

## **INCIDENCE OF TYPHOID CASES IN LAKHIMPUR DISTRICT OF ASSAM- A STUDY FROM 2013 TO 2015**

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### **ABSTRACT**

**Objective:** A study was carried out with an objective to find out the incidence of typhoid cases in Lakhimpur district of Assam for a period from 2013 to 2015.

**Methods:** All government as well as private hospital laboratories were included for the study. Widal/Typhidot test assays were used for laboratory confirmation of typhoid cases in all reporting units.

**Results:** A total of 3734 typhoid positive cases were observed in 36 months. The average incidence was 104 cases per month with a value of standard deviation 70.261 and standard error of mean 11.710. The two-tailed p value was found as <0.0001, considered extremely significant. The incidence of typhoid cases was found very high in 2013 as compared to 2014 and 2015. Most of the typhoid positive cases were detected from North Lakhimpur civil hospital and Nowboicha area. The incidence rate for typhoid cases was found maximum in Nowboicha and Dhakuakhana area. The people were having poor knowledge on proper hygiene habit and sanitation. In affected places, most of the wells/tube wells are found as without brim or platform.

**Conclusion:** A special class should be taken in every school on health seeking behaviors thorough which one can expect that the entire community will have gain knowledge on different diseases and how to get rid of such diseases.

**Key words:** Incidence, Lakhimpur, Nowboicha, Typhoid, Widal

### **INTRODUCTION**

Typhoid is a common disease in India<sup>1,2</sup>. Children are most commonly affected<sup>1,2</sup>. It is prevalent in rural areas as compared to the urban settings<sup>3-5</sup>. The disease occurs due to the poor hygiene and sanitary condition. The clinical symptoms of typhoid cases are fever, headaches, abdominal pain, body rashes, terry stool, weakness, poor appetite, lethargy etc<sup>6</sup>. Usually, typhoid fever causes diarrhea and a rash. *Salmonella typhi* is the major causative agent for typhoid infection<sup>7</sup>. Any patients may be infected with typhoid fever by the use of contaminated water as well as food substances. After eating any food substances or water contaminated with such type of bacteria, it enters into the blood stream through intestine. Later on, it goes to the liver, spleen and other parts of the body through blood circulation system. Different diagnostic techniques are available for confirmation of *Salmonella typhi*. Nowadays, widal/typhidot test assays are widely used for laboratory confirmation of typhoid cases as these tests are easy to perform and less time consuming. Typhoid cases are prevalent in all over the state of Assam. Lakhimpur district is also vulnerable for typhoid infection<sup>8</sup>. According to previous studies, a significant numbers of typhoid cases were detected in different areas of Lakhimpur, Assam<sup>8</sup>. Hence, the present study has been undertaken to find out the incidence of typhoid cases in different areas of Lakhimpur, Assam.

### **MATERIALS AND METHODS**

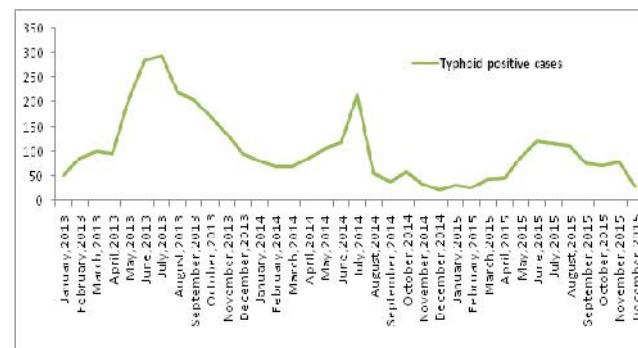
The objective of the study was to comprehend the current scenario of typhoid incidence in Lakhimpur, Assam. The study was undertaken for a period of 3 years (2013 to 2015). All the government as well as private hospital laboratories were included for the study. In all laboratories, widal tests as well as typhidot test assays were used for confirmation of typhoid cases. Laboratory reports from all reporting units were obtained in weekly basis on every Monday. After obtaining all laboratory reports of typhoid positive cases, the reports were compiled on monthly basis and then analyzed in terms of time, place and person. The incidence rate for typhoid disease was calculated in terms of six block public health centers (BPHC). However, due to unsteady population size under private hospitals and district civil hospital, the incidence rate was not calculated for such health institutions. The following statistical formal was used for calculation of incidence rate.

Numbers of typhoid positive cases reported under a BPHC in a month X1000

Total population under the BPHC

### **RESULTS AND DISCUSSION**

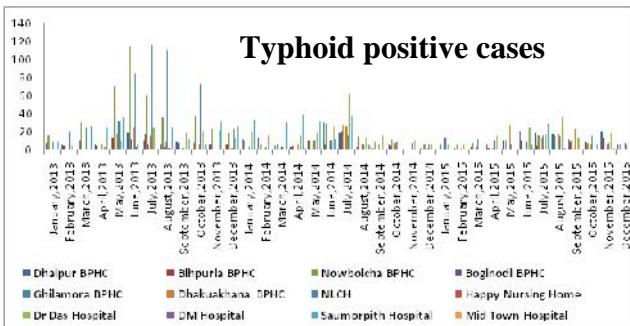
A total of 3734 typhoid positive cases were detected from different areas in Lakhimpur Assam. Out of which, 1938 cases were detected during 2013, 955 cases in 2014 and remaining 841 cases in 2015 (Figure 1). During the year 2013, the incidence of typhoid positive cases was found as twice than in 2014; and in 2015 the incidence of typhoid positive cases decreased than 2014 (Figure 1). The average incidence of typhoid positive cases was 104 cases per month (standard deviation 70.261 and standard error of mean 11.710). The two-tailed p value was found as <0.0001, which was considered extremely significant. The following graphical representation has shown a clear picture that the incidence of typhoid positive cases reached at peak level during June to July every year (Figure 1). This finding supports previous studies conducted elsewhere<sup>9</sup>. All age groups and both sexes were found affected with typhoid fever. This result has also shown similarity with previous findings<sup>8</sup>.



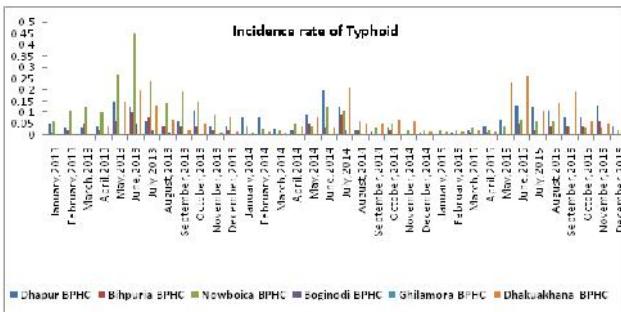
**Figure 1: Numbers of typhoid positive cases in Lakhimpur from 2013 to 2015.**

Mostly typhoid positive cases were detected in North Lakhimpur civil hospital and under Nowboicha BPHC (Figure 2). It was observed that, out of total 3734 typhoid positive cases, 23.54% (879/3734) typhoid positive cases were detected from North Lakhimpur civil hospital and 20.49% (765/3734) cases were observed under Nowboicha area (Figure 2). The overall incidence rate of typhoid positive cases was found maximum in Nowboicha and Dhakuakhana areas (Figure 3). In 2013, the incidence rate for typhoid positive cases was found highest in Nowboicha area. Again in 2014, the incidence rate was increased in Dhalpur, Nowboicha and Dhakuakhana block areas. Afterwards from May to September 2015, the incidence rate for typhoid positive cases was increased abruptly in Dhakuakhana area (Figure 3).

From the epidemiological observation, it is clear that the typhoid fever was most prevalent among people having habit of poor sanitation and hygiene. During the field visit to mostly affected areas, many unprotected wells/tube wells were observed without having brim or platform. Typhoid fever was also found prevalent in flood affected villages. Almost 75% (2796/3734) typhoid positive cases were reported from rural areas and such finding has shown resemblance with previous studies<sup>3-5</sup>. To reduce the incidence of typhoid cases, the district health authority has taken many steps from time to time. It can be expected that the entire community will have get rid of typhoid fever or any other waterborne as well as food borne diseases by gaining basic knowledge on such diseases. For that, a special chapter on health seeking behaviors should be included in every school at primary level. By doing this, it is expected to reduce the incidence as well as father transmission of such diseases.



**Figure 2: Area wise typhoid positive cases in Lakhimpur (in terms of month)**



**Figure 3: Incidence rate of typhoid positive cases in different BPHC of Lakhimpur, Assam.**

## CONCLUSION

Typhoid cases are prevalent in Nowboicha and Dhakuakhana areas of Lakhimpur, Assam. Typhoid positive cases are frequently reported from areas with poor hygiene habits and public sanitation. Awareness on health seeking behaviors is necessary to reduce the incidence of typhoid fever.

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