# Prophylaxis against seasonal influenza in adults and children

<table>
<thead>
<tr>
<th>Full Title of Guideline:</th>
<th>Guideline for the prophylaxis against seasonal influenza in adult and paediatric inpatients</th>
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| **Division & Speciality:** | Across all divisions |
| **Version:** | 2.1 (April 19) |
| **Ratified by:** | Antimicrobial Guidelines Committee |
| **Scope (Target audience, state if Trust wide):** | Trust wide |
| **Review date (when this version goes out of date):** | September 2019 |
| **Explicit definition of patient group to which it applies (e.g. inclusion and exclusion criteria, diagnosis):** | Adult or paediatric inpatients who have come into contact with a patient with confirmed or suspected influenza infection at NUH.  
Excludes: outpatients and household contacts |
| **Changes from previous version (not applicable if this is a new guideline, enter below if extensive):** | Minor change to flow chart on page 4 under immunosuppressed now states no or unknown  
Apr 19 update: Minor change to dosing of antiviral prophylaxis in children  
Minor changes to recommendations for post exposure prophylaxis  
Addition of risk factors for complicated influenza |
| **Summary of evidence base this guideline has been created from:** | PHE guidance on use of antiviral agents for the treatment and prophylaxis of influenza (2018 to 2019). Version 9.0 Public Health England. October 2018  
NICE Technology Appraisal 158: Oseltamivir, amantadine (review) and zanamivir for the prophylaxis of influenza. (Sept 2008).  
NEWT online guidance for administration of medication to patients with enteral feeding tubes or swallowing difficulties. Available at [http://access.newtguidelines.com/O/Oseltamivir.html](http://access.newtguidelines.com/O/Oseltamivir.html) Accessed 26/07/2018 |

This guideline has been registered with the trust. However, clinical guidelines are guidelines only. The interpretation and application of clinical guidelines will remain the responsibility of the individual clinician. If in doubt contact a senior colleague or expert. Caution is advised when using guidelines after the review date or outside of the Trust.
**Background**

This guidance should be used to risk assess patients who are suspected to have had contact with an inpatient at NUH who has confirmed influenza infection. It details for which patients prophylaxis is recommended. This guideline should not be used for treating patients with suspected or confirmed influenza. For adult patients with influenza refer to the NUH influenza treatment guidelines:


This guideline aims to help:

1. Identify patients that have had contact with an inpatient with confirmed influenza
2. Identify which of these patients may require prophylactic therapy
3. Select appropriate prophylactic therapy

**Recommendations for post-exposure prophylaxis for influenza**

NICE has issued guidance stating that oseltamivir and zanamivir can be used for prophylaxis of patients at risk of complicated influenza (see page 3 for definitions) following exposure with virologically confirmed influenza. In these groups of patients, prophylaxis should be administered where the patient is not adequately protected by vaccination (e.g. if no seasonal influenza vaccine has been received, if there is <14 days between vaccination and first contact with influenza, or if the seasonal influenza vaccine is not well matched to the circulating strain). **If a localised outbreak occurs, for example on a ward or in a care home facility, antiviral prophylaxis can be given regardless of vaccination status.**

The options available for influenza prophylaxis are different for severely immunocompromised patients, so it is important to assess the immunosuppression status of the patient using the definitions on page 3.

Healthcare workers exposed to Influenza, who are fit and well, do not require post-exposure prophylaxis. Healthcare workers who have risk factors for complicated influenza infection (see page 3), with definitive exposure to confirmed influenza positive patients should contact the occupational health team for vaccination and advice on post-exposure prophylaxis.
Definitions

Contact: Being in the same bay as a patient with virologically confirmed influenza infection for longer than 15 minutes.

Contact tracing should be undertaken for exposed patients in the ward bay at the time when the Influenza positive result is available to the clinical team. Retrospective contact tracing along the patient pathway may need to be undertaken after liaison with the Infection Prevention and Control team.

Risk factors for complicated influenza:

- neurological, hepatic, renal, pulmonary and chronic cardiac disease
- diabetes mellitus
- severe immunosuppression
- age over 65 years
- pregnancy (including up to 2 weeks post-partum)
- children under 6 months of age
- morbid obesity (BMI ≥40)

Severe immunosuppression: Examples of severe immunosuppression relevant to this guidance are given below. Degrees of immunosuppression are difficult to quantify and individual variation exists, therefore this list is not comprehensive.

a. Severe primary immunodeficiency.

b. Current or recent (within six months) chemotherapy or radiotherapy for malignancy.

c. Solid organ transplant recipients on immunosuppressive therapy.

d. Bone marrow transplant recipients currently receiving immunosuppressive treatment, or within 12 months of receiving immunosuppression.

e. Patients with current graft-versus-host disease.

f. 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.

g. 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).
h. Patients currently or recently (within six months) on other types of highly immunosuppressive therapy or where the patient’s specialist regards them as severely immunosuppressed.
Adult patients (>13 years of age) – influenza prophylaxis risk assessment

Contact with influenza

Is the patient who has come into contact with influenza severely immunosuppressed?
(Refer to page 3 for definitions of severe immunosuppression)

NO
NOT severely immunosuppressed

Has the contact had a seasonal influenza vaccine this season, more than 2 weeks ago?†

YES
Prophylaxis NOT recommended

NO or UNKNOWN
Prophylaxis recommended
PO Oseltamivir 75mg OD* for 10 days

YES
Severely immunosuppressed

Is the contact known to have been exposed to an influenza strain with a potential for oseltamivir resistance e.g. (H1N1)? **

NO or UNKNOWN
Prophylaxis recommended
PO Oseltamivir 75mg OD* for 10 days

Yes
Prophylaxis recommended
Zanamivir INHALED 10mg OD for 10 days*
Or if unable to administer Inhaled Zanamivir:
PO Oseltamivir 75mg OD* for 10 days

†In an outbreak setting, influenza prophylaxis may be administered irrespective of vaccination status
* For dosing in renal impairment, refer to antibiotic website
http://nuhnet/diagnostics_clinical_support/antibiotics/Pages/Renal_impairment/oseltamivir.aspx
** Influenza A strain typing will be included in the confirmatory laboratory report for the index patient. Point of care influenza results do not include an influenza A typing result, in which instance prophylaxis decisions should be made based upon the predominant circulating strain

Notes
For advice on administration in adult patients with swallowing difficulties or who require administration via an enteral feeding tube see page 7 for advice.
If the patient is pregnant refer to information on the safety of oseltamivir in pregnancy on the antibiotic.
Paediatric patients (<13 years of age) – influenza prophylaxis risk assessment

Contact with influenza

Is the patient who has come into contact with influenza severely immunosuppressed?
(Refer to page 3 for definitions of severe immunosuppression)

NO

NOT severely immunosuppressed

Has the contact had a seasonal influenza vaccine this season, more than 2 weeks ago?†

YES

Prophylaxis NOT recommended

NO or UNKNOWN

Prophylaxis recommended

PO Oseltamivir
See page 6 for paediatric dosage guidance

NO or UNKNOWN

Prophylaxis recommended

PO Oseltamivir
See page 6 for paediatric dosage guidance

YES

Severely immunosuppressed

Is the contact known to have been exposed to an influenza strain with a potential for oseltamivir resistance e.g. (H1N1)? **

YES

Prophylaxis recommended

Over 5 years of age: Zanamivir INHALED 10mg OD for 10 days

Under 5 years of age or if unable to administer inhaled Zanamivir:
Oseltamivir PO
See page 6 for paediatric dosage guidance

Notes
†In an outbreak setting, influenza prophylaxis may be administered irrespective of vaccination status
** Influenza A strain typing will be included in the confirmatory laboratory report for the index patient. Point of care influenza results do not include an influenza A typing result, in which instance prophylaxis decisions should be made based upon the predominant circulating strain.
## Dosing of antiviral prophylaxis in children <13 years

### Table 1.

<table>
<thead>
<tr>
<th>Prophylaxis</th>
<th>Premature (less than 36 weeks post conceptual age)</th>
<th>0-12 months (36 weeks post conceptual age or greater)</th>
<th>&gt;1-12 years: Dose according to weight below</th>
</tr>
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<tbody>
<tr>
<td></td>
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<td>≤15kg</td>
<td>&gt;15-23kg</td>
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<tr>
<td><strong>Oseltamivir</strong></td>
<td>See below¹</td>
<td>3mg/kg OD</td>
<td>30mg OD</td>
</tr>
<tr>
<td>PO (prophylaxis course: 10 days)</td>
<td></td>
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<tr>
<td><strong>Zanamivir</strong></td>
<td></td>
<td></td>
<td>Not licensed for children &lt;5 years old</td>
</tr>
<tr>
<td>INH (prophylaxis course: 10 days)</td>
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### Dosage adjustment in renal impairment

Oseltamivir dose should be reduced in children with renal impairment when CrCl <30ml/min. [Refer to the paediatric guideline for the use of oseltamivir in patient with renal disease.](#)

¹There is currently no publicly available dosing information for oseltamivir prophylaxis in pre-term infants. Contact neonatal specialist pharmacist for advice on dosing.
Administration of Oseltamivir to adults and children unable to swallow capsules

Please note the advice below is from Public Health England, the opening of oseltamivir capsules is an off label use.

Child under 1 year of age: Use Tamiflu® oral suspension (Roche, 6mg/mL oral suspension, which is reconstituted from powder). The pack includes an oral dispenser, which is marked in millilitres (mLs). This is an off-label use of oseltamivir but is supported by the BNF for children.

Children over 1 year of age and adults:
For children over one year of age and adults with swallowing difficulties the capsules can be opened and the contents mixed with a small amount (1 teaspoon) of an appropriate sweetened food, e.g. chocolate syrup, honey, sugar-water, dessert-toppings, sweetened condensed milk, apple sauce, or yogurt. The capsule contents have a bitter taste. The whole dose should be given immediately.

For children over one year of age and adults with an enteral feeding tube, the capsules can be opened and the contents dispersed in water. Whilst this is unlicensed practice it is believed to have been used widely during the UK swine flu outbreak in 2009, and no problems have been reported. Oseltamivir has been shown to be adequately absorbed following nasogastric administration in severely ill patients.

Oseltamivir oral suspension should NOT be used in these groups as otherwise there may not be adequate quantities of the powder for suspension to meet demand for the less than one year age group. It is important that the powder for suspension is reserved for the less than one year age group.
General infection control

Patients who have come into contact with virologically confirmed influenza infection do not require isolation unless they develop symptoms of influenza infection. Do not swab contacts for influenza testing unless they themselves become symptomatic.

If a patient who has had contact with virologically confirmed influenza becomes symptomatic:

- Isolate the patient, referring to the Infection Control Respiratory Viruses Policy and the section on Influenza on the Infection Prevention and Control intranet site http://nuhnet/diagnostics_clinical_support/infection_prevention_control/Pages/AtoZ/Influenza_Guidance.aspx
- Contact the Infection Prevention and control team to highlight the possibility of a hospital acquired case.
- Take a viral throat swab for influenza PCR (red top swab in virus transport medium - VTM) and send to Microbiology – Medway request code: respiratory virus PCR