Seasonal Influenza Clinical Management: Quick Guide for staff

This guidance does not override the individual responsibility of health professionals to make appropriate decision according to the circumstances of the individual patient in consultation with the patient and /or carer. Health care professionals must be prepared to justify any deviation from this guidance.

Introduction

To be used for recognition, diagnosis, anti-viral treatment/prophylaxis and infection control management of influenza at Worcestershire Acute Hospitals NHS Trust. It also summarises current NICE and PHE (Public Health England) guidelines.

This document is for use by the following staff groups:

Doctors, nurses, pharmacists, midwives

Lead Clinician(s)

Dr Hugh Morton	Consultant Microbiologist
Approved by Medicines Safety Committee on:	11/11/2022 (chair's approval)
Approved by Infection Prevention & Control Steering Group on:	November 2022
This document should not be used after end of:	1ST September 2025

Key amendments to this document

Date	Amendment	Approved by:
08/11/2016	Minor edits following consultation before the start of the 2016/17 influenza season. Inclusion of PGDs into main body of text	HPM
12/10/2017	Harmonisation with recommendations from 2017/18 PHE influenza guidance	HPM
03/10/2018	Document review prior to influenza season	HPM
02/01/2019	Recommendation to consider zanamavir in certain patient groups due to H1N1 prevalence this season	HPM
13/10/2022	Review and updated in view of COVID and current recommendations from UKSHA	HPM
02.11.2023	Document extended for 12 months as no update to national guidance.	TIPCC
May 25	Document extended until September whilst discussed at TIPCC in August	Liz Watkins

Principle

When influenza A or B virus is circulating, patients who fit the 'at risk' categories AND/OR who have 'complicated influenza' (see below) will require antivirals (oseltamivir or zanamivir) for treatment when diagnosed with influenza. Patients and staff must be protected from hospital-acquired influenza. Patients or staff members in 'at risk' categories should be offered prophylaxis if exposed to influenza cases.

Navigation

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Influenza Case Definition:

A precise definition of 'flu' is extremely difficult as the symptoms are both non-specific (other diagnoses may mimic) and also because the spectrum of illness is highly variable. Each case must be viewed on its own merits. It can be difficult to differentiate COVID-19 from influenza without laboratory confirmation. Additionally, co-infection with both pathogens is possible.

Clinical criteria for 'suspected influenza':

Either Fever ≥38°C OR history of fever **AND** flu-like illness (two or more of the following symptoms: cough, headache, rhinorrhoea or vomiting/diarrhoea)

Or

Other severe/life-threatening illness suggestive of an infectious process where no **definitive** alternative diagnosis exists (e.g. COVID-19)

Confirmed influenza:
As above **plus** confirmation by laboratory testing of respiratory samples

Definition of 'at risk' Individuals:

- Those over 65 years
- Those under 6 months of age
- Pregnant women – including up to two weeks post-partum
- Those who have one or more of the following conditions:
  - Chronic respiratory disease (including asthma and chronic obstructive pulmonary disease)
  - Chronic heart disease
  - Chronic renal disease
  - Chronic liver disease
  - Chronic neurological disease
  - Severe immunosuppression (difficult to quantify, see list on the next page)
  - Morbid obesity (BMI ≥ 40)
  - Diabetes mellitus
- Those who do not fit the above criteria but a judged "at risk" by an experienced clinician

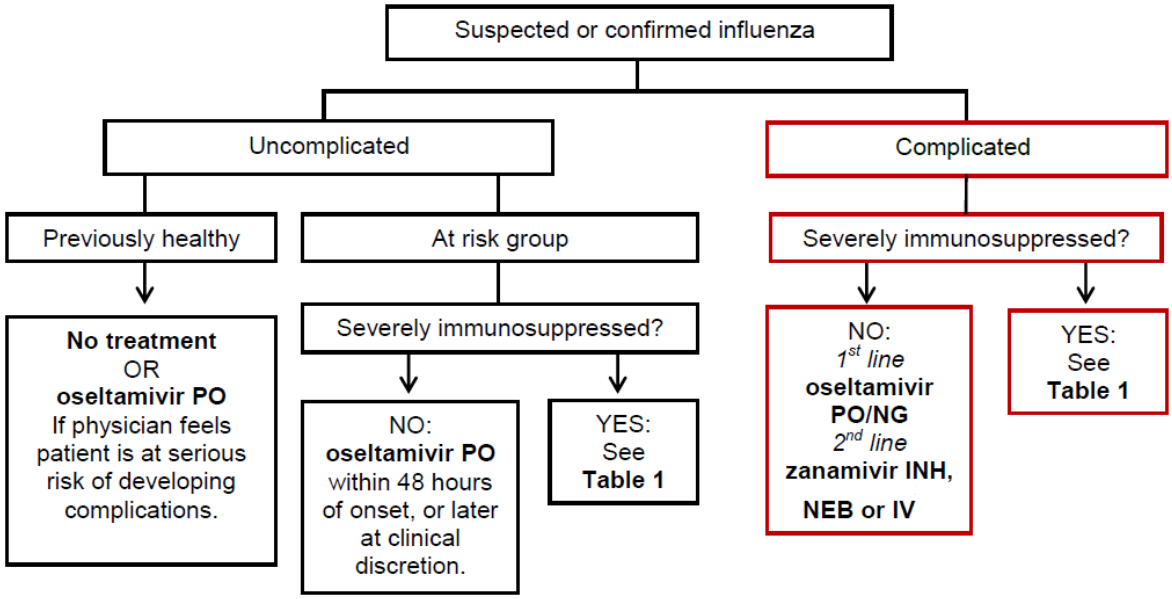
Complicated influenza definition:

Influenza requiring hospital admission and/or with symptoms and signs of lower respiratory tract infection (hypoxaemia, dyspnoea, lung infiltrate), central nervous system involvement and/or a significant exacerbation of an underlying medical condition.

Uncomplicated influenza definition:

Influenza not meeting the above criteria

Selection of antiviral therapy for treatment of influenza



Oseltamavir doses for influenza treatment – ADULTS and children ≥13 years of age:

- normal renal function (CrCL >60 ml/min): 75mg BD for 5 days
- CrCL 31–60 ml/min: 30 mg BD
- CrCL 11–30 ml/min: 30 mg OD
- CrCL ≤ 10 ml/min: 30mg ONE SINGLE DOSE
- Haemodialysis (HD): 30mg ONCE and then 30mg after every HD session for 3 HD sessions
- Peritoneal dialysis: 30mg ONE SINGLE DOSE
- Haemo(dia)filtration:
    - Seek specialist pharmacy advice about dosing

For zanamavir and paediatric dosing, please see the BNF / BNF for children

Oseltamavir treatment duration:

NOT severely immunosuppressed: 5 days

Severely immunosuppressed: 10 days

Examples of severe immunosuppression (not exhaustive):

- severe primary immunodeficiency
- current or recent (within six months) chemotherapy or radiotherapy for malignancy
- solid organ transplant recipients on immunosuppressive therapy
- bone marrow transplant recipients currently receiving immunosuppressive treatment, or who received it within the last 12 months
- patients with current graft-versus-host disease

- patients currently receiving high dose systemic corticosteroids (equivalent to ≥40 mg prednisolone per day for >1 week in an adult, or ≥ 2mg/kg/day for ≥1 week in a child), and for at least three months after treatment has stopped
- HIV infected patients with severe immunosuppression (CD4<200/µl or <15% of total lymphocytes in an adult or child over five; CD4< 500/µl or <15% of total lymphocytes in a child aged one to five; expert clinical opinion in a child aged under one)
- patients currently or recently (within six months) on other types of immunosuppressive therapy or where the patient's specialist regards them as severely immunosuppressed

Table 1: guidance on the selection of antivirals for severely immunosuppressed patients, taking into account the dominant circulating strain of influenza, and the risk of developing oseltamivir resistance

For dosage information please see the BNF or BNF for children

	A. Dominant circulating strain has a lower risk of oseltamivir resistance e.g. influenza A(H3N2), influenza B ** see below	**B. Dominant circulating strain has a higher risk of oseltamivir resistance e.g. influenza A(H1N1)**
Uncomplicated influenza	**oseltamivir PO and clinical follow up Commence therapy within 48 hours of onset (or later at clinical discretion)**	**zanamivir INH (Diskhaler)** Commence therapy within 36 hours of onset (or later at clinical discretion) **OR** if unable to take inhaled preparation **oseltamivir PO** and clinical follow up Commence therapy within 48 hours of onset (or later at clinical discretion)
Complicated influenza	***1st line:*** **oseltamivir PO/NG** ***2nd line:*** **zanamivir INH, NEB or IV Consider switching to zanamivir if: - poor clinical response - subtype testing confirms a strain with potential oseltamivir resistance e.g. A(H1N1)**	**zanamivir INH, NEB or IV** Commence therapy within 36 hours of onset or later at clinical discretion (if there are delays in obtaining aqueous zanamivir, use oseltamivir as a bridging treatment until zanamivir is available)

****RECOMMENDATION:** As of 13th October 2022, the dominant circulating strains are H3N2, hence column A should be followed. This recommendation will be periodically reviewed throughout the 2022-23 influenza season.

Testing for influenza:

If a suspected case is being admitted to hospital:

- Take nose and throat swabs. Send to microbiology for influenza PCR testing.
- ITU PATIENTS: please also send sputum or bronchial secretions in a separate universal container for influenza PCR testing AND where possible in intubated patients a bronchoalveolar lavage OR non-directed bronchial lavage sample.
- Children < 3 months of age: a naso-pharyngeal aspirate is acceptable. For children >3 months use nose/throat swabs.

First choice swab to use: Σ-VIROCULT

Taking swabs:

1. Use swab from pack.
2. Take a swab from the nose and a separate swab from the throat. If only one swab can be taken, prioritise the throat swab
3. Place swab into viral transport media pot provided in the same pack. Snap swab off into pot
4. Request via ICE ordercoms – select "RESP Viral PCR"
5. Send to microbiology

Second choice swab (if no Σ-VIROCULT swabs available): standard wound swabs

Taking swabs:

1. Use dry swabs from existing packs.
2. Take a swab from the nose and a separate swab from the throat. If only one swab can be taken, prioritise the throat swab
3. Using sterile disposable scissors cut swabs into a single sterile universal container (white topped clear specimen bottle).
4. DO NOT put swab back into charcoal tubes.
5. Request via ICE ordercoms – select "RESP Viral PCR"

- Samples should be delivered to Pathology specimen reception promptly
- PCR testing is currently available 7 days a week in microbiology

If a patient does not require admission, testing is **not** advised routinely. Treatment with antivirals may be started on suspicion of such 'at risk' cases presenting with a flu-like illness (DoH guidance).

Summary of testing

If "influenza testing", or "respiratory virus testing", is requested, the test performed by the laboratory will depend upon patient age and/or location

- **Children aged 1 year or younger or who are haemato-oncology patients**
- **Adults aged 17 or older who are on haemato-oncology wards**

Samples will be tested on the Biofire® FilmArray RP2 assay, which detects the following pathogens

Adenovirus	Influenza A
Coronavirus 229E	Influenza A/H1
Coronavirus HKU1	Influenza A/H1-2009
Coronavirus OC43	Influenza A/H3
Coronavirus NL63	Influenza B
Middle East Respiratory Syndrome CoronaVirus (Mers-CoV)	Parainfluenza 1
Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2)	Parainfluenza 2
Human Metapneumovirus	Parainfluenza 3
Human Rhinovirus/Enterovirus	Parainfluenza 4
Chlamydophila pneumoniae	RSV
Mycoplasma pneumoniae	*Bordetella pertussis*
	Bordetella parapertussis

- **Children aged >1year to 16 and who are NOT haemato-oncology patients**
- **Adults aged 17 or older, including those on ITU, who are NOT on haemato-oncology wards,**

Samples will be tested on the Cepheid GeneXpert® assay which detects

Influenza A and B
SARS-CoV-2
RSV

NOTE: If additional tests are required, contact the laboratory.

Infection Prevention:

- Inform the Infection Prevention Team of suspected cases (ext: 38752 [WRH] or ext: 44744 [Alex])
- Any patient with suspected influenza should be isolated with strict respiratory precautions
    - Staff to use personal protective equipment in accordance to standard precautions i.e. aprons, gloves and surgical mask when entering patient's room
    - Patient to wear surgical mask when moved out of ward for transfers or investigations
    - FFP3 masks should be worn by staff if undertaking aerosol-generating procedures. Refer to the trust's PPE guidelines for more information.
    - Keep numbers of staff caring for affected patients to a minimum
    - Pregnant or immunocompromised staff should avoid caring for affected patients
- If the respiratory PCR is negative (including respiratory samples for ITU cases) the patient may be removed from isolation.
- The patient may be removed from isolation when their symptoms and signs of influenza infection have resolved. EXCEPTION: patients who are severely immunosuppressed may shed viable virus for long periods. They should not be allowed into communal areas with other severely immunosuppressed individuals unless repeat influenza PCR testing is negative. Cases should be discussed with the duty microbiologist.
- Those in the same bay as a confirmed influenza case are defined as influenza contacts and are at risk of developing influenza regardless of vaccination status. Patients with influenza A shed the highest amount of virus on the day they develop symptoms and resolution of symptoms correlates with declining viral shedding. Please see below for prophylaxis guidance.
- Patients with influenza B may continue to shed virus for up to 5 days after symptom onset, even after resolution of symptoms.
- Patients need to be isolated for 5 days
- Influenza symptomatic/positive patients should not be cohort nursed with COVID symptomatic/positives
- Pragmatically, all influenza contacts should be isolated for 4 days after their last exposure to the influenza case and monitored for development of symptoms.
- Flu contacts should not be cohort nursed with COVID contacts
- It is very difficult to be prescriptive about which patients to isolate or cohort. Decisions will need to be made on a case-by-case basis depending upon the vulnerability of the patient cohort around the index case and available isolation facilities. Ward managers should discuss issues with the infection control team and clinician in charge of the case.

Environmental Cleaning

- If a patient with known or suspected flu has been identified in a bay area, the entire bay must be cleaned using Tristel Fuse solution and all curtains changed, as soon as the patient is moved into isolation.
- Once a patient recovers from flu and is considered no longer infectious or is discharged from an isolation room, the room must be "amber cleaned".
- If a ward is closed due to a known or suspected outbreak of flu, the entire ward must be cleaned daily using Tristel Fuse.
- Terminal cleaning with Hydrogen peroxide vapour is NOT required routinely.

Occupational Health

Healthcare workers who present with flu-like symptoms, as defined in the case definition above, must not come to work. Those who become ill whilst at work and clearly fit the case definition above should inform occupational health and should go home immediately, self-isolate and contact their GP if they are in a high-risk group as detailed above; if possible a throat swab should be collected from the staff member by a colleague wearing appropriate PPE to try to confirm the diagnosis. Occupational Health have clarified that leave in this situation would be regarded as sickness absence, not medical suspension.

Prophylaxis (see table 2 below for choice of antiviral agent)

Patients:

- Patients should be offered prophylaxis if all of the following apply:
  - They are in an 'at-risk' category
  - They have been in contact with a known or suspected case
  - Prophylaxis with Oseltamivir can be started within 48 hours after contact (or within 36 hours for Zanamivir)

  Note on vaccination status: In recent years outbreaks have occurred locally amongst some vaccinated individuals, particularly elderly patients. The Trust has therefore taken the decision to offer post exposure prophylaxis if the above criteria apply regardless of vaccination status.
- For paediatric doses please refer to Children's BNF
- Adjust dose of oseltamivir in renal impairment (See BNF).
- This exposure should be documented in the medical notes.
- Prophylaxis must be given within 48hrs of exposure otherwise it is of negligible benefit
- If the 48 hour window has elapsed, ward staff should instead monitor for signs and symptoms of influenza and act appropriately.

Healthcare workers:

- Healthcare workers who have been in contact with a suspected or confirmed case of influenza should be offered prophylaxis if all of the following apply:
  - they are in an 'at-risk' category
  - they were not wearing appropriate personal protective equipment at the time of exposure or have been in contact with someone with flu-like illness outside the health care setting
  - Prophylaxis with Oseltamivir can be started within 48 hours after contact (or within 36 hours for Zanamivir)
- Those healthcare workers who are at risk of complications from influenza should obtain prophylaxis via the staff influenza written instruction. For further advice contact occupational health or the duty medical microbiologist.

  Note on vaccination status: In recent years influenza cases have occurred in some vaccinated individuals. The Trust has therefore taken the decision to offer post exposure prophylaxis if the above criteria apply regardless of vaccination status. Staff are still strongly advised to receive annual influenza vaccination through their workplace.

Table 2: Selection of antiviral for post-exposure prophylaxis against influenza

	Exposure to influenza – low risk of resistance to oseltamivir. i.e. most influenza A and all influenza B (most common scenario)	**Exposure to strongly suspected or confirmed oseltamivir resistant strain of influenza A(H1N1) (on microbiology advice only)**
Previously healthy (excluding pregnant women)	No prophylaxis	No prophylaxis
At risk of complicated influenza (including pregnant women but excluding severely immunosuppressed patients and excluding children under 5 years)	**Oseltamivir PO 10 days, once daily,** if therapy can be started within 48 hrs of last contact; or after 48 hrs on specialist advice only	**Zanamivir INH 10 days, once daily,** if therapy can be started within 36 hrs of last contact; or after 36 hrs on specialist advice only
Severely immunosuppressed patients (excluding children under 5 years)	**Oseltamivir PO 10 days, once daily,** if therapy can be started within 48 hrs of last contact; or after 48 hours on specialist advice only	**Zanamivir INH 10 days, once daily,** only if therapy can be started within 36 hrs of last contact; or after 36 hrs on specialist advice only. If unable to administer zanamivir INH, discuss with specialist and consider nebulised aqueous zanamivir (unlicensed) after individual risk assessment.
Children under 5 years in at risk groups including severely immunocompromised children	**Oseltamivir PO 10 days, once daily,** if therapy can be started within 48 hrs of last contact; or after 48 hrs on specialist advice only	**Discuss with specialist**. Consider nebulised aqueous zanamivir (unlicensed) after individual risk assessment

Oseltamavir doses for influenza prophylaxis – ADULTS and children ≥13 years of age:

- normal renal function (CrCL >60 ml/min): 75mg OD for 10 days
- CrCL 31–60 ml/min: 30 mg OD for 10 days
- CrCL 11–30 ml/min: 30 mg every 48 hours for 10 days
- CrCL ≤ 10 ml/min: 30mg ONE SINGLE DOSE; repeated after 7 days
- Haemodialysis (HD): 30mg ONCE and then 30mg after every other HD session (give 3 doses in total)
- Peritoneal dialysis: 30mg ONE SINGLE DOSE; repeated after 7 days
- Haemo(dia)filtration – for 10 days in total:
    - Seek specialist pharmacy advice about dosing

For zanamavir and paediatric dosing, please see the BNF / BNF for children

Patient Group Directions (PGDs) for prophylaxis and treatment of staff members exposed to or developing influenza at work

PGDs are available that facilitate the dispensing of oseltamavir from the hospital pharmacy to staff members who have been exposed to influenza who are at risk of complicated disease. A second written instruction is available for staff members who develop influenza at work.

Follow this link for access: http://whitsweb/PGD/

Monitoring Tool

Page/ Section of Key Document	Key control:	Checks to be carried out to confirm compliance with the policy:	How often the check will be carried out:	Responsible for carrying out the check:	Results of check reported to: *(Responsible for also ensuring actions are developed to address any areas of non-compliance)*	Frequency of reporting:
	WHAT?	**HOW?**	**WHEN?**	**WHO?**	**WHERE?**	**WHEN?**
All	Neurinamidase inhibitors are prescribed according to this document. This document is adapted from NICE and PHE guidance, hence compliance with this document is a marker for compliance with national guidance.	Audit of selection of patients with laboratory confirmed influenza (between 2 – 10 per week dependent upon number of cases)	Monthly	Tania Carruthers	Antimicrobial stewardship Committee	Alternate months during "influenza season" (roughly December – April)
7	Patients are appropriately and rapidly isolated on clinical suspicion of influenza	Review of Datix reports raised during infection control monitoring of cases as they occur	Monthly	Julie Booth Deputy Director of Infection Prevention and Control	Trust Infection Prevention and Control Committee	Alternate months during "influenza season" (roughly December – April)

References

1) Guidance on use of antiviral agents for the treatment and prophylaxis of seasonal influenza. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1058443/ukhsa-guidance-antivirals-influenza-11v4.pdf
2) Department of Health Website: http://www.dh.gov.uk
3) British National Formulary Online
4) NICE guidance on influenza treatment (http://guidance.nice.org.uk/TA168) and prophylaxis (http://guidance.nice.org.uk/TA158).
5) http://publications.nice.org.uk/oseltamivir-amantadine-review-and- zanamivir-for-the-prophylaxis-of-influenza-ta158

Contribution List

This key document has been circulated to the following individuals for consultation;

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This key document has been circulated to the chair(s) of the following committee's / groups for comments;

Committee
Medicines Safety Committee -
Infection Prevention & Control Steering Group – Paula Gardner