

Part 2 Advice for the Health Sector

Identification and management of patients at increased risk of moderate to severe Pandemic (H1N1) 2009 disease

It is important for medical practitioners to identify patients who are at risk of severe pandemic (H1N1) 2009 disease, secondary complications, hospitalisation and possibly fatal outcomes.

Increasing evidence suggests that medical practitioners should have a high index of suspicion for severe pandemic (H1N1) 2009 infection in the vulnerable groups and a low threshold for treatment, especially for those with moderate or severe illnesses.

There should be close clinical assessment of all vulnerable patients and early commencement of influenza antiviral medication if clinically indicated, ideally within 48 hours of onset of illness.

If a decision is made to not treat a vulnerable patient with influenza antiviral medication then there should be additional emphasis on close monitoring of the patient.

When influenza antiviral treatment is commenced but the patient tests negative for influenza or an alternative diagnosis is confirmed, consideration should be given to ceasing the influenza antiviral treatment.

2.1 Who is considered vulnerable to severe outcomes

Evidence indicates that the following groups are at an increased risk of severe pandemic (H1N1) 2009 disease and also the secondary complications of influenza infection. While not every individual in these groups is necessarily more at risk, inclusion in the group is a signal to the treating medical practitioner for the need for investigation and clinical judgement. For example, Aboriginal and Torres Strait Islander people are included due to the potential for multiple underlying risk factors, some of which may be undiagnosed.

Table 1: Groups particularly vulnerable to the severe outcomes

Vulnerable Group	Evidence ^{5 6 7 8}
Chronic respiratory conditions including asthma and Chronic Obstructive Pulmonary Disease	Increased hospitalisation, ICU admissions (Evidence from Australia, USA, Mexico, Canada, South America, United Kingdom)
Pregnant women (particularly in second and third trimesters)	Increased hospitalisation, ICU admissions, spontaneous abortion, premature rupture of membranes, foetal and maternal death (Evidence from, Australia, USA, Mexico, South America, UK)
Persons with morbid obesity	Increased hospitalisation, ICU admissions (Evidence from Australia, USA, Mexico,)□
Aboriginal and Torres Strait Islander people of any age should be carefully monitored for underlying chronic conditions and household environments.	Increased hospitalisation, ICU admissions (Evidence from Australia and Canada)□
Persons with chronic illness predisposing to severe influenza such as: <ul style="list-style-type: none"> • cardiac disease (excluding simple hypertension) • diabetes mellitus, • chronic metabolic diseases, • chronic renal disease, • haemoglobinopathies, • immunosuppressed (including cancers, HIV/AIDS infection, drugs) • chronic neurological conditions 	Increased hospitalisation, ICU admissions (Evidence from Australia, USA, Mexico, Canada, South America, United Kingdom)

⁵ Louie, J, Winter, K, et al. Hospitalized Patients with Novel Influenza A (H1N1) Virus Infection --- California, April--May, 2009: MMWR, May 22, 2009 / 58(19);536-541
<http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5819a6.htm>

⁶ WHO Weekly Epidemiological Record: 5 June 2009, No. 23, 2009, 84, 213–236
<http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5819a6.htm>

⁷ WHO Weekly Epidemiological Record: 22 May 2009, No. 21, 2009, 84, 185–196
<http://www.who.int/wer/2009/wer8421.pdf>

⁸ Australian Government Influenza Surveillance 2009 Reports. Accessible on-line at
<http://www.healthemergency.gov.au/internet/healthemergency/publishing.nsf/Content/ozflu2009.htm>

A second group of patients require active monitoring by the treating clinician. This involves regular review of those suffering an acute respiratory illness to monitor for clinical deterioration.

Other groups which may be at higher risk than the general population and who require active monitoring include:

- Smokers
- People with obstructive sleep apnoea
- Children under the age of 5 years
- Pregnant women in the first trimester

Health care workers are considered to be a group of special interest, as pandemic (H1N1) 2009 disease in a health care worker in the healthcare setting can expose vulnerable patients to infection. Additionally reduction in health care worker numbers due to illness will adversely affect the care of vulnerable patients

2.2 Clinical advice

Case definition for H1N1 09 in PROTECT phase

A confirmed case of pandemic (H1N1) 2009 virus is defined as a person with confirmed H1N1 09 virus infection by one or more of the following tests:

- H1N1 viral sequencing
- H1N1 09 specific-PCR
- H1N1 09 virus culture

Clinical case criteria for pandemic (H1N1) 2009 have also been developed to guide clinical management and treatment decisions. These criteria are:

A person with an influenza-like illness (ILI) characterised by:

- Fever (≥ 38 °C or a good history of fever) AND
- Cough or sore throat.

Note well:

1. Clinical reports of pandemic (H1N1) 2009 suggest many cases present with milder symptoms than is typical for an influenza-like illness, and symptoms may persist for a shorter duration.
2. If surveillance data indicate that there is pandemic (H1N1) 2009 in the local community (i.e. there is community transmission) then anyone with ILI is considered to have pandemic (H1N1) 2009.
3. In areas where there is no community transmission then the medical practitioner should undertake a pathology test to confirm pandemic (H1N1) 2009 infection.
4. Community transmission is defined as evidence of person-to-person transmission, outside household or health care settings, and with no known epidemiological link to a confirmed case.

Antiviral policy

The new phase signals a move to identifying those people in whom disease is moderate/severe or may become severe and providing medical care and interventions to reduce likely suffering.

1. People who will be considered for antiviral treatment in the PROTECT phase are:

- People with moderate or severe clinical ILI (or if rapidly deteriorating) from pandemic (H1N1) 2009;
- Those with ILI who are identified as vulnerable. Vulnerable individuals with mild disease can receive antivirals following clinical assessment.

As in all cases clinical judgement should be applied to the decision to treat with antiviral medication.

2. Influenza antivirals may also be used for public health control activities, such as:

- Limited containment activities in areas unaffected by pandemic (H1N1) 2009;
- Outbreak control in 'closed' facilities or other high-risk settings with a high proportion of vulnerable people;

3. Influenza antivirals in specialised healthcare settings to protect the vulnerable

Details on the use of antivirals in specialised health care settings to protect the vulnerable is outlined in the CDNA Pandemic (H1N1) 2009 Infection 'Protect Phase': Guidelines for Australian Public Health Units.⁹

Antiviral medication needs to be provided as soon as possible, ideally within 48 hours of onset of illness. Beyond 48 hours, antiviral medication may still be indicated on clinical grounds.

All people who are unwell should isolate themselves and attempt to reduce spread of disease to others. Refer to Figure 1 for Decision tree for management of cases with ILI.

Importantly, because disease is mild in most, in PROTECT antivirals will NOT be routinely provided for:

- treatment (unless the person is vulnerable or has moderate or severe disease); nor
- prophylaxis of household members or other school, work or community contacts.

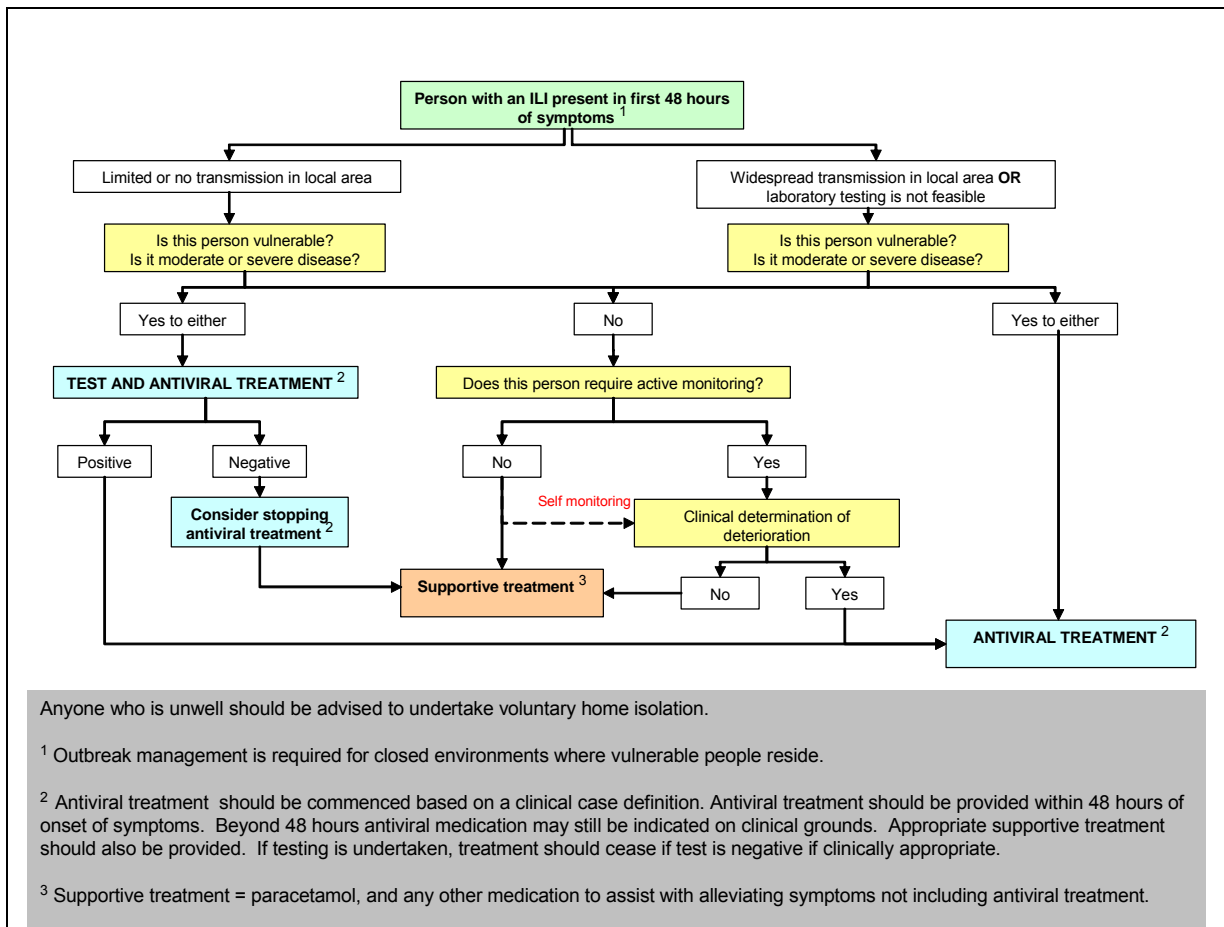
Close contacts who fall into vulnerable groups should be advised to present early to a health care provider if they develop acute respiratory illness to enable early treatment.

⁹ Protect Phase: Guidelines for Australian Public Health Units, Version 4.1 (CDNA).

Accessible online at:

[http://www.healthemergency.gov.au/internet/healthemergency/publishing.nsf/Content/477A0768B005A41DCA2575A800210183/\\$File/CDNA-H1N1-Protect-SoNG.pdf](http://www.healthemergency.gov.au/internet/healthemergency/publishing.nsf/Content/477A0768B005A41DCA2575A800210183/$File/CDNA-H1N1-Protect-SoNG.pdf)

Figure 1: Decision tree for management of cases of Influenza-like illness (ILI)



Testing policy

Patients with mild clinical disease should not be tested as a routine. Testing should be prioritised for people with influenza like illness who are hospitalised or who die, and is not routinely required for others unless it guides clinical management.

Pathology testing for pandemic (H1N1) 2009 to assist with clinical management is indicated for those who meet the clinical case criteria (see above) AND are:

1. symptomatic patients with moderate to severe disease, OR;
2. symptomatic patients in a group vulnerable to severe outcomes (see list above)

Pathology testing for public health surveillance may be done for:

1. cases in areas where the disease is newly introduced, to allow control measures to be instituted if appropriate
2. representative samples of influenza-like illness (ILI) cases from existing sentinel surveillance systems
3. in outbreaks in 'closed' environments where individuals are at increased risk from severe influenza. The number of patients needing testing to determine the cause of an outbreak is generally low (this will depend on the clinical situation, but five or less samples should suffice).
4. Health care workers.

Vaccination policy

Further information about vaccination in the PROTECT phase is available in the vaccination appendices to this document.

2.3 Infection control advice- healthcare settings

The following measures apply to anyone with an influenza-like illness (ILI).

Health Care Workers at Increased Risk of Complications from Pandemic (H1N1) 2009 Infections

- Health care workers who are at increased risk of complications from pandemic (H1N1) 2009 and who are likely to be in direct contact with patients who have pandemic (H1N1) 2009 infections, should be considered for vaccination or redeployment to lower risk activities.
- If vaccination is not possible because of a contra-indication or is refused and if redeployment is not possible, health care workers who are at increased risk of complications from pandemic (H1N1) 2009 infection should maintain a distance of one metre from pandemic (H1N1) 2009 patients and not participate in procedures with these patients that may generate small particles or aerosols of respiratory secretions.

Hand Hygiene

- Health care workers and visitors must perform hand hygiene regularly, including when removing gloves.
- Patients with ILI should be encouraged to perform hand hygiene frequently.

Personal Protective Equipment (PPE) – General Advice

- Anyone with an ILI should wear a surgical mask when not in isolation in a single room and stay at least a metre distant from others.

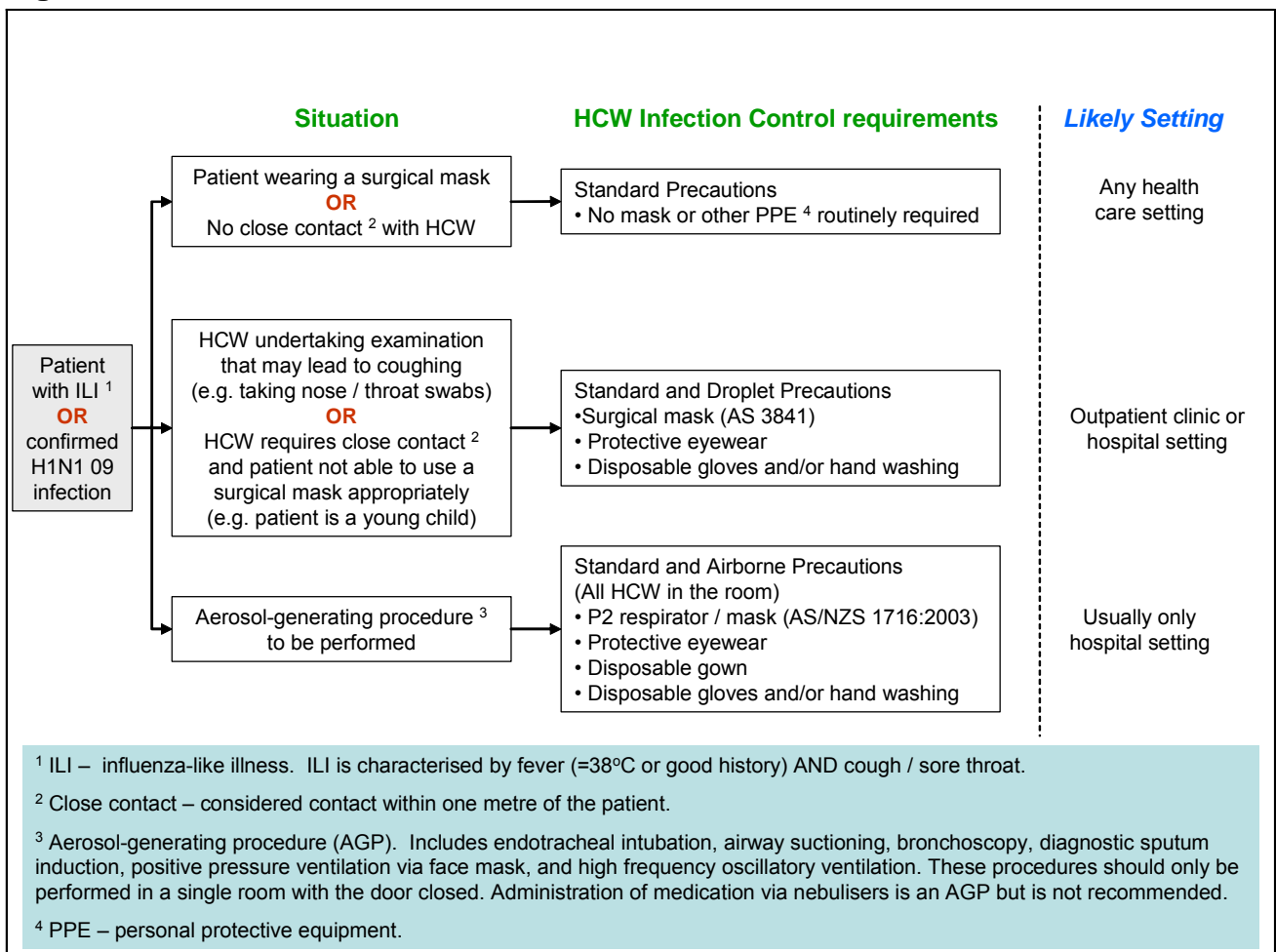
Personal Protective Equipment (PPE) – Advice for use during Procedures (including Collection of Swabs for Influenza Diagnosis)

- Health care workers should consider any guidance available from their State or Territory health department before making a decision to collect clinical swabs from a patient for influenza diagnosis, including pandemic (H1N1) 2009.
- Health care workers who can maintain 1 metre distance from an individual with an influenza like illness should practice standard infection control precautions but do not need to routinely wear a facemask or other PPE. This needs to be reviewed on a case-by-case basis. For example, widening the respiratory protection zone to 2 metres may be advisable for patients who are unable to wear a facemask and who are coughing forcefully.
- Health care workers should apply additional droplet transmission precautions if they are undertaking an examination of an individual with an influenza like illness that may lead to coughing (e.g. collecting nose and/or throat swabs), or where the HCW is within 1 metre of the patient and the patient is not able to use a surgical mask appropriately. This includes the use of a surgical mask, protective eyewear, along with disposable gloves and/or hand washing.

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- All persons in the same room when aerosol-generating procedures are undertaken on ILI patients should apply additional airborne transmission precautions. This includes the use of P2 respirators, protective eyewear, a disposable gown, along with disposable gloves and/or hand washing. Aerosol-generating procedures include endotracheal intubation, nebulised medication administration, airway suctioning, bronchoscopy, diagnostic sputum induction, positive pressure ventilation via face mask, and high frequency oscillatory ventilation. These procedures should only be performed in a single room with the door closed, separated from other patients and visitors.
- Administration of medication via nebulisers is not recommended. Use spacers where possible. When the use of nebulisers cannot be avoided the practice should be considered an aerosol-generating procedure and managed with additional airborne transmission precautions (see above).
- Health care workers in the vulnerable category should not administer to patients during aerosol generating procedures or collection of nose and throat swabs.

Figure 2: Decision Tree for Infection Control Precautions for Healthcare Workers



In- Patient Isolation

- Single room accommodation should be used for pandemic (H1N1) 2009 inpatients and people with ILI presenting in clinical settings, wherever possible.

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- If single rooms for pandemic (H1N1) 2009 inpatients are not available, cohorting of pandemic (H1N1) 2009 patients should be practised wherever possible, maintaining at least 1 m spacing between patients at all times. Confirmed pandemic (H1N1) 2009 cases should not be cohorted with confirmed seasonal influenza cases.
- Vulnerable patients at risk of severe disease should not be co-located with patients with ILI.

Management of Visitors

- Limit visitors for patients who are in isolation to those persons who are necessary for the patient's emotional wellbeing and care.

Duration of Precautions

Persons with pandemic (H1N1) 2009 infection should be considered potentially contagious from one day before to 7 days following illness onset. Persons who continue to be ill longer than 7 days after illness onset should be considered potentially contagious until fever has resolved. Children, especially younger children, might be contagious for longer periods.

- Isolation precautions should be continued for 7 days from symptom onset or until the resolution of fever, whichever is longer.
- Isolation precautions may also be discontinued when patient has had 72 hours of influenza antiviral treatment provided they have no fever for 24 hours in the absence of antipyretics.

Cleaning Pandemic (H1N1) 2009 In-Patient Rooms

- Daily and on discharge - clean with a neutral detergent. The room can be used immediately following cleaning
- Management of laundry and utensils should be performed in accordance with procedures followed for seasonal influenza.

Waste

- Treat waste as general medical waste.
- Used tissues are disposed of in general waste.

Surveillance and management of healthcare personnel

- Health care workers should be monitored for illness and those who develop influenza-like illness (ILI) should be instructed not to report to work, or if at work, should cease patient care activities and notify their supervisor and infection control personnel.
- It is also important to identify health care workers who may be considered vulnerable i.e. in whom pandemic (H1N1) 2009 may be severe (e.g. pregnant women) and manage as appropriate (see section Health Care Workers at Increased Risk of Complications from Pandemic (H1N1) 2009 Infections).

Management of Ill Health Care Workers

Details on the use of antivirals in specialised health care settings to protect the vulnerable is outlined in the CDNA Pandemic (H1N1) 2009 Infection 'Protect Phase': Guidelines for Australian Public Health Units.¹⁰

Vaccination for Health Care Workers

Further information about vaccination in the PROTECT phase is available in the vaccination appendices to this document (Appendices 3-9).

Face Mask Information

- Surgical Masks

The term 'surgical mask' refers to a disposable fluid-repellent, paper filter mask that complies with the Australian standard for single-use masks for use in health care (AS 4381-2002). This may include masks labelled as surgical, dental, medical procedure, isolation, or laser masks.

It is important to ensure that surgical masks are worn and disposed of correctly. Make sure the mask is correctly fitted by ensuring that it covers your nose and mouth and that it is secured at the back of your head.

Avoid touching your face while wearing the mask. Replace the mask whenever it is moist. A mask that has been removed should not be reused.

Remove the mask by only touching the straps and put the used mask in a bin. Wash your hands well with soap and water straight away and dry with a paper towel.

- P2 Respirators

P2 respirators (P2 masks) are designed to provide high-level protection to the wearer's respiratory tract from small infectious particles. They are particulate filter, personal respiratory protection devices which, when tested against the Australian standard for Respiratory Protective Devices (AS/NZS 1716:2003), filter out at least 95% of particles of 0.3 micrometres diameter.

Testing is required so that P2 masks fit properly. Fit Checking for staff wearing a P2 mask is the appropriate minimum standard for health care workers each time they need to use a P2 mask for dealing with potentially infectious cases. Formal Fit Testing is recommended where available.

Fit Checking should be done in accordance with the mask manufacturer's instructions to ensure there is no air leakage around the mask. This is usually done after the mask is compressed over the nose and across the cheeks and face to create a firm seal. The wearer then gently inhales - the mask should draw in slightly towards the face and collapse – and then gently exhales - the mask should fill up with air. A fit check should be done each time a P2 mask is worn.

¹⁰ Protect Phase: Guidelines for Australian Public Health Units, Version 4.1 (CDNA). Accessible online at:

[http://www.healthemergency.gov.au/internet/healthemergency/publishing.nsf/Content/477A0768B005A41DCA2575A800210183/\\$File/CDNA-H1N1-Protect-SoNG.pdf](http://www.healthemergency.gov.au/internet/healthemergency/publishing.nsf/Content/477A0768B005A41DCA2575A800210183/$File/CDNA-H1N1-Protect-SoNG.pdf)

In some areas formal Fit Testing for health care workers is provided and required prior to wearing P2 masks in clinical settings. Health care workers should consult with their OH&S or infection control practitioners for specific guidance.

2.4 Surveillance requirements in PROTECT

The objectives of surveillance in the PROTECT phase are to:

- continue case detection
- detect the end of the first wave or start of the second wave of the pandemic
- understand the epidemiology of the disease in order to test the planning assumptions and guide health sector decision making
- monitor and detect changes in the severity of the disease, virulence, antigenic characteristics and antiviral drug sensitivity of the virus
- monitor the disease in vulnerable groups.

In the PROTECT phase, all probable and confirmed cases should be reported nationally. All fields of the national reporting form should be completed.

Cases identified from clusters or outbreaks from 'closed environments' should be identified in an outbreak reference field in the national outbreak case report system NetEpi.

As case numbers increase and it is no longer feasible to complete all fields of the national form, all probable and confirmed cases should be entered into the national outbreak database, with the demographics only completed.

Since testing for pandemic (H1N1) 2009 will be carried out only on a specific subset of cases, a nationally consistent program of sentinel testing for surveillance is required, preferably through existing systems such as the sentinel GP surveillance system. This system would require some adaptations to incorporate pathology testing.

Laboratories and jurisdictions should continue their routine surveillance programs, and serious consideration should be given to having all such programs in all jurisdictions. These include:

- laboratory confirmed notifications of influenza to NNDSS
- sentinel GP surveillance systems for influenza-like illness (ILI) presentations (including number of tests and number positive where available)
- sentinel ED surveillance systems for ILI presentations
- sentinel ED surveillance systems for ILI admissions
- sentinel laboratory surveillance of total respiratory tests and proportion positive
- reporting of the number of respiratory tests conducted and the proportion positive for influenza from major public health laboratories

Morbidity and mortality surveillance

Morbidity and mortality should be monitored to assess the level and changes in the severity of pandemic (H1N1) 2009. Jurisdictional data on hospitalisations, including

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admissions to ICU and requirements for ventilation, and deaths, should be reported nationally via the national outbreak database against cases while viable or summarised into a new form for severe cases.

Hospitalisations for influenza will also be collected through respiratory physicians' and infectious diseases physicians' networks.

Admissions to hospital and ICUs, for complications from influenza, in children aged 15 and under will continue to be collected weekly through the Australian Paediatrics Surveillance Unit.

Virological surveillance

The proportions of Type A (H1), Type A (H3), Type B and Type A pandemic (H1N1) 2009 should be determined from a list of tests, positive for influenza, by Type, subtype and postcode, provided by the National Influenza Centres (NICs) directly to the NIR weekly.

Antigenic characterisation, genetic analysis and antiviral drug sensitivity testing to detect potential changes in the influenza virus will be conducted through the WHO CC and results sent to the NIR weekly.