



Feidhmeannacht na Seirbhíse Sláinte  
Health Service Executive



# **Public Health Guidelines<sup>1</sup> on the Prevention and Management of Influenza Outbreaks in Residential Care Facilities in Ireland 2013/2014**

**Public Health Medicine Communicable Disease Group**

These guidelines are aimed at all Public Health professionals involved in the prevention and control of influenza in residential care facilities. It is proposed that they will be reviewed on an annual basis.

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<sup>1</sup> These guidelines are based on the best available evidence currently available. Please note, however that they do not replace clinical judgement in individual circumstances/situations.

## Contents

Glossary of Terms.....	4
Introduction .....	5
Objectives for influenza prevention and control in RCF .....	6
Key interventions to prevent an influenza outbreak .....	6
Immunisation .....	7
Influenza Vaccine .....	7
Recording of Influenza Vaccination Status.....	8
Residents .....	9
Staff .....	9
Planning and Education .....	10
Standard Precautions.....	11
Respiratory hygiene/cough etiquette .....	12
Surveillance of Influenza-like illness (ILI) and Influenza.....	14
Definition of an ILI or influenza or respiratory illness outbreak .....	15
Notification of outbreaks of ILI/Influenza in RCF.....	17
Management of an influenza outbreak .....	18
Initial Actions.....	18
Actions following risk assessment/when an OCT is convened .....	21
Control Measures.....	24
Admissions, transfers, visitors.....	25

Staff .....	26
Influenza vaccination during an outbreak .....	27
Antiviral treatment and chemoprophylaxis.....	28
Monitoring the Outbreak.....	32
Declare the outbreak over .....	32
References .....	33
Appendices.....	38
Appendix A: Respiratory Hygiene and Cough Etiquette Poster .....	39
Appendix B: Case definitions for possible, probable and confirmed influenza .....	40
Appendix C: Interim guidance regarding surveillance to detect clusters/outbreaks of influenza or influenza-like illness or respiratory disease .....	42
Appendix D: Details for line listing .....	45
Appendix D: Part 1 – Respiratory Outbreak Line Listing Form – Residents ONLY* .....	46
Appendix D: Part 2 –Residents ONLY .....	47
Appendix D: Part 3 – Respiratory Outbreak Line Listing Form – Staff ONLY* .....	48
Appendix D: Part 4 –Staff ONLY* .....	49
Appendix E: Checklist for Outbreak management .....	50
Appendix F: ILI/Influenza outbreak surveillance form and guidelines for entering outbreaks onto CIDR.....	52
Appendix G: Link to CDC website re investigation of unexplained respiratory disease outbreaks ....	56

## Glossary of Terms

**CIDR**=Computerised Infectious Diseases Reporting System  
**CIPCN**=Community Infection Prevention and Control Nurse  
**DPH**=Director of Public Health  
**GP**=General Practitioner  
**HCW**=Healthcare Worker  
**HPSC**=Health Protection Surveillance Centre  
**HSE**=Health Service Executive  
**ILI** =Influenza-like illness  
**MOH**=Medical Officer of Health  
**NVRL**=National Virus Reference Laboratory  
**OCT**=Outbreak Control Team  
**PPE**=Personal Protective Equipment  
**RCF**=Residential Care Facility  
**SI**=Statutory Instrument

## Introduction

Influenza remains the leading cause of death from infectious disease among elderly people, largely due to declining immune competence with age, and is a significant cause of death and hospitalisation among the elderly and frail in residential care settings. It can also cause illness among personnel working in such facilities. Studies which have examined laboratory confirmed influenza in residents in residential care facilities (RCF) cite seasonal rates of influenza of between 2-16% of residents. <sup>(1)(2)</sup> During outbreaks of influenza in RCF, attack rates of laboratory confirmed influenza can be as high as 40%. <sup>(3)(4)</sup> Residential care facilities are considered to be high risk environments for influenza due to the older age of residents, the high prevalence of chronic medical conditions, communal living arrangements, shared caregiving and the continual close proximity of residents. <sup>(5)</sup>

Influenza is very infectious and is easily passed from person-to-person. The virus is mainly spread by an infected person coughing or sneezing. The incubation period (delay between infection and appearance of symptoms) is short, typically 1-3 days. A person can spread the virus by sneezing or coughing from 1-2 days before the onset of symptoms and continue to be infectious for a further 3-5 days. This however may be prolonged to a week or more in the elderly, children and in those who are immunosuppressed. <sup>(6)</sup> The virus can also be spread through direct contact with an infected person or contaminated surfaces, particularly via the hands of healthcare workers. In light of this, infection control and restriction measures to minimise contact between ill and well residents are an integral part of controlling outbreaks in RCF alongside vaccination and antiviral therapy as these measures assist in breaking the chain of transmission of the virus. <sup>(7)</sup> Parker et al in Canada noted that earlier detection of the outbreak and intervention with antivirals resulted in better outbreak control. <sup>(8)</sup>

### ***Objectives for influenza prevention and control in RCF***

1. To prevent the spread of influenza among RCF residents and staff
2. To reduce morbidity and mortality from influenza among residents
3. To decrease the number of outbreaks of influenza
4. To maintain the influenza immunisation coverage at a minimum of 75% for both residents and staff in RCF with the aim of having 100% immunisation coverage in both
5. To optimise the use of anti-virals in the management of influenza outbreaks.

### ***Key interventions to prevent an influenza outbreak***

- Annual influenza vaccination for residents and staff and adequate recording of same
- Planning and education
- Implementation of Standard and Transmission based Precautions
- Surveillance (monitoring) for influenza-like illness (ILI) and influenza
- At the start of the influenza season, it is recommended that each residential care facility has procedures in place to ensure ready quick access to antiviral medications (Tamiflu) through the normal channels/pharmacy provider in the event of an influenza outbreak.

## Immunisation

The national immunisation guidelines for Ireland, updated in August 2012, recommend annual influenza vaccination for all persons aged 50 years and older, persons with chronic medical conditions, residents of nursing homes, old people's homes and other longstay facilities where rapid spread is likely to follow introduction of infection. These guidelines also recommend annual influenza vaccine for healthcare workers and caregivers (including care attendants) both for their own protection as they are a group likely to come in contact with influenza during outbreaks and for the protection of patients. <sup>(9)</sup>

### *Influenza Vaccine*

Influenza vaccine is safe and effective and prevents influenza-related complications and death. Vaccination of healthcare workers and RCF residents combined with basic infection prevention and control practices can help prevent the transmission of influenza.

The effectiveness of vaccination depends on the age and immunocompetence of the recipient and the similarity between the influenza virus strains in the vaccine and those circulating in the community. <sup>(10)(11)</sup> Currently available inactivated influenza vaccines provide 70-90% protection against influenza in healthy persons aged less than 65 years provided there is a good match between vaccine and circulating strains. In the elderly, protective efficacy against influenza infection is lower. In elderly nursing home residents, well matched vaccines were found to be 46% effective in preventing pneumonia and 60% effective in reducing all cause mortality. <sup>(12)</sup> Few studies have examined the effect of vaccinating staff in RCF but available evidence suggests that high rates of vaccination among staff members may reduce influenza-related mortality among residents. <sup>(13)(14)</sup> A randomised controlled trial by Carman et al in 2000 demonstrated that vaccinating healthcare workers in RCF was associated with decreased mortality among residents. <sup>(15)</sup>

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. There is increasing evidence that immunising children and younger adults who

respond well to current influenza vaccines would reduce the burden of influenza in the elderly by reducing their exposure risk. <sup>(16)</sup> High rates of vaccination among staff may contribute substantially to herd immunity within the facility protecting residents by reducing the risk of introduction and transmission of influenza. In addition, the effectiveness of current influenza vaccines in the elderly population is often diminished by immunosenescence.<sup>2</sup> Increasing immunisation rates among healthcare workers and caregivers of the elderly and finding more effective vaccine for elderly people are likely to significantly improve disease prevention in the this population. (17)

### ***Recording of Influenza Vaccination Status***

It is imperative that the influenza vaccination status of all new admissions to RCF including respite care admissions is recorded. If new admissions have not received influenza vaccine, vaccination is strongly recommended provided there are no contraindications and consent is obtained. Seasonal influenza vaccine can be given until the end of April<sup>3</sup> and this may be extended in the event of an influenza outbreak. The pneumococcal vaccination status of all residents including new admissions as above should also be routinely recorded. The influenza vaccination status of all staff should also be routinely recorded and data on the number of vaccinated staff should be readily available in aggregate format.

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<sup>2</sup> Immunosenescence is the impairment in immunity as a result of age-associated changes in function in a variety of cells: it is a phenomenon of decreased function, involving changes to both innate and adaptive immunity and a dysbalance between both. Any identified age-associated changes, if to be considered *senescence*, or "immune frailty", must be shown to contribute to deleterious clinical endpoints, such as decreased efficacy of vaccination in the elderly, for which there is some evidence (influenza, tuberculosis). A decreased ability to respond to pathogens in general is implied.

<sup>3</sup> The influenza season officially runs from week 40 (early October) to week 20 (late May)



## *Residents*

1. It is the responsibility of the RCF management to ensure that all residents are vaccinated with influenza vaccine (unless there is a medical contraindication), at the beginning of the influenza season in late September or early October. Residents, not previously vaccinated, should also be vaccinated during an influenza outbreak.
2. All new unvaccinated residents or respite admissions during the influenza season should receive influenza vaccine, ideally at least two weeks before admission or else as soon as possible after admission.
3. Pneumococcal vaccination is also recommended for all residents aged 65 years and older and all residents who are in the recommended risk groups as per the Immunisation Guidelines for Ireland, 2008 (updated December 2010). Pneumococcal vaccine is not required annually (See Immunisation Guidelines) <sup>(9)</sup>
4. Obtain resident's or substitute decision maker's consent for influenza and pneumococcal vaccine on admission to RCF.
5. The immunisation status of all residents should be recorded annually and vaccination coverage (% of residents vaccinated) estimated. This information should be easily accessible to Public Health. Since this is not a static population, vaccine coverage may change overtime.

## *Staff*

1. It is the responsibility of the nursing home to maximise uptake of influenza vaccine and to ensure that all staff members are offered vaccination with influenza vaccine, both at the beginning of the influenza season and during an influenza outbreak if they are unvaccinated.
2. Prior to and upon employment and then annually each staff member should be assessed regarding their influenza vaccination status
3. All staff should be encouraged to receive influenza vaccine at the start of each influenza season. Staff vaccinated late in the influenza season will also need vaccination at the start of the next influenza season.

4. The immunisation status of all staff should be recorded annually and vaccination coverage (% of staff vaccinated) estimated. This information should be easily accessible to Public Health.
5. Management should provide feedback to staff on influenza vaccine coverage rates
6. Ill staff should not attend for work. A written staff exclusion policy is needed.

- Each residential care facility should have resident and staff vaccination policies for influenza and pneumococcal infections
- All healthcare workers and residents of residential care facilities should receive annual influenza vaccination
- Vaccination status of residents and staff should be documented
- Visitors of residents should be advised of the importance of receiving influenza vaccine, both for their own protection and for the protection of residents (usually relatives) who may have a suboptimal response to their own influenza vaccinations

## Planning and Education

1. All RCF should appoint a staff member to lead on the development and implementation of an influenza prevention programme and on infection prevention and control policies/guidelines and protocols
2. All RCF should develop written policies/guidelines to cover all aspects of the influenza prevention programme e.g.
  - a. Immunisation campaign
  - b. Standard and Transmission-based Precautions including Droplet Precautions
  - c. Outbreak management. This will include contingency plans for staff shortages (due to illness during the outbreak), ensuring sufficient supplies e.g. personal protective equipment (PPE) and restriction of visitor access, with appropriate signage around transmission reduction and restriction issues.

3. All RCF should ensure induction and ongoing education for all staff on the influenza prevention programme including vaccination, Standard and Transmission-based Precautions and on infectious diseases including influenza
4. Topics to include in the education programme are:
  - a. Facts on influenza immunisation
  - b. Standard and Transmission-based Precautions including hand hygiene
  - c. Symptoms and signs of influenza infection
  - d. Exclusion criteria for ill staff
5. All RCF should routinely audit the implementation of the influenza prevention and control programme.

### ***Standard Precautions***

Standard Precautions are a set of work practices that require all healthcare workers (HCW) to assume that all blood and body fluids (except sweat) from all patients in all settings are potential sources of infection.

Standard precautions include:

- Hand hygiene
- Personal protective equipment
- Management of spillages of blood and body fluids
- Appropriate patient placement
- Management of sharps
- Management of needle stick injuries
- Management of waste and laundry
- Safe infection practices
- Respiratory hygiene and respiratory etiquette
- Decontamination of reusable medical equipment
- Decontamination of the environment.

## *Respiratory hygiene/cough etiquette*

Respiratory hygiene/cough etiquette is a new component of Standard Precautions. This strategy applies at all times (i.e. not just during an outbreak) to any person with signs of illness including cough, congestion, rhinorrhoea or the increased production of respiratory secretions when entering or while resident in the healthcare facility.

The elements of respiratory hygiene/cough etiquette include:

1. Source control measures e.g. covering the nose/mouth with a tissue when coughing and prompt disposal of used tissue, using surgical masks on coughing patients when tolerated and appropriate
2. Education of healthcare staff in the RCF, patients and visitors of measures outlined in 1 above
3. Posted visual signs in language(s) appropriate to the population served with instructions to patients and accompanying family members or friends to inform staff if they have respiratory symptoms and of measures outlined in 1 above
4. Hand hygiene after contact with respiratory secretions and
5. Spatial separation, ideally >3 feet, of persons with respiratory infections in common waiting areas when possible.

Covering sneezes and coughs and placing masks on coughing patients are proven means of source containment that prevent infected persons from dispersing respiratory secretions into the air.

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

*(See Appendix A for sample poster on Respiratory Hygiene/Cough Etiquette)*

**Transmission based precautions, Airborne, Contact and Droplet** in addition to Standard Precautions are required to prevent cross infection of highly transmissible infections (e.g. influenza, pulmonary tuberculosis).

**Patients  $\geq 5$  years: Droplet Precautions** in addition to **Standard Precautions** are required to prevent transmission of influenza in healthcare facilities.

**Patients  $< 5$  years: Contact, Droplet and Standard Precautions** are required to prevent transmission of influenza in healthcare facilities.

**For more specific details on Standard, Contact, Droplet and additional Precautions for aerosol generating procedures, refer to *Infection Prevention and Control for Patients with Suspected or Confirmed Influenza Virus in Healthcare Settings* for detailed information available at: <http://www.hpsc.ie/hpsc/A-Z/Respiratory/Influenza/SeasonalInfluenza/Infectioncontroladvice/>.**

All RCF must have local guidelines and an education programme in place for Standard and Transmission-based Precautions

## ***Surveillance of Influenza-like illness (ILI) and Influenza***

Surveillance (monitoring for illness) is an essential component of any effective infection control programme. Influenza outbreaks may occur even among highly vaccinated residents of RCF, and staff of such facilities should be prepared to monitor residents and personnel each year for ILI/influenza symptoms and promptly initiate measures to control the spread of influenza within facilities where outbreaks are detected. Surveillance for ILI/influenza infections should occur year round and particularly between weeks 40 and 20 (influenza season: beginning of October to the end of May), however influenza outbreaks can occur at anytime of the year even during the summer. All staff should be aware of the early signs and symptoms of influenza-like illness.

### **Influenza-like illness (ILI) as per current definition in Ireland (Appendix B)**

#### **Influenza-like illness (ILI)**

Sudden onset of symptoms

***And***

At least one of the following four systemic symptoms:

- Fever or feverishness
- Malaise
- Headache
- Myalgia (muscle pains)

***And***

At least one of the following three respiratory symptoms:

- Cough
- Sore throat
- Shortness of breath

### **Clinical manifestation of influenza in the elderly**

The often subtle clinical manifestations of influenza in frail elderly patients may not be recognised initially impeding timely administration of antiviral treatment. In older adults, influenza symptoms may initially be very subtle and difficult to recognise. Instead, elderly patients may present only with cough, fatigue and confusion. <sup>(18) (19)</sup> While younger adults and children may have fevers as high as 104<sup>0</sup>F (40<sup>0</sup>C), the fever response may be more blunted in older adults and in nursing home elderly, influenza often fails to produce fever over 99<sup>0</sup>F (37.2<sup>0</sup>C). <sup>(17)</sup> Elderly patients are also more susceptible to pulmonary complications from influenza. *Influenza may present in the elderly patient as an exacerbation of an underlying condition such as chronic pulmonary and cardiovascular disease, Asthma, Diabetes Mellitus etc.. If an increased number of residents become unwell over a short period of time with respiratory illness, influenza should be suspected.*

### **Surveillance by Residential Care Facilities**

Management of RCF should have a process in place to monitor staff and residents for ILI. It is also important to monitor staff absenteeism rates for unusual patterns i.e. more than expected staff absent from work.

### **Definition of an ILI or influenza or respiratory illness outbreak**

The following is the current definition for an outbreak of:

1. Influenza-like illness (ILI) **or**
2. Laboratory confirmed influenza (Influenza A and B virus) **or**
3. Probable or possible influenza (Influenza A and B virus) **or**
4. Respiratory illness

**Definition of an outbreak of influenza /ILI /respiratory illness (Appendix C)**

Three <sup>4</sup>or more cases of influenza-like illness (ILI) or influenza or respiratory illness arising within the same 72 hour period in the RCF which meet the same clinical case definition and where an epidemiological link can be established.

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<sup>4</sup> This does not preclude investigation of lower numbers of cases following risk assessment



## Notification of outbreaks of ILI/Influenza in RCF

RCF staff should suspect an outbreak of influenza if an increase in respiratory or influenza-like illness (Appendix B) is noted during routine surveillance (monitoring) (i.e. 3 or more cases in a 72 hour period) (Appendix C). **RCF staff should inform the local medical team/attending GP for the facility of the suspected cases for assessment and accurate diagnosis. The GP identifying the suspected outbreak should then notify the local Director of Public Health (MOH) or the Public Health Specialist on call (under the Infectious Diseases Regulations) who will provide advice and support on control measures and the management of the outbreak. This is in accordance with the amended Infectious Disease Regulations (SI 707: 2003). In HSE residential care facilities, RCF staff should also inform the HSE Community Infection Prevention and Control Nurse (CIPCN) where available of all influenza and ILI outbreaks and the CIPCN will also provide advice and support to the facility.**

If an outbreak of ILI is suspected, it is advisable that swabs to check for influenza are taken from the initial patients and sent to the laboratory either locally or to the National Virus Reference Laboratory (NVRL) dependant on local arrangements. In an outbreak situation, combined nose and throat swabs should be collected. RCF should arrange for their own supplies of viral swabs in advance of the influenza season.

The attending clinician/GP/RCF may seek advice from the local laboratory regarding access to viral swabs.

Adverse effects (e.g. prolonged isolation in a room) of being diagnosed as a case of influenza during an outbreak make it imperative that cases are assessed thoroughly and diagnosed in a timely manner.

## Management of an influenza outbreak

The main strategies for influenza outbreak control are as follows:

1. Early identification of a suspected ILI/ influenza outbreak through surveillance
2. Confirmation of a suspected ILI/influenza outbreak by the attending clinician/GP<sup>5</sup>
3. Under the Infectious Diseases Regulations, the GP/attending physician should notify Public Health
4. Implementation of Standard Precautions and Transmission-based Precautions for symptomatic cases
5. Public Health undertakes a risk assessment and establishes an outbreak control team (OCT) if deemed appropriate
6. Prompt treatment with antivirals and provision of antiviral chemoprophylaxis where indicated following risk assessment

### *Initial Actions*

1. RCF staff must ensure that Standard and Transmission-based Precautions are implemented promptly if influenza or respiratory infection is suspected in any resident. Refer to Infection prevention and control for patients with suspected or confirmed influenza virus in healthcare settings for detailed information available at:  
<http://www.hpsc.ie/hpsc/A-Z/Respiratory/Influenza/SeasonalInfluenza/Infectioncontroladvice/>.

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<sup>5</sup> Where there are many GPs attached to a RCF, the unit may need to nominate one GP to take the lead on the outbreak

**Once an outbreak of ILI/Influenza/Respiratory disease is notified to Public Health, a risk assessment should be undertaken to verify the extent and seriousness of the outbreak.**

The purpose of the risk assessment is to determine:

1. The number of ill residents
2. The number of ill staff including recent absenteeism rate compared to previous rates
  - a. The pattern of illness in terms of the date of onset of symptoms, type of symptoms and severity of illness i.e. number hospitalised, number dead
3. If any relatives or visitors of residents were ill with similar illness
4. If there is a working diagnosis for the illness
5. The layout of the facility (location of cases) and which infection prevention and control measures have already been implemented e.g. visitor restrictions, cessation of new admissions, staff exclusion etc.
6. If viral swabs have been taken for influenza or other respiratory pathogens
7. If antivirals have been initiated as treatment and/or chemoprophylaxis
8. The vaccination status of both residents and staff
9. The current level of influenza circulating in the community as per HPSC weekly influenza report available [here](#)

Following the risk assessment, and based on the extent and severity of the outbreak, Public Health will decide whether or not to convene an outbreak control team (OCT). An OCT will be convened if deemed necessary.

**If an OCT is not deemed necessary, Public Health and the CIPCN (where available in the case of HSE facilities)** will provide advice and support to the RCF on the management of the outbreak including control measures e.g. Standard Precautions, Transmission-based Precautions, antiviral treatment and chemoprophylaxis and vaccination.

The RCF will also notify Public Health and the CIPCN (where available) on a daily basis in relation to the status of cases (residents and staff), new cases, implementation of control measures, difficulties encountered etc. This will continue until the outbreak is declared over.

### **The Outbreak Control Team**

The OCT **may** include the following members:

- a) Specialist in Public Health Medicine
- b) Medical consultant/medical officer/GP to RCF (dependant on nature of RCF)
- c) Management representative from the RCF i.e. manager or CEO
- d) Nursing representatives from the RCF
- e) Consultant Microbiologist
- f) National Virus Reference Laboratory (NVRL) representative
- g) Community Infection Prevention and Control Nurse (CIPCN)
- h) Community Services General Manager
- i) Public Health Senior Medical Officer
- j) Public Health Surveillance Scientist
- k) Public Health Department Communicable Disease Control Nurse
- l) Pharmacist (if attached to facility) or else HSE Primary Care Unit Pharmacist
- m) Occupational Medicine Physician (if attached to RCF)
- n) Representative from HPSC (if indicated)
- o) Administrative support
- p) Press officer (if indicated).

**The OCT configuration should be decided at local level and will depend on available expertise.**

**Chair of OCT:** Once an outbreak is declared, the OCT should determine at its first meeting, which disciplines should be represented. The Director of Public Health or designate should

identify the chairperson. The chairperson may include the CEO /manager of RCF/LHO manager or senior designate (HSE facility)/Director of Public Health or designate.

### *Actions following risk assessment/when an OCT is convened*

1. The OCT should have, at the first meeting, information from the RCF on the following:
  - a. The total number of ill people (residents and staff)
  - b. The spectrum of symptoms
  - c. The date of onset of illness and in particular of the first case
  - d. The results of any laboratory tests available including the number of tests taken to date and the date sent to the laboratory
  - e. The influenza vaccination status of residents and staff
  - f. Any steps already taken to control the outbreak.
2. From information obtained, determine if the cases meet ILI and influenza definitions (Appendix B)
3. Once an outbreak of ILI or influenza is confirmed:
  - a. Institute active daily surveillance for ILI in residents and staff until 8 days after the last confirmed influenza case
  - b. Institute infection prevention and control measures as outlined in P. 11
4. Formulate a case definition and assign an outbreak code
5. Define the population at risk, i.e. 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 staff) working in the RCF
6. Determine the number of residents and staff who meet the case definition and compile a line listing of cases ( both staff and residents) (Appendix D). Line lists should include:
  - a. All cases by unit if it is applicable. New cases should be highlighted.
  - b. Identification of residents who have recovered, developed complications, been transferred to acute hospitals and those who may have died. Also include residents who were treated with antivirals.

- c. Details of staff cases should also be included
  - d. Include vaccination coverage in both residents and staff . Vaccination status of cases should also be included.
  - e. Adverse reactions to or discontinuation of antiviral medications.
7. Determine if the attack rate varies between units/floors/wards or if the outbreak is confined to one unit only
  8. Once this information is collated, a better idea of the extent of the outbreak will be obtained. At this point, it will also be possible to generate a hypothesis as to the possible index case and possible modes of transmission of the virus. It will also be possible to generate an epidemic curve.
  9. Collect viral swabs<sup>6</sup> from the initial cases to a maximum of 5 cases<sup>7</sup> to determine the virus type or subtype of influenza A associated with the outbreak. This helps guide antiviral treatment decisions. <sup>(20)</sup>
    - a. Contact the local laboratory or the NVRL in advance to discuss. Procedures for virology testing should be confirmed with the local laboratory as per local or national arrangements.
    - b. In an outbreak situation, combined nose and throat swabs should be collected for RT-PCR and immunofluorescence assay (IFA). RT- PCR and IFA are generally the preferred initial diagnostic methods as results can be provided within 2 to 4 working days (personal communication NVRL). Viral culture may also be performed but results take several days. <sup>(21)</sup>
    - c. Specimens should be taken as early as possible during the course of the illness i.e. within 48 hours of the onset of symptoms. The yield is optimal at this time. However, positive results may be obtained up to one week after illness onset. Viral swabs will be required.
    - d. Notify the laboratory of the investigation and clarify with them who is to receive results (both positive and negative) and by which method i.e. phone, fax, etc.

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<sup>6</sup> Viral swabs can be obtained from your local laboratory

<sup>7</sup> This does not preclude collecting swabs from > 5 cases following risk assessment by the attending physician, consultant microbiologist/virologist, Public Health and the laboratory

- e. If initial laboratory tests fail to detect influenza, it is recommended that further testing of additional cohorts of recently ill residents should be performed before concluding that the current outbreak is not caused by influenza
- 10. Prepare internal communications for residents, family and staff groups
- 11. Determine if education sessions are required for staff members and confirm who will conduct these
- 12. Discuss whether a media release is appropriate
- 13. Discuss and agree control measures i.e. infection prevention and control, vaccination and antiviral treatment and chemoprophylaxis
  - Assign a designated person at the facility to ensure implementation
  - Assign responsibility for all actions agreed
- 14. Review and implement staffing contingency plans
- 15. Discuss whether a site visit is required by Public Health
- 16. Determine the frequency of OCT meetings
- 17. Ensure that the incident is promptly reported to HPSC and surveillance details entered onto CIDR
- 18. Provide updates on the investigation to the Assistant National Director, ISD-Health Protection when/if required.

## *Control Measures*

### **Infection control measures**

In the outbreak situation, infection control measures should be tailored for the specific situation. This is done in conjunction with infection prevention and control staff, the Medical Officer of Health (DPH) and the GP/medical officer of the RCF. In addition, all staff at the RCF should be notified of the outbreak and management should ensure that all resources (i.e. gloves, masks, liquid soap, paper towels, alcohol gel/rub, tissues etc) are available as necessary.

### **Key points for influenza control <sup>(22)</sup>**

1. Implement Standard and Transmission-based Precautions for at least 7 days after symptom onset or as instructed by the OCT
2. Establish the diagnosis early in the outbreak by taking combined viral nose and throat swabs from ill residents
3. Use single rooms when available or else cohort ill patients
4. Mask patients (with surgical mask if tolerated) when transported out of their room
5. Duration of precautions for immunocompromised patients cannot be defined as prolonged duration of viral shedding (i.e. for several weeks) has been observed. Discuss with the consultant microbiologist/virologist
6. Exclusion of symptomatic staff. Exclude all those with influenza symptoms (even if they are vaccinated or taking antiviral medication) from work for 5 days after the onset of symptoms i.e. no longer infectious.
7. Exclusion of symptomatic visitors
8. Reinforce implementation of Standard Precautions especially respiratory hygiene and cough etiquette, vaccination and antiviral treatment and chemoprophylaxis for non-symptomatic patients.



**Additional considerations to Guidance on [Infection prevention and control for patients with suspected or confirmed influenza virus in healthcare settings](#) include:**

1. If an outbreak is confined to one unit, all residents from that unit should avoid contact with residents in the other units in the facility
2. Limiting social activities and restrict all residents to their units as much as possible
3. Considering rescheduling of non-urgent medical appointments made prior to the outbreak

***Admissions, transfers, visitors***

1. When a resident is transferred to hospital from a RCF experiencing an outbreak, the RCF should advise the ambulance staff and the hospital infection prevention and control specialist in advance and provide details of the outbreak. This will ensure that appropriate infection control measures are in place when the resident arrives at the hospital.
2. Admissions of new residents to RCF during an outbreak are generally not recommended
3. Non-urgent resident transfers (from anywhere in the RCF ) to another RCF are not recommended
4. Post a visitor restriction sign at all entrances of the RCF indicating that there is an outbreak in the RCF.
5. Limit visitors as much as possible:
  - a. Exclude all children or anyone with ILI symptoms regardless of age
  - b. Advise visitors to:
    - To use alcohol hand gel/rub on their hands on entry and exit to the facility
    - Visit only one resident and exit the RCF immediately after the visit

The RCF should have surgical masks available for visitors with respiratory symptoms who **might** inadvertently enter the RCF. These visitors should ideally be excluded.

## *Staff*

1. In the context of a suspected ILI/influenza outbreak, monitor staff and volunteer absenteeism due to respiratory symptoms consistent with influenza and exclude all those with influenza-like symptoms (even if they are vaccinated or taking antiviral medication) from work for 5 days after the onset of symptoms i.e. no longer infectious. Staff experiencing influenza-like symptoms or fever should not work in any healthcare setting including a RCF.
2. Attempts should be made to minimise movement of staff between floors/units of the facility especially if some units are unaffected. Discuss the possibility of one staff member (or group of staff) looking after ill residents and others looking after well residents.
3. During an outbreak, it is recommended that only vaccinated staff should be working in the affected unit.
  - a. It is strongly recommended that all staff should be vaccinated against influenza unless there are contraindications.
4. Asymptomatic vaccinated staff have no restrictions on working at other facilities. Unvaccinated asymptomatic 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.

## Influenza vaccination during an outbreak

1. During influenza outbreaks, influenza vaccine should be offered (unless contraindicated) 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.
2. Vaccination of staff may take place at the RCF provided that there is a healthcare professional present who is trained in immunisation. Alternatively staff members may visit their GP.
3. It is the responsibility of the RCF to ensure that all unvaccinated residents are vaccinated on admission and during an influenza outbreak unless contraindicated and that this information is recorded
4. It is the responsibility of the RCF to maximise uptake of influenza vaccine and to offer vaccine to all unvaccinated staff members during an influenza outbreak.

## Antiviral treatment and chemoprophylaxis

### Treatment

1. Use of antiviral drugs for treatment and chemoprophylaxis of influenza is a key component in influenza outbreak control in RCF as many of the residents are at higher risk for influenza complications <sup>(20)</sup>
2. Neuraminidase inhibitors i.e. oseltamivir and zanamivir have been used successfully to control outbreaks caused by susceptible strains of influenza when antiviral medications are combined with infection prevention and control measures
3. Antiviral drugs are effective against influenza A and B and in reducing the severity and shortening the course of illness if given early (within 48 hours of illness onset for oseltamivir and 36 hours for zanamivir) even in elderly adults <sup>(23 -29)</sup>
4. Treatment decisions are the responsibility of the attending physician who should consult with an infectious disease consultant or consultant virologist/microbiologist if necessary
5. Treatment should be offered to all ill residents in the defined risk groups for influenza<sup>8</sup> and to all residents with severe illness based on clinical judgement. It should be started as early as possible (within 48 hours of illness onset for oseltamivir and 36 hours for zanamivir). The greatest benefit is achieved when antiviral therapy is commenced within 48 hours of illness onset for oseltamivir and 36 hours for zanamivir. However, antiviral therapy may still be beneficial in patients with severe complicated or progressive illness and in hospitalised patients when administered > 48 hours of illness onset.
6. Of the neuraminidase inhibitors, oseltamivir is generally the drug of choice for treatment because of the difficulty older people have in using the inhaler device through which zanamivir is administered <sup>(30)</sup>

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<sup>8</sup> Children aged < 2 years; Pregnant women; People aged 65 years and older; Severely obese people (BMI≥40) ; People on medication for asthma; Children with any condition (e.g. cognitive dysfunction, spinal cord injury, seizure disorder or other neuromuscular disorder) that may compromise respiratory function, especially those attending special schools/day centres; **Those with:** Chronic respiratory, heart, kidney, liver or neurological disease, Immunosuppression (whether due to disease or treatment), Diabetes Mellitus and Haemoglobinopathies

7. Zanamivir should be used when persons require treatment for oseltamivir-resistant strains of influenza or if oseltamivir is contraindicated. Specialist advice should be sought
8. Both oseltamivir and zanamivir are licensed for use in Ireland
9. In some patients, antibiotics may also be indicated to prevent or treat secondary bacterial infection and use will be based on the clinician's clinical judgement

## Chemoprophylaxis

1. Chemoprophylaxis involves giving a drug to prevent infection occurring. It differs from a vaccine in that protection only lasts while the drug is being taken. Chemoprophylactic drugs are not a substitute for vaccination, although they are critical adjuncts in preventing and controlling influenza. <sup>(31)</sup>
2. The decision to use antivirals for prophylaxis will be guided by Public Health following the initial risk assessment and in conjunction with the OCT if one is convened
3. Chemoprophylaxis should be prescribed by the patient's physician and persons requiring chemoprophylaxis should be provided with antiviral medications which are most likely to be effective against the influenza virus causing the outbreak, if known.
4. Persons needing chemoprophylaxis due to exposure to persons with laboratory confirmed influenza A(H1N1) 2009, influenza A(H3N2) or influenza B should receive oseltamivir or zanamivir <sup>9</sup>
5. The decision to use either oseltamivir or zanamivir as chemoprophylaxis should take into account preferences regarding the delivery of the drug and potential adverse effects and contraindications
6. Zanamivir should be used when persons require chemoprophylaxis as a result of exposure to influenza virus strains that are suspected of being oseltamivir-resistant
7. When chemoprophylaxis is indicated, it should be started as early as possible (within 48 hours of illness onset of index case(s) for oseltamivir and 36 hours for zanamivir) in order to reduce the spread of the virus. It is usually offered to close contacts and to those who fall within the defined risk groups for influenza

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<sup>9</sup> One randomised controlled study on the use of oseltamivir to prevent influenza in elderly residents in nursing homes found that it was 90% effective in preventing laboratory confirmed influenza <sup>(23)</sup>

## **Residents**

1. Chemoprophylaxis should be considered for all eligible residents, regardless of whether they received influenza vaccine during the current flu season and should continue for approximately 8 days after illness onset of the last patient which in most cases may be for up to 2 weeks but not always. Eligible residents include all those who are not ill and who do not have laboratory confirmed influenza.
2. When determining the timing and duration for administering influenza antiviral medications for chemoprophylaxis, factors related to cost, compliance and potential adverse events should be considered.

## **Staff**

1. Chemoprophylaxis may also be recommended for unvaccinated staff<sup>10</sup> who attend patients at high risk for influenza complications. In some instances, following risk assessment, chemoprophylaxis may be recommended for all staff<sup>11</sup> in the care home/residential care facility to offer protection against further spread.
2. Chemoprophylaxis should be prescribed by the person's own GP, or Occupational Health or the RCF's attending physician/GP
3. Chemoprophylaxis should be maintained for at least 2 weeks (after receipt of the vaccine) in all staff vaccinated during the outbreak. It is reasonable to allow these asymptomatic individuals to work with high-risk patients as soon as they start antiviral prophylaxis.
4. Chemoprophylaxis should be considered for all staff<sup>(6)</sup> regardless of their vaccination status if indications exist that the outbreak is caused by a strain of influenza that is not well matched to the current influenza vaccine. Such indications include studies indicating low vaccine effectiveness or circulation in the community of suspected cases of strains not contained in the vaccine. <sup>(20) (21)</sup>
5. All workers must be aware of the symptoms and signs of influenza and should be excluded from work if these develop

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<sup>10</sup> This relates to staff who do not have laboratory confirmed flu and who are not ill

<sup>11</sup> This relates to staff who do not have laboratory confirmed flu and who are not ill

**At the start of the influenza season, it is recommended that each RCF has procedures in place to ensure ready quick access to antiviral medications (Tamiflu) through the normal channels/pharmacy provider in the event of an influenza outbreak.**

To limit the potential transmission of an antiviral drug resistant influenza virus during outbreaks in institutions whether in acute-care settings or other closed settings, measures should be taken to reduce contact between persons taking antiviral drugs for treatment and other persons including those taking chemoprophylaxis. Where contact is unavoidable (e.g. patient care by staff) infection control measures should be strictly enforced. <sup>(20)(21)(32)</sup>

Persons taking antivirals should be monitored for side-effects by the prescribing doctor.

More detailed information on the use of antivirals is available in “*Interim guidance on the use of antiviral agents for the treatment and prophylaxis of influenza, 2012-2013*” available [here](#).

For more information on dosing and side effects of oseltamivir and zanamivir, see [www.medicines.ie](http://www.medicines.ie).

## Monitoring the Outbreak

1. Monitoring the outbreak will include ongoing surveillance to identify new cases and to update the status of ill residents and staff
2. The nominated RCF liaison person should update the line listing with new cases or developments as they occur and communicate this to Public Health and the CIPCN (where available) on a daily basis as required and to the chair of the OCT if one is convened (see section Actions following Risk Assessment/when an OCT is convened on P. 21). The review of this information should examine issues of ongoing transmission and the effectiveness of control measures including chemoprophylaxis.

## Declare the outbreak over

In order to declare that the outbreak is over, the facility should not have experienced any new cases of infection (resident or staff) which meet the case definition for the period of time as defined by Public Health or the OCT if one is convened. ***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).<sup>(21)</sup>

This is based on practicality due to the short incubation period for influenza. Another common way to decide when to declare an outbreak over is to use two incubation periods for the disease. This was the approach used in the global SARS outbreak in 2003.

In some instances, if deemed necessary, a meeting may be arranged between the facility and Public Health /OCT to review the management of the outbreak.



## References

1. Deguchi Y, Takasugi Y and Nishimura K. Vaccine effectiveness for influenza in the elderly in welfare nursing homes during an influenza A (H3N2) epidemic. *Epidemiology and Infections*. 2000; 125:393-397.
2. Drinka PJ, Gravenstein S, Krause P, Schilling M, Miller BA and Shult P. Outbreaks of influenza A and B in a highly immunised nursing home population. *Fam Prac* 1997; 45(6): 509-14.
3. Ellis S, Coffey C, Mitchel E, Dittus R and Griffin M. Influenza and respiratory syncytial virus-associated morbidity and mortality in the nursing home population. *J Am Ger Soc* 2003; 51:761-767.
4. Ferson M, Morgan K, Roberson PW, Hampson AW, Carter I and Rawlinson WD. Concurrent summer influenza and pertussis outbreaks in a nursing home in Sydney, Australia. *Infect Control and Hosp Epidemiol* 2004; 25(11):962-6.
5. McGeer A, Sitar DS, Tamblyn SE, Kolbe F, Orr P, Aoki FY. Use of antiviral prophylaxis in influenza outbreaks in long term care facilities. *Can J Infect Dis* 2000;11:187-192.
6. Lee N et al. Viral loads and duration of viral shedding in adult patients hospitalized with influenza. *J Infect Dis* 2009;200:492-500.
7. Monto AS, Gravenstein S, Elliot M, Colopy M, Schweinle J. Clinical signs and symptoms predicting influenza infection. *Arch Intern Med* 2000;160:3243-7.

8. Parker R, Lowen N, Skowronski D. Experience with oseltamivir in the control of a nursing home influenza B outbreak. *Canada Communicable Disease Report* 2001; 27:37-40.
9. The National Immunisation Advisory Committee. *Immunisation Guidelines for Ireland* 2008. Amended in September 2011. The Royal College of Physicians of Ireland, 2011:Dublin. Available at: <http://www.hpsc.ie/hpsc/A-Z/VaccinePreventable/Vaccination/Guidance/>
10. Gross PA, Hermogenes AW, Sacks HS, Lau J, Levandowski RA. Efficacy of influenza vaccine in elderly persons: a meta-analysis and review of the literature. *Annals of Internal Medicine*, 1995; 123: 518-27.
11. Monto AS, Hornbuckle K, Ohmit SE. Influenza vaccine effectiveness among elderly nursing home residents: a cohort study. *Am J Epidemiol* 2001; 154: 155-60.
12. Jefferson T et al. Efficacy and effectiveness of influenza vaccines in elderly people: a systematic review. *Lancet* 2005; 366:1165-1174.
13. Potter J, Stott DJ, Roberts MA et al. Influenza vaccination of healthcare workers in long-term care hospitals reduces the mortality of elderly people. *J Infect Dis* 1997;175:1-6.
14. Bridges CB, Fukuda K, Uyeki TM, Cox NJ, Singleton JA. Prevention and control of influenza. Recommendations of the Advisory Committee on Immunisation Practices (ACIP). *MMWR* 2002;51:RR-3:1-34.
15. Carman WF et al. Effects of influenza vaccination of healthcare workers on mortality of elderly people in long term care: a randomized controlled trial. *Lancet* 2000; 355:93-97.

16. Reichert TA et al. The Japanese experience with vaccinating schoolchildren against influenza. *N Engl J Med* 2001; 344:889-896.
17. Treanor JJ. Influenza viruses including avian influenza and swine influenza: in Mandell GL, Bennett JE, Dolin R (eds): *Mandell, Douglas and Bennett's Principles and Practice of Infectious Diseases*. Philadelphia, Churchill Livingstone 2009, pp 2265-2288.
18. Walsh EE, Cox C, Falsey AR. Clinical features of influenza A infection in older hospitalized patients. *J Am Geriatr Soc* 2002; 50:1498-1503.
19. Pop-Vicas A, Gravenstein S. Influenza in the elderly-A mini-review. *Gerontology* 2011; 57: 397-404.
20. Centers for Disease Control and Prevention. Antiviral agents for the treatment and chemoprophylaxis of influenza: Recommendations of the Advisory Committee on Immunisation Practices (ACIP). *Morbidity and Mortality Report, Recommendations and Reports/Vol 60/No. 1*. January 21st 2011. Available at:  
<http://www.cdc.gov/mmwr/preview/mmwrhtml/rr6001a1.htm>.
21. Communicable Disease Network Australia. Guidelines for the prevention and control of influenza outbreaks in residential care facilities for Public Health units in Australia. Interpandemic influenza working group. Communicable disease Network Australia, 2005.
22. Siegel JD, Rhinehart E, Jackson M, Chiarello L and the Healthcare Infection Control Practices Advisory Committee, 2007 Guideline for Isolation Precautions: Preventing transmission of infectious agents in healthcare settings, June 2007.  
[http://www.cdc.gov/ncidod/dhqp/pdf/isolation\\_2007.pdf](http://www.cdc.gov/ncidod/dhqp/pdf/isolation_2007.pdf)

23. Peters P, Gravenstein S, Norwood P, De Bock V, Couter A, Gibbens M. Long-term use of oseltamivir for the prophylaxis of influenza in a vaccinated frail older population. *J Am Geriatrics Soc* 2001;49:1025-31.
24. Singh S, Barghoorn J, Bagdonas A, Adler J, Treanor J, Kinnersley N and Ward P. Clinical benefits with oseltamivir in treating influenza in adult populations: results of a pooled and subgroup analysis. *Clin Drug Investig*. 2003;23(9):561-9.
25. Jefferson T, Deeks JJ, Demicheli V, Rivetti D and Rudin M (2004). Amantadine and rimantidine for preventing and treating influenza A in adults. *The Cochrane Database of Systematic Reviews* 2004: Issue 3.
26. Cooper N, Sutton A, Abrams K, Wailoo A, Turner D. Effectiveness of neuraminidase inhibitors in treatment and prevention of influenza A and B: systematic review and meta-analyses of randomised controlled trials. *BMJ* 2003; 326:1235-9.
27. Hayden FG, Osterhaus ADME, Treanor JJ, Fleming DM, Aoki FY, Nicholson KG, et al. Efficacy and safety of the neuraminidase inhibitor zanamivir in treatment of influenza virus infections. *N Engl J Med* 1997;337:874-80
28. The MIST (Management of Influenza in the Southern Hemisphere Trialists) Study Group. Randomised trial of efficacy and safety of inhaled zanamivir in treatment of influenza A and B virus infections. *Lancet* 1998; 352:1877-81
29. Kaiser L, Wat C, Mills T, Mahoney P. Impact of oseltamivir treatment on influenza related lower respiratory tract complications and hospitalisations. *Arch Intern Med* 2003;163:1667-1672.

30. Diggory P, Fernandez C, Humphrey A, Jones V & Murphy M. Comparison of elderly people's technique in using two dry powder inhalers to deliver zanamivir: randomised controlled trial. *BMJ*; 2001 Mar 10; 322(7286):577-9.
31. Fiore AE, Shay DK, Haber P, Iskander JK, Uyeki TM, Mootrey G, Bresee JS, Cox NJ. Prevention and Control of Influenza; Recommendations of the Advisory Committee on Immunisation Practices, 2007. Center for Disease Control and Prevention, US, July 29th 2007. <http://www.cdc.gov/mmwr/preview/mmwrhtml/rr56e629a1.htm>.
32. Ministry of Health and Long-term Care, Ontario. A guide to the control of respiratory infection outbreaks in long-term care homes. Canada, 2004.

## Appendices

**Appendix A:** Respiratory hygiene and cough etiquette poster

**Appendix B:** Case definitions for possible, probable and confirmed influenza

**Appendix C:** Interim guidance regarding surveillance to detect clusters/outbreaks of influenza or influenza-like illness

**Appendix D:** Details for line listing (residents and staff)

**Appendix E:** Checklist for outbreak management

**Appendix F:** ILI/Influenza outbreak surveillance form and SOPs for entering influenza outbreaks onto CIDR

**Appendix G:** Link to CDC website re investigation of unexplained respiratory disease outbreaks

# COVER UP

## COUGHING AND SNEEZING

- 
  - Turn your head away from others
  - Use a tissue to cover your nose and mouth
- 
  - Drop your tissue into a waste bin
- 
  - No tissues? Use your sleeve
- 
  - Clean your hands after discarding tissue using soap and water or alcohol gel for at least 15 seconds

## ***Appendix B: Case definitions for possible, probable and confirmed influenza***

### **Influenza**

#### **(Influenza A and B virus)**

#### **Clinical criteria**

Any person with the following clinical syndrome:

#### *Influenza-like illness (ILI)*

Sudden onset of symptoms

#### **AND**

At least one of the following four systemic symptoms:

- Fever or feverishness
- Malaise
- Headache
- Myalgia (muscle pains)

#### **AND**

At least one of the following three respiratory symptoms:

- Cough
- Sore throat
- Shortness of breath



## **Laboratory criteria**

At least one the following four:

- Isolation of influenza virus from a clinical specimen
- Detection of influenza virus nucleic acid in a clinical specimen
- Identification of influenza virus antigen by DFA test in a clinical specimen
- Influenza specific antibody response
- Sub typing of the influenza isolate should be performed, if possible

## **Epidemiological criteria**

An epidemiological link by human to human transmission

### **Case classification**

#### **A. Possible case**

Any person meeting the clinical criteria (ILI)

#### **B. Probable case**

Any person meeting the clinical criteria (ILI) and with an epidemiological link

#### **C. Confirmed case**

Any person meeting the clinical (ILI) and the laboratory criteria

## *Appendix C: Interim guidance regarding surveillance to detect clusters/outbreaks of influenza or influenza-like illness or respiratory disease*

### **Interim guidance regarding surveillance to detect clusters/outbreaks of influenza or influenza-like illness or respiratory illness**

Surveillance to detect outbreaks of influenza<sup>12</sup> or influenza-like illness (ILI) or respiratory illness currently in place. The purpose of this surveillance is to detect outbreaks of ILI, influenza A and influenza B and other respiratory pathogens e.g. respiratory syncytial virus or adenovirus in the community.

Surveillance of outbreaks will be confined to:

1. Clusters of influenza or ILI or respiratory illness in institutions e.g. schools, residential care facilities for the elderly, prisons, hospitals, special needs schools
2. Unusual clusters of serious illness suggestive of influenza

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<sup>12</sup> Influenza includes all types/subtypes of influenza i.e. influenza A (H1N1) 2009, influenza A (H1), influenza A (H3), influenza A (unsubtyped), influenza A (unsubtypable) and influenza B

A case definition for surveillance of clusters/outbreaks of ILI or influenza or respiratory illness in the above situations is outlined below:

### **Case Definition**

Three<sup>13</sup> or more cases of influenza-like illness (ILI) or influenza or respiratory illness arising within the same 72 hour period in the above settings/situations which meet the same clinical case definition and where an epidemiological link can be established

### **Note:**

In older adults, influenza symptoms may initially be very subtle and difficult to recognise. Instead, elderly patients may present only with cough, fatigue and confusion. <sup>(18) (19)</sup> The fever response may be more blunted in older adults and in nursing home elderly, influenza often fails to produce fever over 38°C. <sup>(17)</sup> Elderly patients are also more susceptible to pulmonary complications from influenza. *Influenza may present in the elderly patient as an exacerbation of an underlying condition such as chronic pulmonary and cardiovascular disease, Asthma, Diabetes Mellitus etc. If an increased number of residents become unwell over a short period of time with respiratory illness, influenza should be suspected.*

### **ILI symptoms using the new Irish influenza case definition include:**

Sudden onset of symptoms and at least one of the following four systemic symptoms: fever, malaise, headache, myalgia and at least one of the following three respiratory symptoms: cough, sore throat and shortness of breath.

The case definition for influenza is available at:

<http://www.hpsc.ie/hpsc/A-Z/Respiratory/Influenza/SeasonalInfluenza/CaseDefinitions/>.

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<sup>13</sup> This does not preclude investigation at lower number of cases following public health risk assessment

## **Actions to be taken on receiving a report of a suspected cluster of ILI or respiratory illness**

Once a suspected cluster of ILI/influenza/respiratory illness is reported to Public Health, the following actions should be considered:

1. Collect information on the number of suspect cases including symptoms.
2. Decide if the cluster meets the criteria outlined above including the case definition:
  - a. If yes, then combined nose and throat swabs are taken from the initial cases (at least 2 cases and up to 5 cases depending on local resources). This may be carried out by the attending clinician.
  - b. Swabs should be sent to the laboratory for routine influenza testing and in some instances testing for other respiratory pathogens using the multiplex-PCR
  - c. Treatment for influenza is recommended only if cases are in a defined risk group<sup>14</sup> or have clinically severe illness. This decision will be based on the clinical judgement of the treating physician.
  - d. Following a risk assessment by Public Health, advice may be given to initiate chemoprophylaxis which should be prescribed by the patient's physician.
  - e. Advise on infection prevention and control measures e.g. hand hygiene, respiratory etiquette, staying out of work/school while symptomatic as per HPSC guidance at: <http://www.hpsc.ie/hpsc/A-Z/Respiratory/Influenza/SeasonalInfluenza/Infectioncontroladvice/>.

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<sup>14</sup> Defined risk groups are those with: Chronic respiratory disease including people on medication for asthma; Chronic heart disease; Chronic kidney disease; Chronic liver disease; Chronic neurological disease; Immunosuppression (whether caused by disease or treatment); Diabetes mellitus; Haemoglobinopathies, Children <2 years of age; People on medication for asthma; Severely obese people (BMI  $\geq 40$ ), Pregnant women and children with any condition (e.g. cognitive dysfunction, spinal cord injury, seizure disorder, or other neuromuscular disorder) that can compromise respiratory function especially those attending special schools/day centres

### *Appendix D: Details for line listing*

1. Outbreak Code (on top of line list as title)
2. Name of case
3. Case ID
4. Location (unit/section)
5. Date of birth/age
6. Gender
7. Status i.e. resident, staff member, volunteer, visitor
8. Vaccination status in relation to influenza vaccine and date received
9. Vaccination status in relation to pneumococcal vaccine and date received
10. Date of onset of symptoms
11. Date of notification of symptoms
12. Clinical symptoms (outline dependant on case definition) e.g. fever, cough, myalgia, headache, other
13. Samples taken and dates
14. Laboratory results including test type e.g. RT-PCR, culture
15. Date when isolation of resident was started
16. Antiviral and antibiotic medications: state name of drug, whether used for treatment or chemoprophylaxis and date treatment/chemoprophylaxis commenced
17. Date of recovery
18. Duration of illness
19. Outcomes: recovery, pneumonia, other, hospitalisation, death
20. Adverse reactions to or discontinuation of antiviral medications
21. Also include work assignments of staff and last day of work of ill staff member
22. State if staff worked in other facilities

**Have separate sheets for both staff and residents**

## Appendix D: Part 1 – Respiratory Outbreak Line Listing Form – Residents ONLY\*

Name of Facility: .....

Name of Outbreak: .....

DETAILS								SYMPTOMS				
ID	Surname Firstname	Location (unit/section)	Sex	DOB (dd/mm/yy)	Age	Flu vaccine (date)	Pneumococcal vaccine (date)	Onset (date)	Fever ≥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 D: Part 2 –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)	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 D: Part 3 – Respiratory Outbreak Line Listing Form – Staff ONLY\*

Name of Facility: ..... Name of Outbreak: .....

DETAILS								SYMPTOMS					
ID	Firstname Surname	Position	Location	Sex	DOB (dd/mm/yy)	Age	Flu vaccine (date)	Onset (date)	Fever ≥38°C (Y/N)	Cough (Y/N)	Fatigue (Y/N)	Other symptoms (state)	Work at any other facility? (Y/N) If YES, state location

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

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



## Appendix D: Part 4 –Staff ONLY\*

Name of Facility: ..... Name of Outbreak: .....

ID	TEST/ RESULT		TREATMENT (T) / PROPHYLAXIS (P)		STATUS	
	Pathology tests done (yes/no)	Type of test (date and result)	Oseltamivir (T/P, date)	Zanamivir (T/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 E: Checklist for Outbreak management***


	<b>Discussion point</b>	<b>Decision/action to be taken (tick if completed)</b>	<b>Person responsible</b>
1	Declare an outbreak and convene an OCT if indicated following Public Health risk assessment		
2	Agree the chair		
3	Formulate an outbreak code and working case definition		
4	Define the population at risk		
5	Active case finding, request line listing of residents and staff from the RCF		
6	Discuss whether it is a facility-wide outbreak or unit-specific		
7	Confirm how and when communications will take place between the RCF, CIPCN, Public Health and the laboratory		
8	Review the control measures (infection control, vaccination and antiviral treatment/chemoprophylaxis) 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		
9	Discuss which specimens have been collected. Notify the laboratory of the investigation.		
10	Confirm the type and number of further laboratory specimens to be taken. Clarify which residents and staff should be tested.		
11	Confirm that the laboratory will phone or fax results (both positive and negative) directly to the requesting doctor and that this person will notify Public Health. Review the process for discussing laboratory results with the RCF's designated officer.		
12	Liaise with the RCF and laboratory regarding specimen collection and transport		

13	Identify persons/institutions requiring notification of the outbreak e.g. families of ill or all residents of the facility; health care providers e.g. GPs, physiotherapists etc.; infectious disease consultants, consultant microbiologists, infection prevention & control specialists, Emergency Departments; local hospitals, other RCF, HPSC		
14	Discuss whether a media release is required		
15	Discuss how RCF management are going to organise vaccination of unimmunised residents and staff		
16	Discuss the use of antiviral medications for the treatment of cases and/or prophylaxis of well residents and unimmunised staff		
17	Ensure that the incident is promptly reported to HPSC and surveillance details entered onto CIDR		
18	Provide updates on the investigation to the Assistant National Director, ISD-Health Protection when/if required		
19	Discuss communication arrangements with HSE management ± HSE crisis management team		
20	Discuss communication arrangements with local GPs and Emergency Departments		
21	Decide how frequently the OCT should meet and agree criteria to declare outbreak over		
22	Prepare/circulate an incident report/set date for review meeting		

## Appendix F: ILI/Influenza outbreak surveillance form and guidelines for entering outbreaks onto CIDR



### Influenza-like Illness/Influenza Outbreak Reporting Form



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#### 1. Outbreak Identification

Outbreak identifier _____	County _____	_____
CCA/LHO _____	HSE-Area _____	_____
First reported date ____/____/____	Onset date of first case ____/____/____	_____
Onset date of last case ____/____/____	Recognition of outbreak date ____/____/____	_____
Reported by (name) _____	Position _____	_____
Telephone _____	Fax _____	_____
Email _____		_____

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#### 2. Outbreak notification source (please tick all that apply)

General practitioner <input type="checkbox"/>	Laboratory report <input type="checkbox"/>
Hospital Clinician <input type="checkbox"/>	Other <input type="checkbox"/>
If other, please specify _____	

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#### 3. Extent of the outbreak (please tick one)

Local <input type="checkbox"/>	(confined to 1 HSE-Area)
Across HSE-Area <input type="checkbox"/>	(2 adjacent HSE-Areas)
National <input type="checkbox"/>	(3 or more HSE-Areas or 2 or more non-adjacent HSE-Areas)
Cross border <input type="checkbox"/>	
International <input type="checkbox"/>	

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#### 4. Type of outbreak (please tick one)

Family outbreak <input type="checkbox"/>	General outbreak <input type="checkbox"/>
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#### 5. Main location of the outbreak (please tick one)

Community hospital/Long stay unit <input type="checkbox"/>	Community outbreak <input type="checkbox"/>	Crèche <input type="checkbox"/>
Hospital <input type="checkbox"/>	Private house <input type="checkbox"/>	Residential institution <input type="checkbox"/>
School <input type="checkbox"/>	University/College <input type="checkbox"/>	Travel related <input type="checkbox"/>
Extended Family <input type="checkbox"/>	Workplace <input type="checkbox"/>	Unknown <input type="checkbox"/>
Other <input type="checkbox"/>		
If other, please specify _____		

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Describe (include name of institution / location etc.):

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#### 6. Pathogen

a. Was the pathogen identified? Yes ☐ No ☐

If Yes, specify pathogen identified:  
*(if influenza specify type, subtype & strain if available)* \_\_\_\_\_

b. Name of laboratory where tests were conducted: \_\_\_\_\_

c. Were specimens referred to the NVRL? Yes ☐ No ☐ Unknown ☐ Date referred \_\_\_\_/\_\_\_\_/\_\_\_\_

d. What pathogens were tested for?  
 Standard ILI suite ☐ Unknown ☐

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#### 7. Exposure

Number ill _____	Number hospitalised _____
Number dead _____	Number at risk/exposed _____
Number laboratory confirmed _____	Number laboratory investigated _____
Number with clinical symptoms only _____	

## 8. Number of cases by sex:

Males \_\_\_\_\_ Females \_\_\_\_\_ Sex Unknown \_\_\_\_\_

## 9. Number of cases by age group:

0-1 yr \_\_\_\_\_ 2-4 yrs \_\_\_\_\_ 5-9 yrs \_\_\_\_\_ 10-19 yrs \_\_\_\_\_ 20-49 yrs \_\_\_\_\_ 50-64 yrs \_\_\_\_\_ 65+ yrs \_\_\_\_\_ Age NK \_\_\_\_\_

## 10. Symptoms: (Please tick all that occurred)

Cough	<input type="checkbox"/>	Diarrhoea	<input type="checkbox"/>	Fatigue/Malaise	<input type="checkbox"/>	Fever	<input type="checkbox"/>
Headache	<input type="checkbox"/>	Myalgia	<input type="checkbox"/>	Sore throat	<input type="checkbox"/>	Dyspnoea	<input type="checkbox"/>
Runny nose	<input type="checkbox"/>	Sneezing	<input type="checkbox"/>	Conjunctivitis	<input type="checkbox"/>	Other	<input type="checkbox"/>

If other, please specify \_\_\_\_\_

## 11. Complications: (Please tick all that apply)

a. Total number with pneumonia \_\_\_\_\_ b. Total number with otitis media \_\_\_\_\_  
c. Total number with encephalitis \_\_\_\_\_ d. Total number with other complications \_\_\_\_\_

## 12. In healthcare settings:

a. Number staff ill \_\_\_\_\_ b. Number clients/hospital patients ill \_\_\_\_\_

## 13. Measures taken: (Please tick all that apply)

Outline main control measures undertaken:

Information/self-monitoring	<input type="checkbox"/>	Contacts vaccinated	<input type="checkbox"/>
Hygiene advice	<input type="checkbox"/>	Antivirals	<input type="checkbox"/>
Advice on respiratory etiquette	<input type="checkbox"/>	Quarantine	<input type="checkbox"/>
Closure of institution	<input type="checkbox"/>	Isolation/cohorting	<input type="checkbox"/>

## 14. Report

Will a full outbreak report be available? Yes ☐ No ☐

## 15. Laboratory results relating to the outbreak

	Ill people		Well people	
	No. of samples tested	No. positive	No. of samples tested	No. positive
All individuals tested during the outbreak:				

## 16. Any additional comments: (include actions taken & any other aspects not covered)

Please forward Full Outbreak Report and Epi-curve if available

Notifying Doctor: \_\_\_\_\_ Date: \_\_\_\_/\_\_\_\_/\_\_\_\_

Please see ILI/Influenza outbreak reporting guidelines for CIDR v3.4 29/12/2011



## Influenza-like Illness/Influenza Outbreak/Cluster Reporting Guidelines for CIDR



Prompt notification all year round of clusters/outbreaks of influenza-like illness (ILI) and influenza remains important. The current EU definition of influenza-like illness (ILI) is used, see <http://www.hpsc.ie/hpsc/A-Z/Respiratory/Influenza/SeasonalInfluenza/CaseDefinitions/>.

### Outbreaks of confirmed Influenza

Where at least one person among a cluster/outbreak of ILI is a confirmed case of influenza regardless of type/subtype, the outbreak should be recorded on CIDR as follows:

*Outbreak disease* = Influenza

*Outbreak organism/pathogen* = Influenza type/subtype as appropriate (e.g. Influenza A, Influenza A(H1N1)v<sup>15</sup>, Influenza A H3, Influenza B).

### Outbreaks of Influenza-like illness (ILI)

Where a cluster/outbreak of ILI is identified, it should be recorded on CIDR as follows:

*Outbreak disease* = Outbreak

*Outbreak organism/pathogen* = 'Influenza-like illness'. [Note the *Organism/pathogen* field should state “**Influenza-like illness**” ONLY; capital I for Influenza, all the rest lower case, single space between two words]

- In the event that any case that is part of the outbreak subsequently becomes a confirmed case of influenza, the outbreak should be reclassified on CIDR as follows:
  - *Outbreak disease* = Influenza
  - *Outbreak organism/pathogen* = Influenza type/subtype as appropriate (e.g. Influenza A, Influenza A(H1N1)v, Influenza A H3, Influenza B).

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<sup>15</sup> Influenza A(H1N1)v on CIDR refers to influenza A (H1) 2009, influenza A (H1N1 2009) or pandemic influenza 2009.

1. Select 'Outbreak' tab
  - Record data from section 1 in the 'Outbreak Identification' section.
  - Record data from sections 2, 3, 4, 5 & 16 in the 'Outbreak General' section.
  - Record data from sections 6a & 7-10 in the 'Outbreak Information' grid.
  - Record data from sections 6 b, c & d, and 11-13 in section at the end of 'Outbreak Information' which contains specific questions relating to influenza-like illness (ILI) and influenza.
2. Select Factors/Actions tab
  - Record information from section 14.
3. Select 'Laboratory' tab
  - Record data from section 15
  - Enter data opposite 'All Other Individuals Tested'.
4. Linking events
  - It is possible to create outbreaks on CIDR with or without events. Where a cluster/outbreak of ILI or influenza includes a case which conforms to the case definition for influenza, an event should be created for that case on CIDR, and the Case classification and Overall interpreted lab result updated as appropriate. The event should be linked to the cluster/outbreak on CIDR in the usual manner, and the Outbreak disease and Outbreak organism/pathogen fields reviewed.

*Appendix G: Link to CDC website re investigation of unexplained respiratory disease outbreaks*

**Centers for Disease Prevention and Control, CDC, Atlanta, USA**

**Emergency Preparedness and Response**

How to investigate unexplained respiratory disease outbreaks (URDO) at

<http://emergency.cdc.gov/urdo/>.