



# H1N1v (Swine flu): treatment, prophylaxis and self-isolation of haematology/oncology children with immunosuppression

*This guideline refers to all haematology/oncology children on chemotherapy or other immunosuppressant therapy and within 6 months of completion of treatment and patients within 12 months of completing haemopoietic stem cell transplant (HSCT).*

## Background

### Advice for children under the care of Principal Treatment Centres concerning H1N1 swine flu

Information concerning the risk of infection, the need to provide drug treatment and the value of self isolation are constantly being re-evaluated. Due to the frequent & rapid changes to the national guidance, there is an urgent need for a guideline to be available for Principal Treatment Centres and Shared Care Units, which reflects current policy and will be updated on a regular basis. This guideline has been developed for paediatric haematology and oncology patients only and is intended as sensible guidance. Please refer to your own Trust's guidance for local advice as protocols may be modified according to local risk assessment.

### Investigation for H1N1v

*Routine* testing has ceased but is still available if it is clinically appropriate and will alter or aid management of a patient.

Please note that standard immunofluorescence (or other rapid test for influenza A) used on nasopharyngeal aspirates (NPAs) may have a low sensitivity (high false negative rate) for H1N1v although it will still detect the seasonal flu A. More specific tests are costly and usually cannot provide real time results. Please discuss details of sample collection with your local laboratory. If investigation is required for other respiratory viruses, send an NPA or throat & nose swabs in viral medium according to local policy and request swine flu PCR as well as other tests.

Refer to your local Trust policy on collection of background information about children or staff who are being tested for H1N1v.

## Treatment of symptomatic immunosuppressed children

It is often impossible in children with fever to distinguish between bacterial febrile neutropenic sepsis and swine flu. It is important therefore to follow local policy for febrile neutropenia and to consider treatment of H1N1 flu in addition to standard treatment in patients with significant exposure (see below for definition). For children at serious risk of influenza, treatment should be given if the patient presents within 48 hours of onset (as advice for seasonal flu) and considered if within 7 days (current swine flu advice).

Patients can be considered to remain 'at risk' of immunosuppression while on therapy and up to 6 months (for standard chemotherapy) or 12 months (post-HSCT/high dose chemotherapy) post-completion of treatment.

## Febrile Neutropenia

It is vitally important that children with febrile neutropenia are still treated appropriately and promptly according to the local febrile neutropenia protocol. These children must still be admitted, and samples sent for standard bacterial cultures and for H1N1v. Appropriate intravenous antibiotics must be commenced without delay.

Consideration should be given to the location of assessment and treatment for febrile neutropenic patients who may have H1N1v. These patients should be isolated according to local policy but be under the care of the Haematology/Oncology team to ensure all aspects of their care are addressed.

## Febrile non-neutropenic patients

Standard investigation and management should be initiated with this group of patients, in addition to any investigations with regard to their influenza-like symptoms.

## Starting Oseltamivir (Tamiflu) or Zanamivir (Relenza) in Haematology & Oncology patients who are Febrile with or without neutropenia

In addition to the prompt commencement of standard treatment for febrile neutropenia or febrile non-neutropenia as above, Oseltamivir (Tamiflu) or Zanamivir (Relenza) should be started in patients who have clinical diagnostic criteria of H1N1v (see HPA guidance "Human Swine Influenza: information for health professionals", reference 1).

These are:

- Fever [pyrexia  $\geq 38^{\circ}\text{C}$ ] or a history of fever,

### AND

- influenza-like illness (TWO OR MORE of the following symptoms: cough; sore throat; rhinorrhoea; limb or joint pain; headache; vomiting or diarrhoea)

### OR

- severe and/or life-threatening illness suggestive of an infectious process

In children with cancer, "severe illness" should include respiratory distress (tachypnoea, hypoxia, increased work of breathing etc) or radiological evidence of lower respiratory tract infection.

Consider starting antiviral therapy in children with cancer who are febrile with one of the following: recent confirmed contact with H1N1v; other pre-existing risk factors (eg underlying cardiac or respiratory disorders). Please refer to your local Trust policy.

## Oseltamivir (Tamiflu) or Zanamivir (Relenza) in children less than 1 year of age

Children less than 1 year of age may suffer more side-effects than older children and adults. Please consult with the relevant oncology team prior to starting antiviral treatment. All clinicians should seek extra advice when prescribing for children under 2 months old.

As per HPA "Summary of prescribing guidance for the treatment and prophylaxis of influenza-like illness: TREATMENT PHASE v1.5 July 2009" (see reference 2), Oseltamivir (Tamiflu) dose for children between 2 months and 12 months is 2mg/kg/dose twice per day for 5 days.

## Collection of Oseltamivir (Tamiflu) or Zanamivir (Relenza)

As different local centres have different policies for Antiviral Collection Points, it is the responsibility of each hospital to ensure their staff and parents are aware of the local policies.

## H1N1v treatment and children on chemotherapy

1. Symptomatic children on maintenance treatment for acute lymphoblastic leukaemia (ALL) should be swabbed (if local policy), receive Oseltamivir (Tamiflu) or Zanamivir (Relenza) and stop maintenance until well for a week. Suspension of chemotherapy for non-ALL children and those during intensive ALL treatment should also be considered and discussed with the treating consultant.
2. Symptomatic children with solid tumours on chemotherapy should also be swabbed and receive Oseltamivir (Tamiflu) or Zanamivir (Relenza). It may be necessary to delay/interrupt chemotherapy for these children and this should be discussed with the treating consultant.
3. For any children on immunosuppression for Langerhans Cell Histiocytosis (LCH) or other inflammatory disorder with prednisolone, azathioprine or other -if symptomatic, the immunosuppression should be continued and the treatment, Oseltamivir (Tamiflu) or Zanamivir (Relenza) be given in addition.

## Information for use by staff when providing direct patient care for cases of possible or actual H1N1 swine flu

Infection prevention and control procedures are important during the management of all children seen or admitted in your Trust. Various respiratory masks are available. Advice on minimum standards for use of personal protective equipment have been provided by HPA and DH, although this stage in the pandemic higher levels of protection for standard clinical contact are recommended. This may be revised depending on further evidence, general risk and availability of masks. Please take the advice of the Infection Control Team in your own Trust.

## Prophylaxis of immunosuppressed children

This pandemic H1N1 strain currently is predominantly associated with mild illness but serious childhood illness has occurred. Prophylaxis is generally well tolerated.

At this point in time, *prophylaxis is recommended for close contacts of laboratory confirmed or clinically presumed cases only*. For the purpose of this guideline a close contact is defined as, **HOUSEHOLD MEMBER ONLY**. (Outside of household contact, close contact is defined as being less than 1 metre from the index case for more than 1 hour).

Adjacent class mates and other class mates are no longer considered as close contacts. If a patient stops prophylaxis and is re-exposed again, then the child needs to recommence prophylaxis.

See HPA "Summary of prescribing guidance for the treatment and prophylaxis of influenza-like illness" (reference 2) for antiviral dosage in prophylaxis.

## Self-exclusion of at risk individuals from potential contact with cases

Adults are felt to be infectious only when symptomatic, children may be infectious approximately 12 hours before symptoms.

### 1. Schools

While transmission is occurring in schools, it is also uncontrolled in the community and children would need to be excluded from all contact to eliminate risk.

Well children on chemotherapy treatment should be allowed to attend school if only isolated potential cases are present, but may choose to temporarily avoid school if there is a large outbreak or confirmed classmate cases.

### 2. Siblings

There is no recommendation to restrict school, therefore siblings should attend school normally.

As community cases further increase the risk of school versus out of school time may become insignificant. However, as stated above, to remove risk, children would need to be excluded from all contact which would be impractical and unnecessary at this stage.

### Children with Sickle Cell disease

There are recent cases of children with Sickle Cell disease becoming severely ill (e.g. chest crisis) associated with H1N1v infection. In addition to standard management of Sickle Cell disease and crisis (hydration, antibiotics and analgesia etc as appropriate) local hospitals may wish to adopt the "H1N1v (swine flu) haematology/oncology guidelines" for children with Sickle Cell disease.

## Updates

As national recommendations are frequently changing and updated we will update these guidelines accordingly. Trusts must ensure a mechanism is in place to:

- cascade any newer versions of guidelines to all relevant local staff groups promptly
- destroy any older versions.

Please refer to HPA website (HPA.org.uk) for current national swine flu treatment and prophylaxis protocols.

## References/Bibliography

Reference 1:

Health Protection Agency (2009) **Human Swine Influenza: information for health professionals**. [www.hpa.org.uk/webw/HPAweb&Page&HPAwebAutoListName/Page/124081234677?p=1240812234677](http://www.hpa.org.uk/webw/HPAweb&Page&HPAwebAutoListName/Page/124081234677?p=1240812234677). Viewed on: 11/08/2009

Reference 2:

Health Protection Agency (2009) **Summary of prescribing guidance for the treatment and prophylaxis of influenza-like illness: TREATMENT PHASE**. [www.hpa.org.uk/webc/HPAwebFile/HPAweb\\_C/1243581475043](http://www.hpa.org.uk/webc/HPAwebFile/HPAweb_C/1243581475043). Viewed on: 11/08/2009

Document Control  
Version 1: 11/08/09  
Julia Chisholm for CCLG Supportive Care Group



**Children's Cancer and Leukaemia Group**  
3rd Floor, Hearts of Oak House  
9 Princess Road West  
Leicester LE1 6TH  
Tel: 0116 249 4460

Fax: 0116 254 9504  
Email: [info@cclg.org.uk](mailto:info@cclg.org.uk)  
Website: [www.cclg.org.uk](http://www.cclg.org.uk)  
Registered Charity No: 286669

supported by  
**CANCER RESEARCH UK**