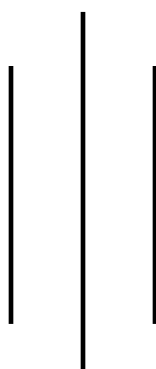
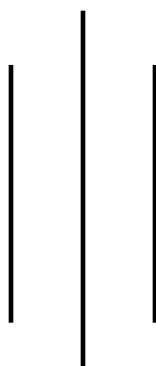


# **Jajarkot Diarrhoea Outbreak, 2009**



**Shrawan 15, 2066**

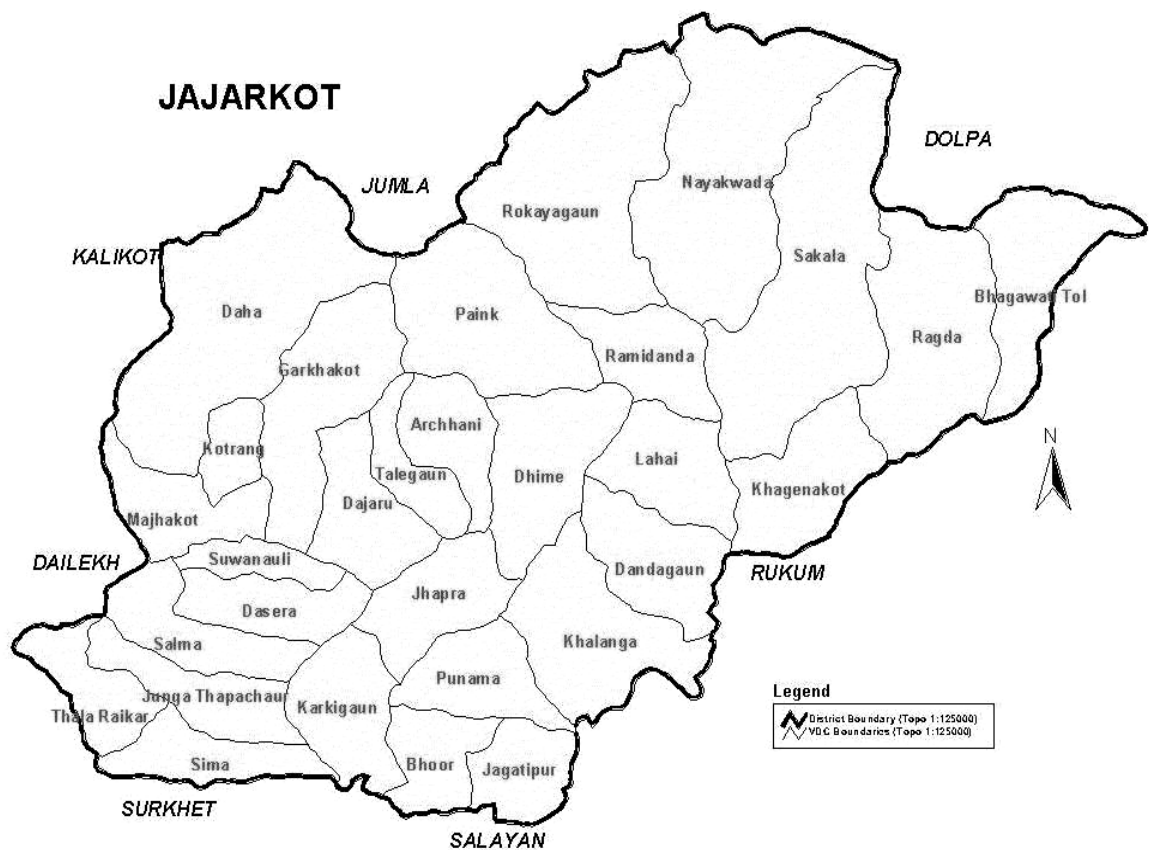


**Nepal Health Research Council**

**Report on the investigation of outbreak of diarrhea in**  
**Jajarkot - 2066**  
**Nepal Health Research Council**

The information on outbreak was first noticed when the public media highlighted about a death and large number of diarrhea cases in Rokaya village development committee (VDC) of Jajarkot district on 20th Baisakh 2066. The Rapid Response Team was mobilized on 21 Baisakh 2066 in the same VDC and treated 224 patients. The mortality reduced to zero by the end of Jestha 2066. According to the District Public Health Office Jajarkot and the public media, the morbidity and mortality due to diarrhea started increasing from the third week of Ashad.

The Nepal Health Research Council (NHRC) called a meeting and felt the need to specify the agents responsible for outbreak by conducting an outbreak investigation from research perspective. The Executive Chairman chaired the meeting and formed a 3 member team for outbreak investigation. The members of working team were Dr. Gajananda Prakash Bhandari (Epidemiologist, NHRC), Mr. Umesh Ghimire (Research Assistant, NHRC) and Dr Sameer Mani Dixit (Director, CMDN). This team was responsible to collect epidemiological data and stool specimens to know the epidemiological pattern of disease as well as confirmation of diagnosis. A laboratory technician joined the team in Jajarkot with required transport media to collect stool specimen. Epidemiological data were analyzed by the team of Nepal Health Research Council and the laboratory samples were diagnosed by National Public Health Laboratory.



**Figure 1 Map of Jajarkot**

### **District Overview**

Jajarkot is the hilly district of the mid western region of Nepal. There are 30 VDCs and it is bordered with 7 districts: Jumla, Dolpa, Kalikot, Dailekh, Surkhet, Salyan and Rukum. The landscape of Jajarkot district is very complicated and it is not even linked with the tared road. Hence the district is not linked with the main road way and other main cities of the country. Therefore most of the people are deprived of basic needs like food, health, education, communication etc.

## Findings

These data were collected from Jajarkot district hospital and one of the affected VDC (Khagenkot VDC) to compare the morbidity pattern.

### Number of health institution

Sn.	Health Institutions	Number
1.	District Hospital	1
2.	Primary Health Care Center	1
3.	Health Posts	8
4.	Sub Health Posts	25
5.	Ayurvedic Health Facilities	3

There was one district hospital and primary health care center in the Jajarkot district. Similarly, there were maximum of 25 sub health posts; one in each VDC.

### 1. Sex wise distribution of Diarrhea in Jajarkot

		DHO Khalanga (%)	HP Dalli (%)
Sex	F	178 (42)	213 (47)
	M	247 (58)	240 (53)
Total		425	453

Out of the total morbidity 425 as registered in DHO hospital Khalanga, 58% were male and 42% were female. Likewise similar finding was found in Dalli Health post, out of 453 patients 53% were male and 47% were female.

## 2. Age wise distribution of Diarrhea in Jajarkot

		<b>DHO Khalanga (%)</b>	<b>HP Dalli (%)</b>
<b>Age group</b>	<b>0-4</b>	<b>1 (0.2)</b>	<b>51 (11)</b>
	<b>5-14</b>	<b>119 (28)</b>	<b>87 (19)</b>
	<b>15-44</b>	<b>275 (65)</b>	<b>242 (53)</b>
	<b>45-59</b>	<b>20 (5)</b>	<b>32 (7)</b>
	<b>&gt;=60</b>	<b>10 (2)</b>	<b>41 (9)</b>
	<b>Total</b>	<b>425</b>	<b>453</b>

As shown in the table, 15-44 age-group which was the productive age group, was extremely affected by the diarrhoea. In DHO hospital, 65% percent of 15-44 age group was admitted due to diarrhoea while in Dalli health post 53% of similar age-group was admitted. Children seemed to be the least affected by the diarrhoea with only 0.2% in district hospital.

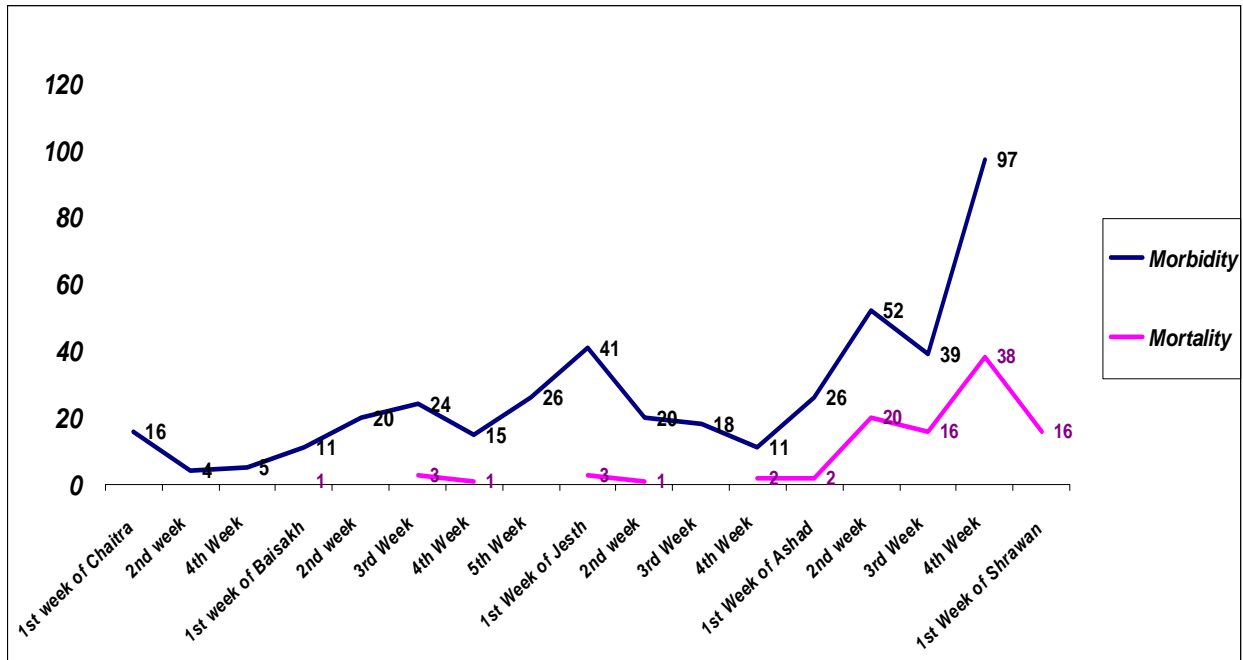
## 3. Ethnicity wise distribution of Diarrhea in Jajarkot

		<b>DHO Khalanga(%)</b>	<b>HP Dalli (%)</b>
<b>Code</b>	<b>1</b>	<b>143 (34)</b>	<b>228 (50)</b>
	<b>2</b>	<b>64 (15)</b>	<b>79 (17)</b>
	<b>3</b>	<b>11 (3)</b>	<b>2 (0.4)</b>
	<b>5</b>	<b>1 (1)</b>	<b>1 (0.2)</b>
	<b>6</b>	<b>206 (49)</b>	<b>143 (32)</b>
	<b>Total</b>	<b>425</b>	<b>453</b>

The Jajarkot district is widely inhabited by Dalit (ethnic code 1), disadvantaged (ethnic code 2) and upper caste (ethnic code 6) groups. Out of the total patient visited district hospital majority (49 %) were upper caste group (Brahmin, Chhetri, Thakuri etc) and in

the Dalli Health Post 50 % Dalit visited due to diarrhoea disease. Disadvantaged Janajatis were in the range of highly affected caste group.

### Morbidity and Mortality Trends of Jajarkot district



**Figure 2 Morbidity and Mortality Trends**

The line graph represents the mortality and morbidity of the Jajarkot district and patients visited to the district hospital from the first week of Chaitra to the first week of Shrawan. At first there has been steady rise in morbidity with no mortality during the first four weeks. Then from second week of Baisakh the morbidity trend climbed up and reached 24 persons in the third week. The same trend was seen from the fourth week of Jesth to fourth week of Ashad. There has been maximum number of morbidity (97) in the fourth week of Ashad.

From the fourth week of Jesth the number of mortality increased gradually and reached at peak (38) in the fourth week of Ashad. However this trend decreased in the first week of Shrawan.

## Lab Findings

Nepal Health Research Council, in coordination with Nepal Public Health Laboratory and World Health Organisation, collected stool samples to investigate the cause of diarrhea (research, collection of samples) on 31st Ashad 2066. Stool samples from district hospital, Khalanga and Dalli health post were collected and tested in Nepal Public Health Laboratory. Out of the total 13 lab tests, 5 were diagnosed *Vibrio cholera*, 1 *Salmonella* and no microorganism were detected from the test.

This situation was analysed according to the information given by District Public Health Officer, data collected and stool specimens collected at District Hospital and observation of patients at the District hospital, Khalanga.

The average attack rate was around 5.2 percent with Case Fatality Ratio ranging from less than one percent to 10%. The most affected VDCs in terms of mortality are Majhkot and Kortang where number of deaths was 19 and 16 respectively. On average the Attack Rate was 8.2% and CFR was 1% with number of cases and deaths of 12,500 and 128 respectively (population – 151,551).

Around 10 deaths out of 128 were in the health institutions, which showed that those patients who had access to public health institutions had less number of mortality.

## Conclusion of the findings

- Productive age group is highly affected.
- Disadvantaged group is mostly affected.
- Steady trend of morbidity and no mortality till the end of Jesth.
- Sudden increase in morbidity and mortality from the month of Ashad.
- Morbidity trend still increasing till the first week of Ashad, whereas mortality trend is decreasing.
- Causative agents responsible for outbreak might be *V. cholerae*
- Attack Rate was 8.2% and CFR was 1%

## **FGD Conducted at Dalli Health Post of Khagenkot VDC of Jajarkot district**

- The participants told that due to unhygienic sanitation, open field defecation, not washing hands before eating and after toilet people are suffering from the diarrhoea disease.
- They felt that changing climate was responsible for the outbreak. Due to delay in monsoon they were facing severe drought. They were not been able to plant the paddy and had to depend on the food from market which is low in quality and nutrient.
- Sanitation activities were not changed even if they had knowledge about how the disease spread. The surrounding were not cleaned and had to drinking water directly from the river which is highly contaminated water that obviously provokes such diseases.
- Lack of government concern affected people/area is not getting medicine. Though the government has appointed many health personnel now, if such initiative was take in the early days many people haven't died.



## **Situation update**

In the time period, 18<sup>th</sup> Jestha to 14<sup>th</sup> Shrawan 2066, total deaths due to Diarrhoea outbreak toll reached up to 172 in Jajarkot. Percentage of male and female deaths was almost equal and around 50 % of them are Dalit. Similarly reported death cases are 5 in Salyan, 6 in Surkhet, 1 in Dang, 2 in Rolpa and 26 in Rukum.

Although there seemed to be regular supply of drugs to most of the VDCs, there was no drastic change in the situation. However the decreasing trend of mortality and morbidity was seen in the district still the focus on preventive measures and awareness part was needed.

## **Regional response**

Regional Health Directorate (RHD), Surkhet mobilized 47 Health Personnels for 9 times from 25<sup>th</sup> Baisakh 2066 to till date in Jajarkot district. RHD, Surkhet had also mobilized 9 Health Personnels for 3 times from 2066/1/24 to till date in Rukum district.

RHD, Surkhet is sponsoring public awareness campaigns on washing hands, using toilets and drinking boiled/chlorinated water through FM radio, IEC Materials in Jajarkot district. RHD, Surkhet organized coordination meeting to speed up the logistics supply, mobilization of health personnel etc. About 8731 kg drugs were supplied in the Jajarkot. Currently control room for immediate response was established in RHD.

## **Constrains**

The major problem in the control of the situation was seemed to be the complex geographical topology of the Mid Western Region. There was no such local transportation that can be helpful for the distribution of medicine and logistics to the affected settlements.

Poverty was one of the major problems in the affected area. Due to poverty, people were bound to eat low quality of food (food provided by World Food Program), drink unsafe water and live in unhygienic sanitation and behaviors that were prone to different kinds of diseases. Many children were malnourished and stunted as a result of low nutritious food.

The government bodies did not show any serious concern in the initial phase of diarrhoea outbreak. Till the news of death was spread through media, none of the Rapid Response Team was mobilized to the place.

## **Gaps in Outbreak Control**

From the central level to the community level we found many gaps in each and every step which we observed and heard during our visit to the field. At first there was late response from the government side. One of the main reason for the occurrence of the outbreak might be the late response from the concerned authority at ministry level.

At the initial stage of outbreak, there was lack of medicine and health worker in the affected area. Only after Ashad 21<sup>st</sup> 2066, the required medicine and other materials reached Chaurjahari (Rukum) airport by the army aircraft. Due to lack of transportation those medicines were left there in the airport. It took several days to reach those required medicines and materials to the Jajarkot district hospital and then to the affected area. Army helped to carry out the medicine to the affected area but due to lack of coordination between RHD and district hospital, the appropriate quantity of drugs did not reached at the affected area. Once, the army helicopter along with the medicine reached the affected village where there were no health workers to takeover the medicine, so the army helicopter returned back without dropping the medicines. As reported by the DHO Jajarkot, the drug sent by the government was haphazardly distributed in a way that IV fluid was sent to one VDC and the IV cannula was sent to another VDC. Hence the management part seemed to be very poor.

As directed from the central level, on 29<sup>th</sup> Ashad, 2066, more than 50 health workers including doctor, CMA, HA and paramedics left to the Chaurjahari from Surkhet airport. The DHO of Jajarkot was unknown about this fact and after knowing, he could not got any idea where to mobilize those large numbers of health workers. Hence from this reality we can understand the gap between the Central level and district level coordination. It took seven days to mobilize those health workers.

## **Solution**

There was immense need to intensify the district and regional level coordination i.e. the coordination between the central level and regional level, CDO and DHO and DHO level to the community level. Simultaneously, reinforcing the community/VDC level coordination mechanism for the information management, supply of drugs and commodities and social mobilization for the preventive measures and awareness messages need to be disseminated.

Water purification/treatment measures were also need to go parallel to break the chain effects of outbreak. Chlorination of water sources, reservoir tank and its surrounding could be the effective way for this.

Role of media was important to provide correct information to the public; therefore, we should have to update information to the media persons at least once a week.