**SHORT ARTICLE**

# Rising threat of H1N1 Cases in Dakshina Kannada, India: An Epidemiological Assessment from January 2011 To August 2017

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## Citation

## Article Cycle

## Abstract

**Background:** H1N1 or swine flu is a disease caused my influenza virus of family Orthomyxoviridae. Initial cases in India were seen in 2009 and ever since then it has been adding to the mortality rate over the years across various parts of the country. Dakshina Kannada district of Karnataka, India, had several cases of H1N1. But despite the efforts, the magnitude is rising inconspicuously. **Aim & Objective**: Assessment of H1N1 cases throughout Dakshina Kannada district from Jan 2011 to August 2017. Objectives: To observe the disease trend, its factors and provide certain recommendations to control the disease and promote Health. **Material & Methods**:H1N1 cases notified to District surveillance unit from all the Health collaborated settings over a period of six years from January 2011 to August 2017 were assessed to measure the burden of the disease across different age groups and Gender. **Result**: The study revealed a considerable increase in H1N1 cases compared to previous years with peak during monsoon and difference in risk among the gender. **Conclusion**: Vaccination of Health professionals, High alert for travelers, Pregnant women and individuals with co-morbid conditions is essential. Control of disease transmission with early diagnosis, isolation and treatment, effective vaccination to high risk individuals will be helpful to reduce disease burden

## Keywords

## Introduction

Influenza A also known as H1N1 virus was concealed while seen in pigs but became conspicuous when it affected over 2000 people and killed over a hundred individuals and striked the headlines.(1) The disease with flu like symptoms killed about 250,000 to 500,000 individuals annually worldwide since 2009 creating a public health emergency (2) with a global attack rate of 5-10% .(3) Most of the cases are seen in winters in temperate regions while the tropical areas have not shown any seasonal trend. (4) India is listed one among the influenza transmission zones in South Asia and Antigenic drift may cause recurrent influenza outbreaks during interpandemic years and challenge the control of the disease. Various cases have been reported in Dakshina Kannada since 2009 but a considerable increase in number of reported

cases in the year 2017 was identified. Government has been sensitizing both clinical professionals and general public regarding prevention, protection, early diagnosis and treatment for the same, but despite all the efforts, there seems to be only a slight decrease in the cases. This study was done to explore H1N1 cases over the years, understand the factors responsible for its spread and provide certain recommendations to control the disease and promote health

## Aims & Objectives

1. To observe the disease trend and its factors
2. To provide certain recommendations to control the disease and promote Health

## Material & Methods

Dakshina Kannada, a district in Southern region of Karnataka has an area of 4866 sq.km. The population of the district is about 21 lakhs and consists of 5 (talukas). All the individuals of the district, belonging to the Category C (5) as per IDSP protocol were traced and throat swab samples were collected at Private and District Lab and sent to the referral lab in Virus transport medium. The samples were tested for type of influenza virus by RPCR test as per CDC protocol. The cases thus found positive for H1N1 from January 2011 – August 2017 were included in the study to understand the burden of disease over the years. Epidemiologic assessment of number of cases in the District over the years, was conducted in the District Surveillance Unit of Dakshina Kannada. The attack rate was calculated Age wise and genderwise retrieving the data of 2017 and population as per 2011 census

## Results

Total number of samples tested every year kept increasing and so were the cases

Total 4281 throat swab samples were tested for H1N1 from 2011 to 2017 (Up to August) and among those 691 (16%) were positive for H1N1. There were no cases in 2011 and 2013 while a few cases were diagnosed positive in 2012 and 2014. (Figure 1)

Cases showed an increase in rainy seasons over the years. An unusual increase in Number of cases was seen in 2017 pre-monsoon with peak in cases in June, July and August which is shows a gradual decrease after September (Figure 2). Of the cases tested positive, 236 cases (34.2%) of the cases were from outside the district who were referred to or

approached the hospitals in the District while the rest 455 cases (65.8%) belonged to the district. Individuals aged above 60yrs(0.70per 1000). and females (Attack rate 0.41per 1000). were mostly affected. (Table 1)

## Discussion

There is a distinct pattern of cases over the months. Study conducted by Broor et al. revealed that H1N1 cases showed a specific pattern between 2007 to 2010 where several cases were identified during the monsoon. (6) This study showed a variation in occurrence over the years showed a gradual shift towards the monsoon. However there needs to be evidence to associate rainfall or humidity to support the statement. The possibility of increased cases in 2015 could be the large number of samples that were tested and increased over the years due to the improved awareness, training and sensitization to clinical practitioners and better surveillance of the disease. Detection rate was 16% compared to 23% given by Choudry et al. (7) and 29.6% as per studies by Sharma C P et al (8) High detection could be because the sample were collected from patients who visited the hospitals while this particular study was conducted in the large geographical area of the district. The district followed a common protocol to collect throat swabs while in the other study they used both throat and nasal swabs. Individuals aged between 30-59 years were most affected. While study conducted in Delhi between 2007 and 2010 showed greater incidence among individuals aged 5-18years (6) Female were more affected than males. Studies have shown higher incidence among women (9) Majority of the individuals tested positive had co-morbid condition like Chronic Diabetes, Hypertension or Chronic Kidney diseases. Studies have shown association of disease occurrence with co-morbid conditions. Many individuals had a travel history within 10 days of infection. Several individuals had a history of visit or stay in hospital which could possibly be the source of infection. Not all public health clinicians were vaccinated against H1N1 though vaccination is a recommended mode of protection as per WHO

## Conclusion

H1N1 cases across the years show that the number of cases could increase in the coming years and suggests additional data of the following years. Most vulnerable groups are at risk to acquire the infection.

## Recommendation

Promotion of Health literacy and awareness with can help individuals more cautious and uptake prevention measures and early detection can prevent complications and morbidity. Vaccination of Health care staff, isolation of cases and vaccination of caregivers could reduce secondary cases. Promoting awareness and suggesting preventive measures like vaccination of the vulnerable groups like Pregnant women, children and individuals with co-morbid conditions may be helpful

## Limitation of the study

The study included data of all the reported cases in the district and did not included the cases that migrated out of district for diagnosis, treatment or other reasons

## Relevance of the study

The study brings to light the evident threat of H1N1 increase in India and suggests further research to control and prevent the rising burden which could be expected to increase in future.

## Authors Contribution

All authors have contributed equally in this study.

## Acknowledgement

## References

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## Tables

### TABLE 1 ANALYSIS OF H1N1 CASES REPORTED IN 2017*ACROSS VARIOUS AGE GROUPS

| Age categories | n | %(percentage affected) | Attack rate(per 1000) |
|---|---|---|---|
| <5yrs | 62 | 8.97 | 0.42 |
| 5-14yrs | 40 | 5.79 | 0.12 |
| 15-29yrs | 117 | 16.939 | 0.20 |
| 30-44yrs | 162 | 23.44 | 0.34 |
| 45-59yrs | 166 | 24.02 | 0.49 |
| >60yrs | 144 | 20.84 | 0.70 |
| Male | 254 | 36.8 | 0.25 |
| Female | 437 | 63.2 | 0.41 |
| *From January Up to August 2017 | | | |

**Figures**

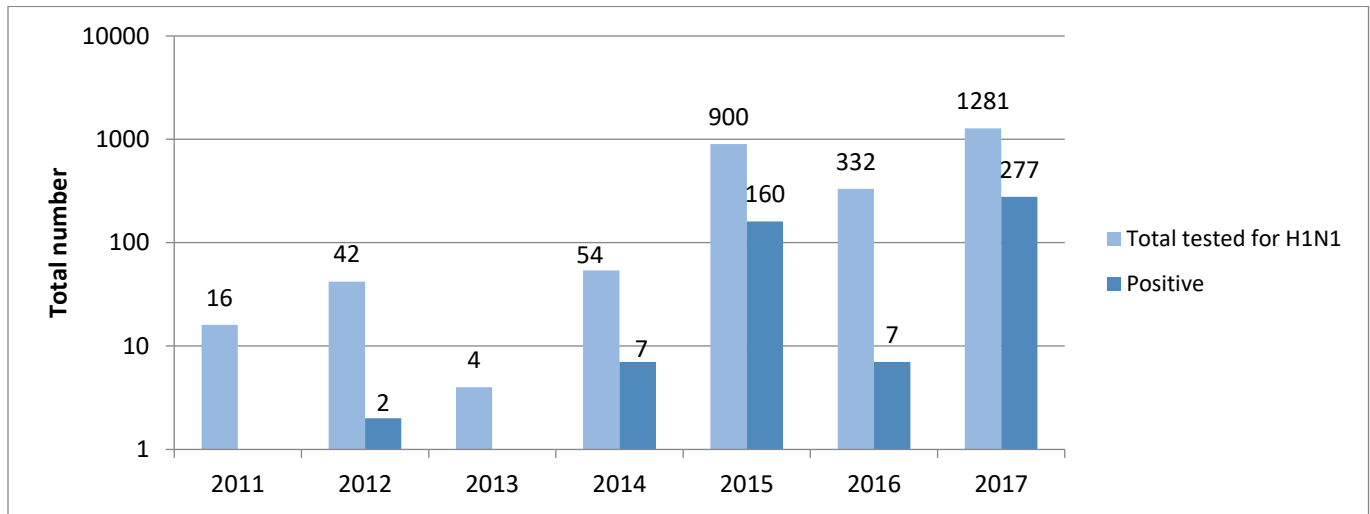## FIGURE 1 TOTAL CASES TESTED AND POSITIVE FOR H1N1 FROM JANUARY 2011 TO SEPTEMBER 2017



## FIGURE 2 H1N1 CASES IN DAKSHINA KANNADA FROM 2011 TO 2017*