



Guidelines

for the Prevention and Control of

Influenza Outbreaks

in Residential Care Facilities

for Public Health Units in Australia

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Disclaimer

These guidelines are provided to assist residential care services and carers in best practice information for the prevention of influenza outbreaks in residential care facilities and public health units.

These guidelines capture the knowledge of experienced professionals, build on past research efforts, and provide advice on best practice based upon the best available evidence at the time of completion.

The guidelines are necessarily general and readers should not rely solely on the information contained within these guidelines. The information contained within these guidelines is not intended to be a substitute for advice from other relevant sources including, but not limited to, the advice from a health professional. These guidelines are intended for information purposes only.

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Guidelines for the Control of Influenza Outbreaks in Residential Care Facilities

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Preface

Purpose of the Guide

The purpose of this document – Guidelines for the Prevention and Control of Influenza Outbreaks in Residential Care Facilities in Australia (the *Guidelines*) – is to provide national best practice guidelines for staff of public health units for preventing, defining and managing outbreaks of influenza in Residential Care Facilities (RCFs) in Australia during interpandemic periods.

For the purpose of the *Guidelines*, RCFs are taken to mean facilities where the residents live some or all of their lives in that facility on an ongoing basis. These include aged care facilities (nursing homes and hostels), facilities for people with physical and mental disabilities, detention centres and gaols. While the *Guidelines* are primarily intended to apply to RCFs, many of these principles are applicable to other settings such as hospitals, cruise ships, military barracks and boarding schools.

These *Guidelines* have been prepared for an interpandemic influenza period recognizing that in a national influenza pandemic alert or pandemic period, outbreak control will be determined by the Australian Management Plan for Pandemic Influenza (AMPPI).

The commonest group of pathogens that cause outbreaks of respiratory illness in RCFs are viruses, and, of these, influenza is by far the most significant in terms of health impact. More proven interventions exist for preventing and controlling influenza outbreaks than for other respiratory viruses. However apart from vaccination and antiviral use the methods described for prevention and control of influenza outbreaks are also appropriate for outbreaks caused by other respiratory viruses and bacteria. In these cases, additional pathogen-specific guidance should be sought to augment the information and advice contained in the *Guidelines*.

Two of the key interventions for outbreak control described in the *Guidelines* are the use of anti-viral medications for treatment and prophylaxis for staff and residents, and influenza vaccination for prevention of disease in uninfected staff and residents. The responsibility for the provision and payment for antiviral agents and influenza vaccine will vary across jurisdictions, and this should be decided at the state and territory level.

The *Guidelines* have been prepared under the auspices of the Communicable Diseases Network Australia (CDNA). CDNA is a subcommittee of the Australian Health Protection Committee, which reports to the Australian Health Ministers' Advisory Council (AHMAC). CDNA consists of public health professionals drawn from Commonwealth, State and Territory public health departments and agencies. An Interpandemic Influenza Working Group was formed by CDNA to develop these guidelines. This group consisted of public health representatives from all Australian States and Territories with support from the Australian Government Department of Health and Ageing.

How to use this document

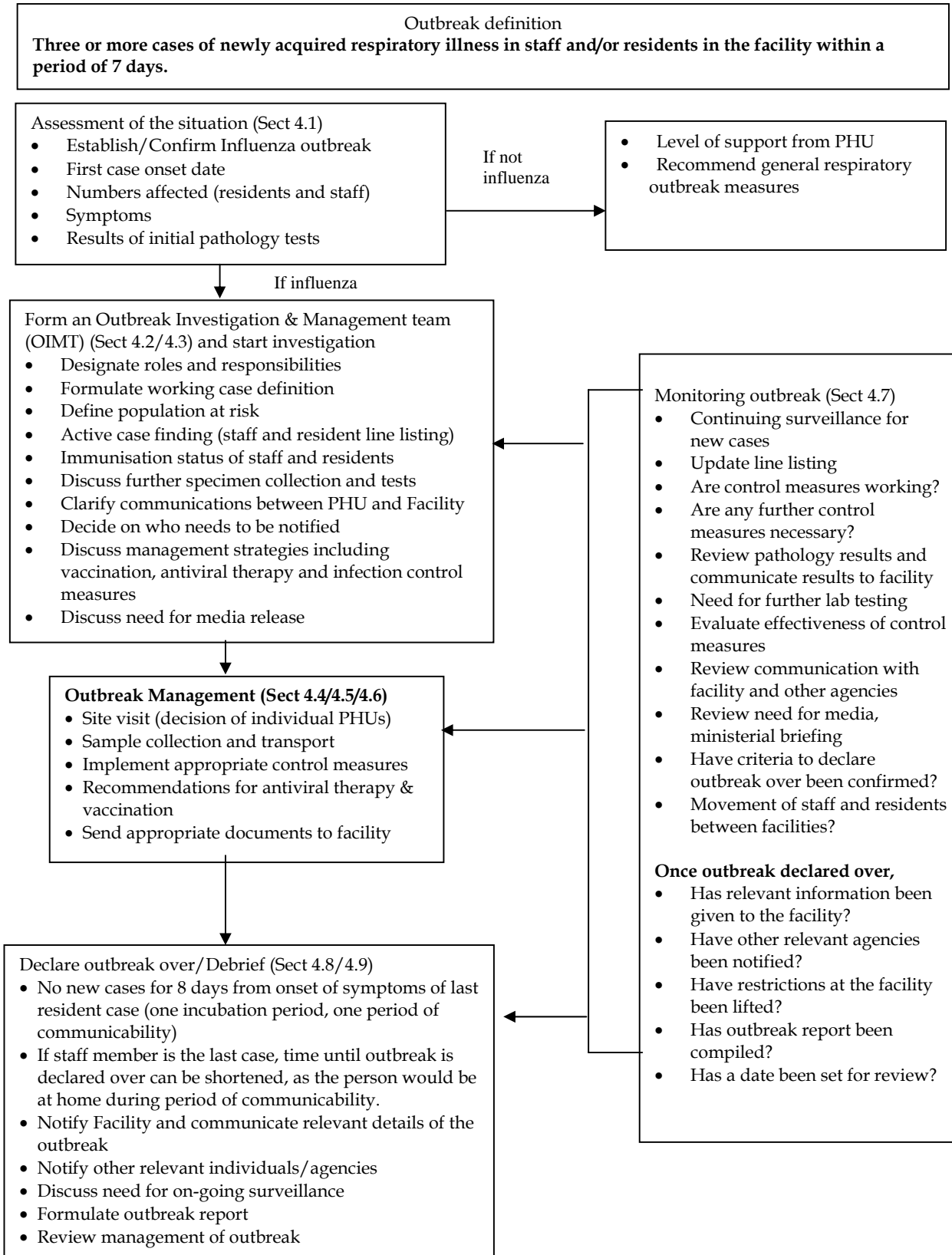
The *Guidelines* and attached appendices make recommendations for:

- preventing outbreaks (chapter 2)
- defining outbreaks (chapter 3)
- assessing the outbreak situation (section 4.1)
- forming an outbreak management team (section 4.2)
- outbreak investigation and management (sections 4.3 to 4.6)
- outbreak monitoring (section 4.7)
- declaring an outbreak over (section 4.8)

The steps are summarized in the summary flowchart below (page 4).

The appendices provided include letters, information and checklists for the Public Health Unit (PHU) to utilise or forward to RCF managers and general practitioners to assist in outbreak control.

Summary Flow Chart: Investigation and Management of Influenza Outbreaks in Residential Settings



Chapter 1: Introduction

1.1 Influenza

Influenza and other viral respiratory illnesses occur throughout the year but are more common from March to September. During epidemics of influenza, severe illness and deaths occur primarily among the elderly and those with underlying diseases. Estimates of the rates of influenza in residents in RCFs vary considerably due to different case definitions, different circulating viruses and different contexts. The majority of studies have examined influenza-like illness rather than influenza. For those studies which have examined laboratory-confirmed influenza in residents in RCFs, seasonal rates of influenza vary from 2-16% of residents.^{1,2} During outbreaks of influenza in RCFs, attack rates of laboratory confirmed influenza can be as high as 40%.^{3,4}

Rates of influenza-like illness are even greater in this population, and considerably higher than the general community.¹ In the outbreaks of influenza-like illness reported in 12 RCFs in NSW in 2004, attack rates in residents varied from 3-76%, and death rates varied from 0-20%.⁵ Influenza case-fatality rates of up to 55% have been recorded in some RCFs.³ In the light of an increasing possibility of a pandemic, control of inter-pandemic influenza outbreaks amongst the highly susceptible becomes all the more important.

Residential care facilities (RCFs), are considered to be high-risk environments for influenza due to communal living arrangements and the continual close proximity of residents. Nursing homes and hostels catering for the elderly are especially high-risk environments due to the older age of residents and high prevalence of chronic medical conditions.^{6,7} It is important to maintain good surveillance in RCFs for outbreaks of respiratory infections so that appropriate interventions can be promptly instituted.⁸

The main strategies emphasized in these guidelines to prevent and manage influenza outbreaks are vaccination prior to the influenza season and during an outbreak, the use of antiviral therapy for treatment and prophylaxis, infection control measures including restriction of movement between affected and unaffected areas, and minimizing contact between affected and unaffected persons during an outbreak.

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Vaccination of persons at high risk of complications and of persons who are potentially capable of transmitting influenza to those at high risk is currently the most effective measure to reduce the impact of influenza.^{9, 10, 11, 12} Influenza vaccination can be administered to any person who wishes to reduce the likelihood of becoming ill with influenza. It is recommended annually for people who are at increased risk of influenza complications by the National Health and Medical Research Council and is funded by the Australian Government for these people. The 8th edition of the Australian Immunisation Handbook¹³ recommends that persons who provide essential community services should be considered for vaccination during an outbreak, to minimize disruption of services. It is recommended for health care workers in residential care facilities.

The effectiveness of vaccination depends on the age and immunocompetence of the recipient and the similarity between the virus strain in the vaccine and those circulating in the community. The vaccine can be 70-90% effective in preventing illness in healthy persons aged under 65. For elderly people in residential care settings the vaccine is 30-40% effective in preventing illness, 50-60% effective in preventing influenza-related hospitalisation or pneumonia, and 80% effective in preventing influenza-related death.^{14, 15} Two studies have demonstrated that RCFs with high rates of vaccination (above 60-80%) among residents are associated with fewer outbreaks of influenza compared with those with lower vaccination rates.^{16, 17} These findings are consistent with vaccination effects in other populations.¹⁸

Few studies have examined the effect of vaccinating staff in RCF influenza outbreaks, but available evidence suggests that high rates of vaccination among staff members may reduce influenza related mortality among residents.^{19, 20, 21} As most staff members are relatively young and healthy, they are more likely to develop protective influenza antibody titres following vaccination than are the residents for whom they provide care.¹³ High rates of vaccination among staff may contribute substantially to herd immunity within the facility, protecting residents by reducing the risk of the introduction and transmission of influenza. The effectiveness of Influenza vaccination in healthy adults (including health care workers) in reducing days of work absence due to respiratory infections has been demonstrated.^{22, 23}

Antiviral therapy has been recommended for use in the management of influenza outbreaks in residential care facilities both for treatment and prophylaxis.^{7, 24, 25} The responsibility for the provision and payment for antiviral agents and influenza vaccine will vary across jurisdictions, and this should

Chapter 1: Introduction

be decided at the state and territory level. There are currently three antiviral drugs registered in Australia that are effective against influenza infection. Two are neuraminidase inhibitors^{26, 27} while the third is an M2 blocker (amantadine). All are active against Influenza A, while only oseltamivir and zanamivir are active against Influenza B.

In adults with influenza, antiviral drugs are effective in reducing the severity and shortening the course of illness if given within 48 hours of onset of symptoms, even in elderly adults.^{28, 29, 30} The effectiveness of both neuraminidase inhibitors and M2 blockers to prevent influenza ranges between 70-90%. M2 blockers such as amantadine, however, have adverse-events profiles that may limit their use in elderly patients, as well as a greater potential to facilitate emergence of resistant viruses. Of the neuraminidase inhibitors, oseltamivir may be the drug of choice because of the difficulty elderly people have in using the inhaler device through which zanamivir is administered.³¹

Only one randomised-controlled study has been undertaken on the use of oseltamivir to prevent influenza in elderly residents in nursing homes, which found that it was 90% effective in preventing lab-confirmed influenza.³² A number of descriptive or cohort studies have examined the use of oseltamivir and infection control measures to control outbreaks of influenza in RCFs, all of which were associated with rapid control of the influenza outbreaks.^{7, 24, 33, 34, 35, 36, 37, 38} It was noted that earlier detection of the outbreak and intervention with antivirals resulted in better outbreak control.³⁷

Infection control and restriction measures to minimize contact between ill and not ill are an integral part of controlling outbreaks alongside vaccination and antiviral therapy, as these measures assist with breaking the chain of transmission of the virus.^{6, 21, 39}

1.2 Linkages with other documents and the internet

- Infection Control Guidelines for the Prevention of Transmission of Infectious Diseases in the Health Care Setting (Jan 2004)⁴⁰
- [http://www.health.gov.au/internet/wcms/publishing.nsf/Content/FC517607D6EE443ECA2570190019CDF7/\\$File/pandemic_plan.pdf](http://www.health.gov.au/internet/wcms/publishing.nsf/Content/FC517607D6EE443ECA2570190019CDF7/$File/pandemic_plan.pdf)
Australian Management Plan for Pandemic Influenza⁴¹
- <http://www.health.gov.au/internet/wcms/publishing.nsf/Content/ageing-publicat-influinfo.htm>
Influ-Info: Influenza Kit for Aged Care
- <http://www.influenzacentre.org/>
Patient information on influenza, information on current vaccine strains
- www.cdc.gov/ncidod/diseases/flu/fluvirus.htm
Patient information on influenza, US surveillance data
- <http://www.health.gov.au/internet/wcms/publishing.nsf/Content/cda-surveil-ozflu-flucurr.htm>
The National Influenza Surveillance report 2005

Chapter 2: Preventing Outbreaks

Key points

- Annual influenza vaccination is recommended for all residential care facility residents and staff and is funded for specific high-risk groups
- The optimal time for influenza vaccination is February to April each year
- Pneumococcal vaccination is recommended for residential care facility residents and is funded for specific high-risk groups
- Prior to or upon admission and then annually each resident should be assessed regarding their vaccination status
- Prior to or upon employment and then annually, each staff member should be assessed regarding their vaccination status
- Administrative staff should keep an annually updated list of staff and resident vaccination status

2.1 Vaccination

Influenza and pneumococcal vaccination of residential care residents is recommended to reduce the impact of these vaccine-preventable diseases.

In elderly patients, influenza vaccination has demonstrated efficacy in reducing the rate of infection with influenza virus, and the rate of severe morbidity and mortality. When a high proportion (>80%) of residents in a RCF are vaccinated, the herd immunity effect results in an additional benefit of reducing the risk of outbreaks in the facility.¹¹

Influenza vaccine is provided free for:

- All Australians aged 65 years and over,
- Aboriginals and Torres Strait Islanders aged 50 years and over, and
- Aboriginals and Torres Strait Islanders aged between 15 and 49 years with health risks.

Pneumococcal vaccine is recommended in specific age groups or who have a medical risk factor. Booster doses of pneumococcal vaccine may be required.¹³

Pneumococcal vaccine is provided free for:

- All Australians 65 years and over,
- Aboriginals and Torres Strait Islanders aged 50 years and over,

Chapter 2: Preventing Outbreaks

- Aboriginals and Torres Strait Islanders aged between 15 and 49 years with health risks,
- Children with underlying high risk medical conditions, and
- All infants at 2, 4, and 6 months of age.

Refer to the current edition of The Australian Immunisation Handbook for a full list of influenza and pneumococcal vaccination recommendations.

Influenza vaccination of people capable of transmitting influenza to residential care residents is recommended on an annual basis. This includes all employees, attending physicians and both health care and non-health care contract workers. Volunteers and visitors to the facility should also be encouraged to receive annual influenza vaccination.

Each RCF should have a resident vaccination policy for influenza and pneumococcal infection and a staff vaccination policy for influenza.

2.1.1 Residents

Prior to or upon admission, each resident should be assessed regarding vaccination status.

The recommended time for influenza vaccination is February to April in anticipation of annual outbreaks of influenza in the middle of the year. If the resident is admitted after the autumn vaccination program, vaccination should be offered unless the person has already received the current season's influenza vaccine.

The immunisation record of the resident should be retained on a separate immunisation register.

Upon transfer to another facility, the resident's recent vaccination status should be shared with that facility.

Thereafter, each resident should be immunised between February and April with the current season's influenza vaccine, unless medical contraindications exist.

2.1.2 Staff

Annual vaccination against influenza is recommended for all persons carrying on activities in the RCF.

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If the time of hiring or placement occurs during the influenza season, the person responsible for vaccination in the facility should ask any new employee for evidence of vaccination with the current year's influenza vaccine.

Only the following should be accepted as proof of influenza vaccination:

- A personal immunisation record health card documenting receipt of the current season's influenza vaccine;
- A signed physician's note indicating vaccination; or
- Documented vaccination history from another facility or institution.

If this documentation is not available, the RCF should not consider the staff member immunised, and the employer should recommend influenza vaccination to the person.

Facility administrative staff should keep an updated list or register of staff and resident vaccination status throughout the year.

2.1.3 Contraindications to influenza vaccination

- Individuals with anaphylactic hypersensitivity to eggs should not be given influenza vaccine. This includes persons who, on ingestion of eggs, develop swelling of the lips or tongue or experience acute respiratory distress or collapse.
- Individuals with hypersensitivity to any of the product components should not be vaccinated.
- Individuals with an acute febrile illness (fever $>38.5^{\circ}\text{C}$) should not be vaccinated until their symptoms have abated.
- Patients with a history of Guillain-Barre Syndrome (GBS) with an onset time related to influenza vaccination may be at increased risk of again developing GBS if given influenza vaccine.

It should also be noted that the product information on influenza vaccine refers to the possibility of the vaccine impairing the metabolism of drugs such as warfin, theophylline, phenytoin, phenobarbitone and carbamazepine. Therefore patients taking these drugs and given influenza vaccine should be monitored for possible elevated levels of medication.

2.2 Infection Control Precautions

The risk of outbreaks of influenza (and other respiratory illnesses) can be minimised by ensuring compliance with standard infection control practices amongst staff and residents of RCFs at all times.

Chapter 2: Preventing Outbreaks

The most important of these measures are:

- practicing good hand hygiene, especially after contact with respiratory secretions or potentially contaminated surfaces;
- encouraging respiratory hygiene / cough etiquette;
- isolation or cohorting of ill residents and the adoption of respiratory (droplet) precautions; and
- routine environmental cleaning with detergents and water, or chlorine solutions.

Hand hygiene should be performed regularly by both staff and residents, using mild soap and water, or an alcohol-based hand rub if hands are not visibly soiled.

Residents and staff should be encouraged to practice good respiratory hygiene, which involves covering the nose/mouth when coughing or sneezing, and using tissues to contain respiratory secretions. Tissues should be disposed of immediately in the general waste, and the hands thoroughly washed with soap and water. If an ill resident is coughing persistently, the use of a surgical mask may assist in preventing the dispersal of infected droplets.

Healthcare personnel should be advised to observe droplet precautions (i.e., wearing a surgical mask for close contact), in addition to standard precautions when examining or assisting a patient with a respiratory infection, particularly if a fever is present.

The influenza virus can survive for several hours on surfaces; therefore attention to cleaning, particularly of frequently touched surfaces, may assist in preventing transmission. Cleaning should be performed using neutral detergent and water followed by a disinfectant (see Appendix 1).

Chapter 3: Outbreak and Case Definitions

Key points

- The definition of a respiratory disease outbreak is:

Three or more cases of newly-acquired respiratory illness in staff and/or residents in the facility within a period of 7 days.

- The case definition for use during an influenza outbreak is:

Suspected case:

A person from the population at risk (e.g., staff or residents from the RCF), with onset of a respiratory illness from a defined point in time, characterized by fever ($>38^{\circ}\text{C}$); PLUS one or more respiratory symptoms: cough, shortness of breath, coryza (runny nose), sore throat; PLUS one or more systemic symptoms: fatigue (severe tiredness), myalgia (muscle ache), rigors (chills), headache.

Confirmed case:

A suspected case with a positive result from at least one diagnostic test.

3.1 Introduction

There is a clear distinction between a definition used to define an outbreak of respiratory disease and one used to define cases within an outbreak. The key objective of formulating an 'outbreak definition' is to assist staff at a RCF to easily decide if an outbreak of respiratory disease may be occurring and thence to alert the PHU in a timely fashion. Key criteria to be considered are how many purported cases exist and in what timeframe. The outbreak definition should be relatively simple and more emphasis should be placed on ensuring the definition is a sensitive rather than a specific one. An early role of the PHU is to decide whether the report represents a true outbreak, is not an outbreak at all, or if additional information needs to be collected to increase certainty.

The main use for the 'case definition' is for use by the outbreak management team once an outbreak has been declared. The main reasons for having a case definition are:

- (i) to be able to identify cases early in order to institute disease control efforts to benefit that person and to limit the risk of transmission to others, and
- (ii) to accurately describe the outbreak to facilitate effective overall outbreak management and for epidemiological/research purposes.

The case definition should be established early in the outbreak and modified if necessary to ensure it is both reasonably sensitive and specific. The definition given here is for guidance only

and will vary according to the pathogen and the demographics and underlying health status of the residents within the facility. Key criteria will include symptomatology ('person'), timing of symptom onset ('time'), and possibly location within the facility ('place'). The case definition developed for residents may be different from that developed for staff.

3.2 Respiratory Disease Outbreak Definition

The following definitions are designed to be sensitive for identifying respiratory disease outbreaks and the PHU will need to use its judgment as to whether a report represents a true outbreak.

Respiratory disease outbreak caused by unknown pathogen

Three or more cases of newly-acquired respiratory illness in staff and/or residents of a facility within a period of 7 days (the PHU should contact the PHU immediately after the third case is identified).

Respiratory Disease Outbreak caused by known pathogen

An outbreak as defined above with at least one case demonstrating evidence of a clinically-compatible pathogen demonstrated by an acceptable laboratory test.

3.3 Case definition

The case definition is formulated once an outbreak of respiratory disease has been declared. The case definition should be carefully considered for each outbreak. The definition for an influenza outbreak presented here is a guide only.

Suspected case of influenza

A person from the population at risk (e.g., staff or residents from the RCF), with

onset of a respiratory illness from a defined point in time, characterized by fever ($>38^{\circ}\text{C}$);

PLUS

one or more respiratory symptoms: cough, shortness of breath, coryza (runny nose), sore throat;

PLUS

one or more systemic symptoms: fatigue (severe tiredness), myalgia (muscle ache), rigors (chills), headache.

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From a disease control viewpoint, suspected cases should be deemed to be true cases (and therefore infectious) until proven otherwise (e.g., by demonstration of an alternative clinically-compatible pathogen), or until 7 days has elapsed since symptom onset.

(Note: Studies have shown that the best predictors of influenza are cough and fever).²⁴

Confirmed case of influenza

A suspected case with a positive result from at least one of the following diagnostic tests:

- 1) Isolation of influenza virus by culture from appropriate respiratory tract specimen
- 2) Detection of influenza virus by nucleic acid testing (NAT) from appropriate respiratory tract specimen
- 3) Detection of influenza antigen from appropriate respiratory tract specimen
- 4) Seroconversion or significant rise in antibody level or titre to influenza virus
- 5) Single high titre by complement fixation test (CFT)
- 6) Positive result in a rapid point of care influenza test kit.

3.4 Outcome definitions

In order to completely describe an outbreak, it is necessary to accurately record the outcomes of the cases. For influenza, these may include: recovered, pneumonia, hospitalisation and death (a case may have more than one outcome). As with the case definition, the outcome definitions may vary according to the features of the illness of that particular outbreak, and the following definitions are intended as a guide only.

3.4.1 Pneumonia

A person who:

- (i) meets the case definition used during an influenza outbreak, and
- (ii) develops another illness within 2 weeks of onset of influenza symptoms, characterized by:

- Chest x-ray consistent with pneumonia

AND

- At least two of the symptoms or signs below²
 - New or increased cough
 - New or increased sputum production

Chapter 3: Outbreak and Case Definitions

- Fever (e.g., “> 38°C” OR “an abnormal temperature for the resident” OR “temperature ≤ 35.5°C or ≥ 37.5°C”)
- Pleuritic chest pain
- New physical findings on chest examination (rhonchi, wheezes, bronchial breathing)
- One of the following to indicate change in status or breathing difficulty:
 - New or increased shortness of breath
 - Respiratory rate >25/minute
 - Worsening functional or mental status (deterioration in resident's ability to perform activities of daily living or lowering of their level of consciousness)⁸

3.4.2 Hospitalisation

Hospitalisation can be defined as transfer of a case from the RCF to a health care facility so that an additional level of care can be provided (in some hospitals this could be in a bed in an 'emergency ward').

If a patient is treated in the emergency department but not admitted they are **not** considered to have been 'hospitalised'.

3.4.3 Death

Most mortality associated with influenza is not a direct result of the influenza illness. Rather, it is mostly due to complications resulting from influenza, such as secondary bacterial pneumonia or exacerbation of pre-existing heart disease. Traditionally, the true contribution of influenza to mortality has been under-reported due to the role of influenza in these deaths being under-recognised.

Death should be attributable to influenza if it is considered so by the treating physician or anatomical pathologist. This may be specified on a death certificate, post mortem certificate, or specifically stated by the treating physician in the medical records. If the outbreak management team has a high index of suspicion that a death of a case is attributable to influenza and there is no written record of this, it is reasonable to discuss the issue with the treating physician.

Chapter 4: Investigation and Management of Outbreaks

Key points

- 4.1 Assess the suspected outbreak
- 4.2 Form an Outbreak Investigation and Management Team (OIMT)
- 4.3 Steps of Investigation
- 4.4 Diagnostic tests
- 4.5 Communication with the facility
- 4.6 Outbreak control measures
- 4.7 Monitor the outbreak on an ongoing basis
- 4.8 Declare the outbreak is over
- 4.9 Debriefing

4.1 Assess the Suspected Outbreak

PHUs may receive notifications of suspected respiratory disease outbreaks from medical practitioners, hospitals, RCFs or others. As influenza-specific control measures such as vaccination and antiviral treatment are more effective if instituted early, it is important to establish early if the reported outbreak is due to influenza virus. The PHU should contact the facility concerned to gather further information. The initial assessment may be done by communicable disease control officers, depending on resources available.

Initial information gathered should include onset date of first case, total number of cases to date (staff and residents), spectrum of symptoms, and results of any pathology tests that may have been done.

The following steps can be used as a guide to assess whether the outbreak is due to influenza.

- Follow up and review any available pathology testing that may have been done.
- If the symptoms are not consistent with influenza but are more like the common cold (i.e. sore throat, runny nose) consider whether specimens need to be taken.
- If symptoms are consistent with influenza and appropriate pathology tests have not already been ordered, this should be done as soon as possible (see section 4.4).
- Develop a working case definition for the cases in the outbreak. Check against outbreak definitions (refer to chapter 3).

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- Review information available. Request a line listing of cases.

If initial information and laboratory testing does not show influenza to be the cause of the outbreak the PHU may choose to:

- Discuss whether the facility can handle the management of the outbreak independently or requires support from the PHU.
- Recommend general respiratory infection control measures and leave further management to the RCF.

If the outbreak is proven to be due to influenza, an Outbreak Investigation and Management team (OIMT) can be established.

4.2 Outbreak Investigation and Management Team

The OIMT will direct and oversee the management of all aspects of the influenza outbreak.

4.2.1. The team

The investigation team may include:

- public health physician
- public health nurse
- epidemiologist
- infection control nurse/environmental health officer
- laboratory representative
- representative from the facility.

The team's configuration is to be decided at the local level and will depend on available expertise.

Members of the OIMT should be nominated to take on responsibility for coordination of all activities required to investigate and contain the outbreak, as well as communication with the media liaison officer, the laboratory, and other external parties.

4.3 The Investigation

The OIMT can use the following steps and the Summary Flowchart (see page 4) as a guide to investigating the outbreak. The "Respiratory Outbreak Control Measures chart" (Appendix 2) and "Checklist for Investigation and Management" (Appendix 3) may also be useful in outbreak management.

4.3.1 Formulate an outbreak name and working case definition

Formulate an outbreak name and ensure that the working case definition is appropriate and fits the criteria as defined in Chapter 3.

4.3.2 Define the population at risk

The population at risk in the facility should include the total number of residents (on site at the time of the outbreak and during the identified incubation period) and staff (including casual workers, volunteers and non-resident care staff) working at the facility. The population at risk could also be defined by obvious cohorting; for example, if the outbreak is restricted to a unit, the number of residents in that unit and staff at risk should be identified.

4.3.3 Active case finding

Line listing provides for rapid assessment of the extent and nature of the outbreak. The facility should use the “Resident line-listing worksheet” (Appendix 4) to collect data about residents with symptoms, and those who have been ill but have recovered, within the suspected time frame of the outbreak. As the investigation proceeds, data collection may be expanded to include other relevant data beyond what is recommended here. For large facilities, keeping a separate line listing for each unit affected by the outbreak may be useful. A separate “Staff line listing worksheet” (Appendix 5) should be completed for staff who have symptoms, and note made of any other facilities that staff may also work at.

Influenza and pneumococcal vaccination coverage for residents and the influenza vaccination coverage in staff collected for the line listings can be summarised and returned to the PHU (see Appendix 6 for the appropriate form).

4.3.4. Other items to be considered by the OIMT

- Confirm how and when communications will take place between the facility and the PHU.
- Inform the state/territory Communicable Disease Control Unit.
- Review control measures necessary to prevent the outbreak from spreading, and discuss with the facility management the responsibility for ensuring that agreed control measures are in place and enforced.

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- Consider the need for further specimen collection. Determine the type and number of further specimens to be taken and which residents and staff should be tested.
- Notify the laboratory about the investigation. Clarify who is to receive results (both positive and negative) and by what method. Review the process for communicating laboratory results to the PHU and the facility's designated officer.
- Identify persons/institutions requiring notification of the outbreak:
 - families of residents in the facility
 - health care providers, e.g., general practitioners (GPs), physiotherapists
 - infectious disease physicians
 - infection control practitioners
 - hospital emergency departments and medical superintendents
 - Coroner's office
 - other RCFs.
- Discuss the necessity for vaccination of unimmunised residents and staff, and how this is to be organized.
- Discuss use of antiviral medications for treatment of cases and/or prophylaxis of well residents and unimmunised staff.
- Discuss whether a media release is appropriate.
- Consider preparing a ministerial briefing.
- Decide how frequently the OIMT will meet and set next meeting.

4.3.5 Site visit and support to the facility

Whether or not a site visit is required can be decided locally, according to the situation and capacity of the PHU. A site visit may assist in expediting specimen collection.

4.4 Diagnostic tests

Diagnostic testing available for influenza includes viral culture, serology, immunofluorescence assay (IFA) and other assays (including point-of-care tests) for antigen detection, and PCR for detection of influenza RNA. Tests performed will depend on what is available in laboratories in each state and territory. PCR and IF are generally the preferred initial diagnostic methods as they can provide results within 24 to 48 hours for PCR, and 2-4 hours for IFA (but at a lower level of sensitivity compared with PCR). PCR and IFA also provide rapid sub-typing results of influenza A strains (i.e., H1N1, H3N2), as well as distinguishing between influenza A and B. Viral culture takes several days,

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and serodiagnosis requires at least 2 to 4 weeks, and therefore have less practical value in an outbreak setting than the rapid detection methods. Point-of-care influenza tests are rapid (providing a result in 15-30 minutes), but are not as sensitive as PCR or IFA, and are currently not recommended as the only tests undertaken for establishing the cause of an outbreak.

Optimal yield of viral culture/PCR/antigen detection occurs if specimens are obtained early in the course of the disease, preferably within the first 48 hours after the onset of symptoms. Positive results may be achieved up to one week after illness onset. The specimen should be stored at 4°C and *transported to the laboratory immediately if possible, and definitely within 48 hours.*

4.4.1 Type of specimens to be collected

In an outbreak situation, nose and throat swabs should be collected for virus culture and/or PCR (Appendix 7), and serum for serology. Other samples that should be collected include sputum and urine, so that testing may be performed for bacterial pathogens.

4.4.2 Swabs

Nose and throat swabs should be taken from residents and staff with acute symptoms (onset within the preceding 48 hours), preferably from cases with the most classical clinical presentation of the illness suspected. Ideally samples should be collected from 8 to 10 people.

4.4.3 Specimen collection and transport

The PHU may assist with specimen collection if a site visit is conducted; otherwise specimens might be collected by GPs, laboratory collection staff, or nursing staff trained in collection methods and wearing appropriate personal protective equipment (PPE) (Appendix 8). Samples should be appropriately labelled before transport to the laboratory, and notes on the request form should include 'Outbreak investigation'. A request form must also be completed by a medical officer. The laboratory should be advised as early as possible that specimens will be arriving, and contact details for person to receive the results communicated to the laboratory. The laboratory should be asked to notify results to this person by phone and/or fax whether positive or negative.

4.4.4 Results of laboratory tests

Apart from viral culture, laboratory results are usually available within 2 to 48 hours of receipt at the laboratory, depending on the test requested. The laboratory should send a hard copy of all results (negative and positive) to the requesting doctor. If this doctor is not from the PHU, the PHU should liaise with him/her about the results. If initial laboratory tests fail to detect influenza, further testing of additional cohorts of recently ill residents should be performed before concluding that the current outbreak is not caused by influenza.

The PHU will verify that the facility OIMT representative has received the results. Direction will be provided at the time regarding any additional control, treatment, or prophylaxis measures to be implemented.

4.5 Documents for communication with the facility

Documents contained in the Appendices may be sent to the facility or other agencies during the outbreak. Most will require some modification before release. They include signs for posting in the facility (Appendices 10 and 11), forms to assist in data collection (Appendices 4, 5 and 6), and advice on specimen collection (Appendices 7 and 8), environmental cleaning (Appendix 1), other control measures including antiviral medication (Appendix 12) a transfer form to be used when any ill residents are transferred to another institution (Appendix 9), a letter to the RCF Manager (Appendix 13) and a letter for medical practitioners (Appendix 14).

4.6 Outbreak control measures

These measures should be discussed with the facility and, if necessary, a copy of this section can be provided. Note that these are recommendations only, and may need to be varied according to the circumstances within each facility. However, proposed changes should be discussed by the PHU and the facility representative.

4.6.1 Non-pharmacological control measures for residents

Restriction of cases to their rooms

Restrict ill residents to their rooms until 5 days after the onset of acute illness or until symptoms have completely resolved (whichever is shorter).

Restriction of residents to their unit

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If the outbreak is confined to one unit, all residents from that unit should avoid contact with residents in the other units of the facility.

Admissions and re-admissions

New Admissions

Admissions of new residents during the outbreak are generally not recommended.

Return of cases from hospital

The return from hospital of residents who met the case definition is permitted provided appropriate care can be provided.

Return of non-cases from hospital

The return of residents who are not known cases is generally not recommended during an outbreak, unless measures can be enforced to prevent transmission. Factors to be considered include:

- are adequate staff available at the facility to care for the re-admitted resident?
- if the outbreak is due to influenza, is the resident protected by the seasonal influenza vaccination that season and antiviral therapy?

Medical appointments

Consider rescheduling of non-urgent medical appointments made before the outbreak.

Transfer to hospital

When a resident is transferred to a hospital from a facility experiencing an outbreak, the facility should advise the hospital infection control practitioner in advance and provide details of the outbreak. This will ensure respiratory outbreak control measures are in place when the resident arrives at the hospital. Before a resident is transferred out of the facility, the facility should complete an “Outbreak Transfer Notification Form” (Appendix 9) and this form should be sent with the resident’s file to the hospital.

Transfer to another long-term care facility

Resident transfers (from anywhere in the facility) to another facility are not recommended during an outbreak.

Communal meetings

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Restrict all residents to their units as much as possible. The facility OIMT representative and the PHU should discuss restriction of activities, revisiting the issue as the outbreak progresses.

4.6.2 Non-pharmacological control measures for staff and volunteers

Reporting of respiratory illness

Staff/volunteers should report any respiratory illness to the facility OIMT representative.

Exclusion of staff and volunteers

All staff or volunteers with respiratory symptoms (even if they are vaccinated or taking antiviral medication) should be excluded from work for 5 days from the onset of symptoms or until symptoms have resolved, whichever is shorter.

Working at other facilities

Staff experiencing respiratory symptoms or fever should not work in any health care setting.

During an influenza outbreak

- immunised staff with no symptoms have no restrictions on working at other facilities
- unimmunised staff should wait one incubation period (3 days) from the last day that they worked at the outbreak facility/unit prior to working in a non-outbreak facility, to ensure that they are not incubating influenza.

Cohort staffing

Attempts should be made to minimise movement of staff between floors/wings of the facility, especially if some units are unaffected. Discuss the possibility of one staff member (or group of staff) looking after only ill residents and others looking after only well residents. These measures should not be required during influenza outbreaks where all staff have been vaccinated and the current vaccine covers the circulating strain, or when staff are taking appropriate antiviral drug therapy.

Exclusion of unimmunised staff

During a confirmed influenza outbreak, it is recommended that only immunised staff should be working in the outbreak facility. Asymptomatic unimmunised staff can work at the affected

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facility if they are receiving appropriate antiviral prophylaxis, but all staff should be vaccinated unless there are contraindications.

Hand washing

Direct contact with respiratory secretions is the main source of transmission of influenza virus, and the virus can also be transmitted by contact with contaminated fomites. Effective hand washing will interrupt transmission of the disease. Facility staff should employ good hand washing/hand disinfection before and after providing care to both ill and well residents (see section 2.2). Appropriate techniques and disinfectants can be recommended during site visit and infection control audit.

Masks

Masks should be worn while providing care and removed and discarded before providing care to another resident and on exiting the room. Hands should be washed or disinfected immediately after removing the mask. P2 (N95) masks, properly tested and fitted, are preferable, but if not available surgical masks can be used.

4.6.3 Control measures for visitors

Notification of visitors

The facility should post a "Visitor Restriction Sign" (Appendix 10) at all entrances to the facility, indicating there is an outbreak at the institution. Visitors should be advised of the *potential* risk of acquiring illness within the facility and of the visiting restrictions as indicated below. The next of kin / guardian of ill residents should be contacted and advised of the illness in their relative, and other frequent visitors could also be advised.

Total cessation of visitation is not usually justifiable. Visitation restrictions should be discussed by the OIMT.

Visitor restrictions

Ill visitors should not be permitted into the facility. Visitors should be advised not to enter the facility if they do not wish to become exposed to the virus. Visitors who choose to visit during an outbreak should be advised to visit only the resident they have come to see.

Visitation by groups should not be permitted. Visits to multiple residents should be restricted. If a visitor develops a respiratory illness after visiting the facility, they should notify the facility and should not be permitted in the facility. The PHU should be notified of the illness if an influenza diagnosis is made so that it can be investigated as part of the outbreak.

Visiting ill residents

A “Visitor Restriction Sign” (Appendix 11) should be placed on the door of the rooms of ill residents or in other visible locations advising all visitors to check at the nursing station before entering the room. Visitors are to be advised of the following:

- hands should be washed on arrival and just before leaving the resident’s room,
- ill residents should be visited in their rooms only,
- visit only one resident at a time and exit the facility immediately after the visit, and
- visitors should be encouraged to wear surgical masks supplied by the facility.

4.6.4 Environmental cleaning

Thorough and frequent cleaning of objects that are in high traffic areas should be reinforced during an outbreak. These objects include all washrooms, handrails, tables, doorknobs, lift buttons, etc. Ensure that the chemical concentration of disinfectants is appropriate and solutions made-up frequently (Appendix 1).

4.6.5 Influenza vaccination

During influenza outbreaks, influenza vaccine should be offered to all unvaccinated residents, staff members, and recommended for unvaccinated visitors and volunteers. It takes approximately two weeks for a protective immune response to develop.

Vaccination of staff, volunteers and visitors may occur at the facility, as long as there is a health professional present who is trained in immunisation and the activity complies with relevant state/territory legislation. Alternatively, staff, volunteers, and visitors may be directed to a local GP or their own GP for vaccination.

4.6.6 Antiviral medication

In Australia, three antivirals are registered for use against influenza: amantadine, oseltamivir, and zanamavir (Appendix 12). All may be active against influenza A, but only oseltamivir and zanamivir

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are effective against influenza B. The decision to use antivirals for treatment is a matter for the patient's doctor, who should consult an infectious diseases physician if necessary.

Antivirals have been recommended for use in the management of influenza outbreaks in residential care facilities.^{2,5} Prophylactic use is recommended for all RCF residents who have not had laboratory confirmed influenza until the outbreak is declared over. Antivirals are also recommended for all unvaccinated staff, or for all staff (regardless of vaccination status) if the outbreak is caused by a strain of influenza virus that is not well-matched by the current vaccine, if this is known (except staff who have had laboratory confirmed influenza). The decision to use antivirals for prophylaxis will be guided by the PHU. Antivirals are currently not included in the Schedule of Pharmaceutical Benefits for the treatment or prophylaxis of influenza, but can be obtained on prescription from a community pharmacy or, in the event of local shortages, direct from the distributors.

To minimise the risk of antiviral resistance emerging during influenza outbreaks in RCFs, measures should be taken to minimize contact between persons taking antivirals for treatment and those taking antivirals for prophylaxis. Where contact is unavoidable (e.g., patient care by staff), infection control measures must be strictly enforced.

Comparison between the three currently licensed antivirals in Australia (Appendix 12) suggests that oseltamivir may be the most suitable drug for chemoprophylaxis of residents during RCF influenza outbreaks, although amantadine (only for influenza A outbreaks) and zanamivir may be considered for staff.

The conditions under which antivirals are most likely to be effective in the control of an influenza outbreak in a RCF are:

- the antiviral is effective against the strain(s) of influenza virus,
- all other outbreak prevention and control measures, including vaccination of residents and staff, additional infection control precautions, and isolation of symptomatic patients have been implemented,
- chemoprophylaxis is administered to all asymptomatic residents, regardless of their vaccination status and unvaccinated staff
- chemoprophylaxis is maintained for at least 2 weeks in staff who are vaccinated during the outbreak and in all residents until the outbreak is declared over.

4.7 Monitoring the outbreak

Monitoring of the outbreak must include ongoing surveillance to identify new cases and update the status of ill residents and staff. The facility OIMT representative will update the line listing with new information and communicate this to a designated person. The review of the updated information should examine the issues of ongoing transmission, and the effectiveness of control measures, including prophylaxis. Changes in the outbreak control measures may be indicated from the review of the data. Additional laboratory testing may be indicated as well. If new cases continue to be identified, prophylaxis failure (virus resistance) or a new organism causing infections must be considered.

Regarding updating of the line listing, the following data should be considered:

Residents

- addition of new cases with all appropriate information
- identification of residents who have recovered
- updating of status of ill residents, including notation of issues such as worsening symptoms, clinical and/or x-ray diagnosis of pneumonia
- adverse reaction to any prescribed antiviral prophylactic medication, or discontinuation of antiviral prophylactic medication
- transfers to acute-care hospitals
- deaths

Staff

- addition of new staff cases including all appropriate information
- identification of staff who have recovered and confirmation with the PHU of return to work date

4.8 Declare that the outbreak is over

4.8.1 Definition of end of outbreak

Prior to declaring an outbreak over, the facility must not have experienced any new cases of infection (resident or staff) which meet the case definition for the period of time as defined by the OIMT. *As a general rule, influenza outbreaks can be declared over if no new cases have occurred in 8 days from the onset of symptoms of the last resident case.* The rationale for this definition is that if the outbreak were continuing, new cases would have been identified within 8 days, since 8 days is the outer limit of the period of communicability of influenza in adults (5 days) plus one incubation period (3 days).⁶ Note that if symptoms in the last resident case resolve sooner than 5 days, or if the last case is a staff

member who should stay at home during the period of communicability, the time until the outbreak is declared over can be shortened accordingly.

4.8.2. Ongoing surveillance

The OIMT may make decisions about ongoing surveillance needs after declaring the outbreak over.

Ongoing surveillance may include:

- maintenance of basic infection control measures as outlined earlier in section 4.6.
- monitoring the status of ill residents, and updating the line listing
- notation of any deaths that occurred, including whether they had been a case.

4.8.3. Notify relevant individuals

Once the outbreak has been declared over, all individuals notified of the outbreak at the beginning of the investigation are to be notified that the outbreak is over.

4.8.4 Complete the outbreak investigation file

An outbreak file should contain the following:

- copies of laboratory and other results
- copies of all minutes of meetings and other communications
- any other documentation specific to the investigation and management of the outbreak.

Complete an outbreak report and prepare a summary for the manager of the facility.

4.9 Debriefing

Arrange a meeting with the OIMT and also a meeting with the facility staff to review the course and management of the outbreak. The purpose of these meetings is to review what was handled well and what could be improved for future outbreaks.

Chapter 5: References

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Appendices

APPENDIX 1: Environmental Cleaning

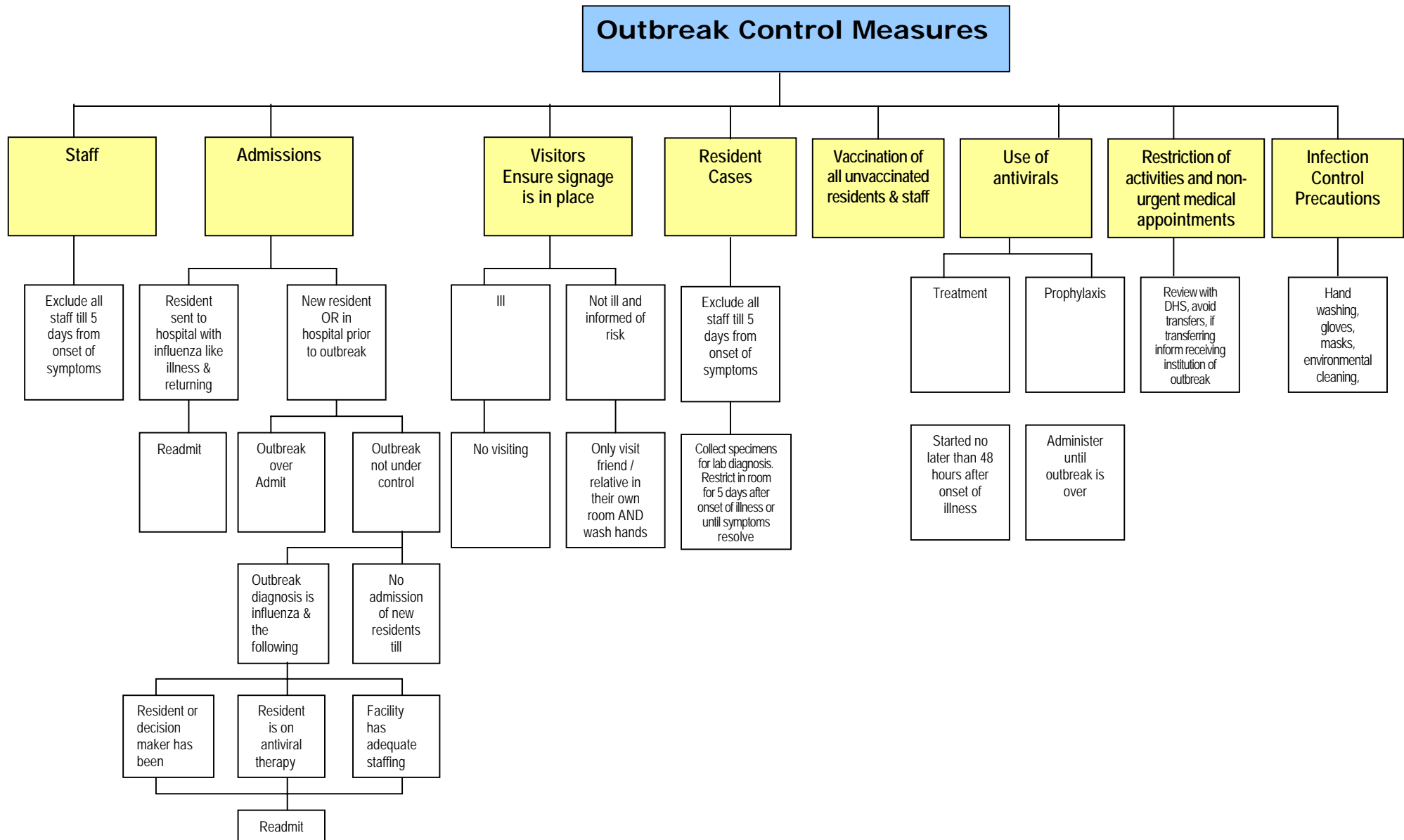
Influenza virus is inactivated by 70% alcohol and by chlorine, therefore cleaning of environmental surfaces with a neutral detergent followed by a disinfectant solution is recommended:

Table 1: Disinfectants

Disinfectant	Recommendation	Precautions
Sodium hypochlorite: 1% dilution, 5% solution to be diluted 1:5 in clean water	Disinfection of surfaces contaminated with blood and body fluids (for surfaces on which bleach cannot be used, see below)	<ul style="list-style-type: none"> • Should be used in well-ventilated areas • Protective clothing required while handling and using undiluted bleach • Do not mix with strong acids to avoid release of chlorine gas • Corrosive to metals
Bleaching powder: 7g/litre with 70% available chlorine	Toilets/bathrooms: may be used in place of liquid bleach if this is unavailable	<ul style="list-style-type: none"> • Same as above
Alcohol (70%): Isopropyl, ethyl alcohol, methylated spirit	Smooth metal surfaces, tabletops and other surfaces on which bleach cannot be used	<ul style="list-style-type: none"> • Flammable, toxic, to be used in well-ventilated area, avoid inhalation • Keep away from heat sources, electrical equipment, flames, hot surfaces • Allow to dry completely, particularly when using diathermy as this can cause diathermy burns

Note: clothes and bed linen can be laundered as usual.

APPENDIX 2: Respiratory Outbreak Control Measures



APPENDIX 3: Checklist for Public Health Unit for Investigation and Management of Outbreaks

No	Discussion point	Decision/ Action to be taken (Tick if completed)	Person responsible
1	Formulate an outbreak name and working case definition		
2	Define population at risk		
3	Active case finding, request linelisting of residents and staff from the RCF		
4	Discuss whether it is a facility-wide outbreak or unit-specific outbreak		
5	Confirm how and when communications will take place between the facility and the PHU.		
6	Review the control measures necessary to prevent the outbreak from spreading. Confirm that the management of the facility is responsible for ensuring that agreed control measures are in place and enforced.		
7	Discuss what specimens have been collected. Notify the laboratory of the investigation.		
8	Confirm the type and number of further laboratory specimens to be taken. Clarify which residents and staff should be tested.		
9	Confirm that the laboratory will phone or fax results (both positive and negative) directly to the requesting doctor and this person will notify the PHU. Review the process for discussing laboratory results with the facility's designated officer.		
10	Liaise with the facility and laboratory regarding specimen collection and transport.		
11	Identify persons/institutions requiring notification of the outbreak: <ul style="list-style-type: none"> • Families of ill or all residents in the facility, • Health care providers, e.g., GPs, physiotherapists • Infectious disease physicians • Infection control practitioners • Emergency departments and medical superintendents • Coroner's office • Other RCFs 		
12	Discuss whether a media release is appropriate.		
13	Consider preparing a ministerial briefing.		
14	Discuss whether/how to organise vaccination of un-immunised residents and staff.		
15	Discuss the use of antiviral medications for treatment of cases and/or prophylaxis of well residents and un-immunised staff.		
16	Decide how frequently the OIMT will meet and set next meeting.		
17	Prepare and distribute an incident report		

APPENDIX 4: Part A – Respiratory Outbreak Line Listing Form - Residents ONLY *

Name of Facility:

.....

Name of Outbreak:

.....

DETAILS						SYMPTOMS					
ID	Surname, First Name	Location (unit / section)	Sex	Age	Flu vaccine (date)	Pneumococcal vaccine (date)	Onset (date)	Fever = or > 38° c (Y/N)	Cough (Y/N)	Fatigue (Y/N)	Other Symptoms (state)

Key: (Y=Yes, N=No, U=Unknown)

*** Please complete for all current and recovered cases**

APPENDIX 4: Part B -- Residents ONLY

Name of Facility:

.....

Name of Outbreak:

.....

ID	TEST/ RESULT		TREATMENT / PROPHYLAXIS			OUTCOMES			
	Pathology test done (yes/no) If yes, date	Type of test and result	Oseltamivir (date)	Zanamivir (date)	Amantadine (date)	Pneumonia (date)	Hospitalised (date)	Death (date)	Recovered to pre-outbreak health status (yes/no) If yes - date

Key: (Y=Yes, N=No, U=Unknown)

APPENDIX 5: Part A Respiratory Outbreak Line Listing Form - Staff ONLY

Name of Facility:

.....

Name of Outbreak:

.....

DETAILS							SYMPTOMS					
ID	Surname, Firstname	Position	Location	Sex	Age	Flu vaccine (date)	Onset (date)	Fever = or > 38°c (Y/N)	Cough (Y/N)	Fatigue (Y/N)	Other Symptoms (state)	Work at any other facility (yes/no) If yes - location

Key: (Y=Yes, N=No, U=Unknown)

*** Please complete for all current and recovered cases**

APPENDIX 5: Part B -- Staff ONLY *

Name of Facility:

.....

Name of Outbreak:

.....

ID	TESTS/RESULTS		TREATMENT (T) / PROPHYLAXIS (P)			STATUS	
	Pathology tests done (yes/no)	Type of test (date and result)	Oseltamivir (T/P, date)	Zanamivir (T/P, date)	Amantadine (P, date)	Excluded until (date)	Recovered from outbreak symptoms (yes/no) If yes - date

Key: (Y=Yes, N=No, U=Unknown)

*** Please complete for all current and recovered cases**

APPENDIX 6: Influenza & Pneumococcal Immunisation Survey

Complete this survey and return it to the Public Health Unit. (Fax Number _____ Telephone Number _____)

Name of Manager/Contact Person at Facility _____

Name and Type of Residential Care Facility			
Address		Telephone	Fax
Number of Residents by Unit/Section Total		Number of Staff by Unit/Section Total	

	Influenza vaccination (Current season)	Pneumococcal vaccination (within past 5 years)
No. residents vaccinated		
No. residents not vaccinated		
No. residents vaccination status unknown		
No. staff vaccinated		N/A
No. staff unvaccinated		
No. staff vaccination status unknown		

APPENDIX 7: Sample Collection Guide *

Viral Pathogens	Test	Specimen	Equipment required to collect Specimens
Influenza A and B Parainfluenza 1,2,3 RSV Adenovirus Picornavirus Metapneumovirus	PCR or Viral Culture	Throat and nose (Left and right nostril) swabs Nasopharyngeal aspirate (NPA) / Nasopharyngeal swab	PCR/ culture collection kit <ul style="list-style-type: none"> • Virus transport media • Cotton-tipped swabs • Biohazard plastic bags • Wooden spatulas • Gloves • Masks • Marker pen • Esky with multiple ice bricks • Request forms • Swab collection instructions • Tissues • Plastic bag (for rubbish)
Influenza A and B Parainfluenza 1,2,3 RSV Adenovirus	Immunofluo- escence	Nasopharyngeal aspirate (NPA) / Nasopharyngeal swab Throat and nose (Left and right nostril) swabs	<ul style="list-style-type: none"> • NPS collection swabs or NPA aspirate equipment • Biohazard plastic bags • Gloves • Masks • Marker pen • Esky with multiple ice bricks • Request forms • NPA collection instructions • Tissues • Plastic bag (for rubbish)
Influenza A and B Parainfluenza 1,2,3 RSV Adenovirus	Serology	Acute sera: within 1 week of onset. Convalescent sera: 2-4 weeks after onset. Influenza seroconversion may be missed if the convalescent specimen is obtained within 2 weeks of the onset of illness.	10 ml clotted blood

* Please check with laboratory in relation to any specific requirements

APPENDIX 8: Guidelines for Taking Nasal and Throat Swabs

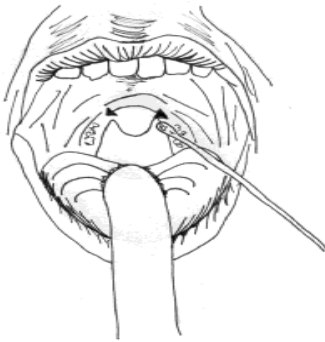
The person taking nasal or throat swabs should be wearing appropriate PPE (gloves, gown, mask, eyewear).

Nasal Swabs - Method

- Ensure that the patient does not blow his/her nose prior to taking the nasal swabs
- Tilt patients head back gently and steady the chin
- Insert cotton bud end of dry sterile swab into right nostril and rub firmly against the turbinate (to ensure swab contains cells as well as mucus)
- Insert swab into tube of transport medium, break off shaft of swab and recap tube
- Repeat procedure for left nostril using new sterile swab and insert into same tube of transport medium.



Throat Swabs - Method



- Ask patient to open mouth and stick their tongue out
- Use tongue spatula to press the tongue downward to floor of the mouth
- Use sterile cotton swab to swab both of the tonsillar arches and the posterior nasopharynx, without touching the sides of the mouth
- Insert swab into same transport tube containing nose swabs, break off shaft and recap tube firmly.

Transport to laboratory

Label the transport tube with the patient's initials, date of birth, case number and date of collection.

Place all transport tubes in a plastic bag and complete request form making sure to include the name of the Facility. The plastic bag containing specimens should be packaged in an esky with ice bricks and sent to the laboratory as soon as possible. If necessary arrange transport with the Public Health Unit.

APPENDIX 9: Respiratory outbreak transfer notification

Resident Transfer Advice

To:

Please be advised that _____ Name of resident _____ is being transferred

from a facility where there is a **suspected**
confirmed

influenza outbreak. Please ensure that appropriate infection control precautions are taken upon receipt of this resident.

At the time of transfer, this resident **was confirmed with**
suspected of
had no symptoms of
influenza.

This resident has been vaccinated with the current influenza vaccine on _____ date _____

This resident has NOT been vaccinated with the current influenza vaccine BECAUSE OF:

- allergy**
- medication conflict**
- conscientious objection**
- other** _____

Resident is taking the antiviral medication _____ Name of Medication _____

Start date _____ Dose of the medication _____

For further information, contact _____ Name of contact _____ of

_____ Name of facility _____ on _____ Phone number _____

ATTENTION ALL VISITORS

There have been a number of cases of respiratory illness/influenza at this facility recently. We are trying to prevent this illness from spreading.

Visitors are advised that there is a risk of acquiring this respiratory illness/influenza by visiting this facility at this time.

If you have recently been ill, have symptoms of any respiratory illness now (fever, sore throat, cough, muscle and joint pain, tiredness/exhaustion) or have been in contact with someone who is ill we strongly advise you not to enter this facility.

If you choose to visit at this time, please visit only the resident you have come to see, wash your hands with soap and water before and after the visit and then leave as soon as possible.

Thank you for your co-operation

Sincerely

Manager/DoN

Attention all visitors

**Please check at reception
before entering this room.**

Thank you

Insert name of manager,
Insert date of sign

APPENDIX 12: Antiviral medications for treatment and prophylaxis of influenza
(this information was correct at the time of printing)

Antiviral agent	Dose
<p>Amantadine¹ Treatment</p> <p>Prophylaxis*</p>	<p>Not recommended</p> <p>5 – 9 years: 5 mg / kg / day in 2 divided doses, up to 150 mg / day 10 – 64 years: 100 mg twice daily ≥ 65 years: 100 mg once daily</p>
<p>Oseltamivir² Treatment</p> <p>Prophylaxis*</p>	<p>1-13 years: ≤ 15 kg: 30 mg twice daily >15 to 23 kg: 45 mg twice daily >23 to 40 kg: 60 mg twice daily > 40 kg: 75 mg twice daily</p> <p>≥ 13 years: 75 mg twice daily for 5 days ≥ 13 years: 75 mg once daily for 7 days</p>
<p>Zanamivir³ Treatment</p> <p>Prophylaxis</p>	<p>≥ 5 years: 10 mg twice daily for 5 days</p> <p>≥ 5 years: 10 mg once daily for 10 days (may continue to 28 days of necessary)</p>

- 1 The Product Information should be consulted for dosage recommendations in renal impairment.
- 2 A reduction in the dose of oseltamivir is recommended for persons with creatinine clearance <30 ml / min or weight <40kg.
- 3 Zanamivir is administered through inhalation by using a plastic device included in the medication package. Patients will benefit from instruction and demonstration of correct use of the device.

* In an outbreak situation prophylaxis should be continued till the outbreak is declared over

APPENDICES 13 and 14:

Please note the attached letters are a guide and a resource which the Public Health Unit may modify to fit local circumstances

APPENDIX 13: Respiratory illness/Influenza outbreak alert letter to RCF Manager

NOTE – Please print this text onto a Public Health Unit letterhead

Manager's name and title \ RCF Address

Dear

I am writing in response to recent reports of respiratory infections/influenza affecting some residents at your facility. To help determine the cause and prevent the spread of respiratory infections at your facility, the following immediate measures are recommended:

1. Implement appropriate infection control precautions (see attached "Respiratory Outbreak Control Measures" chart)
2. Arrange for nose and throat swabs to be taken from residents and staff that have developed symptoms of respiratory illness within the previous 48 hours. These swabs should be submitted for laboratory testing for common respiratory pathogens such as influenza virus, parainfluenza virus, rhinovirus, respiratory syncytial virus and human metapneumovirus (see attached "Guidelines for Taking Nasal and Throat Swabs". Please contact us if you need to discuss arrangements for swab collection with you.
3. Record the status of the symptoms, influenza and pneumococcal vaccination, antiviral therapy / prophylaxis, and clinical outcomes for each resident and staff member who are or have been at the facility on the attached "Respiratory Outbreak Line Listing" Forms.
4. Notify all staff members (including attending doctors) of the outbreak, including the response measures recommended in the attached chart "Respiratory Outbreak Control Measures". Attached is a draft letter that can be used to inform health care providers about the outbreak.
5. Notify the families of ill residents to advise them about the outbreak and visiting restrictions.

If the laboratory results indicate an outbreak of influenza, antiviral therapy or prophylaxis for residents and/or staff may be recommended. Also any residents and staff who have not received influenza vaccination this year should immediately be offered vaccination. Please note that antiviral therapy should be prescribed for each patient by their attending medical practitioner according to the recommendations in the Product Information.

For more information or advice, please contact: _____ (b/h) or _____ (a/h)

Yours sincerely

Director
Public Health Unit

APPENDIX 14: Respiratory illness/Influenza outbreak alert letter to medical practitioner

NOTE – Please print this text onto a Public Health Unit letterhead

Dear Doctor

The (NAME OF PUBLIC HEALTH UNIT) was recently notified about a suspected cluster of respiratory infections affecting residents at (RCF NAME).

- To reduce the spread of the suspected respiratory infection, we have recommended that the facility immediately implement infection control precautions including:
- Isolation of symptomatic residents for 5 days from onset of symptoms or until symptoms have resolved,
- Exclusion of symptomatic staff for 5 days from onset of symptoms or until symptoms have resolved.
- Restriction of visitors to the facility until the outbreak has resolved,
- Promotion of thorough hand washing with soap and water (or alcohol-based hand wipes) before and after contact with residents and
- Use of gloves, masks and eye wear when providing direct care to ill residents.

To determine the cause of respiratory infections we recommend that nose and throat swabs are collected on residents and staff that have developed symptoms within the previous 48 hours. These swabs will be tested for common respiratory viruses (your assistance may be required for this and if so the facility may contact you).

If the laboratory results indicate an outbreak of influenza, then antiviral therapy or prophylaxis for residents and staff may be recommended (regardless of vaccination status). Influenza vaccination should be recommended for all unvaccinated residents, attending health care providers, staff members and visitors.

The three antivirals currently licensed in Australia are: amantadine, which is approved for the prophylaxis of influenza A only and zanamivir and oseltamivir, which are approved for both the treatment and prophylaxis of influenza A and B.

Please note that antiviral therapy should be personalised for each patient according to the dosage recommendations and potential adverse reactions described in the Product Information. Also please note that none of these three antivirals are currently listed in the Pharmaceutical Benefits Scheme for this indication.

In regards to prophylaxis, this will need to be given until the outbreak is declared over.

For more information or advice, please contact: _____ (b/h) or _____ (a/h)

Yours sincerely

Director
Public Health Unit

APPENDIX 15: Glossary and List of Abbreviations

Residential Care Facility

Residential care facilities (RCFs), which include *nursing homes and hostels*, are considered to be especially high-risk environments for influenza, due to the older age, high prevalence of chronic medical conditions, and close proximity of the residents.

Staff

All persons who carry on activities in the RCF, including but not limited to employees, students, attending physicians, and both health care and non-health care contract workers.

Contract Worker

Contract workers from a supplying agency such as health care workers, maintenance workers (e.g., cleaner, repair, etc.) and other workers who carry on activities in resident care areas or come into contact with residents (e.g., hairdressers).

Visitors

Visitors are relatives or friends of residents who visit usually one (the same) resident occasionally or on a regular basis.

Incubation Period

The time interval between initial contact with an infectious agent and the first appearance of symptoms associated with the infection. For influenza, the incubation period is 1-3 days.

Infection Control Practitioner

A person designated to be responsible for infection control programs in the facility.

List of Abbreviations

RCF	residential-care facility
PHU	public health unit
AMPPI	Australian Management Plan for Pandemic Influenza
DoHA	Department of Health and Ageing
CDNA	Communicable Disease Network Australia
NPHP	National Public Health Partnership

AHMAC	Australian Health Ministers Advisory Council
GBS	Guillain-Barre Syndrome
IFA	immunofluorescence assay
NPA	nasopharyngeal aspirate
OMIT	outbreak management and investigation team
PCR	polymerase chain reaction
RSV	respiratory syncytial virus
TGA	Therapeutics Goods Administration
VIDRL	Victorian Infectious Diseases Reference Laboratory
WHO	World Health Organization