



# INDIAN ACADEMY OF PEDIATRICS

## FAQs on Seasonal Influenza (including A(H1N1) pdm09 aka 'Swine Flu')

**Q. What is the current status of swine flu in India?**

**Ans.** According to Health Ministry, the total number of deaths due to swine flu has reached 1,005, while the number of those affected was 18,105 till February 27, 2015.

**Q. When to suspect 'swine flu'?**

**Ans.** Any child with symptoms of upper respiratory illness may be suffering from H1N1 influenza.

Patients present with symptoms of acute respiratory illness, including at least 2 of the following :

- Fever
- Cough
- Sore throat
- Chills & fatigue
- Diarrhea and vomiting (possible)
- Rhinorrhea
- Headache
- Bodyaches & joint pains

**Q. What is the 'Incubation period' of the disease?**

**Ans.** 1-7 days. 3-5 days from clinical onset in adults; up to 7 days in young children. Peak viral shedding occurs on day 1 of symptoms.

**Q. For how long an individual remains 'infectious'?**

**Ans.** The communicability of the illness lasts from 1 day before to 7 days after the onset of symptoms. If illness persists for more than 7 days, chances of communicability may persist till resolution of illness. Children may spread the virus for a longer period.

**Q. After infection, for how long an individual remains immune?**

**Ans.** Antibodies appear in 7 days after an attack; reach maximum level in 2 weeks; drop to pre-infection level in 8- 12 months. There is no cross-immunity between different sub-types/ strains.

**Q. What can be the presentation of a child infected with swine flu?**

**Ans.** Majority of infected individuals will have a mild type of illnesses which could be as follows:

*i. Sub clinical infection:* Almost 30% cases get infection but never develop any kind of disease such cases are labelled as sub clinical infection.

*ii. Common cold [Rhino-pharyngitis]:* Majority of other patients develop a rhino-pharyngitis, a disease no different than an ordinary cold caused by any other virus. Such cases recover with simple fever and cough medications.

*iii. Tracheo-laryngo-bronchitis:* These patients have fever, hoarseness of voice and significant cough. Some of these patients may have loud croupy sound with normal breathing, such case may need hospitalization.

*iv. H1N1Pneumonia:* This is the most serious complication of H1N1 infection which can culminate into death. It's extremely vital for clinician to detect it at earliest as timely treatment even in swine flu pneumonia can save the life. Fortunately this is a rare and only 3-5 cases out of 100 H1N1 cases develop this level of disease.

So, it is only swine flu pneumonia which is dangerous; fortunately it occurs in only 5% of cases while other swine flu infections are mild which do not pose much risk to infected person. So let us be vigilant for symptoms of swine flu pneumonia and stop bothering about other level of illnesses.

Gol has recently categorized the cases in three different categories, A, B, and C depending upon severity and/or underlying predisposition (Table I).

**Q. Are there some specific pointers to or pathognomonic signs of swine flu infection?**

**Ans.** No.

**Q. What are the investigations available to confirm H1N1 infection?**

**Ans.** Confirmation of influenza A(H1N1) swine origin infection is through:

- Real time RT PCR or
- Isolation of the virus in culture or
- Four-fold rise in virus specific neutralizing antibodies.

**Q. Should all suspected/confirmed cases be hospitalized?**

**Ans.** No. Only serious cases with lower respiratory system/pneumonia and individuals with high risk conditions need hospitalization.

**Q. Which category of patients need close supervision & monitoring?**

**Ans.** Young children with pre-disposing risk factors, old people, pregnant mothers, health workers, individuals with co-morbid conditions (lung disease, heart disease, liver disease, kidney disease, blood disorders, Diabetes); immuno-compromised, and individuals on long term steroid treatment etc are at additional risk, they need close observation, and even a dose of anti-flu medication.

**Q. What are the criteria of categorization of the disease?**

**Ans.** The Ministry of Health & Family Welfare, Government of India has categorized the disease in three categories. Table I provides guidelines on categorization of Influenza A H1N1 cases during screening for home isolation, testing, treatment and hospitalization (see Table I).

**Q. What are the signs of serious disease?**

**Ans.** Severe disease is characterized by apnea, tachypnea, dyspnea, cyanosis, dehydration, altered mental status, and extreme irritability.

**Q. Do all suspected cases need to be tested?**

**Ans.** Table I provides the guidelines. As stated above, majority of swine flu cases have mild ailments which are similar to any other viral diseases that occur in society round the year; if tested all these mild cases will be positive for H1N1 but it does not mean that a positive tested person has any kind of risk for his life. As per WHO estimates by end of 2010 almost 26% of world population had swine flu infection. Even in present outbreak if we keep a modest infection rate of 15%, on average hundreds of thousands of people getting swine flu infection every day and if tested they would be positive; but all these are mild cases and are of no consequence. Hence, no need to test all these cases.

Not everyone needs to be tested. When a case is reported from a new pocket, the test helps the administration understand the spread of flu.

Category	Presentation	Testing for H1N1	Hospitalization	Oseltamivir administration	Treatment modality
A	Mild fever plus cough / sore throat with or without bodyache, headache, diarrhoea and vomiting	No	No	No	Home treatment
B	Signs and symptoms of Cat. A + High grade fever, severe sore throat, Or Cat-A signs & symptoms with high risk conditions*	No	No	Yes	Home confinement
C	Signs and symptoms of Cat. A & B + breathlessness, chest pain, drowsiness, hypotension, bloody sputum, bluish discolouration of nails; convulsions, Or signs and symptoms of Cat. A & B +worsening of underlying chronic conditions	Yes	Yes	Yes	Immediate hospitalization

**Table I. Guidelines on categorization of Seasonal Influenza A H1N1 cases during screening for home isolation, testing, treatment and hospitalization** (Based on MoHFW , Government of India guidelines on management of Seasonal influenza aka Swine Flu. Available from: <http://mohfw.gov.in/showfile.php?lid=3071>)

**\*High risk conditions:** Children with mild illness but with predisposing risk factors. Pregnant women; Persons aged 65 years or older; Patients with lung diseases, heart disease, liver disease, kidney disease, blood disorders, diabetes, neurological disorders, cancer and HIV/AIDS; Patients on long term cortisone therapy.

**Q. Where are the diagnostic facility available?**

**Ans.** There are only 21 laboratories for testing A (H1N1) in the entire country. Samples are collected at district hospitals of different states and send to nearby IDSP/ICMR centers having facility for Influenza virus testing. The complete list can be found at following URL: <http://mohfw.gov.in/showfile.php?lid=3075> Some private labs are also conducting this test. The test in private laboratories in Delhi costs Rs 4,500.

**Q. Then who should be investigated?**

**Ans.** Priority for testing should be given to:

1. Those who require hospitalization;
2. Those who are at high risk for severe complications (Table I).

**Q. When to collect respiratory specimens?**

**Ans.** Sample should be collected as soon as possible after symptoms begin, before antiviral medications are administered. Nasal and/or oral swabs are taken and sent to the laboratory.

**Q. What is the recommended dosage schedule of Oseltamivir for the treatment in children?**

**Ans.** Oseltamivir is the drug of choice. Treatment should be given for 5 days (Table II).

**By Weight:**

For weight <15kg	30 mg BD for 5 days
15-23kg	45 mg BD for 5 days
24-<40kg	60 mg BD for 5 days
>40kg	75 mg BD for 5 days

**Q. What is the schedule for treatment of infants?**

**Ans.** For infants:

< 3 months 12 mg BD for 5 days

3-5 months 20 mg BD for 5 days

6-11 months 25 mg BD for 5 days

Oseltamivir is also available as syrup (12mg per ml ).

**Q. Who should be offered prophylactic oseltamivir?**

**Ans.** i. All close contacts of suspected, probable and confirmed cases. Close contacts include household / social contacts, family members, workplace or school contacts, fellow travelers etc.

ii. All health care personnel coming in contact with suspected, probable or confirmed cases.

**Q. What is the dosage schedule for prophylaxis?**

**Ans.** Prophylaxis should be provided till 10 days after last exposure (maximum period of 6 weeks). Table II provides information about prophylactic dose of oseltamivir. Though, it is not approved for prophylaxis of patients less than 1 year of age, following optional schedule can be used:

< 3 months not recommended unless situation judged critical due to limited data on use in this age group

3-5 months 20 mg OD

6-11 months 25 mg OD

**Q. What policy to discharge a hospitalized patient should be adopted?**

**Ans.** Adult patients should be discharged 7 days after symptoms have subsided. Children should be discharged 14 days after symptoms have subsided. The family of patients discharged earlier should be educated on personal hygiene and infection control measures at home; children should not attend school during this period.

**Table II. Treatment & Prophylaxis Dosing Schedule of Oral Oseltamivir # (Tamiflu) for Influenza in Pediatric Patients**

Weight (Kg)	Treating (Dosing for 5 days)	Prophylaxis (Dosing for 10 days)
<i>Patients from 2 weeks to &lt;1 year of age</i>		
Any weight	3 mg /kg twice daily	Not Applicable*
<i>Patients from 1 to 12 years of age based on body weight</i>		
15 kg or less	30 mg twice daily	30 mg Once daily
15.1 kg to 23 kg	45 mg twice daily	45 mg Once daily
23.1 kg to 40 kg	60 mg twice daily	60 mg Once daily
40.1 kg or more	75 mg twice daily	75 mg Once daily
<i># It is also available as syrup (12 mg/ ml )</i>		
<i>*Oseltamivir (Tamiflu) is not approved for Prophylaxis of patients less than 1 year of age</i>		



**Q. What are the non-pharmaceutical interventions to avoid spread of disease?**

**Ans.** Close Contacts of suspected, probable and confirmed cases should be advised to remain at home (voluntary home quarantine) for at least 7 days after the last contact with the case. Monitoring of fever should be done for at least 7 days. Prompt testing and hospitalization must be done when symptoms are reported.

**Q. Why such a high mortality despite the presence of virus since 2009?**

**Ans.** The problem has been because of medical inertia over the last two years. Doctors have forgotten the spread of flu in 2009 and 2010. There is no general awareness. The public is not being advised that there is no need for mass vaccination or even tests. Not everyone needs to be tested. The deaths being reported have been due to delayed treatment. There is no need for panic. As the weather changes, and it becomes hotter, there would be a decline in the cases.

## Preventive Vaccination

**Q. What are the available vaccines against influenza?**

**Ans.** Both inactivated injectable and live attenuated nasal influenza vaccines are available in the market. They include the following brands:

*Inactivated injectable trivalent influenza vaccines:*

Vaxigrip-TM (Sanofi Pasteur), Agripal-TM (Panacea Biotech/ Novartis Vaccines), Influren-TM (Lupin Lab), HNVAX-TM (Bharat Biotech),

*Live attenuated Nasal influenza vaccine:*

Nasovac-S-TM (By Serum Institute of India)

**Q. Do all these vaccine provide protection against current outbreaks of A (H1N1)?**

**Ans.** All currently available trivalent vaccines now have the influenza strain that is antigenically similar to 2009 pandemic swine flu strain i.e. A(H1N1)pdm09. Hence, all these vaccines do provide protection against currently circulating swine flu strain.

**Q. How effective are flu vaccines? Are flu vaccines 100% effective against the disease?**

**Ans.** No. Influenza vaccination is most effective when circulating viruses are well-matched with vaccine viruses. Even with appropriate matching, efficacy of vaccine may be about 70% to 80%, especially in geriatric age group. In case the locally circulating virus is different from vaccine virus recommended by WHO, it may not be effective at all.

**Q. There is talk of drift in circulating strain of Flu virus. Will the vaccine be effective?**

**Ans.** There are three major flu viruses in circulation in the community and also contained in the vaccine. They include two A group viruses, H3N2 and H1N1, and one B group viruses. The A(H3N2) and B group viruses are drifted and current vaccines do not contain these two drifted virus antigens. However, the major circulation in India is of A (H1N1) virus (also called pandemic swine flu virus of 2009) which is not drifted and antigenically the same that contained in most of the current vaccines. WHO in its February 23-25, 2015 meeting had also confirmed it. So all the available flu vaccines will be effective against currently circulating H1N1 virus, but not against other two viruses.

**Q. What are the estimates of effectiveness of available flu vaccines against ongoing A(H1N1) outbreaks in India?**

**Ans.** There is no India specific study, all the available studies from Europe, Australia, USA, and Korea reported high effectiveness of influenza vaccines (whether trivalent or mono-valent). According to a recent study, vaccine effectiveness (VE) of A(H1N1)pdm09 for confirmed illness was between 79% to 86% .

**Q. Is there any Indian study also on effectiveness of flu vaccine against H1N1?**

**Ans.** Yes, there is one India-specific case control study performed with monovalent live attenuated influenza A(H1N1)pdm 2009 vaccine (Nasovac-TM by Serum Institute of India) in Pune during June-December 2010. It found an overall effectiveness (VE) of 75.5%.

**Q. Should vaccine be offered to all individuals?**

**Ans.** No.

**Q. Then who should receive influenza vaccine?**

**Ans.** According to IAP, following group of individuals should be offered the vaccine:

1-Children with certain high-risk conditions and diseases (like chronic cardiac, pulmonary (excluding asthma), hematologic, renal, liver diseases, diabetes mellitus, congenital or acquired immunodeficiency (including HIV infection), and children on long term salicylates therapy,etc)

2-Health care professional including pediatricians;

3-Laboratory personnel and healthcare workers;

4-On demand of anxious parents after one-to-one discussion.

**Q. What are the Government of India's guidelines on influenza vaccination?**

**Ans.** Health Care Workers working in close proximity to influenza patients are at higher risk of acquiring the disease. Hence, vaccination is recommended for them. Such category would include: Health Care Workers working in casualty/ emergency, department of identified hospitals treating Influenza cases, health workers working in ICU and Isolation Wards, managing influenza patients. Health Care Workers identified to work in screening centres that would be set up for categorization of patients during seasonal Influenza outbreak. Health Care workers treating/managing the High Risk Group, laboratory personnel working in virological laboratories testing influenza samples. Rapid Response Team members identified to investigate outbreaks of Influenza. Drivers and staff of vehicles/ ambulances involved in transfer of Influenza patients.

**Q. Is it okay to advise mass vaccination in schools in the regions affected with current outbreaks of swine flu?**

**Ans.** No. Mass vaccination is not a correct strategy since it takes about 2-3 weeks for development of immunity and as explained above majority of affected individuals would have only minor, self-limiting disease. Govt has advised vaccination of only health care workers while IAP has recommended vaccination of certain high-risk individuals. No health authority in India including WHO has recommended mass influenza vaccination.

**Major sources**

- 1 Ministry of Health & Family Welfare, Government of India. Guidelines Swine Flu-H1N1 (Seasonal Influenza). Available from: <http://mohfw.gov.in/index4.php?lang=1&level=0&linkid=372&lid=3066> Accessed on February 28, 2015.
- 2 Vaccines against influenza. WHO position paper-November 2012. Wkly Epidemiol Rec 2012; 87: 461–476.
- 3 Influenza Vaccination in India: Position Paper of Indian Academy of Pediatrics, 2013. Indian Pediatr 2013; 50: 867-74.
- 4 Yin JK, et al. Impacts on influenza A(H1N1)pdm09 infection from cross-protection of seasonal trivalent influenza vaccines and A(H1N1)pdm09 vaccines: systematic review and meta-analyses. Vaccine. 2012; 30:3209-22.
- 5 Kulkarni PS, et al. Effectiveness of an Indian-made attenuated influenza A(H1N1)pdm 2009 vaccine: a case control study. Hum Vaccin Immunother. 2014;10:566-71.