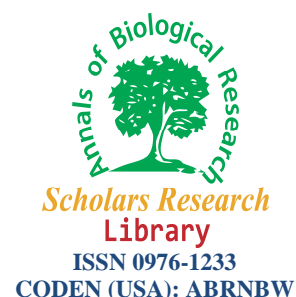




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## Food Poisoning: A cause for anxiety in Lakhimpur district of Assam

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### ABSTRACT

Food poisoning is an acute, often severe gastrointestinal disorder characterized by vomiting and diarrhea and caused by eating food contaminated with bacteria, especially bacteria of the genus *Salmonella*, or the toxins they produce. A study was carried out in Lakhimpur district of Assam to understand the cause food poisoning cases reported from different locality. A total of 50 patients were affected from different locality in Lakhimpur district of Assam after taking adulterated tea, breakfast, curd, food items etc. Overall case fatality rate was found 2%. The common symptoms were vomiting, stomach pain, dizziness and loose watery stool. Most of the food poisoning cases were reported from Kathobari village under Dhakuakhana BPHC. 11-20 years of age groups was found as predominant in our study. Females were mostly pretentious may be due to incessant get in touch with food preparation. Rectal Swabs specimens were collected from 12% of patients for culture and sensitivity test. Results showed only normal growth of *E.coli*. Water samples were also collected from the entire source for  $H_2S$  test. Laboratory examination outcome of the collected samples revealed the absence of Sulphur producing bacteria. Prompt and active surveillance is an imperative means for providing early warning signals which helps in taking appropriate control measure in a timely manner.

**Key words:** Food poisoning, Lakhimpur, stomach pain, vomiting etc

### INTRODUCTION

Lakhimpur district is situated at North Eastern corner of Assam, lies between 26°48 and 27°53 northern latitude and eastern longitude of 93°42 and 94°20<sup>[1]</sup>. The district covers an area of 2977 sq km out of which rural spot encompasses 2957 sq km. Total population of this district are 1,042,137 as per 2011 census of Govt. of India<sup>[2]</sup>. Community existing in Lakhimpur district are Ahom, Bodo, Miching, Kalita, Teatribe, koibarta, Muslim etc. and major earnings source among the villagers are cultivation. It is well known as a flood affecting district and the main source of drinking water among the villagers are "tube well/well having utmost possibility of contamination. In some area the villager using drinking water from pond/flowing tributary for domestic purpose like cooking of food/vegetables etc along with improper cooking that may also the cause of contamination. Lack of health education and unhygienic living condition of the villagers are one of the most important cause food poisoning come to the observed so far. The main causative agents of food poisoning are different bacteria, viruses, parasites, molds, toxins, contaminants, different chemicals and allergens<sup>[3]</sup>. Food poisoning occurs after ingestion of food or water that contains bacteria, parasites, viruses, or toxins made by these germs. There are some microorganisms produce toxins when they grow on food that affects the people during/after ingestion of these foods. The common symptoms of food poisoning are diarrhoea with or without blood, Nausea, vomiting, abdominal pain and/or cramping, malaise (general uneasiness), and fever etc.<sup>[4]</sup>. In Indian history there was a grim outbreak reported in July 2013, where at least 25 students died and dozens more fell ill at a primary school in the village of Dharmashati Gandaman in the

Saran district of the Indian state of Bihar after eating a midday meal contaminated with pesticide [5, 6, 7]. In Assam, food poisoning is a common problem. A major outbreak of food poisoning took place in Kamrup rural district of Assam during the month of February 2013 on the event of saraswati puja where the students of Durung ME School, Koraiguri LP School and Koikari LP School consumed gram (Prasad) and khichiri and within 2-5 hours of consumption the students were suffered vomiting, fever, dizziness, diarrhoea and abdominal pain. Throughout the incident more than 400 students were affected [8]. Currently it was come into notice that, cases of food poisoning arise frequently in different parts of Assam. There is a great need to find out the causative agent of food poisoning in every outbreak so as to control the saddle in due course and prevent for further spreading. Keeping in outlook of the above information a study was carried out in Lakhimpur district of Assam to understand the cause food poisoning cases reported from different locality as well as to find out the high risk areas and to distinguished demographic and clinical characteristics among the affected people.

## MATERIALS AND METHODS

### Study area

Our study covers different areas in lakhimpur district (Dhakuakhana, Boginodi, Lakhimpur town, Nowboicha and Dhalpur) of Assam where food poisoning is a common event. Beside this, the other areas have not reported any food poisoning cases previously so excluded from our study.

### Sample collection

Rectal swab specimens were collected from the suspected patients supposed to be affected with food poisoning by using sterile applicator swab stick. Cary Blair transport media was used to transport the samples to laboratory for culture and sensitivity to ensure whether the causative agents are bacterial or not. Gram staining was done to differentiate Gram positive bacteria from Gram negative bacteria. Water samples were also collected in a H<sub>2</sub>S strip bottles from the affected areas. The presence or absence of sulphur producing bacteria in the collected samples was confirmed depending upon the colour change after incubation at room temperature for 24-48 hours.

### Epidemiological analysis:

The initial food poisoning case in Lakhimpur district was detected during the month of June from Dhakuakhana area (Table 1). Most of cases were came into noticed during the month of June contribute approximately 62% of the total food poisoning cases reported over the year in Lakhimpur district of Assam. During 2013, highest cases of food poisoning were reported from Dhakuakhana followed by North Lakhimpur urban area (Table 1& Figure 1). Epidemiological surveillance revealed lack of awareness and poor sanitation among the villagers.

## RESULTS AND DISCUSSION

A total of 50 patients from different villages under Dhakuakhana, Boginodi, Nowboicha, North Lakhimpur urban and Dhalpur BPHC in Lakhimpur district of Assam were affected with food poisoning. The case fatality rate was found 2%. Rectal Swabs specimens were collected from 12% of the total patients for culture and sensitivity test. Results showed only normal growth of E.coli. Water samples were also collected from the entire source for H<sub>2</sub>S test confirmed the nonexistence of Sulphur producing bacteria. 11 to 20 years of age groups were found as more predominance (Table 2). Females were highly pretentious as compared to males (Table 2). This may be due to females were more exposed to water, food preparation and other household activities.

**Table 1: Number of food poisoning cases/death by date of onset and place**

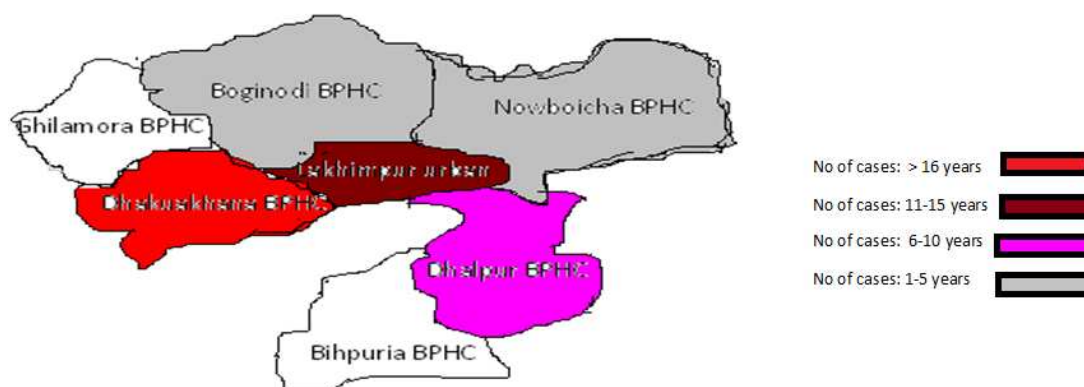
Date of Onset	Name of BPHC	Number of Cases	Number of death
03/6/2013	Dhakuakhana	19	0
15/6/2013	N. Lakhimpur Urban	12	0
06/7/2013	Nowboicha	5	0
20/7/2013	Boginodi	5	0
13/12/2013	Dhalpur	9	1

The first food poisoning outbreak reported from Kathobari village under Dhakuakhana BPHC on 3<sup>rd</sup> June, 2013 affecting a total of 19 (nineteen) people. All affected persons developed vomiting, stomach pain and dizziness immediately after drinking tea in a traditional religious function at Namghar. After investigation it was found that an old lady mixed a packet of tea in a bottle containing insecticide “furan” by mistake and used the adulterated tea from that bottle for preparing tea. All the affected cases are from different families of the same village and they gathered together at the Namghar for the religious function.

**Table 2: Number of food poisoning cases by age and sex**

Age groups (in years)	Number of Food poisoning cases
0 to 10	9
11 to 20	14
21 to 30	2
31 to 40	8
41 to 50	6
Above 51	11
<b>Sex</b>	
Male	14
Female	36

Another outbreak of food poisoning came into noticed from North Lakhimpur urban affecting 12 students in a school. On 15/6/2013, 12(twelve) school girls of Adarsha Banat Madrasha school developed vomiting and abdominal pain, immediately after taking breakfast. After investigation it was found that all the patients brought breakfast from their individual home (Own Tiffin storage) but all of them drank tea from Adarsha Banat Madrasha Hostel which was prepared from water taken from the school well. It was also noticed that a total of 35 students drank that tea but out of which only 12 students developed symptoms of vomiting and abdominal pain. It was also suspected that environmental condition such as high warming weather may have a propensity to such symptoms.

**Figure 1: Incidence of food poisoning cases in different area under Lakhimpur district of Assam**

Third outbreak of food poisoning cases were from Rajkuwa gaon under Nowboicha BPHC. On 06/07/2013, 5 (five) affected persons developed abdominal cramp, vomiting and loose watery stool after 2-3 hours of consuming curd in an occasion of marriage ceremony. Immediately they were attended at nearest health centre for treatment purpose. All the affected cases from the same village and have took curd from the same container.

Another outbreak of food poisoning cases were reported from Khatgaon village under Boginodi BPHC. On 20/07/2013, 5 (five) affected persons developed abdominal pain, vomiting and loose watery stool one day after consuming food items in a family function. The food items were milk (raw) which was kept in a steel container for a period of 8 hrs., Rice flour (Roasted pitha guri), Rice flour (Handoh Guri), Jackfruit(Ripen) and Jaggery. It is observed that the raw milk may be the cause of the poisoning. All the affected cases were from the same village.

Recently during the month of December an outbreak of food poisoning cases were noticed in Koilashpur village under Dhalpur BPHC affecting 9 (nine) people with a case fatality rate of 11%. On 13/12/2013, a 35 years old patient developed fever, vomiting and loose watery stool after taking meal in the occasion of marriage ceremony and the patient expired on 14/12/2013. Another 8 (eight) numbers of patients who have attended the ceremony were also developed similar symptoms. Food poisoning might be the cause of disease.

### CONCLUSION

At the present time food poisoning becomes a major problem in different parts of Assam due to lack of adequate knowledge and improper hygiene. In 2013, outbreaks of food poisoning took place five times during the year from different areas in Lakhimpur district of Assam affecting 50 people with one death. Youngster females were more

affected. The study established *E. coli* as a major causative agent. No growth of *Vibrio cholerae* was detected in laboratory examination. Health education camp at customary interval in pretentious areas should be an important contrivance in saving the life of people from this encumber in near future

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