



## SWINE ORIGIN INFLUENZA A: EXPERIENCE IN A SWINE FLU - OPD OF A TERTIARY CARE HOSPITAL AHMEDABAD

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Received: July 10, 2015; Revised: August 27, 2015; Accepted: September 01, 2015

**Abstract- Background & Objective:** To study the profile activities undertaken at flu screening centre as a response to epidemic influenza A in a tertiary care hospital. **Methods:** Record-based study conducted in a tertiary care hospital of Ahmedabad. Study analyses the month wise distribution of suspected as well as confirmed case of H1N1 from swine flu Out Patient Department (OPD) and admitted patients from January 2015 to March 2015. Required data was collected from records of swine flu OPD, medical record office, and ward. Study included these data. **Results:** From January 2015 to March 2015, in swine flu OPD 341 cases met clinical criteria where oropharyngeal and nasopharyngeal swab samples were collected, out of which 178(52.20%) were found to be positive. 139(78.09%) cases were managed at home after attending swine flu OPD, while 39(21.9%) lab confirmed swine flu OPD cases required hospitalization. A Total of 1743 patients presenting with influenza like illness (ILI) were admitted in isolation ward. Out of which 927(52.61%) were found to be positive for H1N1. Total 189(10.9%) fatalities occurred. **Conclusion:** Majority of cases of H1N1 were managed at home. Early diagnosis, quick initiation of treatment, infection control measures and good care at home in outdoor patients, an effectively reduce morbidity and mortality of H1N1.

**Keywords-** Influenza A H1N1, RT-PCR, Swine flu - OPD

**Citation:** Maradia M.R., et al. (2015) Swine Origin Influenza A: Experience in a Swine Flu - OPD of a Tertiary Care Hospital Ahmedabad. International Journal of Microbiology Research, ISSN: 0975-5276 & E-ISSN: 0975-9174, Volume 7, Issue 3, pp.-641-643.

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### Introduction

Influenza virus is a common human pathogen that has caused serious respiratory illness and death over the past century. The 2009 pandemic caused by a new sub-type of influenza A H1N1 (Swine flu) [1], first reported from Mexico on 18<sup>th</sup> March, 2009. The 2009 H1N1 virus was triple reassortant influenza virus containing genes from the man, swine & avian influenza virus [2-4] India confirmed influenza A H1N1 (Swine flu) first case on May 16 2009, when a man travelling from New York via Dubai and Delhi tested positive for the H1N1 influenza virus in Hyderabad [5]. The first case was confirmed in Gujarat on 6<sup>th</sup> of July 2009. The actions taken as part of response consisted of active surveillance, screening, early diagnosis and treatment, other non-pharmaceutical measures at individual and community level. On, August 10, 2010, WHO announced pandemics H1N1 2009 to be in post-pandemics period. However, based on knowledge about post pandemics, the H1N1 (2009) virus is expected to continue to circulate as a seasonal virus for some years to come [6]. Following pandemic influenza A H1N1 in 2009, influenza surveillance was initiated & it is continued till date.

In Ahmedabad, from 15<sup>th</sup> January 2015 there was an increased number of cases of influenza A H1N1. To reduce mortality & to diagnose more number of people at an early stage, civil hospital started swine flu OPD. Tertiary care hospital Ahmedabad-the largest referral centre in West India-Started isolation ward with 30 beds and steadily expanded the pool to 165 isolation beds for swine flu

patients [7]. Because clinical symptoms of infection with the influenza virus A H1N1 do not differ from those of seasonal human influenza, there was a continued need for sub typing and laboratory confirmation. Confirmed OPD cases of H1N1 influenza had been isolated and treated at home to break the chain of infection.

In 2015 outbreak, the tertiary care hospital Ahmedabad reported its first case of positive H1N1 on 5<sup>th</sup> January. Serious efforts were made by government to contain the spread of the disease. The screening centers or flu OPDs were the primary units where all suspected flu patients turned up and at times flooding them. Experience at one such swine flu OPD has been studied.

### Material and Method

#### Study Area

The study was conducted from January 2015 to March 2015 at a swine flu OPD located within the premises of tertiary care hospital in Ahmedabad. Required data was collected from records of swine flu OPD, ward and local health authority.

Flu OPD was conducted by Chest Physicians with the help of nursing staff & surveillance officer. Cases and deaths of influenza A (H1N1) were notified to medical record office, civil hospital and state surveillance unit using structured data collection tool developed by Ministry of Health and Family Welfare. The data included demographic characteristics of the individuals screened, number of cases screened, number of throat samples collected, number of

samples positive, number of hospitalization, number of death in hospitalized patients. The individuals with ILI attending the OPD were categorized in A, B and C as per guidelines [8].

Oropharyngeal and nasopharyngeal swabs were collected from suspected H1N1 cases. These samples were processed by RT-PCR (Reverse Transcription real time Polymerase Chain Reaction, Quagen™) in Microbiology Department-Civil Hospital. These cases were included in our study. Patients who were found positive were traced based on the details available at swine flu OPD, contacted on phone number and given oseltamivir, and chemoprophylaxis for contacts was also advised.

**Results**

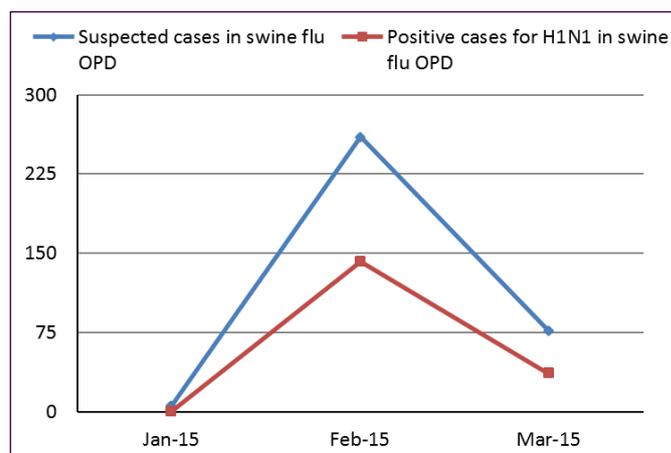
**Out-patient Department (OPD) Cases**

From January 2015 to March 2015 a total of 9454 people presenting with flu like symptom were screened in the swine flu OPD. Out of these, 341 throat samples were collected, out of which 178 (52.20%) were found to be positive. Maximum numbers of samples were positive in the month of February 142(41.64%). As seen in [Fig-1] & [Table-1], there was a rising trend of sample collection and sample positivity in February followed by a drop in both parameters in March. Positive cases most commonly involved the age group 21 to 30 years as shown in [Fig-2]. 139 (78.09%) cases were managed at home after attending swine flu OPD, while 39(21.9%) lab confirmed swine flu OPD cases with severe symptoms required hospitalization.

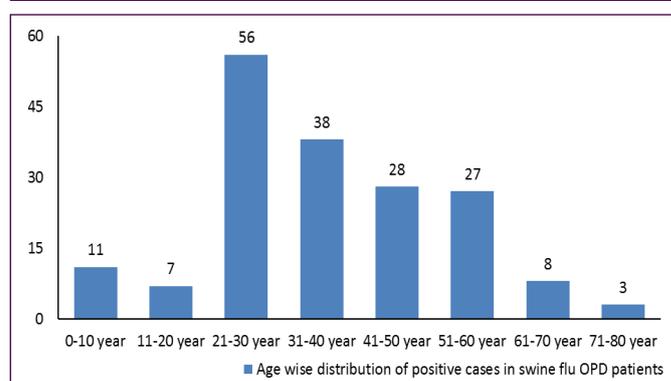
**Hospitalized or in-patient Department (IPD) cases**

Total 1743 hospitalisations were recorded on account of illness classified as ILI and admitted in isolation ward. Of these 1743 hospitalised cases, 917(52.61%) were found positive for H1N1. Hospitalization trend was similar with male and female. Sharp rise was observed in the number of positive cases in month of February. From these positive patients 189 death were noted. Maximum deaths occurred during month of February. As seen [Table-2], there

was a rising trend of sample collection and sample positivity in February followed by a drop in both parameters in March.



**Fig. 1-** Trend of persons suspected for H1N1 in the flu OPD from January 2015 - March 2015



**Fig. 2-** Age (in year) wise distribution of positive cases in swine flu OPD patients

**Table 1-** Result of the persons suspected for H1N1 in swine flu OPD from January 2015 to March 2015

Month	No. of samples collected from Male patients	Samples positive for H1N1	No. of samples collected from Female patients	Samples positive for H1N1	Total no. of samples collected	Total sample positivity rate(%) for H1N1
Jan-15	2	0	3	0	5	0(0%)
Feb-15	145	71	115	71	260	142(41.64%)
Mar-15	43	19	33	17	76	36(10.56%)
Total	190	90	151	88	341	178(52.20%)

**Table 2-** Distribution of hospitalized cases suspected for H1N1 from January 2015 to March 2015

Month	Male	Male Positive for H1N1	Female	Female Positive for H1N1	Total	Positive for H1N1	Death
Jan-15	19	9	15	10	34	19	10
Feb-15	627	333	627	391	1254	724	138
Mar-15	228	80	227	94	455	174	41
Total	874	422	869	495	1743	917	189

**Case Fatality Rate**

Case fatality rate for Gujarat in year 2009 was 19.9% [9]. In our experience the CRF was 20.61% [Table-3]. Total no of deaths was 189 [Table-2]. Out of which 86 were male patients & 103 were female patients.

**Table 3-** Case fatality rate (CRF)

Total RT-PCR positive cases	917
Total deaths	189
Case fatality rate	20.61%

CFR= total no of deaths/total no of cases x 100

Clinical outcome of indoor patients (n=917)

Number (n) Percentage (%)

Oseltamivir given 917 100%

Death 189(20%)

### Discussion

Total 2084 cases were suspected for pandemic influenza A (H1N1) virus infection out of which 1095 were positive. In prescribed study 178 positive cases out of 341 in outdoor patients and 917 positive cases out of 1743 indoor patients for influenza A (H1N1) virus infection between January and March 2015. As compared to the study of Dr. Bin cao, our majority groups of patients were also in between 21-30 years of age group [10]. In our study positive rate among hospitalized patients was 52.61%, as compared to previous study conducted in Gujarat, in which positive rate was 26.8% [9]. Among 178 outdoor patients 90(50.56%) were male and 88 (49.43%) were female. Male preponderance was also reported by other studies [2,3,10].

Similar trend was observed in other districts of Gujarat, like Rajkot, Bhuj [11] and also in other states of India like Rajasthan, Maharashtra at national level [12]. Worse prognosis was observed in hospitalized patients as compared to outdoor patients. These were mostly in the very elderly, very young, pregnant women or people with a pre existing health condition [1].

### Management of Cases in Outdoor Patients

The infection control practices were put in place which helped in early containment of spread of infection.

A separate swine flu OPD was opened which met WHO recommendations for which separate staff which was trained was employed exclusively for these activities.

The contact number of all those subjected to throat swab sampling were taken and were intimated immediately in case test was positive so that oseltamivir can be started for patients and household contacts if indicated. The use of oseltamivir was restricted and issued on valid prescription of authorized Health Care Workers (HCWs).

The Most Outdoor cases can be dealt at home by following measures like social distancing, drink plenty of liquids, rest, respiratory "etiquette", hand hygiene and household ventilation [13].

### Management of Cases in Indoor Patients

Creation of a separate isolation ward for patients who need hospitalization exclusively for H1N1 patients helped in preventing infection to cross over to other patients in the hospital.

Strict infection control measures like using personal protective equipment, hand hygiene, disinfection of infective articles were undertaken meticulously [13].

### Conclusion

Influenza A (H1N1) is not a new phenomenon to the world. Young individuals between 21-30 were the most affected causing a significant loss of DALY's (Disability Adjusted Life Years). The number of cases and casualties is significantly higher in Ahmedabad as compared to rest of the state. Proactive measures rather than panic are warranted in dealing with this problem of global scale. So far we have been able to control our part of this quite satisfactory. We

should try to keep up the vigilance and modify the measures well in time to overcome new situations. Early diagnosis, quick initiation of treatment, infection control measures, and good care at the home can effectively reduce morbidity and mortality of H1N1.

**Acknowledgement:** We are greatly thankful to all the patients and their relatives for cooperating with us. We are also thankful to Medicine & Microbiology Department for carrying out all the investigations throughout day and night.

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