

Outbreak Investigation of Influenza Like Illness (ILI) In Jajarkot, Nepal 2015



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in Jajarkot, Nepal
2015**

Supported by

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Prepared by

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(NHRC)

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Summary



Introduction

The World Health Organization (WHO) defines influenza like illness (ILI) as an acute respiratory infection with measured fever of $\geq 38\text{ C}^\circ$, cough and with onset within the last 10 days. This year onset of ILI outbreak in Jajarkot district was reported on 1 April (18 Chaitra) 2015. It was reported in the media that 20 students of Archane VDC were ill and some deaths recorded in the next day. By the third week of April, diseases had been noted at Paink, Sakla, Nayabada, Telegaun, Rami Danda, Rokayagaun, Laha, Kortang, and Majkot, and could spread to all 30 VDCs of the district and surrounding districts like Kalikot, Rukum, Salyan, Dolpa, Jumla, Surkhet and Dailekh in the absence of strong public health response and early treatment indicating the rapid spread of disease.

Methodology

A planning meeting was carried out at central and district level to collect data for the study. Record of death cases were collected from the District Public Health Office and outpatient visit line list was obtained from health facilities and camps of three VDCs: Talegaun, Archane and Pajaru. The death cases reported from these three VDCs were verified by the study team using verbal autopsy questionnaire. The probable cause of reported death was confirmed by an independent team of expert. In-depth interviews were conducted with health professionals and patients. Records of laboratory confirmed influenza A or swine flu cases was obtained from the National Public Health Laboratory (NPHL) and were followed up via home visit and telephone conversation to assess the current situation after treatment. Exit client interviews were also conducted in three VDCs. However, findings of exit client interviews are not included in this report.

Findings

During the outbreak March-April 2015, more than 10,000 people received treatment and 35 deaths from various diseases were reported. Among the death cases, only 6 deaths (17%) were chronic obstructive pulmonary disease (COPD) with ILI symptoms, 10 (29%) cases were COPD with complications (without symptoms of ILI), one case was suspected ILI where as causes of 7 deaths could not be identified based on reported signs and symptoms and rest cases were of rabies, neonatal infection, neonatal sepsis, TB, drowning, severe malnutrition, breast cancer, Gullain-Barre Syndrome

(GBS) illness etc. The majority of deaths were occurred at home who did not consult for health checkup at health facilities.

A total of 16 cases were found confirmed cases of swine flu or H1N1 out of total 49 samples tested. All the H1N1 positive cases confirmed by NPHL who received treatment timely were recovered. Out of 3,001 patients visited for treatment in health camp and health institutions of Talegaun, Pajaru and Archane, only 233 (7.8%) were suspected cases of ILI including common cold. The possible major factors behind frequent outbreak of communicable diseases in Jajarkot district were influx of migrating workers from India, poor hygiene and environmental sanitation, low nutrition status of people, low educational level as well as economic status, low awareness level for prevention and control of different health problems and diseases, unavailability of health professionals at peripheral level health facilities, lack of medicine compliance as well as high level of antibiotics supply from pharmaceutical shop resulting drug resistance, and high prevalence of smoking and alcoholism.

Conclusion and recommendation

The majority of cases visited for treatment were chronic patients of respiratory illness, gastrointestinal problems as well as minor illness such as fever and headache (>58%) and only few were ILI (8%). Most of the problems are related to the poor economic status of people, poor nutrition status, poor practice of hygiene and sanitation, alcoholism and smoking. Hence, deployment of health personnel in all vacant posts, early diagnosis and treatment of diseases, strengthening laboratory set up at the grassroots level, development and enforcement of proper referral system, increasing health promotion program, proper management of water sources and maintenance of toilets, improving nutritional status of people and promotion of hygiene and sanitation can help to prevent frequent outbreak of communicable diseases in Jajarkot district.

Table of Contents

Acknowledgment	i
Summary	ii
1. Introduction	1
1.1 Case definitions	2
1.2 Objective of the study	4
1.3 Limitation of study	4
2. Methodology	5
2.1 Meeting at District Public Health Office (DPHO), Khalanga, Jajarkot	5
2.2 Meeting with Chief District Officer (CDO) and Deputy Superintendent of Police (DSP) of Jajarkot	5
2.3 Record review	5
2.4 In-depth interviews with health professionals and patients	5
2.5 Collection of biological specimen and Laboratory analysis for confirmatory tests	5
2.6 Sample collection	5
2.7 Sampling of affected VDCs for study	5
2.8 Validation of death cases and follow up of positive cases for H1N1	6
2.9 Exit Client Interview	6
3. Findings	7
3.1 Health institutions and health personnel in district	7
3.2 Laboratory Investigation	8
3.3 Distribution of Cases based on line list of selected health institutions	9
3.4 Profile of Death Cases	10
3.5 Associated factors of illness	11
4. Discussion and conclusion	12
5. Recommendations	13
Annex: Verbal Autopsy Questionnaire	14

1. Introduction



The World Health Organization (WHO) defines influenza like illness (ILI) as an acute respiratory infection with measured fever of $\geq 38\text{ C}^\circ$, cough and with onset within the last 10 days. This year onset of ILI outbreak in Jajarkot district was reported on 1 April (18 Chaitra) 2015. It was reported in the media that 20 students of Archane VDC were ill and some deaths in the next day. However, cases of ILI were started to be seen from 12 Chaitra (26 March 2015) among students during School Leaving Certificate (SLC) Examination held in Manedhunga Higher Secondary School. The SLC examination was held from 5-16 Chaitra 2071 (19-30 March 2015). As of 19th April, 3,357 patients were examined and treated by the medical teams deployed in six different village development committees (VDCs) and number of deaths had reached 24. Approximately, 25% of these cases had Influenza like Illness (ILI) symptoms, and the rest had minor illnesses and chronic problems. On 12th April 2015, National Influenza Center/National Public Health Laboratory (NIC/NPHL) laboratory test result showed that out of 17 throat specimens tested of suspected ILI patients, 8 were found to have swine flu or Influenza A (H1N1/Pdm09) like virus, which is around 47%.

By the third week of April, diseases had already noted in Paink, Sakla, Nayabada, Telegaun, Rami Danda, Rokayagaun, Laha, Kortang, and Majkot, and could spread to all 30 VDCs of the district and surrounding districts like Kalikot, Rukum, Salyan, Dolpa, Jumla, Surkhet and Dailekh in the absence of timely public health and treatment response indicating the rapid spread of the disease. The problem could be further complicated by difficult geographical terrain and limited health personnel working in the district. Without a comprehensive epidemiological profile of the disease outbreak and confirmation of causal factors, preventive and control measures could be difficult. So, there was an urgent need of epidemiological investigation of the outbreak and provide evidences for interventions and future planning.

The Nepal Health Research Council (NHRC) called a meeting and felt the need to specify the epidemiological profile of diseases responsible for outbreak by conducting an outbreak investigation from a research perspective. The Member-Secretary (Executive Chief) of the Nepal Health Research Council (NHRC) coordinated the meeting and formed a five member team for outbreak investigation. The advisory committee members who attended the meeting organized by NHRC were Dr. Baburam Marasini, Director, Epidemiology and Diseases Control Division (EDCD); Dr. Geeta Shakya, Director, National Public Health Laboratory (NPHL); Dr. Krishna Kumar Aryal, Research Officer, NHRC; Dr. Harihar Wosti, Institute of Medicine, Tribhuvan University, Prof. Dr. Sharad Raj Onta; Institute of Medicine, Tribhuvan University; Prof. Dr. Rajendra Raj Wagle, Institute of Medicine, Tribhuvan University, and Prof. Dr. Bashista Rijal, Institute of Medicine, Tribhuvan University. The members of working team were Dr. Meghnath Dhimal, Chief, Research Section, NHRC; Mr. Purushottam

Dhakal, Chief, Ethical Review, Monitoring and Evaluation Section, NHRC; Dr. Ravi Kiran Kafle, National Professional Officer, WHO Country Office, Nepal ; Mr. Resham Lamichhane , Public Health Officer, EDCD; Mr. Jagat Bahadur Baniya, Medical Laboratory Technologist, NPHL; Dr. Krishna Gopal Maharjan and public health graduates for data collection. The team was responsible to collect epidemiological data and throat sample to know the epidemiological pattern of disease as well as confirmation of diagnosis.

1.1 Case definitions

Swine Flu (H1N1)

A **suspected case** of swine flu or influenza A (H1N1) virus infection is defined as a person with an acute febrile respiratory illness (fever $\geq 38^{\circ}$ C) with onset within 7 days of close contact with a person who is a confirmed case of swine influenza A (H1N1) virus infection, or within 7 days of travel to areas where there are one or more confirmed swine influenza A (H1N1) cases, or resides in a community where there are one or more confirmed swine influenza cases.

A **probable case** of swine influenza A (H1N1) virus infection is defined as a person with an acute febrile respiratory illness who: is positive for influenza A, but un-subtypable for H1 and H3 by influenza RT-PCR or reagents used to detect seasonal influenza virus infection, or is positive for influenza A by an influenza rapid test or an influenza Immuno Fluorescence Assay (IFA) plus meets criteria for a suspected case, or individual with a clinically compatible illness who died of an unexplained acute respiratory illness who is considered to be epidemiologically linked to a probable or confirmed case.

A **confirmed case** of swine influenza A (H1N1) virus infection is defined as a person with an acute febrile respiratory illness with laboratory confirmed swine influenza A (H1N1) virus infection at WHO approved laboratories by one or more of the following tests:

Real Time PCR, Viral culture, Four-fold rise in swine influenza A (H1N1) virus specific neutralizing antibodies.

Chronic obstructive pulmonary disease (COPD)

Chronic Obstructive Pulmonary Disease (COPD) is a type of obstructive lung disease characterized by chronic poor airflow. It typically worsens over time. The main symptoms include shortness of breath, cough, and sputum production.

Hypertension

Hypertension, also known as high or raised blood pressure, is a condition in which the blood vessels have persistently raised pressure.

Guillain-Barré syndrome

A disorder characterized by progressive symmetrical paralysis and loss of reflexes, usually beginning in the legs. The paralysis characteristically involves more than one limb (most commonly the legs), is progressive, and is usually proceeds from the end of an extremity toward the torso. Guillain-Barre syndrome is not associated with fever, an important fact in differentiating Guillain-Barre from other diseases.

Tuberculosis (TB)

A patient with Mycobacterium tuberculosis complex identified from a clinical specimen, either by culture or by a newer method such as a molecular line probe assay.

Breast Cancer

Breast cancer is a malignant tumor that starts in the cells of the breast. A malignant tumor is a group of cancer cells that can grow into (invade) surrounding tissues or spread (metastasize) to distant areas of the body. The disease occurs almost entirely in women, but men can get it, too.

Neonatal sepsis

Neonatal sepsis is a blood infection that occurs in an infant younger than 90 days old. Early-onset sepsis is seen in the first week of life. Occurs after 1 week and before 3 months of age.

Rabies

Rabies is a viral disease that causes acute inflammation of the brain in humans and other warm-blooded animals. It is an infectious disease of dogs, cats and other animals and is transmitted to humans by the bite of an infected animal and usually fatal if prophylactic treatment is not administered.

Malnutrition

Malnutrition is the condition that develops when the body does not get the right amount of the vitamins, minerals, and other nutrients it needs to maintain healthy tissues and organ function.

Drowning

Drowning is defined as respiratory impairment from being in or under water.



Figure 1: Map of Jajarkot district

Jajarkot is the hilly district of the mid-western region of Nepal. There are 30 Village Development Committees (VDCs) and it is bordered with 7 districts: Jumla, Doplpa, Kalikot, Dailekh, Surkhet, Salyan and Rukum.

1.2 Objective of the study

The main objective of this study was to analyze the morbidity and mortality data using line list of health institutions and inform to policy makers for evidence informed decision making. The specific objectives of the study were:

- To collect and analyse morbidity data from health institutions
- To collect the mortality data and confirm the cause of death using verbal autopsy tool
- To collect biological samples from suspected cases of influenza and confirm causative agent
- To explore causal factors of frequent disease outbreak using qualitative techniques

1.3 Limitation of study

Although this study provides important information about the situation of ILI outbreak in Jajarkot district, this study has a number of limitations. First, all the affected VDCs could not be covered for study and only most affected three VDCs were selected for study due to difficult geographical terrain and limited time allocated for study coupled with the mega earthquake of 25 April in Nepal. Secondly, out of 35 death cases reported, the study verified only 13 cases using verbal autopsy questionnaire. As the number of suspected ILI cases visiting health facilities and health camps were few, adequate number of throat sample for confirmatory test could not be found for meaningful statistical analysis.

2. Methodology



We adopted following methods for this study

2.1. Meeting at the District Public Health Office (DPHO), Khalanga, Jajarkot

We organized a meeting on 25 April 2015 at the District Public Health Office (DPHO), Khalanga, Jajarkot. The meeting was organized with more than 25 people who were involved in response for outbreak control. The detail about the outbreak and field situation update was obtained from health personnel. The issues raised in the meeting were noted and are included in this report.

2.2 Meeting with Chief District Officer (CDO) and Deputy Superintendent of Police (DSP) of Jajarkot

A short briefing meeting was separately held with Chief District Officer (CDO) and Deputy Superintendent of Police (DSP) of Jajarkot on 27 April 2015 and informed about the objective of the investigation team. Relevant information was collected from them.

2.3 Record review

The record of reported death cases was obtained from the District Public Health Office (DPHO), Khalanga, Jajarkot. However, line list of morbidity cases was not available at DPHO and were collected from health institutions of affected VDCs.

2.4 In-depth interviews with health professionals and patients

In-depth interviews were conducted with health professionals working in affected VDCs health institutions and camps. In-depth interviews were also conducted with patients who visited health institutions and camps for treatment.

2.5 Collection of biological specimen and Laboratory analysis for confirmatory tests

Throat sample was collected for confirmatory test in the laboratory.

2.6 Sample collection

The throat swabs were collected and subjected for rapid diagnosis for Influenza form suspected cases who met eligibility criteria for ILI. For further confirmation, the positive sample was sent to the National Influenza Center (NIC), NPHL, Kathmandu. At NIC, the real time PCR was done and result showed type of Influenza.

2.7 Sampling of affected VDCs for study

We selected only three VDCs Talegaun, Archane and Pajaru for data collection for the study as most

of the death and laboratory confirmed influenza cases were reported from these VDCs. Owing to the limitation of time and resources, data from all affected VDCs could not be collected.

2.8 Validation of death cases and follow up of positive cases for H1N1

The validation of death cases was done using a brief verbal autopsy questionnaire. The causes of deaths of these reported cases to DPHO were previously collected by health professionals. Our team further validated causes of death either by visiting or telephone conversation with a family member of death person. We validated all 13 death cases reported from three VDCs: Talegaun, Archane and Pajaru. The cause of death was confirmed based on reported signs and symptoms by a team consisting of Dr. Basu Dev Pandey, virologist; Dr. Harihar Wosti, forensic toxicologist; Dr. Khem B Karki, public health physician; Dr. Baburam Marasini, epidemiologist and Dr. Geeta Shakya, laboratory expert. Similarly, all the laboratory confirmed positive cases of swine flu were followed up to assess their health status (i.e. stable, recovered or death).

2.9 Exit Client Interview

The study team also carried out exit client interviews. However, the results of this are not included in this report.

3. Findings



3.1 Health institutions and health personnel in district

There is one district hospital, three primary health care centers (PHCs), 16 sub-health posts and 15 health posts; one eye treatment center, one district Ayurvedic health center and two Ayurvedic Ausadhalaya in Jajarkot district. The distribution of health institutions in the district is shown in Table No. 1.

Table No. 1: Health Institutions in district

S.N.	Health Institutions	Number	Number of beds
1.	District Hospital	1	15
2.	Primary Health Care Center	3	0
3.	Health Posts	15	0
4.	Sub Health Posts	16	0
5.	Eye Treatment Center	1	0
6.	District Ayurvedic Health Center	1	0
7.	Ayurvedic Ausadhalaya	2	0

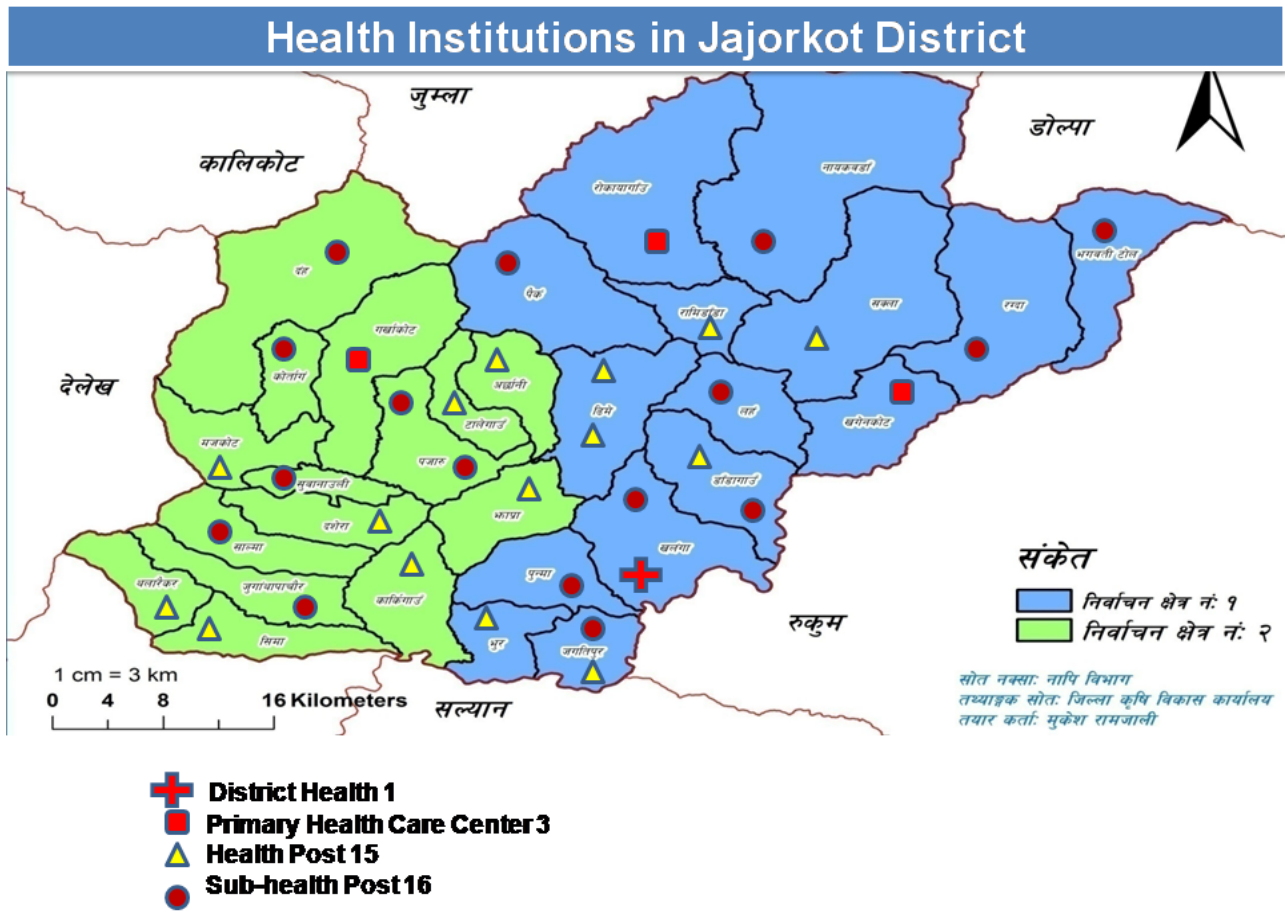


Figure 2. Distribution of health institutions in Jajarkot district

There are 27 sanctioned posts in the district hospital. However, 12 posts were vacant, including post of medical superintendent. Similarly, there are 208 sanctioned posts for public health office, but 48 posts were vacant.

3.2 Laboratory Investigation

By 23 April 2015, 48 throat sample of suspected ILI cases from six VDCs were tested, which revealed 15 cases positive for Influenza A (H1N1). During our visit at Archane -6 Health camp Jajarkot, we screened 11 suspected people visiting the camp. Out of which, four people were diagnosed with influenza like illness (ILI). The throat swab was collected and subjected for rapid diagnosis for influenza. Among the sample collected, one test was positive for Influenza A tested by rapid diagnostic kit. For further confirmation, the positive sample was sent to the National Influenza center (NIC), NPHL, Kathmandu. At NIC, the real time PCR was done and result confirmed Influenza type A. The tested real time PCR from mRNA of influenza suggested that the H1N1 virus belongs to A/Pdm09, thus suggesting the same variant was major etiological agent in the outbreak of ILI in Jajarkot during 2015. The profile of all laboratory confirmed cases tested in NPHL is as follows

Table No. 2: Age and Sex distribution of laboratory confirmed swine flu cases

Age group (years)	Sex		Total	
	Male	Female	Number	Percent (%)
0-14	2	0	2	12.5
15-59	2	9	11	68.75
60 and above	0	3	3	18.75
Total	4	12	16	100

The majority of swine flu positive cases (70%) were reported in economically active age group (15-59) years and among female.

3.3 Distribution of Cases based on line list of selected health institutions

According to table no. 3, out of 3,001 patients visited for treatment in health camps and health institutions of Talegaun, Archane and Pajaru, only 233 (7.8%) were suspected cases of ILI including common cold. Almost 50% cases were related with other respiratory and gastrointestinal problems. The respiratory problems were upper respiratory tract infection, lower respiratory tract infection, bronchitis, COPD etc. Similarly, common gastrointestinal diseases were abdominal pain, diarrhea, dysentery etc.

Table No. 3: Distribution of Cases based on line list of selected health institutions (Talegaun, Archane and Pajura)

Health problems	Frequency (n)	Percent (%)
Respiratory Related	786	26.2
Gastro-intestinal (GI) related	659	22
Fever	300	10
Headache	235	7.8
Influenza Like Illness (ILI) including common cold	233	7.8
Skin Related	154	5.1
Cough	122	4.1
Wound & Injury	105	3.5
Joint/body Pain	40	1.3
Eye Related	30	1
ANC check up and other reproductive health related problems	22	0.7
Others	315	10.5
Total (N)	3,001	100

3.4 Profile of Death Cases

Table 3 shows majority of death cases (46%) were in the age group 60 years and above.

Table No. 4: Distribution of death cases by age group

Age group (years)	Number (n)	Percentage (%)
1- 14	4	11
15-59	15	43
60 and above	16	46
Total (N)	35	100

Table No. 5: Probable causes of deaths confirmed by the investigation team

S.N	Probable cause of death	Male	(%)	Female	(%)	Total number of deaths	(%)
1	COPD Complications	7	37	3	19	10	29
2	Could not identify cause of death	4	21	3	19	7	20
3	COPD with ILI	3	16	3	19	6	17
4	Complication of hypertension	3	16	0	0	3	9
5	Gullain Barre Syndrome (GBS) illness	0	0	1	6	1	3
6	Defaulter TB	0	0	1	6	1	3
7	Suspected ILI	1	5	0	0	1	3
8	Breast Cancer	0	0	1	6	1	3
9	Neonatal Infection	0	0	1	6	1	3
10	Neonatal Sepsis	0	0	1	6	1	3
11	Rabies	1	5	0	0	1	3
12	Drowning	0	0	1	6	1	3
13	Severe malnutrition	0	0	1	6	1	3
	Total	19	100	16	100	35	100

Table 5 shows that only 6 deaths (17%) were COPD with ILI symptoms, 10 (29%) cases were COPD with complications (without symptoms of ILI), 1 death was suspected ILI, causes of 7 deaths could not be identified based on reported signs and symptoms and rest cases were of rabies, neonatal infection, neonatal sepsis, TB, drowning, severe malnutrition, breast cancer, GBS illness etc. The majority of deaths were occurred at home who did not consult for health checkup at health facilities.

3.5 Associated factors of illness

Poor hygiene and environmental sanitation has caused frequent outbreaks of diarrheal diseases in the district. The burden of gastrointestinal diseases is also high in the district. Low nutrition status of people make the immune system of people weak and are susceptible to many infectious diseases. Migration and migrating workers are usually carriers for infectious agents such as swine flu. The imported case in the community becomes primary cases and disease spread rapidly in the community.

Low educational level as well as economic status delay patients for timely treatment of diseases. Low awareness level for prevention and control of different health problems and diseases increases severity of diseases in the community.

Lack of medicine compliance as well as high level of antibiotics supply from pharmaceutical shop results drug resistance and also increases the severity of the disease.

Smoking and alcoholism is quite high in the community which causes respiratory and liver diseases.

"My husband who used to work in India returned back to Nepal with swine flu and transmitted to me"
- 21 Years Female patient of Archane VDC

"Many young people of economically active age group are migrated to India for work. They returned Nepal during swine flu time in India and are potential carrier of swine flu in this district" A Medical Doctor Serving in Health Camp of Archane VDC

4. Discussion and conclusion



The majority of H1N1 positive cases were reported in economically productive age group and import of causative agent for this outbreak seems to be migrating worker returned from India before School Leaving Certificate (SLC) examination. The analysis of line list data shows that only around 8% cases were ILI and the rest were other chronic health problems related with behavior of people, hygiene, sanitation and poor nutrition. The majority of death cases were occurred at home and only around 20% were attributed to ILI. Almost all ILI cases who got treatment timely were recovered indicating the importance of timely medical service for reducing death tolls. Higher numbers of cases of COPD indicate that there is an urgent need to improve environmental sanitation, including switch in traditional cooking stoves to improved cook stoves. The import of swine flu through migrating worker necessitates the need for screening suspected febrile illness at border sides. Likewise, developing a strategy to increase job opportunities to trap an economically active age group people within the country should be promoted timely. The rapid expansion of ILI in many VDCs shows weakness of the health system for timely detection of infected people and their treatment. Although the role of media is to sensitize the government to pay attention for neglected condition of the district at the beginning seems positive, it created a havoc situation among general public and increased anxiety since every death cases from the district were reported as a swine flu. The low economic status, unavailability of health personnel in health facilities as per sanctioned posts, poor nutrition, poor hygiene and sanitation coupled with increasing movement of migrating workers from district to India causes frequent outbreak of communicable diseases in the district.

5. Recommendations



Following are the specific recommendations to prevent and control of disease outbreak in the district in the future:

- Health personnel must be available in each health facility as per sanctioned posts. There are many posts still vacant in health posts and sub-health posts. These should be fulfilled at the earliest to provide basic and quality health services to people.
- Early diagnosis and treatment of diseases is very important to prevent spread of diseases in new areas. As compared to diarrhea/cholera outbreak in Jajarkot in 2009, this year ILI outbreak could be controlled relatively within a short time, i.e., one month because of the timely deployment of health professionals in affected VDCs.
- Strengthening laboratory set up at the grassroots level is very essential. Timely detection of infectious agent at district and peripheral level will help to control disease in early phase.
- Development and enforcement of proper referral system. There should be a clear mechanism to refer cases from sub-health post, health post and primary health care center to district hospital and district hospital should be well equipped as well.
- Increasing health promotion program on water, sanitation, hygiene and health seeking behaviors of people to reduce burden of diseases is very important.
- Proper management of water sources and maintenance of toilets is urgently needed to prevent and control of diarrheal diseases in upcoming monsoon and post-monsoon season
- Supervision of patients at grassroots level is needed for compliance monitoring of medicine use. For this female community health volunteers, mothers groups and auxiliary health workers can be mobilized.
- Formation of Rapid Response Team (RRT) at VDC level and timely mobilization at the time of outbreak. For this interaction and communication between health staffs and VDC personnel should be increased.
- Improving nutrition status of people is needed to prevent cases of severe malnutrition.

Annex: Verbal Autopsy Questionnaire

मृत्युको कारण (मौखिक अनुसन्धान प्रश्नावली)

१) मृतकको नाम :

२) उमेर :

३) लिंग : महिला

पुरुष

४) ठेगाना : जिल्ला

गा.वि.स

वार्ड नं.

५) मृत्यु भएको मिति

समय बजे

६) मृत्यु हुन भन्दा अगाडीको लक्षणहरू के के थिए ?

- कम्तिमा १०० डिग्री ज्वरो : थियो थिएन
- रूघा लाग्ने : थियो थिएन
- खोकी लाग्ने वा सास फेर्न गाह्ने हुने : थियो थिएन
- जिउ दुख्ने : थियो थिएन
- घाटी दुख्ने : थियो थिएन
- कम्तीमा ४ वटा लक्षण थियो भने कति दिन देखि माथी उल्लेखित लक्षणहरू विरामीमा देखिएको थियो ?
.....

७) विरामीलाई अन्य कुनै रोग ?

- एच. आई.भी/एड्स : थियो थिएन
- टि.वि : थियो थिएन
- पुरानो दमखोकी : थियो थिएन
- उच्च रक्तचाप/मुटु रोग : थियो थिएन
- धेरै मोटो ? भएको नभएको
- गर्भवति : थियो थिएन
- कुपोषण भएको पाँच वर्ष मुनिको बच्चा : हो हैन्
- मृगौला रोग : थियो थिएन
- अन्य कुनै रोग भए लेख्नुहोस :

८) कुनै जोखिम पूर्ण व्यवहार :

- धुम्रपान : गर्ने नगर्ने
- अत्याधिक रक्सी सेवन : गर्ने नगर्ने

९) पुरानो रोग भए कहाँ स्वास्थ्य परिक्षण गरिएको थियो ?
.....
.....

१०) विरामीले अन्य रोगको लागि औषधी खाएको थियो ?

यदि थियो भने कुन औषधी र के को लागी ?
.....
.....

११) मृत्युको संभावित कारण

- मौसमी रूघाखोकी
- अन्य (Specify)



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