

# A Study on Acute Respiratory Infection (ARI) in Imphal-West District, Manipur

NONGMEIKAPAM INAOPA SINGH<sup>†</sup>

Health Department, Government of Manipur,  
Lamphel 795004, Manipur  
E-mail: inaoba@gmail.com

**KEYWORDS:** Public health action. High infant mortality rate. Rhinorrhoea. Outbreak. Case search. Descriptive epidemiology. Vaccination.

**ABSTRACT:** It is estimated that at least 300 million episodes of Acute Respiratory Infection (ARI) occur in India every year (Vijayan et al., 2019). Childhood ARI is thus an important public health problem in India and a multiple of social and environmental factors are linked with ARI morbidity and mortality. In my study area, the first case of ARI was detected on 03.08.2022 from Samurou. Maximum number of cases was found among the children age < 5 years. It tries to investigate an outbreak of ARI in Imphal West district. The researcher interviewed cases who met the case definition. Data were analyzed in Microsoft Excel. It used multiple passive surveillance by performing a medical record review among health facilities in Wangoi Block. Total cases of ARI in Wangoi Block between Aug-Oct 2022 are 90 in number. Among the cases, 100% reported of fever and cough and 17% fatigue and tiredness, 12% sore throat and 23 % nasal congestion. The median age of all cases was 7 years (range: 1-87 years). Among all the cases, 53 % was males.

## INTRODUCTION

Influenza is a common viral respiratory illness transmitted from person to person via aerosol, droplet and contact transmission. Seasonal epidemics occur most years in Australia-generally over winter, between July and September-but severity, rates and timing vary from year to year, depending on changes in the circulating virus and the population's susceptibility to it (Owilliam and Ross, 2021).

It is estimated that at least 300 million episodes of Acute Respiratory Infection (ARI) occur in India every year, out of which about 30 to 60 million are moderate to severe ARI (Vijayan *et al.*, 2019). While every 6<sup>th</sup> child in the world is Indian, every 4<sup>th</sup> child who dies, comes from India. Hospital records from states with high infant mortality rate show that up to 13 % of inpatient deaths in paediatric wards are due to ARI. The proportion of death due to ARI in the

community is much higher as many children die at home.

A study on morbidity among under-five children in a rural area of Manipur found that acute respiratory infection (ARI) was the most common illness, affecting 83.6% of children. On average, each child had 2.6 episodes of ARI in the previous three months (Singh *et al.*, 2013).

Childhood ARI is thus an important public health problem in India and a multiple of social and environmental factors are linked with ARI morbidity and mortality.

ARIs are a major public health problem among children in Manipur. Knowledge about factors related to ARI can contribute to interventions that can reduce the burden of disease.

## About the outbreak

First case of ARI was detected on 03.08.2022 from

<sup>†</sup> District epidemiologist

Samurou from a 23 years old male at PHC Samurou. Clustering of cases was found in Samurou Municipal Area (29 cases), Lairenjam (19 cases), Kodompokpi (16 cases) & Meitram (7 cases). Maximum number of cases was found among the children age < 5 years.

#### *Objectives*

First, to investigate an outbreak of ARI in Wangoi Block of Imphal West district of Manipur between 1<sup>st</sup> August to 30<sup>th</sup> October, 2022. Second, to define the magnitude of the outbreak in terms of time, place, and person. Third, to determine the conditions and factors responsible for the occurrence of the outbreak. And lastly, to make recommendations to prevent recurrence.

#### MATERIALS & METHODS

##### *Case Definitions*

Any person presenting with high fever >38°C, and at least one respiratory symptom (e.g., cough, rhinorrhoea or difficulties breathing), with onset between 1<sup>st</sup> August to 30<sup>th</sup> October, 2022 in Wangoi block is considered suspected case of Acute Respiratory Disease. In addition, persons that reportedly died of a respiratory disease were also considered as suspect cases. And a confirmed case was defined as a suspect case with virus identified in a clinical specimen.

##### *Case Search*

To identify patients meeting the case definitions the researcher conducted both active and passive types of data collection. The researcher interviewed persons in households where the researcher was told there was a case to identify persons who met the case definition. In addition, the researcher reviewed the registries of health centres; the names of the patients who met the case definition were recorded on the investigation forms. For cases identified in the registers the researcher visited each household and verified the information details and searched for contacts. People living in the same household as the deceased case were questioned on their health status. No specimens were collected from persons who recovered from their illness.

#### *Data Analysis*

Data were analyzed in Microsoft Excel. Descriptive statistics like mean, SD, percentages were used. Laboratory investigation was not done due to non-availability of laboratory facility. Environmental investigation: Checked the ventilation in the house, fuel used etc.

#### DESCRIPTIVE EPIDEMIOLOGY

It used multiple passive surveillance by performing a medical record review among Health Facilities in Wangoi Block. It was also used active surveillance by doing house-to-house survey in Lairenjam, Meitram and Kodompokpi where number of cases per population was more than other areas.

Total cases of ARI in Wangoi Block between August to October, 2022 are 90 in number. Number of ARI cases in previous 2 years in 2020 and 2021 between August to October in the Wangoi block is underreporting due to COVID-19. Only 4 cases of ARI were reporting during the period in 2021 and no cases in 2020. The available for previous 2 (two) years is not valid for consideration for calculation of Mean and SD.

Finding of case by both passive and active methods, 90 cases were found. Among the cases, there is no report of hospitalization and death. Among the cases, 100% reported of fever and cough and 17% fatigue and tiredness, 12% sore throat and 23 % nasal congestion.

#### RESULTS

The median age of all cases was 7 years (range: 1-87 years). Among all the cases, 53 % was males. The time distribution of cases curve is shown in Fig. 1. The geographical (place) distribution of cases is shown in Fig. 2.

#### DISCUSSIONS

The initial cases start from the month of August, gradually increased, and reached the peak in the month of September. Then, it subsides and lowers in the month of October. The maximum number of cases during the peak was around 20 cases.



Figure 1: Time distribution of Acute Respiratory Infection (ARI) case by week

The frequency of distribution of cases by places varies from place to place. Number of cases in Malom was (1), Ningombam (9), Lairenjam (19), Meitram(7), Kodompokpi(16), Govindagram (2), Meijrao (2), Hiyangthang (1), Samurou(29), Wangoi (1) and Mayang Imphal(1).

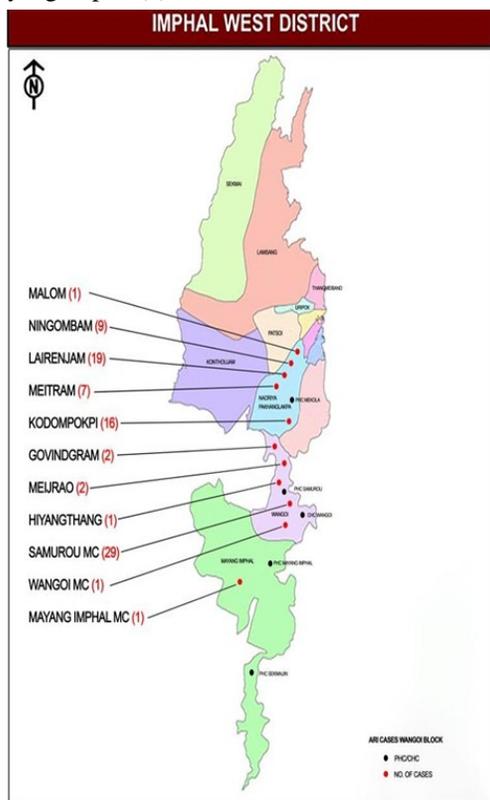


Figure 2: Distribution of Acute Respiratory Infection (ARI) cases in Wangoi Block, Imphal-West District, Manipur, India between 1<sup>st</sup> August to 30 October, 2022(n=90)

The clinical profile of the ARI cases includes breathing difficulty with 20%, fatigue and tiredness (17%), sore throat (12%), nasal congestion (23%), runny nose (29%) and most common symptoms was headache with (35%) (See Figure-3).

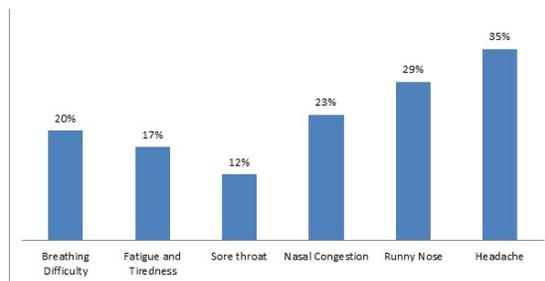


Figure 3. Distribution of ARI cases by clinical profile

The incidence rate of ARI was maximum within the age group of 0-9 years with 23.5 incidence by 10000 population and minimum in the 20-29 years age-group with 1.6 incidence rate. The incidence rate was calculated with the number of cases by the population of the area (Table-1).

TABLE 1  
Incidence Rate of Acute Respiratory Infection (ARI) by age-group

Age group (years)	Cases, n=90	Population, N=129121	Incidence/10000 population
0-9	52	22132	23.5
10-19	18	23187	7.8
20-29	4	24417	1.6
30-39	5	21030	2.4
40-49	7	16007	4.4
50-59	2	11103	1.8
>65	2	11245	1.8
Total	90	129121	6.9

The distribution of cases by incidence was maximum in Lairenjam village, followed by adjoining village Kodompokpi and lowest in Wangoi with incidence rate with 1.1. The villages with moderate incidence rate include Ningombam and Meitram village (Table-2).

TABLE 2  
Distribution of cases area/place and cases incidence

Area/Place	Cases	Population	Incidence per 10000 population
Malom Tuliayima	1	5550	1.8
Kodompokpi	16	3562	44.9
Hiyangthang	1	7509	1.3
Meijrao	2	2521	7.9
Govindagram	2	1489	13.4
Ningombam	9	2595	34.7
Lairenjam	19	2651	71.7
Meitram	7	1644	42.6
Samurou MC	29	16582	17.5
Wangoi MC	1	9106	1.1
Mayang Imphal MC	1	27196	0.4
Thongkhong Laxmi Bazar MC	2	14878	1.3

*Interview or other key findings:* Most ARI cases occur among the lower income households which uses cow-dung as fuel for cooking and houses having poor ventilation viz. no adequate windows and doors. Lack of knowledge cough etiquette, poor hygiene has come up while interviewing ARI cases in the field.

Almost all children were found vaccinated for measles, diphtheria and whooping cough from the Health Centers. Covid vaccination among the aged cases were also found satisfactory as almost all vaccinated up to 2<sup>nd</sup> dose.

#### CONCLUSION

It was concluded that it was an Acute Respiratory Infection (ARI) outbreak in Wangoi block in August to October, 2022. Factors responsible for the occurrence of the outbreak were poor hygiene, lack of ventilation and cough etiquette. Poor cough etiquette and hygiene practices led to spread of the disease.

#### RECOMMENDATIONS

- Based on the recommendations of the study, the local club took public health action to help prevent future outbreaks.
- The scheme to provide LPG through *Pradhan Mantri Ujjwala Yojana (PMUY)* for healthy women and children by providing clean cooking fuel and Housing for all (*PM-Awaj*

*Yojana*) for economically poor family to get well-ventilated homes to provide indoor pollution free homes.

- Educate people for hygiene practices and cough etiquette.

#### ACKNOWLEDGEMENT

The researcher would like to acknowledge Health fraternity for their valuable inputs and support throughout the completion of the study & also the ASHAs and community leaders, club organization for identifying patients and collating the line list cases.

#### REFERENCES CITED

- Owilliam, C. Lau and V. Ross 2021. An acute respiratory illness, outbreak investigation at an Australian defence force training establishment. Australia: *Journal of Military and Veterans' Health*, 29 (2): 6-16.
- Vijayan, Binsu, T.L. Dhilmon and Liaquat Roopesh Johnson 2019. Prevalence of acute respiratory infections among under five children in a rural area of Kozhikode district, Kerala. *International Journal of Community Medicine and Public Health*, 6 (6): 2666-2671.
- Singh H. Nirendrakumar, H. Sanayaima Devi and Y. Manihar Singh 2013. Study on morbidity among under five children of rural area of Manipur, Thanga: A cross-sectional study. *Journal of Evolution of Medical and Dental Sciences*, 2 (16): 2643-2647.
- Rapid Knowledge, Practices and Coverage (KPC) Survey Module 4 D: Acute respiratory infections (Ari): 2000 *KPC 2000 Survey for PVO child survival*, produced under the auspices of Child Survival Technical Support Project (CSTS) and Core M& E Working Group disseminated through USAID.





This document was created with the Win2PDF "print to PDF" printer available at <http://www.win2pdf.com>

This version of Win2PDF 10 is for evaluation and non-commercial use only.

This page will not be added after purchasing Win2PDF.

<http://www.win2pdf.com/purchase/>