INFLUENZA IN 2015

INTRODUCTION:

Influenza is unpredictable disease.

30% NRI visiting India visits Gujarat. So from beginning of Influenza Pandemic in 2009 it was likely that Gujarat will be one of the first affected states in our country. Geographically location of Gujarat is also conducive for round the year influenza activities. Health department had started preparedness to face the situation including surge capacity building. Now it has become seasonal flu and spreading through indigenous local cases so there is no longer threat that it will come through foreigners.

Influenza A (H1N1) pdm09 pandemic was started in March 2009 in Mexico and spreaded over 70 countries in 7 weeks time only. First case was reported in India on 16-5-09 in Hyderabad & on 1-7-2005 in Gandhidham in Gujarat. On 10-8-2005 WHO declared that Pandemic is over and cases will continue for years to come.

From 2009 to 2013 total 58690 cases & 3907 deaths were reported in India including 3526 cases & 720 deaths in Gujarat. Only 162 cases & 56 deaths were reported in Gujarat during 2014.

This year in 2015 there is high transmission of influenza in North hemisphere including USA were millions of people take Flu shot in mass vaccines program.

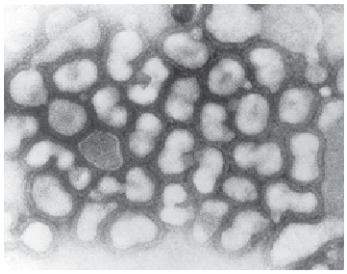
Since 1st January 2015 rising trend is observed mainly in Rajashthan, Gujarat, Maharashtra,Telangana, Delhi and Tamilnadu states in India. As on 18-2-15 total 2191 cases & 167 deaths have been reported in Gujarat. Cases have been reported practically from all districts but mainly from Kutch, Amdavad, Surat,Vadodara, Rajkot, Jamnagar, Anand.

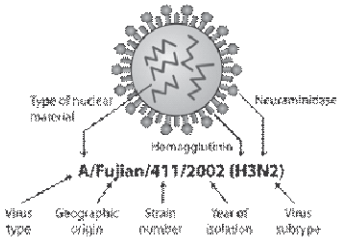
AGENT:

Influenza virus A, Influenza virus B, Influenza virus C are negative – sense ss-RNA viruses of Orthomyxoviridae family.

At present there are 3 Influenza prevalent at present in North hemisphere:

a. Influenza A (H1N1) pdm09
    i. Genetic sequencing shows a new sub type of influenza A (H1N1) virus reported from Mexico in 2009 with segments from four influenza viruses: North American Swine, North American Avian, Human Influenza and Eurasian Swine.
b. InfluenzaA(H3N2)
c. Influenza B





In USA minor mutation has been observed in InfluenzaA(H3N2) but in INDIA there are same viruses and changes have not been observed.

After beginning of pandemic in 2009-10 mild to moderate trend of transmission were reported in last 6 years. In 2011 there were only 75 cases & 11 deaths reported in our country. So it is difficult to predict behavior of virus and pattern of cases.

Host factors

The majority of these cases have occurred in high risk groups including pregnant mothers and in otherwise healthy young adults.

Individuals at extremes of age (Children < 2 years and elderly >65 years of age) and with preexisting medical conditions like diabetes mellitus, obesity, bronchial asthma, COPD, thyroid disorders, cancer, cardiac,hepatic, renal or neurological illnesses, patients having organ transplantion and immune compromised conditions like HIV/AIDS or on long term corticosteroids etc. are at higher risk of complications, mortality and exacerbation of the underlying conditions.

Transmission

The transmission is by respiratory droplet infection and fomites.

Incubation period : 1-7 days.

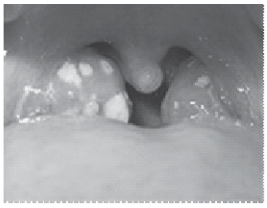
Communicability

1. From 1 day before to 7 days after the onset of symptoms.
2. If illness persist for more than 7 days, chances of communicability may persist till resolution of illness.
3. After 24 hours of apyrexia (without use of antipyretics) virus shedding substantially reduces.
4. Children & immune suppressed person may spread the virus for a longer period.

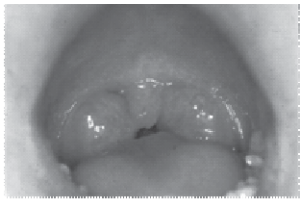
Clinical features:

Important clinical features of influenza include fever, and upper respiratory symptoms such as cough and sore throat. Head ache, body ache, running nose, fatigue, abdominal pain, diarrhea and vomiting have also been observed.

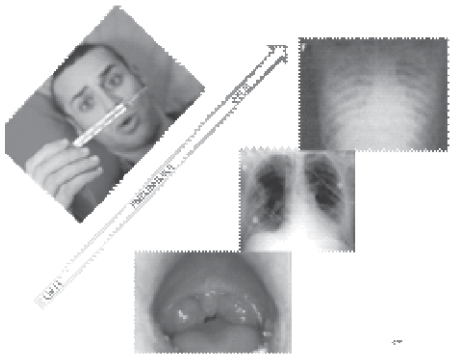
Children may shows biphasic fever with aggravation of symptoms like abdominal pain, nausea, vomiting, diarrhea, dislike to take food, doesn't play, remain lethargic or drowsy etc.



- Pustules on tonsils requires antibiotics



- Only redness without pustules requires antiviral oseltamivir



Patients may progress from upper respiratory tract infection to pneumonitis, ARDS(acute respiratory distress syndrome) or MODS (Multiple organ dysfunction syndrome)

Complications observed are secondary bacterial pneumonia with or without sepsis, pneumothorax, hydropneumothorax, pneumo mediastinum, bronchiolitis, status asthamaticus, myocarditis, encephalitis, exacerbation of underlying conditions etc.

Investigations:

Routine:

Usually routine investigations may show leucopenia with lymphocytosis with minimal thrombocytopenia with raised CRP & SGPT. Leukocytosis is common after secondary bacterial infection. Unexplained anemia (without Bleeding) with low albumin level has poor prognostic value.

Confirmation of diagnosis is obtained by Real time RT PCR positivity in throat swab.

Government of Gujarat has started FREE Influenza testing facilities FOR GOVERNMENT & PRIVATE PATIENTS in Microbiology departments of 5 government medical college hospitals namely Civil hospital,Amdavad; GMERS Medical College Hospital,Sola,Amdavad; Civil hospital,Surat;Civil hospital,Rajkot & GK general hospital,Bhuj. Only one private laboratory has come forward and permitted for testing.

As per Government of India Guidelines categorization, testing policy & treatment guidelines are strictly followed. Morbidity & mortality data should not be compared among states as there is no uniformity in testing policies, facilities and reporting at national level.

Treatment:

The guiding principles are:

- ❖ Early implementation of infection control precautions to minimize nosocomical / household spread of disease
- ❖ Prompt treatment to prevent severe illness & death.
- ❖ Early identification and follow up of persons at risk.

OPD patients are managed in Influenza (Swine flu) OPD separately. They are categorized in A,B,C & managed as per GOI guidelines.(See annexure I)

Category A cases are treated symptomatically followed up regularly. Antiviral treatment is started in Category B without testing and without awaiting throat swab results in Category C cases. Follow up of cases is advised at 24 or 48 hours interval to keep watch on clinical progress.

Home Care for Category A & B Patient:

- Be informed about the illness during screening.
- Stay home, preferably isolate himself / herself in a well ventilated room till 24 hours of apyrexia (without anti pyretic).
- Avoid common areas frequented by other members of the family.
- If the living space is small and more than one person need to sleep in a room, ensure that the head end of patient and others sleeping in that room are in opposite direction (head to toe).
- Wear mask(Preferably Three layered surgical mask) all the time. If mask is not readily available, mouth and nose should be covered with a piece of cloth/handkerchief.
- Masks, tissue papers should be disposed in dustbins.
- Utensils used by the cases should not be used by other person
- The contact surfaces would be disinfected by wiping, with sodium hypochlorite solution or house hold bleach (5%) solution.
- Avoid smoking.
- Avoid close contact with others. If inevitable, they should always maintain 1 meter distance
- Avoid having visitors.
- Avoid going into the community, school, office, markets.
- Maintain respiratory hygiene, cough etiquettes & Wash hands frequently. Advised to spit in cup & not in open area
- Self monitor health and report to identified health facility in case of worsening of symptoms.

Treatment:

- Patient should take rest, avoid exertion,do warm saline gargles and to take plenty of liquids orally.
- Give Paracetamol for fever >101 F and ibuprofen for myalgia.Do not give round the clock antipyretic/anti inflammatory drugs.

- Aspirin should be avoided.
- Oseltamivir to be started preferably within 48 hours in category B cases.
    - Antiviral drug Oseltamivir is effective against all 3 prevalent influenza strains
    - Oseltamivir resistance is not reported in our country.
    - Availability of Oseltamivir can be searched from www.xinindia.gov.in

Dose for Oseltamivir is as follows:

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

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

- Zanamivir is available in inhaler form having same mechanism of action like Oseltamivir. 2 inhalations (5 mg each), twice daily for Age 7 years.
- Injectable zanamavir & piramivir is available abroad.

Early warning signs: Patients advised home care should look for:

- Fever not responding & remaining high
- There is difficulty in breathing or chest pain
- Coughing of blood tinged sputum
- Sensorium gets altered with change of behaviour
- Children having fast respiratory rate,seizures,vomiting,irritability and not taking food
- Patients with high risk conditions needs observation for deterioration

Management of Category C cases:

Infrastructure/ manpower / material support

Category C cases are to be managed in isolation wards with ICU facilities (4 separate areas for suspected / positive & stable/ critical cases groups). Dedicated staff is required to attend such cases. They have to wear PPE (Personal Protective Equipments) & practice universal precaution. They should be motivated for voluntary influenza vaccination.

Portable X-rays, ultrasonography, echocardiography are carried out within isolation wards. Dialysis and even normal delivery is conducted in isolation wards.

Only for LSCS or CT scan patient is to taken out from isolation wards

Standard Operating Procedures:

- Restrict number of visitors and provide them with PPE
- Reinforce standard infection control precautions:
  - N-95 mask are to be used by health care provider visiting within 1 meter area or where aerosol generating procedures are going on
  - Three layer mask is to be used by rest
- Dispose waste safely

Oseltamivir Medication

- Double doses may be given for 5/10/15 days or more if there are no adverse effects.
- **Prophylactic use** of oseltamivir & other antiviral drug in all contacts should be discouraged. Contacts have to observe themselves for development of symptoms and immediately consult doctors for further treatment.

Antibiotics- To be used as per hospital antibiotic policy & culture - sensitivity reports

- Piperacillin +Tezobactum
- Augmentin
- Azithromycin
- Levofloxacin
- Linezoid
- Vancomycin
- Ceftriaxone

Supportive therapy & critical care

- IV Fluids.
- Parentral nutrition.
- Oxygen therapy/ ventilatory support.
- Vasopressors for shock. Low dose steroid may be used in refractory hypotension
- Maintain hydration, electrolyte balance and nutrition
- Patients with signs of tachypnea, dyspnea, respiratory distress and oxygen saturation less than 90 per cent should be supplemented with oxygen therapy.
  - Types of oxygen devices depend on the severity of hypoxic conditions which can be started from oxygen cannula, simple mask, partial re-breathing mask (mask with reservoir bag) and non re-breathing mask.
  - In children, oxygen hood or head boxes can be used.

- ❖ Non invasive ventilation is better option for acute lung injury stage. It is an aerosol generating procedure so proper infection control practice should be strictly observed.
- ❖ Patients with severe pneumonia and acute respiratory failure (SpO2 < 90% and PaO2 <60 mmHg with oxygen therapy) should be supported with mechanical ventilation. (Cut off level for pregnant women is SpO2<95%)
- ❖ Relatives should be motivated for consent for early elective tracheostomy as it reduces dead space and suction is more effective.
- ❖ Role of chest physiotherapy is vital
- ❖ ECMO (extra corporeal membrane oxygenation) therapy is tried in few patients. It is very costly treatment.

Discharge Policy:

- ❖ If the laboratory reports are negative, the patient would be discharged after giving full course of Oseltamivir from step down unit.
- ❖ A treated and recovered patient, even though testing positive, has very little possibility of infecting others.
- ❖ Patients who responded to treatment after two to three days and become totally asymptomatic should be discharged after 5 days of treatment. There is no need for a repeat test.
- ❖ Patients who continue to have symptoms of fever, sore throat etc. even on the 5th day should continue treatment for 5 more days.
- ❖ For patients who continue to be symptomatic even after 10 days of treatment or those cases with respiratory distress and in whom secondary infection is taken care of, the dose of anti viral may be adjusted on case to case basis.

Dead body care:

Minimum number of people should attend funeral of deceased cases and rituals like washing of dead body to be avoided.

Vaccine: Trivalent Influenza vaccine for north hemisphere for year 2014 -15

1. For 0-6 months of age group there is no vaccine
2. Vaccine is to be taken only after consulting doctor
3. Injectable & nasal form of vaccine are available
4. WHO does not recommend mass vaccination
5. Health care workers serving Influenza cases especially critical cases are encouraged to take vaccine voluntarily
6. High risk groups including pregnant women may take injectable form of vaccine
7. Effect of vaccine begins after ~2 weeks
8. Vaccination does not give 100% protection
9. Universal precaution and strict hospital infection control practice needs to be strictly observed even if you are vaccinated.

ANNEXURE I

Ministry of Health & Family Welfare

Pandemic Influenza A (H1N1)

Guidelines on categorization of Influenza A H1N1 cases during screening for home isolation, testing treatment, and hospitalization

(Revised on 05.10.09)

In order to prevent and contain outbreak of Influenza-A H1N1 virus for screening, testing and isolation following guidelines are to be followed:

At first all individuals seeking consultations for flu like symptoms should be screened at healthcare facilities both Government and private or examined by a doctor and these will be categorized as under:

Category- A

Patients **with mild fever plus cough / sore throat** with or without body ache, headache, diarrhoea and vomiting will be categorized as Category-A. They **do not require** Oseltamivir and should be treated for the symptoms mentioned above. The patients should be monitored for their progress and reassessed at 24 to 48 hours by the doctor.

- **No testing of the patient for H1N1 is required.**
- Patients should confine themselves at home and avoid mixing up with public and high risk members in the family**.**

Category-B

(i) In addition to all the signs and symptoms mentioned under Category-A, if the patient has high grade fever and severe sore throat, may require home isolation and Oseltamivir;

(ii) In addition to all the signs and symptoms mentioned under Category-A, individuals having one or more of the following high risk conditions shall be treated with Oseltamivir:

- 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

No tests for H1N1 is required for Category-B (i) and (ii).

- All patients of Category-B (i) and (ii) should confine themselves at home and avoid mixing with public and high risk members in the family.

Category-C

In addition to the above signs and symptoms of Category-A and B, if the patient has one or more of the following:

- Breathlessness, chest pain, drowsiness, fall in blood pressure, sputum mixed with blood, bluish discolouration of nails;
- Children with influenza like illness who had a severe disease as manifested by the red flag signs (Somnolence, high and persistent fever, inability to feed well, convulsions, shortness of breath, difficulty in breathing, etc).
- Worsening of underlying chronic conditions.

All these patients mentioned above in Category-C require testing, immediate hospitalization and treatment.

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