ADDIS ABABA UNIVERSITY, SCHOOL OF PUBLIC HEALTH

Ethiopian Field Epidemiology Training Program (EFETP)

Compiled Body of Works in field Epidemiology

By

ALIY ENDRISS AHMED

Submitted to the School of Graduate Studies of Addis Ababa University in Partial Fulfillment for the Degree of Master of Public Health in Field Epidemiology

June 7-2017

Addis Ababa

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Advisors
Mr. Teklehaymanot G/Hiwot
Dr. Niguse deyessa

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Approval by Examining Board

_____ _____

Chairman, School Graduate Committee

_____ _____

Advisor

_____ _____

Examiner

_____ _____

Examiner

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LIST OF ABREVIATIONS

AFR-D	Based on WHO mortality stratum African Region, stratum D
AFR-E	African Region, stratum E
EMR-B	Eastern Mediterranean Region, stratum B
EMR-D	Eastern Mediterranean Region, stratum D
SEAR-B	South-East Asia Region, stratum B
SEAR-D	South-East-Asia Region, stratum D
WER	Weekly Epidemiological Record
WPR-B	Western Pacific Region, stratum B.
AWD	Acute watery diarrhea
CFR	Case fatality rate
PHEM	Public health emergency management
HW	Health worker
HEW	Health Extension worker
RDT	Rapid diagnostic test
CTC	Cholera treatment center
EFETP	The Ethiopian field epidemiology training program
CDC	Center for disease control prevention
EIS	Epidemic intelligence service
EPHI	Ethiopian public health institute
EPHA	Ethiopian public health association
WHO	World health organization
AR	Attack rate

AOR	Adjusted odd ratio
COR	Crude odd ratio
CI	Confidence interval
MDA	Mass drug administration
NGO	Non-governmental organization
SAM	Sever acute malnutrition
GAM	Global acute malnutrition
OTP	Outpatient treatment program
SUN	Scale up nutrition
RUTF	Ready to use food
CBN	Community based nutrition
MUAC	Middle upper arm circumstance
MDG	Millennium development goal
IHR	International health regulation
SARS	Severe acute respiratory syndrome
CSF	Cerebral spinal fluid
AURTI	Acute upper respiratory tract infection
AFI	Acute febrile illness
VCT	Voluntary counseling and testing
PICT	Patient initiation counseling and testing
UTI	Urinary tract infection
PMTCT	Prevention of Mather to child transmission
ANC	Antenatal care
PNC	Postnatal care
TFP	Therapeutic feeding program
EPRP	Emergency preparedness and response plan

EXCUTIVE SUMMARY

The Ethiopia Field Epidemiology Training Program (EFETP) is a two years competency based Master's program adapted from the United States Centers for Disease Control and Prevention (CDC) Epidemic Intelligence Service (EIS) Program. Addis Ababa University, the Federal Ministry of Health of Ethiopia/Ethiopian Public Health Institute (EPHI), the Ethiopian Public Health Association (EPHA), and Centers for Disease Control and Prevention Ethiopia and Regional Health Bureaus run the program jointly. It comprises of 25% class learning and 75% field activities, working in public health emergency and other health related priority issues. It is designed to assist the Ministry of Health in building or strengthening health systems by selecting promising health workers and building their competencies through on the job mentorship and training. Ethiopia adopted the field epidemiology training program to help improve leadership in the public health emergency management system.

This compiled body of works composed of eight chapters accomplished during the two years residency period. It comprises outbreak investigations, surveillance data analysis report, surveillance system evaluation, health profile description report, scientific manuscript for peer reviewed journals, abstracts for scientific presentation, narrative summary of disaster situation visited, protocol or proposal for epidemiologic research project.

All the outputs during the residency period were compiled as single document. The first chapter consists of outbreak investigations. Two outbreaks were investigated, cholera outbreak in Jile tumuga district in Sep, 2016 and Scabies outbreak in bati district in June, 2016. The second chapter is surveillance data analysis on sever acute malnutrition in oromia zone Amhara region North West Ethiopia, February 2016. Surveillance system Evaluation was conducted in oromia Zone, Amhara region, July 2016, Health profile description report was conducted in Kemissie town district, January 2016. One manuscript was prepared for peer reviewed journals and one abstract was prepared. Summary narrative report of rapid meher assessment done in oromia zone, in October, 2016 conducted together with other relevant sectors and partners, is included in the seventh chapter. Proposal for epidemiologic research project is also prepared Prevalence of intestinal shistosomiasis and the risk factors associated with shistomiasis among elementary school children in Artuma fursi district of oromia zone, Amhara region, North West Ethiopia.

CHAPTER I: OUT BREAK INVESTIGATION

1.1 SCABIES OUT BREAK INVESTIGATION IN BATI WOREDA ,OROMIA ZONE AMHARA REGION NORTH WEST ETHIOPIA , 2016

ABSTRACT

INTRODUCTION Scabies is a highly contagious skin disease caused by a parasite is a mite that burrows under the skin. The causative agent of human scabies is the mite, Scarcoptes scabiei. A WHO review collated data from 18 prevalence studies between 1971 and 2001, and reported a scabies prevalence ranging between 0.2% and 24%. In some underdeveloped countries, prevalence has been reported to be between 4 and 27% among the general population. We aimed to identify the magnitude of scabies outbreak and risk factors.

Methods: We conducted scabies out break investigation in bati district from March 12- 13, 2016 and Case-control study design was used. We used simple random sampling methods to select randomly from the line list and two controls for one case were selected by using systematic random sampling method from the neighbors of cases and structured questionnaire was used to collect data.

RESULTS In bati districts out of the total scabies cases (142 cases) reported in bati districts 46(32%) were under 15years and 73(51%) were female. More than half 89(63.3%) of the case had history of slept with contracted scabies and 92(64.5%) had seen scabies lesion and 118(83.3%) had skin sores. The attack rate was highest in age <5 years (335per 100,000 population) followed by age 5-9 years with (232/100,000 population).

CONCLUSION Children less than 9 years of age were more affected group during the outbreak .Basing scabies cases and putting clothes with scabies case were risk factor for scabies occur, on the other hand detergent used to take shower and frequency of washing clothes were protective for scabies therefore avoiding contact with scabies cases and promoting hygiene and sanitation were best solution to prevent scabies.

Key words: scabies outbreak, bati district, case control study.

Word count: 273

INTRODUCTION

Scabies is a highly contagious skin disease caused by a parasite is a mite that burrows under the skin. The causative agent of human scabies is the mite, Scarcoptes scabiei. Mites are tiny arthropods related to spiders and ticks. Although mites in general are very diverse in terms of what they feed upon and where they live, the scabies mite is an obligate ectoparasite which must live on the outside of a mammal host to survive. The scabies mites are thought to be a single species, but with several physiological varieties or subspecies. The many variants of this species are generally considered to be very host-specific. Therefore, S. scabiei var. hominis, found on humans, can only develop and reproduce on a human host. The human scabies mite tends to prefer areas of folded skin (e.g., web between fingers, under buttocks, elbow and wrist area, around genitals, etc.) for burrowing(1).

The primary mode of transmission of the human scabies mite is direct skin contact between two individuals. Mites are good crawlers and can crawl up to 2.5 cm ~ 1 inch per minute on the surface of the skin. Although mites cannot jump, they can readily move to a new individual when skin-to-skin contact is made. Once on a new host individual, the mites can start to burrow within minutes. Currently, there are no published studies that have determined the minimum contact time necessary for the mites to transfer from person to person. Therefore, any person who has direct contact with someone who has scabies may be at risk for infestation(1).

The most common symptom is a rash that is very itchy, especially at night .The rash can be anywhere on your body but is most common on the hands, breasts, elbows, knees, wrists, armpits, genital area, and waistline. Often the rash looks like red bumps or tiny blisters, which form a line. Symptoms begin 2 to 6 weeks after the first exposure to scabies, or 1 to 4 days after re-exposure. Scratching may cause skin to become infected with bacteria (germs)(1).

Treatment of scabies on individuals and reduction of skin-to-skin contact with infected individuals is recommended as the primary means of eliminating the infestation. Although transmission via fomites is possible, regular housekeeping and hygienic measures such as changing and washing of bedding in hot water followed by drying materials in a mechanical dryer at the highest temperature setting (preferably 120º F or hotter) should be adequate to prevent further spread. Currently, 5% permethrin cream is the recommended treatment for scabies infestation and Permethrin is a synthetic pyrethroid that paralyzes the scabies mite eventually causing death. Ivermectin is 90% - 95% effective with one dose (200 ug/kg)(1).

The prevalence and complications of scabies make it a significant public health problem in the developing world, with a disproportionate burden in children living in poor, overcrowded tropical areas (2). Exhaustive and complete data are not available from many countries, but such data as can be utilized suggest that scabies is endemic in tropical regions, with an average prevalence of 5–10% in children. A WHO review collated data from 18 prevalence studies between 1971 and 2001, and reported a scabies prevalence ranging between 0.2% and 24%(3) . A number of epidemiological factors have been proposed as influencing the distribution of scabies infestation in populations, including: age, gender, ethnicity, overcrowding, hygiene, and season being related to social and environmental changes such as wartime, overcrowding, and climatic changes(4).

The prevalence of scabies varies. In some underdeveloped countries, prevalence has been reported to be between 4 and 27% among the general population. In underdeveloped countries, scabies tends to have a higher prevalence in preschool children and adolescents, whereas in developed nations, prevalence is similar in all ages. It is no longer accepted that epidemics of scabies occur in 30-year cycles due to changes in the immune status of the host population. The two pandemics coincided with the two World Wars. Besides these two pandemics, localized and unrelated epidemics do occasionally occur as noted in New Zealand and in Germany in the 1930s. No regular cycling in incidence is apparent(4).

In Malaysia during 2010 the prevalence of scabies among children in welfare home in Pulau Pinang. Children aged 10-12 years showed the highest prevalence followed by 7-9 years age

group and lastly the 4-6 years age group. More males were affected by scabies. The overall prevalence rate for scabies was 31%(5).

In Palestine the average annual incidence rate of scabies in the West Bank during the period 2005–2010 based on 1734 patients was 17/ 100 000 populations. The average annual incidence rate for the individual governorates ranged from 1.3/100 000 population in Tubas governorate to 41.4/100 000 population in Jericho governorate(6).

IN Egypt during 1998, Scabies was diagnosed in 239 patients during the whole study period (14 months). The initial prevalence rate of scabies among the village residents was 5.4%. Scabies affects persons of all ages; however, the risk of developing scabies was highest among children under 10 years (7).

The study in Cameroonian boarding schools during 2015, indicate that the prevalence of human scabies 17.7% among whom 223 boys (66.0 %). There were significantly more infected boys than girls. Ages of these infected students ranged between 9 and 20 years(8).

The study of infectious skin diseases among Egyptian school children in urban and rural areas during 2008-2010 indicate that, the prevalence of scabies (1.3%)(9).

Scabies was common among different part of Ethiopia, the study done in Amhara region tach gaynt indicate that a total of 2969 scabies case were reported from the tach gaynt. Of those cases 1436 (48.3%) were female. The overall attack rate for all categories of age was 9.4 %. The age specific attack rate was higher for people older than 60 years and relatively lower for children under five years of age(10)

RATIONAL OF THE STUDY: The aim of the study is to identify the magnitude of scabies outbreak and risk factors.

Objectives

General objectives

To identify the risk factors for the occurrence of scabies outbreak and select appropriate control measures.

Specific objectives

- To describe the magnitude of the disease in the district
- To analyze risk factors for the occurrence of the outbreak
- To select appropriate prevention and control measures.

Methods and Materials

Study area

Bati district is one of the rural districts found in oromia Zone, Amhara Region. The district is located at a distance of 405 kms from Addis Ababa and 540 kms from regional town Bahir Dar, and the district was bordered by south wello in west and by afar in south, east and north. The district has total population of 96418 and with male 45966 female 50452. The district has 26 rural kebele, and six health centers and 26 health posts with physical health service coverage is 100%.

Figure 1: map of bati district, Amhara region, 2016

Study period: The study was conducted from March 10-25, 2016 .

Study design: Case-control study design was used and matched by sex, age and residential area

Target population: All populations in bati district where cases and controls found.

Study population: All cases and populations from nine kebeles of bati district in which case and controls were selected.

Sample size and sampling procedure: By using simple random sampling methods cases were selected randomly from the line list. Controls were neighbors of cases who did not develop scabies during the period of the study. Line list was reviewed and by using simple random sampling suspected scabies case were identified in bati districts from March 10/2016 to march 12/2016 using standard case definition and 30 case who fulfill the case definition were selected from the total 142 cases and two controls for one case per were selected by using systematic random sampling method from the neighbors of cases and a total of 61 control were selected and selected into the study.

Sample size was calculated using Epi-info 7 statcalc for matched case-control study by taking

Two sided confidence level (1-α) = 90%

Power (% chance of detecting) = 80%

Ratio of controls to cases = 2

Proportion of controls with exposure =15% (8)

Proportion of cases with exposure = 40% (8)

Odds Ratio to be detected = 3.77

When the sample size is calculated Using Epiinfo statcalc a total of 91 samples 30 cases, and 61 controls were selected using a control to case ratio of 1:2.

Inclusion &Exclusion criteria

Inclusion criteria

Cases Any resident of bati districts who had symptoms of scabies based on WHO case definition and who agreed to participate in the study was included.

Controls A control was any resident of bati district during the study who was a neighbor to a case and who did not develop signs and symptoms of scabies based on WHO case definition and agreed to participate was included.

Exclusion criteria

Cases that did not fulfill the signs and symptoms of scabies based on WHO case definition and who was not present during the study period were excluded.

Data collection**:** Structured questionnaire adopted from others study was used to collect data for case-control study and using line list. Data was collected by principal investigator and co-investigator including HW at district and health center levels by translating the questionnaire into Afan Oromo and Amharic.

Data quality control

The data was primarily collected by principal investigator and co-investigator. Prior to entering the data into the computer the missing variables and consistency of filling of questionnaires and completeness of data was checked every day during data collection.

Data entry and Analysis

Data was entered and analyzed using Epi-info 7. After data cleaning and recoding advanced statically analysis were under taken. Results were presented using graphs, tables, charts and attack rate was calculated. Odds ratio, 95% CI, and p-value were constructed to measure association and significance.

Variables

Dependent variable

Scabies

Independent variables

Age

Contact history

Occupation

Residence

Educational status of family

Marital status

Detergent to take shower

Knowledge

Frequency of taking shower

Ethical clearance

Letter of permission was written from Amhara field base to Bati district health office, where the outbreak took place. The outbreak investigation was done after permission obtained from Bati district health office.

WHO case definitions

1. **Suspected case**: A person with signs and symptoms consistent with scabies.
2. **Confirmed case**: Examining the skin scrapings microscopically in which mites, mite eggs or mite feces have been identified by a trained health care professional.

3. **Contact**: A person without signs and symptoms consistent with scabies who has had direct contact (particularly prolonged, direct, skin-to-skin contact) with a suspected or confirmed case in the two months preceding the onset of scabies signs and symptoms in the case.

RESULT

Descriptive epidemiology

The outbreak lasts for four months beginning from 01/01/2016—01/04/2016 with 142 cases of scabies and no death the attack rate was 147 per 100000population.

Out of the total cases reported in bati district 46(32%) were under 15years and the scabies were not more common in older age with the median age (8 years).

Out of the total scabies cases (142 cases) reported from bati district 73(51%) were female and 89(63.3%) of the total case were not attend formal education. More than half 89(63.3%) of the case had history of slept with someone infected by scabies.

All of the cases respond itching intense at night time .Majority of the cases 128(90%) experienced itching first and only the remaining 14(10%) experience rash first.

More than half of the cases 92(65%) had scabies lesion and 118(83%) had skin sores.

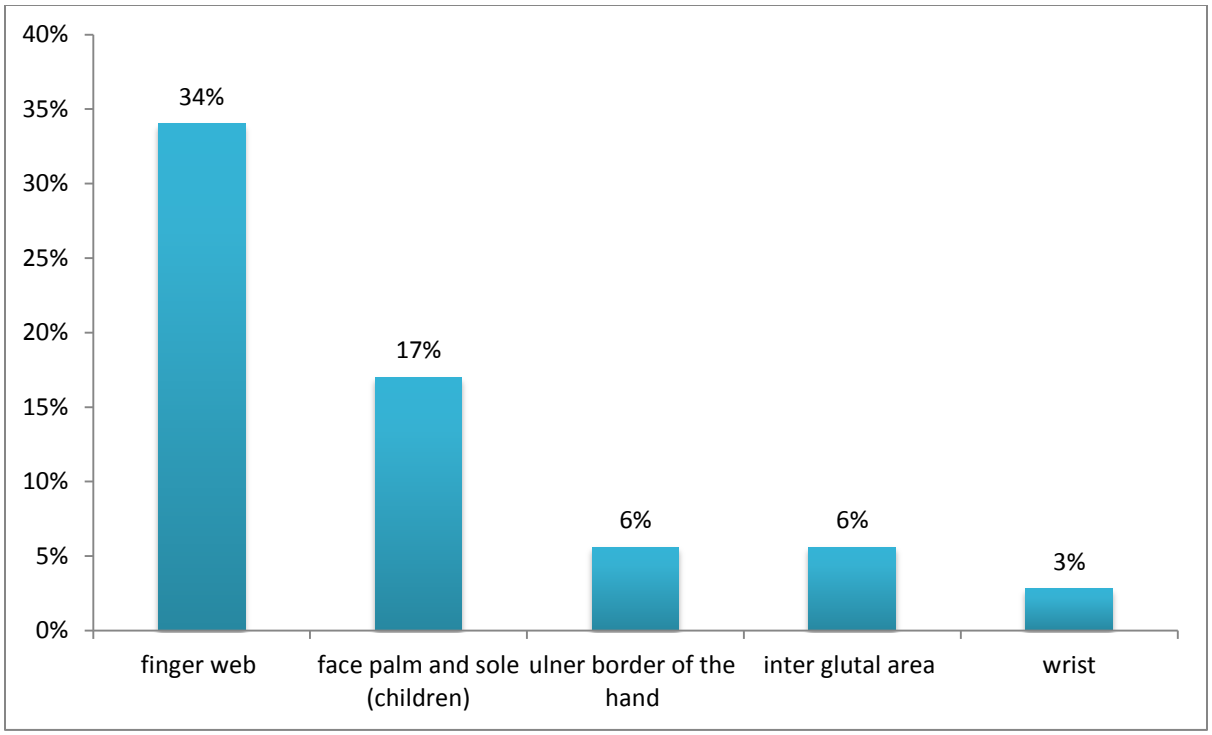

Figure 2: frequency of parts of body affected by scabies lesion among the scabies cases of bat district, Amhara, 2016

Mostly affected Parts body of scabies cases by scabies lesion were 48(34%) had scabies lesion on finger web, 24(17%) had skin lesion on face palm and sole and 8(6%)skin lesion on ulner border of the hand and inter glutal area and 4(3%) had scabies lesion on wrist.

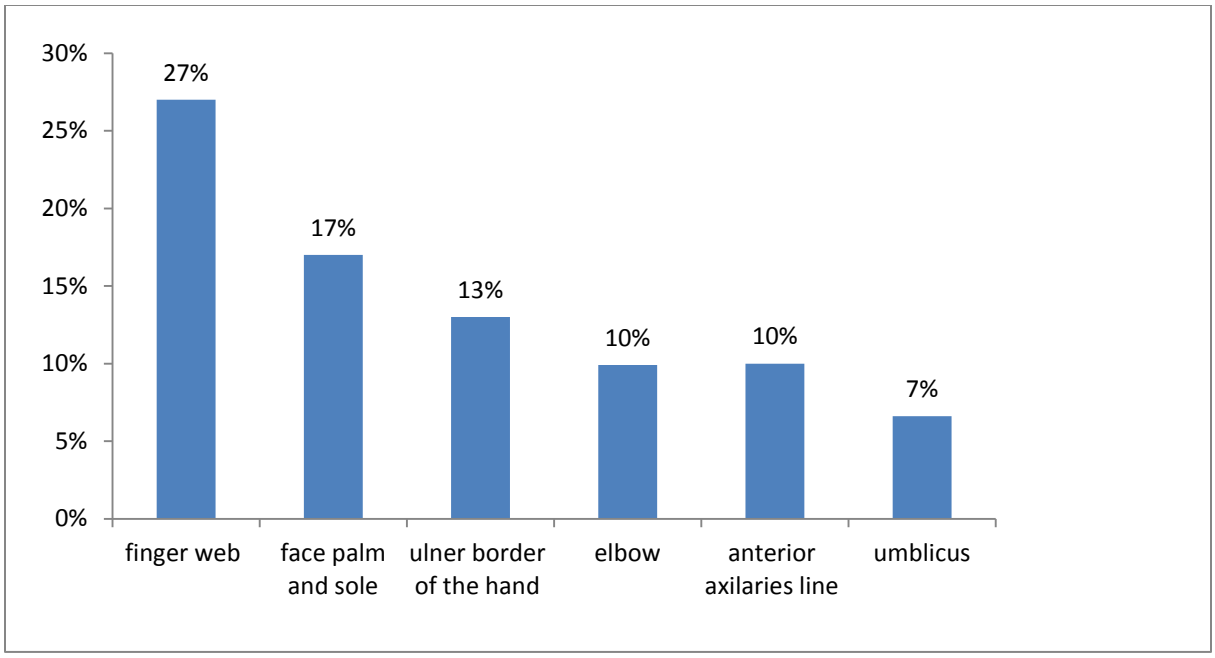

Figure 3: frequency of parts of body affected by skin sores among the scabies cases of bat district, Amhara, 2016

Mostly affected body Parts of scabies case by skin sores were 38(27%) had skin sores on finger web, 24(17%) had skin sores on face palm and sole and 19(13%) had skin sores on ulner border of the hand and 14(9.9%) had skin sores on elbow and anterior axillaries line.

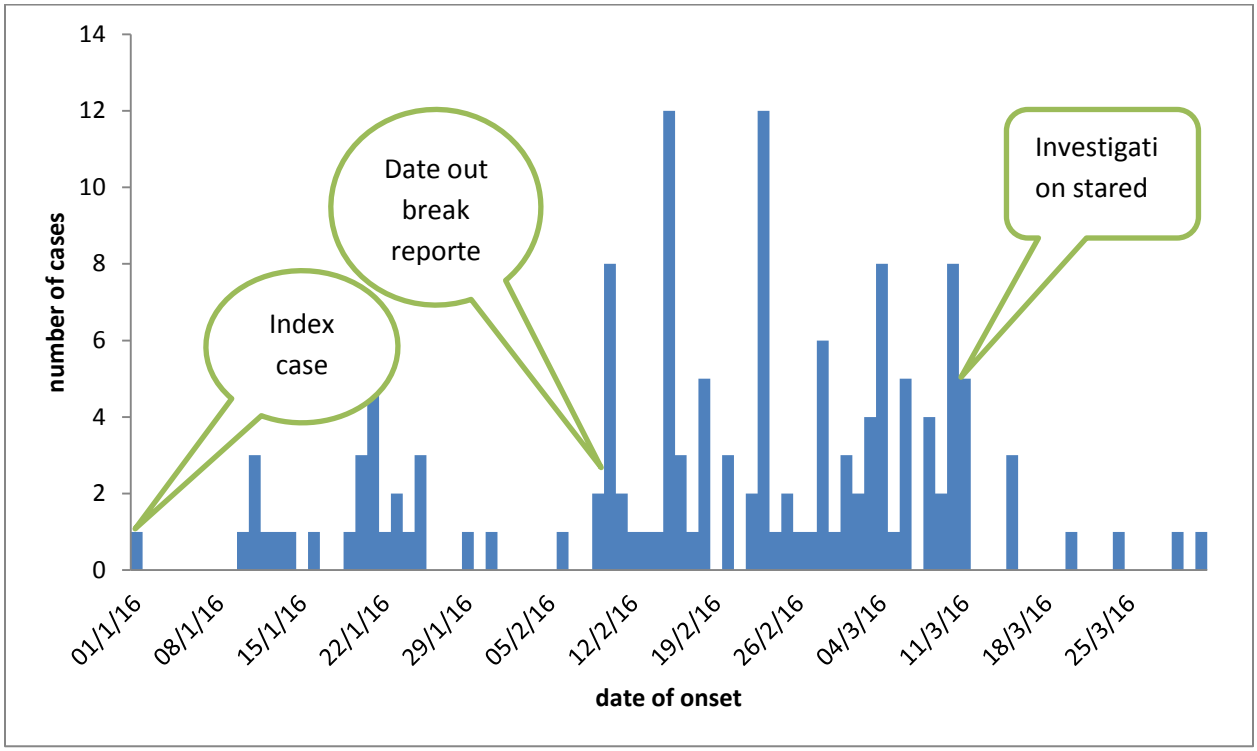

Figure 4: Number of scabies cases by date of onset of disease, bati district, Amhara, 2016

The outbreak lasts for four months beginning from 01/01/2016—01/04/2016 and the maximum number of case were reported 12/12/2016-11/3/2016.

Legend: 1 dote represent one case

Figure 5: numbers cholera cases by kebeles of Bati district, Amhara, Ethiopia, 2016

Majority of the cases 107(75%)cases were from gure kebeles and followed by gerfa werene kebele 11cases and hato kebele 10 cases but the remaining 6 kebeles cover from (1-4) cases.

Table 1: Distribution of scabies cases and attack rate by age group in bati woreda, oromia zone, Amhara Region, Ethiopia, 2016

Age	Number of cases	Percent	AR/100,000 population
<5	44	31%	335
5-9	36	25%	232
10-14	11	7.7%	73
15-44	38	27%	97
45-64	8	5.6%	83
65+	5	3.5%	120
Total	142	100%	147

The attack rate was highest in age <5 years (335per 100,000 population) followed by age 5-9 years with (232/100,000 population).

Table 2: Distribution of scabies cases and attack rate by sex in bati woreda, oromia zone, Amhara Region, Ethiopia, 2016:

Sex	**Number of case**	**Percent**	**AR/100,000 population**
Male	69	48.6%	150
Female	73	51.4%	145
Total	142	100%	147

The attack rate was higher in male with (150/100,000 population).

Risk factor analysis

When we compared the 30 cases with 61 community controls the statistically significant variables in bivariate and multi variate analysis were done .On bivariate analysis and also on multi-variate analysis detergent used to take shower with p-value<0.001,AOR=0.03,CI=(0.005,0.18)and frequency of washing clothes with p-value=0.008,AOR=.074,CI=(0.01,0.504)were preventive factors for scabies on the hand washing someone with scabies, with (p-value=0.038,AOR=6.5,CI=(1.1,38)and putting clothes with scabies cases with (p-value=0.048,AOR=5.5,CI=(1.01,29.7)were risk factor for scabies ,whereas educational status frequency of taking shower ,information about scabies and source of water for drinking did not had association with scabies.

Table 3: Summary of bivariate analysis of risk factor for scabies outbreak, bati district oromia zone Amhara, Ethiopia, 2016

s. no	Variable		Case	control	bivariate analysis		AOR	Multivariate analysis		remark
					p.value	COR		p.value	AOR	
1	Presence of scabies case the house	Yes	13	0	0.99	-	NI	----	-----	NI
		No	17	61						
2	Detergent used to take shower	Soap	3	51	<.0001	0.022	Sig	<.0001	0.03	Sig
		Water	27	10		(.006,.086)			(.005,.18)	
3	Bathing someone with the scabies in prev. 6 weeks	Yes	26	27	<0.001	8.185	Sig	0.038	6.5	Sig
		No	4	34		(2.5,26.3)			(1.1,38)	
4	Frequency of washing clothes	Weekly	9	53	<.0001	0.065	Sig	0.008	0.074	Sig
		>a week	21	8		(0.022,.19)			(0.01,.504)	
5	Educational status	Illiterate	11	16	0.38	1.628	NI	0.86	0.855	
		educated	19	45		(0.638,4.1)			(.15,4.8)	NI
6	Information about scabies	Yes	10	22	0.79	0.88	NI	----	----	
		No	20	39		(0.35,2.22)				NI
7	Putting of clothes with scabies cases	Yes	24	15	<0.0001	12.26	Sig	0.048	5.5	Sig
		No	6	46		(4.2,35.6			(1.01,29.7)	

Foote note: NI means there was no association, significant means there was an association

Interventions undertaken

Mass drug administration (MDA) was undertaken in nine kebele that had prevalence greater than 15% with ivermectin and sulfur in two rounds two weeks apart. Similarly in kebele whose prevalence was less than 15 percent cases and contacts were treated with ivermectin and sulfur ointment. Beside we conduct health education on the mode of transmission and prevention of the diseases.

Discussion

This study shows female73(51%) were more affected than male this finding was similar with the study done in dermatology clinic in kapada and in contrast to the study done in Malaysia, Nigeria, Cameroon ,Palestine and tach gaynt ,north western ,Ethiopia which was male were more affected than female .this deviation might be female in bati district involve in less hygienic condition than male (10)(5)(11)(8)(6)(12).

The age of affected case by scabies include from 3 month -80 years and children less than 9 years were more affected age group 80(56.3%) and this finding indicate younger were more affected than elders one this finding was similar with the study done in in dermatology clinic in Kapada, Malaysia, Nigeria and Cameroon, This may due to children don‟t keep their personal hygiene and usually wear the same clothes for long time than elders one(5)(11)(8)(12).

The scabies attack rate of this study was (0.14%) or 147/100,000 which is lower than the study done in Egypt(5.4%) (7) ,The study in Cameroonian boarding schools during 2015 (17.8%),the study done in Malaysia 2010(31%),the study done in Northern territory, Australia(4%)and the study done in Bangladesh (2.7%) this may due to early detection early and treatment of the scabies the case was done this bati district . The sex specific attack rate of this study was highest (150/100,000 population) for male and the age specific attack rate of this finding was highest in age less than 5 years (335/100,000 population) followed by 5-9 years (232/100,000)(8)(5)(13).

The Epi-curve has many peaks as shown (figure 3) which shows progressive person to person transmission, this may due to many house hold in bati district do have shortage of safe water for keeping their personal hygiene so that transmission persist for certain period and this was the main challenge during the outbreak.

On bivariate and multi variate analysis detergent used to take shower and frequency of washing clothes were protective scabies ,this finding was similar with the study done in Egypt (7) and the study done in Pakistan frequent bathing was preventive for scabies and also the study done in

Cameroon using soap for bathing and frequency of bathing that is bathing twice a day were preventive factor (14)(8).

On the hand this study finding indicate that, on bivariate and multi variate analysis bathing scabies cases and putting clothes with scabies case were risk factor for scabies this finding was similar with the study in Pakistan itching in the family members and sharing of bed were risk for scabies to occur (14).

Limitation

It might not be representative because we used small sample size.

Conclusion

Children less than 9 years of age were more affected group during the outbreak and due to person to person transmission the outbreak persist for certain period of time, basing scabies cases and putting clothes with scabies case were risk factor for scabies occur, on the other hand detergent used to take shower and frequency of washing clothes were protective for scabies therefore avoiding contact with scabies cases and promoting hygiene and sanitation were best solution to prevent scabies.

Recommendation

- A district health office and health extension worker has to strengthen the surveillance of scabies cases.
- The district health office and health center has to Promote on hygiene and sanitation of the community specially children less 9 years.
- The district health office in collaboration with local NGOs has to distribute detergent (soap) to the community in order to keep their personal hygiene
- Increase awareness of the community on the modes of transmission of scabies in order to avoid contact with scabies patient.

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1.2 AWD OUTBREAK INVESTIGATION IN JILE TUMUGA DISTRICT, OROMIA ZONE AMHARA REGION NORTH WEST ETHIOPIA, 2016

Abstract

INTRODUCTION Cholera is a diarrheal disease caused by infection of the intestine with the gram-negative bacteria Vibrio cholerae, either type O1 or O139 .An estimated 2.8 million cholera cases occur each year in endemic countries and the average global annual incidence rate is 2.0 cases per 1000 people at risk. We aimed to identify the risk factors for the occurrence of the cholera outbreak and institute appropriate control measures.

Methods: we conducted AWD outbreak investigation in Jile tumuga district from sep14-30, 2016. Case-control study design was used and simple random sampling methods was used to select cases randomly from the line list and two controls per one case was selected by using systematic random sampling method from the neighbors of cases. Structured questionnaire was used to collect data for case-control study and using line list.

Result The outbreak last for two months with 65 cases of cholera with 0 deaths with 73 per 100000 population attack rate. Out of the total cases 42(65%) were female and 31(47%) of the cases were under 15 years with median age 16 years. Almost half of the cases 29(45%) were using unprotected water (spring and river water) for drinking purpose. The age specific attack rate was higher in age 2-5years with (91.7/100,000 population) and followed by age 45-64 with (90.7/100,000 population) and there was highest number of AWD case reported age from 15-44 years and higher number of case reported were female.

Conclusion There was lower attack rate with no death and the outbreak control intervention was to partially effective. Open defecation was the risk for occurrence of AWD and toilet usage and distribution of water purifier to for drinking purpose reduce the risk of getting the AWD.

***KEY words*: AWD Outbreak, Jile tumuga district, case control study**

Word count: 280

INTRODUCTION

Cholera is a diarrheal disease caused by infection of the intestine with the gram-negative bacteria Vibrio cholerae, either type O1 or O139. Both children and adults can be infected. There are over 100 vibrio species known but only the "cholerae" species are responsible for cholera epidemics (1).

About 20% of those who are infected develop acute, watery diarrhea. 10–20% of these individuals develop severe, watery diarrhea with vomiting. If these patients are not promptly and adequately treated, the loss of such large amounts of fluid and salts (more than 10-20 liters/day in severe forms) can lead to severe dehydration and death within hours. The case-fatality rate in untreated cases may reach 30–50%.Treatment is straightforward (basically rehydration) and, if applied appropriately, should keep the case-fatality rate below 1%. Cholera is usually transmitted through fecal contamination of water or food and remains an ever-present risk in many countries. The incubation period is usually 1 to 3 days but can range from several hours to 5 days. Symptoms usually last 2 to 3 days, although in some patients they can continue up to 5 days. In general cholera is an acute enteric disease characterized by the sudden onset of profuse painless watery diarrhea or rice-water like diarrhea, often accompanied by vomiting, which can rapidly lead to severe dehydration and cardiovascular collapse(1).

An estimated 1.4 billion of the world's population is at risk for cholera, and SEAR-D, which includes Bangladesh and India, has the largest populations at risk, followed in descending order by AFR-E and AFR-D(2).

An estimated 2.8 million cholera cases occur each year in endemic countries and the average global annual incidence rate is 2.0 cases per 1000 people at risk (range: 0.10–4.0). If the population not at risk is counted, the estimated average incidence in cholera-endemic countries drops to about 1.15 cases per 1000 population. The countries with the highest incidence rates are in Africa and southern Asia. Lower incidence rates were estimated for South-East Asia. Within Africa, western countries (primarily those in stratum D) were estimated to have lower incidence rates than countries in eastern Africa (primarily those in stratum E) because cholera incidence among at-risk populations in countries in AFR-D was assumed to be about 50% of the rate reported in Beira, based on the cholera incidence rates reported to WHO and other data sources. Only 1.2% of the estimated cases occur in SEAR-B, WPR-B and EMR-B, which is not surprising since these countries belong to lower mortality strata and have better infrastructure. Incidence rates are highest among children under 5. Overall, we estimate that about half of all cholera cases occur in this age group, and that the expected annual number of cholera cases in non-endemic countries is about 87 000 (2).

One third of the 1.5 million cases reported in Africa between 2001–2010 were located in inland countries. Thus, taking into account subnational morbidity and population data available for Nigeria, Cameroon, Democratic Republic of the Congo, Mozambique, Kenya, and Sudan, as well as national data for the other countries .It can be estimated that a minimum of 76% of all reported cholera cases in sub-Saharan Africa actually affected noncoastal regions in 2009–2011. During this period, the yearly incidence rates in inland and coastal Africa were 72.86 and 26.75 cases/100 000 inhabitants, respectively(3).

The estimated numbers of annual cholera deaths in endemic countries, by age and by WHO mortality stratum Using population data from 2005, we estimated that cholera kills about 91 000 people annually, on average, in endemic countries, with about half of the deaths occurring in children under 5. This corresponds to a rate of 6.3 deaths per 100 000 people at risk. Mortality rates vary from 0.1 deaths per 100 000 people at risk in EMR-B and WPR-B to 15.2 deaths per 100 000 in AFR-E. Since we assumed that CFRs were the same across age groups, age-specific mortality rates, like age-specific incidence rates, were highest among young

children. In total, we estimated an average of about 2500 cholera deaths per year in a non-endemic countries(2).

Zambia reported its first cholera epidemic in 1977/78 and from then up until the early 1990s, the country experienced major outbreaks every three to five years. In 2010, Zambia reported 6794 cases and 115 deaths (CFR 1.6%) of the disease. The 2010 cases represent more than 500% increase when compared to the number of cases in 2003 (1049). In 2010, the country accounted for 41.6% of all the 16,330 cases reported from 4 southern African countries namely Malawi, Mozambique, Zambia and Zimbabwe(4).

The study in Ghana in 2010, Indicate that a total of 136 cases were recorded out of which 76 (56.6%) were males. The overall attack rate was 0.18% or approximately 2 per 1000 population with no deaths. The age-specific attack rates among children under five and fifteen were 0.030% and 0.031% respectively(5).

The study in South Sudan in 2014 ,Indicate that a total of 2260 cholera case and with 2% case fatality dates of study for cholera outbreak in Juba County, South Sudan, (April 23–October 20), 2014(6).

The study in Lusaka, Zambia in 2016 a total of 1,079 cholera cases and 20 deaths representing case fatality of (CFR) were reported in the periurban areas of Lusaka District (including Bauleni)(7).

In Ethiopia it was indicated that as of week 20, 2016, a total of 1, 884 AWD cases and 19 deaths had been reported from eight zones in 25 woredas (districts) of three regions [from week 45/2015 up to week 20/2016]. The case fatality rate (CFR) and attack rate (AR) were 1.0% & 0.05% respectively. About 67.3% of the cases were 15 and above years old and 51.3% of them were male. In Oromia region, a total of 686 cases and 12 deaths [CFR=1.7%, AR=0.03%] were reported from 4 zones in 17 districts; and In Somali region, a total of 793 cases and two deaths [CFR=0.3%, AR=0.1%] were reported from two zones in three woredas (districts); and In SNNP region, a total of 405 cases and two deaths [CFR=1.2%, AR=0.05%] were reported in two zones of 5 Woredas (districts)(8).

RATIONAL OF THE STUDY: The aim of the study is to identify the magnitude of AWD outbreak and risk factors.

Objectives

General objectives

To identify the magnitude of AWD outbreak and risk factors and select appropriate control measures.

Specific objectives

- To characterize the cholera outbreak by place, person and time
- To analyze risk factors for the occurrence of the outbreak
- To select prevention and control measure to stop further spread of AWD.

Methods and Materials

Study area

Jile tumuga district is one of the rural districts found in oromia Zone, Amhara Region. The District is located at a distance of 265 kms from Addis Ababa and 617 kms from regional town Bahir Dar and the district was bordered by north shewa in west and south by afar in east and by Artuma fursi in north .The district has total population of 88159 and with male 43197 female 44962. The district has 21 rural kebele, and 4 health centers and 18 health posts with physical health service coverage is 95.

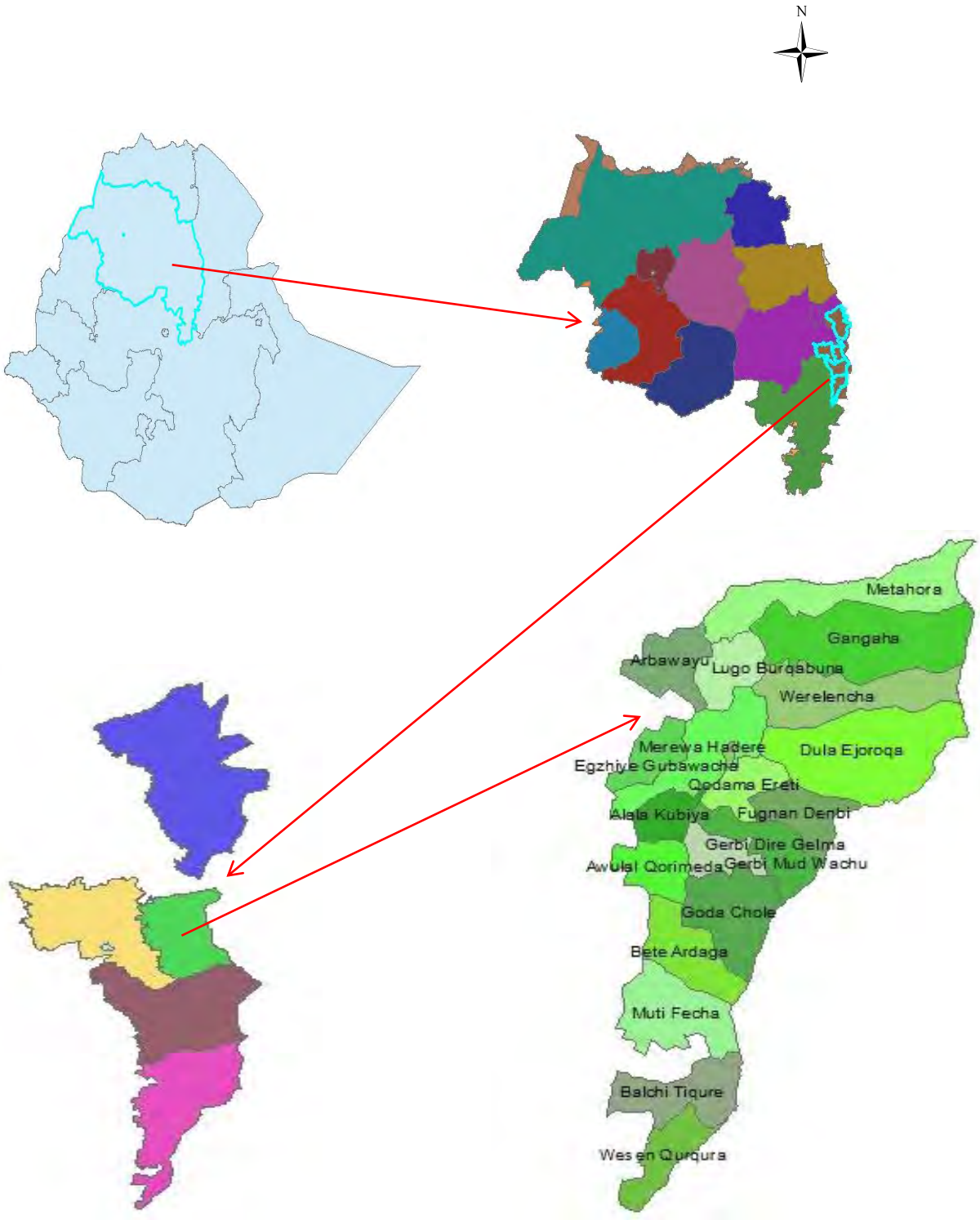

Figure 6: Map of jile tumuga districts, Amhara region, 2016

Study period: The study was conducted from September 14-30, 2016.

Study design: Case-control study design was used matched by age, sex and residential area.

Target population: All populations in Jile tumuga district where cases and controls found.

Study population: All cases and populations from nine kebeles of jile tumuga district in which case and controls were selected.

Sample size and sampling procedure: By using simple random sampling methods cases were selected randomly from the line list. Controls were neighbors of cases who did not develop cholera during the period of the study. Line list was reviewed and by using simple random sampling method confirmed cholera case were identified in jile tumuga district from September 14- 16/2016 using PHEM standard case definition 19 case who fulfill the case definition were selected from the total 65 cases and two controls per one case were selected by using systematic random sampling method from the neighbors of cases and a total of 41 control were selected and included into the study.

Sample size was calculated using Epi-info 7 statcalc for matched case-control study by taking

Two sided confidence level (1-α) = 90%

Power (% chance of detecting) = 80%

Ratio of controls to cases = 2

Proportion of controls with exposure =15%(9)

Proportion of cases with exposure = 50%(9)

Odds Ratio to be detected = 5.66

The exposure was open defecation.

When the sample size is calculated Using Epi-info statcalc a total of 60 samples 19 cases, and 41 controls were selected using a control to case ratio of 1:2.

Inclusion &Exclusion criteria

Inclusion criteria

Cases Any resident of Jile tumuga district who had a bacteriological confirmed case with signs and symptoms of AWD based on PHEM case definition and who agreed to participate in the study was included.

Controls A control was any resident of Jile tumuga district during the study who was a neighbor to a case and who did not develop signs and symptoms of AWD based on PHEM case definition and agreed to participate was included.

Exclusion criteria

Cases that did not fulfill the signs and symptoms of AWD based on PHEM case definition and who was absent during the study period were excluded.

Data collection: Structured questionnaire adopted from others study was used to collect data for case-control study and using line list. Data was collected by principal investigator and co-investigator including HW at zonal, district and health center levels by translating the questionnaire into Afan Oromo and Amharic.

Data quality control

The data was primarily collected by principal investigator and co-investigator. Pre-test was done using the developed questioners prior to the data collection. Before entering the data into the computer the missing variables and consistency of filling of questionnaires and completeness of data was checked every day during data collection

Laboratory investigation : The first index case was tested by RDT for vibrio-cholera and the sample sent dessie regional lab for culture test .The remaining case was tested by RDT and bacteriologic investigation was done from 2 water sample.

Data entry and Analysis

Data was entered and analyzed using Epi-info 7 and spss. After data cleaning and recoding advanced statically analysis were under taken. Results were presented using graphs, tables, charts and attack rate was calculated. Odds ratio, 95% CI, and p-value were constructed to measure association and significance.

Variables

Dependent variable

Cholera

Independent variables

Age

Sex

Travel history

Source of water

Occupation

Marital status

Knowledge

Level of education

Availability of toilet

Ethical clearance

Letter of permission was written from Amhara dar field base to Jile tumuga district health office, where the outbreak took place. The outbreak investigation was done after permission obtained from Jile tumuga district health office.

Cholera Case Definition based on cholera national guide line

Suspected case A case of cholera should be suspected when: in an area where the disease is not known to be present, a patient aged 5 years or more develops severe dehydration or dies from acute watery diarrhea; In an area where there is a cholera epidemic, a patient aged 5 years or more develops acute watery diarrhea, with or without vomiting.

At the health post and at community levels, a suspected cholera case can be defined as follows:

Any person 5 years of age or more with profuse acute watery diarrhea and vomiting

.

Confirmed case: A suspected case in which Vibrio cholera O1 or O139 has been isolated from their stool.

Note: children under five of age are excluded from the surveillance case definition .However, in terms of case

management during cholera epidemic, persons aged 2 years or more should be treated for cholera when they develop acute watery diarrhea.

RESULT

Descriptive epidemiology

The outbreak last for two months with 65 cases of AWD with 0 death with 73 per 100000 population attack rate .The index cases were 14 years old female from metehora kebele of jile tumuga district who was traveled to afar border and she had drank the river water .She had developed AWD on 03/08/2016 and admitted at Ataye hospitals she was tested for RDT and positive for v.cholera and the sample was sent to dessie regional laboratory and the result were positive for O139 v.cholera and she was discharged on 09/08/2016 . From the total of 65 cases 19 cases and 41 community controls were selected. Out of the total cases 42(65%) were female and all of the cases were treated in inpatient and 31(47%) of the cases were under 15 years with median age (16.5). Almost half of the cases 29(45%) were using unprotected water (spring and river water) for drinking purpose and 36(55%) of the cases were children and student.

Vomiting (95%), watery diarrhea (95%), general body weakness (60%), loss of consciousness (50%) and muscle cramp (20%) were most frequently reported sign and symptom.

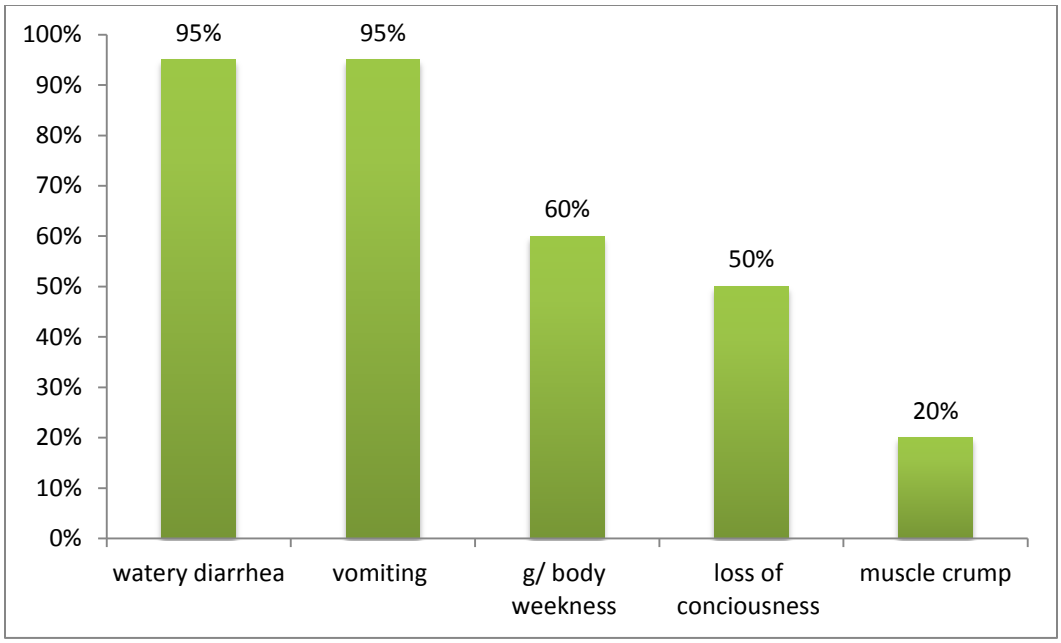

Figure 7: Frequency of sign and symptom among the AWD cases of jile tumuga districts, Amhara, 2016

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Legend: 1dot represent one case

Figure 8: AWD cases by kebele, Jile tumuga district, Amhara region, 2016

One third of the cases of AWD were from balchi kebele of jile tumuga which account 23(35%) and followed by bete 17 cases and the least cases were seen in kodema kebele only 1cases.

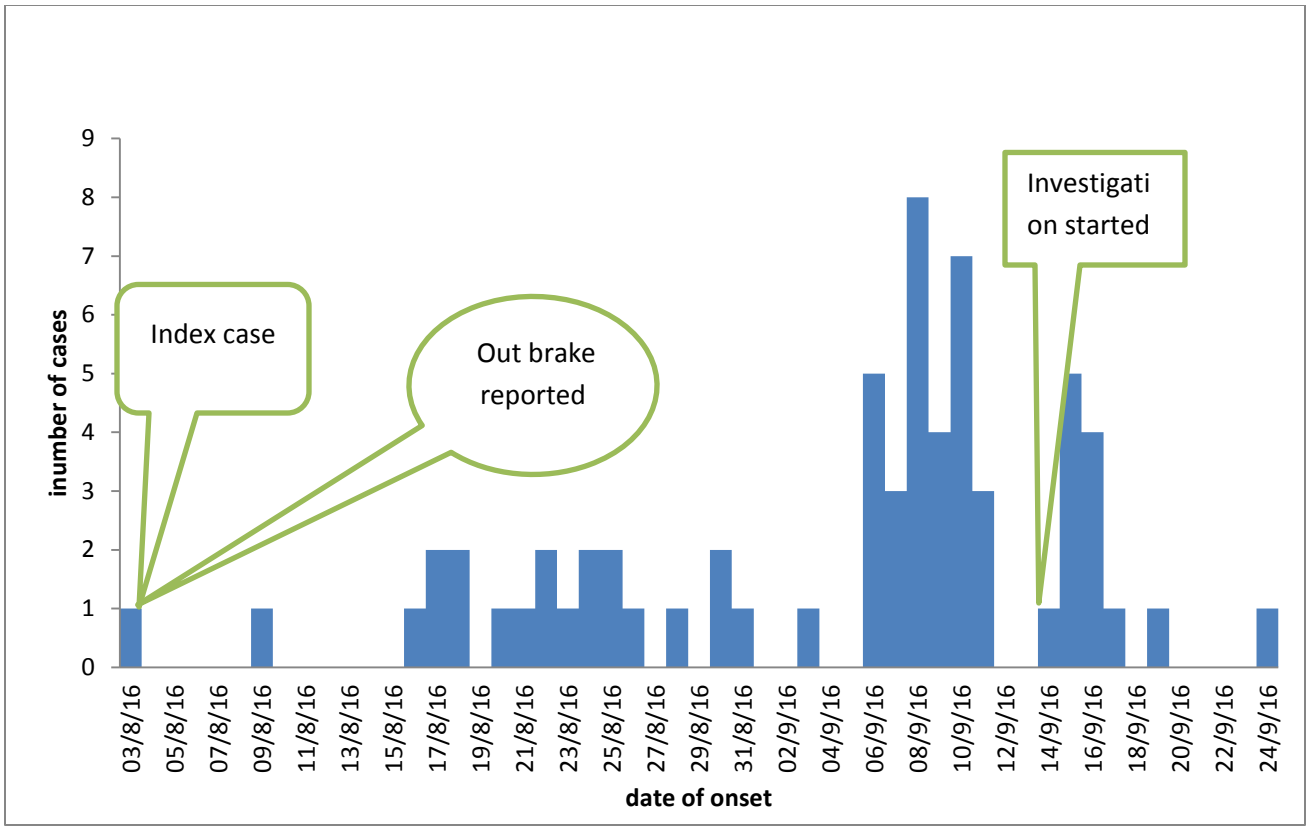

Figure 9: Number of AWD cases by date of onset of disease, Jile Tumuga, 2016

The outbreak lasts from 03/08/2016 up to 24/09/2016 there was maximum number of cases from06/09/2016 up to 16/09/2016.

Distribution of AWD cases by person

Out of the total cases 42(65%) were female and 31 (47%) of the cases were under 15 years.

Table 4: Distribution of AWD cases by age group attack rate in jile tumuga district, oromia zone, Amhara Region, Ethiopia, 2016.

Age	case			population			percent	AR/100,000 population
	Male	Female	total	Male	Female	Total		
2-5	6	6	11	5875	6114	11989	16.9%	91.7
5-9	4	6	10	6955	7238	14193	15.3%	70.4
10-14	2	7	9	6739	7013	13752	13.8%	65.4
15-44	5	21	26	17452	18164	35616	40%	73
45-64	5	2	8	4320	4495	8815	12.3%	90.7
65+	1	0	1	1858	1932	3790	1.5%	26.3
Total	23	42	65	43203	44956	88159	100%	73

The age specific attack rate was higher in age 2-5years with (91.7/100,000 population) and followed by age 45-64 with (90.7/100,000 population) and least attack rate was reported with age 65+ (26.3/100,000 population)

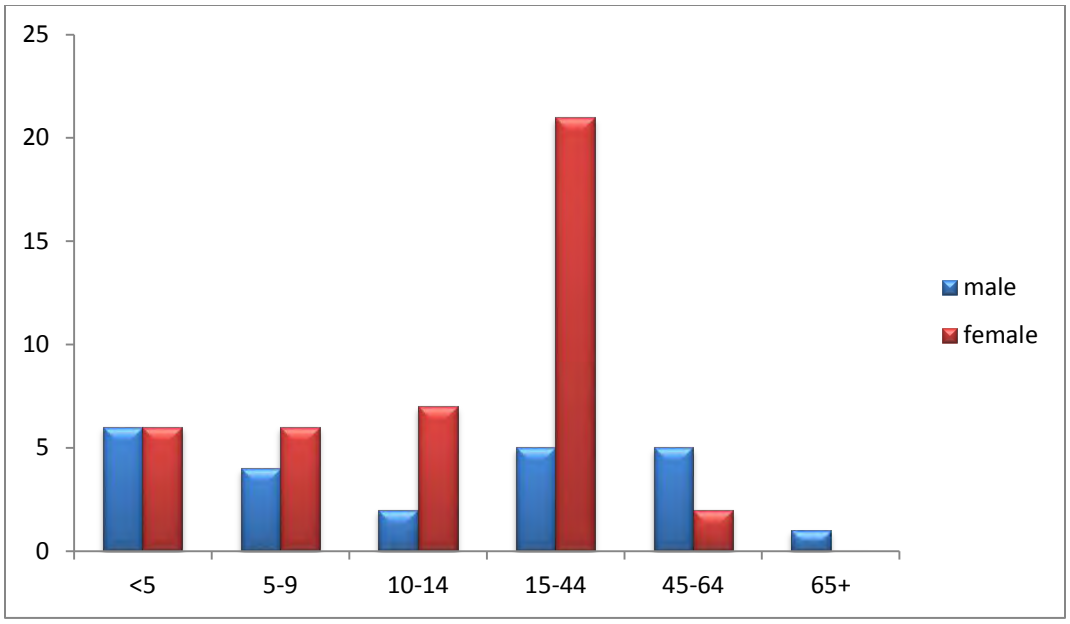

Figure 10: number of AWD case by age and sex of Jile tumuga, Amhara, 2016

There was highest number of AWD case reported age from 15-44 years and higher number of case reported were female.

Laboratory Results

The stool specimen that was sent to the Regional Laboratory for culture and identification were confirmed positive for Vibrio cholera serotype O139 and the remaining case was also tested by positive for vibrio cholera 01 and 0139 by RDT. Water samples results tested negative for vibrio cholerae.

Risk factor analysis

When we compared the 19 cases with 41 community controls the statistically significant variables in multi-variate analysis were using of toilet was preventive factor with p.value=.002 ,OR =0.076 (95% CI 0.015, 0.375), knowledge about transmission of AWD were reduce the risk of getting AWD by 80% with p.value=0.039,OR=0.196 (95% CI 0.042,0.921) where as sex ,hand washing with detergent and age group were not statically significant association with cholera.

Table 5:Multi-variate analysis of factors associated with AWD in cases and controls in Jile tumuga district, oromia zone, Amhara region, Ethiopia, 2016.

s.no	variables		Case	Control	bivariate p.value	multi variate COR & CI	significance p.value	AOR & CI	
		Yes	8	35		0.125		0.076	
1	using toilet	No	11	6	0.001	(0.035,0.43)	0.002	(0.015,0.375)	SIG
		≤15	7	8		2.406		3.26	
2	age group	>15	12	33	0.155	(0.717,8.07)	0.158	(0.632,16.8)	NA
		Yes	12	33		0.416		1.067	
3	hand washing with detergent	No	7	8	0.155	(0.124,1.39)	0.939	(0.206,5.51)	NA
		Yes	11	35		0.236		0.196	
4	knowledge transmission of AWD	No	8	6	0.024	(0.067,0.828)	0.039	(0.042,0.921)	SIG
		Male	6	21		0.44		0.727	
5	Sex	Female	13	20	0.159	(0.140,1.38)	0.652	(0.182,2.91)	NA

Foot note: NA means there was no association, SIG means there was an association.

The main risk for occurrence of this outbreak was initially the first index case had drank river water from afar region and then after more than half (53%) of the district population did not had toilet they defecate open field and the discharge from cholera case presence on open field so based on the outbreak cover some parts of the district.

DISCUSSION

This study indicate that a total of 65 cholera case were reported from jile tumuga district .the cholera had affect all age group but children less than 15 years were more affected than others age group and female 42(65%) across all age group were more affected than male .this may due children and female more exposed to poor hygiene and sanitation than adult male .this study finding contrast with raya kobbo district of Amhara region and the study in Ghana in which male were more affected than female(10) and similar with the study done in Zambia in which female were more affected than male (7)(5).

The CFR was 0 compatible with to the WHO guide line which was supposed to be less 1%(WHO 2004) and similar with the study done in Ghana(CFR=0) and lower than the study in Liben Woreda, Guji zone, Oromia, Ethiopia with (CFR=1.75%) , Juba south Sudan(CFR=2%) and Zambia (CFR=0.9%) this may due to enough provision of medical supplies and good case management and best health worker commitment in the case management center(7)(5)(6)(11).

The attack rate in the district was (73 per 100,000 populations). This may due to different stakeholders' participated like regional health bureau in the control of AWD by supplying logistics in line with zonal and district health departments. There was shortage of safe water supply and half of the community use river and spring water. Because of the support and coordination of sectors in the district, provision of water chemicals and clean water from neighbors kebeles done quickly. As a result of this the outbreak of cholera was managed early. this finding was lower than the study done Zambia(AR=1.5%) ,Kalkata(AR=0.16%) and Ghana(AR=0.18%) and higher than in Liben Woreda, Guji zone, Oromia, Ethiopia (AR=0.05%) 50 per 100,000 than this study(11)(5)(7)(12) .

The sex specific attack rate was higher in female (93.4 per 100,000 population) and lower than the study Ghana (females AR=0.10%)(5).The age specific attack rate was higher in age <5 years (91.7per 100,000 population followed by age in 45-60years (90.7per 100,000 population) this may be due to female, children <5 years and elders more than 45 years more exposed to poor hygiene and sanitation than adult male and this finding was lower than the study in Kalkata(<5

years AR=620per 100,00 population) and higher than the study in Ghana (<5 years AR=30per 100,000 population)(5)(12) .

The Epi-curve has many peaks as shown (figure 3) which showed progressive person to person transmission, this may due to many house hold in Jile tumuga did had toilet and they defecate on open filed so that transmission persist for certain period and this was the main challenge during the outbreak.

According to this case-control study based multi variate analysis of risk assessment, using of toilet reduce the risk AWD by 92% and (AOR=0.076,CI=(0.015,0.375),P-value=0.002) knowledge about transmission of AWD were reduce the risk of getting AWD by 80%(AOR=(.196, CI=.042,0.92),P-value=0.039) this finding was similar with the study done in Zambia and in Papua new guinea that there was an negative association between knowledge and cholera infection and this study in contrast to the study done in Ghana usage of latrine did not association with cholera infection (4)(5)(13).

based on multi variate analysis of risk assessment no relationship was found between AWD infection and sex (AOR=0.722,CI=(0.182,2.91) ,P-value=0.652) hand washing with detergent(AOR=1.067,CI=(0.206,5.51),P-value=09.39) and age group(AOR=3.26,CI=(0.632,16.8),P-value=0.158) were had no statically significant association this study was similar with the study done in afar ,Ethiopia 2009 and in Ghana in 2010 and Zambia in 2016 washing hand with detergent did not had association with cholera infection and this finding was in contrast with the study done in Papua new guinea washing hand reduce risk to get cholera (14)(13)(7)(5).

Intervention

In response to this outbreak there was a multi sectorial committee, the district and zonal administrations and health offices and water sector had continuous meeting. Provision of drug and water guards and distribution water guards to area where problem of safe water for drinking, appropriate case management early treatment of the case in CTC and community mobilization to construct toilet and to use toilet done very well .

Conclusion

The children less than 15 years and female were more affected than adult male. There was lower attack rate with no death and the outbreak control intervention was to partially effective. Open defecation was the risk for occurrence of AWD and toilet usage and distribution of water purifier to for drinking purpose reduce the risk of getting the AWD.

Recommendation

- The district administration in collaboration with zonal and regional water bureau has to assign budget and provide safe water supply to the community.
- The health extension has to create awareness about hygiene and sanitation the community.
- community mobilization to contract toilet and use the toilet appropriately
- provision of water purifier for these area who has serious safe water problem provision

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Chapter II—surveillance data analysis

2.1 SURVEILLANCE DATA ANALYSIS ON SEVER ACUTE MALNUTRITION IN OROMIA ZONE AMHARA REGION NORTH WEST ETHIOPIA, 2016.

ABSTRACT

INTRODUCTION*:* Malnutrition is the outcome of insufficient food intake, inadequate care and infectious diseases. Globally it is estimated that more than 19 million children severely acutely malnourished. In Ethiopia it is estimated that malnutrition contributes to an estimated 270,000 deaths of under-five children each year. We aimed to analyze and describe the distribution of sever acute malnutrition among children age under five.

METHODS: we conducted analysis of severe acute malnutrition of under-five children in oromia zone from January 20-30/2016 by using cross sectional study design. We used structured questionnaire to collect data and descriptive analysis were under taken.

RESULTS: The highest SAM case from the total five years was reported during the year 2015/2016 (3975) 716 per 100,000 SAM cases. The coverage of OTP admition from the target of under-five children was (53.5%).The recovery rates of majority districts were more than 80% but only Kemissie and Jile tumuga districts had less than 80% that were 78.8% and 77% respectively. The death rate of majority districts range from (0-0.95%) but only Bati rural district had the highest (2.65%) in 2013/2014. The defaulter of this zone was (4.49%) and the highest

defaulter rate of SAM was reported in Bati rural and jile tumuga with 16.3% and 14.5% respectively.

Conclusion The recovery rate and the defaulter and the death rate was with in the acceptable sphere standard, this indicate that the OTP program to somehow effective in this zone and we recommend proper implementation of OTP program.

Key words: Severe acute malnutrion, kemissie, descriptive study, secondary data

Word count: 241

INTRODUCTION

Malnutrition is a broad term commonly used as an alternative to under nutrition, but technically it also refers to over nutrition. People are malnourished if their diet does not provide adequate nutrients for growth and maintenance or they are unable to fully utilize the food they eat due to illness (under nutrition). They are also malnourished if they consume too many calories (over nutrition).here this study focus on under nutrition.

Under nutrition is the outcome of insufficient food intake, inadequate care and infectious diseases. It includes being underweight for one‟s age, too short for one‟s age (stunting), dangerously thin for one‟s height (wasting) and deficient in vitamins and minerals (micronutrient deficiencies).

Under nutrition is one of the most serious but least addressed health problems in the world. The human and economic costs are enormous, falling hardest on the very poor and on women and children. Adequate nutrition is essential for children‟s health and development(1) . There is a growing consensus that poor nutritional status during childhood can have long-lasting scarring consequences into adulthood both in terms of health and mortality, and in terms of other measures of human capital such as schooling and productivity, which in turn may diminish their working capacity during adulthood and have negative effects on national economic growth

.Child malnutrition may also lead to higher levels of chronic illness and disability in adult life which may have intergenerational effects as malnourished(2).

Globally it is estimated that, directly or indirectly, for at least 35% of deaths in children less than five years of age. Over two-thirds of these deaths, which are often associated with inappropriate feeding practices, occur during the first year of life. Under nutrition is also a major cause of disability preventing children who survive from reaching their full development potential(3). The Lancet Series on Maternal and Child Nutrition and the 2010 multi-stakeholder global „Scale Up Nutrition(SUN) effort both emphasize the importance of addressing under nutrition and acute malnutrition in meeting the MDG of reducing child and maternal mortality rates. With four percent of the global death burden in children under five attributable to SAM and 14.5% attributable to global (moderate and severe) wasting(4) . It is estimated that more than 19 million children around the world are severely acutely malnourished at any one time. These children have a greater than nine fold increased risk of dying compared to a well-nourished child (5). In developing countries nearly one-third of children are underweight or stunted. Under nutrition interacts with repeated bouts of infectious disease, causing an estimated 3.5 million preventable maternal and child deaths annually and its economic costs in terms of lost national productivity and economic growth are huge(1) .

In Ethiopia It is estimated that malnutrition contributes to an estimated 270,000 deaths of under-five children each year (6). Many nutritional studies have demonstrated that malnutrition in Ethiopia is serious and 44% of children were stunted, 10% wasted and 29% underweight with wide regional variations, in Amhara National Regional State stunting, wasting and underweight were found as 52%, 9.9% and 33.4%, respectively (6). Stunting to other regions were 51.4% in Tigray, 41.4% in Oromia and 44.1 in SNNPR (7)

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The extended dry season in the pastoral areas of Afar, Somali and part of Oromia regions and below normal rainfall in Amhara, Tigray, part of Oromia and Southern Nations, Nationalities, and Peoples (SNNP) regions have led to the most severe humanitarian crisis since 2003 e.c. The current nutrition situation is graded as serious and critical with global acute malnutrition (GAM) and severe acute malnutrition (SAM) prevalence ranging from 7.7 to 23.4 and 2.0 to 4.5 percent respectively, based on recent standard nutrition surveys conducted in vulnerable districts in

SNNP, Oromia and Afar regions. It is estimated that more than 84,200 children under age five will be in need of treatment for severe acute malnutrition each month. New admissions to therapeutic feeding programme have increased significantly from the onset of the emergency to October 2016 with a total of 164,400 new admissions registered from January to October 2016(8).

Rational for analysis

The aim of the study is to identify the magnitude of severe acute malnutrition and to recommend early detection of severe acute malnutrion

Objectives

General objective

To describe and analysis the distribution of sever acute malnutrition among children age under five at oromia zone, Amhara region from July/2011-june/2016.

Specific objectives Specific objectives

- To describe the situation of sever acute malnutrition by time, place and person
- To detect the changes of sever acute malnutrition in different periods of time
- To monitor the trends of sever acute malnutrition in different areas of the zone

Methods and Materials

Study area

Oromia zone is one of the zones in Amhara region and it is found in kemissie administrative town with total population 554608 male 271757 and female 282851 which is located in northern part which is 325 km far away from Addis Ababa, the capital city of Ethiopia and 570 kms from regional town Bahir Dar. It has a total of 7 woredas with 5 rural woredas and 2 town districts.

Figure 11: Map of oromia zone, Amhara region, 2016

Study period: The study was conducted from January 20-30/2016

Study design: cross sectional study design was used**.**

Target population: All under five populations in oromia zone.

Study population: All under five malnutrition case in oromia zone.

Selection criteria: oromia zone is the drought area from Amhara region and the problem of malnutrition is one of the most serious problems in the area and the data analysis has not been done before in the zone.

Data collection: Structured questionnaire adopted from others study was used to collect data for severe acute malnutrition from CBN and OTP program monthly HMIS report. Every available data were collected from the zonal health department, nutrition case team that provided monthly report and other partners concerning to the secondary data.

Data quality control

The data was primarily collected by principal investigator and co-investigator. Prior to entering the data in to the computer the missing variables and consistency of filling of questionnaires and completeness of data was checked every day during data collection.

Data entry and Analysis

Data was entered and analyzed using Microsoft excel and ArcGIS. After data cleaning and recoding descriptive analysis were under taken. Results were presented using graphs, tables, charts and attack rate was calculated.

Variables

Dependent variable

Severe acute malnutrion

Independent variables

Age

Socio economic status

Feeding practice

Knowledge

RESULT

1.Descriptive analysis by time , place and person

The study includes all children from 6-59 month eligible children who had been managed for SAM under the OTP program. Majority of the children were admitted with MUAC <11 and edema. The study asses the five years SAM analysis beginning from July/2011-june/2016.

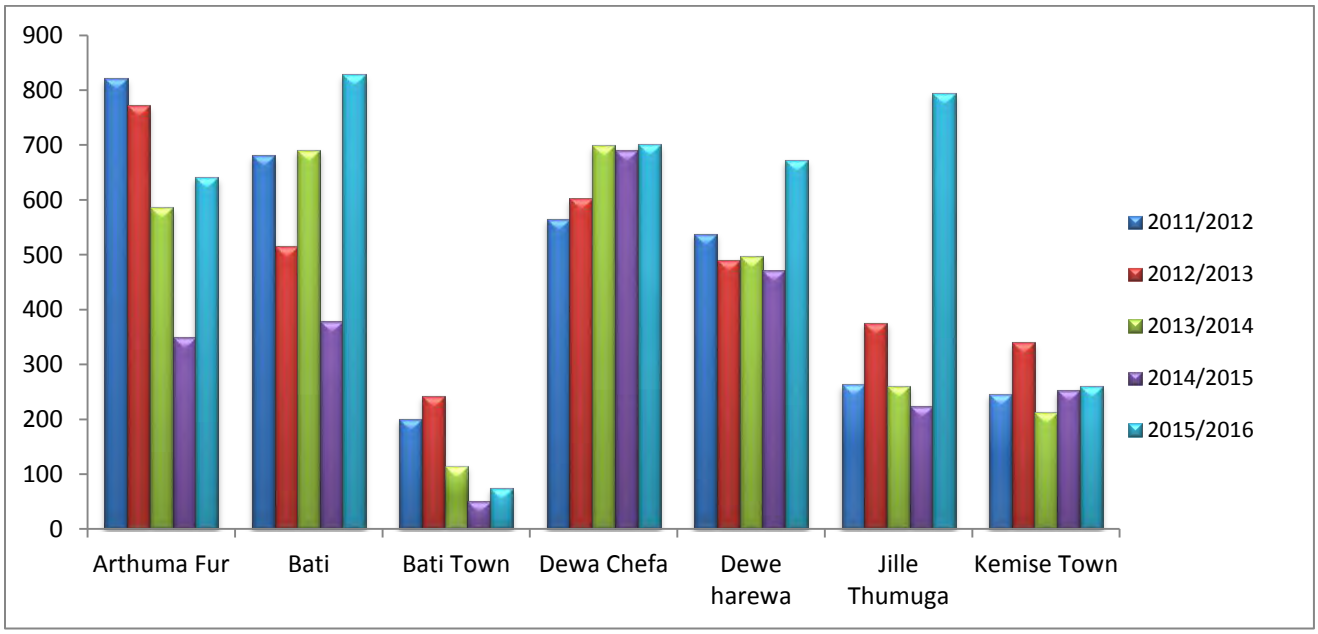

Figure 12: Number SAM cases by district and year in under–five children in Oromia zone Amhara region, July/2011-june/2016.

The highest number of SAM case was reported during the year 2011/2012and 2012/2013 from Artuma fursi districts that was 821and 773 respectively. But bati town and kemissie town had lowest SAM case throughout the whole 5 years. Generally from the total 5 years highest peak of severe acute malnutrition was reported in Bati rural districts on 2015/2016 which was 829.

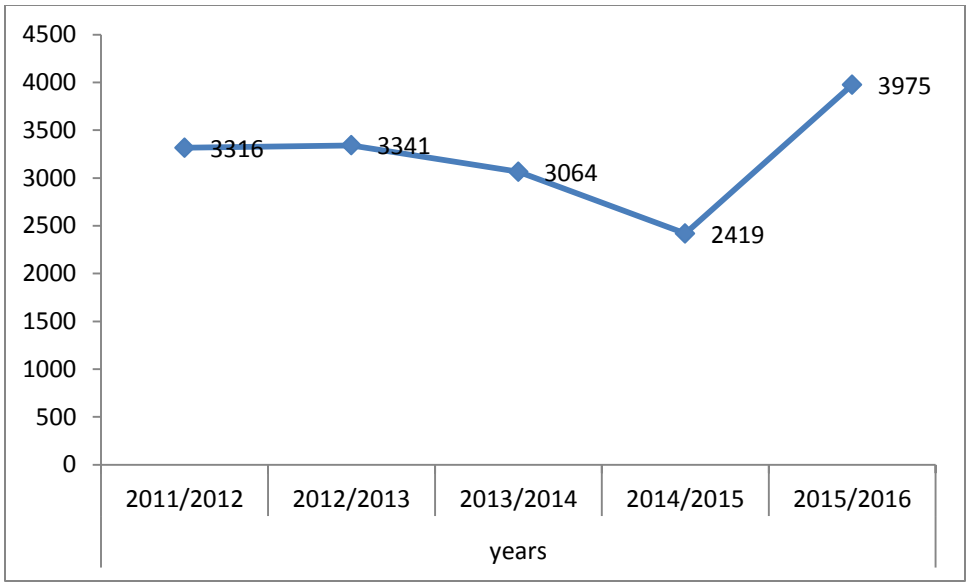

Figure 13: Trend of zonal malnutrion cases by year in Oromia zone, July2011 – June2012

There was almost similar SAM cases was reported during the year 2011/2012(3316), 2012/2013(3341) and 2013/2014(3064) but there was slight decrement during the year 2014/2015(2419) and finally the highest SAM case was reported during the year 2015/2016 that was 3975 (716 per 100000) SAM cases.

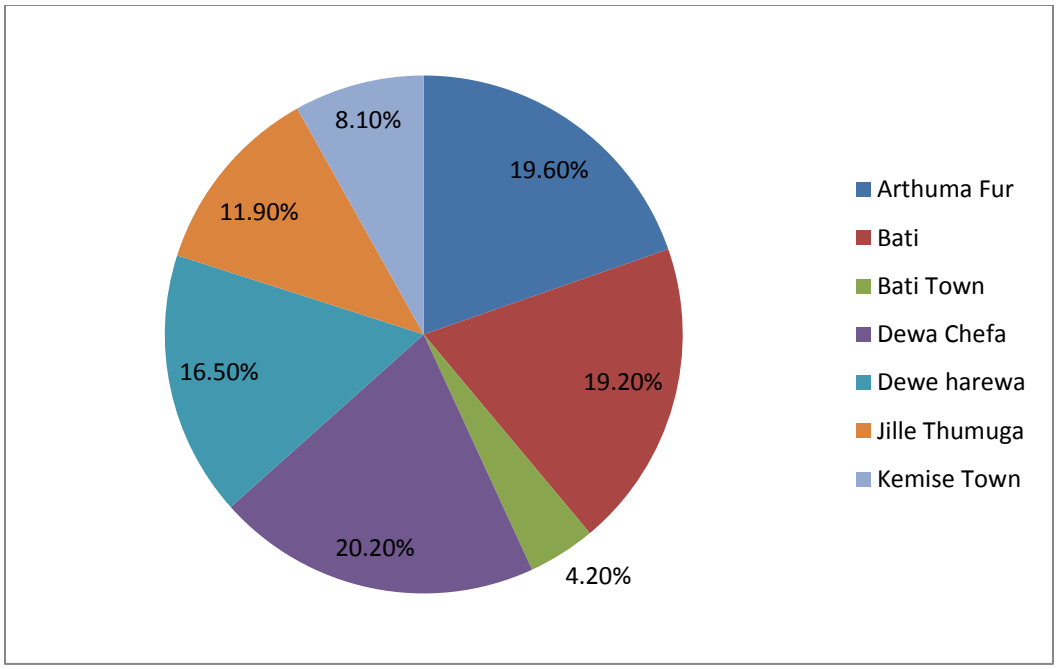

Figure 14: Relative frequency of severe acute malnutrition by districts in oromia zone, Amhara region from July/2011-June/2016.

Among the different districts of oromia zone, the relative frequency of sever acute malnutrition was higher in Dewa chefa district (20.2%), Followed by Artuma fursi and bati woreda with (19.6%) and (19.2%) respectively and the lowest relative frequency was bati town (4.2%).

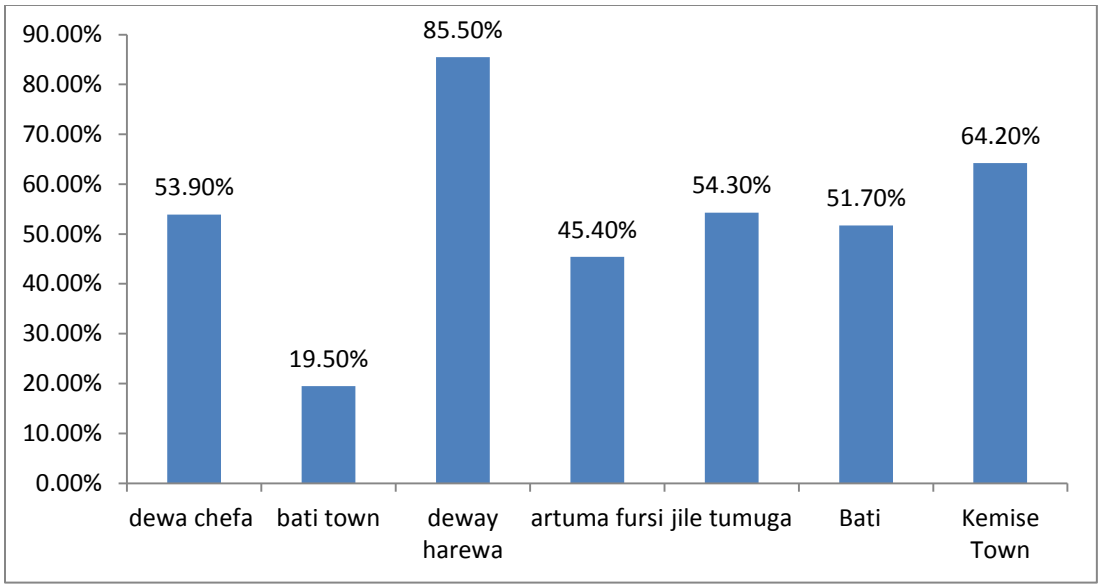

Figure 15: Percent of OTP admition of from the target of under-five children, oromia zone Amhara region, North West Ethiopia from July 2011-June 2016

The coverage of OTP admition from the target of under five children was higher in deway harewa (85.5%) and kemissie town (64.2%) but even though the number of SAM case were higher in dewa chefa and Artuma fursi district they do have lower OTP admition coverage (53.9%) and (45.4%) respectively and bati town had the lowest (19.5%) OTP admition coverage.

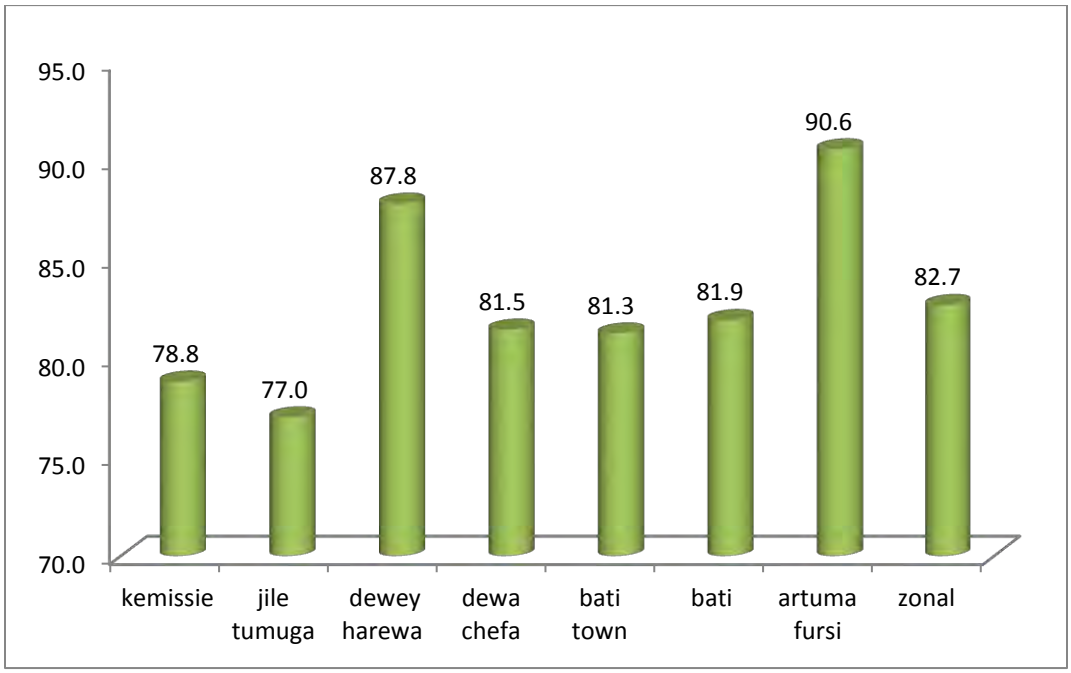

Figure 16: Recovery rates SAM under 5 children in Oromia zone by district July/2011-June/2016

The recovery rate of majority districts were more than 80% but only Kemissie and Jile tumuga districts had less than 80% that were 78.8%and 77% respectively.

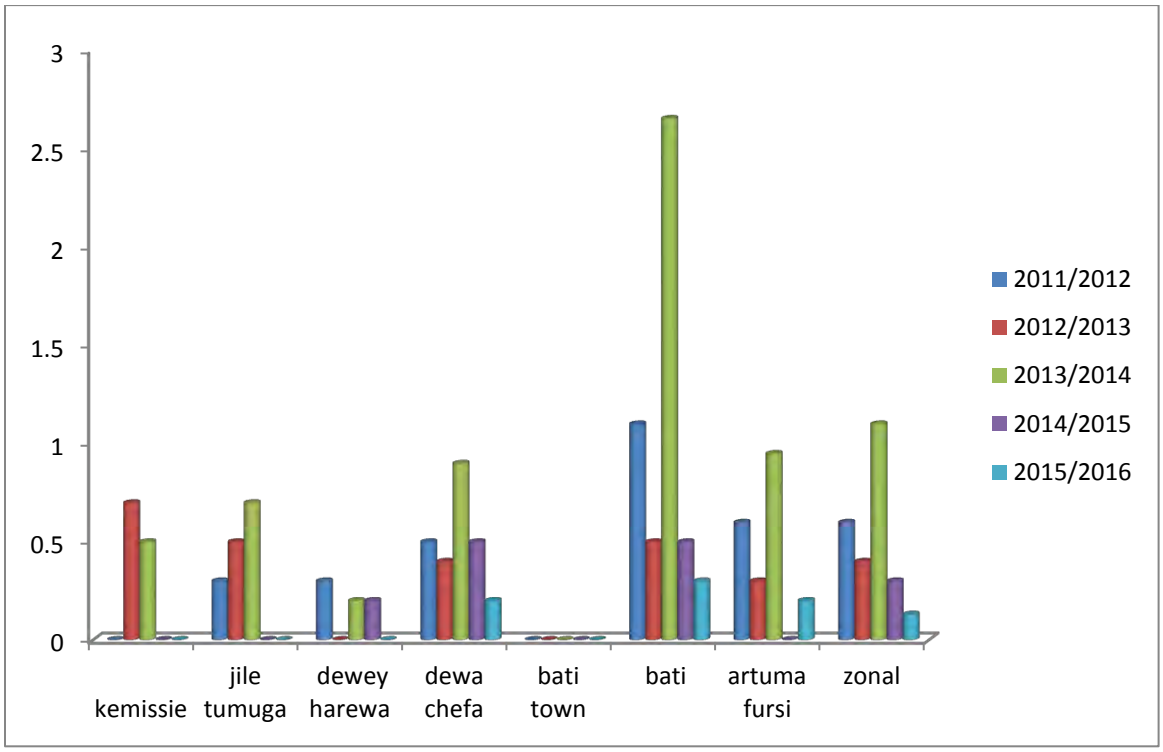

Figure 17: Death rates of SAM under 5 children in oromia zone by districts and zonal summery July/2011-June2016

The death rate of majority districts range from (0-0.95%) but only Bati rural district had the highest death rate in the year 2013/2014 which was (2.65%). Bati town, kemissie town, Dewey harewa and Jile tumuga districts did not have any death in the year 2002015/2016 and bati town did not have any death in the 5 consecutive years.

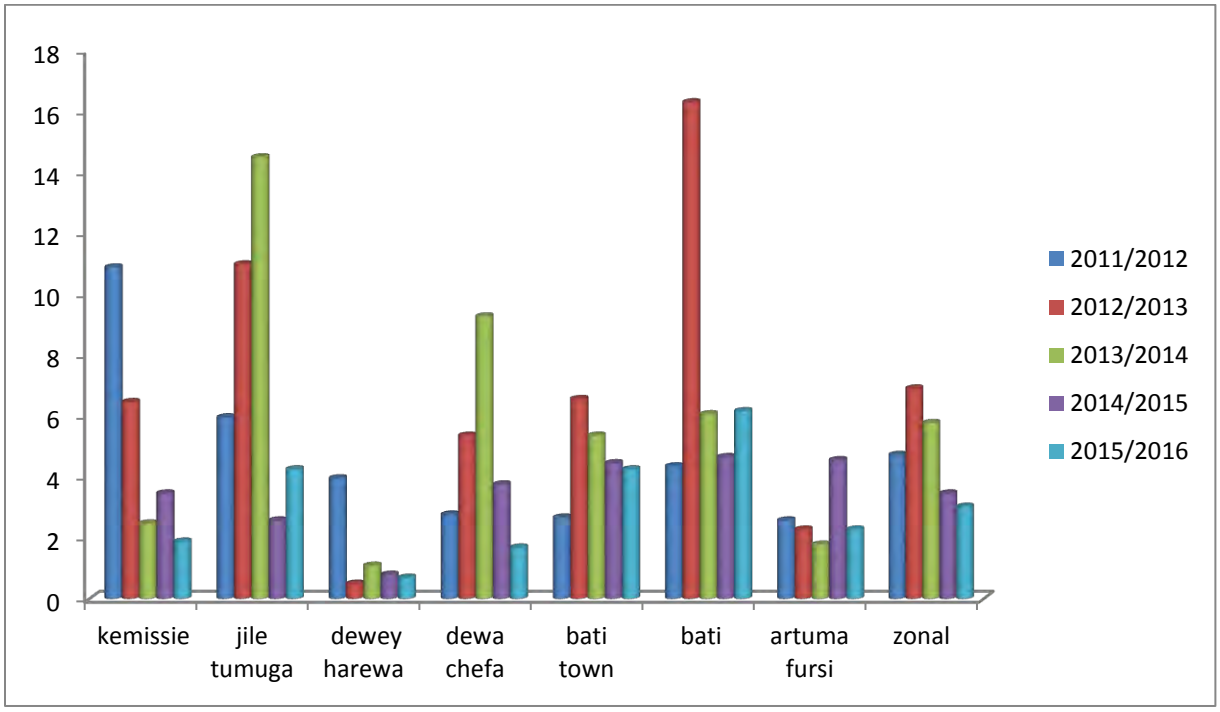

Figure 18: Defaulter rate of SAM in under-five children by district in oromia zone, July/2011-june/2016

The highest defaulter rate of SAM was reported during the year 2012/2013 and 2013/2014 bati rural, jile tumuga and kemissie town had high defaulter rate with 16.3%, 14.5% and 10.9% respectively.

Table 6: The comparison of the study results zonal summary with international Standards, July 2011-June2016, oromia zone Amhara region, North West Ethiopia.

Indicators	Results	Sphere standard	
		Acceptable	alarming
Proportion of children who recovered from severe acute malnutrition after treated in OTP (Recovery rate)	84.2%	>75%	<50%
Proportion of severe acute malnourished children who died while under the OTP intervention (death rate)	0.47%	<10%	>15%
Proportion of severe acute malnourished children who defaulted from the OTP (defaulter rate)	4.49%	<15%	>25%

Discussion

The study included all children from 6-59 month eligible children who had been managed for SAM under the OTP program and the five years SAM analysis beginning from July/2011-June/2016 was used .Based on this when we compare 5 years data of under-five severe acute malnutrition case the highest number of SAM case (3975) was reported in 2015/2016. this may be due to the occurrence of Elino in 2014/2015 there was shortage of rain fall as a result of this there was shortage of food supply .this finding was similar with the study in lalibela town administration ,north wello zone ,northern Ethiopia(5).

The overall death rate from OTP in this program of this study is(0.47%) and this is within the acceptable sphere standard (<10%) and this study finding was even lower than similar studies conducted in dilla referral hospital south Ethiopia,2013 (9). The overall death rate should be even zero, but some children might be with medical complication and improper states of management of cases may contribute to the increased mortality rates of the children.

The Proportion of severe acute malnourished children who defaulted from the OTP (defaulter rate) in this study is (4.49%) within the acceptable range of the international standard which was (<15%). The overall defaulter rate in this study is also lower as compared to similar study conducted on RUTF based therapeutic feeding program Tigray northern -Ethiopia (13.85%) (10)[]. This might be because the distance from home to RUTF site (health post /health center) were short and the care giver gives more attention to OTP program so that applying strict follow ups on the children under treatment could result to better outcomes. But in contrast to this during 2004 bati districts in this zone defaulter rate was more higher than the standard and even higher than the study done in Tigray, this may be due to this woreda has hard to reach area, even there were site that take up to 6 hours to get RUTF site, so that the care givers interrupt the program.

The recovery rate in this study was (84.22%) it was higher than the lower threshold of international standard which was (>75%).this finding was higher than finding from Tigray, northern-Ethiopia which was (61.78%) (10). This may due to care givers did not share the plump nut with other member of the house hold and promote to consume then right amount of food.

Conclusion

More than 3000 of under-five children affected by severe acute malnutrition in this zone yearly and need proper implementation of OTP program. The recovery rate were higher than the international sphere standard and also the defaulter and the death rate was even lower than the minimum acceptable sphere standard ,this indicate that the OTP program to somehow effective in this zone.

Recommendation

- Supplementary feeding program has to be introduced in all districts of oromia zone and proper implementation of OTP program to reduce the problem of severe acute malnutrition case.
- Hard to reach area should be given special attention to minimize the defaulter rate and death rate of sever acute malnutritioned children, specially defaulter rate of bati district.
- Awareness creation for care givers has to be given in order to provide appropriate food to their child to reduce children malnutrition.
- The Health extension workers strengthen house to house monitoring of usage of plumpy nut to increase the recovery rate of severe acute malnutritioned children.

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Chapter III—surveillance system evaluation

3.1 Surveillance System Evaluation of Malaria, Measles , OROMIA ZONE ,AMHARA REGION , 2016

Abstract

INTRODUCTION: Surveillance is the ongoing systematic collection, analysis, and interpretation of outcome specific data for use in planning, implementing and evaluating public health policies and practices. A communicable disease surveillance system serves two key functions; early warning of potential threats to public health and program monitoring functions which may be disease specific or multi-disease in nature . We aimed to describe the surveillance system of Malaria and measles and evaluate the key system attribute of surveillance.

Method: we conducted surveillance system evaluation in Oromia zone from June 20-July 10/2016. Descriptive cross sectional study design was used to conduct the study. WHO surveillance evaluation checklist was used for Face to face interview and data was entered and analyzed with MS Excel and arc GIS.

Result The national guide line and the standard case definition on malaria and measles and others prioritized disease were available in all visited health facility and districts of oromia zone. Regarding Communication utilities (85%) of the district and zonal health department had email access. Due to lack of knowledge and less attention all the visited health facility did not make any data analysis of surveillance system. During 2015/2016 there was outbreak of measles (59) cases, influenza like illness (1646) and scabies (2173) cases were investigated. All districts and the zonal health department prepared epidemic preparedness and response plan and it was supported by budget. The malaria and measles surveillance system is simple, useful, flexible, well accepted and also representative

Conclusion: The surveillance system of malaria and measles were useful to detect outbreaks, to estimate the magnitude of morbidity and mortality of these diseases in the area. The malaria and measles surveillance system is simple, useful, flexible, well accepted and also representative and we recommended data analysis and feedback has to be done at district and health facility .

Key words: surveillance system evaluation, oromia zone , descriptive study

Word count: 300

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INTRODUCTION

Surveillance is the ongoing systematic collection, analysis, and interpretation of outcome specific data for use in planning, implementing and evaluating public health policies and practices. A communicable disease surveillance system serves two key functions; early warning of potential threats to public health and program monitoring functions which may be disease specific or multi-disease in nature(1).

Early warning is the identification of a public health threat by closely and frequently monitoring identified indicators and predicting the risk it poses on the health of the public and the health system(2).

The purpose of early warning is to enable the provision of timely and effective information to the public and to responders, through identified institutions that allow preparing for effective response or taking action to avoid or reduce risk.

The early warning functions of surveillance are fundamental for national, regional and global health security. Recent outbreaks such as the severe acute respiratory syndrome (SARS) and avian influenza, and potential threats from biological and chemical agents, demonstrate the importance of effective national surveillance and response systems. The International Health Regulations (IHR) 2005 underscore the commitment to the goal of global security and request all Member States to establish and implement effective surveillance and response systems to detect and contain public health threats of national and international importance(1).

The program monitoring function of surveillance of communicable diseases encompasses a variety of goals such as eradication or elimination (e.g. of guinea worm, measles) and surveillance for acute flaccid paralysis. Surveillance systems also serve to monitor trends of endemic diseases, progress towards disease control objectives, and to provide information which may be used to evaluate the impact of disease prevention and control programs(1).

All Member States should enhance their national surveillance systems for communicable diseases in order to meet the various objectives. A structured approach to strengthen national(1).

Communicable disease surveillance systems could include:

• Assessment of communicable disease risks identifying major public health threats.

• Prioritization of public health threats to ensure that surveillance is limited to the

important public health events .

• Assessment of existing systems to review strengths, weaknesses, and opportunities for strengthening the systems.

• Development of a strategic plan of action based on the findings of the assessment.

• Implementation of activities planned to strengthen the systems.

• Monitoring progress in implementation of planned activities, the evolution and Performance of the surveillance system .

• Evaluating outcomes and overall impact of the surveillance system.

Rational of the study : In our country Ethiopia Malaria and measles were the leading cause of morbidity and mortality more over these disease were endemic in most parts of the country and Oromia zone of Amhara region also is malaria endemic area and measles outbreak occur in the area frequently. In addition Surveillance system evaluation was not done in the area before; and little is known about the effectiveness and efficiency of the surveillance system. Therefore evaluating public health surveillance systems helps to ensure that problems of public health importance are being monitored efficiently and effectively.

OBJECTIVES

GENERAL OBECTIVES

To describe the surveillance system of Malaria and measles and evaluate the key system attribute of surveillance, oromia zone Amhara Regional State, Ethiopia.

SPECIFC OBJECTIVES

- To describe the surveillance system of Malaria and measles
- Evaluate the key system attribute
- Determine whether the system is meeting its 'objective

METHODS AND MATERIALS

STUDY AREA : Oromia zone is found in kemissie administrative town with total population 548423 male 270881 and female 277542 and under five children 74256 ,whereas distribution of population by residence were rural population 475209 and urban population 73312 the zone is located in northern part of Ethiopia which is 325 km far away from Addis Ababa , the capital city of Ethiopia and 570 kms from regional town Bahir Dar . It has a total of 7 districts with 5 rural districts and 2 town districts. This zone has 102 rural kebeles and 16 urban kebeles with a total of 118 kebeles and all of them were malarious kebeles. It has 27 health center, 105 health post and 1 general hospital.

Figure 19: Maps of oromia zone, Amhara region, 2016

Study design and period: Descriptive cross sectional study design was employed from June 20-july 10/2016 .

Sample Size and Sampling technique

Selection of zone

Oromia zone was selected purposively because of the occurrence of repeated malaria and measles outbreak and the surveillance system evaluation not conducted before

Selection of districts

Oromia zone is divided into 5 districts and two administrative towns. Dewa chefa district was selected purposively by discussing with the zonal PHEM officers depending on the performance in 2015/2016.

Selection of health facilities

Health facilities were selected by discussing with district PHEM officers one health centers and four health posts from dewa chefa were included in the evaluation based on the 2015/2016 performance.

Data collection

WHO surveillance evaluation checklist was used for Face to face interviewing of zonal and district PHEM officers, Health center focal persons and health extension workers. Review of reports and records was also used as part of the data collection system.

Data Analysis

Data was entered and analyzed with MS Excel and results were presented using rates, frequencies, charts and graphs.

Case definitions

According to the Ethiopian public health emergency management guideline case definitions are classified into two i.e. standard and community case definitions (see below for all the

two diseases)(2) .

A case definition is a standard set of criteria for deciding whether an individual should be classified as having the health condition of interest.

Standard case definition: is a case definition that is agreed upon to be used by everyone within the country.

Community case definitions: is a case definition of disease condition adapted to suit to health extension workers (HEWs) and community members including community health workers, traditional healers, birth attendants, kebele administration, agricultural workers, teachers, drug outlets, etc.

Standard case definition

Measles

Suspected: Any person with fever and maculopapular (non-vesicular) generalized rash and cough, coryza or conjunctivitis (red eyes) or any person in whom a clinician suspects measles

Confirmed: A suspected case with laboratory confirmation (positive IgM antibody) or epidemiological link to confirmed cases in an epidemic .

Malaria

Suspected: Any person with fever or fever with headache, rigor, back pain, chills, sweats, malign, nausea, and vomiting diagnosed clinically as malaria

Confirmed: A suspected case confirmed by microscopy or RDT for plasmodium parasites .

Community case definitions

Rash: any person with fever and vesicular, maculopapular or postural rashes on any part of the body

Malaria: any person with fever or headache, back pain, chills, rigors, sweating ,muscle pain, nausea and vomiting or suspected case confirmed by RDT

RESULTS

Case Detection, Registration and Confirmation

The national guide line on malaria and measles and others prioritized disease were available in all visited health facility and districts of oromia zone. Understanding of the available national guide line by the health care providers was 70% at the time of visit. The standard case definition of malaria and measles and other reportable disease were available in all visited district and health facility of Oromiya zone. Understanding of the available cases definitions by the health care providers was 90% at the time of visit. Malaria and measles clinical registration was found in the registration books at health facilities. All visited sites have material to collect the stool, blood/serum and CSF sample and have functional cold chain to handle the sample, but they don't have transport media to transport to next level.

Reporting

There was no shortage of reporting form in the past 11 months in all visited health facilities and districts. All the visited health facilities used the same reporting formats. Regarding the reporting facilities both public facilities and private facilities report to the districts.

Regarding Communication utilities (85%) of the district and zonal health department had email access.

Only Reports from deway harewa district was received through telephone or paper. In case of emergency, PHEM focal person and officers communicate on daily bases or more frequently and on others daily activities they usually communicate on weekly basis either by telephone or weekly reports. Health posts in dewa chefa district send report to health center on Sunday . All the four- health posts report using paper. Health centers send their report to district on Monday and reports sent from district to zonal health department on Tuesday, finally the zone aggregates and sent to the region on Wednesday. The reporting proportion was generally good for all types of health facilities with average annual report completeness of 98%.

DATA ANALYSIS

All districts had permanently assigned surveillance officer and all of them trained on surveillance and epidemic management. In all assessed health facilities there was assigned trained responsible officers or focal person for report compilation and data analysis and other surveillance activities. Majority of the center (80%) of the center did not ha computer and data entry was done using manually .due to lack of knowledge and less attention all the visited health facility did not make any data analysis of surveillance system. Data analysis was done at district level in dewa chefa district on irregular basis and zonal level surveillance data analysis done weekly and reports were disseminated to administration to districts and department heads. In all visited health facilities and district health offices, they prepared line graph only for malaria .

OUT BREAK INVESTIGATION

During 2015/2016 There was outbreak of measles (59)cases, influenza like illness(1646) and scabies(2173) cases were investigated and there was no death in this zone . The health facility staffs investigate measles and influenza like illness but scabies was not investigated by health facility staff or district or zonal level following the standard procedure of outbreak investigation. They do have outbreak investigation checklist. The commonest problem specially for scabies investigation was late reporting from the community. But when reports were sent to districts response was started within 24 hours. Response is provided based on the clinical findings and laboratory samples of measles and influenza were sent to the regional laboratory.

EPIDEMIC PREPARDNESS AND RESPONSE

All districts and the zonal health department prepared epidemic preparedness and response plan and it was supported by budget. There was shortage of emergency supplies like IV fluid & vitamin A in district to respond dysentery and measles outbreak. All districts and

health facility have RRT but none of them conduct regular meeting and it becomes active when there is an outbreak. All health centers have case management protocol for measles, malaria.

The commonest challenges during an epidemic response were shortage of supplies, shortage of budget for administrative issue, late reporting by the community and health extension workers. Emergency preparedness and response task force was established at zonal and district level and conducts meeting only when there is out break.

SUPERVISION AND FEED BACK

Supervisions and feedback are major activities that helps to improve the health system Regarding feedback the region gave feedback weekly to zones in similar manner oromia zone provides feedback for districts weekly. From the assessed districts, dewa chefa provides feedback to cluster health centers. All visited health post replied that they had received supportive supervision from cluster woledi health center monthly but they did not receive any feedback. In general the feedback and supervision mechanism was better at zonal and regional level and gets weaker down wards to districts health offices and health facilities.

RESOURCE

All visited health facilities compile weekly surveillance report manually. Data was aggregated by computer at district and zonal level. All health facilities and districts have motor cycles but they do have driving license. Hence the motor cycles were used for surveillance activities. All district health office and 10 health center do have computers and printer but only all the districts health office do have photocopies and fax.

Laboratory

The national reference laboratory at the Ethiopian public health institute performs tests for most of the immediately reportable diseases and sends feedback to facilities. For other priority diseases, which cannot be tested by the national laboratory capacity samples will be sent to international laboratories. The Amhara national regional state has two regional research laboratories at Dessie and Bahir Dar, which performs confirmatory tests for most of the weekly reportable diseases. Starting from 2015/2016 The Bahir Dar regional laboratory starts confirmatory test for measles. All the assessed health facilities have RDT for the diagnosis of malaria. Blood film is done in all visited health centers.

ATRIBUTE AND LEVEL OF USEFULES

USEFULLNESS

All respondents from district health offices, zonal health department and health facilities understood that the surveillance system is important to permit accurate diagnosis early on a timely manner and it also helps to estimate the magnitude of morbidity and mortality related to those disease and allows evaluating the effectiveness of prevention and control program.so surveillance system is useful to detect outbreak of malaria and measles and to estimate the burden of these disease and mortality with regard to disease and finally to assess the effects of prevention and control of measles and malaria program.

SIMPLICITY

The simplicity of surveillance system is explained by the case definition because it is important to detect early the disease or condition under surveillance. All respondents of the study replied that the case definitions of malaria and measles were easily understandable.

Regarding the contents of the reporting format 100% of the district, zonal respondents and The health center respondents replied that the format contain all necessary variables for measles and malaria. Concerning the time it takes to fill the reporting format one out of seven respondents replied that it only takes five minutes while the rest said that it takes 10-15 minutes to fill the reporting format. The time it takes to diagnose by laboratory respondents replied that, it takes up to two month to receive the feedback from the central laboratory for measles. Regarding malaria, it takes 15- 30 minute.

FLEXIBILITY

The surveillance system accommodate itself into the new reform under taken in the health system because all interviewed staff respond that the system is easy to change and accept new ideas which are good for improvement of the surveillance .The formats is more flexible to report and can incorporate other newly occurring health event without much difficulty .

DATA QUALITY

We assessed the quality of data in terms of completeness and validity of the recorded data on the registry and formats.

REPORT TIMELINESS AND COMPLETENESS

The completeness of health facility (100%), private health facility (95%), district (99%) and zonal (98%) and the timeliness of health facility (100%), private health facility (89%), district (96%) and zonal (100%) has been assessed from oromia zone**.** Both completeness and timeliness were above the WHO standard which was 80%.

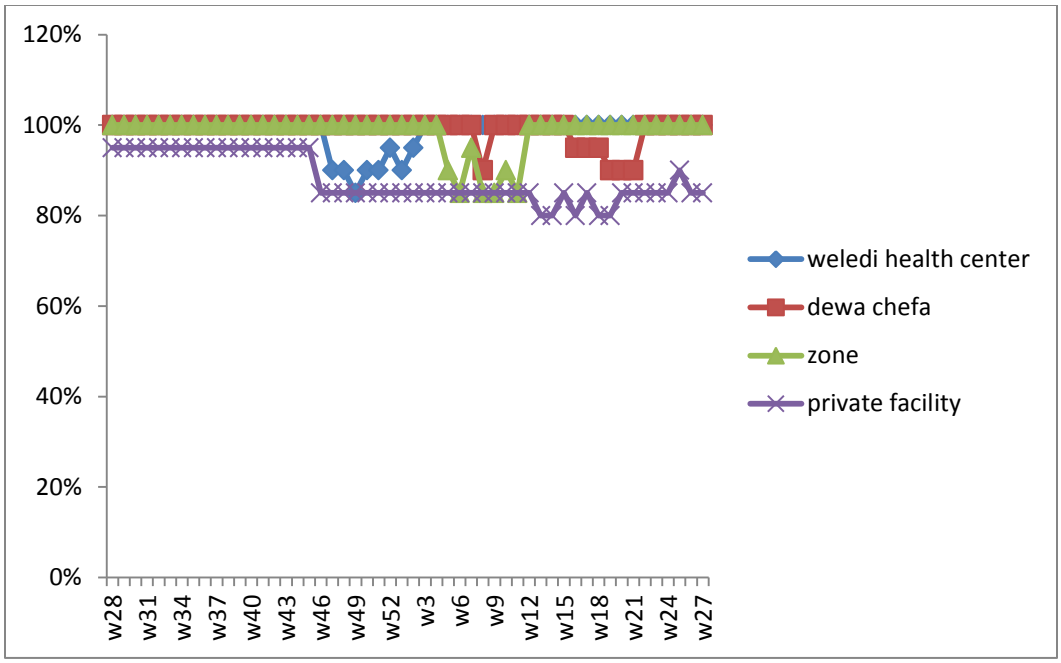

Figure 20: completeness of health facility of oromia zone, Amhara region 2016

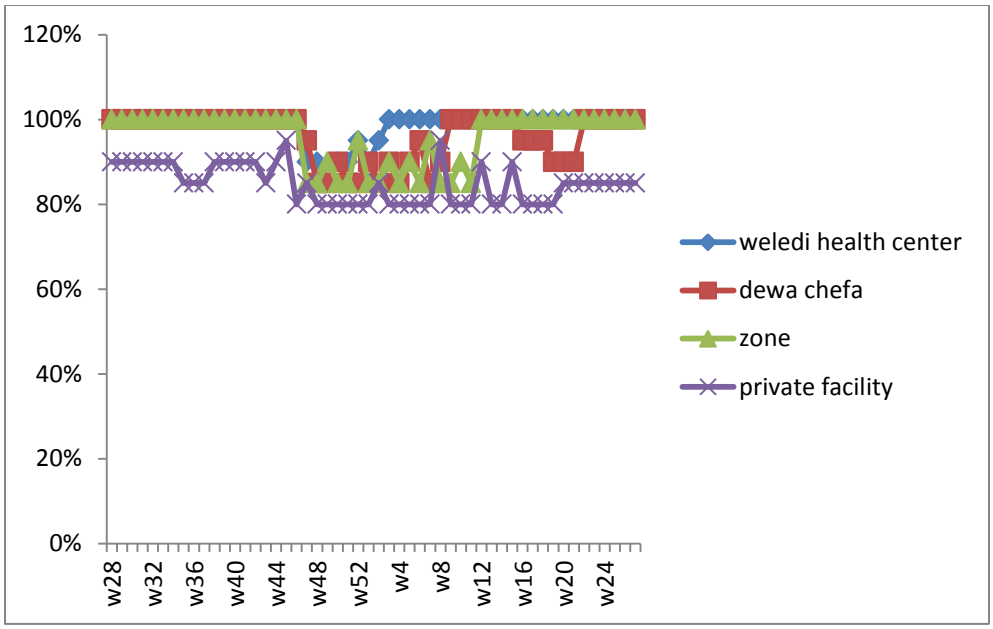

Figure 21: timeliness of health facility of oromia zone, Amhara region, 2016

SENSITIVITY

Sensitivity in surveillance refers to the proportion of actual cases in a population that are detected and notified through the system.

Sensitivity of case definition**:** Refers to the ability of the case definition to identify all possible cases in the community. This is the case definition of malaria well established, easy and can identify all malaria cases, but the case definition of measles was not easy, and cannot identify all measles cases.

ACCEPTABILITY

Acceptability is expressed by accepting and well engaged to the surveillance activity. All reporting agents accept and well engaged to the surveillance activities the report completeness status of reporting agents is 100% for health centers, 99% for districts and 95% for private health facilities all the reporting agent use the current reporting format.

REPRESENTATIVENESS

A public health surveillance system that is representative accurately describes the occurrence of a health-related event over time and its distribution in the population by place and person. The primary health care coverage of the oromia zone 105% and 88% for health center and health posts respectively.

The surveillance system enables to follow health related events in all groups of population both in the urban and rural community. The populations do have good health seeking behavior for many diseases but disease like measles was the populations has low health seeking behavior and prefer to stay at home.

POSETIVE PREDITIVE VALUE

Predictive value positive (PVP) is the proportion of reported cases that actually have the health- related event under surveillance. It is difficult to calculate the predictive positive value for measles since all suspected measles cases were not confirmed using laboratory.

STABILITY

The surveillance system helps to collect manage and provide data properly and it was operational at any time the continuity of the system was not interrupted at health post level even when health extension workers were not available the continue by community volunteers so there was no any resource or condition that that interrupt the surveillance system .

DISCUSSION

The main goal of conducting public health surveillance is to assess the health status of a population, establish public health priorities, and reduce the burden of disease in a population by making appropriate public health actions. On the other hand, understanding of malaria and measles case definition by all health professional was found good, which helps for early detection and identification of cases for timely response. All the attribute of the surveillance system was acceptable with regard to measles and malaria cases.

CONCLUSION

The surveillance system of malaria and measles were useful to detect outbreaks, to estimate the magnitude of morbidity and mortality of these diseases in the area. In addition professionals working in the system were satisfied with the surveillance system. The malaria and measles surveillance system is simple, useful, flexible, well accepted and also representative.

RECOMMENDATION

- The surveillance system in all visited facilities is good and should be kept up but since facilities lack resources like internet fax and generator must be available.
- The case definition has to be trained for fresh health worker.
- Feedback has to be given at health facility and district levels
- Data analysis has to be done at district and health facility.

References

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Chapter IV – Health Profile Description Report

4.1: HEALTH PROFILE OF KEMISSIE ADMINISTRATIVE TOWN IN OROMIA ZONE AMHARA REGION NORTH WEST ETHIOPIA, 2016

Abstract

INTRODUCTION Health profile provides summary health information to support local authority members, officers, and community partners to lead for health improvement. Health profile is a program to improve availability and accessibility for health and health related information. we aimed To describe the health and health related issues and indicators in kemissie town.

Method: we conducted health profile of Kemissie administrative town from January 10-20/2016 and descriptive crossectional study design was used. Structured questionnaires was used to collect data and interview with some officials in the departments and finally data was entered and analyzed using Microsoft Excel

RESULT The safe water supply coverage is 100%.In this district, there were 6 primary schools with a total 252 teachers and male student 3679(53.3%) and female student 3221(46.6%) a total of 6900 student. Among the total 7 kebeles of the town all of them had an Electric power supply and Telecommunication network which gives a 24 hours service. The coverage of ANC 1535(122%), PNC 1278(102%), and PMTCT 1315(105%) and BCG (127%) ,measles (126%) and PENT 3(133.5%) The coverage of ANC 1535(122%), PNC 1278(102%), and PMTCT 1315(105%) .

The coverage of VCT is higher than PICT and PMTCT out of the total 9982 screened for HIV 117 were positive for HIV and the positivity rate was 1.17%.

Conclusion: Non-diarrhea was second leading cause of morbidity for under- five children. The waste disposal system of the town had critical problem we recommend to focus on house to house hygiene and sanitation practices of children under 5 years and the municipality of the town in collaboration with town health office should rearrange the waste disposal site.

Key words: health profile description, kemissie, descriptive study

Word count: 267

INTRODUCTION

Health profile provides summary health information to support local authority members, officers, and community partners to lead for health improvement. Health profile is a program to improve availability and accessibility for health and health related information. The profiles give a snap shot overview of health for each authority. Health profiles are produced annually. Designed to help local government and health services makes decisions and plans to improve local people‟s health and reduce health inequalities. The profiles present a set of health indicators that show how the area compares to the national average. The indicators are carefully selected each year to reflect important public health topics.

A district health profile is a public health report that brings together key pieces of information on health and its determinants in the districts and interprets and analyses the information. The main function of the profile is to stimulate action that will improve Profiles and Indicators defined districts health profiles as reports that identify in health.

The summarized data and prioritized health events are important for public health officials as well as decision makers. They use it for planning, implementation and evaluation of public health programs.

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The health profile description of the kemissie administrative town was not done before and HIV AIDS, Malaria and other communicable diseases are common in the district. Due to this reason I have selected the district to identify the gaps.

Rational of the study

The purpose of this project is to assess and describe kemissie town health profile

Objective

General objectives

- To describe the health and health related issues and indicators in kemissie administrative town in 2014/2015.

Specific objectives

- To compile health and health related indicators of the town in one place
- To have an information about health indicators of the town
- To describe existing community health problems in the town in terms of time, place, and person

Methods and materials

STUDY AREA

Kemissie administrative town is one of the district in Oromia zone , Amhara region with total population 37172 male 18449 and female 18622 which is located in northern part which is 325 km far away from Addis Ababa , the capital city of Ethiopia and 570 kms from regional town Bahir Dar . The borders of this woreda are Dewa chefa district to the east, north and south and Artuma fursi district to the west.

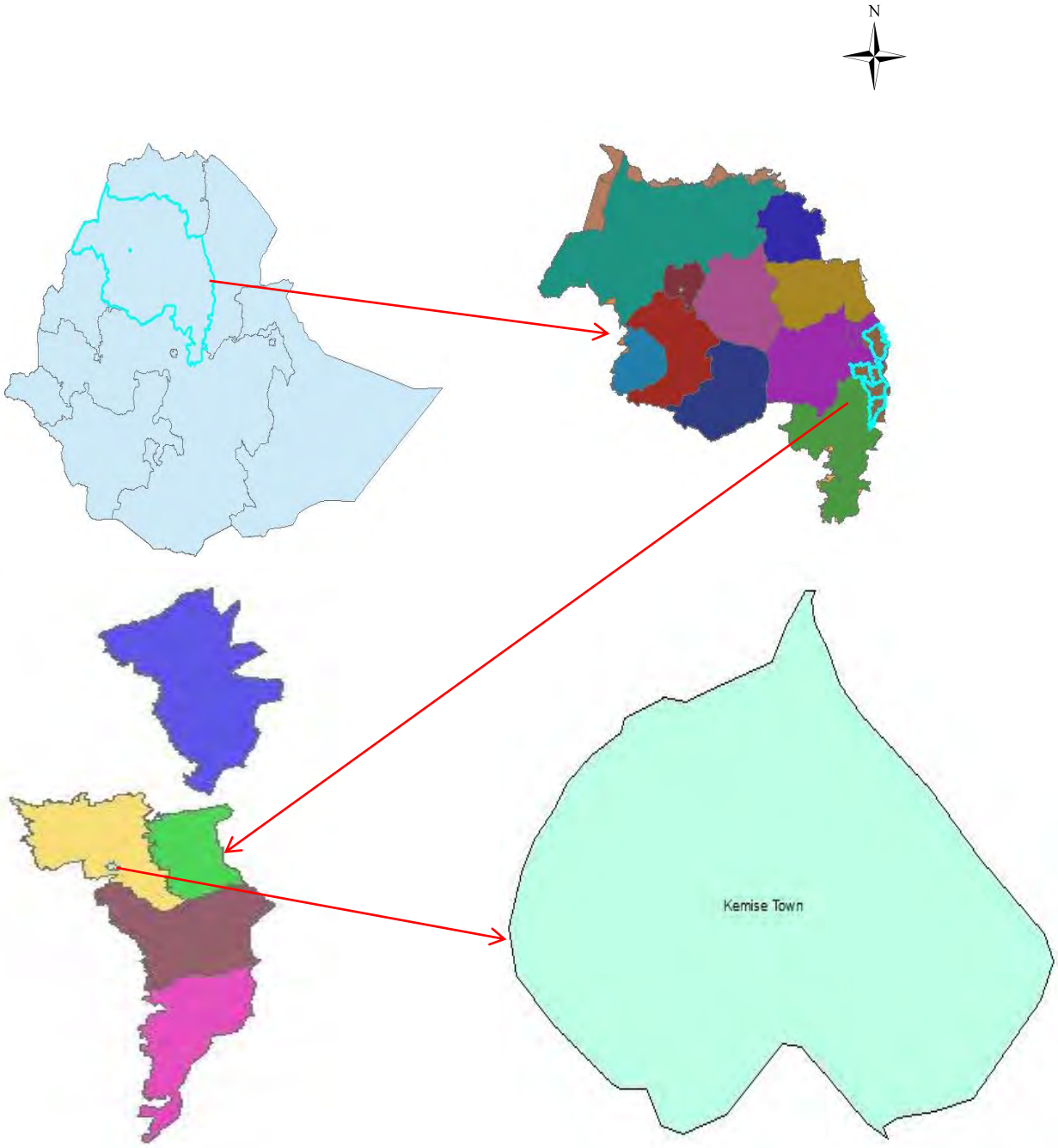

Figure 22: Map of kemissie Administrative Town, Amhara, 2016

Study design: Descriptive crossectional study design

STUDY PERIOD: the study was conducted from January 10-20/2016

Data collection procedure

A one year retrospective data was collected from different offices of kemissie town health bureau, agricultural, education, water, finance and economic development, Administrative and , etc. Official permission letter was taken from Bahr dar field base and permission from the above bureaus was also requested in order to gain the data. Then data was collected using structured questionnaires and interview with some officials in the departments.

Data analysis: Data was entered and analyzed using Microsoft Excel spread sheets and Arc GIS and presented using tables, graphs and maps.

RESULTS

Administrative and political issues

Kemissie town has 1 rural kebeles and 6 urban kebeles .the government has assigned a political leaders and technical staffs for each sector which are responsible to their duties. They experienced an intersect oral collaboration to achieve the strategic plan.

Generally, the Administrative and political issues in kemissie town in the time of 2014/2015 had a strong and well organized stretched objectives to create a healthy and productive community.

Population and population structure

The total population of kemissie town in 2014/2015 was 37172 females were higher than males which indicated a sex ratio of (male: female) 1: 1.01 with male 18449 and female 18622. The total population of under one years of age were 1156(3.12%), <5 years 5033(13.54%) and >5 years 30983(83.35%). The women in the child bearing age were 8765(23.57) and pregnant mothers were 1252 (3.37%).

Most of the populations were Muslims (96%), few Orthodox (3%) and Protestants (1%) were found. The predominant ethnic group in the district was Oromo, Amhara and Argoba and a few Tigre"s were also found

Since the district is town administrative most of the population (88.60%) lives in urban kebeles in relative to rural kebeles (11.3%).

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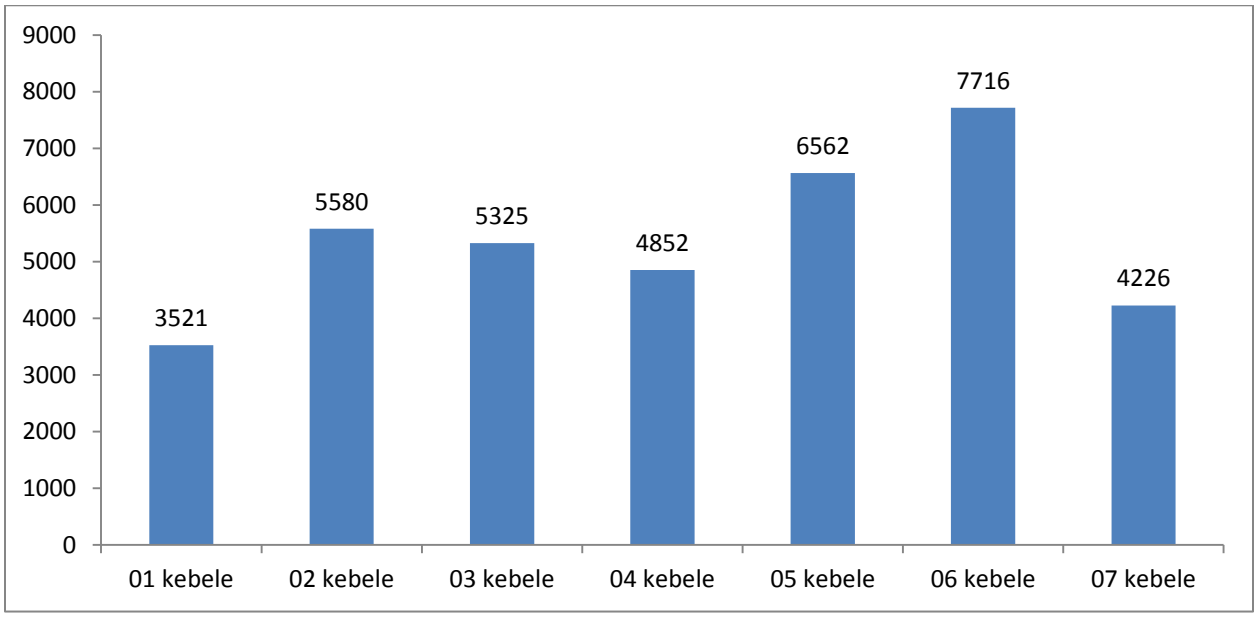

Figure 23: Distribution of population by kebele of kemissie town, Amhara 2014/2015

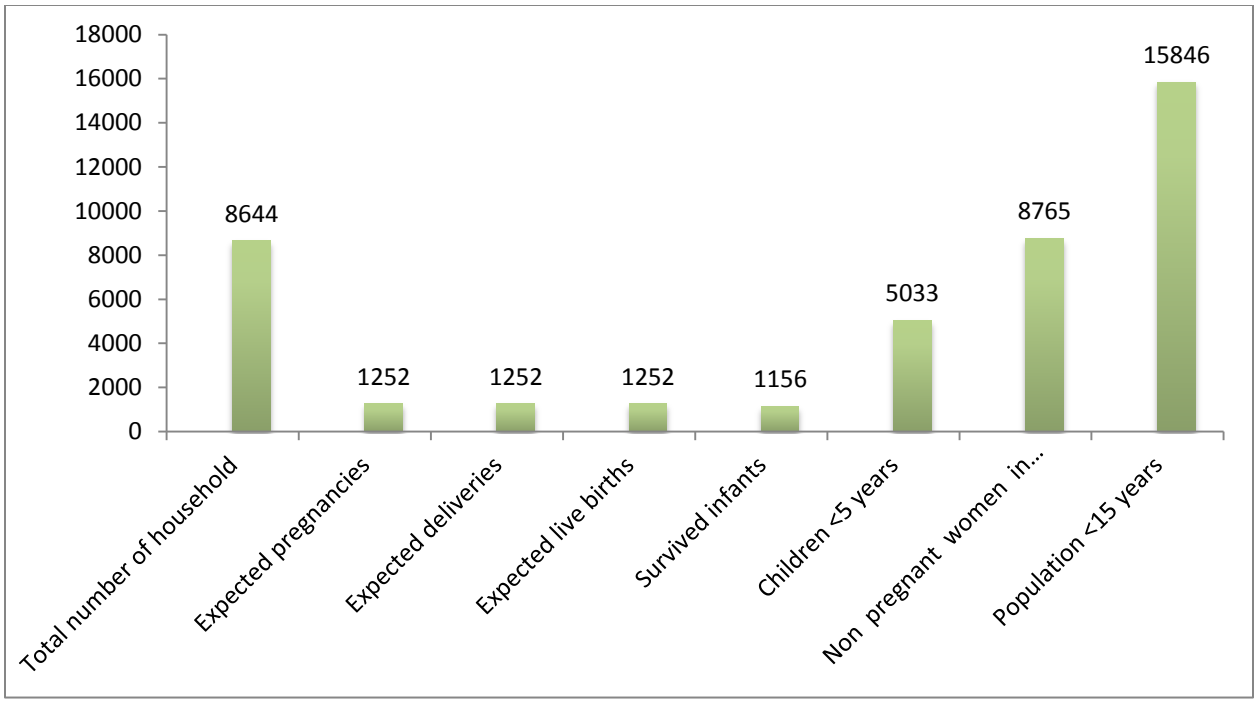

Figure 24: The demographic indicator of kemissie town Amhara region, 2014/2015.

Infrastructure of the town

Economic status

The community of kemissie town is mostly dependent on trade and the rural community was dependent on agriculture which means harvesting a variety of crops like teff and maize.

Education

In this district, there were 6 primary schools with a total 252 teachers and male student 3679(53.3%) and female student 3221(46.6%) a total of 6900 student. But there were only two Secondary school which had a total students of 2028 of which male 1144(56.4%) and female 884(43.6%) and a total 100 teachers .In both primary and secondary schools, the numbers of

male students were higher than female. All primary and secondary school had functional latrine, water supply HIV /AIDS clubs.

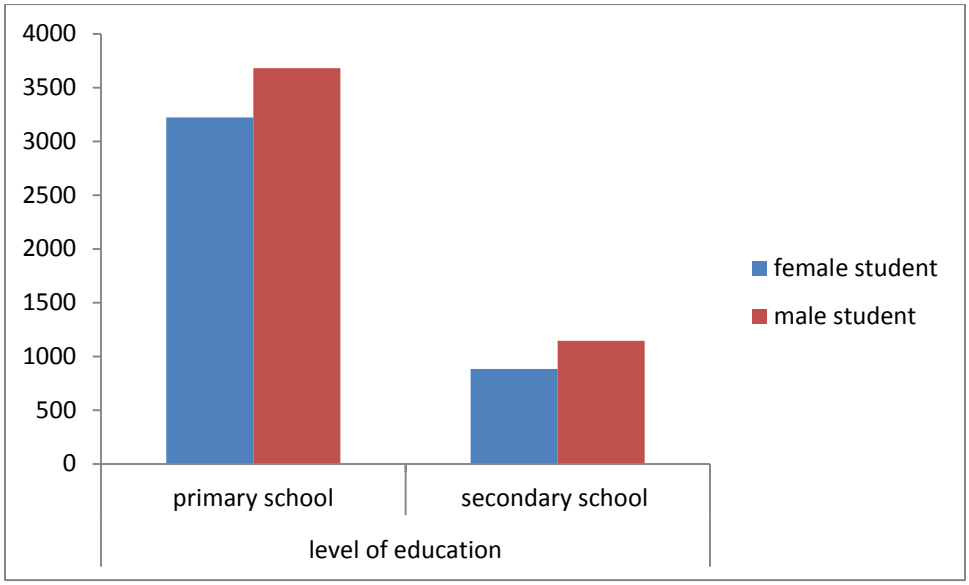

Figure 25: Distribution of number of student by sex at different level of education in kemissie town, Amhara, 2014/2015.

WATER SUPPLY

The main sources of water supply for kemissie town are from repe ground waters and the safe water supply coverage is 100%.

Basic development facilities

Among the total 7 kebeles of the town all of them had an Electric power supply and Telecommunication network which gives a 24 hours service. In addition to this, all kebeles that have a permanent transportation access to their central administrative office. Apart from this, totally the town is low land which was confortable for investment.

BUDGET

HEALTH SERVICE AND BDGETING

Table 7: Budget allocation of kemissie town, Amhara region, 2014/2015 .

Source	Recurrent budget	Salary	Total per capital
Total district budget	8,885,259	28,991,303	4,790,100
Allocated to health sector	646,006	1,169,102	0
Percentage of budget allocation to health sector	7.27%	4.03%	0%

Disaster situation

In 2014/2015 in kemissie town there was not any disaster and disease outbreak /public health emergency. But there was frequent occurrence flooding in the border of the town.

Primary Health services

Health facilities

Kemissie town has the different level of health workers was increasing to fulfill the minimum requirement of the health facility standard. The community had an access to use hospital service in the town.

Table 8: number of health facilities and the ratio to the population in kemissie town, 2014/2015 .

s.no	Type of health facility	Number	Ratio	National standard ratio
1	Health center	1	1:37172	1:40,000
2	Health post	7	1:5310	1:3000-5000
3	Private clinic	11	1:3379	----
4	Pharmacy	3	1:12390	----
5	Drug store	8	1:4646	----
6	Diagnostic laboratory	4	1:9293	----

Note: The private facilities were supporter to the government health facility they don't have national standard ratio

The number of health center and health post ratio"s to population was almost similar with the standard when it is compared to Service provision structure of national standard health facility to population ratio.

Table 9: The health professional to population ratio in kemissie town, 2014/2015 .

Sr.no	Description	number	Ratio of health professional to population	National standard ratio
1	Health officer	9	1:4130	1:10,000
2	Clinical Nurse	21	1:1770	1:5000
3	Mid wife	5	1:7434	1:8000
4	Pharmacy technician	6	1:6195	
5	Laboratory technician	5	1:7434	
6	HEW	12	1:3097	1:2500

7	TBA	28	1:1327	
8	Environmental sanitarian	4	1:9293	

The number of health professional to population ratio was similar with the standard when it is compared to Service provision structure of national standard health provision to population ratio.

Top ten causes of morbidity

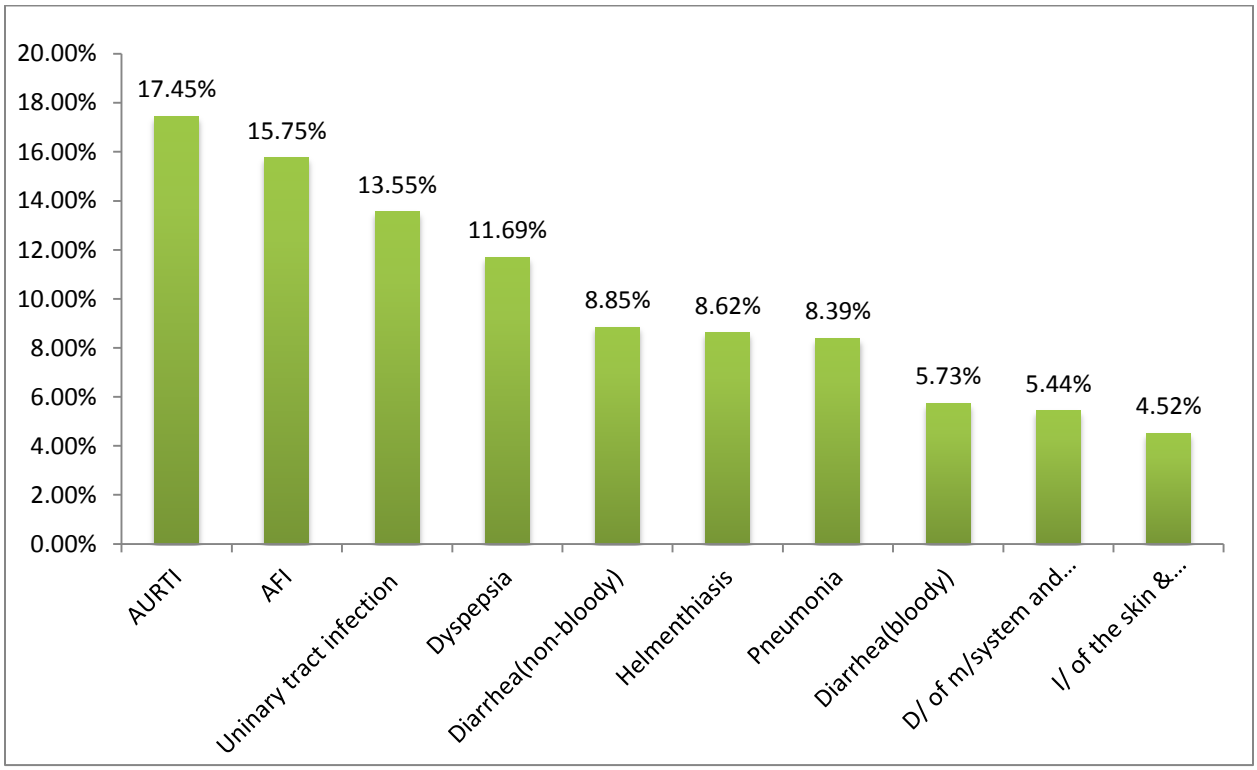

Figure 26: Top 10 cause of morbidity for above 5 years category for kemissie town district health office, 2014/2015

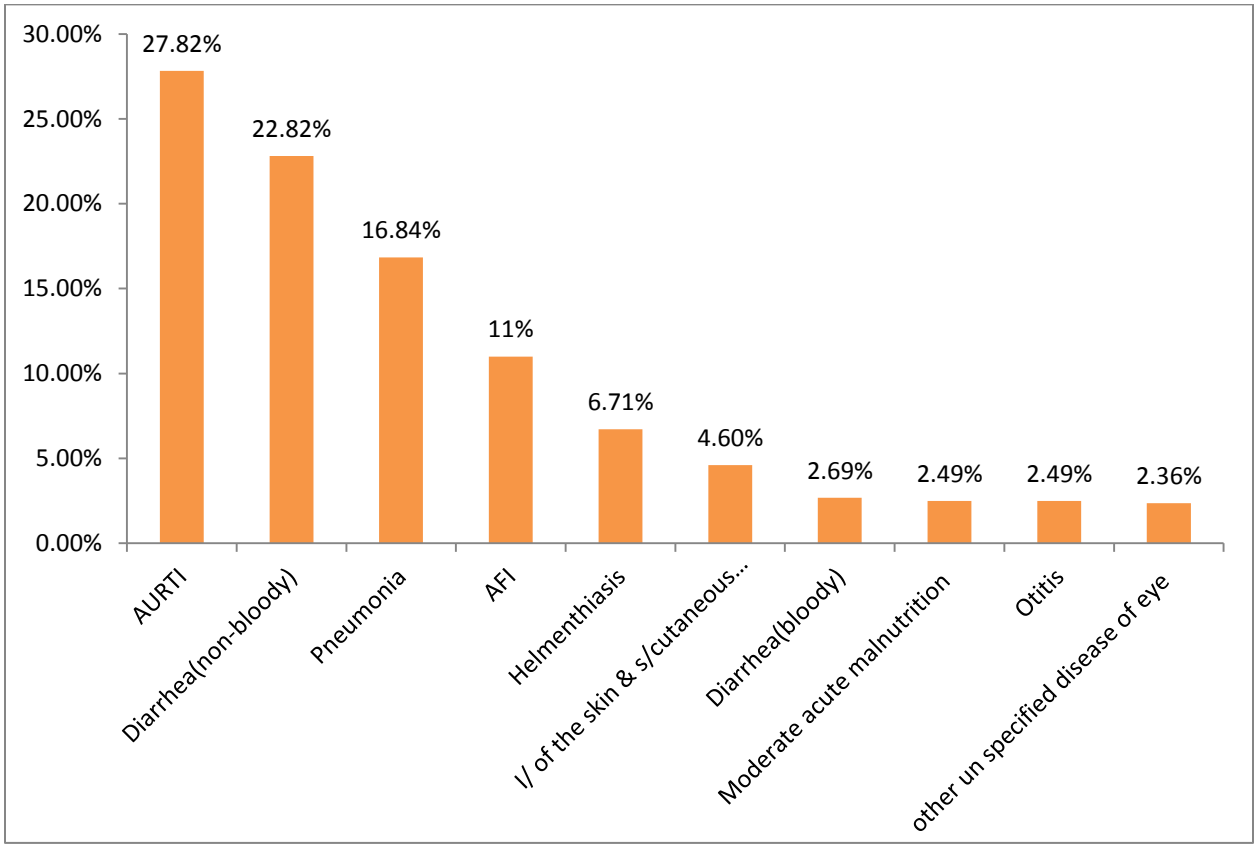

Figure 27: Top 10 of morbidity for under-five years' category for kemissie town district health office, 2014/2015.

MCH and EPI

The coverage of ANC 1535(122%), PNC 1278(102%), and PMTCT 1315(105%) . The ANC coverage was higher than PMTCT and PNC.

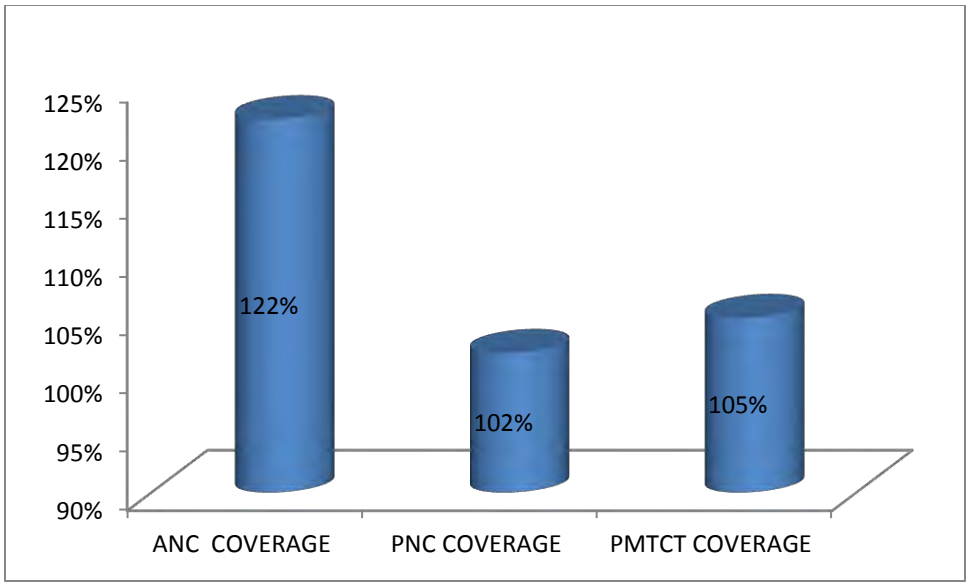

Figure 28: The coverage of ANC, PNC and PMTCT coverage kemissie town, Amhara, 2014/2015

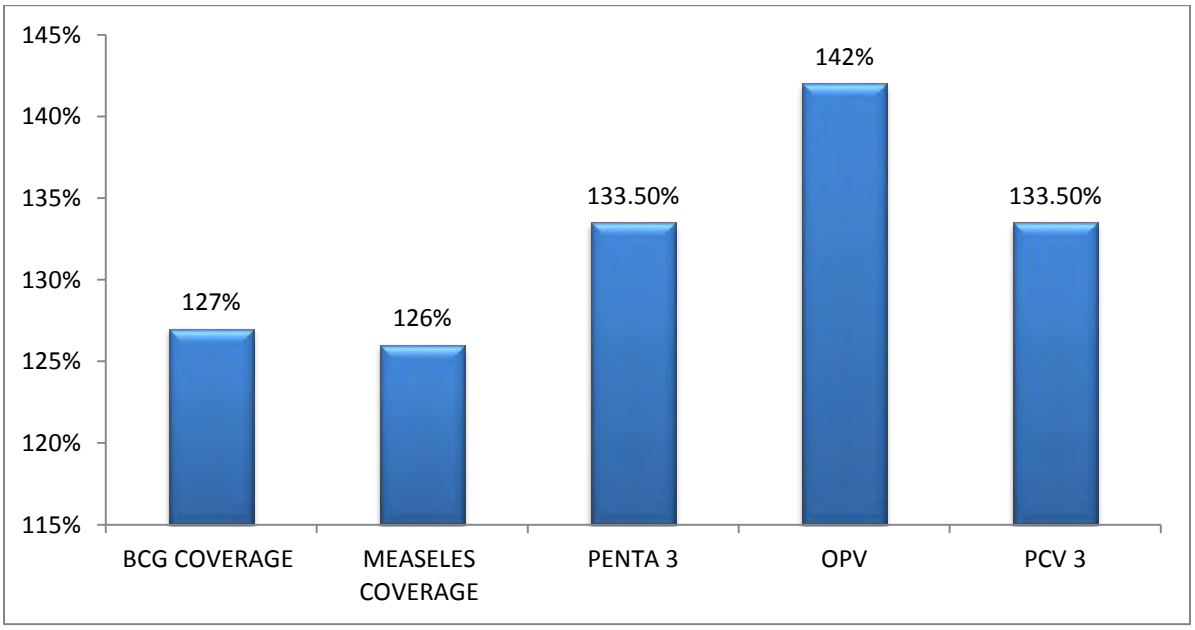

Figure 29: coverage of BCG, MEASELS, PENTA 3, OPV and PCV of kemissie town, Amhara, 2014/2015.

The coverage of BCG, Measles and Penta of this town was more than 100 percent.

ENDEMIC DISEASE

The most endemic disease in kemissie town was malaria. Disease like TB and HIV/AIDS and others communicable disease can also reported in the town.

MALARIA

Kemissie town is one of the malarious district and all the 7 kebeles were malarious. The ITN coverage as per the standard was 100%.The coverage of indoor residual spray was 80.5% and the total malaria case reported in the town was 1504 cases.

TB/Leprosy

A total of 151 TB cases were reported in the town and all of them were screened for HIV and 26(17.2%) of them were positive for HIV and the prevalence of Leprosy was 7(0.018%) in the town during 2014/2015 .

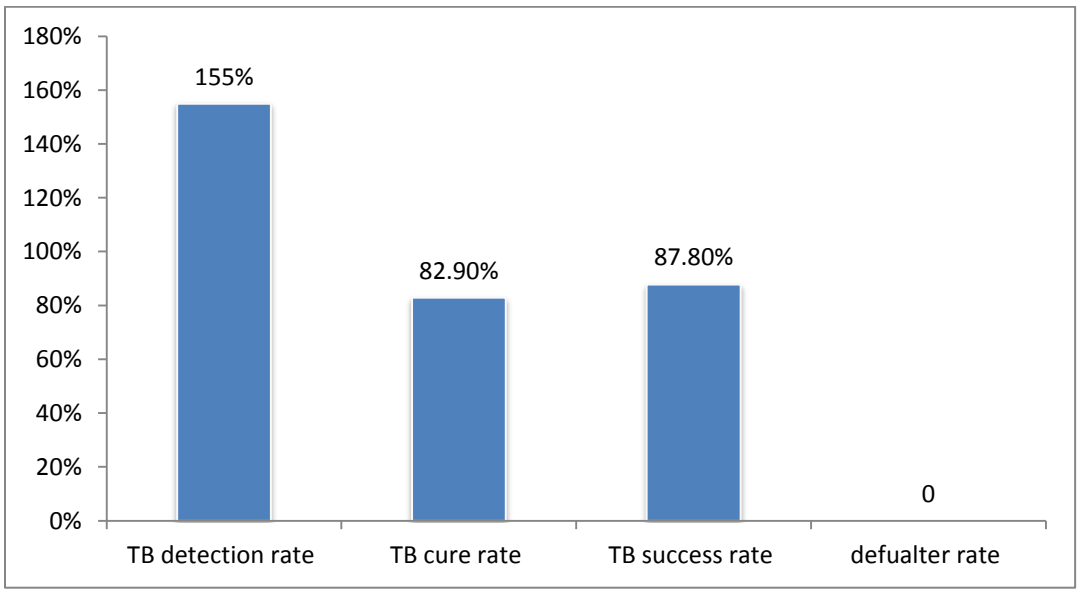

Figure 30: TB detection, cure rate, success rate and defaulter rate of kemissie town, Amhara, 2014/2015.

TB cure rate and success rate of this town were 82.9% and 87.8% respectively and there was no defaulter rate.

HIV/AIDS

The coverage of VCT is higher than PICT and PMTCT out of the total 9982 screened for HIV 117 were positive for HIV and the positivity rate was 1.17% .There was a total of 994 people living with HIV/AIDS 991(99%) of them were on ART.A total of 117360 condom was distributed in kemissie town in 2014/2015.

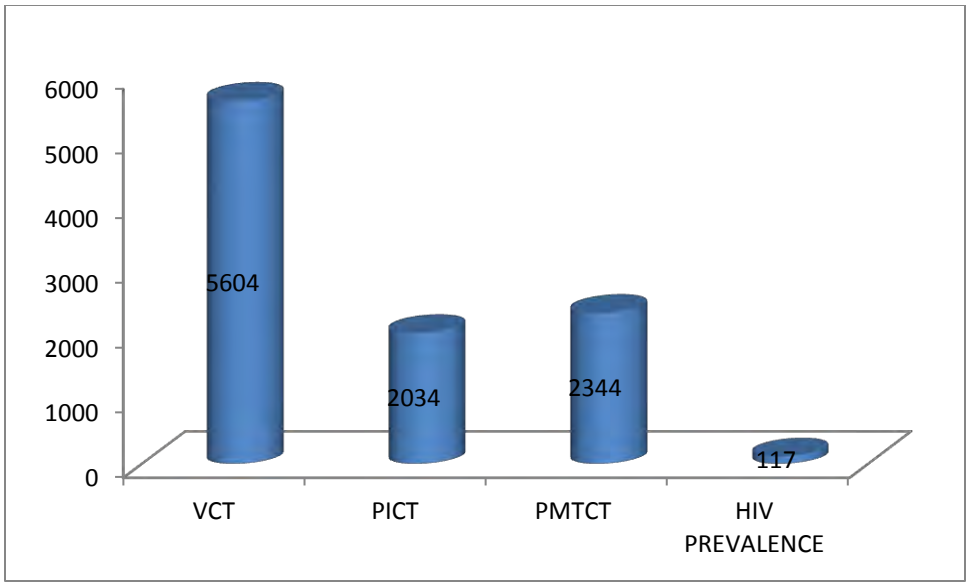

Figure 31: coverage of VCT, PICT, PMTCT and the prevalence of HIV of Kemissie town, Amhara 2014/2015.

NUTRITION

There was two OTP site and one TFU for severe malnutritioned children in the town, screening of malnutritioned children done in every 6 six month, children with MUAC<11 cm and a child with edema transfer to OTP and TFU site and appropriate treatment and plumpy nut supplementation given .

Hygiene and sanitation

The west disposal system of the town had critical problem, there was no appropriate place assigned for disposing west of the town.

DISCUSSION

The kemissie town has total population of 37172 and the Expected pregnancy of the town was 1252(3.37%) ,surviving infants 1156(3.11%) least proportion of population, children <5 years 5033(13.5%) , women of child bearing age (15-49) was 8765(23.57%) and population less than <15 years 15846(42.6%) which account highest proportion.

The number of student in primary school were male student 3679(53.3%) and female student 3221(46.6%) a total of 6900 ,but student on secondary school a total of 2028 of which male 1144(56.4%) and female 884(43.6%). In both primary and secondary schools, the participation female student was smaller than male. As the level of education increase there was small number of student i.e. there were smaller number of student at secondary school than primary school and preparatory school.

Diarrhea (non-bloody) with 2518 (22.82%) next to Acute upper respiratory infection with 3070(27.82%) was the leading cause of morbidity under 5 years , The highest proportion of diarrheal in the town might be attributed to the poor hygiene and sanitation practices of children under 5 years in the town.

The coverage of ANC 1535(122%), PNC 1278(102%),and PMTCT 1315(105%) and BCG(127%) ,measles (126%) and PENT 3(133.5%) ,the EPI and ANC coverage for pregnant mothers was above the target ,this is because that since the district was the only town of nearby rural districts so that the population from the surrounding district ,from dewa chefa and Artuma fursi woreda get the service from town health center , as a result of this the coverage was above the target . The ANC coverage was higher than PMTCT this is because of mothers of who get the ANC service cannot test for PMTCT.

The town was one of the malarious district and all the 7 kebeles were malarious. The ITN coverage as per the standard was 100%.The coverage of indoor residual spray was 80.5% The total malaria case seen in the town were 1504 malaria cases .specially during summer season from September-November the number of malaria cases above the threshold level in each year.

A total of 151 TB cases were in the town and all of them were screened for HIV and 26(17.2%) were positive for HIV .The prevalence of Leprosy was 7(0.018%) in the town during 2014/2015. Detection rate was more than the target; whereas the cure rate and success rate less than 100% this may be due to follow problem up and lack adherence to drug.

The coverage of VCT is higher than PICT and PMTCT out of the total 9982 screened for HIV 117 were positive for HIV and the positivity rate was 1.17%. When we compare the HIV prevalence of the town with the Amhara region (1.3%) and national HIV prevalence (1.2%) the town has lower prevalence. There were a total of 994 people living with HIV/AIDS 991(99%) of them was on ART. A total of 117360 condom was distributed in the town to reduce transmit ion of HIV and other communicable disease.

The river crossing the border of the town disturbs the town during summer season by flooding some part of the town frequently up to 200 house hold displace from there house for 1-2 months at least once per 2-3 years .

The waste disposal system of the town had critical problem, there was no appropriate place assigned for disposing solid west of the town.

CONCLUSION

- Participation of female student was less than male student and most of the student in primary school was not joining secondary school.
- Non-diarrhea was second leading cause of morbidity for under five children
- The child EPI coverage and ANC coverage for pregnant mothers was above the target
- The HIV prevalence of kemissie town lower than Amhara region and national prevalence.
- There was a problem on TB cure success rate and success rate
- The town had frequent attack of flooding
- The waste disposal system of the town had critical problem

RECOMENDATION

- ✓ Educational sector should care attention to female and primary school student by arranging tutor class and other promotion mechanism to improve their participation to the next higher level.
- ✓ The health extension workers of the town should focus on house to house hygiene and sanitation practices of children under 5 years in the town to reduce the diarrhea burden.
- ✓ Capacity building for TB care provider in the health center and continuous counseling for TB patient to improve treatment outcome.
- ✓ The administration of town and the region has assign budget for construction of the river canal crossing the border of town to reduce the flooding attack.
- ✓ The municipality of the town in collaboration with town health office should rearrange the waste disposal site.

Chapter V—Scientific Manuscript for peer reviewed journals

5.1 SURVIELANCE DATA ANALYSIS ON SEVER ACUTE MALNUTRITION IN OROMIA ZONE AMHARA REGION NORTH WEST ETHIOPIA, from July/2011-June/2016

ABSTRACT

Titles: SURVIELANCE DATA ANALYSIS ON SEVER ACUTE MALNUTRITION IN OROMIA ZONE AMHARA REGION NORTH WEST ETHIOPIA, from July/2011-June/2016

Authors: **Aliy E. Ahmed[1], Teklehaymanot G. Kidanemariam [2]**

Authors Affiliation: **[1]Ethiopian Field Epidemiology Training Program, Addis Ababa University School of Public Health, [2] Amhara National Health Bureau Public Health Emergency Management Early warning Officer.**

INTRODUCTION*:* Malnutrition is the outcome of insufficient food intake, inadequate care and infectious diseases. Globally it is estimated that more than 19 million children severely acutely malnourished. In Ethiopia it is estimated that malnutrition contributes to an estimated 270,000 deaths of under-five children each year. We aimed to analyze and describe the distribution of sever acute malnutrition among children age under five.

METHODS: we conducted analysis of severe acute malnutrition of under-five children in oromia zone from January 20-30/2016 by using cross sectional study design. We used structured questionnaire to collect data and descriptive analysis were under taken.

RESULTS: The highest SAM case from the total five years was reported during the year 2015/2016 (3975) 716 per 100,000 SAM cases. The coverage of OTP admition from the target of under-five children was (53.5%).The recovery rates of majority districts were more than 80% but only Kemissie and Jile tumuga districts had less than 80% that were 78.8% and 77% respectively. The death rate of majority districts range from (0-0.95%) but only Bati rural district had the highest (2.65%) in 2013/2014. The defaulter of this zone was (4.49%) and the highest defaulter rate of SAM was reported in Bati rural and jile tumuga with 16.3% and 14.5% respectively.

Conclusion The recovery rate and the defaulter and the death rate was with in the acceptable sphere standard, this indicate that the OTP program to somehow effective in this zone and we recommend proper implementation of OTP program.

Key words: Severe acute malnutrion, kemissie, descriptive study, secondary data

Word count: 241

INTRODUCTION

Malnutrition is a broad term commonly used as an alternative to under nutrition, but technically it also refers to over nutrition. People are malnourished if their diet does not provide adequate nutrients for growth and maintenance or they are unable to fully utilize the food they eat due to illness (under nutrition). They are also malnourished if they consume too many calories (over nutrition).here this study focus on under nutrition

Under nutrition is the outcome of insufficient food intake, inadequate care and infectious diseases. It includes being underweight for one‟s age, too short for one‟s age (stunting), dangerously thin for one‟s height (wasting) and deficient in vitamins and minerals (micronutrient deficiencies).

Globally it is estimated that, directly or indirectly, for at least 35% of deaths in children less than five years of age. Over two-thirds of these deaths, which are often associated with inappropriate feeding practices, occur during the first year of life. Under nutrition is also a major cause of disability preventing children who survive from reaching their full development potential(3) . It is estimated that more than 19 million children around the world are severely acutely malnourished at any one time. These children have a greater than nine fold increased risk of dying compared to a well-nourished child (5). In developing countries nearly one-third of children are underweight or stunted. Under nutrition interacts with repeated bouts of infectious disease, causing an estimated 3.5 million preventable maternal and child deaths annually and its economic costs in terms of lost national productivity and economic growth are huge(1) .
In Ethiopia It is estimated that malnutrition contributes to an estimated 270,000 deaths of under-five children each year (6). Many nutritional studies have demonstrated that malnutrition in Ethiopia is serious and 44% of children were stunted, 10% wasted and 29% underweight with wide regional variations, in Amhara National Regional State stunting, wasting and underweight were found as 52%, 9.9% and 33.4%, respectively (6).

Analysis of severe acute malnutrion data was not conducted in this oromia zone of Amhara region previously hence the data will help to explain the trend of severe acute malnutrition and the zonal profile of the malnutrition. The objective of this study is to analyze and describe the distribution of sever acute malnutrition among children age under five and to evaluate the

effectiveness of the efforts mitigated to halt the burden of malnutrition at oromia zone Amhara region from July 2011-June/2016 G.C.

Methods

Study area: we conducted analysis of severe acute malnutrition data reported from Oromia zone. Oromia zone is one the zone of Amhara region and this zone is found in kemissie administrative town with total population 554608 male 271757 and female 282851 which is located in northern part of Ethiopia and which is 325 km far away from Addis Ababa , the capital city of Ethiopia and 570 kms from regional town Bahir Dar. It has a total of 7 districts with 5 rural districts and 2 town districts.

Study design:-The study was conducted from January 20-30/2016 by using cross sectional study design .we officially request and received 5 years data (July/2011-June/2016) severe acute malnutrion data of oromia zone from zonal health department. The target population was all under-five children in this oromia zone and the study population was all under five malnutrition children in oromia zone .This zone selected to do severe acute malnutrion because this zone is the drought area from Amhara region and the problem of malnutrition is one of the most serious problem in this zone . Structured questionnaire was used to collect data for severe acute malnutrition from CBN and OTP program monthly report. Every available data were collected from the zonal health department, nutrition case team that provided monthly report and other partners concerning to the secondary data.

Data analysis: The data was primarily collected by principal investigator and co-investigator. Prior to entering the data in to the computer the missing variables and consistency of filling of questionnaires and completeness of data was checked every day during data collection. Data was entered and analyzed using Microsoft excels and ArcGIS was used to show study area. After data cleaning and recoding descriptive analysis were under taken .

RESULT

The study included all children from 6-59 month eligible children who had been managed for SAM under the OTP program. Majority of the children were admitted with MUAC <11 and edema. The study asses the five years SAM analysis beginning from July/2011-June/2016 .

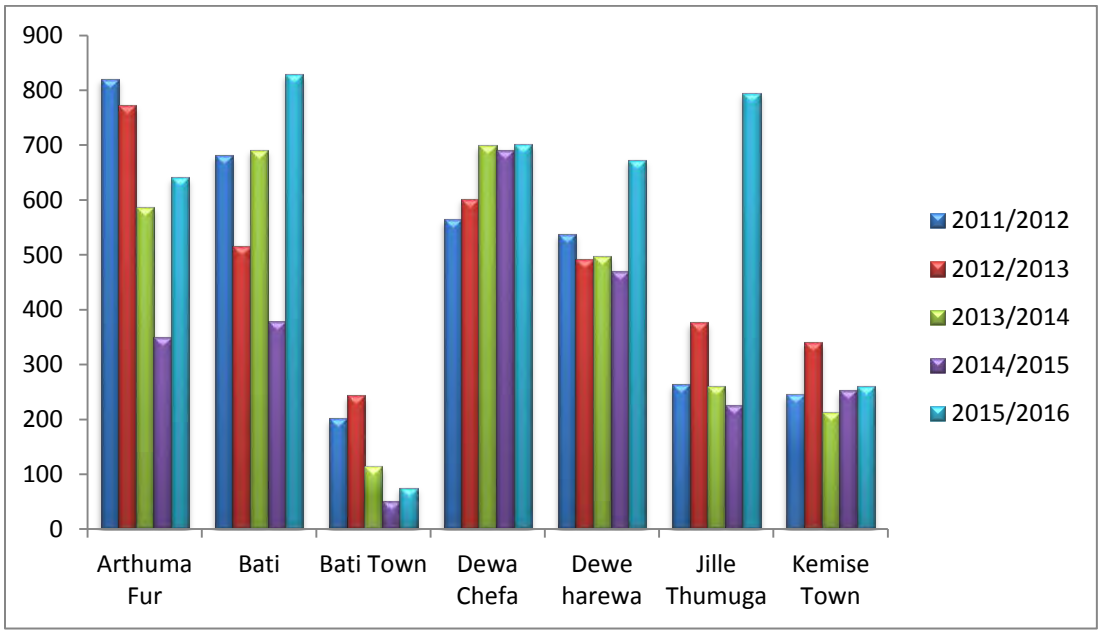

Figure 32: Number SAM cases by woreda and year in under-five children in Oromia zone Amhara region, July/2011-June/2016 G.C.

The highest number of SAM case was reported during the year 2011/2012and 2012/2013 from Artuma fursi districts that was 821and 773 respectively. But bati town and kemissie town had lowest SAM case throughout the whole 5 years. Generally from the total 5 years highest peak of severe acute malnutrition was reported in Bati rural districts on 2015/2016 which was 829.

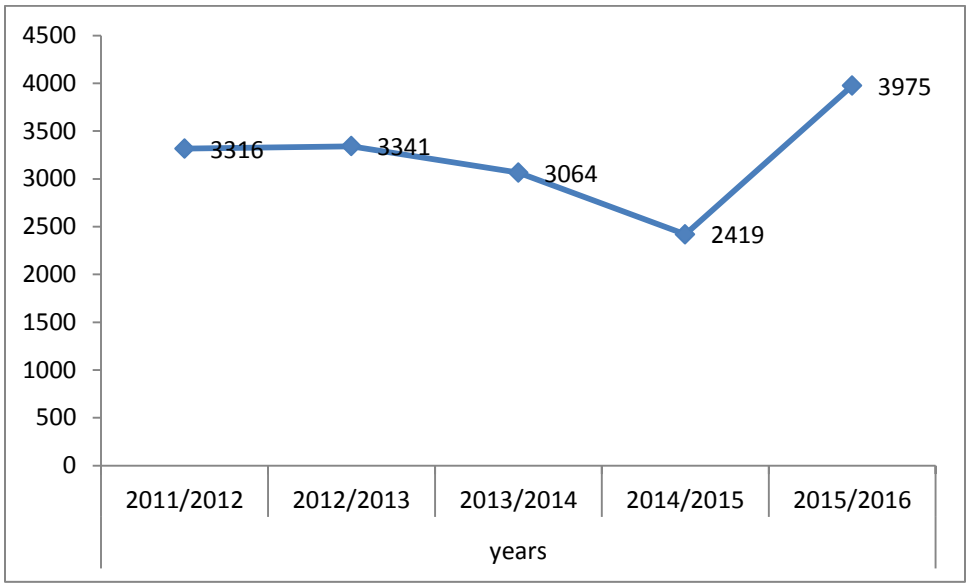

Figure 33: Trend of Zonal Malnutrion cases by year in Oromia zone, July/2011 – June/2016

There was almost similar SAM cases was reported during the year 2011/12(3316), 2012/13(3341) and 2013/14(3064) but there was slight decrement during the year 2014/15(2419) and finally the highest SAM case was reported during the year 2015/16 that was 3975 (716 per 100000) SAM cases .

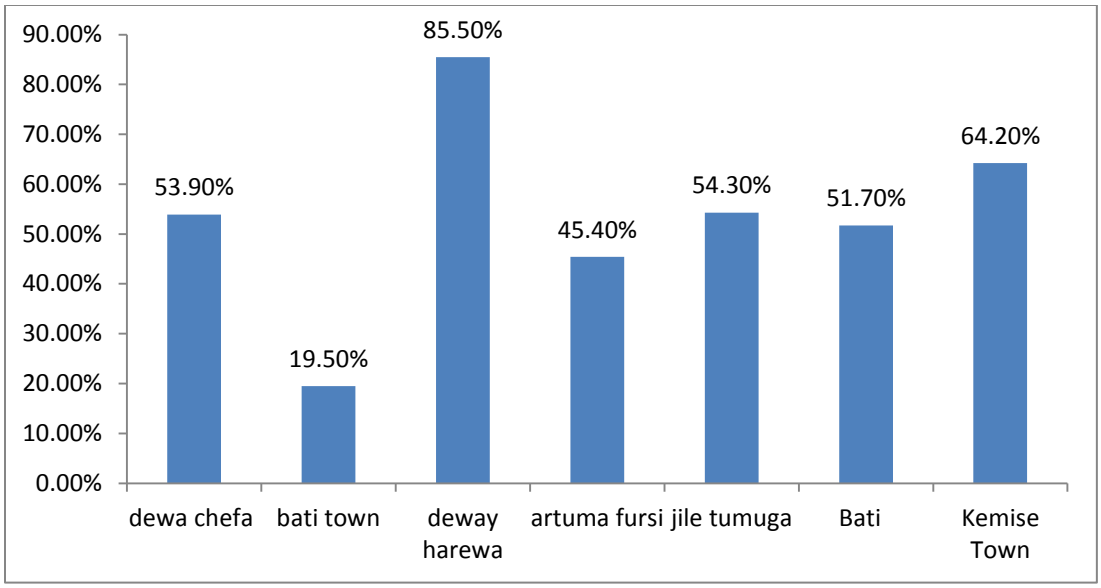

Figure 34: Percent of OTP admition from the target of under-five children, oromia zone Amhara region, North West Ethiopia July/2011-June/2016G.C.

The coverage of OTP admition from the target of under five children was higher in deway harewa (85.5%) and kemissie town (64.2%) but even though the number of SAM case were higher in dewa chefa and Artuma fursi district they do have lower OTP admition coverage (53.9%) and (45.4%) respectively and bati town had the lowest (19.5%) OTP admition coverage

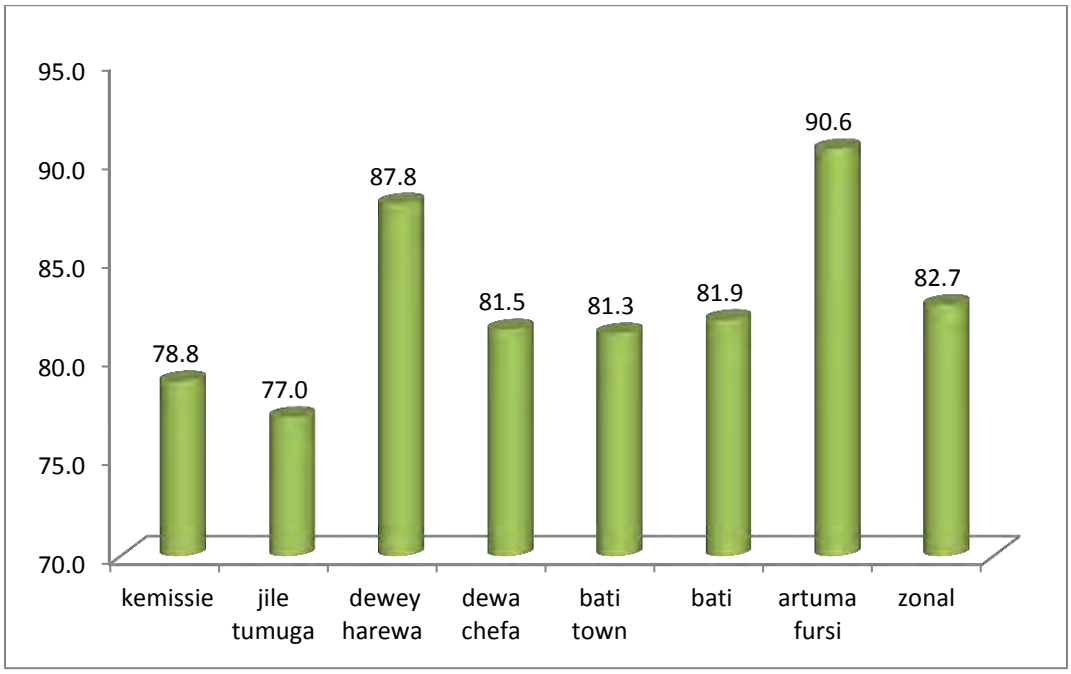

Figure 35: Recovery rates SAM under 5 children in Oromia zone by district July/2011-June/2016 G.C

The recovery rate of majority districts were more than 80% but only Kemissie and Jile tumuga districts had less than 80% that were 78.8%and 77% respectively .

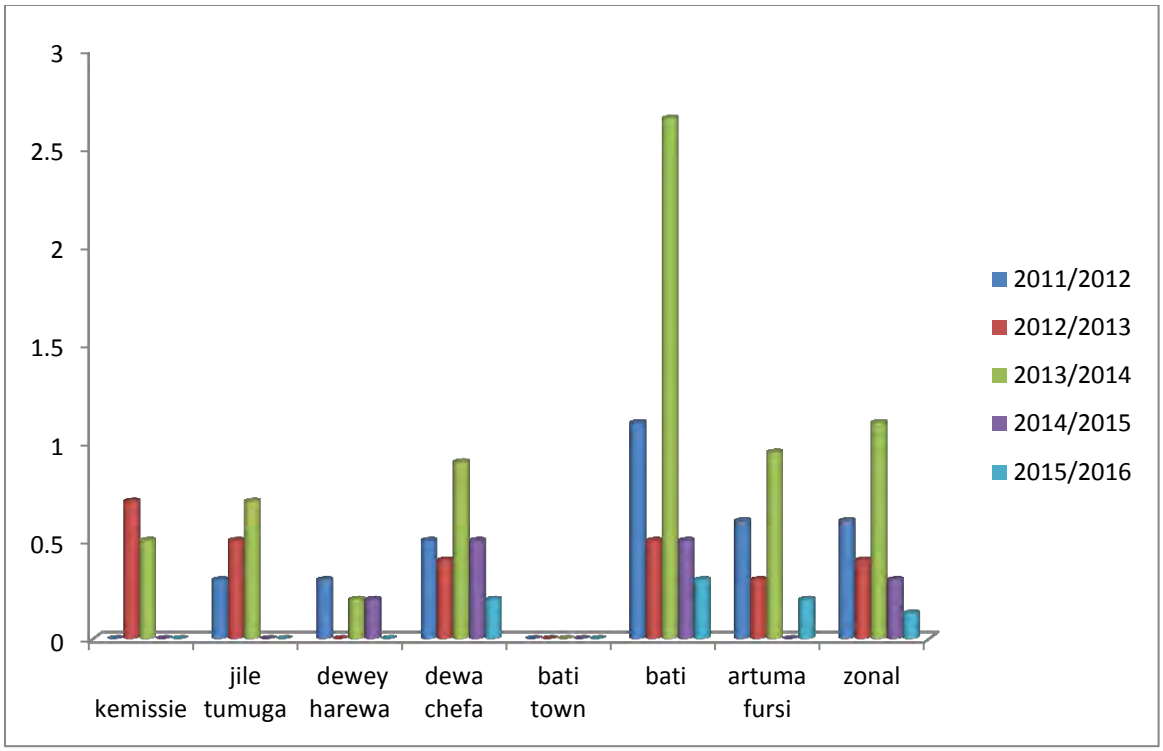

Figure 36: Death rates of SAM under 5 children in oromia zone by district July/2011-June/2016 G.C.

The death rate of majority districts range from (0-0.95%) but only Bati rural district had the highest death rate in the year 2013/14 which was (2.65%). Except Artuma fursi, dewa chefa and bati rural district the remaining 4 district did not have any death in the year 2015/16 and bati town did not have any death in the 5 consecutive years.

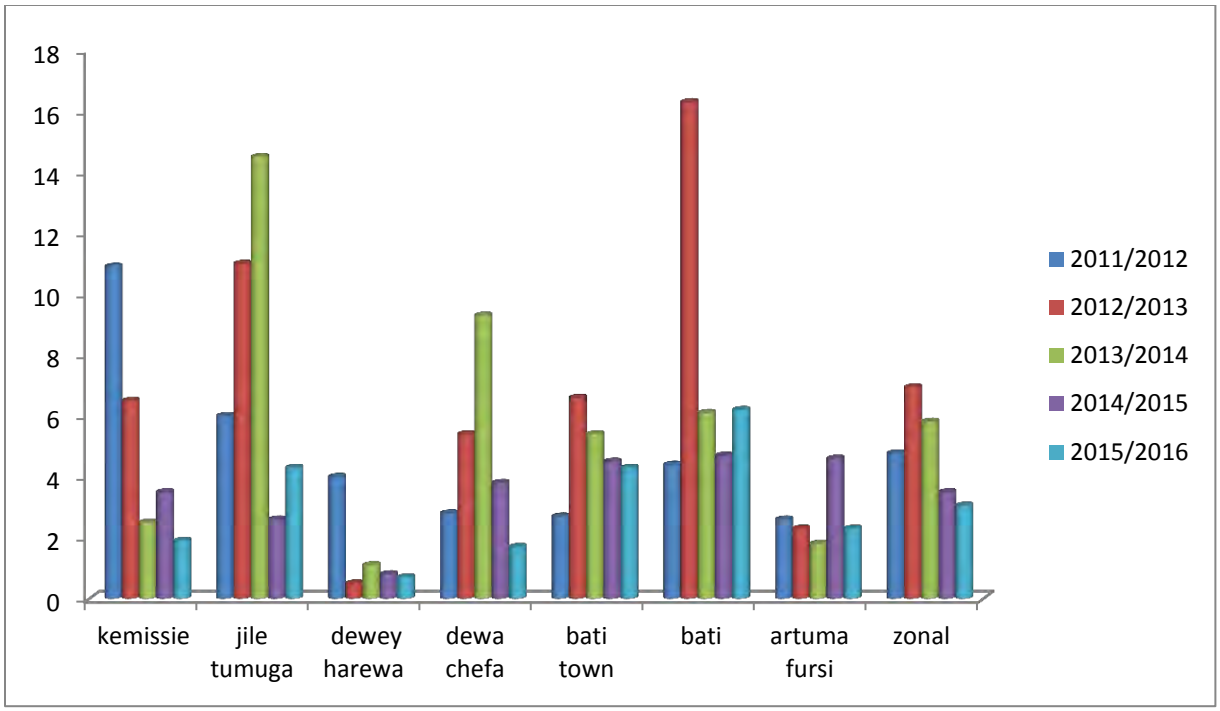

Figure 37: Defaulter rate of SAM in under-five children by woreda in oromia zone, July/2011-June/2016 G.C.

The highest defaulter rate of SAM was reported during the year 2012/13 and 2013/14 Bati rural, jile tumuga and kemissie town had high defaulter rate with 16.3%, 14.5% and 10.9% respectively.

Table 10: The comparison of the study results zonal summary with international Standards, June/2011-June/2016, oromia zone Amhara region, North West Ethiopia

Indicators	Results	Sphere standard	
		acceptable	Alarming
Proportion of children who recovered from severe acute malnutrition after treated in OTP (Recovery rate)	84.2%	>75%	<50%
Proportion of severe acute malnourished children who died while under the OTP intervention (death rate)	0.47%	<10%	>15%
Proportion of severe acute malnourished children who defaulted from the OTP (defaulter rate)	4.49%	<15%	>25%

Discussion

The study included all children from 6-59 month eligible children who had been managed for SAM under the OTP program and the five years SAM analysis beginning from July/2011-June/2016 was used .Based on this when we compare 5 years data of under-five severe acute malnutrition case the highest number of SAM case (3975) was reported in 2015/16. this may be due to the occurrence of Elino in 2014/15 there was shortage of rain fall as a result of this there was shortage of food supply .this finding was similar with the study in lalibela town administration ,north wello zone ,northern Ethiopia(5)

The overall death rate (0.47%) of this study is within the acceptable sphere standard (<10%) and this study was lower than similar studies conducted in dilla referral hospital south Ethiopia,2013 (9). The overall death rate should be even zero, but some children might be with medical complication and improper states of management of cases may contribute to the increased mortality rates of the children.

The Proportion of severe acute malnourished children who defaulted from the OTP (defaulter rate) in this study is (4.49%) within the acceptable range of the international standard which was (<15%). The overall defaulter rate in this study is also lower as compared to similar study conducted on RUTF based therapeutic feeding program Tigray northern -Ethiopia (13.85%) (10)[]. This might be because the distance from home to RUTF site (health post /health center) were short and the care giver gives more attention to OTP program so that applying strict follow ups on the children under treatment could result to better outcomes. But in contrast to this during 2004 bati woredas in this zone defaulter rate was more higher than the standard and even higher than the study done in Tigray, this may be due to this woreda has hard to reach area, even there were site that take up to 6 hours to get RUTF site , so that the care givers interrupt the program .

The recovery rate in this study was (84.22%) it was higher than the lower threshold of international standard which was (>75%).this finding was higher than finding from Tigray, northern-Ethiopia which was (61.78%) (10). This may due to care givers did not share the plumpy nut with other member of the house hold and promote to consume then right amount of food.

Conclusion

More than 3000 of under-five children affected by severe acute malnutrition in oromia zone yearly and need proper implementation of OTP program. The recovery rate were higher than the international sphere standard and also the defaulter and the death rate was even lower than the minimum acceptable sphere standard ,this indicate that the OTP program to somehow effective in this zone.

Recommendation

Supplementary feeding program has to be introduced in all districts of oromia zone and proper implementation of OTP program to reduce the problem of severe acute malnutrition case. Hard to reach area should be given special attention to minimize the defaulter rate and death rate of OTP program, specially defaulter rate of bati woreda. Health extension worker house to house monitoring of usage of plumpy nut of malnutritioned children .

Acknowledgment

First my deepest gratitude also goes to my mentors DR.Niguse and Mr. Teklehaymanot Gebrehiwot for every support they provided to me.

Finally, I would like to acknowledge Oromia zonal health department for their help during my data collection.

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Chapter VI: ABSTRCT FOR SCINTIFIC PRESENTATION

6.1 SURVIELANCE DATA ANALYSIS ON SEVER ACUTE MALNUTRITION IN OROMIA ZONE AMHARA REGION NORTH WEST ETHIOPIA, from July/2011-June/2016

Titles: SURVIELANCE DATA ANALYSIS ON SEVER ACUTE MALNUTRITION IN OROMIA ZONE AMHARA REGION NORTH WEST ETHIOPIA, from July/2011-June/2016

Authors: **Aliy E. Ahmed[1], Teklehaymanot G. Kidanemariam [2]**

Authors Affiliation: **[1]Ethiopian Field Epidemiology Training Program, Addis Ababa University School of Public Health, [2] Amhara National Health Bureau Public Health Emergency Management Early warning Officer.**

INTRODUCTION*:* Malnutrition is the outcome of insufficient food intake, inadequate care and infectious diseases. Globally it is estimated that more than 19 million children severely acutely malnourished. In Ethiopia it is estimated that malnutrition contributes to an estimated 270,000 deaths of under-five children each year. We aimed to analyze and describe the distribution of sever acute malnutrition among children age under five.

METHODS: we conducted analysis of severe acute malnutrition of under-five children in oromia zone from January 20-30/2016 by using cross sectional study design. We used structured questionnaire to collect data and descriptive analysis were under taken.

RESULTS: The highest SAM case from the total five years was reported during the year 2015/2016 (3975) 716 per 100,000 SAM cases. The coverage of OTP admition from the target of under-five children was (53.5%).The recovery rates of majority districts were more than 80% but only Kemissie and Jile tumuga districts had less than 80% that were 78.8% and 77% respectively. The death rate of majority districts range from (0-0.95%) but only Bati rural district had the highest (2.65%) in 2013/2014. The defaulter of this zone was (4.49%) and the highest defaulter rate of SAM was reported in Bati rural and jile tumuga with 16.3% and 14.5% respectively.

Conclusion: The recovery rate and the defaulter and the death rate was with in the acceptable sphere standard, this indicate that the OTP program to somehow effective in this zone and we recommend proper implementation of OTP program.

Key words: Severe acute malnutrion, kemissie, descriptive study, secondary data

Word count: 241

Chapter VII – Narrative Summary of Disaster situation visited

Meher Human Health and Nutrition (non-food part) Emergency need Assessment, Oromiya zone, Amhara region, 2016

Abstract

Introduction To cope with any humanitarian crisis, the government together with partners conducts frequently assessments; in areas of public health concern and hot spot areas; oromia zone is one of the hot spot area and public health concern zone in Amhara region .We aimed to identify existing or potential emergencies or threats that could be related to rainfall performance during the recent "meher" and other seasonal causes.

Method; we conducted the meher assessment in oromia zone of Amhara region from December 23-November 10/2016. Checklist format and semi structured questionnaire were used for rapid emergency needs assessment on existing and potential emergencies on health, nutrition, water –sanitation situations. In addition to the formatted checklists, observations and discussions (brief and debrief) with stakeholders, and concerned experts of respective sectorial offices also made.

Result: All districts did not have functional Public Emergency Multi Sector Committees. During the last three month there was AWD outbreak in Jile tumuga and Artuma fursi district the total cases reported in jile tumuga 65 cases and 23 cases in Artuma fursi begging from August 2 – September 20/2009. A total of 20 measles cases without death were reported from Artuma fursi, kemissie town, dewa chefa and jile tumuga. The drugs with likely shortage are Tetracycline eye ointment for measles cases treatment, Lab reagent geimsa stain for malaria, CTC kit set not complete and malaria spray chemicals shortage.

***Key words*: Disaster management, oromia zone, descriptive study**

Word count: 224

Conclusion There was no proactive PHEM coordination forum almost in all assessed areas and limitations on early preparation of EPRP in case to mobilize resources during emergency. The most anticipated diseases/conditions that could occur as outbreaks are malaria, measles and Acute Watery Diarrhea (AWD) and flooding condition.

BACK GROUND

Oromia zone is one of the zones the Amhara region found in kemissie administrative town with total population 554608 male 271757 and female 282851 which is located in northern part of Ethiopia which is 325 km far away from Addis Ababa, the capital city of Ethiopia and 570 kms from regional town Bahir Dar. It has a total of 7 districts with 5 rural districts and 2 town districts and sub divided in to 105 kebeles.

To cope with any humanitarian crisis, the government together with partners conducts frequently assessments; in areas of public health concern and hot spot areas; oromia zone is one of the hot spot area and public health concern zone in Amhara region.

This assessment was took place as part of the meher needs Assessment of Oromia zone ; if situations of threats are prevailing and to fill gaps for the period of one years , from November 2016 to December 2017. The study was conducted between October 23-November 10/2016. whether disease outbreaks or other health emergencies including wide spread malnutrition, usually follow after emergency events due to natural or manmade disasters. During emergency conditions, access to safe water, Nutrition and sanitary facilities are major challenges. If proper measures are not undertaken, the lack of Nutrition, safe water and sanitary facilities could lead to undesirable effects in fulfilling daily needs; and could lead to increased morbidity and mortality due to SAM, food and water borne diseases.

This assessment is crucial to learn from and anticipate and assess the magnitude of the emergency threats and accordingly to make necessary interventions, plans and preparations so that to early prevent unnecessary life and socio-economic damage. Accordingly, this emergency needs assessment was performed primarily in meher producing districts of the zone; with the

objective to identify existing or potential emergencies or threats that could be related to rainfall performance during the recent "meher" and other seasonal causes.

Objectives

General objectives

To assess and identify public health emergency needs of the oromia zone

Specific Objectives

- To identify existing resources and the capability to cope with circumstances
- To identify major public health concern, potential outbreaks and at risk population
- Assess the magnitude and likelihood of the emergencies in the meher producing hot spot districts.

METHODS

STUDY AREA

The assessment was conducted in oromia zone of Amhara region. From this zone six districts were visited based on their risk trend. Oromia zone is one of the zones in Amhara region and it is found in kemissie administrative town with total population 554608 male 271757 and female 282851 which is located in northern part which is 325 km far away from Addis Ababa, the capital city of Ethiopia and 570 kms from regional town Bahir Dar. It has a total of 7 woredas with 5 rural woredas and 2 town districts.

Figure 38: Map of Oromia zone, Amhara region, 2016

STUDY PERIOD

The assessment was conducted from December 23-November 10/2016

THE STUDY DESIGN AND PROCEDURE

The meher assessment was conducted using a checklist format and semi structured questionnaire for rapid emergency needs assessment on existing and potential emergencies on health, nutrition, water –sanitation situations. In addition to the formatted checklists, observations and discussions (brief and debrief) with stakeholders, and concerned experts of respective sectorial offices also made. Data were collected from districts Health Offices using semi-structured checklist, observations and discussions. In addition, information was considered from district Administrations and Agriculture and Rural Development Offices.

Result

Socio- Demographic profile

Assessment Population Profile

The total population of the assessed districts was 522,293: of which 69,087 were children less than five years of age and 17,601 expected pregnancy.

Table 11: Population distribution of rapid meher needs assessed districts, oromia zone, Amhara Region, June, 2016.

s.no	WOREDA	M	F	<5 years	Women of(15-49)	Exp. pregnancy	TOTAL
1	Artuma fursi	49122	51128	11937	20742	3378	100250
2	Dewa chefa	74537	74630	20203	35174	5027	149167
3	Jile tumuga	43198	44691	11937	45331	2971	88159
4	Dewey harewa	24657	25080	6734	11728	1676	49737
5	Bati	45966	50452	13055	22176	3249	96418
6	Kemissie town	18895	19667	5221	9093	1300	38562

Health profile

COORDINATION

All districts did not have functional Public Emergency Multi Sector Committees In addition the entire assessed district had public health emergency and preparedness plan and their plan is supported by budget.

ASSESMENT FINDING

TOP FIVE CAUSE OF MORBIDITY

Table 12: Top five cause of morbidity by district, oromia zone Amhara, 2016.

District	Rank	Top five cause of morbidity	
		Under 5	Above 5
Jile tumuga	1	non bloody diarrhea	AURTI
	2	Acute upper respiratory infe	dyspepsia
	3	Pneumonia	UTI
	4	Malaria	AFI
	5	Helmentiasis	MALARIA
Deway harewa	1	non bloody diarrhea	AFI
	2	Pneumonia	DYSEPSIA
	3	AFI	MALARIA
	4	AURTI	OTHER or unspecified infection
	5	Dysentery	AURTI
Dewa chefa	1	non bloody diarrhea	AURTI
	2	Pneumonia	DMSSand CT
	3	AFI	AFI
	4	AURTI	dyspepsia
	5	Dysentery	helmentiasis
Bati	1	non bloody diarrhea	non bloody diarrhea
	2	Acute upper respiratory infe	AFI
	3	Pneumonia	URTI
	4	Malaria	DYSPESIA
	5	Helmentiasis	pneumonia
Artuma fursi	1	non bloody diarrhea	malaria
	2	Acute upper respiratory infe	AFI
	3	other unspecified infection	dyspepsia
	4	Malaria	d/ of muscular system and connective tissue
	5	AFI	UTI
Kemissie town	1	non bloody diarrhea	AURTI
	2	Acute upper respiratory infe	AFI
	3	Pneumonia	UTI
	4	AFI	dyspepsia
	5	other un specified infectious	non bloody diarrhea

Outbreak

There was no ongoing outbreak in all Districts of oromia zone but during the last three month there was AWD outbreak in Jile tumuga and Artuma fursi district the total cases reported in jile tumuga 65 cases and 23 cases in Artuma fursi begging from August 2 –September 20/2009. There was 1 death of AWD in Artuma fursi woreda.

MAJOR EPIDEMIC PRONE DISEASE

MALARIA

Still malaria prevalence is very high in many of visited districts of which Artuma fursi takes the lead among assessed districts of oromia zone followed by dewa chefa district.

MEASELS

A total of 20 measles cases without death were reported from Artuma fursi, kemissie town, Dewa chefa and jile tumuga.

Table 13: Case/death trend of outbreak prone diseases by month, meher season assessed districts, oromia zone, Amhara Region, sep/2016

Month	AWD				MEASELS			
	ARTUMA FURSI		JILE TUMUGA		Artuma fursi	kemissie town	dewa chefa	Jile tumuga
	cases	Death	Cases	Death	Cases	Cases	Cases	Cases
Jan	0	0	0	0	0	0	5	1
Feb.	0	0	0	0	0	0	7	0
Mar	0	0	0	0	0	2	0	0
April	0	0	0	0	0	0	0	0
May	0	0	0	0	3	0	0	0
June	0	0	0	0	0	0	0	0
July	0	0	10	0	0	0	0	0
August	20	1	31	0	0	0	0	0
Sep	3	0	24	0	0	0	0	2
Total	**23**	**1**	**65**	**0**	**3**	**2**	**12**	**3**

Nutrition status

Based on information obtained from districts and existing Therapeutic Feeding Programs (TFP) data, the nutrition situation in six districts of zones was critical problems.

Potential Public Health Threats

The most anticipated diseases/conditions that could occur as outbreaks are malaria, measles and Acute Watery Diarrhea (AWD) and flooding condition.

Malaria: The risk factors for malaria are that all the visited districts are malaria endemic and have risk factors for malaria transmission, such as, favourable mosquito breeding sites like interrupting rivers or potentially interrupting rivers, and unprotected irrigation. In appropriate bed net usage also risk for malaria.

Measles: The risk factors for measles outbreak are that because many districts have reported sporadic measles during the last six months. In 2016, many districts reported measles cases. Majority of the cases were child and that the increased cumulative susceptible child population is a challenge for measles control. All these indicators and factors increase the risk of measles transmission in the zone.

AWD: In oromia zone, there was 88 AWD case in 2016. The most favorable conditions for AWD transmission is poor hygiene and sanitation and low latrine coverage and utilization and existing indicators that is diarrheal diseases are among the top leading causes of morbidity. Therefore, attention shall be given to AWD risk prevention and control; as the disease is highly communicable and could be transmitted from other neighboring region, specially from afar region because afar region had a history of frequent occurrence of AWD.

FLOODING: For the last 3 years there was flooding condition in three districts, in dewa chefa, Artuma fursi and kemissie town .In dewa chefa district 2 kebeles, 3 kebeles from Artuma fursi and 1 kebeles from kemissie town were at risk for flooding.

Table 14: Anticipated epidemics in oromia zones Amhara Region, 2016 G.C .

Anticipated epidemic	Districts	Risk population
Malaria	Dewa chefa, Artuma fursi, bati ,Dewey harewa, kemissie town and jile tumuga	522,293
AWD	Jile tumuga ,Artuma fursi ,kemissie town and dewa chefa	376,135
Measles	Dewa chefa, bati ,kemissie town and jile tumuga	372,306
Malnutrition	Dewa chefa, Artuma fursi, bati ,Dewey harewa, kemissie town and jile tumuga	522,293
Flooding	Dewa chefa ,Artuma fursi and kemissie town	60,403

Availability of Drugs and Medical Supply for initial Emergency Management

Most of the drugs required for outbreak prone diseases are available in stock in all districts. However, all visited districts do not have Emergency reproductive health kits .The drugs with likely shortage are Tetracycline eye ointment for measles cases treatment, Lab reagent geimsa stain for malaria, CTC kit set not complete .(specially cholera bed and cholera net baldi ,shortage of disinfectant) Malaria spray chemicals shortage (in dewa chefa,bati and deway harewa district) ,Shortage of supplies like aqautabs and water guards.

Generally, the districts Health Offices think that they have put drug stocks for possible disease outbreaks, and would be able to manage limited cases at initial stages of outbreak.

MALNUTRITION

The malnutrition status due to food insecurity problems in the meher producing areas, majority of districts need close monitoring of the nutrition situation for early detection and response particularly those drought prone so that to avoid severe consequences of malnutrition.

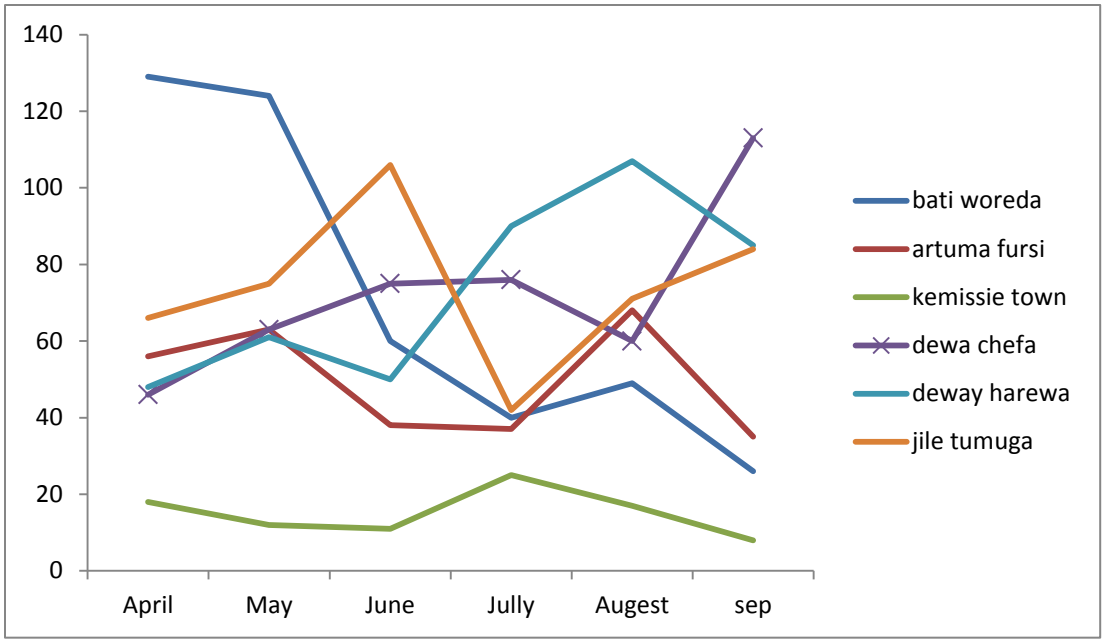

Figure 39: Admission of the therapeutic feeding programme for SAM management, oromia zone, Amhara region, Jan 2016-sep2016.

Public health emergencies

The emergency coordination system in the visited districts is relatively weak. All districts did not have functional Public Emergency Multi Sector Committees, only when there is out break occur they meat together Majority of the districts have Emergency Preparedness and Response Plans (EPRPs) in place and supported by budget. All report on regularly bases based on the national PHEM guidelines. All districts also report that they have reserve medical stocks for possible emergencies and would be able to manage limited cases at initial stages of outbreak ,but there are some supply that were on shortage. The emergency committees need to be proactive than it currently does, only reactive when any outbreak occurs.

CONCLUSION

There was no proactive PHEM coordination forum almost in all assessed areas and limitations on early preparation of EPRP in case to mobilize resources during emergency.

The most anticipated diseases/conditions that could occur as outbreaks are malaria, measles and Acute Watery Diarrhea (AWD) and flooding condition.

There are some drugs with likely shortage are Tetracycline eye ointment for measles cases treatment, Lab reagent geimsa stain for malaria, CTC kit set not complete.

The malnutrition status due to food insecurity problems in the meher producing areas was critical problems.

RECOMMENDATION

- PHEM coordination forum should have continuous meeting and early preparation of EPRP to mobilize resources during emergency
- Special attention has to be given on malaria breading site and bed net utilization.
- Measles surveillance and vaccination has to be covered effectively to reduce the measles outbreak.
- District health office and health extension worker should focus on hygiene and sanitation of the community.
- Drugs and supply with shortage has to be availed in short period of time either by purchasing or from regional health bureau.
- Monitoring of the nutrition situation for early detection and response particularly those drought prone so that to avoid severe consequences of malnutrition.

CHAPTER VIII –Protocol/Proposal for Epidemiologic Research Project

Prevalence of intestinal shistosomiasis and the risk factors associated with shistomiasis among elementary school children in Artuma fursi district of oromia zone, Amhara region, North West Ethiopia.

Addis Ababa
University Faculty
of Medicine School
Of Public Health
Master of Public
Health Research
Project

This Proposal Submitted to the School of Public Health Addis Ababa University in Partial Fulfillment of the Requirements for the Degree of Masters in Field Epidemiology.

Name of investigator	ALIY ENDRISS AHMED (BSc)
Name of advisors	Dr. Niguse Deyessa (PHD) Mr. Teklehaymanot Gebrehiwot Kidanemariam(MPH)
Full title of the research project	Prevalence of intestinal shistosomiasis and the risk factors associated with shistomiasis among elementary school children in Artuma fursi district of oromia zone, Amhara region, North West Ethiopia**.**
Duration of the project	Four months
Study area	Elementary schools in Artuma fursi, oromia zone ,North West Ethiopia
Total cost of the project	5000 USD**$**
Address of the investigator	Phone 0913423506 Email- aliyendriss@gmail .com

Back ground

Shistosomiasis is a parasitic disease that leads to chronic infection. Human infection is initiated during water exposure (planting, fishing, washing, and swimming) that contains the free-living infective stage of the parasite, cercaria. Different strategies have been used to prevent this debilitating disease. The primary health care approach has been used by a number of countries in Africa and other endemic regions of the world. It was based on the fact that development of irrigation schemes, dam construction for hydroelectric power, water conservation for different purposes, human behaviors such as swimming habits and improper waste disposal, poverty like use of river water for different purposes, and wide distribution of intermediate host were identified as the major contributing factors for the increased prevalence and wide distribution of shistosomiasis(1) .

Patients infected with S. mansoni develop granuloma around the egg and the Schistosoma antigens in the intestine and liver. The granuloma is followed by fibrosis, and chronic inflammation in the liver, leading to portal hypertension, causing liver disease, ascites, and

oesophagogastric haemorrhage. Renal failures due to antigen antibody complex and exposure to secondary bacterial or viral infection were observed in some chronically infected individuals(2).

Globally 500–600 million people are at risk of infection and 200 million peoples are infected with shistosomiasis; 85% of the cases are found in 41 countries of Africa (3). In Ethiopia and Eritrea the population living under the risk of infection with *Schistosoma mansoni* (*S. mansoni*) was estimated to be 19 million(4) .

Praziquantel is primarily used for treating people with *S. mansoni* infections [4]. It is helpful not only to recognize the prevalence of shistosomiasis but also identify the risk factors of shistosomiasis. A review of literatures on prevalence of *S. mansoni* documented rates that range from less than 1% up to more than 90% in Ethiopia(5). This study is aimed to provide the current epidemiological information on *S. mansoni* and associated risk factors among elementary students in chefa town, Artuma fursi district, Amhara Northwest Ethiopia.

OBJECTIVES

GENERAL OBJECTIVES

To determine the prevalence of shistosomiasis and to identify the risk factors for the occurrence of shistosomiasis.

Specific objectives

- To determine the prevalence of shistosomiasis
- To characterize the shistomiasis by place, person and time
- To analyze risk factors for the occurrence of shistomiasis

METHODS

STUDY AREA

The study will be conducted in Artuma fursi district of oromia zone. Artuma fursi district is one of the rural districts found in oromia Zone, Amhara Region. The district is located at a distance of 300 kms from Addis Ababa and 595kms from regional town Bahir Dar and the district were bordered by north shewa in west and south, by afar in east and by dewa chefa in north. The

district has total population of 100250 and with male 49122 female 51128. The district has 25 rural kebele, and 6 health centers and 25 health posts with physical health service coverage is 100%. Concerning educational institutions there are 51 elementary, 3 high schools, and one technique school. There are 21012 of students attending in 51 elementary schools

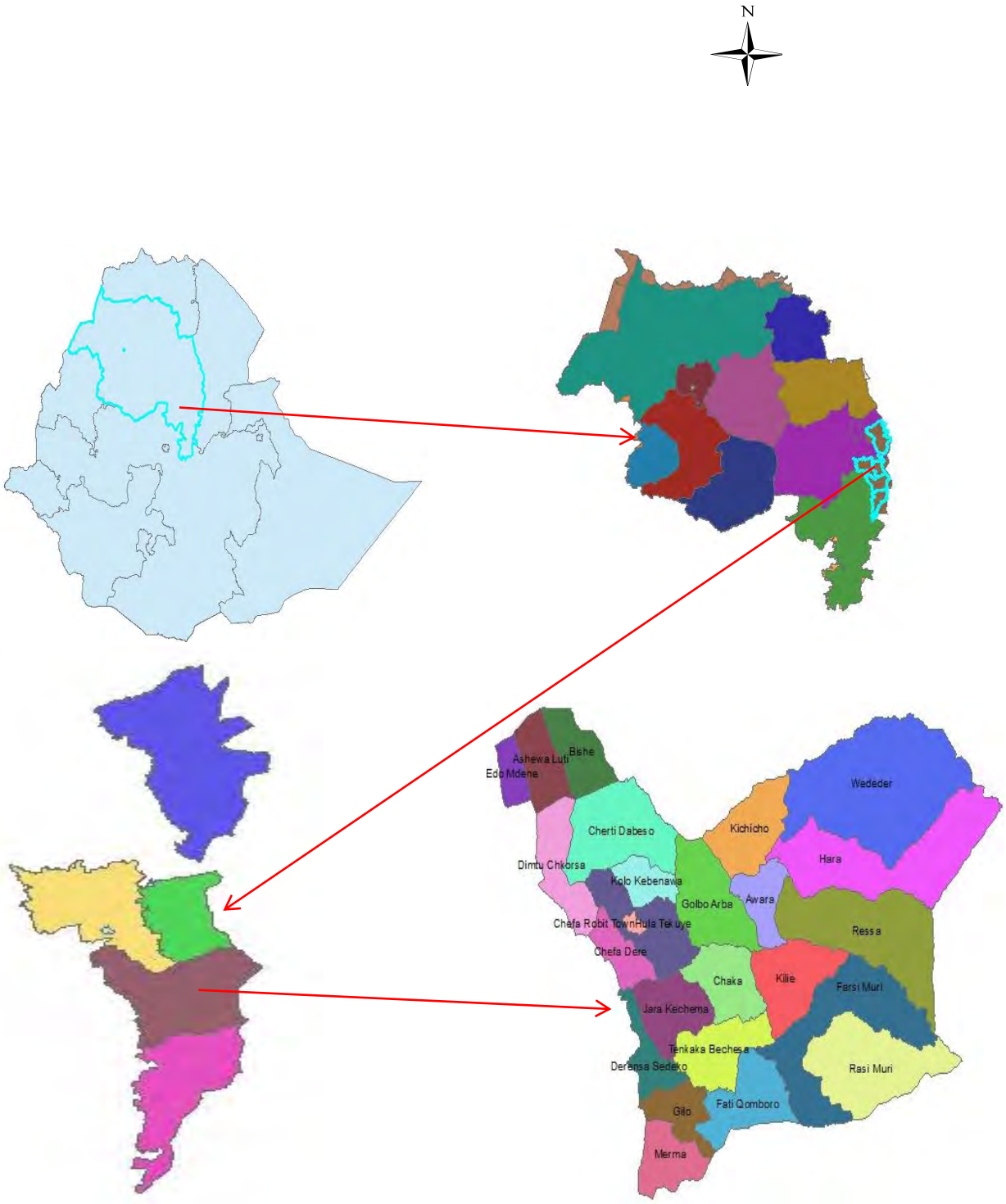

Figure 40: map of Artuma fursi district, Amhara region, 2016

STUDY DESIGN

Cross sectional study design will be conducted.

STUDY PERIOD

Study will be conducted from September 10-dec 30/2017.

SOURCE POPUALTION

All students found in the 51 elementary schools.

STUDY POPULATION

All students from 4 selected elementary schools.

SAMPLING TECHNIQUE

Multistage sampling method will be used to select the study subjects. All elementary schools will be listed. Then four schools will be selected by simple random sampling method from 51 elementary school .Proportional allocation of the sample size will be done according to the number of students in each school and grade level. Students will be selected by systematic random sampling techniques using list of students as a sampling frame. A pre tested structured questionnaire will be used to collect data on socio demographic, water contact habit and toilet utilization.

Sample size: Sample size will be calculated using a single population proportion formula, which took the prevalence in the locality 20.6% (4).with a margin of error of 0.05 at the 95% confidence interval (CI).

$$n = \frac{z^2 1-\alpha/2 \times p(1-p)}{d^2}$$

$$n = \frac{1.96 \times 1.96 \times 0.206 \times 0.794}{0.05 \times 0.05}$$

$$n = 251$$

n= number of shistomiasis cases

z=standardized normal distribution value at 95% CI, which is 1.96

p=prevalence of shistosomiasis p=0.206

Finally multiplying by a design effect of 2 and adding a 10% non-response rate, the final sample size was calculated to be 552 students.

Parasitological Examination: After being interviewed, the students are then supplied with labeled stool containers with tight covers bearing serial numbers of the subjects and are requested to bring about 5 g of stool. All the stool samples will be received at the spot at an organized central place. The specimens will be processed for microscopic examination using Kato-Katz technique(3).

Inclusion &Exclusion criteria

Inclusion criteria

Cases Any student of selected elementary schools in Artuma fursi district who are positive for shistomiasis based on the laboratory results and who agreed to participate in the study will be included.

Controls A controls are student of selected elementary schools in Artuma fursi district who are negative for shistomiasis based on laboratory result and agreed to participate will be included.

Exclusion criteria

Both cases and controls that refuse to participate in the study and who are not present during the study period will be excluded.

Data collection: Structured questionnaire will be administered to collect data for cross sectional study. Data will be collected by principal investigator and co-investigator including

HW at district and health center levels by translating the questionnaire into Afan Oromo and Amharic.

Data quality control

The data will be primarily collected by principal investigator and co-investigator. Prior to entering the data into the computer the missing variables and consistency of filling of questionnaires and completeness of data will be checked every day during data collection.

Data entry and Analysis

Data will be entered and analyzed using Epiinfo 7 and spss. After data cleaning and recoding advanced statically analysis will be under taken. Results will be presented using graphs, tables, charts and attack rate will be calculated. Odds ratio, 95% CI, and p-value will be constructed to measure association and significance.

Variables

Dependent variable

Shistomiasis case

Independent variables

Age

Occupation

Residence

Educational status of family

Risk factors for shistomiasis (source of water drinking, swimming in the rivers)

Ethical clearance

Letter of permission will be written from zonal health department to Artuma fursi district health office, educational office and selected elementary schools, where the study population

found. The shistomiasis investigation will be done after permission obtained from Artuma fursi district health office, educational office and selected elementary schools. Verbal consent will be asked from study participants.

DISSEMINATION OF FINDING

The finding of this study will be disseminated to ministry of health, Regional Health Bureau, zonal health departments and district health office. It will also be disseminated to different organizations that will have contributions on the prevention and control of shistomiasis. In addition, the study findings will also be presented at national and international conferences.

EXPECTED OUT COME

Prevalence of shistomiasis and trend will be described and factors associated will be determined which will be useful for future planning and implantation of program in the control and prevention of shistomiasis.

BUDGET AND IMPLEMENTATION TIME

A total of 5000 USD will be needed to conduct the study and the detail of budget and time table of the study annex below.

Table 15: Budget break down for EPI project

Item	Detail activities	Cost in USD $
Training	Training for data collectors and supervisor and laboratory technician	1000
Stationary	A4 size papers note books	500

	and pen	
Perdiem	Payment for data collection and supervisors and laboratory technician	2000
Transportation	Car rent and fuel	1000
Reagent	Reagent for laboratory to do stool examination.	500

Table 16: project implementation for EPI project

Activities	September	October	Novembers	December
Training of data collectors	✓			
Presenting questionnaire		✓		
Data collection		✓		
Data analysis			✓	
Report writing			✓	
Progress report sumition			✓	
Final report summition				✓

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Data collection tools

Annex 1: Data collection tools for case control study on scabies

Code_____ date_____ respondent status case

A.*IDENTIFICATION INFORMATION*

address zone oromia district bati kebele_____

1. age

2. sex male □ female □

3. Occupation farmer □ civil servant □ student □ house wife □ trader other □

4. Residence rural □ urban □

5. Religion Muslim □ orthodox □ protestant □ other□

6. Marital status single □ married □ divorced □ widowed □

7. educational status illiterate□ primary education□ secondary education□ college and above□

B. EPIDEMOLOGICAL

1 .total number of family member who live in the house_____

2. number of family affected by scabies_____

3. with whom do you sleep ? Alone □ wife /has band □ brother/sister□ friend □ other□

4. has the person whom you are sleeping with contracted scabies yes □ no □

C. CLINICAL INFORAMTION

1. Which sign and symptom did you experience first ? itching □ rash □

2. date of onset of ; itching_____ rash _____

3. during at what time the itching intense at day time □ at night □

4.is rash seen yes □ no □

5.have you been infected before yes □ no □

D. SKIN EXAMINATION /SCABIES ASSESMENT

1. can you sea scabies lesion yes □ no □

2. If yes how long the duration ?_____

3. if there are lesion how many mild (5 or less) □ moderate (6-10) □ severe (11-49) □ very severe(50 and more) □

4. which body part is mostly affected ? finger webs□ ulnar border of the hand□ elbow □ wrist □ anterior axillaries line □ umbilicus □ inter gluteal area □ genital (male) □

inner aspects of thighs□ face palm and sole (children)□

5. do the scabies lesion look infected ? (pus filled sores or crusted sores over the scabies lesion)

   Yes□ no □

6. Is anyone else in the house hold complaining of itchiness yes □ no□

7. Does it look like crusted /norwagian scabies ? (generalized scaling and crusted of skin)

   yes□ no □

8. what is the impact of scabies on your daily task ? very heavy □ heavy□ medium □

   minimal□ no impact □

E.SKIN SORE ASSESMENT

1. Can you see any skin sores ? yes□ no□
2. If yes how many ? mild (5 or less) □ moderate (6-10) □ severe (11-49) □ very severe(50 and more) □
3. which body part is mostly affected ? finger webs □ulnar border of the hand□ elbow□ wrist □ anterior axillaries line □ umbilicus □ inter gluteal area□ genital (male) □ inner aspects of thighs □ face palm and sole (children)□
4. do any of the sores look crusted (infected scabies) yes □ no □
5. are any of sores filled (include an infected scabies) yes□ no□

F. SANITATION AND HYGIEN PRACTICE

1. How often you take shower ? daily □ 2-3 days □ weakly□ more than a weak □

2. What do you use detergent to take shower ? water only □ water with soap□ other □

3. Have you bathed someone else with the disease in the privies six weeks ? yes□ no□

4. Do you wash your clothes yes□ no □

5. if yes how do you wash your clothes weakly□ more than a week □

6. have you put on clothes of someone who was diseased in the previse 6 weeks yes□ no □

7. when do you change your clothes that you wear now ? everyday□ weakly□ more than a week □

8. what are the source of water for your drinking pipe□ well □ spring□ river□

9 .have you ever heard about scabies disease prevention, treatment and transmission? yes □ no □

10. if yes, where and when did you hear about scabies? _____

Annex 2: Data collection tools for case control of AWD investigation

Title: Suspected Acute Watery Diarrhea Outbreak Investigation- jile tumuga of Oromia, Ethiopia, Sep 2016

No.	Question	Coding Classification		Go To
1. Demography				
1.1	Status	1 Case 2. Control		
1.2	Region			
1.3	Zone/Sub-city			
1.4	Woreda			
1.5	Kebele	_____		
1.6	Village	_____		
1.7	Got	_____		
1.8	House number			
1.9	GPS coordinate of the house	Latitude_____ Longitude_____		
1.10	Phone			
1.11	Ethnicity	1.Oromo 2.Somale 3.Amhara 4.Tigre	5.Gurage 7.Wolayita 8.Other(Specify)_____	
1.12	Age	_____ Year		
1.13	Sex	1.Male 2.Female		
1.14	Occupation	1.Farmer	7.Daily Laborer	

No.	Question	Coding Classification		Go To
		2.House wife 3.Government Employee 4.Private Employee 5.Merchant 6.Student	9. No applicable 10. Pastoralist 11. Unemployed 12.Other_____	
1.15	What is your religious	1. Orthodox 2. Protestant 3. Muslim	4.Catholic 5. other_____	
1.16	What is your marital status?:	1.Single 2. Married 3.Widowed	4.Divorced 5. Not applicable	
1.17	Level of Education	1.Illiterate 2.Read and writing only 3.Elementary school(1-8)	4.Secondary School(9-12) 5.Tertiary School(college+)	
1.18	How many family members residing with you?	_____		
2. Knowledge of AWD				
2.1	Do you know acute watery diarrheal disease?	1.Yes 2.No		If No s to 3.1
2.2	How do you think acute watery diarrheas transmit from person to persons (none proving)?	1.Contaminated food 2.Contaminated water	3.Contact with patient 4.Other(specify) _____	
2.3	What are you doing when you face acute watery diarrhea (none proving)?	1.Go to health facility 2.Seek traditional healer 3.Use ORS	4.Use holy water 5.Other(specify) _____	
2.4	Do you think acute watery diarrhea treatment center is source of	1.Yes 2.No		

No.	Question	Coding Classification		Go To
	infection/possible risk factor for AWD transmission?			
2.5	Do you think AWD is preventable disease?	1.Yes 2.No		If No s to Q 3
2.6	How do you prevent AWD (none proving)??	1.Using toilet 2.Eating cooked food 3.Using purified water	4.Hand washing 5.Vaccine 6.Other(specify) _____	
2.7	How long does it take you to walk to the health facility from your house?	1. Less than 10 minutes 2. 10-30 minutes 3. 30 minutes – 1 hour	4.More than 1 hour 5. More than 2 hours	
3. Past History of AWD				
3.1	Have you ever been sick of AWD?	1.Yes 2.No		If No s to Q 3
3.2	How many times you were sick of AWD in the last one year?	1.Once 2.Twice	3.More than two times	
3.3	Date and year of last sickness with AWD?	_____dd/mm/yyyy 98-Not known		
3.4	Where did you managed (none proving)??	1.At health facility 2.At home	3.At holy water site 4.Traditional healer	
3.5	How long you were sick of the diseases?	_____		
3.6	Was there sick family member of AWD in the past 5 years with the same complaints?	1.Yes 2.No		If No s to Q 4
3.7	Age of family members affected.	Male 1_____ 2_____ 3_____ 4_____ Female 1_____ 2_____ 3_____ 4_____		
3.8	Was there death in your family due to AWD in the past 5 years?	1.Yes 2.No		

No.	Question	Coding Classification		Go To
4. Clinical Pictures				
4.1	Do you have history of acute watery diarrheal disease recently?	1.Yes 2.No		If No s to Q 4
4.2	When did the symptoms begin?	_____ dd/mm/yyyy _____hour		
4.3	Frequency of defecation per day	_____		
4.4	Do you have the following symptoms ?	1.Watery diarrhea 2.Vomiting 3.General body weakness	4.Losing of consciousness 5.Muscle cramp 6.Other(specify)	
4.5	Have you been treated with antibiotic for your recent complaints?	1.Yes 3.No		
4.6	What antibiotics did you take?	_____ -not known		
4.7	Where did you take the antibiotics?	_____		
4.8	Where did you admit	1. CTC 3. Hospital 2. Health center		
4.9	Is there any sick person in your house?			
4.10	If yes, is that before or after your symptoms began?	1, Before, 2 After		
4.11	Is there AWD sick person in your village?	1.Yes 3 Don't know		
4.12	Did you have contact history with the same compliant in the past 7days before your symptoms onset	1.Yes 2.No		
5. **Travel and Exposure History**				
5.1	Did you travel in the past 7days outside of your village before your symptoms onset?	1.Yes 2.No		

No.	Question	Coding Classification		Go To
5.2	If yes where	_____		
5.3	Did you participate in funeral ceremony of AWD death	1.Yes 2.No		
5.4	If yes, when and where did you participate in funeral ceremony of AWD death	_____dd/mm/yyy		
5.5	Did you attend other public ceremonies /events(weeding, religious, bather , telethon)	1.Yes 2.No		
5.6	If yes, what kind of food did you eat and/or water did you at the ceremonies/ event?	_____		
6. WASH				
6.1	Do you have toilet?	1.Yes 2.No		If No S to Q 5
6.2	Ownership of the toilet	1. Private 2. communal 3. Public		
6.3	If yes, are you using the toilet?	1.Yes 2.No		
6.4	If yes, show me your toilet?	1.Clean 2.supperstracture	3.Ventilated 4.Sign of utilization	
6.5	Where else are you using ?	1.Open field, 2.Neighboring,	3.Public latrine 4.Other(specify)_____	
6.6	If the answer to question number 5.2 is No, can you tell me the reason why you do not use the toilet?	1.Culture 2.Bad odor	3.Too far from my house 4.Other(specify)_____	
6.7	Is there facility to wash your hand after toilet in your house?	1.Yes 2.No		

No.	Question	Coding Classification		Go To
6.8	Is there hand washing facility in your work area?	1.Yes 2.No 3.I am working in my house		
6.9	When do you wash your hand (none proving)?	1.After toilet 2.Before food 3.After cleansing child	4.Before preparing food 5.Before feeding child 6.Other(specify) _____	
6.10	What items are you using for hand washing?	1.Soap 2.Ash	3.Plain water 4.Other(specify)_____	
6.11	How often do you wash your hand after toilet?	1.Always 2.Sometimes	3.Never 4.Other Specify_____	
6.12	How often do you wash your hand after cleaning your child?	1.Always 2.Sometimes 3.Never	3.I do not have child 4.Other Specify_____	
6.13	How often did you wash your hand before preparing food?	1.Always 2.Sometimes	3.Never 4.Other Specify_____	
6.14	How often did you wash your hand before you eat your meal?	1.Always 2.Sometimes	3.Never 4.Other Specify_____	
6.15	How often did you wash your hand before you are feeding your child?	1.Always 2.Sometimes 3.Never	3.I do not have child 4.Other Specify_____	
6.16	What is the water source for your house hold for drinking purpose ?	1.Pipe water 2.Spring 3.Hand dug well 4.Deep well	5.Pond 6.River 7.Lake 8. Bottled water 9.Other(specify) _____	
6.17	What is the water source for your house hold for washing utensils?	1.Pipe water 2.Spring	5.Pond 6.River	

No.	Question	Coding Classification		Go To
		3.Hand dug well 4.Deep well	7.Lake 8.Other(specify) _____	
6.18	What is the water source for your house hold for cooking food?	1.Pipe water 2.Spring 3.Hand dug well 4.Deep well	5.Pond 6.River 7.Lake 8.Other(specify) _____	
6.19	How many hours/minutes will take you or your family to fetch water from the water source?	_____hours _____minute 98. I cannot estimate		
6.20	What type of container are you using to fetch water from the source?	1.Jerry cane 2.Bucket	3.Ensira(Gan) 4.Other(specify) _____	
6.21	What type of water container are you/your family is using in your house for storage?	1.Jerry cane 2.Bucket	3.Ensira(Gan) 4.Other(specify) _____	
6.22	How was the water accessed from the storage container?	1.Pour 2.Dip with cup	3.Other(specify) _____	
6.23	Does the container have cover/lid (observe)?	1.Yes 2.No		
6.24	Do you clean your water containers regularly?	1.Yes 2.No		If No s to Q5.
6.25	What materials do you use to wash your water containers?	1.Soap 2.Only water	3.Ash 4.Other(specify) _	
6.26	How often do you wash your water containers?	1.Every day 2.Every other day	3.Once per week 4.Other(specify) _____	
6.27	Do you think the water you are using is safe?	1.Yes 2.No		If Yes s to Q 5
6.28	Could you purify the water?	1.Yes		

No.	Question	Coding Classification		Go To
		2.No		
6.29	What methods of water purification do you use (none proving)?	1.Boiling 2.Filtration 3.Sedimentation	4.Water chemicals (Wuha agar, Bishan Gari) 5.Other(specify)_____	
6.30	For what purposes do you use the water you are purified (none proving)?	1.For drinking 2.For cooking 3.For washing hand	4.For cleaning food utensils 5.Other(specify) _____	
6.31	Is there water purification chemical available in your community?	1.Yes 2.No		
7. Feeding				
7.1	What is the cultural food in your area?	1.Enjera with wot 2.Porrage	3. Bread 4. Other(specify) _____	
7.2	Do you eat raw/uncooked food?	1.Yes 2.No		If No s to Q 6
7.3	What raw/uncooked food are you eating	1.Raw meat 2.Raw tomato 3.Raw salad	4.Raw fish meat 5.Raw milk products 6.Other(specify) _____	
7.4	Do you re-heat cooked food?	1.Yes 2.No		
7.5	Where do you keep the cooked food?	1.Room temperature 2.Refrigerator	3.Other(specify) _____	
7.6	What are you doing with the leftover foods (none proving)?	1.Reheat and eat 2.For domestic animals 3.Giving for baggers	4.Street children 5.Dump in waste substance 6.Other(specify) _____	
7.7	Is there fish supply in your village?	1.Yes 2.No		If No s to Q6.

No.	Question	Coding Classification		Go To
7.8	Do you eat raw fish?	1.Yes 2.No		
7.9	In the past 7 days of your symptoms onset what kind of uncooked food did you eat?	1.Raw meat 2.Raw tomato 3.Raw salad 4.Raw fish meat	5.Raw milk 6.Other(specify) _____	
7.10	What kind of cooked food did you eat in the past 7 days of your symptoms onset?	1.Enjer with wot 2.Roasted meat	3.Other(specify) _____	
7.11	Did you eat food from other house in the past 7 days of your symptoms	1.Yes 2.No		
7.12	In the past 7 days did you drink water from other source?	1.Yes 2.No		

Annex 3: Data collection tools for surveillance system evaluation

Identifiers:

Region _____ Respondent_____

Zone _____Date _____Tele._____

General

Total pop._____ Male _____

Female_____u5yrs_____

Rural pop._____ urban pop._____

Total Kebeles _____ Urban _____ Rural _____

Hosps._____ H.Cs_____ Hps_____ All types of private clinics ____

other private health facility _____ NGOs H.F._____

Total # of malarious Woreda _____Total # of malarious kebeles___ ____Total pop at risk for malaria _____

I. ***Availability of a National Surveillance Manual***

1. Is there a national PHEM manual/ guideline for surveillance? Yes / No
2. ***If yes***, describe (last update, diseases included, case definitions, surveillance and control, integrated or different for each disease):

   _____

   _____

   _____

3. What are the objectives of surveillance? _____
4. What are the strengths of your surveillance system? _____

   _____
5. What are the weaknesses of your surveillance system?

   _____

III, ***Case Detection and Registration***

6. Do you have standard case definitions for the Country's priority diseases like AFP (polio), malaria, and measles? Yes / No / Unknown / Not applicable
7. If the answer is yes for Q #6, observe the presence of the standard case definition for each priority disease. Yes No Unknown Not applicable

II. ***Data reporting::***

Presence of recommended reporting forms in the zone at all times over the past 11 months

8. Are the Federal/ Regional health bureau responsible for providing surveillance forms to the health facilities? Yes No Unknown Not applicable
9. ***If yes***, have you lacked appropriate surveillance forms at any time during the last 11 months? Yes No Unknown Not applicable

10. What are the reporting entities for the surveillance system?
    a. Public health facilities
    b. NGO health facilities
    c. Military health facilities
    d. Private health facilities

Others_____

11. Was there any report of the immediately reportable diseases in the past 1 month? Yes/ No

    What was the disease_____?

12. If yes, for Q 11, with in what time is the report received after detection of the diseases?
    a. Less than 1 hour
    b. 2-24 hour
    c. 1- 2 days
    d. 3- 7 days
    e. After 1 week
13. Percent of districts that have means for reporting to next level by e-mail, telephone, fax or radio_____
14. How do you report weekly, monthly and other formations to higher level?
15. Did you have address of regional PHEM officers? Yes /No
16. How frequently are you communicating with the regional PHEM officers on emergencies and other daily activities?

A) Daily

B) Weekly

C) Every 2 week

D) Monthly

E) Quarterly

F) Every 6 month

G) Yearly

H) Others_____

17. Did you have address of woredas/health facility PHEM officers? Yes/ No (if yes observe the lists and their address of woreda and H.F PHEM officers)
18. How frequently are you communicating with the woredas/health facility PHEM officers on emergencies and other daily activities?

A) Daily

B) Weekly

C) Every 2 week

D) Monthly

E) Quarterly

F) Every 6 month

G) Yearly

H) Others_____

19. When are you expected to send weekly report to the Regional PHEM unit? Every

☐ Monday

☐ Tuesday

☐ Wednesday

☐ Thursday

☐ Friday

☐ Saturday

☐ Sunday

☐ I don't know

20. When are you expected to receive weekly report from woredas /health facilities?

☐ Monday

☐ Tuesday

☐ Wednesday

☐ Thursday

☐ Friday

☐ Saturday

☐ Sunday

21. ☐ I don't knowHow is the Zone communicating the woredas/health facility PHEM officers in case of immediately reportable diseases?

☐By e-mail

☐ By phone

☐By fax

☐ Regular weekly report

22. ☐ Others---------- Did you send summary or short report to the administrative /program leaders or other responsible organs on planning, prevention and control activities addressing important issues at community level that have arisen through the surveillance system? Yes/No

23. If answer for Q 22 is yes to whom did you send?

_____

_____

24. If you faced any problems on communicating and reporting, list them_____

_____

_____

_____

25. How do you manage the problem you faced?

_____

_____

III. Data analysis

1. Have you trained on surveillance system? Yes/ No
2. If answer for Q1 is yes a) when_____ b) Topic_____ c) For how long_____

3. Did you give any onsite training / orientation about surveillance system for the woredas or health facility PHEM focal persons? Yes/No (if yes observe any documents)
4. How many woredas have permanently assigned surveillance officer or focal person?

   ___
5. How many of them trained on surveillance and epidemic management?

   _____
6. If Q #4 is no, how surveillance activates were done at woreda level?

   _____

   _____
7. Was data compiled and registered? Yes/ No (if yes observe documents)
8. Did you have computer on your department (PHEM unit)? Yes/ No
9. What is the data entry and compilation instrument?
   A) Manual
   B) Computer
10. Other Did you have computer skill on A) Ms word B)Ms excel C)MS power point D) Epi-info
11. Did you analyze data of the surveillance system (cased based, routine, outbreak ….)?Yes/ No
12. If answer for Q 11 is yes, observe whether or not data is analyzed by time, place and person
13. If you analyze surveillance data how frequently? A) weekly B) every two week C) Monthly D)quarterly E) every 6 month F) annually G) No regular time
14. Did you perform trend analysis for priority diseases? Yes/ No
15. If yes for Q #10, observe and list the diseases which has line graph

    _____
16. Did you have denominators for data analysis? A) T. population B) male C) female D) U5 E) pop. By woreda E) hard to reach area pop.
17. Did you notify the results of your analysis to the higher level PHEM? Yes/ No
18. Did you notify the results of your analysis to the lower level PHEM? Yes/ No

19. If answer for Q #18 is No, what is the reason?

☐ Lack of knowledge

☐Shortage of time

☐Less attention to data analysis

☐ Shortage of materials

☐Analysis is not familiar

☐ Negligence

☐ Other----------

IV. Outbreak Investigation

1. How many outbreaks were occurred in 2008 EFY? _____
2. How many of them were investigated _____list the diseases

   _____
3. Did you have outbreak investigation check list? Yes/No
4. If the answer no for Q #3, how did you know possible factors for the outbreak?

   _____
5. Where was laboratory confirmation of cases done?

   ☐Regional laboratory

   ☐ Hospital

   ☐EHNRI

   ☐ Health center

   ☐Contracted private laboratory

   ☐ Other----------
6. Who was responsible to investigate an outbreak? ☐ rapid response team ☐ HEW ☐ staffs of woredas health office ☐ experts organized randomly ☐ health facility staffs ☐ other_____
7. Fill the table below for question #2

S.N^{O}	Name of outbreak	Place(Kebele /woreda	N^{O} of cases			N^{O} of deaths			Start date of the outbreak	Investigation date	Remark
			M	F	U5	M	F	U5			
1											
2											
3											
4											

8. Had you faced any challenge in outbreak investigation in 2008 EFY? Yes/No
9. If answer for Q 8 is yes, a) list the challenges_____

   _____

   b) List the alternatives that you take to tackle the challenges._____

   _____

V. ***Epidemic preparedness(relevant for epidemic prone diseases)***

1. Did you have plan for epidemic response and preparedness? Yes/No (if yes observe)
2. Was there an emergency stock of drugs and supplies at all times in the past 1 year (2008)? Yes/ No (if yes observe any document for evidence)
3. If answer for Q2 is No, how did you control epidemics? ----------

   ---
4. Had you experienced shortage of drugs, vaccines and supplies in 2008 EFY? Yes/No
5. Was an epidemic management committee established at zonal level? Yes/No
6. Did the epidemic management committee have regularly scheduled meeting time? Yes/No(if yes observe minute book)
7. How many woredas are established epidemic management committee and meet regularly?

   __

8. Was Rapid response team established at zonal level? Yes/No
9. Did the Rapid response team have regularly scheduled meeting time during epidemics? Yes/No (observe minute book or other document)
10. How many woredas have established Rapid Response Team? _____
11. Did you have case management protocol for epidemic prone diseases? Yes/No/Not applicable (check)
12. Do have multi sectorial emergency preparedness and response task force committee? Yes/ No/ Not applicable
13. In what frequency did the task force meet during outbreaks?

    _____
14. Were partners working together with your office on emergencies ?Yes/No
15. If answer for Q 14 is yes, what type of supports did they give to your office?

    _____

    _____
16. Was there a budget for epidemic response in the last year (2008)? Yes/No
17. Had you a car assigned for emergencies (PHEM)?Yes /No/Not functional
18. If answer for Q 17 is NO, how did you address emergencies?

    _____

    _____
19. Had you faced any Challenges on epidemic response and preparedness in 2008 EFY ?Yes/No
20. If answer for Q 19 is yes,

    a) List the challenges

    _____

    _____

    b) What measures did you take to tackle the challenges?_____

    _____

    _____

VI. Response to epidemics

1) Did the zonal health office respond for epidemics within 48 hours of notification of most recently reported outbreaks? Yes /No (observe any documents)
2) Are epidemic management committees evaluating their epidemic preparedness and response activities during the past year (2008)? Yes/No (check written document)

VII. Supervision and Feedback

1. Did you have supervision plan in 2008 EFY? Yes/No(check documents)
2. If answer for Q1 is No, how did you supervise? _____

   _____
3. If Q #1 is yes, did you supervise the woredas and health facilities? Yes/No
4. If Q #3 is No, what is the reason? _____
5. If Q #3 is yes, how many times did you supervise each woredas and health facilities in 2008 EFY? Woreda----------. Health facility----------
6. Had you received supervision from regional PHEM unit or FMOH in the last 11 months or 2008EFY? Yes /No
7. If Q #6 is yes, how many times in 2008 EFY? ----------
8. Did you have regular supervision checklist? Yes/No
9. If Q #8 is No, how did you supervise the woredas and health facilities?

   _____
10. Did you send feedback of your supervision findings to the woredas and health facilities which commenting/indicating their strong and weak sides? Yes /No(check)
11. If Q #10 is No, why? _____
12. If answer for Q #10 is yes, for how many woredas and health facilities and sessions did you send a feedback in 2008 EFY? Woreda_____ health facilities_____
13. Had you received feedback from higher level supervisors in the last 11 months or 2008EFY? Yes/No

14. If Q #13 is yes, how many feedbacks did you received in last 11 months or 2008 EFY?

    _____

15. Did you conduct active case search for health facilities in last 11 months or 2008EFY? Yes/No, if yes, how many times and for how many woredas and health facilities? _____ did woreda PHEM officers also conducted? Yes/ No (observe the document)
16. What did you get from active case search _____
17. Had you faced any challenge on supervision and feedback in the last 11 months? Yes / No
18. If answer for Q #15 is yes, a) list the challenges._____

    _____

    _____

    b) List the measures that you take to tackle the challenges

    _____

    _____

    _____

IX. Resources

Percent of sites that have:

26.Data management

Computer_____Printer_____Photocopier_____Data manager_____

Statistical package_____

27. Communications

Telephone service Fax Radio call Satellite phone

Budget line _____

28. Logistics _____

VIII. <u>Surveillance</u>

29. Do you have a computerized surveillance network at this level? Yes/No/Not applicable

Budget for surveillance

30. Is there a budget line for surveillance in the zonal Health office budget? Yes/No Not applicable
31. ***If yes***, what is the proportion: %
32. How could surveillance be improved?

_____

_____

Questionnaire for Attributes and level of Usefulness:

1. Total population under surveillance_____ 2016/2008
2. What is the incidence / Prevalence of 2016/2008 ----------in your area/region
    - Malaria_____ laboratory done _____cases P.F _____P.V____ Deaths _____
    - Measles _____cases _____Deaths _____

I. Level of Usefulness of the Surveillance System for these selected priority diseases

Does the surveillance system help?

1. To detect outbreaks of priority diseases early on time to permit accurate diagnosis? Yes/ No
2. To estimate the magnitude of morbidity and mortality related to these diseases, including identification of factors associated with these diseases? Yes/ No
3. Permit assessment of the effect of prevention and control programs? Yes/ No

Observe (confirmation):

1. interventions and diseases trends analyzed ---Available //Not available

II. Describe Each System Attributes:

1. **Simplicity:**
2. Is the case definition of the priority diseases (malaria, measles.) easy for case detection by all level health professionals? Yes/ No
3. The surveillance system allows all levels of professionals to fill data? Yes/No
4. Does the surveillance system help to record and report data on time?

5. Does the surveillance system (Reporting format) have necessary information for investigation? Yes/No
6. How long it takes to fill the format? a, <5 minute b, 10-15 minutes c, >15 minutes
7. How long does it take to have laboratory confirmation of
    A. Measles_____
    B. Malaria _____
    C. Others _____

Flexibility:

2. Can the current reporting formats be used for other newly occurring health event (disease) without much difficulty? Yes/ No
3. Do you think that any change in the existing procedure of case detection and reporting formats will be difficult to implement? Yes /No

    Comment:_____

    _____

    _____
4. Is the system easy to add new variables? Yes /No
5. Is the surveillance system easy to integrate with other systems? Yes /No
6. Is the surveillance system easy to add new disease on report? Yes /No
7. Is the system easy to add new information technology? Yes /No

Acceptability:

1) Do you think all the reporting agents accept and well engaged to the surveillance activities? Yes/No

2) If yes, how many are active participants (of the expected including all private clinics)? __/__

3) If No for Q #1, what is the reason for their poor participation in the surveillance activity?

A. Lack of understanding of the relevance of the data to be collected

B. No feedback / or recognition given by the higher bodies for their contribution;

I.e. no dissemination of the analysis data back to reporting facilities

C. Reporting formats are difficult to understand

D. Report formats are time consuming

E. Other:_____

_____

F. Were all participants using the standard case definition to identify cases? Yes/ No

G. If yes, What is your evidence _____

H. Were all the reporting agents send their report using the current and appropriate surveillance reporting format? Yes/ No (if yes observe the documents)

I. Were all the health professionals aware about the surveillance system? Yes/No (if yes how they award)

Data Quality: (Completeness of the reporting forms/and validity of the recorded data)

1. Are the reporting site / data collectors trained/ supervised regularly? Yes/No
2. **Observe:** Review the last months report of these diseases
   a) Average number of ***unknown or blank responses*** to variables in each of the reported forms

      _____

   b) Percent of reports which are complete(that is with no blank or unknown responses) from the total reports

      _____

3. Are all woredas reporting (including late report)?☐ Yes ☐ No
4. Percent of woredas that send report of each week the last 11 months in 2008 EFY. ----------
5. Are all hospitals reporting? ☐ Yes ☐ No
6. Percent of hospitals that send report of each week the last 11months in 2008 EFY. ----------

Total weekly reports received from woredas/Hospitals (including late reports, from July 2015-may, 2016)

WHO epid. wk	N^{O} of woredas expected to report	N^{O} of woredas that report (including late report)	N^{O} of Hospitals expected to report	N^{O} of hospitals that report (including late reports)	WHO epid. wk	N^{O} of woredas expected to report	N^{O} of woredas that report (including late report)	N^{O} of Hospitals expected to report	N^{O} of hospitals that report (including late reports

Representativeness:

7. What is the health service coverage of the district/ zone/ region? _____%
8. What is the health service utilization of zone? _____%
9. Do you think, the populations under surveillance have good health seeking behavior for these diseases? Yes / No
10. Was the surveillance system enabled to follow the health and health related events in the whole community? Yes /No
11. If answer for Q 12 is no,who do you think is well benefited by the surveillance system? ☐ The urban ☐the rural ☐both
12. If yes for Q 12, do you think that rural and urban communities are equally benefited in surveillance system? Yes/ No , if no why _____
13. Are all the Socio demographic variables included in the surveillance reporting format? Yes /No
14. If the answer for Q 7 is No, which a) Sex---------- b) age group---------- C) ethnic group----- d) religion---------- is less represented?

Stability:

1. Was any new restructuring affected the procedures and activities of the surveillance of these diseases? Yes/ No
2. Was there lack of resources that interrupt the surveillance system? Yes / No if yes what was it and how do you solve it_____
3. Was there any time /condition in which the surveillance is not fully operating? Yes/ No
4. If the answer yes for Q #3 When/what is the condition that talks the system not to function properly?----------
   ----
5. Is there a surveillance officer or focal person (PHEM unit)? Yes/No Number _____

Timeliness:

1. Are all woredas /health facilities reporting on time? ☐ Yes ☐ No
2. Percent of woredas that report on time. ----------
3. Are all Hospitals reporting on time? ☐ Yes ☐ No
4. Percent of hospitals that report on time. ----------

Weekly Zonal reports received on time in the last 11 months in 2008 EFY report (July 2015- May, 2016)

WHO epid wk	N^{O} of woredas expected to report	N^{O} of woredas that report on time	N^{O} of Hospitals expected to report	N^{O} of Hospitals that report on time	WHO epid wk	N^{O} of woredas expected to report	N^{O} of woredas that report on time	N^{O} of Hospitals expected to report	N^{O} of Hospitals that report on time

How do you work with other departments and other sectors? _____

Annex 4: Data collection tools for health profile .

1. **Historical Aspects of the area (if available)**
    - The name how and why_____
    - How was the woreda formed_____
    - Any other historical aspect_____

2. Geography and Climate

- Area of the woreda _____
- Distance from Addis and Bahir dar _____
- Altitude _____
- Latitude_____
- Average Annual rain fall _____
- Average Annual temp _____
- Land bodies_____
- Water bodies_____

3. Demographic information

- Total Population size_____
- male_____
- female_____
- urban_____
- rural_____
- Sex ratio_____
- Age structure: - percentage of children < 1yrs_____. <5yrs____< 15 yrs.
- Percentage of old people >65 years_____
- Women child bearing age_____
- Percentage of pregnant women_____
- Dependency ratio_____

❖ Population size by religion

- Orthodox_____
- Catholic_____

- Protestant_____
- Muslim_____
- Others_____

❖ Estimated Population size by kebele

no	Name of kebeles	Population size											
		2007											
		<5	5-15	>15	total								
1													
2													
3													
4													
5													
6													
7													
8													
9													
10													
11													
12													
13													
14													
15													
16													
17													
18													
	Total												

4. Administrative setup

Total no. of kebeles: Rural_____Urban_____

Woreda Boundaries 1. Southern_____

2. Northern_____

3. Western_____

4. Eastern_____

5. Health status

Type of Health facility	Year		
	2007		
1.Health center			
2.Health posts			

Name of disciplinary	2007					
	Standard	Total no				
Health officers						
Laboratory technician/technologist						
Pharmacy technician/Pharmacist						
Nurses						
Midwife						
ENHS						
HEWs						
TBA						

Ratio of health facility and professional to population

Description	Ratio		
	2007		
Health center: population			
Health post: population			
Health officer: population			
Nurse: population			
Midwife: population			
HEW: population			

5. **Top causes of morbidity and mortality**

no	2007					
	Diseases classification	No(%)				
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						

8. MCH and EPI coverage

Description	2007		
	No (%)		
ANC coverage			
PNC coverage			
BCG coverage			
Measles vaccine			
OPV			
Penta1			
Penta2			
Penta3			
Contraceptive prevalence			
TT2 for pregnant			
TT2 for no pregnant			
Latrine coverage			
Safe water supply coverage			
Total people screened for HIV			
VCT			
PICT			
PMTCT			
HIV Prevalence			
TB prevalence			

Schools with functional latrines			
schools with water supply			

HIV/AIDS activities

Activities	Male	Female	Total	Remark
Total people screened for HIV				
VCT				
PICT				
PMTCT				
HIV Prevalence				
Total PLWHIV				
On ART				
Pre ART				
Condom Distribution				
Health education coverage				

10. Education and school Health

Level of school	2007											
	No of school	Number of student										
		Male	female	Total								
Primary												
Secondary												
Total												

Schools with HIV/other Health clubs			
Literacy ratio			
Employed			
Unemployed			
Employed; unemployed			
HF access to transportation			
HF access to telecommunication			
HF access to Electric power			
for all woreda sectors			
for health sector			

Disaster situation in kemissie town district for 2007 e.c

Type of hazard	**2007**					
	disaster	**Control measures/solutions**				

14, Nutrition activities

Type of food intervention program	2007					
	Health post	Health center				
No of OTP sites						

No of TFU program						
No of TSF program						
No of CBN program						
No of EOS program						
No of SAM						

15.summary

1. What do you think the major Health problem/s of the woreda?

_____

_____

_____

_____

_____

_____

2. What do you think solutions of the addressed problems?

_____

_____

_____

Annex 4: Data collection tools for Rapid meher assessment- Health Sector.

Region/Zone

Interviewer name_____		Institution:_____	
Interview Date: (dd) ____/(mm)_____/2016		Region: _____Zone:_____	
Main contact at this location:	Name:_____	Position:_____	Tel:_____
1. COORDINATION			

A.	Is there a functional multi-sectoral coordination forum for the health sector?	Yes□	No□
B.	Are all relevant government, NGOs and UN agencies represented?	Yes□	No□
C.	Frequency of regular meeting? (Weekly, Every 2 weeks, monthly…..)_____		

2. Outbreak?

Was there any outbreak in the last 3 months? If yes, specify the type of disease	Yes□	No□

Type of outbreak _____Number of cases _____Deaths _____(specify the time period)_____

Type of outbreak _____Number of cases _____Deaths _____(specify the time period)_____

Type of outbreak _____Number of cases _____Deaths _____(specify the time period)_____

Type of outbreak _____Number of cases _____Deaths _____(specify the time period)_____

Type of outbreak _____Number of cases _____Deaths _____(specify the time period)_____

Is there any ongoing outbreak of any disease? YES_____ NO_____

If yes, specify the type of disease

Type of outbreak _____Number of cases _____Deaths _____(specify the time period)_____

Type of outbreak _____Number of cases _____Deaths _____(specify the time period)_____

Type of outbreak _____Number of cases _____Deaths _____(specify the time period)_____

Type of outbreak _____Number of cases _____Deaths _____(specify the time period)_____

3. Mention anticipated epidemics_____,_____,_____

If yes please indicate Zone/Woreda at risk and risk population per anticipated risk: *(Use the back side)*

4. Public Health emergency Management

A.	Is there a Public Health and Nutrition Emergency Preparedness and Response plan?	Yes□	No□
	If yes, is the plan budgeted/ funded?	Yes□	No□
B.	Is there a trained staff on PHEM basic level (Regional/Zonal/Woreda/HFs)	Yes□	No□

If yes specify number of trained personnel per level:

Region: Female _____Male_____**Zone:** Female_____Male_____**Woreda**: Female_____Male_____

C.	Is there a Regional/zonal trained Rapid Response team (RRT)?	Yes□	No□
D.	Is there a trained staff on Emergency nutrition management at all level? yes --- No ---- If yes specify the no. : Total___ Male : ____Female :-___		

E.	Drugs and medical supplies		Total requirement	Available	Gap
	i. Meningitis vaccine				
	ii. Drugs:	Coartem			
		Artesunate (rectal)			
		Artesunate (Inj)			
		Artemether IM			
		Quinine (PO)			
		Quinine (IV)			
		Chloroquine			
		Ceftriaxione			
		Oily CAF			
		Doxcycline			
		Ringer lactate			
		ORS			
		Vit A.			
	iii.Nutrition: Therapeutic supplies and antibiotics	F100			
		F75			
		RUTF			
		Resomal			
		Routine antibiotics at SC/OTP (the list can be annexed)			
	iv.Lab supplies	RDT (Malaria)			
		Pastorex (Meningitis)			
		LP set			
		TI bottle			
	CTC Kit (AWD)				
	Medical Supplies	Gloves,			
		Syringe			
		PPE			
	Drugs and supplies for Emergency RH	Individual Clean Delivery Kits			

Section IV: Nutrition – SAM & MAM Management in the Region /ZoneOctober 2015 to March 2016

SAM Management

4.1 Facilities with SAM management in the Region /Zone

Month	Total Number of Health centers/ hospitals	Total Number of Health posts	Number of SC.	% of health centers/ hospitals with a SC.	Number of OTP.	% of health posts with an OTP	Total Number of OTP/SC reported	% of OTP/SC who have reported
Oct								

Month	Total Number of Health centers/ hospitals	Total Number of Health posts	Number of SC.	% of health centers/ hospitals with a SC.	Number of OTP.	% of health posts with an OTP	Total Number of OTP/SC reported	% of OTP/SC who have reported
Nov								
Dec								
Jan								
Feb								
Mar								

4.2 Admission and performance of the therapeutic feeding programme for SAM management

Month	Total SAM Cases		% of SAM children cured	% of SAM children defaulted	% of SAM children died	% of SAM children non-respondent	% of SAM children other
	2007 E.C.	2008 E.C.					
Oct							
Nov							
Dec							
Jan							
Feb							
March							

4.3. Availability of therapeutic supplies

	Yes	**No**	**If Yes, How much is available**
Is there sufficient supplies for 3 months of :			
RUTF			
F100			
F75			
2nd line drugs			

MAM Management

4.6. TSFP programme in the Region /Zone

	Yes	**No**	**If Yes, How much is available**

Is this a priority 1 woreda?			
Was there a TSFP distribution last month?			
Is there sufficient TSFP supplies for the next 1 month (RUSF, CSB+/oil or CSB++)?			
Is there woreda level storage of TSFP supplies for at least 2 months of supplies?			
Are children discharged from OTP referred to TSFP			
Is this a pilot (2nd generation) TSFP woreda?			
Has the Woreda been supported by an NGO in the last 3 months?			

4.7 MAM admission

Month	Priority 1 woreda Y/N		Total MAM Cases		Total Number of Food Distribution point in the woreda
	2007 E.C.	2008 E.C.	2007 E.C.	2008 E.C.	
Oct					
Nov					
Dec					
Jan					
Feb					
March					

Screening

4.8. When was the last screening conducted in the Region /Zone? _____

4.9. What screening modality is used in the Region /Zone? EOS _____, CHD ____, Routine____, vitamin A and de-worming coverage from Oct 2015– March, 2016

Vitamin A _____ De-worming _____

4.10. Screening performance for children in the Region /Zone

Month	Target Children 6-59 months	# of screened children	Screening Coverage (%)	# of Children with no odema and MUAC <11 cm			# of chidren with no oedema and MUAC 11 to 11.9CM	% Proxy GAM for children	% Proxy SAM for children
				#SAM			#MAM		
				MUAC <11 cm	odema	Total			
Oct									
Nov									
Dec									
Jan									
Feb									
March									

4.11. Screening performance for Pregnant and lactating Women (PLW) in the Region /Zone

Month	Target PLW	# of screened PLW	Screening Coverage (%)	# of PLW MUAC below 23.0 cm*	**% Proxy GAM for PLW**
Oct					
Nov					
Dec					
Jan					
Feb					
March					

* Below 21.0 cm in Tigray

4.12 Any other observations you made or any risks of emergency nutrition?

_____
_____
_____

4.13 What were the major challenges in your emergency nutrition response experience?

_____
_____
_____
_____
_____

Flood

- Was there flood disaster in the last 6 months in the **Region /Zone**? Yes□ No□
- If yes, How many weredas affected _____, population affected_____
- Human Death due to flooding_____ yes or no
- If yes how many in number_____
- Are there displaced people due to flooding?Yes or No
- If Yes , how many_____
- was there outbreak in the flood affected area Yes□ No□

If yes , Type of outbreak _____Number of cases _____Deaths _____(specify the time period)_____
Type of outbreak _____Number of cases _____Deaths _____(specify the time period)_____
Type of outbreak _____Number of cases _____Deaths _____(specify the time period)_____
Type of outbreak _____Number of cases _____Deaths _____(specify the time period)_____
Type of outbreak _____Number of cases _____Deaths _____(specify the time period)_____

Any comment

_____
_____
_____
_____

Summary: Requirements/Needs/ 2016

Region/Zone	Type of Health and nutrition Emergency	Total estimated Beneficiaries[1]	Required finance

_____

Region	Zone	Woreda at Risk	Type of Risk	At risk Population