

## Swine Flu in India

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Swine flu virus in India is a serious health hazard for last few years. It has affected our country again last winter *i.e.* Dec. till date. Indian Government has spent crores of rupees especially in Maharashtra, Rajasthan, and Gujarat. The Gold Triangle of Tourist *i.e.* Delhi, Agra and Rajasthan are affected. Till date 30,000 cases have been reported in our country and 1700 Patients have died. States like Gujarat, Rajasthan, and Telangana are mainly affected with some cases reported from Madhya Pradesh, Punjab, Uttar Pradesh and Delhi. Delhi has reported a few hundred cases with approximately fifteen deaths.

Swine flu virus is 2009 H1N1 type influenza, a human disease. It is a zoonotic disease originally got to humans from pigs and now spreading from human to human. The Swine flu influenza (SIV) is a respiratory illness. H1N1 sub type is the cause of pandemic but other sub types like H1N2, H1N3, H3N1, H3N2 and H2N3 cases also can occur. Name H1N1 is given because virus exhibits two types of antigens—Hemagglutinin and Neuraminidase. It is a RNA virus and could be segmented genome *i.e.* viral RNA but exists as eight different RNA segments. A human (or bird) influenza virus can infect a pig respiratory cell at the same time as a swine influenza virus, some of the replicating RNA strands from the human virus can mistakenly enclosed inside the envelop of swine influenza. For example one cell could contain eight swine flu & eight human flu segments. The total number of RNA types in one cell could be sixteen. Four swine & four human virus RNA segments could be incorporated into one particle

making a variable eight RNA segmented flu virus from the sixteen variable segment types. Various combinations of RNA segments can result in a new sub type (process known as antigen shift). It is even possible to include RNA strands from birds, swine and human into one virus. This small antigen shift can cause cumulative change over time (usually years).

Pigs were first involved and then human and now it passes from man to man. Pigs can play an intermediary host to new flu types as pig respiratory cells can be infected with bird, human and other mammalian flu virus. So pig respiratory cells are able to be infected with many types of flu and function as “mixing pot” for flu RNA segments. Bird flu virus infects GIT cells and shed to environment by bird faeces and enters pigs to be passed to human etc.

Each virus has a different H &/or N structure. Previously mainly children were affected but now all as groups especially elderly and diabetics. A healthy person may get infection by inhaling droplets (saliva & mucus) expelled by the infected person while coughing or sneezing or by contacting surfaces infected with the virus (or by shaking hand with the infected person). Remember the virus is not transmitted by eating cooked pork or bird.

Virus mainly infects pigs unlike typhus which can be transmitted by lice or ticks. The main transmission is not from pigs to human but rather from person to person. Disease is highly contagious & spreads through saliva and mucous. The most common sub type is influenza type A H1N1. The numbers on letter H & N mean protein found on the surface of the virus. Virus is constantly changing their genes—mutation, process called “jumping species barrier”. As human have no natural immunity to the virus so they are likely to become ill. Virus in pigs can appear from different species by swapping genes from them, forming a new virus.

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One can prevent infection by maintaining basic hygiene and bearing a proper surgical mask during season. Don't touch eyes, nose and mouth and put a handkerchief on mouth and nose while coughing or sneezing and washing hands frequently with antiseptic detergent. Take more of fluids, proteins and water.

Symptoms are similar to common to influenza *i.e.* fever, headache, bodyache, chills, diarrhea, coughing, sneezing, vomiting, difficulty in breathing and some times blood in the cough. Numbers of cases are more in winter though cases may be reported in summer and monsoon. Do stay away from crowded places and keep an arms distance when infected from other persons. Keep away from public places if you are affected. Do sleep well. Indian culture of folded hands (Namaste) and not shaking hands is advisable. Keep rooms well ventilated.

Don't shake hands or touch other contact greetings. Don't spit in public. Don't take medicines without consulting the doctor. Viral vaccine is available in the market and so is the tablet Tamiflu.

Basically H1N1 is also a seasonal influenza (flu) and is self limiting viral disease. It can be categorized as:

1. Category A – cases with flu symptoms, neither require OSELTAMIVIR & nor testing
2. Category B – cases with high risk need OSELTAMIVIR, testing is not required
3. Category C – cases with danger signs need oseltamivir, testing and hospitalization

Naturopathy has also been effective in treating it. Here we give Tulsi, Neem, Giloy, Badi Elaichi & Dal chini Powder made into kadha (by boiling) & given as two big spoons thrice daily, powder of camphor & Chhoti Elaichi can be inhaled repeatedly in every hour as prophylaxis.

In immune-compromised patients it can complicate by causing, pre coma, coma and death. Serious patients should be kept in ICU with medication and ventilator with full supervision.