

## Swine Flu in Pediatrics to Adults

Gupta S.N.\*, Gupta Naveen\*\*

\*Editor-in-Chief , District AIDS Project Officer, Chief Medical, officer, Dharamshala, Kangra, Himachal Pradesh, India.

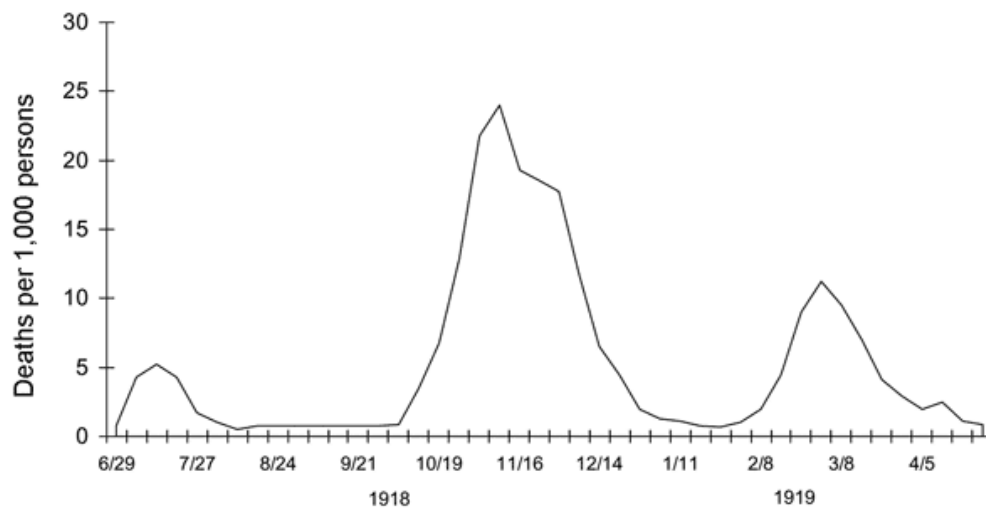
\*\*Freelance Researcher, Ayurveda and Epidemiology, Kangra, Himachal Pradesh, India

H5N1 is the avian flu while H1N1 flu is also known as swine flu. It's called swine flu based on serologic testing and because in the past, the people



who caught it had direct contact with pigs. The 1918 flu killed more than 600,000 Americans. Worldwide, in H1N1 pandemic, the toll was over 50 million.

By comparison, no single war has taken as many Americans in battle. The Galveston Hurricane of 1900, considered the deadliest in U.S. history, killed an estimated 8,000 people. That changed several years ago, when a new virus emerged that spread among people who hadn't been near pigs. Unfortunately, this cross-species situation with influenza viruses has had the potential to change. Investigators decided the 2009 so-called "swine flu" strain, first seen in Mexico, should be termed novel H1N1 flu since it was mainly found infecting people and exhibits two main surface antigens, H1 (hemagglutinin type 1) and N1 (neuraminidase type1). The eight RNA strands from novel H1N1 flu have one strand derived from human flu strains, two from avian (bird) strains, and five from swine strains. The newest swine flu virus that has caused swine



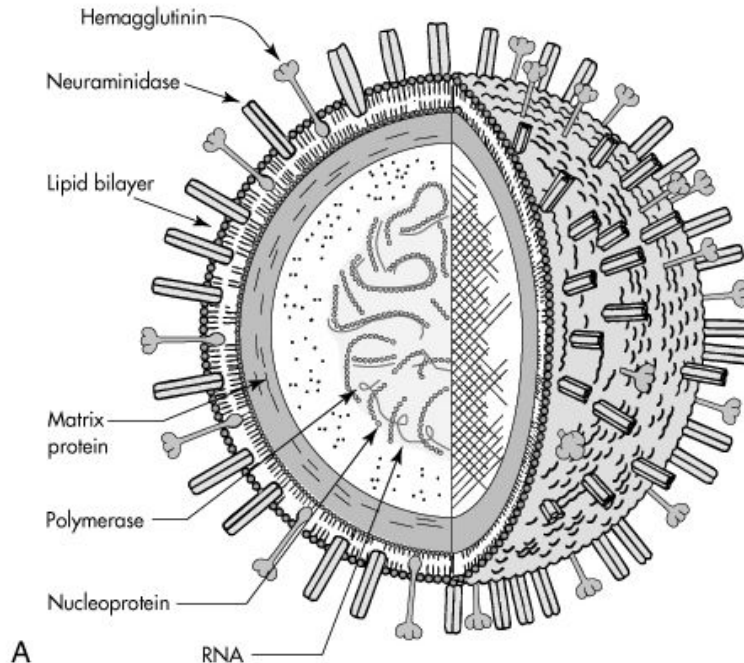
**Corresponding Author:** Gupta S.N., Editor-in-Chief , District AIDS Project Officer, Chief Medical, officer, Dharamshala, Kangra, Himachal Pradesh, India.

Email: drsurendernikhil@yahoo.com

flu is influenza A H3N2v (commonly termed H3N2v) that began as an outbreak in 2011. The “v” in the

name means the virus is a variant that normally infects only pigs but has begun to infect humans<sup>[a]</sup>.

### The composition of virus



This virus is a mutated type of virus so that nobody in the U.S. or probably worldwide has any immunity to it. That is why, it has the ability to cause widespread infections. In 2009, H1N1 was spreading fast around the world, so the World Health Organization called it a pandemic. Since then, people have continued to get sick from swine flu, but not as many. While swine flu isn't as scary as it seemed a few years ago, it's still important to protect yourself from getting it. Like seasonal flu, it can cause more serious health problems for some people, especially important for pregnant women, school-aged children and patients with co-morbid conditions (asthma, diabetes, heart disease or other ongoing health conditions). H1N1 targets mainly children and young adults. The best protection is to get a flu vaccine, or flu shot, every year. Swine flu is one of the viruses included in the vaccine. Research institutions around the country tested the H1N1 vaccine on thousands of volunteers of all ages, including pregnant women. The National Institutes of Health oversaw the trials.

As India is one of the countries struggling with this H1N1. Past experience with pandemics have taught us that the *second wave* is worse than the first as has been seen in the states like Rajasthan, New Delhi, Panjab, Himachal Pradesh, UP etc causing more morbidities and mortalities due to:

- Primary viral pneumonia, Acute Respiratory Distress Syndrome (ARDS), & Secondary bacterial infections, particularly pneumonia
- Fortunately compared to the past now we have anti-virals and antibiotics (to treat secondary bacterial infections)
- Based upon past experience and the way the current H1N1 pandemic is acting (current wave is contagious, spreading rapidly in different cities of India based upon preliminary data affecting the healthy), there is a likelihood that the subsequent wave could be more virulent.

As India battles swine flu or swine influenza, parents of young children should take extra precautionary steps to keep their little ones safe and healthy because children are at high risk of H1N1 virus. It is important to be aware of the major symptoms of swine flu in children. Majority of infected individuals will have a mild type of illness which could be as follows:

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

*Common cold (Rhino-pharyngitis):* Majority of the patients develop a rhino-pharyngitis, a disease no

### Swine Influenza A (H1N1) Transmission through Species

different than an ordinary cold caused by another virus. Such cases recover with simple fever and cough medications.

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

*H1N1 Pneumonia:* This is the most serious stage of H1N1 infection which can lead to death. It's extremely vital to deal with it clinically at the earliest, as timely treatment can save life. Fortunately this is rare and only 3-5 cases out of 100 H1N1 cases develop to this level. Attacks are severer in wintry conditions but the intensity dwindles down as the temperature warms up.

#### Causes of Swine Flu

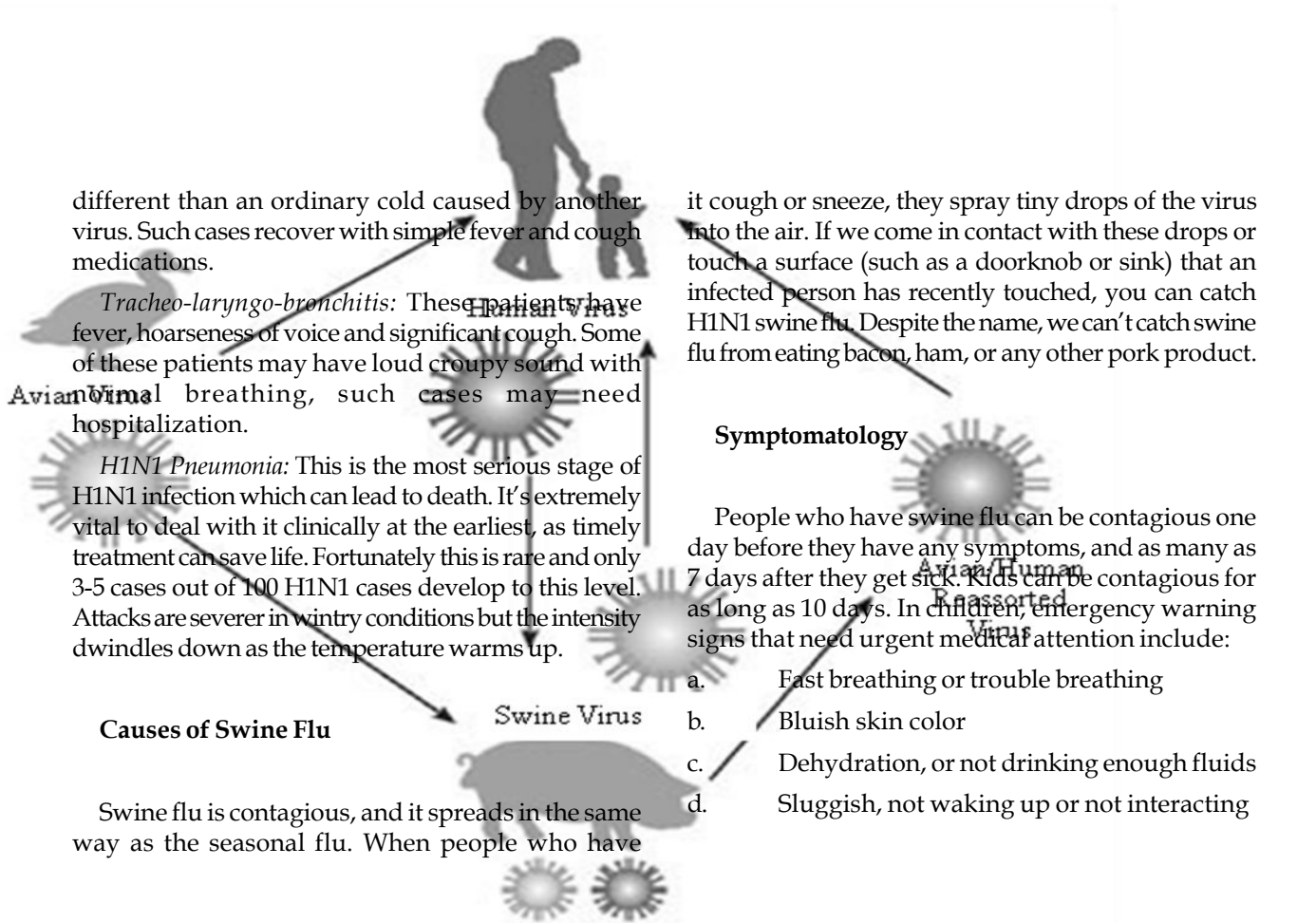
Swine flu is contagious, and it spreads in the same way as the seasonal flu. When people who have

it cough or sneeze, they spray tiny drops of the virus into the air. If we come in contact with these drops or touch a surface (such as a doorknob or sink) that an infected person has recently touched, you can catch H1N1 swine flu. Despite the name, we can't catch swine flu from eating bacon, ham, or any other pork product.

#### Symptomatology

People who have swine flu can be contagious one day before they have any symptoms, and as many as 7 days after they get sick. Kids can be contagious for as long as 10 days. In children, emergency warning signs that need urgent medical attention include:

- a. Fast breathing or trouble breathing
- b. Bluish skin color
- c. Dehydration, or not drinking enough fluids
- d. Sluggish, not waking up or not interacting



- e. Irritability to the point that the child does not want to be held
- f. Flulike symptoms improve but then return with fever and worse cough
- g. Fever with a rash

While in adults;

- ◆ In adults, symptoms that need emergency medical attention include:
  - ◆ Difficulty breathing or shortness of breath
  - ◆ Pain or pressure in the chest or abdomen
  - ◆ Sudden dizziness
  - ◆ Confusion
  - ◆ Severe or persistent vomiting
- ◆ If a person has any of the above symptoms they should seek medical care immediately. For any questions consult your regular medical provider or the local health department.

### Tests for Swine Flu

It's hard to tell about swine flu or seasonal flu, because most symptoms are the same. To test for swine flu, the doctor takes a sample from secretions from nose or throat. The CDC says the people who need to be tested are those in the hospital or those at high risk for getting life-threatening problems from the flu, such as:

- ◆ Children under 5 years old
- ◆ People 65 years or older
- ◆ Children and teens (under age 18) who are getting long-term aspirin therapy, and who might be at risk for Reye's syndrome after being infected with swine flu. Reye's syndrome is a life-threatening illness linked to aspirin use in children.
- ◆ Pregnant women
- ◆ Adults and children who have chronic lung, heart, liver, blood, nervous system, neuromuscular, or metabolic problems
- ◆ Adults and children who have suppressed immune systems (including those who take medications to suppress their immune systems or who have HIV)

- ◆ People in nursing homes and other long-term care facilities

### Treatment

Some of the same antiviral drugs that are used to treat seasonal flu also work against H1N1 swine flu. Oseltamivir (Tamiflu) and zanamivir (Relenza) seem to work best, although some kinds of swine flu are resistant to Tamiflu. These drugs can help to get over swine flu faster. They can also help keep it from being too severe. They work best when taken within 48 hours of the first flu symptoms, but they can help when taken later. Antibiotics won't help, because flu is caused by a virus, not bacteria. Over-the-counter pain remedies and cold and flu medications can help relieve aches, pains, and fever. Don't give aspirin to children under age 18 because of the risk for Reye's syndrome. Check to make sure that over-the-counter cold medications do not have aspirin before giving them to children<sup>[b]</sup>.

### Vaccine for Swine Flu

The same flu vaccine that protects against seasonal flu also protects against the H1N1 swine flu strain. Get it as a shot or as a nasal spray. Either way, it "teaches" the immune system to attack the real virus<sup>[c]</sup>.

1. A flu shot is important. The early results of a vaccine trial in Australia found that a single dose of H1N1 vaccine was enough to confer immunity in adults. Three weeks after the 120 volunteers in the study received their vaccine shot, 97% had enough antibodies to be considered protected<sup>[d]</sup>.
2. According to guidelines drafted by the Centers for Disease Control and Prevention (CDC), there are five key populations that should be vaccinated against the H1N1 virus: (i) Pregnant women (ii) People who live with or care for children younger than 6 months of age (iii) Children and young people between the ages of 6 months and 24 years (iv) Health care workers and emergency medical service providers and (v) People between 25 and 64 years of age who have chronic medical disorders or compromised immune systems.

If possible,

- ◆ try to avoid close contact with people who maybe ill.
- ◆ Additionally: avoid touching your mouth and nose;

- ◆ clean hands thoroughly with soap and water, or cleanse them with an alcohol-based hand rub on a regular basis (especially if touching the mouth and nose, or surfaces that are potentially contaminated);
- ◆ reduce the amount of time you spend in crowded settings;
- ◆ practice good health habits including adequate sleep, eating nutritious food, and keeping physically active.

3. The disease has already crossed all borders and continents, thus, border closure or travel restrictions will not change the course of the spread of disease. Most recently, the 2003 experience with SARS demonstrated the ineffectiveness of such measures as in China and Singapore. It is imperative to appreciate that "*times-have-changed*"

Though this strain has spread very quickly across the globe and seems to be highly infectious, today we are much better prepared than the pandemic of 1918. There is better surveillance, communication, understanding of infection control, anti-virals,

antibiotics and advancement in science and resources to produce an affective vaccine.

### References

1. MedicineNet.com; available at [http://www.medicinenet.com/swine\\_flu/page2.htm](http://www.medicinenet.com/swine_flu/page2.htm)
2. Weekly Epidemiological Record (WER); 4 December 2009, vol. 84, 49 (pp 505-516); available at <http://www.who.int/wer/2009/wer8449/en/>
3. Atika Abelin, Tony Colegate, Stephen Gardner, Norbert Hehme, Abraham Palache; Lessons from pandemic influenza A(H1N1): The research-based vaccine industry's perspective; Vaccine; Volume 29, Issue 6, 1 February 2011, Pages 1135-1138
4. Ph. Eur. 7th ed. 2011; European pharmacopoeia 7.0, 08 vaccines, vaccines for human use, European pharmacopoeia monograph 04/2009:2149, influenza vaccine (surface antigen, inactivated, prepared in cell cultures). p. 791-93.