Type: Guideline

Name: Influenza clinical management guidelines

Purpose
Provide guidance to staff on the precautions and measures necessary to minimise risk of transmission of influenza

Scope
All staff involved with the care of patients in the emergency department or inpatient wards with possible or confirmed influenza.
This guideline applies to the management of seasonal influenza. In the event of a pandemic, this guideline is superseded by a pandemic plan.

Definitions
Influenza-like illness (ILI):
At least one **new onset** systemic symptom of: fever, malaise, myalgia, headache
AND
At least one **new onset** respiratory symptom of: cough, sore throat, shortness of breath

Symptoms may also include nausea, diarrhoea and vomiting, especially in the very young or elderly.

Point-of-Care Influenza test (POCIT): Non-laboratory based Influenza PCR which can be used in clinical environment by trained clinical staff.

Respiratory/cough etiquette: Personal behaviour aimed at preventing spread of respiratory viral infections – cover mouth and nose when coughing, hand hygiene after coughing/sneezing/using tissues

Incubation period: period of time between exposure to infection and developing symptoms

Infectious period: period of time that one person can pass on the infection to another

Policy content and guidelines

General information

- Influenza viruses are spread person-to-person primarily through large respiratory droplets released when an infected person coughs or sneezes. These respiratory particles travel only a short distance (2 metres). Children have a shorter distance and babies even less so.

- Touching respiratory-droplet contaminated surfaces is another possible source of transmission.
- Aerosol generating procedures (nebulisers, non-invasive ventilation) increases risk of transmission.
- Incubation period is usually 1-4 days.
- The infectious period is the duration of viral shedding, usually from one day before to five days after symptom onset.
- Young children and immunocompromised adults may shed for much longer (weeks)

Assessment of patient with influenza like illness

- Patients with ILI presenting to Emergency department or MAPU should be given a mask to wear in waiting areas and instructed on respiratory etiquette. Hand gel should be available for patient use in the waiting area.
- Patients with suspected or confirmed influenza should be cared for using STANDARD and DROPLET PRECAUTIONS
    - STANDARD PRECAUTIONS:
        - Hand hygiene
        - Gloves, apron for procedures involving risk of body fluid contact
    - DROPLET PRECAUTIONS:
        - Staff to wear mask on room entry or when within 2m of patient
- Patient should be assessed in single room (does not need to be negative pressure)
- Assess for severity of illness and risk factors for severe infection

Who needs testing?

- Patients with ILI who meet the following should be tested for influenza:
    - Requiring admission OR developing symptoms as an inpatient
      AND
    - Meets definition of ILI:
        - At least one new onset systemic symptom of: fever, malaise, myalgia, headache
          AND
        - At least one new onset respiratory symptom of: cough, sore throat, shortness of breath

      AND
    - Onset of symptoms within 5 days
- There is less evidence to support testing of patients with mild disease (not sick enough to be admitted) without risk factors for developing severe infection (see below).
- Influenza testing using the Point-of-Care Influenza test (POCIT) is performed primarily to assist appropriate bed placement and prevention of in-hospital influenza transmission. This is primarily for adult patients being admitted through ED or MAPU. There may be occasional situations where patients are admitted directly to other units (ICU, Maternity/Delivery suite) where POCIT testing is appropriate.
- In other situations including paediatric admissions and adult patients being discharged from ED, a POCIT test should not be used. For patients requiring testing, the laboratory influenza PCR or respiratory viral PCR would be more appropriate. Results from this test would be available Monday – Saturday.

- Patients being discharged with ILI should be given an influenza patient information pack.

How to test

- If patient meets above criteria, take nasopharyngeal swab (NPS) using POCIT swab (Puritan) kit (see appendix).
- If POCIT criteria are not met and influenza testing is still required, take a NPS using the respiratory virus PCR kit (see appendix) for laboratory influenza or respiratory virus PCR testing.
- When performing NPS, staff should wear mask, gloves and eye protection to prevent mucous membrane exposure to patient's respiratory droplets.
- Hand cleaning must be performed before and after use of Personal Protective Equipment (PPE) (see appx).
- Use of Alere POCIT instrument located in Emergency Department should only be performed by trained staff following the POCIT SOP.
- Results of Alere POCIT test must be recorded in patient notes.

Review of testing strategy

The use of POCIT will be regularly audited by reviewing the paper testing log and instrument data log. Patterns of use of oseltamivir will be assessed by the pharmacy dispensing data. Other data sources include syndromic influenza surveillance data extracted from EDIS. The frequency and outcome of audits are as described below:

Data source	Frequency of review	Outcome
Paper log	Weekly	1. Only eligible patients being tested 2. Clinical service usage patterns monitored for accounting purposes
Electronic log	Weekly	Failure rates per operator monitored. Feedback and retraining as required
EDIS data, electronic log	Weekly	Influenza epidemiology and patterns • Reduce testing if becomes epidemic
Paper log	Daily M-F	IPC alerts on Concerto. Compliance with IPC practice
Pharmacy data	monthly	Appropriate oseltamivir use
Electronic log	Weekly	Ensure ordering of supplies is appropriate

IPC precautions for inpatients with ILI

POCIT negative:

- It is important to remember that patients with ILI and a negative influenza test may still have infectious respiratory viruses.

- Patients with a negative POCIT can be admitted to a shared room as long as they are not sharing with pregnant or immunocompromised patients.
- All staff must follow Standard precautions. In addition, staff should wear a mask during close patient care (within 2m of patient). Patients should be provided with tissues and educated on respiratory etiquette; hand gel should be available at the bedside for patient use; cleaning of near-patient areas should occur daily. At CCDHB, these precautions are called 'bedside precautions'.

POCIT positive or laboratory influenza PCR pending:

- Patients should be in single rooms with Standard plus Droplet precautions.
- Hand hygiene must be performed before and after use of PPE. PPE must be changed between each patient.
- If no single rooms are available then discuss with Infection Prevention and Control (IPC). It may be possible to cohort patients who have the same strain of influenza who do not require nebulisers or non-invasive ventilation. In cohort situations, bedside precautions should be in place (as above)
- In a cohort situation, staff may wear the same mask when caring for more than one patient unless mask becomes wet when it must be changed. Hand cleaning must be performed before and after mask removal due to contamination of hands with respiratory droplets. Gloves must be changed between patients and hand hygiene performed before and after glove use.
- Patients requiring nebulisers or non-invasive ventilation must not be cohorted.

Special care areas:

- HDU/ICU: Patients with confirmed influenza must be managed in a single room. Ventilated patients with ILI may be managed in open area of ICU.
- Maternity: Pregnant or post-partum patients with ILI must be admitted to a single room with Standard plus Droplet precautions. Cohorting of patients is not acceptable in Maternity wards except under the direction of the IPC team.

Treatment with oseltamivir:

- Oseltamivir can be used for patients with the following:
    - Symptom onset < 48 hours AND
    - Severe influenza (hypoxaemia, sepsis, or extrapulmonary infection – meningoencephalitis, myocarditis, myositis) OR
    - Patient with risk factors for severe influenza
        - Pregnant or within 2 weeks post-partum
        - Age > 65 years
        - BMI ≥ 40
        - Comorbidities:
            - Asthma/COPD requiring steroids in past 12 months
            - Cardiovascular disease excluding isolated hypertension
            - End-stage renal disease, dialysis
            - Cirrhosis
            - Neurological condition affecting ability to clear secretions
            - Immunosuppression
                - SOT on immunosuppression; HSCT within two years; GVHD; chemotherapy within past 6 months; HIV

with CD_4 < 200; steroids equivalent to prednisone 40mg/day for one week in past 3 months

- There remains debate about the effectiveness of oseltamivir. It is most efficacious if given early in illness, and has greatest potential benefit in those at highest risk of complications.
- In severe infection or immunocompromised patients, benefit may exist even if symptom onset > 48 hours prior. Discuss with Infectious Diseases physician.
- Prescribe oseltamivir 75mg po bd for five days. Dose reduction required in renal failure (see table).

Creatinine Clearance (mL/min)	Treatment	Prophylaxis
>30	75mg PO BD for 5 days	75mg PO OD for 10 days
10-30	75mg PO OD for 5 days	75mg PO q48hrs for 5 doses
<10	75 mg PO single stat dose	30mg PO once a week for 2 doses
Haemodialysis	30mg PO three times a week post dialysis	30mg PO three times a week post dialysis
High Flux	75mg PO three times a week post dialysis	30mg PO three times a week post dialysis
Peritoneal dialysis	30mg PO weekly	30mg PO weekly for 2 doses

Administration of 30mg dose: Open ONE 75mg capsule and pour the contents into 5ml of water. Stir well to make a 15mg/ml solution. Draw up 2ml (30mg) and administer to patient. Note this mixture must be used immediately. Discard remainder of solution.

- Prophylactic use of oseltamivir should be used under the direction of the IPC team.

Duration of precautions for confirmed influenza:

- Droplet precautions should be continued for five days from symptom onset or for 48 hours after commencing oseltamivir (if given).
- In immunocompromised patients, viral shedding is prolonged for many weeks. Droplet precautions should continue for duration of admission or on advice from IPC team.

Cleaning:

- Rooms of patients with ILI should undergo daily cleaning of high touch areas (bed rails, bed controls, side table etc) with detergent wipes.
- At CCDHB, request 'Droplet Isolation clean' on discharge. At HVDHB, request 'Terminal clean' on discharge.
- Curtains do not need to be changed unless soiled, or aerosol generating procedure such as nebulisers or non-invasive ventilation used in the last 48 hours

Visitor restrictions and information

- It is recommended that the following people do not visit patients with suspected or confirmed influenza:
    - Infants or small children
    - Visitors with ILI symptoms
    - Pregnant women
- Visitors must perform hand cleaning prior to leaving the room at the end of the visit. Visitors are encouraged to, but are not compelled to wear masks. If masks are not worn, social distancing should be advised (2 metre separation).

Healthcare workers

- All healthcare workers are advised to receive annual seasonal influenza vaccination. This is to reduce their own susceptibility to influenza and to prevent transmission to patients or colleagues.
- Staff should not participate in patient care while experiencing ILI symptoms. Staff should contact OHSS to report illness and be assessed.
- Staff with ILI may be eligible for treatment with oseltamivir if presenting within 48 hours of symptom onset and at higher risk of severe infection or if in clinical role with vulnerable patients (maternity, paediatrics, elderly, immunocompromised). This would reduce the infectivity period and reduce risk of transmission and should be guided by OHSS.

References

Ison MG. Improving Delivery of Early Treatment to Influenza-Infected Patients Clinical Infectious Diseases 2018;66(7):1042–4

Nguyen-Van-Tam JS et al. Neuraminidase inhibitors: who, when, where? Clin Microbiol Infect 2015; 21: 222–225

NZ Ministry of Health Influenza

Center of Disease Control: Prevention Strategies for Seasonal Influenza in Healthcare Settings 2018

https://www.influenza.org.nz/

Appendices

Influenza: Clinical Management

Inclusions
Adult patient **for admission**, or developing symptoms as an **inpatient**, with:

At least one new systemic symptom: fever/malaise/myalgia/headache
AND
At least one new respiratory symptom: cough/sore throat/shortness of breath
AND
Symptom onset within 5 days

Patients meeting above criteria
Take nasopharyngeal swab using POCIT testing kit
Follow testing procedure as per SOP in ED

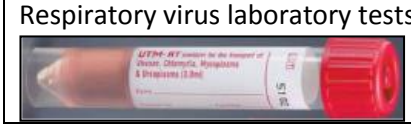
Negative Result:
Patient can go in shared room (not with pregnant or immunocompromised patients)
Standard precautions and use of face mask for close contact
Further testing for other respiratory viruses may be indicated if significantly immunocompromised (see respiratory viruses testing kit below)

Positive Result:
Single room (decision to cohort must be discussed with IPC)
Standard and Droplet precautions
Oseltamivir po 75mg bd recommended if:
≤ 48 hours since onset of new symptoms and
at least one risk factor for complicated infection

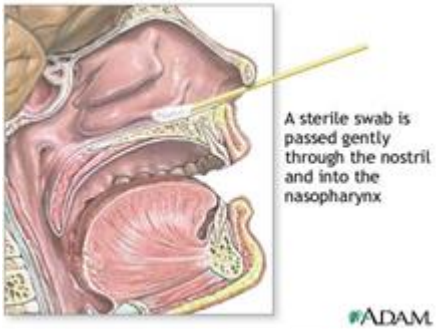
Duration of Infection Control Precautions
Not immunocompromised: 5 days after first onset of symptoms or 48 hours of oseltamivir
Immunocompromised: for the duration of admission or on advice from IPC

Swab types
POCIT

Respiratory virus laboratory tests



Nasopharyngeal Swab (NPS) sample collection method



Use supplied Puritan swab for adults. Other viral/PCR swabs are acceptable but not preferred.
Do not place swab in viral transport media

1. Check Alere i instrument is free.
2. Label swab envelope with patient stickie
3. Gently Insert swab into one nostril, parallel to the palate, rotating gently.
4. It is worth pausing to allow the swab to absorb moisture, which serves as a lubricant.
5. Advance until resistance is felt (one eye often waters when swab is in correct position) or for at least 5 cm.
6. Leave in place for a few seconds, then slowly withdraw.
7. Place swab back into envelope and take to instrument for testing: **do not allow the swab to dry out**