORY IS APPROPRIATE.

i) Specimens should preferably be taken prior to starting antivirals.

ii) Wooden swabs are not suitable for respiratory virus PCR. Please use Dacron or Rayon swabs.

iii) A **swab** collected from each nostril, and a throat swab pooled into the same container of viral transport medium is the specimen of choice. Nasopharyngeal swabs may be collected instead of nose and throat swabs. They are suitable for testing by polymerase chain reaction (PCR). Collecting nasopharyngeal aspirates (NPA) or nasal washes, may generate aerosols and increase the risk of spread. .

iv) Invasive procedures such as bronchoalveolar lavage or lung biopsy can also be performed when clinically indicated. All standard precautions should be taken. Post mortem samples may also be submitted. In all cases these procedures must be performed within a controlled environment using suitable respiratory precautions.

v) If such specimens are unlikely to reach the laboratory with an hour, they should be placed in a vial of viral transport medium (VTM). VTM should be stored and transported at 4°C and delivered promptly to the laboratory in the correct packaging (see below). Please contact the nearest laboratory for VTM.

Specimen collection, storage and transport:

i) Specimen collection poses a risk of aerosol production and recommended precautions should be followed closely.

ii) Specimens that are to be transported between institutions should be packaged and transported as per standard recommendations for infectious substances.

iii) It is essential that the laboratory receiving the sample is aware that it comes from a potential H1N1 case and that it has the facilities required for safe handling of the sample.

TRANSPORT OF SPECIMENS BETWEEN INSTITUTIONS - Please package as follows:

1. **USE APPOPRIATE PRECAUTIONS AT ALL TIMES WHEN HANDLING BLOOD OR OTHER BODY FLUIDS.**
2. Wrap of the vial of transport medium containing three swabs in absorbent material such as cotton wool.
3. Place the specimens in a secondary container, preferably sturdy plastic or stainless steel with a well fitting lid.
4. Wrap again in absorbent material and place in another container.
5. Put the patient details on the **OUTSIDE** of this container including:
    a. Patient Name and health facility (where appropriate) and patient number
    b. The sending Doctor and contact no. (mobile)
    c. Lab Name and contact person.
    d. Clinical details and travel details
    e. Results of any tests already performed.

Specimens should be submitted urgently to the NICD as below

Telephonic confirmation should be made with the NICD doctors – contact numbers below.

Address as follows:

For urgent attention: Dhamari Naidoo: National Influenza Unit, National Institute for Communicable Diseases (NICD), 1 Modderfontein Road, Sandringham, Johannesburg

Case should be discussed with the doctor on call

Daytime contact details 08h00 – 17h00 (Monday to Friday) – 082 477 8026

After-hours, week-end and public holidays – NICD hotline – 082 883 9920

7. Management Summary for Hospitalized Cases of Novel Influenza A (H1N1)

i) **Isolate** all suspected/confirmed cases for clinical monitoring and/or diagnostic testing as far as possible in a separate room.

ii) **Treat** with a neuraminidase inhibitor oseltamivir, 75mg orally, twice daily for 5 days (if available) as early in the clinical course as possible (within 48hrs after onset of symptoms). Refer to package insert for dosage and limitations for paediatric use.

iii) **Supportive care** is the foundation of management. Monitor oxygen saturation and treat desaturation with supplemental oxygen as required.

iv) As nebulizers and high-air-flow oxygen masks have been implicated in the nosocomial spread of SARS, use these measures only if clinically justified and apply them under strict airborne transmission precautions.

v) Monitor closely for sings of bacterial super-infection. Send respiratory and blood specimens as indicated.

vi) ***If a case does not require hospital admission***

- Educate the patient and his or her family on personal hygiene and IPC measures
- Instruct the patient to seek prompt medical care if the condition worsens
- As resources permit, follow up non-hospitalised patients by home visits or telephone contact.

vii) ***Return to work or school policy***:

- Adults with flu should stay at home for 7 days after the start of the fever and, as far as possible, keep a full arms length from other household members. Children younger than 12 years may shed virus for a bit longer. Children should not attend school for 7 to 10 days after start of illness.

- Patients, especially children, who develop flu and their contacts should be encouraged to develop good cough and hand-washing habits.

8. References (work in progress!)

1. National institute for Communicable Diseases (NICD) www.nicd.ac.za
2. World Health Organization (WHO) www.who.int

Aknowledgements

This document was developed as an annexure to the Western Cape Pandemic Flu Preparedness Plan by

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