

**Addis Ababa University, College of Health Sciences,
School of Public Health**

**Ethiopia Field Epidemiology Training
Program (EFETP)**



Compiled Body of Works in Field Epidemiology

**By
Markos Gurmamo Kalore [BSc (HO)]**

**Submitted to the Graduate Studies of Addis Ababa University in partial
fulfillment for the degree of Master of Public Health in Field Epidemiology**

June, 2017

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Advisors

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Approval by Examining Board

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Abbreviation and Acronyms

AAU-SPH Addis Ababa University School of public health

AIDS Acquired Immune-Deficiency Syndrome

ANC Antenatal care

AR attack Rate

ART Anti-retroviral treatment

AWD Acute watery diarrhea

BMI Body Mass Index

BP Blood Pressure

BSC Bachelor of Science

CDC Communicable Disease Control

CI Confidence Interval

CTC Cholera treatment centre

DBP Diastolic Blood Pressure

EFETPEthiopian Field Epidemiology Training Program

EPHA Ethiopian Public Health Association

EPI Extended program on immunization

ETB Ethiopian Birr

FDRE Federal Democratic Republic of Ethiopia

FMOH Federal Ministry of Health

H.C Health Center

H.F Health Facilities

HH house Hold

H.P Health Post

HAD Health Development Army

HDA Health Development Army

H Health extension worker

HEWs Health extension workers

HIV Human Immune-Deficiency Virus

HMI Health Management Information System

IDSR Integrated Disease Surveillance and Response

ITN Insecticide treated net

ITNs Insecticide treated nets

KG kilogram

MDG Millennium Development Goal

MDSR Maternal Death Surveillance Report

MmHG millimeter of mercury

MPH Masters of Public Health

NCD Non Communicable Disease

NGO Nongovernmental Organization

ODF Open-field Defecation Free

OPD Outpatient department

OPD Outpatient department

OPV Oral polio vaccine

OR Odds Ratio

PF Plasmodium Falciparum

PF Plasmodium Falciparum

PH Public Health Emergency Management

PI Principal Investigator

PICT provided initiated counseling and testing

PMTCT Prevention mother to child transmission

PNC postnatal care

PTB Pulmonary tuberculosis

RDT Rapid diagnostic test

RHB Regional Health Bureau

RRT Rapid Response Team

Rx Treatment
RVI Retro-Viral Infection
SBP Systolic Blood Pressure
SNNPR Southern Nations Nationalities and Peoples Region
Sr. no Serial number
TB Tuberculosis
TT Tetanus toxoid
USA United States of American
USD United States Dollar
VCT Voluntary counseling and test
WhO World Health Organization
ZHD Zonal Health Department

Executive Summary

The Ethiopian Field Epidemiology training program started in 2009. Field Epidemiology and Laboratory Training Program is an in-service training program in field epidemiology adapted from United States Center for Disease Control and prevention (CDC) Epidemic Intelligence Service (EIS) program. The EFETP has two main components, each of which contributes the award of the Master degree (a class-room teaching component and practical attachment or field placement component).

During the field placement component I was engaged on Outbreak investigation, Surveillance Data Analysis, Surveillance system evaluation, District health profile development, participating in Disaster situation visiting including flood disaster, conflict Situation and Belg Assessment. The rest others are Project proposal development, Abstract writing for scientific conference, Peer review journal writing, Preparing Oral presentation in scientific conference, giving refreshment training for Zone and Woreda level PHEM officers and Trainings on Scabies out break Management and AWD outbreak management for Zonal PHEM Officers. By accomplishing these, I produced outputs that compiled in this Body of Work.

Outbreak investigation I-1: Malaria disease Outbreak investigation in Le-Zembara Kebele, Tembaro Woreda, Kembata Tembaro Zone, SNNPR, Ethiopia, in January 2016. In this malaria out break investigation we found as a result a total of 659 confirmed malaria cases (Attack Rate: 106 per 1000) and zero death were reported from January to February 2016 with the peak in February. Slide positivity rate was 77.8 %. Above 4 years age group were more affected by malaria (Age specific attack rate of per population was 121). Using bed net every night was preventive effect for the disease (Odds Ratio: 0.6, 95%CI, and 0.7-1.4). Presence of stagnant water (Odds Ratio: 6.2, 95%CI 1.5-24.8).

Outbreak investigation I-2:- Scabies disease outbreak investigation in Kacha Bira woreda, Kembata Tembaro Zone, SNNPR, Ethiopia, November 2016. We collected a total of 517 scabies suspected cases line list from 3 Kebeles with overall attack rate of 2.8/1,000 population with no scabies related death (CFR=0). Out of 517 total cases, 253(49%) of them were males and 263(51%) were females. The mean age was 12 year with which ranges from 1year to 65 years and most affected age group was 5-14 years with an attack rate of 1.6/1,000 populations. Majority of the cases were reported from Doreba kebele. On Multivariate analysis, contact history with scabies cases in past 2 months ,being age-group less than fifteen years were risk

factor for developing the scabies infestation and statistically significant with an AOR of 146 [95%CI=54.3-396.6 P= < 0.0001] and 2.355 [95%CI=1.36-4.03, P<0.0001] respectively.

Surveillance Data Analysis Report II: Five years (2004-2008) Zonal data of Severe Acute Malnutrition in Kembata Tembaro Zone data was analyzed. In the zone a total of 18, 175 total admissions of Severe Acute Malnutrition (SAM) cases were reported at Outpatient Therapeutic Program (OTP) and Stabilization Center (SC) in the last analyzed consecutive five years (2004 - 2008 E.C). Children 6-59 months of age constituted almost all % of new admissions. Admissions from severe acute malnutrition were decreased from 2004 to 2008 E.C, but for the last consecutive 4 years it was increasing. The total highest is in 2004 EC but constantly increasing from 2005-2008 EC. From the past consecutive five-year's report of SAM in the Zone 32 deaths with a fatality rate of 0.18 to 0.42% were reported.

Evaluation of surveillance system III: The completeness of the selected Health posts was 86%, health centers were 95.6% and selected woredas and Zone had 100% in 2016. The timeliness was difficult to know at health facility level due to absence of time of report. 5(28%) HEW in the health post did not get any training. 28 (100%) of respondents were accepted the surveillance system and its data was helpful to detect cases early. Written epidemic preparedness and response plan was only at two woreda offices and at zonal level. The case definition was not available in some health post visited; this may lead to low detection of malaria, measles and AWD from the community. During the analyzed period, there was no outbreak of malaria, AWD, and measles in the evaluated kebeles and woreda.

Scientific manuscript journal IV: Scientific journals prepared to communicate findings or present new ideas that help improve the health, safety and well being of the population. As a result a peer review journal was prepared on a disease entitled “Malaria disease Outbreak investigation in Le-Zembara Kebele, Tembaro Woreda, Kembata Tembaro Zone, SNNPR, Ethiopia, in January 2016”.

Abstracts for scientific Presentation V: Three abstracts were prepared. The three abstracts are " Scabies disease outbreak investigation in Kacha Bira woreda, Kembata Tembaro Zone, SNNPR, Ethiopia, November 2016", “Malaria disease Outbreak investigation in Le-Zembara Kebele, Tembaro Woreda, Kembata Tembaro Zone, SNNPR, Ethiopia, in January 2016” and “Surveillance Data analysis of five years (2004 -2008 EC) on Severe Acute Malnutrition (SAM) in zone of KT, SNNPR, Ethiopia.

Disaster situation visited VI: I was participated in Belg Assessment in June 2016 at South Omo Zone and Segen area People's Zone and 7 selected Woredas of the above Mentioned zones the assessment conducted mainly on health and nutrition disaster assessment and response. On the Belg Assessment some emergency decisions discussed with the regional concerned bureaus after field feedback and remedial actions taken based on it. And I also participated in Flood disaster situation need assessment and emergency response team member on in Halaba Special Woreda on May 2016. Because of flood disaster from Halaba special woreda of 36 flood affected kebeles, 13 deaths, 13,318 populations displaced from 2,673 Households. Based on the field disaster visited on site communications to the region, actions taken like emergency food supply, shelter management on refuges, road re-designing during flood time, evacuating the people from flooded sites to normal sites, temporary clinics for refuges arranged, potential health risks identified and planned for action. Besides to this I participated in Conflict Situation need assessment and management in Gedeo Zone, on October 2016. During this conflict disaster time from the Gedio Zone, 23 people died, 180 people injured, 14,787 people displaced from 3,241 Households. Temporary clinics at different prison sites and refuge sites established, prison hygiene and class adequacy for prisoners commented and corrected, re-putting on of the health system functionality supported by our team members.

Proposal development for research VII: Double burden of communicable and non communicable chronic disease like hypertension are undergoing epidemiological transition worldwide. The problem is of special concern in sub Saharan Africa due to this double burden of disease and transition to a more Western lifestyle. Ethiopia is one of the Sub-Saharan Africa which shares the problem that needs intervention. The aim of this study is to assess prevalence and factors associated with hypertension among adults, Halaba Kulito Town residents, Southern Ethiopia, 2016. A community based cross sectional study will be conducted. The study will include 422 adults (age >30) residing in mentioned area. Data on risk factors will be collected by interview method using Questionnaire adapted from WHO STEP wise approach to Surveillance on non communicable disease. In-addition measurements on Blood pressure, height and weight will be taken by using standard mercury sphygmomanometer, tape meter and digital balance respectively. The data will be entered into SPSS or EPI-Info 7.1 & analyzed.

Other additional outputs VIII: In the residency time additional outputs done were Conflict situation need assessment in Gedeo Zone on October 2016. It is mentioned above but counted as

other outputs in this document. Besides to this we provided refresher training for Zonal and Woreda level PHERM officers on EPRP, AWD outbreak management in CTC sites and Scabies outbreak management in community level. Besides to these, I gave the training on Severe Acute Malnutrition Management in stabilization (SC) sites and OTP sites which is modular training for Zonal and Woreda and Health facility Health Workers in year 2016 and 2017.

CHAPTER – I Malaria Outbreak Investigation

1.1. Malaria Outbreak Investigation in Le-Zembara, Tembaro Woreda, Kembata Tembaro Zone, SNNPR, Ethiopia, 2016

Back Ground: Malaria is Mosquito vector borne blood parasitic Disease and One of the major Health problems of humankind. Even though intensive control measure like vector control, environmental management through community participation, malaria disease remained public Health concern of our country. Unusual Malaria cases increment was reported from Le-Zembara kebele, Tembaro district, Kembata Tembaro Zone, SNNPR, Ethiopia, in January 2016. We investigated the outbreak to describe the Magnitude of the disease and identify the risk factors associated with the outbreak.

Method: Microscopic and RDT laboratory investigation conducted to confirm the disease. Person, place and time describe the disease magnitude. The threshold of the malaria disease in this kebele is compared by using the previous same season case data. We conducted the case control study with randomly selected 44 cases and 88 unmatched community controls. Epi Info 7.1.4 and Microsoft Excel were used to perform data entry and analysis. We also assessed environmental risk factors for the outbreak.

Previous years' malaria data was received to establish threshold level and understand trends of the disease. We conducted case control study randomly selected 44 cases unmatched 88 community controls from the community.

Result: - A total of 659 confirmed malaria cases (Attack Rate: 106 per 1000) and zero death were reported from January to February 2016 with the peak in February. Slide positivity rate was 77.8 %. Above 4 years age group were more affected by malaria (Age specific attack rate of per population was 121). Using bed net every night was preventive effect for the disease (Odds Ratio: 0.6, 95%CI, and 0.7-1.4). Presence of stagnant water (Odds Ratio: 6.2, 95%CI 1.5-24.8), presence of intermittent rivers in the area is (Odds of 1.6, 95%, 0.7-3.3 were associated with the disease occurrence.

Conclusion and Recommendation:- Presence of stagnant water bodies near living area , Low utilization of Insecticide treated bed nets in the households and staying more time outside during night time are most associated factors for this malaria disease outbreak .Kebele was not

sprayed with IRS (Propecxure chemical) since 12 months. We recommend the draining of stagnant water bodies, Proper Utilization of ITNs, and spray of IRS FOR households.

Key Words: Malaria, Outbreak, Case-Control, Le-Zembara, Ethiopia.

ETHIOPIA BY Region

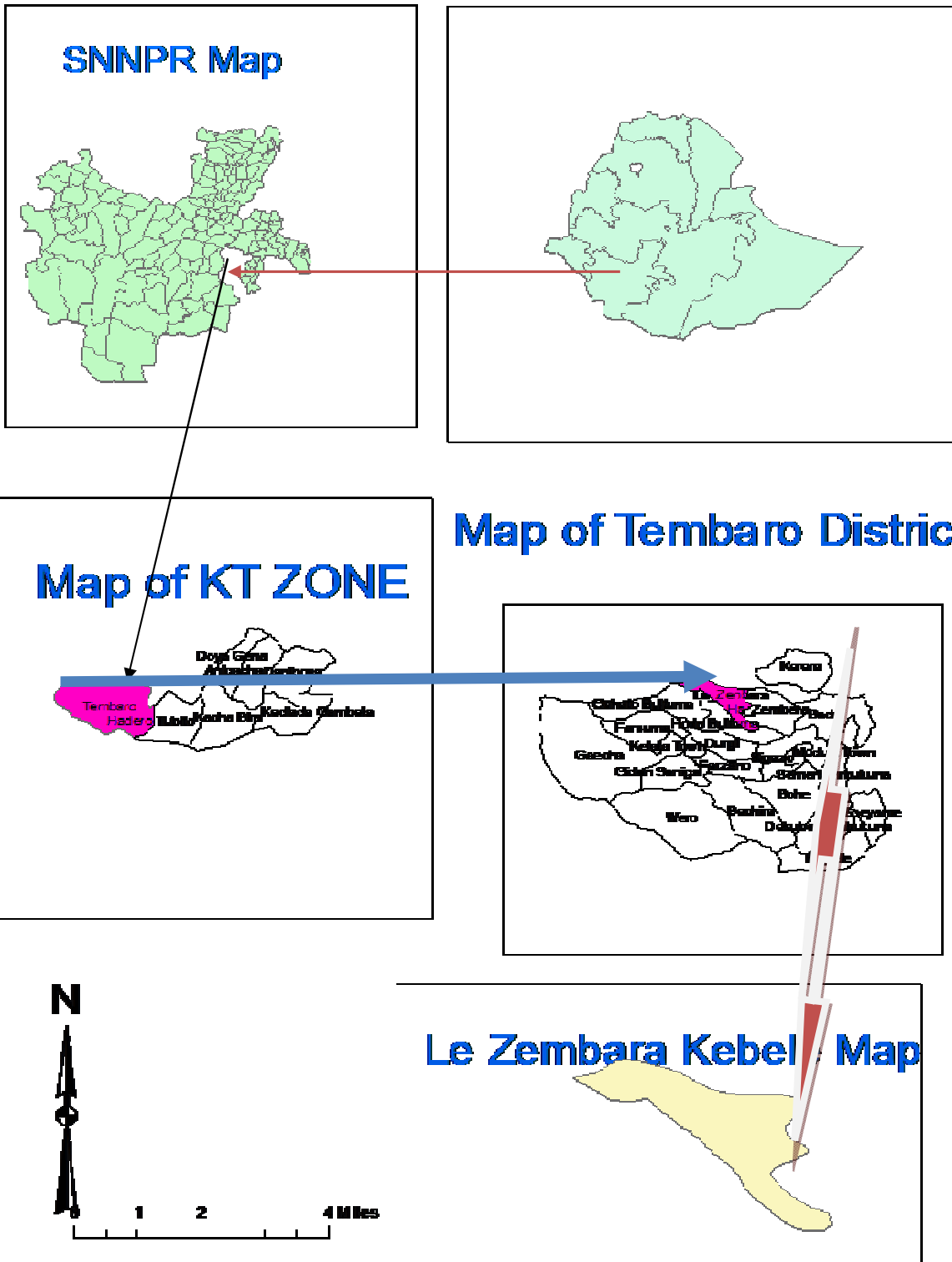


Figure 1 Map of Le-Zembara Kebele, Tembaro Woreda and Kembata Tembaro Zone, SNNPR, Ethiopia, 2016.

Introduction

Malaria is mosquito-borne parasitic disease and one of the most major public health problems of human beings. It makes occur 300 to 500 million episodes of acute illness and 1.2 million deaths per year worldwide. Malaria is affecting more than 100 countries of tropical and subtropical regions of the world. It is one of the leading causes of death in children under 5 years in Sub-Saharan African countries and accounts nearly 25% of all deaths.

Ethiopia is among the few countries with unstable malaria transmission. Consequently, malaria epidemics are serious public health emergencies. In most situations, malaria epidemics develop over several weeks, allowing some lead-time to act proactively to avoid larger numbers of illnesses and to prevent transmission. Approximately 52 million people (68%) live malaria-endemic areas in Ethiopia, chiefly at altitudes below 2,000 meters. Malaria is mainly seasonal in the highland fringe areas and of relatively longer transmission duration in lowland areas, river basins and valleys. Although historically there have been an estimated 10 million clinical malaria cases annually, cases have reduced since 2006 (National Malaria Guideline of Ethiopia, 3rd Edition, 2012).

Due to Ethiopian's complex topography and seasonal rainfall supports largely seasonal short term transmission, malaria is generally unstable that put population non immuned[Epidemiology and Ecology of disease and Health in Ethiopia, 3rd Edition Edited by Yemane Berhane; Damene Haile Mariam; Helmut kloos, Ethiopia 2011]. Unlike other Sub Saharan countries asymptomatic paracitimia is not a common phenomenon in Ethiopia. Recurrent outbreaks and epidemics are associated with cyclical climatic variations that lead to increased vector survival in the country. Generally malaria cases are peaked after two rainy seasons (March to May and July to September). The country has entertained the worst malaria Epidemic in 1958 with million cases and 150,000 mortality [Draft guideline for malaria control in Ethiopia; Malaria and other vector borne diseases prevention and control Department; Federal ministry of health, Addis Ababa Ethiopia, January 2002]

In years 200 1to 2005 Ethiopia with an average of 5 million cases per year and on average 9.5 million cases per year and accounts for 17% of outpatient visits to health institutions and also accounts 15 % of total admissions and 29% of inpatient deaths even though on those years the facility number is not like today to get patients to access health services in facilities to get full

data of inpatient and facility deaths will be not full among morbid population[, Malaria in Ethiopia , Aynalem Adugna ,Lesson 14]

Since 2005, Ethiopia has scaled up malaria control programs using key malaria interventions such as effective case management and vector control options (indoor residual spray and long lasting insecticidal nets) in Malaria endemic areas[Prevalence and risk factors for malaria in Ethiopia, Dawit G Ayele,Ethiopia; 2012]

SNNPR is one of the regions of Ethiopia which consists of prone to malaria epidemic in the country. SNNPR consists of 76 districts and many districts of the region identified to be hot spot areas for malaria disease. Among these districts Tembaro district is one of the hot spot districts among SNNPR Regional districts. The districts found in Kembata Tembaro Zone and the zone consists of 7 rural districts and 1 town administration. And the zone consists of 128 kebeles, Tembaro districts consists of 23 kebeles. Among 23 kebeles 17 kebeles are fully malaria risk kebeles. Le-Zembara Kebele is one of the malaria risks Kebeles with total population of 6208 by being the whole population is malaria risk population in the Kebele.

Usually the malaria case increment occurs in the Le-Zembara kebele in normal trends of other areas. The kebele has one health post and one Health center in nearby the kebele. The increased number of cases reported from Le-Zembara kebele at Epi -week3 of 2016.

After having this information we deployed to the Le-Zembara kebele and investigated the outbreak.

1.1.2. Objectives

1.1.2.1. General objectives

-  To investigate the malaria outbreak in Le-Zembara Kebele.

1.1.2.2. Specific objectives

-  To verify the existence of malaria outbreak in Le-Zembara Kebele
-  To summarize the magnitude of the disease by person, place and time.
-  To identify factors associated with contracting malaria during the outbreak.

1.1.3. Methods and Materials

1.1.3.1 Study Area

The study was conducted in Le-Zembara kebele, Tembaro District, Kembata Tembaro Zone, SNNPR January to February 2016.

1.1. 3.2. Case Definition

1.1.3.2.1. Community Case definition

Any person with fever OR fever with headache, back pain, chills, rigor, sweats, muscle pain, Nausea and vomiting OR suspected case confirmed by RDT.

1.1.3.2.2. Standard case Definition

Suspected Case: Any person with fever or fever with headache, back pain, chills, rigor, sweating, muscle pain, nausea and vomiting diagnosed clinically as malaria.

1.1.3.3. Study Design

1.1.3.3.1. Descriptive Epidemiology

Malaria was defined and identified as acute febrile illness with blood smear positive for malaria in Le-Zembara kebele in this outbreak. We reviewed the previous five years data of malaria from Le-Zembara kebele Health post and Hodo Health center level. According to five years data similar week's malaria case data for threshold comparing purpose. The cases number crossed the threshold by vast variation. During this outbreak investigation, number of malaria cases and deaths were collected from Health post and Health center in daily and weekly basis. The magnitude of this outbreak was described by age, sex, gott, week and months of the year. Besides to these the slide and RDT positivity rate was calculated as those positive for malaria among total examined.

1.1.3.3.2. Analytic Epidemiology

Unmatched case –control study was conducted to identify risk factors associated with disease from January 30 to February 8/2016. Community controls were selected from recently (within two weeks of interview) confirmed Malaria case patient's 1:2 ratio basis. Selected cases were those confirmed cases at Health posts, by outreach site in community by RDT and Health center and those controls were selected from the community of the

case residing kebele which is Le- Zembara residents. Controls were defined as having no malaria. During this investigation standard check list was used to assess risk factors including staying area during night, use of ITNS, spray of IRS, and presence of stagnant water near by the residing home. Selected case patients and controls were interviewed about the presence of mosquito breeding sites in their compound and nearby to home within 200 meters or less than it. Those sites include unprotected and uncovered surface water, open deep well and also the availability of uncovered plastic water container, old tires and broken glass bottles in the home area also were critically assessed.

Epi Info 7.1.4 and Microsoft Excel were used to describe and analyze associated risk factors. The significance of the risk factors for the Outbreak was determined through bivariate analysis by calculating Odds Ratio and 95% Confidence interval.

1.1.3.3.3 Laboratory Method

The blood film of thin and thick smears with a 100^x oil emersion microscopy was done by laboratory technicians and RDT were conducted in Health post level and at outreach level for the community in this malaria outbreak period to reach the part of the community with suspected sign and symptom of malaria in outbreak investigation.

1.1.3.3.4. Environmental Assessment

The collection of data was done for the presence of mosquito breeding sites from the district health office and health facilities. Since the outbreak is in a kebele, we made the observation of the presence of potential mosquito breeding sites and presence of anopheles larvae in stagnant water was done.

1.1.4. Result

1.1.4.1. Laboratory result

From January to March 2016, a total of 847 blood smear tests were done by microscopy and RDT for suspected malaria cases at all sites of the Le-Zembara kebele including the Health post, Health center , and the community outreach sites in the Kebele and 659 (77.8%)were positive. From the positive cases, 406(61.6%) were p.falciparum, 76(11.5%) were p.vivax and 177(26.8%) were mixed malaria cases.

1.1.4.2. Descriptive Epidemiology

A total of 659 cases per 6208 risk population (Attack Rate =106 per 1000) confirmed malaria cases were reported from Le-Zembara Kebele of Tembaro district from January to March 2, 2016. Death was not reported during the outbreak period. Slide positivity rate of the malaria during this outbreak period was 77.8% and increased by 70.8% compared to the same months of previous year January to February. The outbreak was detected at the 21 of the January 2016, that the Epi week3 report of the malaria cases were crossed the Epidemic threshold of 2015 (80 cases were reported for a threshold of the 2cases). The highest number of cases was reported there in WK 8 of 2016 that is 245 cases. Total of the 428 cases were reported at the total of WK 5-8 in one month (four weeks duration) duration. During the last four weeks 2012-2015 there was no increment of malaria cases in that Le-Zembara Kebele. A total of 23 cases were reported in 2 months duration of 8 WKS with the same period of the four years in 2012-2015. But 659 cases in 2016 year are reported within two Months duration.

Table 0-1 . 1.1.1 Malaria case Trend of Le-Zembara Kebele of five years, Tembaro District, KT Zone, SNNPR, Dec-March, 2016.

Year	December	January	February	March
2011	0	0	10	11
2012	0	0	13	14
2013	2	5	4	12
2014	0	0	0	0
2015	0	2	0	1
2016	3	267	392	273 (one wk)

Table 0-2Table 1.1.2. Confirmed malaria cases within two Months of the same period, in Le- Zembara Kebele, KT Zone, SNNPR, 2011-2016.

Malaria Cases				
Year	PF	PV	MIXED	Total Cases
2011	7	1	2	10
2012	7	2	4	13
2013	5	4	0	9
2014	0	0	0	0
2015	2	2	2	2
2016	406	76	177	659

Table 0-3 , 1.1.3 Malaria Attack rate per 100 and case Fatality ratio by age and sex, within two Months of the same period, in Le-Zembara kebele, Tembaro District, Kembata Tembaro Zone, SNNPR, Ethiopia, 2011-2016

Variables		Population of kebele	Malaria risk population	≠of cases	≠Deaths	Attack Rate per1000	Case Fatality Ratio (%)
Age	0-4	1018	1018	29	0	28	0
	>4	5190	5190	630	0	121	0
Sex	Male	3075	3075	354	0	115	0
	Female	3135	3135	276	0	88	0

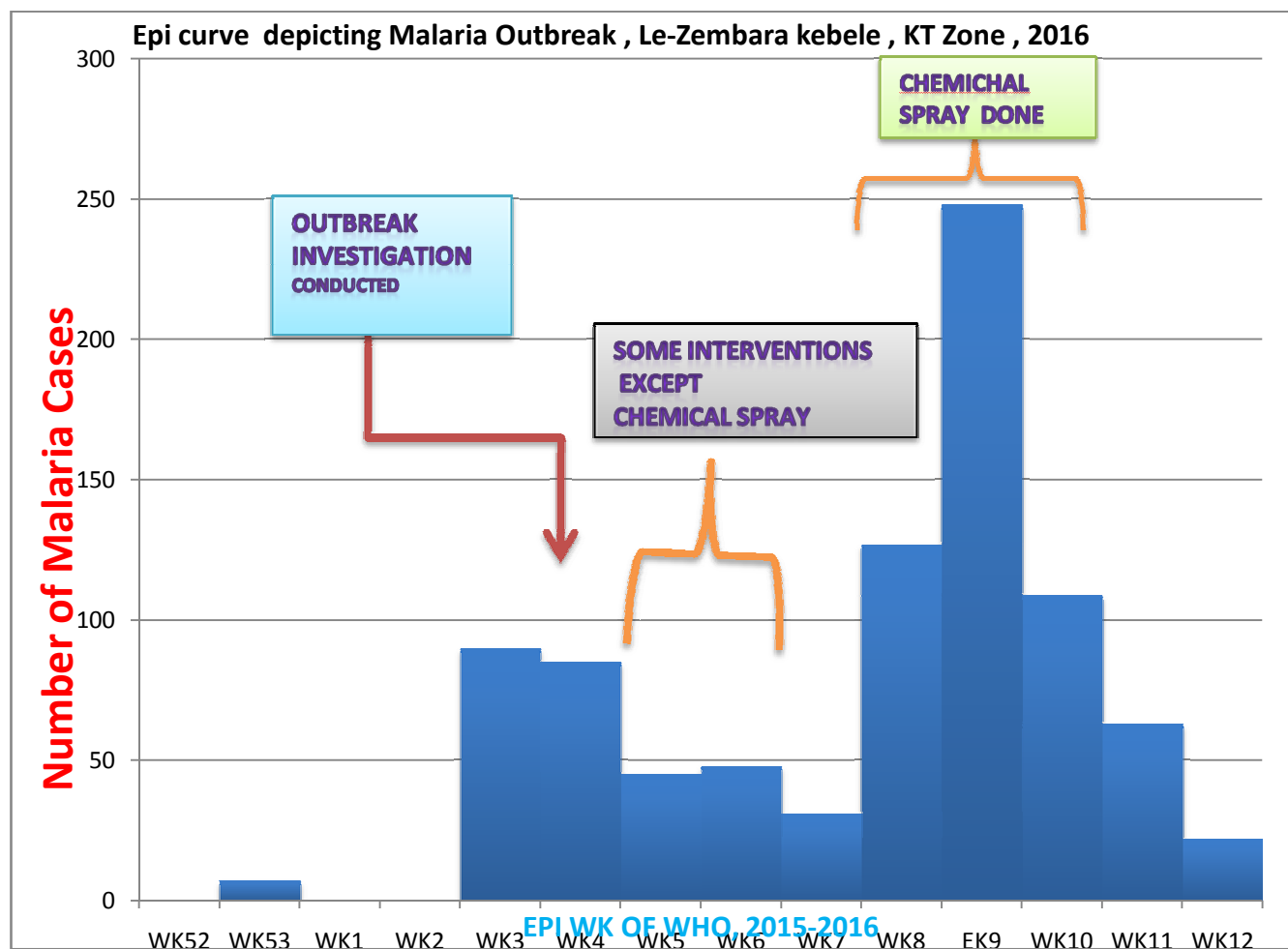


Figure 2 . Epi curve of Malaria outbreak investigation, in Le-Zembara kebele, Tembaro District, Kembata Tembaro Zone, SNNPR, Ethiopia, 2011-2016.

1.1.4.3 Analytic Epidemiology

During this case control study 44 malaria case patients and 87 community controls were selected and investigated from Le-Zembara kebele. Selected cases and controls are unmatched. Of 44 case patients 28 (63.6%) were males and 15 (36.4%) were females. The mean and median age of the cases and controls were 18, 21 years and 20, 23 respectively.

Presence of person with similar signs and symptoms in the home before 2 weeks of onset was associated with the disease (Odds ratio: 4.4, 95% confidence interval: 1.04 – 18.6). Cases were less likely to use insecticide treated bed nets compared to controls that are 22% among cases and 31% among controls using ITNS with Odds ratio of 0.6 and 95% confidence interval: 0.7-1.4.

Table 0-4 : 1.1.4 Demographic; Personal and Environmental Protection Factors among Malaria cases and unmatched Controls; Le-Zembara Kebele, Tembaro district, Kembata Tembaro Zone, SSNPR, Ethiopia, 2016.

Characteristics		Case (N=44)	Control (N=87)	Estimated Odds Ratio	95% Confidence Interval
Educational Status	illiterate	11	9	2.8	1.09-7.6
	Literate	33	78		
Occupation	unemployed	2	2	2	0.2-14.8
	Employed	42	85		
Sleeping under ITNS	yes	10	27	0.6	0.7-1.4
	No	34	60		
Presence of person in home with malaria S/S within two WKS	Yes	6	3	4.4	1.04-18.6
	No	38	84		
Presence of river water nearby living home	Yes	20	30	1.6	0.7-3.3
	No	24	57		
Plant in container at nearby living home	Yes	1	2	1	0.08-11.2
	No	43	85		
Broken glasses	Yes	2	2	2	0.2-14.8
	NO	42	85		
Gutter nearby	YES	3	5	1.2	0.3-5.2
	NO	41	82		
Presence stagnant water nearby	Yes	8	3	6.2	1.5-24.8
	No	36	84		
Uncovered well	Yes	5	3	3.5	0.8-15
	NO	39	84		
Staying outside during night	Yes	2	2	2.02	0.2-14.7
	NO	42	82		
Travel to other area before two weeks of disease onset	Yes	11	20	1.1	0.4-2.6
	No	33	67		

Presence of stagnant water nearby living area for mosquito breeding was associated with malaria outbreak (Odds ratio: 6.2, 95% confidence interval: 1.5 - 24.8). Staying outside during night time is associated with malaria case (Odds ratio: 2.02, 95% confidence interval: 0.2-14.7). Illiteracy is found to be associated with the cases with odds ratio of 2.8, 95% confidence interval is 1.09-7.6.

Presence uncovered well is found to be associated with the cases with (Odds ratio: 3.5, 95% confidence interval: 0.8-15). Also the presence of broken glasses home area is associated with the disease (Odds ratio: 2, 95% confidence interval: 0.2-14.8).

Neither Use of protective clothes nor repellents is common; neither in cases nor in controls is being used. Indoor residual spray was not done in the Kebele last year that it is sprayed before 12 month in the Kebele, so that it is not statistically significant conducted for both cases and controls.

1.1.4.4. Environmental Assessment

By observing in the field sites in the kebele, the uncovered stagnant water bodies are observed.

Observation was conducted for availability of stagnant water, uncovered plastic water containers, broken glass bottles and other potential mosquito breeding sites. In different sites of the kebele, larvae of mosquitoes were identified in observed stagnant water bodies by naked eyes.

1.1.5. Discussion

Many factors may have contributed to the occurrence of this outbreak in Le-Zembara Kebele. Multiple risk factors were assessed during the investigation besides intervention activities. Usually poor individual practice towards Malaria prevention, Temperature, rain fall, population movement is contributors for malaria the existence of malaria outbreak. This outbreak was detected after the middle of January 2016. The small amount of rain fall in kebele made stagnant water in this kebele of seasonal rain and some local river water bodies became stagnant due to road construction bridges and unwashed away of small stagnant waters increased malaria incidence in the kebele. Besides to these the high temperature and the low altitudes (some areas registered 1490 m by GPS measurement) are also contributed the breeding of mosquito on the site. There were no death recorded in the kebele, the possible reason could be strong case detection and management at time of outbreak management including at the period of outbreak.

The Study done at India on risk factors of malaria outbreak indicates the lower risk of malaria attack people sleep under ITNs, and it almost concedes with this study. Also the case control study which was conducted assessing risk factor for malaria outbreak by Gemechu Shume in Oromia Region, Ethiopia ; has almost the similar findings with this study on stagnant water is the risk factor for malaria outbreak.

The presence of stagnant water nearby living environment is found to be the major cause for this outbreak since it is the good media for mosquito larvae breeding and observed by naked eye. The Villages closer to those water bodies are more affected than others. Research conducted in Gurau Region of Peru also showed the availability of water bodies has higher association with malaria attack rate and transmission possibility in human population. Besides to these the last year the kebele spray was skipped due to shortage of chemical for Indoor Residual Spray and this probably gave weakling gate for mosquito availability and resting in households.

When we compare sex, male sexes are more affected than females; this could be the activity done outdoors by males is higher than females at night times. Among this study respondents are also higher number of males stay outside during night times and that could be the reason to be bitten by mosquito at night time and contracting the malaria disease.

1.1.7. Conclusion

There was malaria Outbreak in Le-zembara Kebele, Tembarodistrict, Kembata Tembaro Zone, and SNNPR. The age group of above four years is more affected in the outbreak of malaria disease. The villages called Lemeja and 3rd Zembara is more affected by malaria outbreak. The presence of stagnant water, staying outside the home during night time, some uncovered wells for mosquito breeding plus the presence of person with malaria sign and symptoms are associated factors for having or contracting the malaria disease in this Le- Zembara kebele. Even though the outbreak was notified timely, the combating strategies like Indoor residual for focal spray was late due to shortage of the chemical. The already available old ITNs was not being monitored for proper utilization in the HHs, and the Abate chemical for spraying on water bodies for larvaecidale purpose was bit expired and the kebele is still utilizing it. Due to shortage of Propecxure chemical for the kebele at previous year time, it was not totally sprayed in the kebele at expected time period of spray in 2015.

Observed gaps administratively which we obtained from the health system

Indoor residual spray (IRS) was not sprayed In the Kebele Since 12 months. The ITNS Replacement was not done within two years , that is 40% when assessed 2 years data of ITNs. ITNS unloaded from the region to the woreda was returned back to other woredas by refusal of the woreda health head who were working formerly. The new tar road was being constructed which is crossing the kebele long distance. Stagnant water bodies beneath the bridges & other areas due to small amount of rain fall was not drained at the before the outbreak time.

1.1.8 Public Interventions

A total of 1,300 pieces of new ITNS (Insecticide Treated bed nets) distributed for the kebele during the outbreak. The environmental management like draining of the stagnant water due to newly being constructed road is bridges is also made drain during the intervention time. Community was mobilized and the proper utilization of ITNs in the HH is enhanced. The case detection and case management at each level like outreach community, Health posts and Health centers level was well done during the outbreak management period. Additional IRS was done 100% at the kebele by spray chemicals those are , Ethio-Propecxure and Bendiocarb chemicals.

The chemical spray was delayed due to loading and unloading dalliance to regional from Adama Tulu chemical industry. After spray of the chemical the outbreak of malaria is stopped. Additional drug and RDT for diagnosis is supplied to the zone and woreda to combat the Malaria outbreak.

1.1.9. Recommendations

- ➡ Regular indoor residual spray per required standard should be kept in place and sprayed with in standard.
- ➡ Identifying and draining potential mosquito breeding site has to be done.
- ➡ Since the kebele is malarious, the ITNs should be distributed as standard for the kebele households and the proper utilization of the ITNs should be monitored and maximized.
- ➡ At weekly basis trend of malaria cases should be monitored and reported for the next level.
- ➡ Community ownership strengthening has to be done in 1to5 level and at health Development army level to manage the environment at abate chemical spray community participation.

Besides to this multi-sect oral collaboration and woreda administration has to play great role on facilitating the outbreak control managing activities.

- ➡ Weekly and monthly morbidity data has to be kept and documented.
- ➡ ITNs coverage has to be done at yearly basis in district and kebele levels.

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1.2. Scabies Outbreak Investigation, Kacha Birra District, Kembata Tembaro Zone, SNNP region, Ethiopia, November 11-20, 2016

Abstract

Introduction: Scabies is one of the common but neglected parasitic diseases and major public health problem globally and resource limited country particularly. It affects about 300 million people worldwide each year with incidences increase during natural and manmade disasters, and can affect all age group, both sexes, all races, and at all social class. It usually spread by direct, prolonged, skin-to-skin contact with a person who has scabies infestation.

Objective: It was to investigate the Scabies suspected outbreak and its risk factors in Kacha Bira district of Kembata Tembaro zone, Southern Nations Nationalities & peoples Region, Ethiopia.

Methods: We conducted community based unmatched case-control (1:3) study design. Data were collected Using face to face interview administered structured questionnaire. Data were analyzed using Epi info and MS Excel is also used.

Result: we collected a total of 517 scabies suspected cases line list from 3 Kebeles with overall attack rate of 2.8/1,000 population with no scabies related death (CFR=0). Out of 517 total cases, 253(49%) of them were males and 263(51%) were females. The mean age was 12 year with ranges from 1year to 65 year and most affected age group was 5-14 years with an attack rate of 1.6/1,000 populations. Majority of the cases were reported from Doreba kebele. On Multivariate analysis, contact history with scabies cases in past 2 months and being age-group less than fifteen years were risk factor for developing the scabies infestation and found statistically significant with an AOR:146 [95% CI=54.3-396.6 P= < 0.0001] and 2.355 [95%CI=1.36-4.03, P<0.0001] respectively. Active case search, health education & drug treatment conducted during investigation.

Conclusion and recommendations: we confirmed scabies outbreak was occurred in Kacha Birra District of Kembata Tembaro Zone, SNNP region. Contact history, presence of person infested with scabies in the family and age less than 15 years were risk factors for transmission of scabies. We recommend continuous active case search at all kebele levels, Prevention methods, controls especially at community level including schools and mass treatment.

Keywords: Scabies outbreak, risk factors, Kaca Birra District.

Introduction

Scabies is one of the common but neglected parasitic diseases and major public health problem globally and resource-limited countries particularly. It affects about 300 million people worldwide each year. Its incidences can increase during natural and man-made disasters (1).

Scabies occurs at all age group, sexes, all races and at all social classes. It is caused by the mite *Sarcoptes scabiei* variety *hominis*, an arthropod of the order Acarina (2).

The scabies mite usually spread by direct, prolonged, skin-to-skin contact with a person who has scabies. It can also spread easily to sexual partners and household members. Scabies sometimes can spread indirectly by sharing articles such as clothing, towels, or bedding used by an infected individuals. A tiny scabies mite burrows into the epidermis of the skin where it lives and lays its eggs. The most common symptoms of scabies are severe itching especially at night and papular skin rash that may affect much of the body or be limited to common sites like inter digital space, flexor of the wrist, elbow, armpit, penis, nipple and buttocks. Sign and symptoms usually begin 3-6 weeks after primary infestation (3).

Untreated and delayed diagnosis of scabies can contribute to prolonged outbreaks and is linked with secondary bacterial infection which may lead to cellulitis, folliculitis, boils, impetigo, or lymphangitis and may also exacerbate other pre-existing dermatosis such as eczema and psoriasis (4).

Many secondary bacterial infections were caused by group A streptococci and *Staphylococcus aureus*, which leads to nephritis, rheumatic fever, glomerulonephritis, chronic renal diseases, rheumatic heart diseases and sepsis especially in developing countries(5).

The highest attack rates in developing countries are among preschool children to adolescents and rates significantly decreased in mid-adulthood, and increase in the older age. Overcrowded living conditions, sleeping together, sharing of clothes, sharing of towels, poor hygiene practices, malnutrition and travel to affected areas are common risk factors for scabies (6).

In Ethiopia, as somewhere else, scabies is common where there is poverty, drought, poor water supply, poor sanitation and overcrowding (7).

Next to the 2015 and 2016 El-Nino event which affected many countries worldwide including Ethiopia, drought, severe water shortage, malnutrition, flooding, landslide and many disease outbreaks were occurred in many regional states of Ethiopia such as Amhara, Tigray, Afar, Oromia and Southern Nation Nationality People's Region. This compromises the hygiene and sanitation practice of the rural community and gives favorable environment for water-washed communicable diseases like scabies and others. Example, as of December 25, 2015, a total of 77 districts [22, 47 & 8 from Tigray, Amhara and Oromia respectively] were affected by scabies (8). Hence, the aim of this study was to investigate the scabies suspected outbreak and its risk factors among Kacha Bira district residents, in Kembata Tembaro Zone of Southern nation nationality people's Region, Ethiopia.

2.1.1 Objective

2.1.2. General objective

To investigate the Scabies suspected outbreak and Risk factors in Kacha Bira district of Kembata Tembaro Zone, SNNP Region, November, 2016.

2.1.2.1. Specific objectives

-  To verify the existence of the outbreak.
-  To describe the outbreak in terms of person place and time.
-  To identify the risk factors of the outbreak
-  To take possible intervention measures based on finding.

Methods and materials

Study area and population

The study was conducted in, Kacha Bira district which is one of the 7 districts and 3 Town Administrations in Kembata Tembaro Zone of Southern Nations Nationalities People's Regional State. Administratively, the district has 23 kebeles of which 3 and 20 of them are urban and rural respectively.

As of 2007 GC population and housing census projection, the 2009 EFY population of the district is estimated to be 133,475 of which, 65,420 and 68,072 of them are males and females respectively and 27,239 households with the average household size of 4.9 persons.

Shinshicho Town is the district capital, is found at 17 km from Durame, the capital city of Kembata Tembaro zone and 134 km from Hawassa city, the capital of the South Nation Nationality and People region in the southwest and 365 km from Addis Ababa.

The majority of the population (80.6%) resides in the rural and the remaining 19.4% of them were urban dwellers.

Currently, the Woreda has 1 district hospital, 6 health centers, and 23 health posts with 100 % potential health service coverage. The overall water supply coverage of the district was 47 %.

Scabies Outbreak investigated Kacha Bira Woreda, SNNPR, 2016

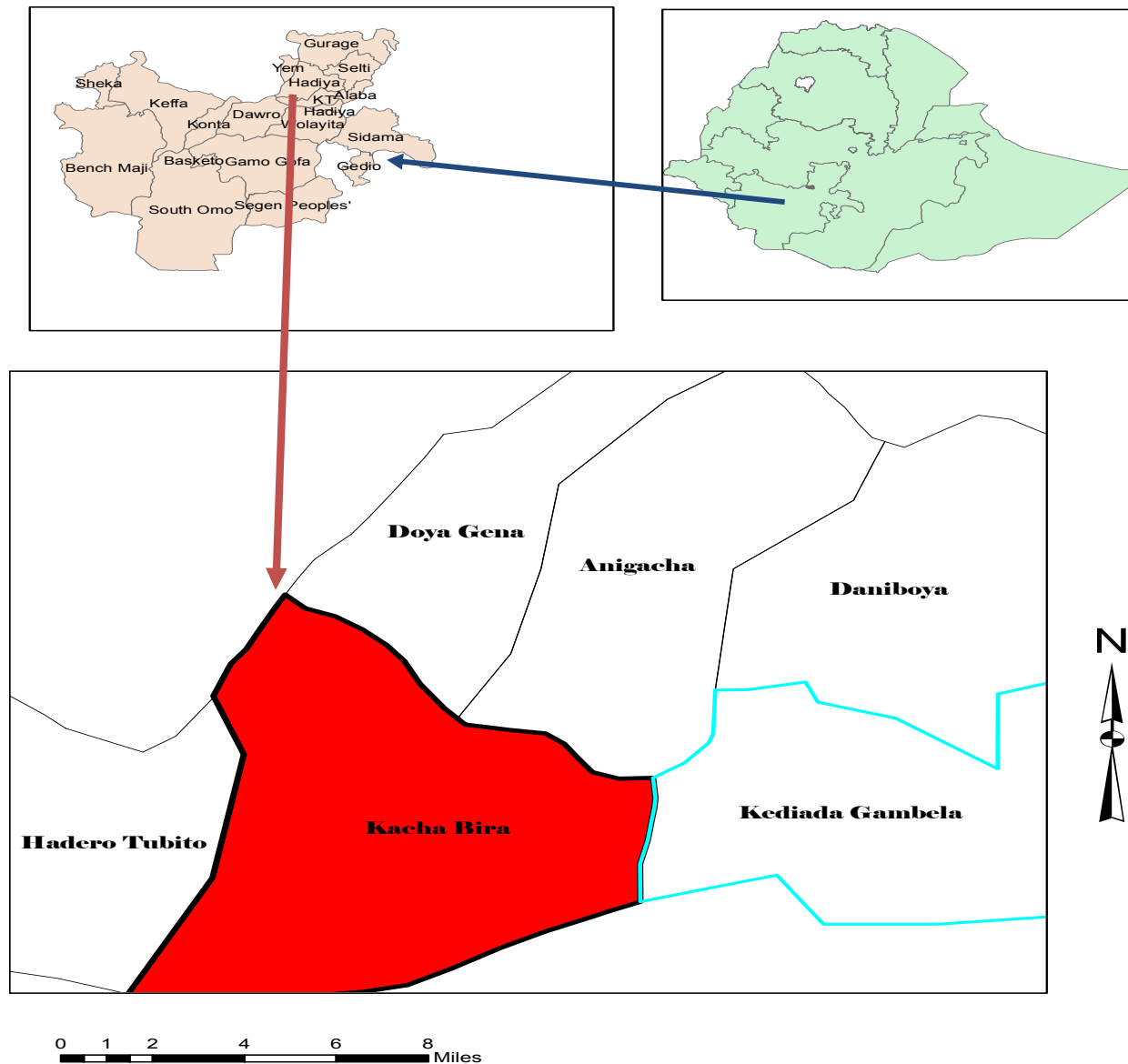


Figure 3Figure. 1.2.1 Map of the Kacha Bira woreda, in the KT Zone SNNPR, Ethiopia, November, 2016.

Study design and period

We conducted community based unmatched case-control (1 to 3 ratio) study design and from December 1- 10/2016 to identify potential risk factors and ways of transmission. Line listing data analysis was performed.

Data collection methods and tool

We used a structured questionnaire, which is adapted from different literatures, to collect information including socio-economic, demography characteristics, and knowledge of respondents about the scabies, clinical features & management of the cases and the possible risk factors and prevention measures. The data were collected through face-to-face interview with individual respondents. Two unmatched controls were selected per each case. Line list of cases were collected for further analysis.

Inclusion and exclusion criteria

Inclusion criteria

Cases: Any residents of kebeles selected for investigation, Kacha Bira district, with sign and symptoms (itching, rash...) of scabies and agreed to participate in the study at data collection period.

Controls: Any residents of kebeles selected for investigation, Kacha Bira district, without any signs and symptom of scabies but neighbors to selected cases during the investigation period and agreed to participate in the study.

Exclusion criteria

Cases: Those who refused to participate, or none-residents of the selected kebeles excluded.

Controls: Those who refused to participate as well as family members from the same household excluded.

Data analysis procedures and quality control

The data were entered, cleaned and analyzed using EPI Info version 7.1.4 and Microsoft Office Excel 2007. Arc map was also used for administrative area of the study. Results were presented

using descriptive tables and charts. Attack rate, P-value and 95% confidence interval (CI) Odds ratio (OR) were used for deciding the significance of the associations.

Data dissemination

Written report will be prepared and shared to Addis Ababa University, School of Public Health, Field epidemiology training program resident advisors, mentors and coordinators and Kacha Birra District and SNNP regional health bureau PHEM core process.

Study Variables

Dependent variable: scabies infestation and secondary infection

Independent variables- Socio demographic (example; age, sex, occupation, marital status...), knowledge, Travel history, contact history, source and amount of water for personal hygiene and other purposes, over-crowding and others.

Ethical consideration

Letter of permission was obtained from SNNP Regional Health Bureau PHEM core process and other concerned organization. Informed consent was also obtained from all the respondents.

Case definition

Suspected case: A person with signs and symptoms similar with scabies

Confirmed case: A person who has a skin scraping in which mites, mite eggs or mite feces have been identified by a trained health care professional

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 with the case

Results

4.8.1 Descriptive Epidemiology

Scabies cases were reported from Kacha Bira district, on Oct, 2016. From November 11 -20, 2016. We identified a total of 517 suspected scabies cases line lists from 3 Kebeles of Kacha Bira district, Kembata Tembaro Zone. The overall attack rate of affected kebeles was 2.8% (28 cases per 1,000 populations) with no scabies related death (CFR=0).

Description of scabies cases by person

Out of 517 total suspected scabies cases, 299(58%) of them were males (figure-2). The mean age was 12 years which ranges from 9 month to 65 year.

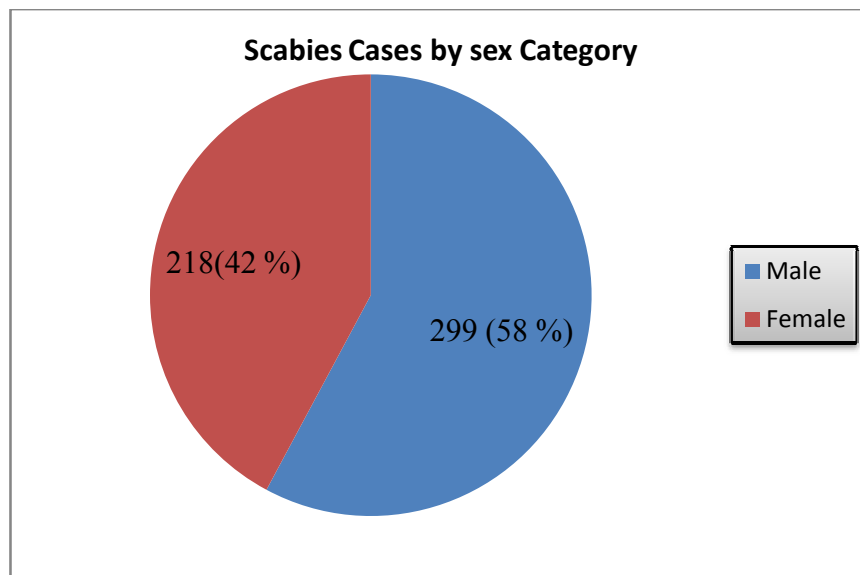


Figure 1. 2.2: The proportions of scabies cases by sex, Kacha Bira District, Kembata Zone, SNNP region, Ethiopia, November 11-20, 2016

Age group 5-14 year was the most affected with an AR of 47 per 1000population followed by 15 years and above age groups which accounts 15 per 1000 population (table-1). The sex category may depict that more contact at field play of male sexes who active enough for repeated contact exposures, like footballs and school games.

Table 0-5Table 1.2.1: Scabies attack rate by age-group of affected kebeles, Kacha Birra District, Kembata Tembaro Zone, SNNP region, Ethiopia, November 11-20, 2016

Age group	Age group population	Number of cases	Attack rate per 1,000
0-4	2,700	75	0.4
5-14	6,120	293	1.6
15+	9,540	149	0.8
Total	18,000	517	2.8

Most affected populations were children in the primary school and most of them show sign of secondary infection attributable to scabies. Example, picture 1 and 2 indicate cases with secondary infection those captured during investigation.



Figure 5 Figure. 1.2.3. Photos of Scabies cases, taken at Field visit

Description of scabies cases by time

The district health office received rumor of scabies cases from Doreba and Hobicheka kebeles on October 25, 2016. On October 26, 2016 district health office notified situation to Kembata Tembaro zone health department. Then zonal health department notified the situation to regional health bureau on October 27, 2016. According to the Epidemic curve, the initial cases developed the sign and symptoms on 2nd Oct, 2016. Besides to this the Epidemic curve is shows below which the cases were at peak level on Oct 26-Nov1, 2016.

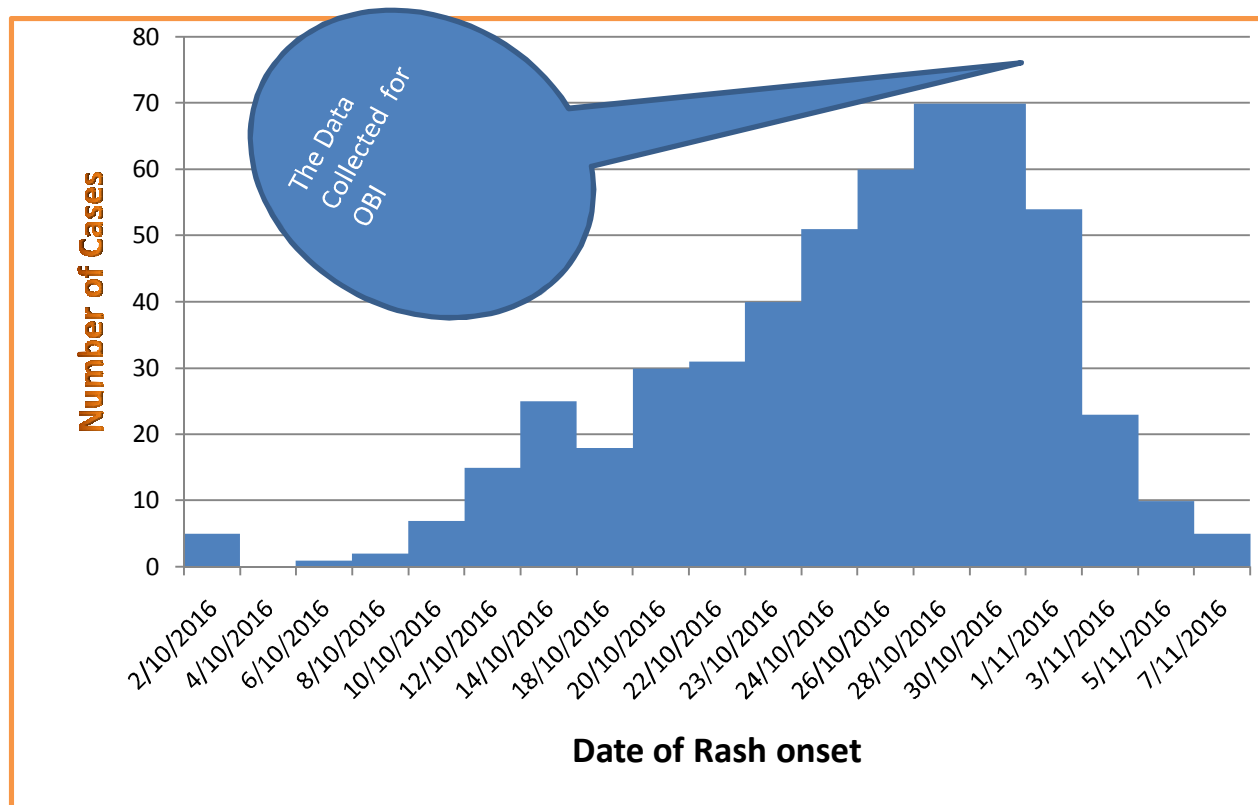


Figure 6Figure 1.2.4: Epidemic curve of scabies outbreak by date of onset, Kacha Bira District, Kembata Tembaro Zone, SNNP region, Ethiopia, November 11-20, 2016.

Analysis of Case Control study (analytical Epidemiology)

A total of 85 cases and 170 controls (total=255) were selected from the community to identify the risk factors for scabies outbreak in affected kebeles of the Kacha Birra district, Kembata Tembaro Zone with a ratio of one case to two controls.

Almost all cases had a history of rash and itching, and 51(60%) of them had sign of secondary infection. Among the total 85 interviewed cases, 52(61 %) of them were males and 33(39%) were females and out of 170 controls, 99 (58%) and 71(42%) of them were males and females respectively. Regarding to the age, it ranged from 1 to 65 years with mean of 12 years for cases and from 1 year to 51 years with mean of 20 years for controls.

Table 0-6 Table 1.2.2 Socio- demographic characteristics of the cases and controls, Kacha Bira District, Kembata Tembaro Zone, SNNP region, Ethiopia, November 11-20, 2016

Variables		Case, n (%)	Control, n (%)	Total, n (%)
Sex	Male	51(61)	99(58)	150(59)
	Female	33(39)	72(42)	105(41)
Age-group	(0-4)	9(11)	13(8)	22(9)
	(5-14)	39(45)	45(27)	94(37)
	(15-44)	35(42)	99(57)	134(52)
	(45+)	2(2)	13(8)	5(2)
Occupation	Student	42(48)	61(36)	103(40)
	Unemployed	3(3)	3(2)	6(2)
	Merchant	3(3)	3(2)	6(2)
	Farmer	41(46)	99(58)	140(55)
Educational Status	Secondary school	6(7)	12(7)	17(7)
	Primary	47(55)	99(58)	146(53)
	Read and writing only	14(16)	17(10)	31(12)
	Illiterate	19(22)	43(25)	62(28)
Marital status	Na*	15(18)	30(18)	45(18)
	Married	48(56)	96(55)	144(55)
	Single	21(25)	46(27)	67(27)
Family members	>5	72(85)	110(65)	182(72)
	≤ 5	13(15)	60(35)	73(28)

Concerning to knowledge, of the total 255 study participants, 80(31%) know the scabies and 175(69%) of participants didn't know the scabies whether it is preventable diseases or not.

Among the total 255 interviewed cases and controls 37 (15%) of them had travel history to scabies affected area. scabies can be cured by modern medicine. As depicted here in table (1.2.2), contact history with in the last two months with scabies patient has a great risk of developing the scabies disease. That is with OR: 145 of [95% CI= 54.3- 396.6, $p < 0.0001$]. Sleeping with others, that is two and more persons together is also found to be the risk factor with OR: 19.6 of [95% CI =9.3-41.5, $P = < 0.0001$].

Table 0-7Table 1.2.3: Bi-variety analysis of Scabies outbreak, Kacha Bira District, Kembata Tembaro Zone, SNNP region, Ethiopia, November 11-20, 2016

Variables		Case, n (%)	Control, n (%)	Crude OR(95%CI)	P values
Sex	Male	51	99	1.07 (0.6-1.8)	0.89
	Female	34	71	1.07	
Age-group	(0-4)	9	13	1.430 (0.585-3.492)	0.0028
	(5-14)	39	45	2.355 (1.36-4.06)	
	15-44	35	99	0.50 (0.29-0.85)	
Occupation	45+	2	13	0.29 (0.06-1.32)	0.042
	Student	42	61	1.74 (1.02-2.96)	
	Unemployed	3	3	2.03 (0.402-10.31)	
	Merchant	3	3	2.03 (0.402-10.31)	
Educational Status	Farmer	41	99	0.66 (0.39-1.12)	1.0000
	Secondary school	6	12	1.00 (0.361-2.763)	
	Primary	47	99	0.88 (0.52-1.49)	
	Read and writing only	14	17	1.77 (0.82-3.79)	
Family members	Illiterate	19	43	0.58 (0.459-1.57)	0.0007
	>5	72	110	3.02 (1.54-5.89)	
Presence of person with itching in family	≤ 5	13	60		<0.0001
	yes	78	10	178(65-486)*	
Family Size	No	7	160		0.0007
	≤5	13	60	0.33 (0.16-0.64)	
know scabies	>5	72	110		0.25
	yes	31	49	1.41 (0.81-2.46)	

Travel history	No	54	121		
	Yes	11	26	0.823(0.385-1.75)	0.707
Contact history with scabies cases in past 2 month	No	74	144		
	Yes	79	14	146..71 (54.3-396.6)*	< 0.0001
sleeping with others	No	6	156		
	yes	49	11	19.6 (9.3-41.5)*	< 0.000
Source of water for daily bases	No	36	159		
	Pipe Water	43	130	0.31 (0.18-0.54)	0.00005
	Spring	7	4	3.7 (1.05-13.09)*	0.045
	Pond	15	15	2.2(1.02-4.77)*	0.061
	River	20	20	2.30 (1.163-4.57)*	0.018

Presence of a person with scabies in the family is with the highest risk of developing the scabies disease according to the data with OR: 178 and [95% CI= 65-486, P=< **0.0001**].

Others are the Family size being more than 5 is also found to be the risk factor with OR: 3.02 and [95% CI ranges 1.54-5.89, p=0.0007]. Other factors are not found statistically significant according to the data.

Table 0-8Table 1.2.4 : Bivariate Verses Multivariate analysis of risk factors associated with scabies outbreak, Kacha Bira District, Kembata Tembaro Zone, SNNP region, Ethiopia, November 11-20, 2016.

Risk factors	OR(95%CI)	P-values
Age-group (5-14)	2.355 (1.36-4.06)	0.0028
Presence of person with itching in the family	178(65-486)*	<0.0001
Family Size	3.02 (1.54-5.89)	0.0007
Contact history with scabies cases in past 2 month	146..71 (54.3-396.6)*	< 0.0001
Sleeping with other	19.6 (9.3-41.5)*	< 0.0001
Source of water for daily bases Spring,	3.7(1.05-13.09)	0.045
Pond& River respectively.	2.2(1.02-4.77)	0.061
	2.30(1.16-4.57)	0.018

Interventions done

Mass Drug administration of the permethrine treatment conducted for all scabies cases and contacts. Active cases search was done and mobilized for treatment. Cases with secondary infections treated with antibiotics accordingly. Scabies management technical guideline in both hard and soft copies was distributed to the Zonal health department and the woreda health office as well as the PHEM focal persons. The zonal and the woreda health professionals were trained on the National Guideline of scabies. The kebele members were given Health Education on scabies prevention and control.

Discussion

We investigated that scabies outbreak was occurred in Kacha Birra district of Kembata Zone, Southern nation nationality and people Regional State, Ethiopia. We identified a total of 517 suspected scabies cases line lists from 3 kebeles during investigation period. The overall prevalence was 2.8 % in studied area and zero case fatality rate. More than half of the cases (58%) were males. This result was in agreement with the results (male=52.8%) of population-based study conducted in Taiwan countries (9).

Children in the primary school were most affected populations and most of them show sign of secondary infection attributable to scabies. This may due to the school environments increase the vulnerability of cross-infection.

Concerning the sites of rash, inter digital spaces (71 %), flexor wrists (64 %) and buttocks (75 %) were the main sites. This is nearly similar with study conducted at boarding schools in Cameroon with 61 % on the inter digital spaces and 54 % on the flexor wrists (10).

Regarding to risk factors, having contact in past 2 month with a person infested with scabies, being age less than 15 years, having a family history of itchy skin, family size >5, and sleeping with others were significantly associated with scabies infestation in bi-variate analysis.

Different studies conducted on risk factors for scabies also showed that prevalence of the itching within a family is an important factor in scabies infestation (1, 11-12).

Physical contact with infested individuals and sleeping with infested persons were risk factors for the spread of scabies(6). Our study in line with this finding, which we found, having skin

contact in past 2 month with a person infested with scabies and sleeping with others were risk factors for scabies. Being younger than 15 years old was also a risk factor for scabies in our study. This is also true in the study conducted at boarding schools in Cameroon with crude OR of 1.90 (10).

Conclusion and recommendations

Scabies outbreak occurred in Kacha Bira District of Kembata Tembaro Zone, Southern nation nationality peoples. Presence of contact History with in past 2 month with a person infested with scabies, being age younger than 15 years, having a family history of itchy skin and sleeping with others were the independent significant risk factors for scabies outbreak in Kacha Bira districts of Kembata Tembaro zone in studied kebeles particularly.

Recommendations

- ✚ Strong and continuous active case search should be strengthened at all levels.
- ✚ Providing risk factors relate health education on prevention and controls especially at community level and schools.
- ✚ Scabies mass drug treatment should be initiated as soon as possible in Kebeles with prevalence $\geq 15\%$.
- ✚ Regional Health Bureau should avail all the needed drugs like permethrine; antibiotics launder soap and other supplies.
- ✚ District and Regional Water, mineral and energy Offices should maintain water points, construct new water point if need, water tracking and water storage at critical service points.
- ✚ Maintaining mobilization at health facilities, schools and market places and at any public gathering areas to alleviate the spread of scabies
- ✚ Advocate decision makers like different level cabinets, kebele administrators and sector offices about scabies outbreak control and management.

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CHAPTER –II Surveillance Data Analysis

2.1. Surveillance Data Analysis of Severe Acute Malnutrition, Kembata Tembaro Zone, SNNP Region, Ethiopia, 2004-2008 E.C

Abstract

Background: Malnutrition is one of the leading causes of child death in developing countries including Ethiopia. Kembata Tembaro Zone, Southern Region is prone to severe acute malnutrition since the past decades. This study is intended to analyze severe acute malnutrition (SAM) reports of this zone to understand its trends and propose recommendation.

Methods: Cross-sectional descriptive study was conducted during collection of SAM data. Five years (2004 - 2008 E.C) report of SAM from the Zone and Regional database were reviewed. Different variables such as, SAM admissions, deaths, cures, total discharges in different age category with respect to time and place were included in the analysis of SAM report.

Results: In Kembata Tembaro zone 18, 175 total admissions of SAM were reported at both Outpatient Therapeutic Program (OTP) and Stabilization Center (SC) in the last consecutive five years (2004 - 2008 E.C). Children 6-59 months of age constituted almost all % of new admissions. Admissions from severe acute malnutrition were decreased from 2004 to 2008 E.C, but for the last consecutive 4 years it was increasing. The total highest is in 2004 EC but constantly increasing from 2005-2008 EC. From the past consecutive five-year's report of SAM in the Zone 32 deaths with a fatality rate of 0.18 to 0.42% were reported.

Conclusion and Recommendation:, Therapeutic Feeding Program (TFP) admissions Sites were increased from 2004 to 2008 E.C including SC Sites. Deaths number high in 2008 EC. This may be due to admission of severe cases due to the year's Eli Niño effect in 2008 EC. The existing reporting format also needs to be revised to include sex category, pregnant, and lactating mothers.

Keywords: Severe Acute Malnutrition, Surveillance Data Analysis, Kembata Tembaro Zone, Ethiopia.

3.1.1. Introduction

Malnutrition is a pathological state resulting from a relative or absolute deficiency or excess of one or more essential nutrients. This state clinically manifests or detected only by biochemical, anthropometric or physiological tests. There are four forms of malnutrition: namely; under nutrition, specific deficiency, and imbalance and over nutrition. The number of possible underlying causes of malnutrition are seems endless and their interrelationships are complex. However, one way of identifying these causes is to identify the three positive conditions necessary for adequate nutrition or, more precisely, necessary for adequate dietary intake and absence of disease. These are: - adequate access to food (household food security); adequate care of children and women: adequate access to health services & a healthy environment. In many Countries, nutrition policy and intervention is aimed at young child, pregnant and lactating women (2). Reducing malnutrition among children under the age of five remains a huge challenge in developing countries. An estimated 230 million under-five children are believed to be chronically malnourished in developing countries (Van de Poel et. al., 2008). Malnutrition contributes to over 50% of all child deaths worldwide each year (3). In Sub-Saharan Africa, 41% of under-five children are malnourished and deaths from malnutrition are increasing on daily basis in the region (FAO, 2008).

In Ethiopia, severe acute malnutrition is among one of 20 notifiable and weekly reportable diseases in the Public Health Emergency Management system. Ethiopian government has adopted a crosscutting approach to nutrition over the last decade (2). The problem of malnutrition in Ethiopia is relatively well documented currently. Nationally, 44 percent of children under age five years are stunted, and 21 percent of children are severely stunted (DHS, 2011). Regional variation in the prevalence of stunting in children is substantial. Stunting levels are somewhat above the national average in the Amhara (52 percent), Tigray (51 percent), Afar (50 percent), and Benshangui-Gumuz (49 percent) regions and are lowest in Addis Ababa and the Gambela region (22 and 27 percent), respectively (DHS, 2011).

In Kembata Tembaro Zone, malnutrition has been a priority health issue like other health cases. Even though it varies from year to year, Nutritional assessment which was carried out in this zone in 2006 EFY, identified 2 woredas hotspot Priority 1 and 2 woredas hotspot priority 2 which means more than 50% woredas of the zone. Among 7 rural woredas of the zone, 4 are in

hotspot 1 and 2 categories. There were a total of 169 OTP Sites and 13 SC sites in the Zone Functioning since 2008 EC.

Table 0-1Table 2.1.1. Hotspot Classification of the Woredas of Kembata Tembaro Zone, SNNPR, in 2016.

S.no	Name of Woreda	Category of Priority		
		Priority 1	Priority 2	Neither 1 Nor 2
1	Angacha			✓
2	Danboya		✓	
3	Doyogena Woreda			✓
4	Kedida Gamella			✓
5	Kacha Bira		✓	
6	Hadero Tunto Zuria	✓		
7	Tembaro woreda	✓		

3.1.2. Study Rationale

Routinely analysis of surveillance data is a key function for detecting/identifying outbreaks, monitoring disease trends, and evaluating the effectiveness of disease control programs and policies. Results from data analysis can alert public health action when incidence of diseases increases.

3.1.3. Objectives

3.1.3.1. General Objective

- ✚ To analyze five years (2004-2008 EFY) data of severe acute malnutrition (SAM) and describe trends of morbidity and mortality of a disease, Kembata Tembaro Zone, SNNPR, Ethiopia

3.1.3.2. Specific Objectives

- ✚ To understand prevalence of a disease in districts of the zone
- ✚ To identify morbidity and mortality of disease by person, time and place over the last consecutive four years

- ✚ To propose recommendation based on the findings

3.1.4. Methods and Materials

3.1.4.1. Case Definitions

3.1.4.1.1. Suspected

Children age from 6 months to 5 years with MUAC less than 11cm and/or children with bilateral edema regardless of their MUAC.

3.1.4.1.2. Confirmed

Children with MUAC less than 11cm and/or children with bilateral edema regardless of their MUAC

3.1.4.2. Study Area

Kembata Tembaro Zone of SNNP Regional State studied as area for Severe Acute Malnutrition surveillance data analysis.

3.1.4.3. Study Period

Secondary data of Malnutrition for the past three years (2004-2008 E.C) collected analyzed and interpreted.

3.1.4.4. Study Design

Descriptive cross-sectional study conducted during collection of severe acute malnutrition data pertaining person, time, and place.

3.1.4.5. Study Population

All population of Kembata Tembaro Zone, which is estimated to be 865,945 according to 2008 EFY projection, was included in the study.

3.1.4.6. Data Collection Procedure

Secondary data of malnutrition for the last consecutive four years from Zonal PHEM and Family Health departments, Regional MCH database reviewed and collected by using structured checklist. In addition, hard copy of SAM reports at Zonal health departments also reviewed.

3.1.4.7. Data Analysis Procedure

The collected data was analyzed by using Microsoft Excel in respect to important variables.

3.1.4.8. Data Variables

During data collection and analysis variables such as age category, admission type, therapeutic feeding sites with respect to time and place considered accordingly.

3.1.4.9. Data Dissemination

The study finding is prepared to share with AAU/School of public health/Department of EFETP Coordinators and mentors, SNNP RHB and Kembata Tembaro Zonal Health Department in both hard copy and electronic soft copy.

3.1.5. Results

During the last Four years (2004-2008 E.C) 18,175 total admissions of severe acute malnutrition were identified at OTP and SC programs in Kembata Tembaro zone, SNNP region. Among these admissions, almost all are new admissions. Among total new admissions, 79.2% of them were screened with MUAC measurement and 20.8% were Edema and Others. SAM cases are high from Feb to Jun in 2004 EC, Feb to May in 2005 EC, constant in 2006 EC, March to Jun in 2007 EC and high the whole year of 2008 EC except months November December and January. The prevalence of SAM in under five children was 6.4 in 2004 EC, 2.4 in 2005 EC, 2.7 in 2005 and 2006 EC and 3.0 in 2008 EC. The SC admission sites were increased from 6 to 13 sites and OTP admission sites were increased from 142 to 169 from 2004 EC to 2008 EC in the Zone.

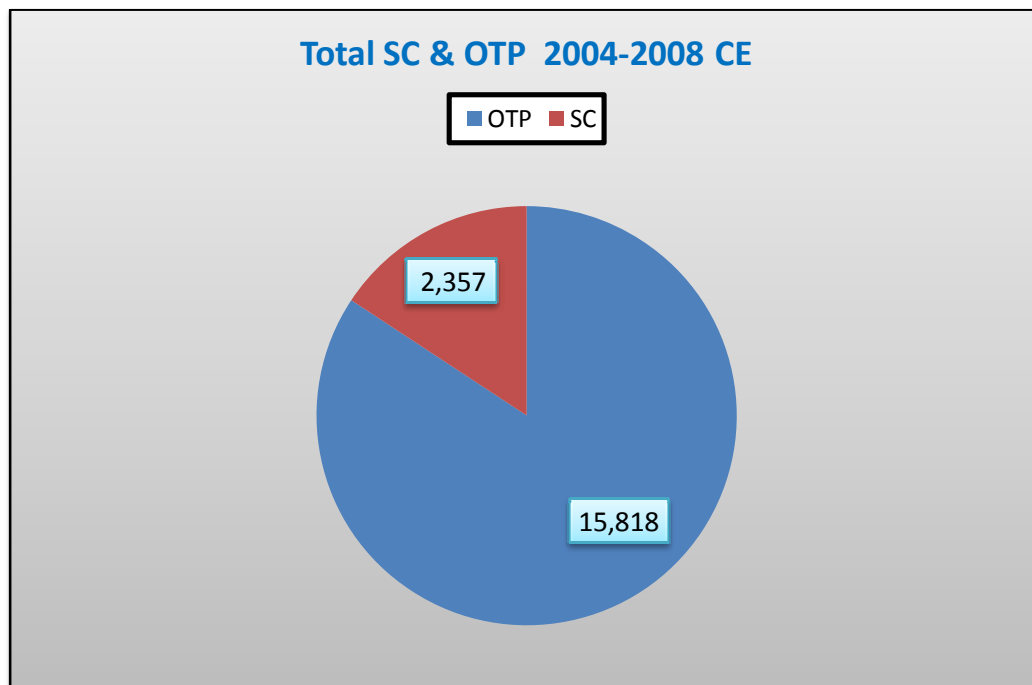


Figure 7Figure2.1.1: Total new admissions of SAM at OTP and SC programs in Kembata Tembaro, SNNPR, 2004-2008 E.C.

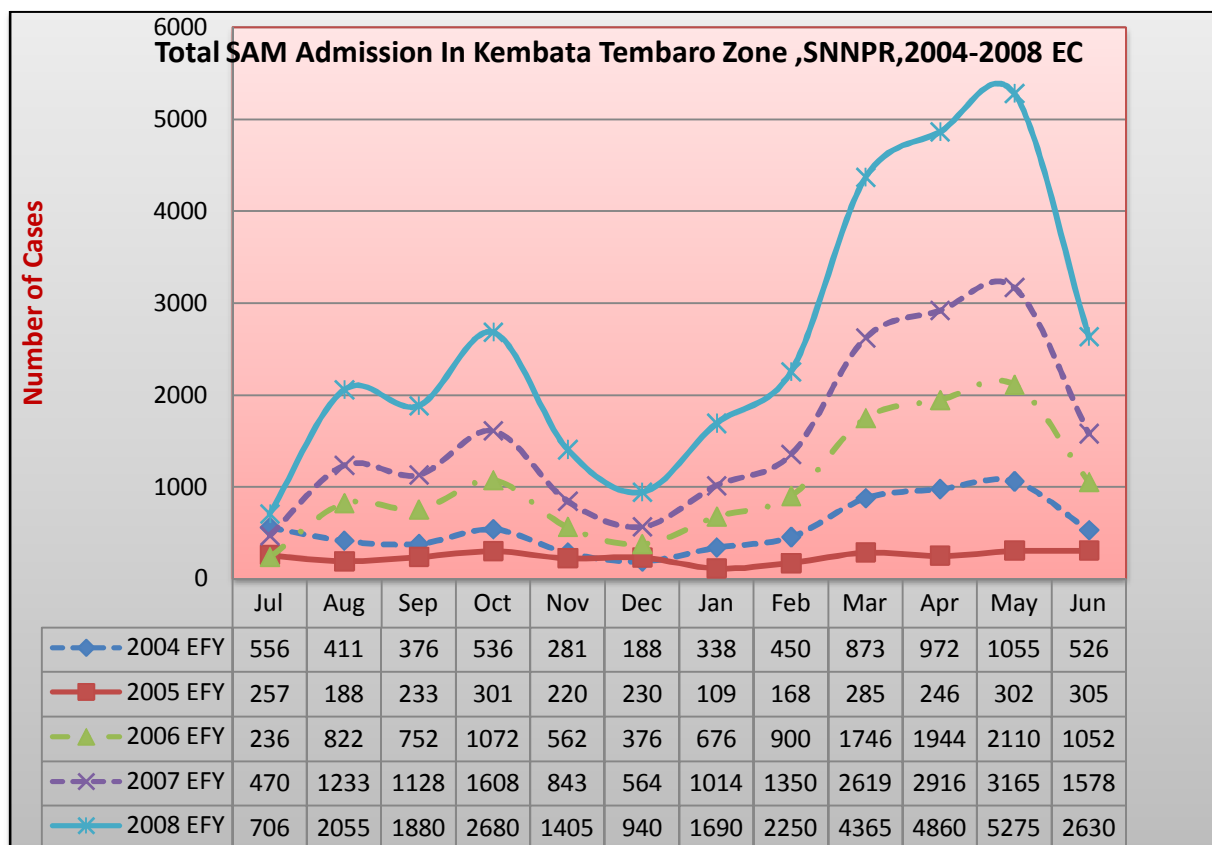


Figure 8Fig 2.1.2. Trend of total SAM admissions by years in Kembata Tembaro Zone, SNNPR, from2004 -2008 EC.

The trend of SAM admission in the last five years was compared and the total admissions were high in 2004 EC but in the other consecutive years it was increasing slightly 2005-2008 EC. According to the data given and collected from the Kembata Tembaro Health bureau, the 2004 EC year the SC sites were intertwining from other neighboring zones and woredas the cases were being treated in the health facilities of Kembata Tembaro zone. In the Durame town Administration health Unit, Teza Wota Health Center was entertaining the SC admission cases from different zones like Oromia zones and Hadiya zones and Wolyta Zones due to border and absence of SC admission areas in nearby health facilities of their own respective zones or Woredas. After gradual increase in the number of SC sites in different zone and woredas the neighboring Zones and woredas stopped to bring the children to this Teza Wota Health Center. Only from the KT Zone children are being admitted in the Health facility currently.

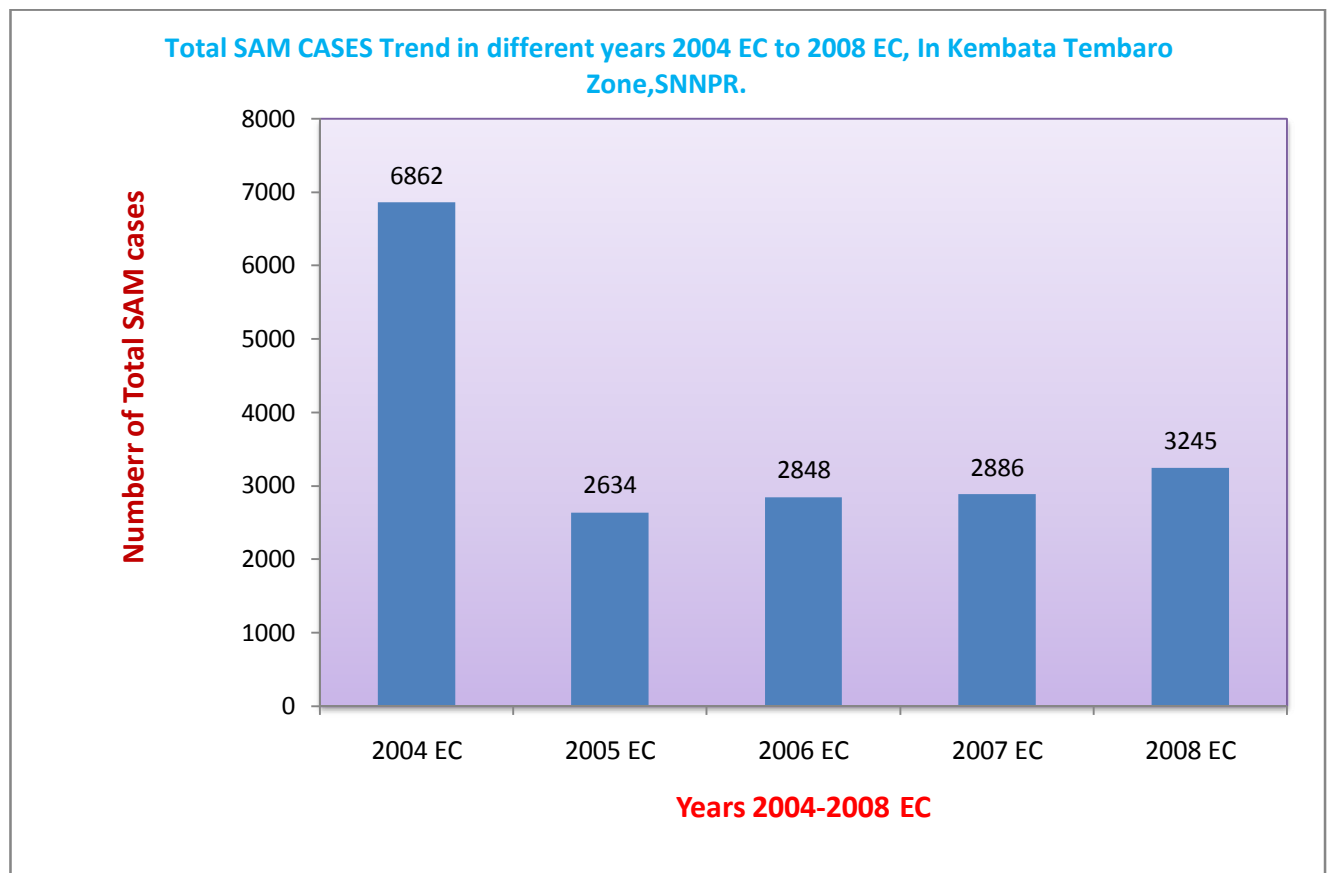


Figure 9 Fig. 2.1.3 The SAM Admission trend of different Years in Kembata Tembaro Zone, from 2004-2008 EC.

The total SAM admission was very highest in 2004 EC in the Zone and it slightly increasing in the from year to year. The above figure (Fig.2.1.3) depicts the five years total admission in the Zone year by year.

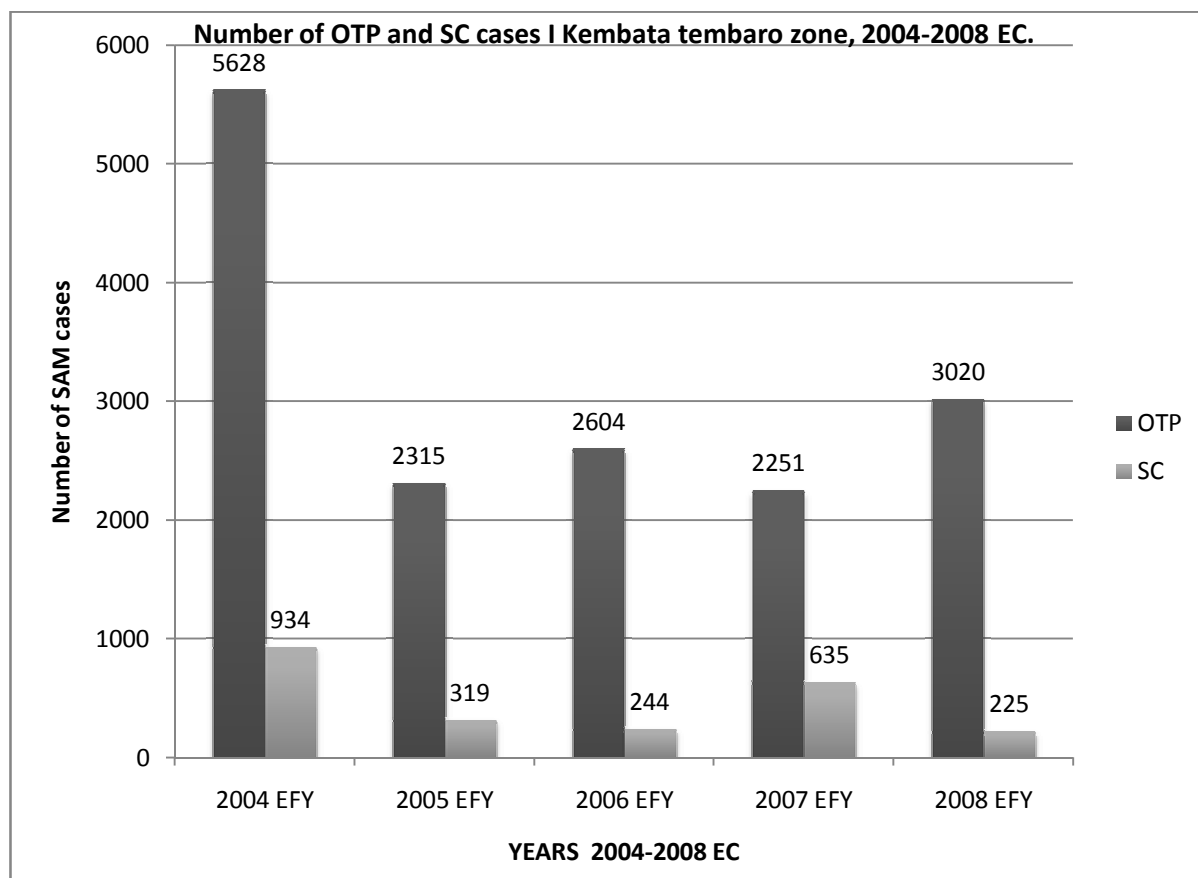


Figure 10Fig.2.1.4.The OTP and SC admissions in five years (2004-2005 EC) compared in its own year, in Kembata Tembaro Zone, SNNPR.

The total admission is split in to the SC and OTP admissions and compared with the same year Outpatient and Inpatient admissions. When we compare the SC admissions to its own year total admissions the year 2004 E.C -2008 EC E.C is 13.5% ,11.8%, 8.5%,22%and 6.9% respectively. The SC admissions were decreasing to each year compared to total admissions of SAM. The year 2007 E.C is high with SC percents compared to other years. That may indicate the year was with more exacerbated malnutrition condition due to Eli Niño in the year. That means the admission cases may need more stabilization conditions.

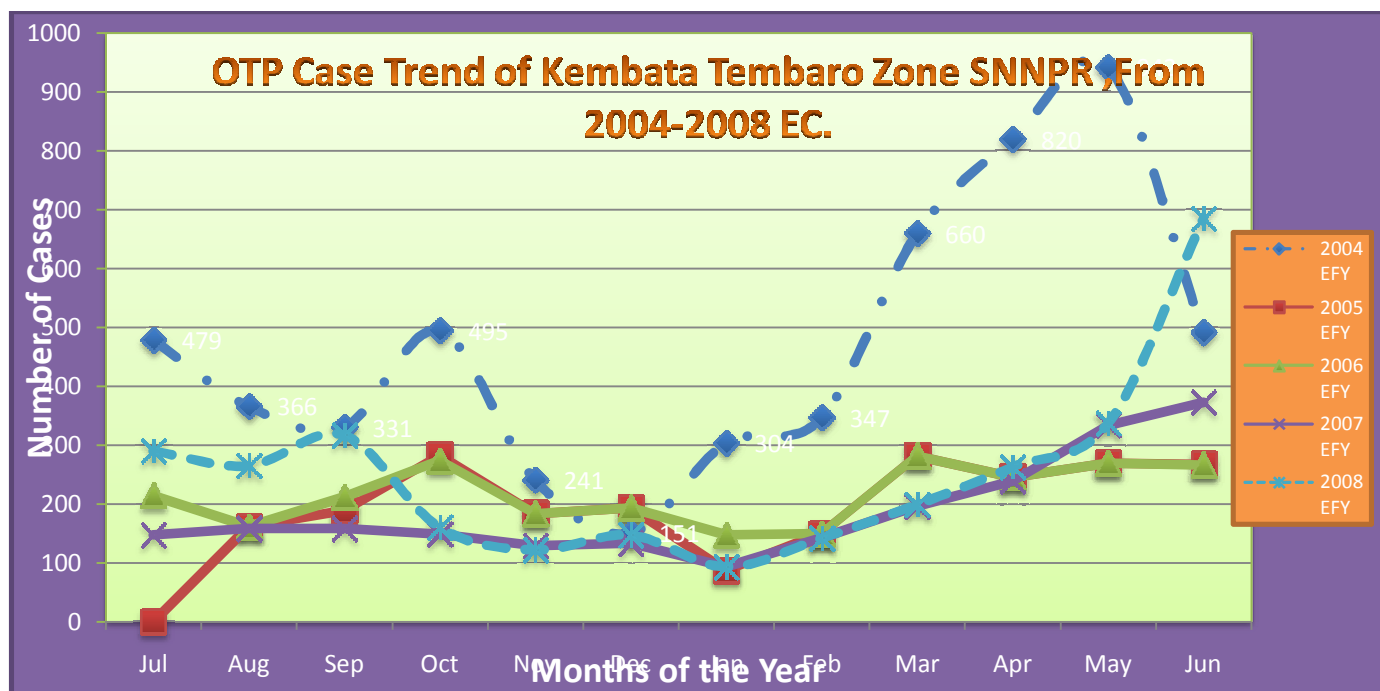


Figure 11 Fig. 2.1.5 Total OTP new admissions of Severe Acute Malnutrition, Kembata Tembaro, SNNPR, 2004 - 2008 E.C

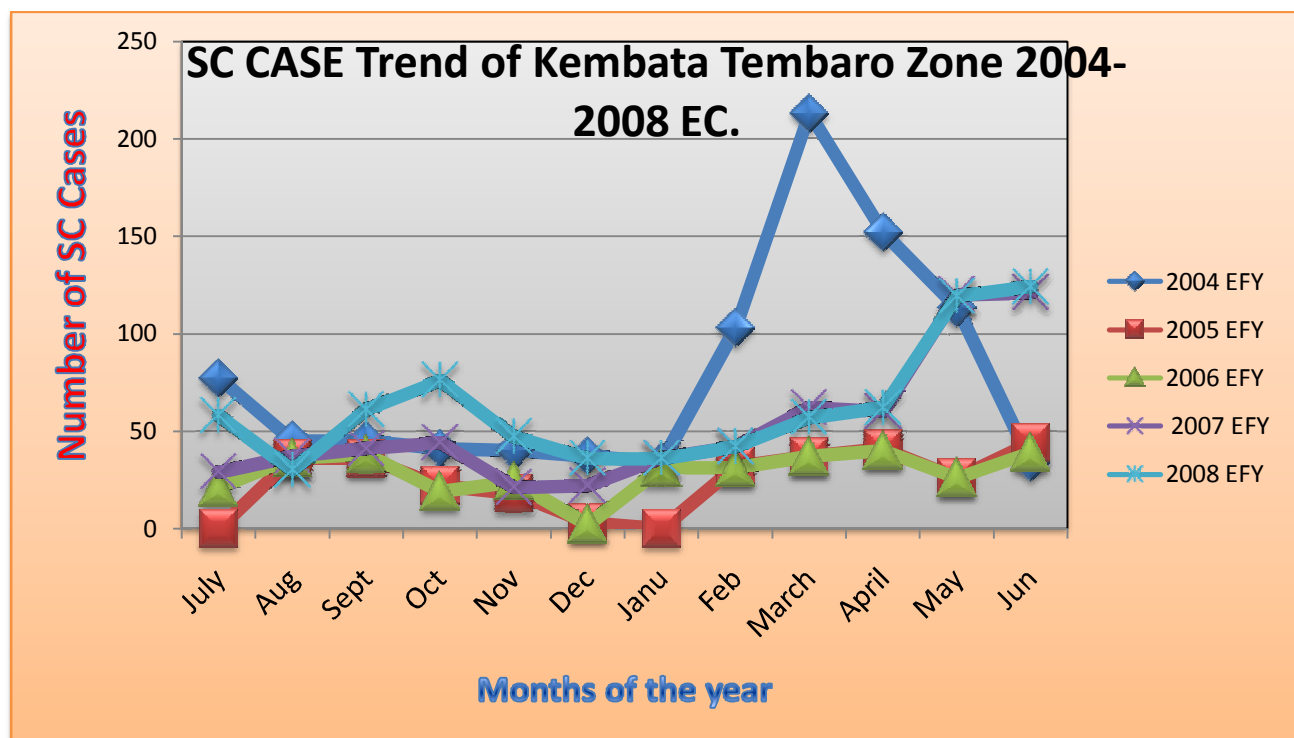


Figure 12Fig.2.1.6. Total SC new admissions in Kembata Tembaro Zone, SNNPR, from 2004 E.C to 2008 EC.

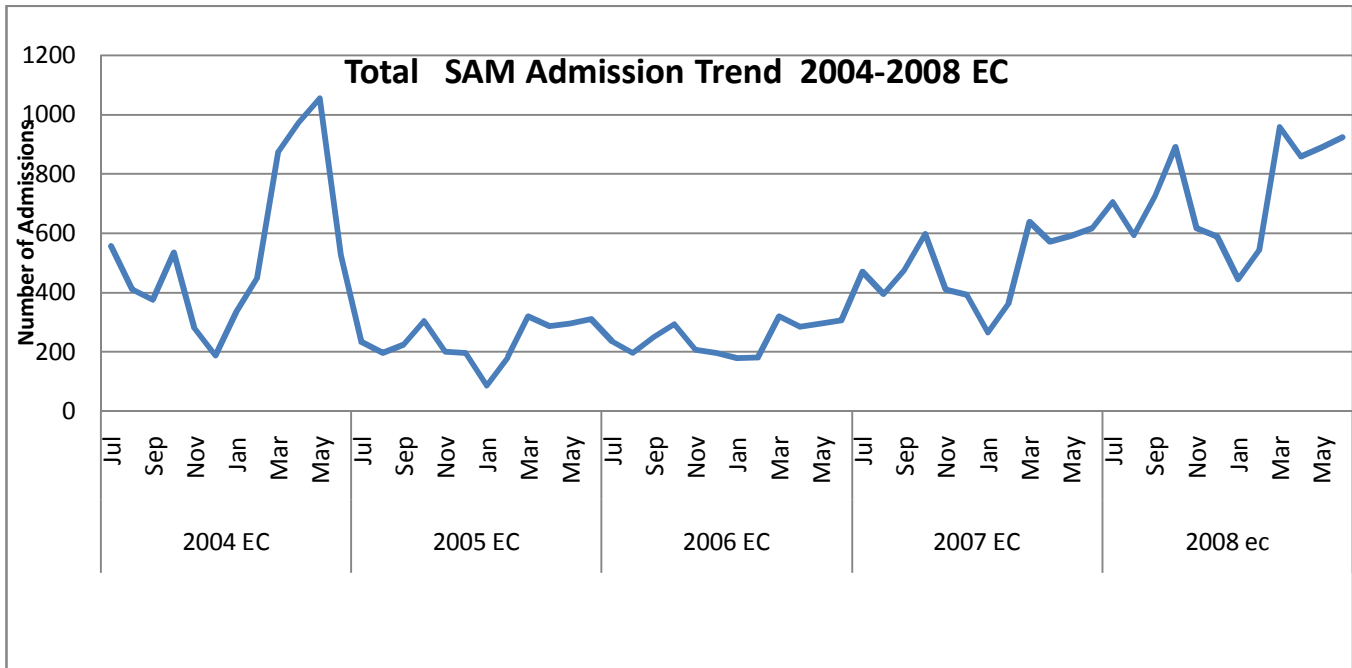


Figure 13Fig.2.1.7.The trend of Total SAM admission by months of the years, in Kembata Tembaro Zone, SNNPR, from 2004 E.C to 2008 E.C.

The admission trends by months of the years indicated above and it shows that the trend was increasing from March to June at each year. Even though the increment in year 2005 EC and 2006 E.C in those months was not significant, there was slight difference in the months. The trend Shows high increase was occurred in months of the yeas from March to June 2004 EC 2007 EC and 2008 EC.

The above trend shows that the food security of the society in those indicated months depleted due to crop harvesting time and non-harvesting time.

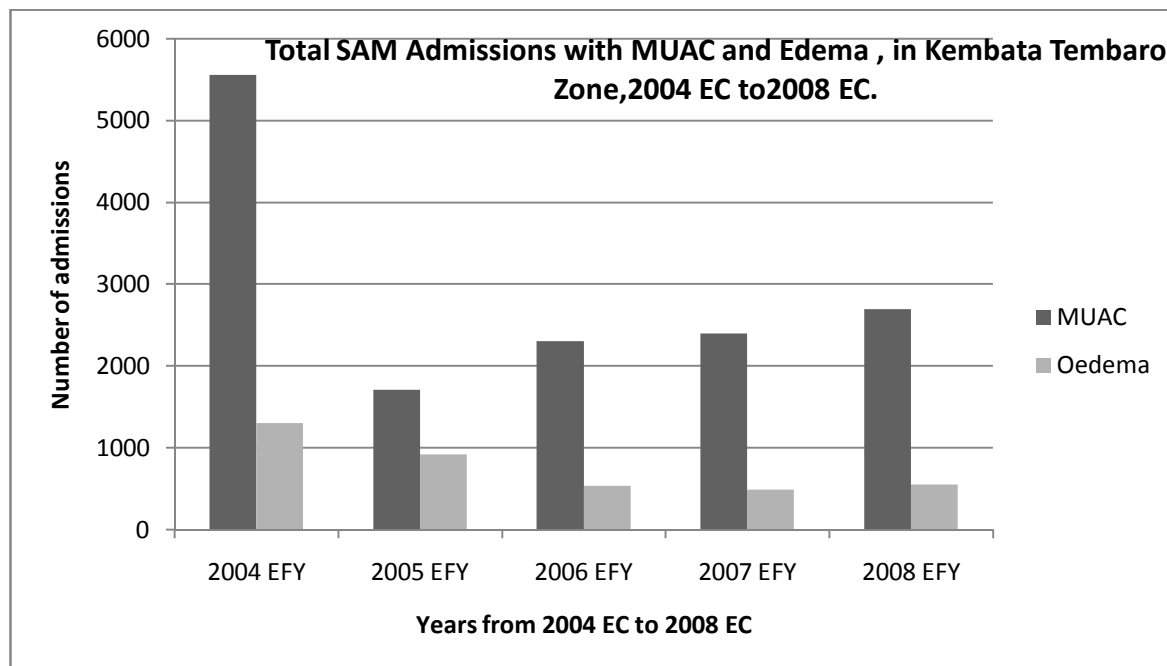


Figure 14Fig.2.1.8.The SAM admissions with MUAC and Edema compared with its own year admissions, in Kembata Tembaro Zone, 2004 - 2008 E.C.

The total admissions of the SAM cases were compared with MUAC and Edema admission cases. From the total admissions the edema admissions are 19%,35%,19%,17% and 17% from year 2004EC -2008 EC. The edema cases were high in year 2005 EC, Compared to other years. These may indicate that the late Identifying if the cases to OTP and it may lead to SC the cases edema (+++) in category which needs direct SC protocol management of the patient.

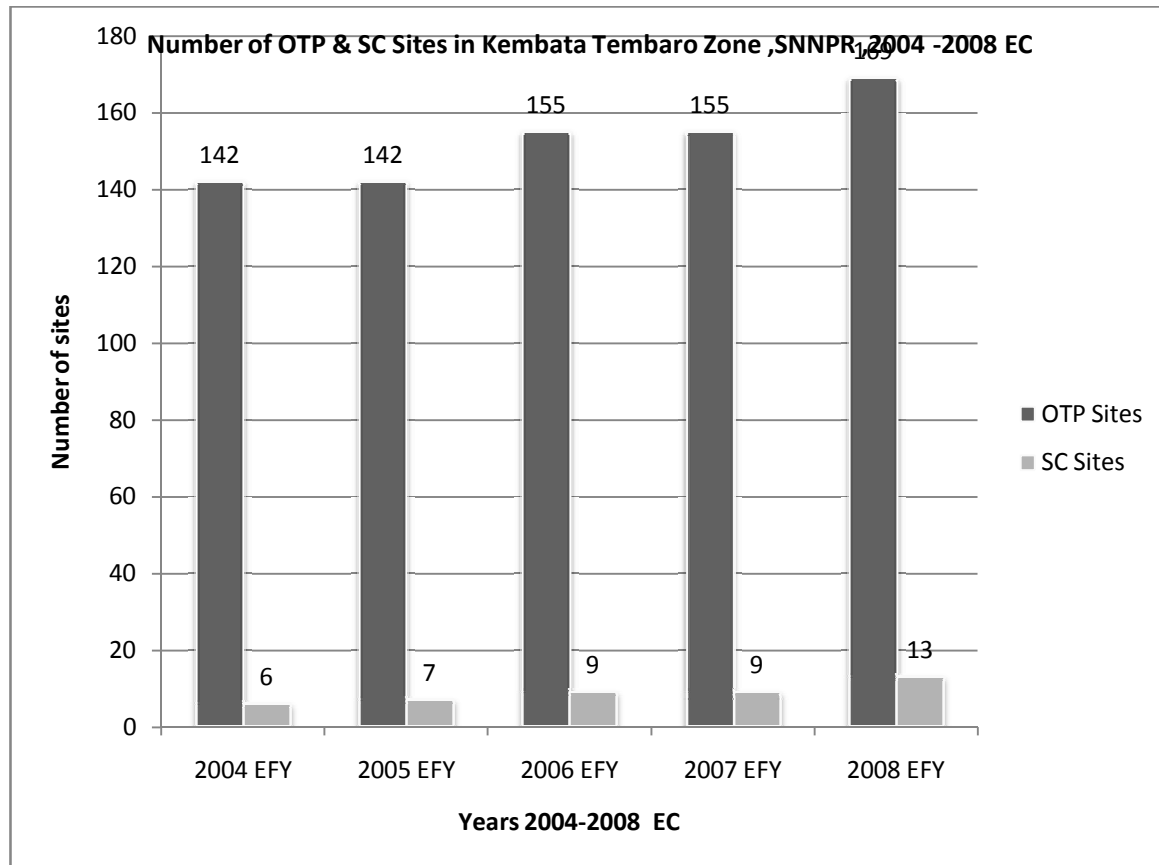


Figure 15Fig 2.1.9 The number of OTP and SC sites from year 2004 -2008 EC in KT Zone, SNNPR.

The SC and OTP Sites were increasing from year to year. This is a good progress seen in Zone to manage the SAM cases with in the short distance for the community. The more the distance for community the poor will be the management out come for SAM admitted cases due to long travel of families as well as inaccessibility for the health service.

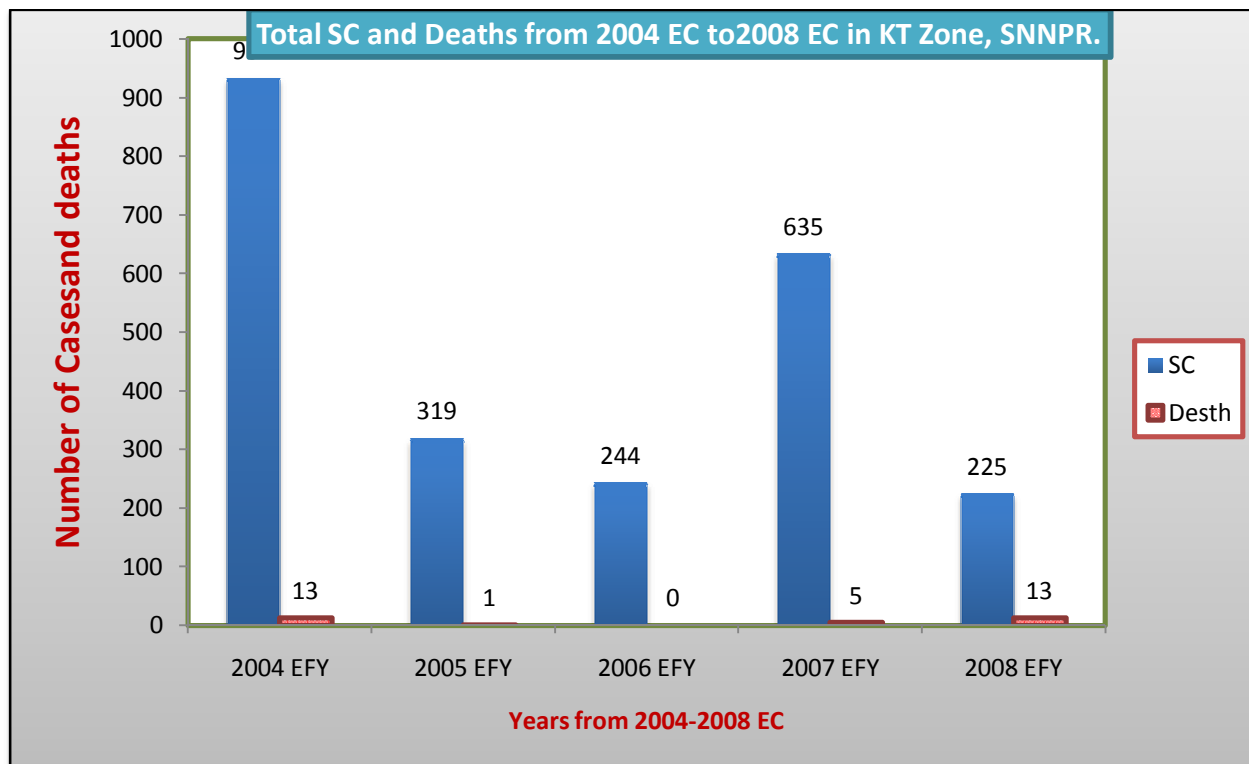


Figure 16 Fig.2.1.10 Total SC admission cases and deaths from year 2004 EC to 2008 EC, in KT Zone, SNNPR

The total admission and death cases were compared and it ranges from 0.18 to 0.4 in year 2004 EC and 2008 EC. Here the above figure is to depict only the SC admissions and the deaths comparison. The Zero death is registered in year 2006 EC and the 13 deaths which is high from the total SAM admissions 0.4% registered and reported in 2008 EC.

3.1.6. Discussion

The proportion of malnutrition is highest in the age group of 24-35 months (34%) and lowest among those under six months (10%) children (EDHS, 2011). This may be explained by the fact that foods for weaning are typically introduced to children in the older age group, thus increasing their exposure to infections and susceptibility to illness (DHS, 2011). From this surveillance data analysis of SAM, it is possible to understand that almost all children analyzed with SAM are 6-59 months old.

Increasing admissions of SAM may be associated with the deterioration of food security in the Belg season and intensive screening conducted at community level at different times. In the studied zone, number of deaths is less than 0.5% from admissions. This may be due to intervention programs were well conducted in previous successive years. For example in 2004 E.C.,) 100 % children screened those age of 6-59 months. Children with age of 2-5 years almost 100% were supplied Vit A and were de-wormed. In addition, expansions of OTP and SC sites occurred at the same time as decreasing of severity and deaths from SAM in the zone. From previous consecutive five years data, it is understood that, cases of malnutrition is high between March and August months of the year. This is may be due to shortage of yields become scarce during these periods of months due to un-harvesting of the crops and depletion of food items from households.

3.1.7. Conclusion

Malnutrition is one of major public problems of the country and highest in 2004 EC and slightly increasing over the last five years in Kembata Tembaro Zone. Cases were almost all are 6-59 months age of children. Of the hotspot priority 1 woredas of the zone, the prevalence rate was highest in Tembaro Woreda. The existing reporting format is lacked important variables such as sex category of SAM case patients.

3.8. Limitations/Gaps

- ✚ The existing report format of a region did not include sex category variable.
- ✚ It was unable to get enough recent literatures to discuss more about the burden and prevalence of severe acute malnutrition in Ethiopia.

3.1.9. Recommendation

- ✚ Reports should be compiled and analyzed weekly, monthly, annually at all level to understand disease trends and take action
- ✚ The intervention strategies of malnutrition mainly focus on children, pregnant and lactating women.
- ✚ SAM reporting format should include sex category because EDHS of 2011 reported that male children are more likely to be malnourished than females.
- ✚ Communities should be aware of maintaining food security at all season and different partners those who are working on Nutrition Program should be mobilized to supply feeding nutrients with logistics.
- ✚ OTP and SC sites should be expanded mainly in highly affected woredas.
- ✚ The weekly or monthly SAM report should be communicated with higher officials timely for decision-making purposes.

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CHAPTER –III- Disease Surveillance System Evaluation

3.1. Disease Surveillance System Evaluation, Damboya Woreda Kembata Tembaro Zone, SNNPR, 20 Jan 2016 – 11 Feb /2017

Executive Summary

Public health surveillance is an ongoing systematic collection, analysis, interpretation and dissemination of data regarding a health related events for use in public health action to reduce morbidity and mortality and to improve health. Still people in some woredas of Kembata Tembaro Zone have experiencing epidemic of malaria and Acute Watery Diarrhea, therefore the aim of this study is to assess the performance of core activities and attributes of surveillance system in selected Woredas (Damboya) of Kembata Tembaro zone, Feb 2017.

Methods: - A cross-sectional descriptive study was conducted from 20 Jan 2016 – 11 Feb /2017 in Kembata Tembaro zone, Southern Nation and Nationality People Regional State. Purposive sampling techniques were utilized. Questionnaire was administered to focal persons; documents and reports were observed; and data was analyzing using MS-Excel. A total of 12 study sites were included in the study, (Zonal Health Department, 1 District Health Offices, 2 Health Centers and 8 Health Posts). Three priority diseases (Malaria, Measles and Acute Watery Diarrhea) were used as a proxy for the evaluation of the surveillance system.

Result: - The completeness of the selected Health posts was 89%, health centers were 95.6% and selected woredas and Zone had 100% in 2016. It was difficult to know the timeliness at health facility level due to absence of time of report. Four sites of Health posts (50%) HEW in the health post did not get recent refresher training. Twelve (100%) of respondents were accepted the surveillance system and its data was helpful to detect cases early. Written epidemic preparedness and response plan was only at woreda offices and at zonal level. The case definition was not available in some health post visited; this may lead to low detection of malaria, measles and AWD from the community.

Conclusion: - The overall structure of the surveillance data flow from lower to higher was well organized. However, Coordination and supervision of the surveillance activities were not frequent. From those supervised health facilities, most of them are not received feedbacks.

Private health facilities (7) were not included in surveillance report. Absence of timely analysis and utilization of data made the existing surveillance system weak at health centers and health posts level. Therefore, it is necessary to strengthen the surveillance system by capacitating health workers at all levels to analyze and utilize available data. Besides to this the private Health Facilities should have to report the cases to the concerning levels.

4.1 Introduction

Public health surveillance is the ongoing, systematic collection, analysis, interpretation, and dissemination of data regarding a health-related events for use in public health action to reduce morbidity and mortality and to improve health(1). This will be effective through meticulous monitoring of trends of disease burdens and guiding immediate action to be taken; the health policy, planning, evaluation of health programs, formulating research hypotheses and so on (2)

Disease surveillance is essential for early detection of outbreaks, epidemics and pandemics in order to initiate timely response and it is essential to evaluate or monitor progress of ongoing interventions targeted for disease reduction. A well functioning disease surveillance system is critical to measure the burden of diseases (health-related event), identification of populations at high risk and new or emerging health concerns to the health system, in providing evidence-based information for planning. In addition, for implementation, monitoring trends of a disease and evaluation of public health intervention programs to prevent and control disease, injury, or adverse exposure. Moreover, to evaluate program performance, prioritize the allocation of health resources, describe the clinical course of disease; and stimulate for epidemiologic research (2).

An effective communicable disease surveillance system is one of the basic strategies of the national disease prevention and control and evidence-based decision-making practices. In most developing countries, surveillance systems are often weak even though the burden of communicable disease remains major public health concern. Surveillance system evaluation answers questions like what are the successes and deficiencies of the surveillance system, Is the surveillance system meeting its public health objective?, How does surveillance both support and benefit stakeholders and what measures could improve performance and productivity of the surveillance system and the program that it supports?(3).

The public health system is challenged by recurrent and unexpected disease outbreaks and is facing the challenge of managing health consequences of natural and man-made disasters,

emergencies, crisis, and conflicts. PHEM is designed to ensure rapid detection of any public health threats, preparedness and other related to logistic and fund administration & prompt response to and recovery from various public health emergencies ranging from recurrent epidemics, emerging infections, nutritional emergencies, chemical spills and bioterrorism. The system comprised of emergency preparedness, early warning, response and recovery. Surveillance of priority diseases is the major component of early warning. Malaria, Measles and AWD (Acute watery diarrhea) are one some among the reportable priority diseases and public health problems in Ethiopia. The overall purpose of surveillance of these diseases is to monitor the trend against the expected tolerance limits, and pick any deviation from the limit at the earliest point in time and have prompt response.

Information on the number and distribution of these diseases is critical for the design and implementation of prevention and control programs (5).

Table 0-1 Table 3.1.1 Diseases under surveillance based on the 2009 PHEM structure

IMMEDIATELY REPORTABLE DISEASES	WEEKLY REPORTABLE
1.Acute Flaccid Paralysis	1.Dysentery
2.Anthrax	2.Malaria
3.Avian Human Influenza	3.Meningitis
4.Cholera	4.Relapsing Fever
5.Dracunculiasis (Guinea worm)	5.Typhoid Fever
6.Measels	6.Typhus
7.Neonatal Tetanus	7.Malnutrition
8.Pandemic Influenza	8.MDSR (Maternal Death Surveillance Report)
9.Rabies	
10.Severe Acute Respiratory Syndrome(SARS)	
11.Small Pox	
12.Viral Hemorrhagic Fever	
13.Yellow Fever	

The routine flow of surveillance data is usually from reporting sites to the next level up to the central level as indicated in (figure 3.1. 1). The community and health facilities especially health posts are the main sources of information. The information will be collected from the reporting sites and will be compiled in standard forms, analyzed and then will be forwarded, to the woreda health office. Woreda level, uses standard formats to compile aggregate and send the data to zone/region, from which the central level receives. Feedback and information sharing will follow the same route backward.

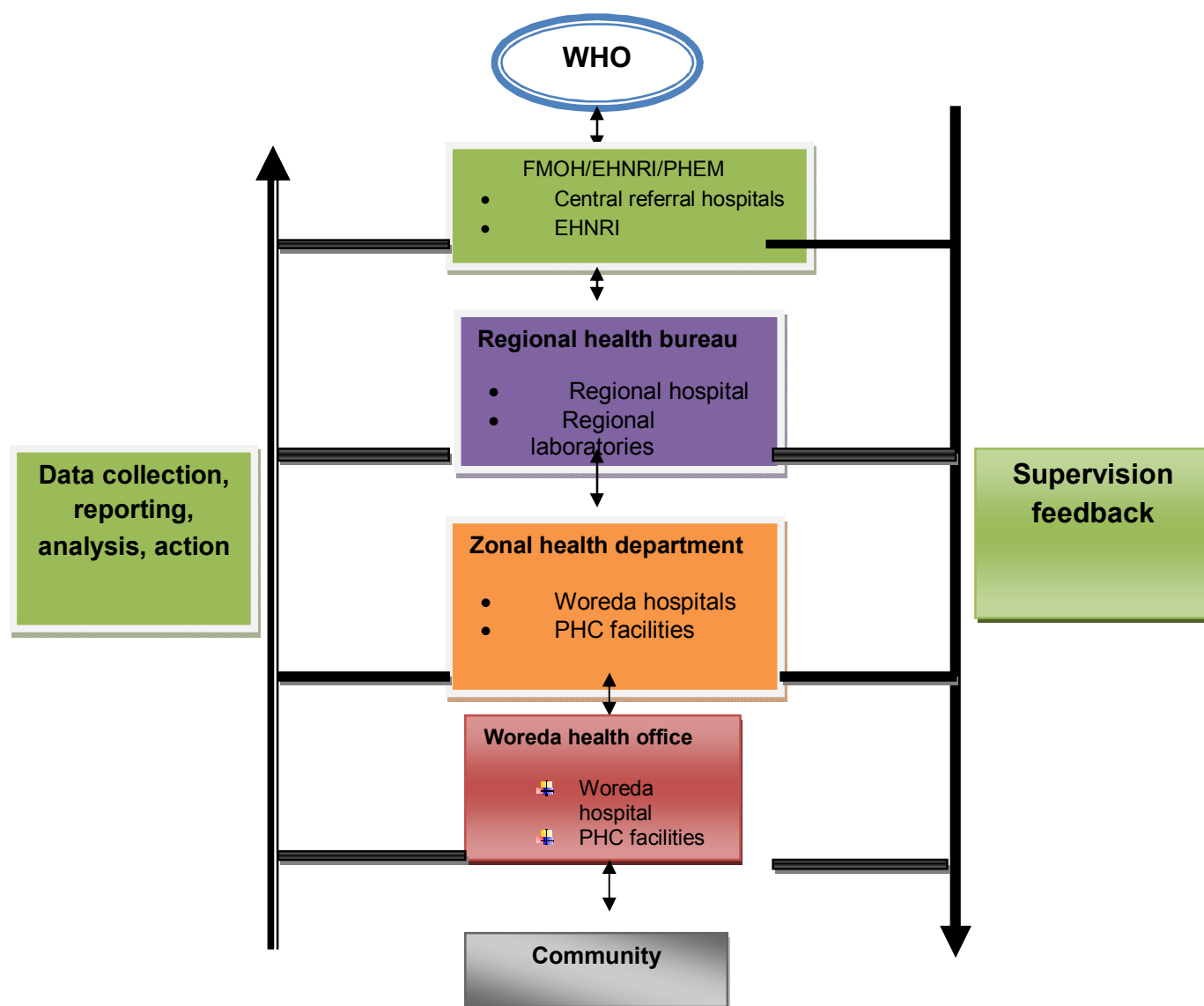


Figure 17Figure 3.1.1 Data and information flow in public health surveillance indicating varying cycles at various levels

Malaria is one of the most severe public health problems worldwide. It is a leading cause of morbidity and mortality in many developing countries, where young children and pregnant women are the groups most affected. People 3.4 billion (half the world's population) live in areas at risk of malaria transmission in 106 countries and territories (6). Malaria kills a child somewhere in the world every minute. It infects approximately 219 million people each year (a range of 154 – 289 million), with an estimated 66,000 deaths, mostly children in Africa. The 90% of malaria deaths occur in Africa where malaria accounts for about one in six of all childhood deaths. The disease also contributes greatly to anemia among children — a major cause of poor growth and development.

Malaria is ranked as the leading communicable disease in Ethiopia, accounting for about 30% of the overall Disability Adjusted Life Years lost (10). Malaria transmission in Ethiopia is unstable. Around 52 million people (68%) live in malaria endemic area, mostly an altitude of below 2000 meters (8). Enhanced surveillance for malaria cases and deaths aids' ministry of health to determine which areas and/or population groups are most affected and enables countries to monitor changing disease patterns. Strong malaria surveillance systems also help countries design effective health interventions and evaluate the impact of their malaria control programs. Malaria surveillance is currently weakest in countries with the highest malaria burden, interpreting it difficult to accurately assess disease trends and plan interventions. At present, only one tenth of the 219 million cases that are estimated to occur each year are detected and reported through national malaria surveillance systems. (WHO's uncertainty range for malaria cases is 154 million to 289 million.) Only 58 of the 99 countries with ongoing malaria transmission produce sufficiently complete and consistent data on malaria that allow a reliable assessment of malaria trends over time (8).

In Ethiopia outbreaks of measles reported every year. There were 16,028 suspected measles cases in 2014 and 14,100 confirmed measles cases in the same year. This represents a steep increase on the data for 2013, when there were 6,137 confirmed measles cases in Ethiopia. Ethiopia has reported 6,137 and 14,100 totally confirmed measles cases with their respective incidence rates of 6.52 and 14.61 in 2013 and 2014 respectively. (9)

Cholera is on the rise with an estimated 1.4 billion people at risk in endemic countries and an estimated 3 million to 5 million cases and 100,000-120,000 deaths per year worldwide (10). The disease is now considered to be endemic in many countries and the pathogen causing cholera cannot currently be eliminated from the environment. Regions of the world where Cholera is currently prevalent are Africa, Asia and parts of the Middle East. Sub-Saharan Africa is broadly affected by many cholera epidemics. Africa reported 211,748 cases in 1998, the highest number of cases ever reported and accounted for 72% of the global total. (10, 11, 12)

Risk for AWD spread exist in Ethiopia, which include: overcrowding in Refugee camps, increased population movements across borders, inadequate access to safe water, low personal and environmental hygiene and sanitation practices, inadequate food safety, low latrine coverage and utilization, unexpected flooding, low health seeking behavior, low community awareness on AWD prevention and limited capacity of health system in some regions. The effect of the El-Nino also contributes to increased risks for spread of communicable diseases and disease outbreaks. (13)

Literature Review

Reporting from facilities to districts and from districts to the ministry of health varies by its Completeness and timeliness from country to country and often does not include nongovernment facilities. Thus, routine reports of the number of malaria cases and deaths have limited value for comparisons of the malaria burden between countries. Demographic and health surveys (DHS) and other sources (9) indicate that less than 40% of malaria morbidity and mortality is seen in formal health facilities – a small fraction of the total burden. However, routinely collected data are often the only information available over a prolonged period and over a wide geographical area. While these data are of use for local programmed planning, major investment in improving both the quality of health information systems and access to health services would be required before their utility for monitoring changes in malaria disease trends could be assessed. The burden of malaria in Africa (<https://www.againstmalaria.com/downloads/RBMBurdenMalariaAfrica.pdf>)

Rational of the study

Damboya woreda is one of the high risks in woredas for various public health emergencies including malnutrition, malaria and others. Public health surveillance systems should be evaluated periodically to assess the quality, efficiency, efficacy, usefulness and gap of the existing system accordingly to improve the surveillance system.

Public health system of the South Nations, Nationalities, and people's region is challenged by different recurrent and unforeseen disease outbreaks and facing the challenges of managing health consequences in different parts of the region. Kembata Tembaro zone is one of the 15 zones and 4 special woreda in the region and Damboya woreda is one of the rural woreda in Kembata Tembaro Zone. Still Malaria, Measles and others are the public health problems among priority diseases in the Woreda. The woreda is also in priority II among the zonal woredas in risk categorization. Therefore, Public health surveillance system of the woreda should be evaluated periodically.

Objectives

General:

- ✚ To evaluate the performance of the existing surveillance system of malaria, measles and Acute watery diarrhea of Damboya woreda, in Kembata Tembaro zone, SNNPR, 20 Jan 2016 – 11 Feb /2017.

Specific

- ✚ To Describe the implementation of core surveillance activities notifiable diseases reporting system in respect to case detection, registration, confirmation, reporting, epidemic preparedness and response.
- ✚ To assess supportive activities of surveillance system such as supervision, staff training, information feedback, equipment and financial support.
- ✚ To assess the status of surveillance system attributes like sensitivity, simplicity, positive predictive value, flexibility, completeness, timeliness, acceptability, representativeness and specificity
- ✚ To identify gaps in the malaria, measles and AWD surveillance system and forward recommendations for improvement

Methods

Study area

The study was conducted in Damboya woreda of Kembata Tembaro zone. It is one of the 7 rural Woredas and 3 town administrations and 145 kms far from the regional town, Hawassa, and 360 km from the central town of the country. Out of these, Damboya woreda is known malaria endemic and 2nd hot spot woreda in the region as well as in the country. In 2016 the total population of the woreda was 105,842. The woreda has 2 urban and 19 rural kebeles. From these, 49% of kebeles are malarious (9/49). Regarding to health facility distribution in the woreda, there are 4 health centers and 19- health posts. Woreda health office, health centers, and health posts were taken as the study units of the surveillance system evaluation

Surveillance System Evaluation, Damboya woreda, SNNPR,2016

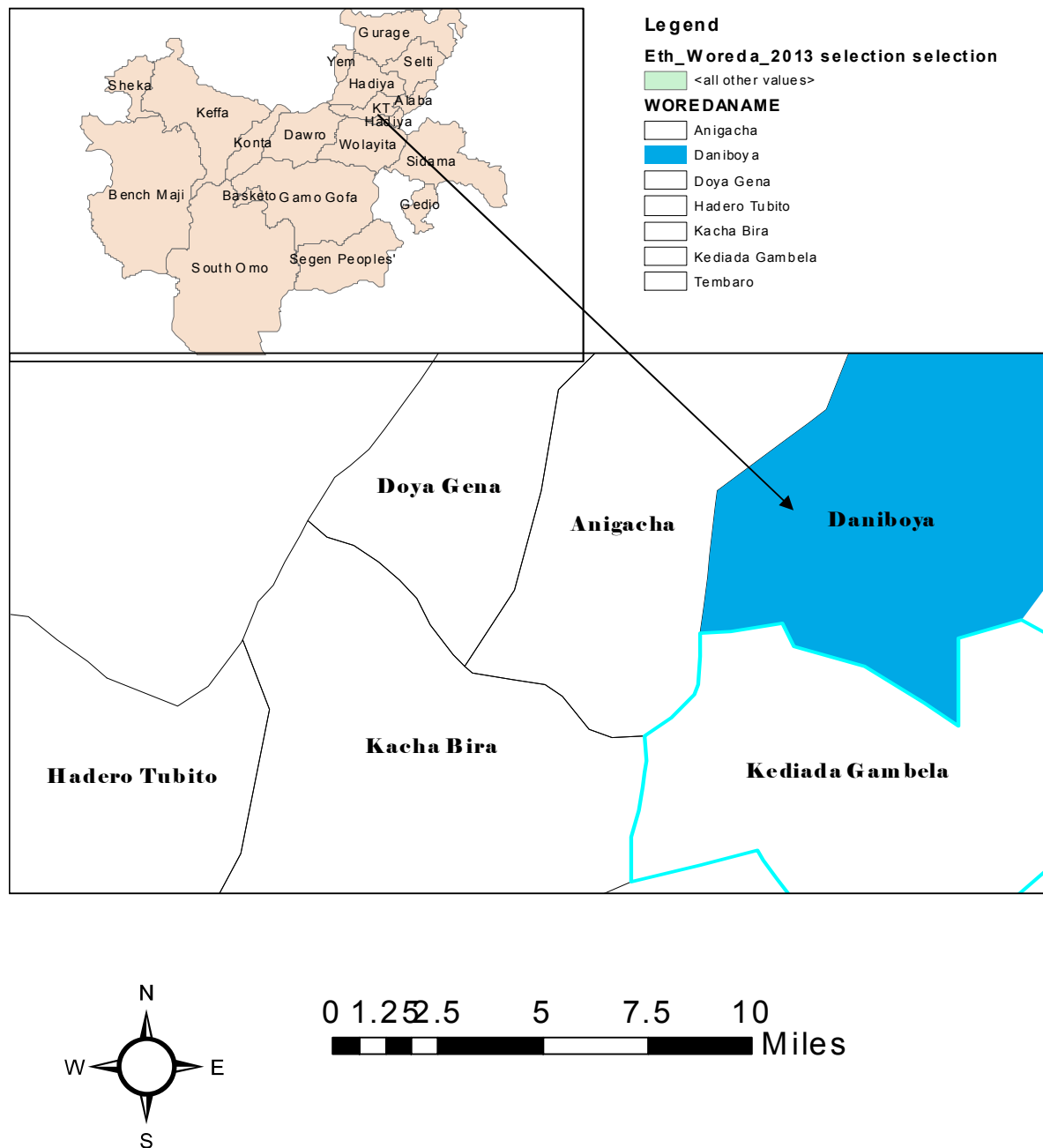


Figure 18Figure 3.1.1 Map of selected woredas for Surveillance System Evaluation, Damboya , Kembata-Tembaro zone, SNNPR, 2017.

Study design.

We used a cross-sectional descriptive study design using the CDC "updated guideline for evaluating public health surveillance system" published in 2001 as a frame work for evaluation(5).

Study period: We conducted the surveillance system evaluation from 20 Jan 2016 – 11 Feb 2017 in Damboya woreda of Kembata-Tembaro zone, SNNPR.

Sample size determination and Sampling technique

Woreda health office and 10 health facilities these are 2 health centers and 8-health posts were randomly selected using lottery method for the evaluation.

Data collection

We obtained data through observation, review of document, quantitative interviews of the PHEM officers, disease prevention and health promotion, and IDSR focal persons in health centers and health posts.

Data analysis and presentation: We used Micro-soft Excel 2007 to calculate frequency, ratio, rate, and proportion. We also used Microsoft excel to construct tables and figures.

Ethical issue: Official permission was obtained from RHB, ZHD, WhO and then from the respective selected institutions for evaluation.

Standard Cases definition

Malaria

Suspected

Any person with fever or fever with headache, rigor, back pain, chills, sweats, myalgia, nausea, and vomiting diagnosed clinically as malaria.

Confirmed

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

Measles

Suspected

Any person with fever and maculopapular (nonvascular) 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.

Suspected case (AWD)

- 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.

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

Operational case definitions

Terms used in the evaluation were operationally mentioned as follows:-

- + **Case detection:** is the process of identifying cases and outbreaks.
- + **Case registration:** is the process of recording the identified cases
- + **Case/outbreak Confirmation:** refers to the epidemiological and laboratory capacity for confirmation.
- + **Reporting:** Refers to the process by which surveillance data moves through the surveillance system from the point of generation.
- + **Epidemic preparedness:** Refers to the existing level of preparedness for potential epidemics
- + **Stakeholders:** The organizations or individuals that generate or use surveillance data for promotion of health, prevention and control of diseases
- + **Acceptability:** Acceptability is the willingness of persons, institutions or organizations to participate in the surveillance system

- ✚ **Usefulness:** Usefulness of the surveillance system is reflected by documented changes in policies and procedures as a result of information generated by the system.
- ✚ **Simplicity:** Simplicity denotes the structure and ease of operation of the surveillance system.
- ✚ **Flexibility:** Flexibility of a surveillance system is its capacity to adapt to changing information needs or operating systems within minimal additional time, personnel and funding.
- ✚ **Quality:** The quality of data reflects the completeness and validity of the data recorded in the Health Department, WhO and Facility levels.
- ✚ **Sensitivity:** Sensitivity refers to the ability of the system to detect cases or outbreaks through trends in the surveillance data.
- ✚ **Positive predictive value:** Positive predictive value refers to cases that actually have the health condition in question.
- ✚ **Representativeness:** Representativeness refers to the extent to which the surveillance system accurately describes the occurrence of medical condition over time and their distribution in the population by place and person.
- ✚ **Stability:** Stability was assessed by questioning the surveillance officers on the consistency of the system.

Results

Sites visited

Prior to the evaluation of the surveillance system started, discussing with Zonal Public Health Emergency Core Process and the Damboya woreda office Public Health Emergency Core Process coordinator ensure that the evaluation of a public health surveillance system addresses appropriate questions and assesses pertinent attributes and findings to be interpreted.

The purpose of the document review was to understand and assess the data reporting process and to compare data across different sources to identify any problems with data quality, consistency, completeness, and compilation. In 2016 Damboya woreda received a surveillance report from a

total of 24 reporting units (20-health posts, 4-governmental health centers, no private health facilities were included in the reporting units).

The population resided in Damboya woreda was the population under surveillance for malaria, Measles and AWD disease.

The visited sites include woreda health office, 2 health centers and 9 health posts accordingly. In the surveillance systems assessment checklist, three epidemic-prone diseases were included. A total of 11 sites were visited, of which 1 Woreda, 2() health centers, 7() health posts, and woreda PHEM was our study subject. The Health Centers incorporated were Funto and Danboya Health center and four Health posts and three health Posts from each health centers respectively.

Core Functions of Surveillance System

Case detection

Case detection is the process of identifying cases and outbreaks. For malaria case detection, the WHO malaria standard case definitions was available in 9(81.8%) evaluated reporting units. 3 (100%) suspected Measles cases were detected in the woreda. 8(77%) of sites were using standard case definition of measles.

Malaria Damboya woreda 1,186 of malaria cases were reported to the Zone. Of total malaria confirmed cases 735 (62%) were *P.falciparum* and 430 (36.3%) were *P.vivax*. Among the cases 21 (1.7%) cases were treated clinically. Total cases were managed out-patient department and no deaths were reported from malaria.

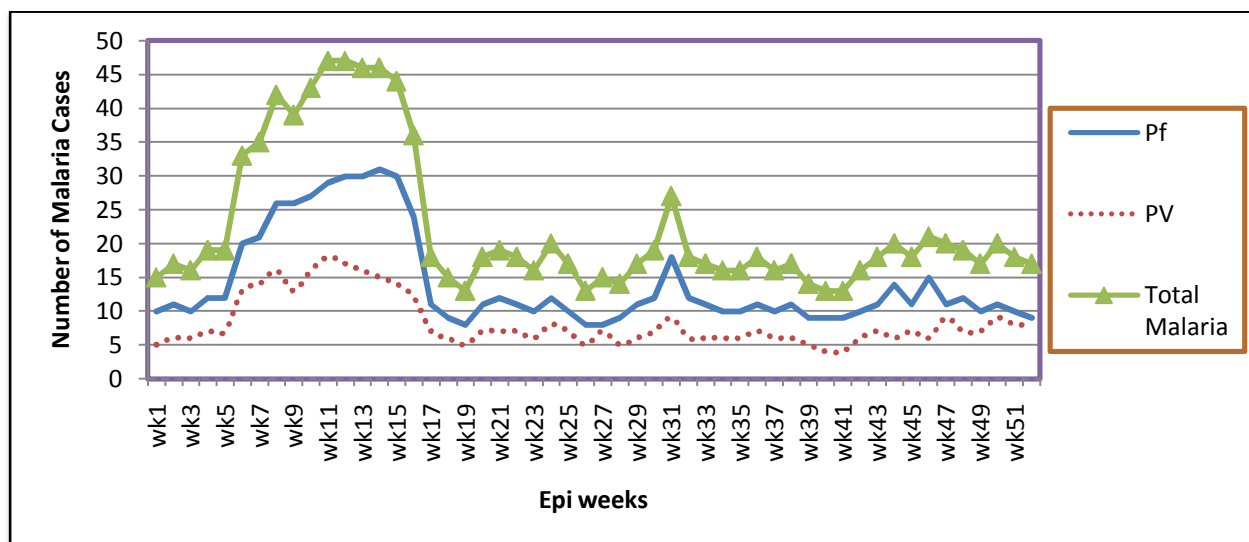


Figure 19 Fig. 3.1.2 Malaria trend in Damboya woreda, Kembata Tembaro Zone, SNNP Region by WHO Epidemiological week of 2016.

As indicated in the figure1, malaria cases increased in the WHO Epidemiological week 5 to week 17/2016 and then decreased up to the end of the year. As indicated in the graph plasmodium Falciparum was the leading cause of morbidity from the two species.

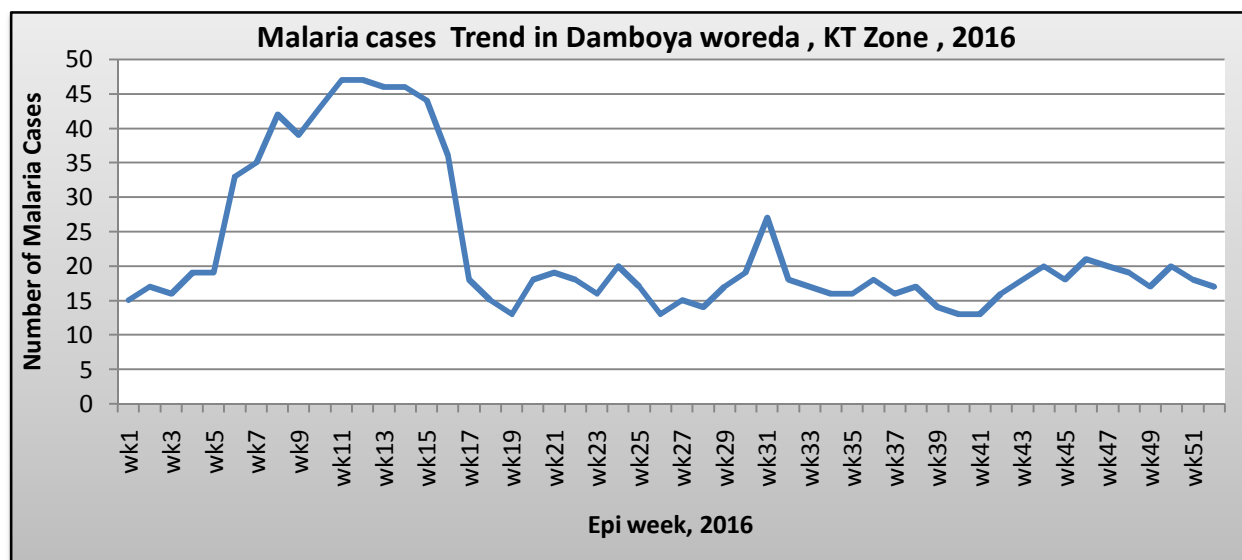


Figure 20 Fig.3.1.2 Malaria cases trend in Damboya woreda, Kembata Tembaro Zone, SNNP Region by WHO Epidemiological week of 2016

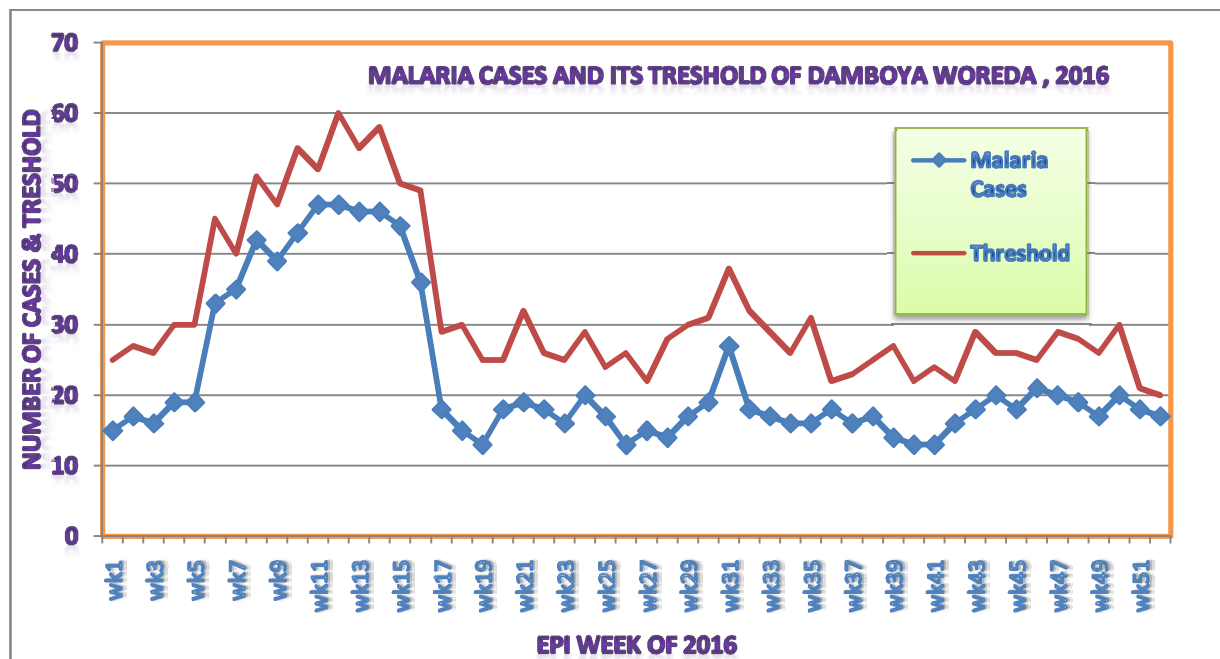


Figure 21 Fig.3.1.3. Malaria monitoring chart by Epi week of Damboya Woreda, KT zone, SNNPR, 2016.

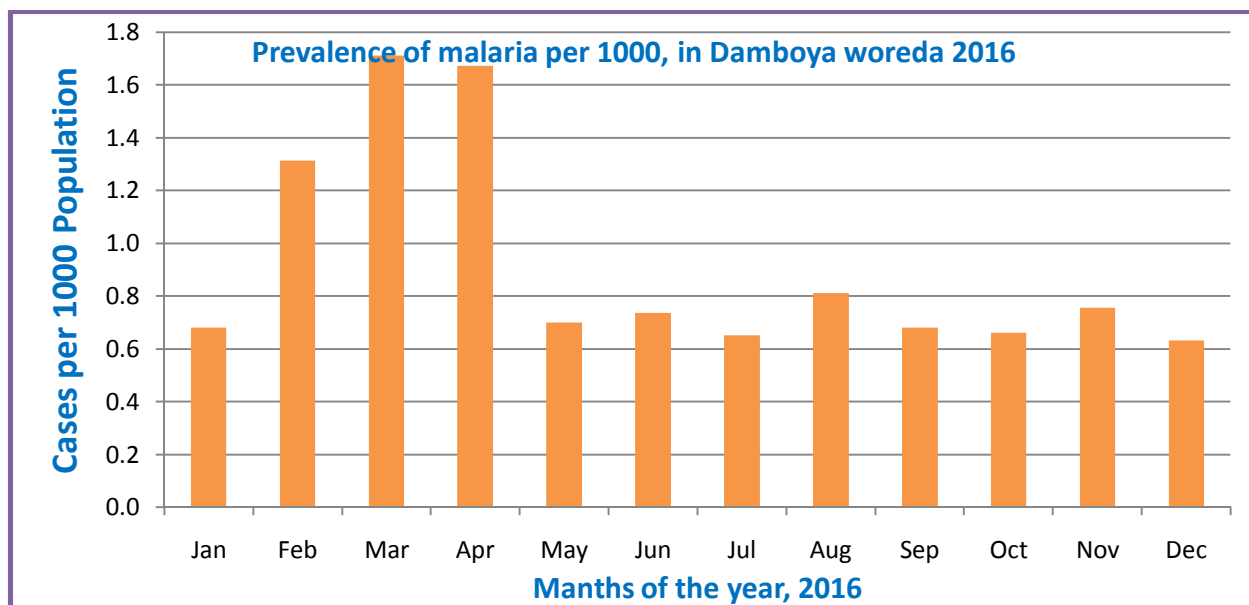


Figure 22 Fig.3.1.4 Malaria prevalence in 2015/2016 by months in Damboya Woreda, Kembata-Tembaro zone, SNNPR, 2016

Case registration

Case registration is the process of recording the cases identified. At health post level, 8 (100%) identified cases were recorded in the family folder. Also 100% health centers (n=2) were using malaria registration book given by regional health bureau for laboratory results, outpatient (OPD) and inpatient (IPD) abstract books for OPD and IPD malaria cases.

Case confirmation

Case/outbreak confirmation refers to the epidemiological and laboratory capacity for confirmation. In the evaluated surveillance units /health facilities (n= 11), cases were confirmed at health post and health centers. Eight (100%) health posts were using RDTs; two (100%) health centers were using both RDT and microscopy.

Measles: Measles was also a serious problem, which occurs as an outbreak in the region. In 2015/2016, 2775 measles cases with case fatality rate of 120(4.3%) reported to SNNP Regional Health Bureau. However, from which Damboya woreda shared 3(0.1%) suspected cases and no death throughout the year. For the woreda it is (94.4%) from national target expected.

AWD/Acute watery diarrhea: AWD occurs as an outbreak in the region. In 2015/2016, total of 391 AWD cases with case fatality rate of six (1.5%) reported to SNNP Regional Health Bureau. However, from Damboya Woreda of Kembata Tembaro Zone, zero case was reported in 2016.

Reporting

Reporting is the process by which surveillance data moves through the surveillance system from the point of generation. Reporting format is prepared and distributed at central level, there was some amount of shortage of reporting format in 4(50%) visited health post in the past 6 months. The rest have enough amount of reporting format. All the reporting sites collect the immediately and weekly reportable cases using weekly reporting format on weekly basis and all health facilities have a remain of copies of reported cases for administrative and other official purpose. The reports were sent to the next higher level via hard copy and telephone. Zero reporting is one of the main criteria in the surveillance. There is no blank space report in the last three months.

Table 0-2Table 3.1.2 Completeness of reports in the health post in Damboya Woreda Kembata Tembaro zone, SNNPR, 2016

<i>Name of Woreda</i>	<i>Name of Health post</i>	<i>Expected report</i>	<i>Number of reports reported</i>	<i>Completeness of reports by (%)</i>
<i>Damboya woreda</i>	<i>Yebu Health Post</i>	<i>52</i>	<i>50</i>	<i>96</i>
	<i>Geyota Gerba' Health Post</i>	<i>52</i>	<i>45</i>	<i>87</i>
	<i>Hego ' Health Post</i>	<i>52</i>	<i>47</i>	<i>90</i>
	<i>Ambericho health post</i>	<i>52</i>	<i>43</i>	<i>83</i>
	<i>Kota health post</i>	<i>52</i>	<i>52</i>	<i>100</i>
	<i>Geremba health post</i>	<i>52</i>	<i>48</i>	<i>92</i>
	<i>Donkorcho health post</i>	<i>52</i>	<i>48</i>	<i>92</i>
	<i>Bonga Health post</i>	<i>52</i>	<i>47</i>	<i>90</i>

The above table shows, actual report found during visiting period. But at woreda level its completeness considered as 100%. This may be due to lack of continuous monitoring and evaluation.

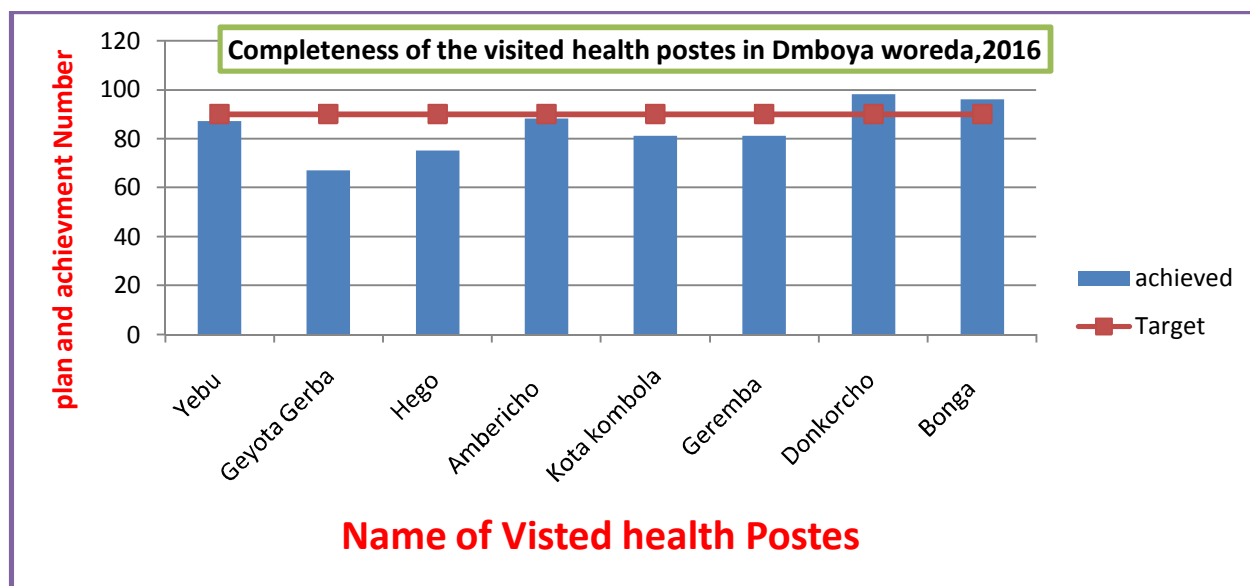


Figure 23 Fig. 3.1.5 Completeness of Report in selected Health posts in Damboya woreda, Kembata Tembaro zone, Feb 2016

From the above (Figure 3.1. 5), Health posts completeness varies with from 67 to 98 percent Geyota Gerba Health post to Donkorcho Health Post respectively.

Data Analysis

During the visit, Woreda health office is analyzing surveillance data but health centers and health posts were not analyzing surveillance data. Data in terms of time, place and person on malaria, Measles and other cases analyzed occasionally in the woreda. Majority of health facilities did not describe data by time place person and diseases over time. Moreover, zonal health department have an action threshold for epidemic monitoring system.

Epidemic preparedness and Response

Regarding to Epidemic preparedness for potential epidemic control mechanism activities Damboya Woreda was with epidemic preparedness and response plan. The woreda has Epidemic management committee; but not have regular meeting schedule. 3(100%) of the Woreda has RRT committee. Regarding to emergency stock of drugs and supplies the Woreda has supplies and drugs for emergency.

Supervision

Supportive supervision helps to strengthen the capacity of staff and ensure that the right skills transfer, check necessary logistics are in place and so on. But those planned activities are not implemented according to schedule. From 11 health institution observed 9(81.8%) supervised by higher level. From these supervised health facilities, most of them not received feedbacks.

Communication facilities

In order to support the function of reporting, appropriate and effective medium for communication at each level is advantageous for early detection of outbreak of diseases. Health development army (HDA) was providing the routine report from their Village by means of hard copy and oral report. Health posts were providing the routine report by two means. Communication is by using hard copy and their mobile phones. The reporting day for health posts is Monday morning up to mid-day. All health posts 8(100%) were using mobile phone access.

Resource

Surveillance and response activities performed, if the required and appropriate financial, human and logistic resources are in place. Resources for data management, communication, and other logistics were comparatively available at the Zonal level. However, they all became limited down in the hierarchy. Two (67%) of the Woreda have only a single computer for overall office activities in the health office. In addition to this, 2(67%) of the woreda public health, emergency management focal person has their own computer for data management and analysis. All health facilities in the respective woreda have complained the logistic and budget constraints.

Monitoring

In 2016, all level (health posts, health centers, and woreda) the health workers were assigned to monitor all planned activities. Even if they assigned at every level of the system, their support is irregular. Malaria monitoring/ norm chart was not used at (all health posts) evaluated surveillance units.

Co-ordination

The coordination between implementers and stakeholders is important for effective and efficient implementation of surveillance and response systems. Woreda health office and zonal health department were working along with rural development, education office, water office, NGOs like world vision and WHO etc. The mentioned stakeholders did not evaluate the performances and not had regular meeting schedule.

Training

Conduct training on disease surveillance, outbreak investigation, Surveillance data analysis and response is the backbone for early detection and confirmation of the cases, consequently 1(100%) of health personnel in zone get training on public health surveillance system. Woreda and health center was already get training on surveillance system respectively. While the HEWs 4(50%) in the health post did not get refresher training regarding to some of the components of surveillance.

Description of Quality and attributes of surveillance system

Surveillance quality

Completeness of reporting sites/surveillance forms

Completeness of reporting of visited sites is the proportion of reporting sites that submitted the surveillance report irrespective of the time when the report was submitted.

Health posts were reported an average of 86% completeness of reporting site ranging from 42% to 98%. The average completeness of the health center was 95.6%. The percentage completeness of reporting sites of woreda health office and zonal health department was 100%.

Timeliness of reporting

It is the single most important measure of timeliness whether data are submitted in time to begin investigations and implement control measures. The timeliness was difficult to know at health facility level due to absence of time of report.

Usefulness of surveillance system and surveillance data

The 12 (100%) of respondents were accepted as the surveillance system and its data was helpful to detect cases early, to estimate the magnitude of morbidity and mortality, permit assessment of the effect of prevention and control program and estimate research intended to lead to prevention and control.

Simplicity

Simplicity is the structure of the system and the ease of implementation. At all evaluated surveillance units, the cases definition was easy for case detection, the surveillance formats allowed all professionals to fill data, was easy to record and report data on time, allowed updating data on the formats, the time to fill the format was 5-15 minutes.

Flexibility

The format can accommodate enough types of disease and still possible to add new disease in it as well to discard and to report other new cases and also possible for modification of the reporting frequency, requirement needed, etc all can be occurred without difficulty in visited health unit in the woreda.

Positive predictive value

We divided the positivity rate of total examined by RDT and microscope for malaria. PVP for malaria = Total confirmed cases by laboratory / Total suspected cases diagnosed in laboratory for confirmation

$$= 10766/50612 = 21.3\%$$

Sensitivity in surveillance case definition

Sensitivity of a surveillance system based on the level of case detection and the ability of the system to detect outbreaks, including the ability to monitor changes in the number of cases over time mentioned as follows:

In the detection of cases

Health facilities use loose case definition to detect malaria, measles and AWD cases for example those with acute febrile illness send to laboratory for confirmation.

In detection of outbreaks

Outbreak detection depends on regular data analysis, health-seeking behavior of the society, availability of reagents and definition of thresholds, timeliness and completeness of reporting, population under surveillance. Timeliness and completeness of the report is in the acceptable range indicates good sensitivity of the system to detect the outbreak.

Acceptability

Acceptability of a system is a reflection of the willingness of the surveillance staff to implement the system, and of the end users to accept and use the data generated through the system. At all evaluated reporting sites all reporting agents accepted and well engaged. Health posts, health centers, woreda health offices, and zonal health department were using the surveillance data for prevention and control. Health professionals were using the standard case definition to identify cases. All reporting units were using the given surveillance reporting formats.

Data quality

Seven (87.5%) health posts reported complete surveillance report. All 7 (100%) of them reported clear records to read and understand. Both (100%) of health centers sent complete and clearly recorded report for woreda health office. The woreda health office sent complete and clear data report to zonal health office.

Representativeness

Representativeness refers to the degree to which the reported cases reflect the occurrence and distribution of all the cases in the population under surveillance. Geographical representativeness and health service physical accessibility in the zone is particularly greater important in an early warning system to ensure detection of outbreaks nationally notifiable diseases. At health post level the surveillance report incorporated the population under surveillance. Non-governmental health facilities were also included in all surveillance reports. However, 7 private health facilities found at kebeles and woreda level were not included in surveillance report. Still people were using private health facilities for malaria and other diseases treatment. So that, the surveillance system in the woreda was not representative.

Stability

Still the system was not interrupted by different reasons. In the absence of budget from donor, the government was running all activities along with other integrated services.

Discussion

Public health surveillance is the ongoing, systematic collection, analysis, interpretation, and dissemination of data regarding a health-related event for use in public health action to reduce morbidity and mortality and to improve health. The standard and community cases definition were supposed to be available and posted at all health facilities and health offices for detection of suspected cases using the case definition, the case definition was not available in some health post visited this may lead to low detection of malaria, measles and AWD from the community. The data of reportable diseases were collected, but not analyzed and reported on time.

From those supervised health facilities, most of them are not received feedbacks. Such weak performance could be due to poor monitoring, supportive supervision and feedback system at lower level in the surveillance activities. This may undermine the attention given to surveillance and response of epidemic prone diseases- like malaria, measles and Acute Watery Diarrhea.

Malaria cases were confirmed at all nearest health facility level. Not need to refer malaria case for confirmation to distant health facilities. By using the malaria monitoring chart (figure6), malaria outbreak was seen in Tembaro district between week5 to week17, 2016.

At least one case of suspected measles sample per 100,000 populations is expected from each woreda. According to national target, 80% and above woredas should report at least one case of measles with a blood specimen per year (13). According to the assessment results, target set, at least one measles suspected cases per 100,000 populations in the previous two years. Moreover, the recent performance of the woreda was more than the national target.

At health centers, surveillance data was not entered in to the computer and analyzed by person, place, and time. No surveillance data was interpreted and used for public health action. Epidemic management and rapid response team were established in almost all reporting units. From the visited health centers, none of them was used epidemic preparedness plan. No rapid response team was conducted scheduled regular meeting. Communication facilities only (mobile and hard copy) were accessible at all level. Human, logistic resources (computer technologies), and

financial resources were available at woreda, health centers and health posts except computers in Health posts.

Timeliness was not measured at surveillance reporting units. The respondents accepted as the surveillance system and data was useful to detect cases early to permit accurate diagnosis, to estimate the magnitude of morbidity and mortality and so on. Case definition was understood at all levels except some health posts. Standardized tools were in place (formats, line lists). Reporting formats were easy to fill. Communication channels between all levels were well established. The surveillance system staff was well engaged in surveillance data reporting. Stakeholders were using data for public health action.

The system was easy for modification of frequency of reporting and can be operated with other system. The formats were possible to incorporate new variables. Malaria surveillance case definition was sensitive and detected cases in different geographic areas. Still incomplete data was reported from health posts. But at higher level the report completeness above the standard. Data from private health facilities were not included in the surveillance reporting (17).

Limitation

Due to shortage of time and transport, the study was conducted on accessible health facilities which might be limited its representativeness. Date of receipt and reported is not registered in reporting format because of this we did not calculate timeliness of the report. Important data was difficult to get and to calculate the disease trend. We could not calculate sensitivity and specificity in terms of case detection. Because we could not get variables required to calculate sensitivity and specificity.

Conclusion

According to the finding of this assessment, in order to strengthen malaria, measles and Acute Watery Diarrhea surveillance and response in the woreda, surveillance core activities-case detection, analysis and reporting of surveillance data for action is very crucial. The standard case definition was not available and used consistently at some health facilities. Even there were functioning computers, skilled personnel in different surveillance units, but the surveillance system was not using the current technologies to store, analyze and interpret data for public health action. Epidemic preparedness plan was not prepared in most surveillance units. Epidemic and rapid response team was not conducting scheduled regular meeting. Specific surveillance

system evaluation and feedback is not practiced at regular basis. Most of the surveillance units were not used malaria monitoring/norm chart. It is difficult to calculate timeliness from the current documentation system. As a result, timely action will not be undertaken. Therefore, strengthening data processing capacity at all levels by providing necessary computing facilities where needed; strengthening feedback system at lower levels; strengthening documentation and document retrieval system at all levels. The surveillance system in Damboya woreda is useful, complete, easy to implement, acceptable, flexible, stable, but poor quality data, not timely, not representative.

Recommendation

- ✚ Zonal health department and woreda health offices should put in place written feedback and supervision specifically to surveillance system at least quarterly.
- ✚ Training on data analysis should be given to the surveillance focal persons and reserve health professionals, including onsite training
- ✚ To capacitate the new surveillance staff, and to refresh/update the existing one training should be facilitated by woreda and zonal health department with the computer technologies
- ✚ Epidemic preparedness plan should be prepared and used by health centers, and woredas to response emergency condition
- ✚ Malaria monitoring tool should be prepared and posted on the wall at all surveillance units for easy track of malaria changes.
- ✚ To measure timeliness indicators should be prepared by all surveillance units
- ✚ All private health facilities should be incorporated in to surveillance reporting unit

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Chapter IV –Health Profile Description

4.1. Health Profile Description of Tembaro District, Kembata Tembaro Zone, SNNPR, 2016

Executive Summary

Health Profile is a system of collecting and organizing or summarizing health and other health related events to describe health and other related conditions. Public health officials used identify and prioritize information as a basis for planning, implementing and evaluation of public health surveillance program conducting at community level. We conducted the rapid assessment from February 26 to March 06 to describe health profile in Tembaro district. The total size of the population was 133,256 with male to female ratio of 0.95 to 1. We used standard checklist to collect data from woreda health office, education office, water office rural development finance and economy development and revenue authority office. Informed consent was obtained from the district health office and, by health then the other district offices were communicated by health office for co-operations. We used interview discussion and observation to review data with office heads, and experts. Microsoft Excel 2007 is used to compile and analyze data. Out of 43 schools, 8 schools Have direct line water supply.

All schools (100%) have latrines. 75% of health centers and 4.3% of the Health posts have access to water supply. 2(50%) Health centers and 3(13%) of the Health posts have access to Electricity. The annual administrative coverage of the Skilled delivery, CAR, ANC,PNC,Polio-3 , penta-3 and measles was -63%,89%,116%-,117%,102 and 103% Respectively. The annual TB detection rate was 56.7% and the cure rate is 100%. The plan and the achievement differ regarding TB detection and cure rate. Typhoid fever is the top morbidity causing disease in the district by having the percentage of 22.46% from the total cases. Malaria outbreak was not occurred during 2015 fiscal year, but occurred in this year that is 2016 and the malaria outbreak investigation done on this woreda in year 2016. In the woreda, 52,701 individuals become tested totally, and 1 individual became positive for HIV, that is 0.001% positivity rate in the year.

Introduction

Kembata -Tembaro Zone is one 15 Zones and 4- Special woredas in SNNPR. Tembaro district is one of the seven districts found in Kembata Tembaro zone. The district is found 60kms away from the Zonal town Durame. Administratively the Tembaro woreda consists of 23 kebeles. Health profile description is the collection, organizing and summarizing of health and health related data to assess effectiveness of a policy, programs or project in terms of its potential effects on the health of population and the distribution of those effects within the population. In epidemiologic point of view, it is crucial to prioritize health and other health related conditions prevailing in the community. Knowing the health profile of a specific area helps a public health officials to prioritize resource allocation and take appropriate Public Health actions effectively and efficiently.

Purpose: Health profile description helps to determine the effectiveness of policies, programs and projects to improve the health and social services of a given population by assessing the existing health service coverage, the developmental activities, social services major health problems, risk factors and it indicates area that needs attention or focuses to improve the health status of the specifically identified community or population. In addition to these the health profile of the district has not yet been done in the area. So this rapid assessment was designed to describe the health profile of Tembaro district.

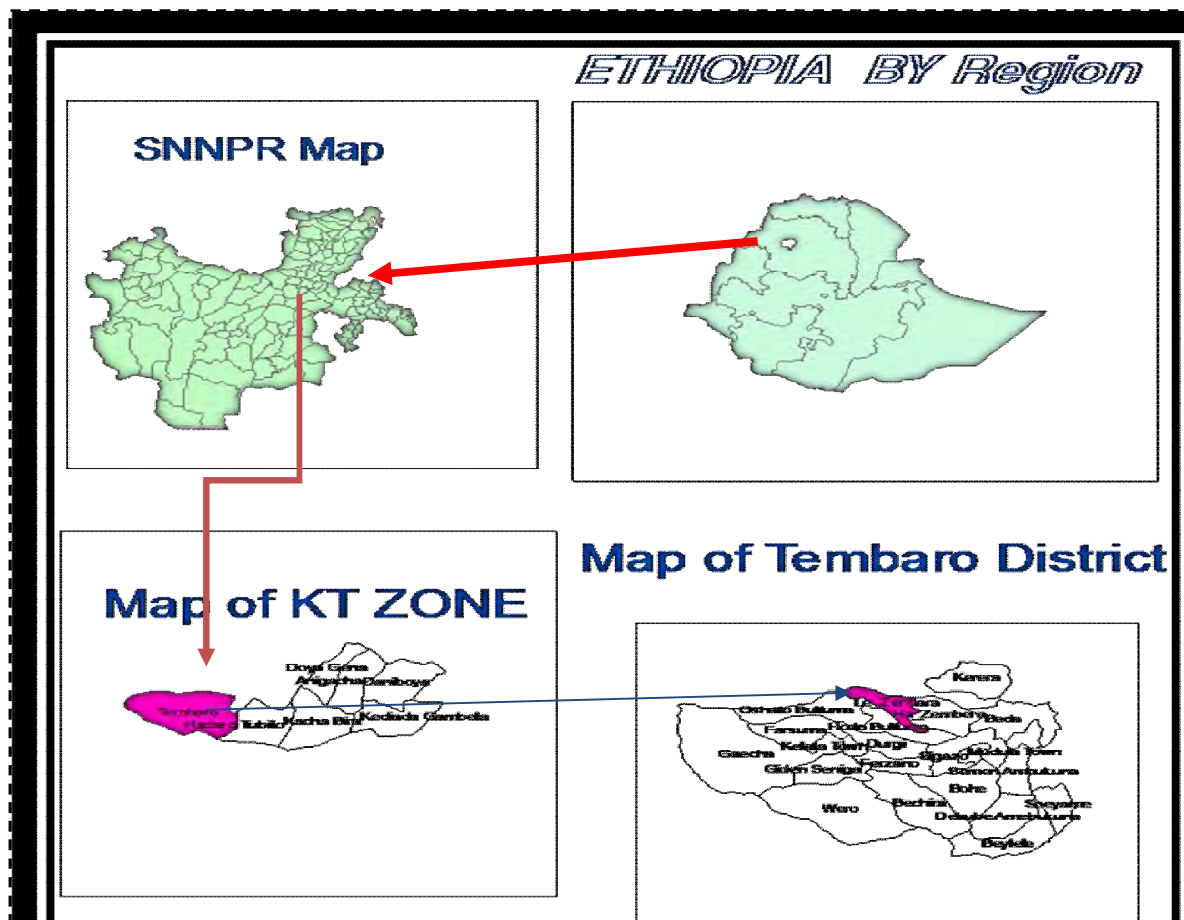


Figure 24Fig. 4.1.1Map of Tembaro District, KT Zone, SNNPR, Ethiopia

2.1.3. Objectives

2.1.3.1. General objective

- ✚ To assess the health profile of Tembaro district ,Kembata Tembaro Zone, SSNPR, 2014

2.1.3.2. Specific objective

- ✚ To describe health indicators and health related issues of the district
- ✚ To determine the trend of primary health component
- ✚ To Identify problems for priority setting

2.1.4. Method

Study setting: We conducted a rapid assessment in Tembaro district. The total population of the district was 133,526.

2.1.4.1 Study Period

We conducted the rapid assessment in Tembaro district from February 26- March-6/2016, Kembata Tembaro Zone, SNNPR.

2.1.4.2. Sample size determination

We used the Only Tembaro district. In the district for data collection we included the sectors of Woreda Health Office, Woreda educational office, woreda water office, woreda rural development office, finance and economic development office and woreda revenue authority.

4.1.4.3. Sampling Technique

Due to the district is hot spot for different health events, this woreda is selected.

4.1.4.4. Data collection

We used standard check list to collect secondary data from different offices. Data available in Woreda Health Office, Woreda educational office, woreda water office, woreda rural development office, finance and economic development office and woreda revenue authority branch were collected using a standard check list by reviewing secondary data, observation and interview of key informants in the relevant sectors of the district with office heads and experts.

4.1.4.5. Data analysis and presentation

We used Microsoft excel to compile the data, to calculate frequency, ratio, proportion and rate. We also used the excel office to construct figures and tables.

4.1.5 Ethical Issues

Official permission letter was obtained from the regional Health bureau Public Health Emergency core process to Kembata Tembaro Zone. Cooperation letter was written to Tembaro Woreda Health office and the woreda health office phoned to concerned woreda sectoral offices for cooperation also.

4.1.6. Result

Climatic condition: The district has an annual rain fall of 900-1450 mm with annual Temperature of 12-29 °c.

Political administration: Administratively there are 23 and 3 urban kebeles in the district. Waro kebele is the remotest 29 Km from the woreda center and Mudula 01 is 0 km from the woreda center. Almost all kebeles are accessible to the road facility for motorcycles.

Boundary: The boundaries of the district are Boloso Sorie woreda of Wolyta Zone in south, - Duna Woreda of Hadiya Zone in north ,Hadero Tunto Zuria Woreda of Kembata Tembaro Zone East and Genesa and Angela woredas of Dewuro Zone in West are territorial boundaries of the Tembaro District.

Table 0-1 Table 4.1.1. Total population and population structure of the Tembaro district, Kembata Tembaro Zone, SNNPR, 2015.

R.No	Variable	Number	Percent
1	Total Population	13,3256	100
2	Male population	65,255	48.1
3	Female Population	67,919	51.9
4	Urban Population	7,730	5.80
5	Rural population	12,5526	94.2
6	Total house holds	27,195	4.9
7	Under one years	4,248	3.26
8			
9	Under five years	20,788	15.6
10	Under fifteen years	63,963	
11	Women of child bearing age	247,838	23.3
12	Pregnant mothers	4,797	3.6

Ethnicity and Religion:-The ethnic groups in the district were Tembaro, Kembata, Hadiya and Wolyta by being the most dominant ethnic group is Tembaro in number. The office language of the district is Amharic. The religious groups are Protestant, orthodox, Muslim catholic and others by being the protestant religion is dominant in number.

Economy: The source of income in the district was agriculture, and trade. Agriculture was the major source of income.

Budget :The district allocated the operational and workers salary budget. The increment of the budget was seen 10% from the previous years. The budget for indoor residual spray 60,000 Birr was allocated by the woreda administration.

Education: There were total of 43 governmental and non-governmental schools in the district. In year 2015/2016 and a total number of 33,752 students were enrolled in education program. Among the total students 17,680 (52.38) were males and 16,072 (47.62%) were females. Total of 29,873 (88.50%) were enrolled in the primary (1-8) school and 3087(9.14%) were enrolled in secondary (9-10) school and 358(1.06%) were enrolled in preparatory (11-12) level. The teacher to student ratio of the woreda in (1-4) primary, (5-8), Secondary (9-10) preparatory (11-12) is 1:84, 1:35, 1:31 and 1:88 respectively. When we see the total schools to the kebele ratio nearly 2 schools to one kebele ratio available.

The DOR (Dropout rate) of the students are by total is 666(1.97%) and among these students 296(0.87%) are Female students and from the total of female students 296(1.86%) are female DOR and among male students 370 (2.09%) are male DOR from their own category.

From the total of the 43 schools 8(18%) have access to water supply and total of 43 schools have latrine for use.

Anti- HIV AIDS club, environmental health club, eye health are clubs being functioning in the schools by being eye care club is the main functioning club in all schools by the district during the study time.

All most all kebeles have access to the mobile telecommunication in the district.

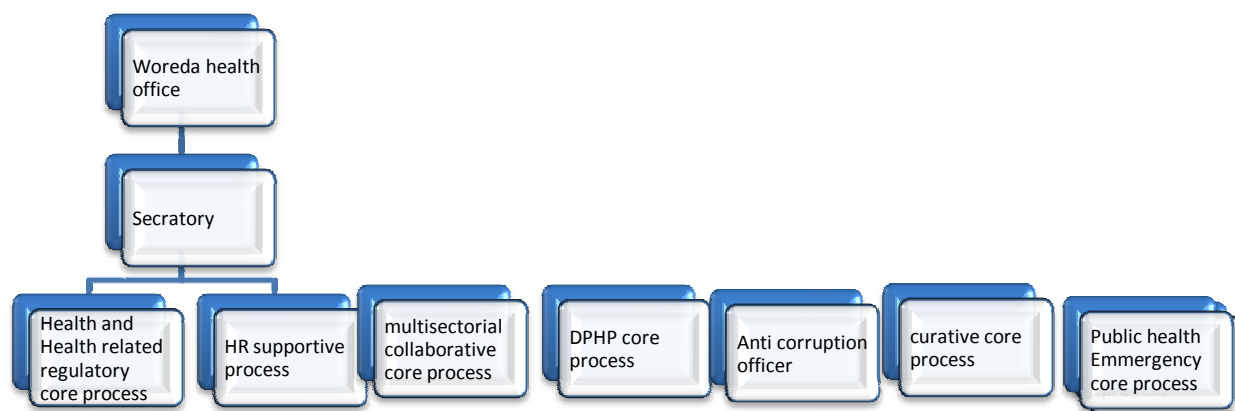


Figure 25Fig 4.1.2 Organizational structure of Tembaro district Health office system, Kembata Tembaro Zone, SNNPR, 2015

Organizational Structure of the District Health office:-The district consisted of 27 Health facilities in it. These were 21 health posts, 4 health centers and one NGO health center, two rural drug venders. The health centers to population ratio and Health posts to population ratio are 1:33,314 and 1:6,345 respectively. Two health centers (50%) have access to water supply and almost all of the health centers have access to mobile telecommunication network. Almost all the 21 health posts had road access to motor cycle in and 19 of them had road access to car to health post. Only one (4.7%) health post had water supply and only 2(9.4%) had electricity.

Disaster status in & vital indicators: In 2015 the contraceptive acceptance rate, the antenatal care coverage the postnatal care coverage was 89%, 100% and 100% respectively. Regarding immunization coverage, polio-3, penta-3 and measles was all 100%. The coverage of skilled delivery in the district during the year was 63%.

Table 0-2Table 4.1.2. Manpower to population Ratio, by profession in Tembaro district, Kembata Tembaro Zone, SNNPR, Ethiopia, 2015

Sr. no	Description	Ratio
1	Health center: population	1:32,853
2	Health post: population	1:6,571
3	Physician; population	1:65,706
4	Health officer: population	1:8,761
5	Nurse: population	1:1,851
6	Midwife: population	1:10,951
7	HEW: population	1:2,266

In the district the ten top diseases are categorized here. In the district the Typhoid fever, AFI, Helmentisis, Pneumonia, upper respiratory illness, and malaria are the leading cases by having the percent of 22 %, 21 %, 5.5 %, 8,67 % and 4.64% Respectively by the year 2015 by being the total number of malaria cases is 927 and typhoid fever is 4,491 cases. There was no admission fatality is recorded in the health facilities due to the above morbidities during the year 2015.

Table 0-3Table 4.1.3. Leading case load in the district Tembaro district during the year 2015

R.N	Disease	Proportion
1	Typhoid fever	22%
2	AFI	21%
3	Helmentisis	8.5%
4	Pneumonia	8.4%
5	AURI	4.67%
6	Malaria	4.64%
7		

Community health service: The total activities of the community health service are led by health Extension workers and kebele health development army. The HEWs share the responsibilities to the kebele health development army and all the concerned community reports fellow through HAD. In the Tembaro district total of 20880 HAD and among these 567 leaders, 2842 are 1 to 5 leaders and 17471 are members of the total HAD. From all 11,474 A, 6,274 B, and ranked 3,132 C by community health activity performance the army did; that is 55% A, 30% B and 15 % C are evaluated during the year 2015.

Environmental health: The district declared the ODF (Open-field defecation Free), in case of hygiene of environment. The latrine coverage is 100% since 2014. The utilization rate is also the same with the coverage. All schools and health facilities have 100% latrine coverage.

Malaria: Among the 23 kebeles of the district 17(74%) of the kebeles are malarius kebeles in the district. Namely Waro, Gidansonga, Geicha, Farsuma, Osheto, Le-Zembara, Belela, Soyame, Keleta, Ferzano, Durgi, Kerera Bachira, Hodo, Dehub Ambukuna, Semen Ambukuna, Ha-Zembara, Sigezo, and Bohe are in decreasing need order kebeles in the district with high priority for malaria Prone than the rest 6 kebeles of the district. Malaria occurs in the district seasonal epidemic in the woreda in previous years. At the time of this Health profile assessment, the woreda experienced the Malaria outbreak in 2016 and OBI has been done by us.

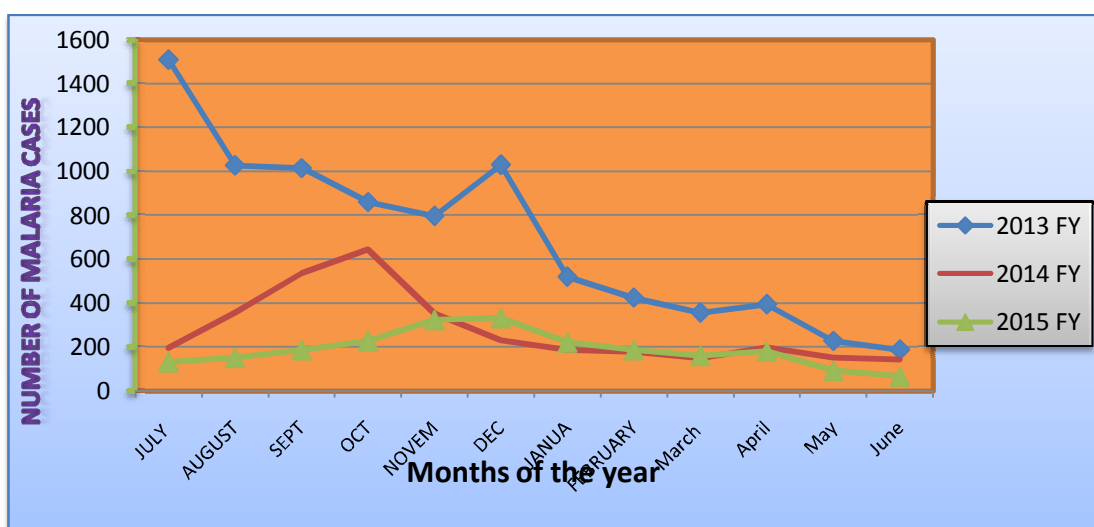


Figure 26Fig4.1. 3. The three years (2013-2015) Malaria cases of Tembaro district, Kembata Tembaro Zone, SNNPR, Ethiopia, 2016

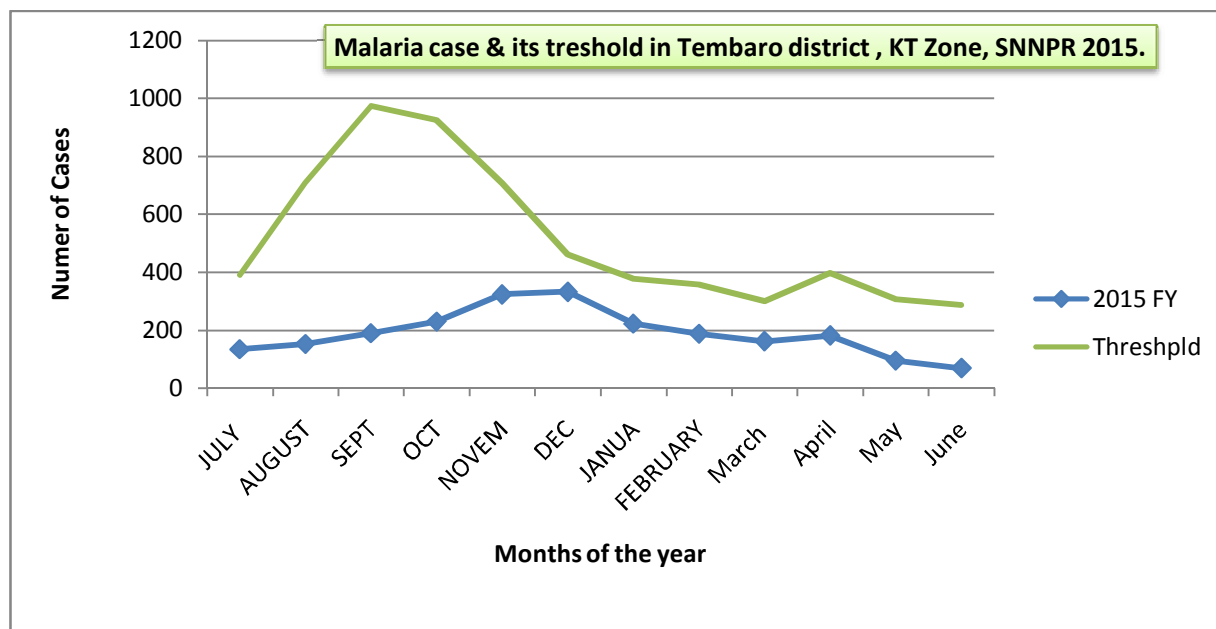


Figure 27Fig 4.1.4. Malaria cases and its threshold in Tembaro District, Kembata Tembaro Zone, SNNPR, Ethiopia, 2015

Indoor Residual Spray of the woreda

It was being sprayed the total of 17 kebeles which are with malaria risk population in the woreda previous years. But only 62% of the malarious risk population by 9 kebeles was sprayed and protected during the year 2015 because of the shortage of the Indoor Residual spray (Propecxure) for the district, the district unable to cover the full 100% of the malarious risk population during the period 2015. A total of 12,003 unit structure was sprayed during the year out of the plan unit structure of 19,505. This is coverage of 62% out of the total plan of the district. The spray budget also was allocated by the woreda administration.

Long Lasting Insecticide Nets (LLINs): Also the ITNS coverage was 100% but due to the improper planning in distribution for most kebeles it was not properly distributed during the year 2015. Even though a total of 153,800 pieces of ITNs was provided for the woreda, which is 100%, the kebeles were not fully covered by ITNs coverage and mal-distribution planning.

Abate chemical and other community mobilization activities was done in the district to prevent malaria disease infection.

HIV/AIDS: A total of 52,701 cases were tested for HIV/AIDS during the year and only one female individual was reactive for RVI and linked to the ART clinic for treatment. Out of the total HIV screened individuals 23,312 were males and 29,389 were female individuals. On voluntary counseling and Testing (VCT) a total of 24,147 people were tested and among these 10691 were males and 13,456 were female which is more number of tested females were registered in it. By provider Initiated counseling and testing a total of 24,082 people were tested and 12,621 and 11,461 were males and females respectively. On PMTCT a total of 4,472 females were tested. According to the district report indicates during the 2015 year finding a total people on ART are 70 since 2015 by being 23 females and 37 Males in the District.

TB and Leprosy: There were a total of 178 TB case in the district during the year 2015. Out of these 127(71.34%) were pulmonary positive, 18(10.11%) were pulmonary Negative and 33(18.53) were Extra pulmonary cases. During the year TB detection Rate was 56.7 % and TB treatment completion was 100%. All the TB cases those 178 were screened for HIV/AIDS during the year in the District. Even though all screened fortunately no one was reactive for HIV among the TB cases. There was no any Leprosy case recorded in the year 2015 in the district.

Malnutrition: The district was being faced the problem of Malnutrition since long years. Severe acute malnutrition was one problem of the District. Even though there were the slight decrement among new admissions of the woreda malnourished cases 2012-2015, on 2015 the months like May and June were with High cases. The malnutrition cases in the district per 1000 population were, 8, 4.3, 3.7, 4 from 2012 to 2015 respectively in years recently order.

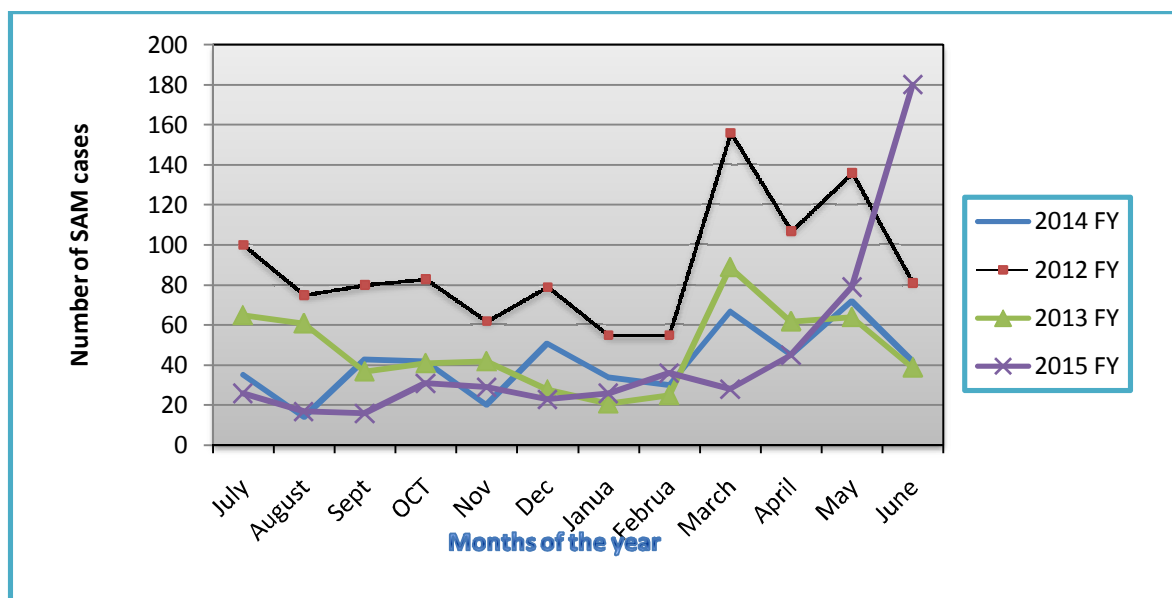


Figure 28 Fig 4.1.5 The trend of Severe Acute Malnutrition Cases, in Tembaro district, Kembata Tembaro Zone, SNNPR, 2012-2015

2.1.7. Discussion: Even though it is not indicated in the ten top of the districts morbidity Report Malaria is one of the public health problem. During the year 60 percent of Indoor Residual Spray was conducted and the ITNS was not distributed for households. The worda Kebles 17 out of 23 nearly 74% are malarious kebeles and many years the outbreak was experienced in the district. According to the Tembaro District health report it was the only year 2015 the malaria was not the 1st in ten top diseases since 10 years duration. This may indicate that the spray during the year was effective, that means like many studies reveal, the chemical Procepxure is highly insecticidal effect of the mosquitoes which can cause the malaria can be hindered by spraying it. The TB detection rate was less than 60% in the district during the Year.

Besides to this the severe acute malnutrition is one of the Tembaro district public health problems. Still the case is being managed in the health posts and health centers for the case of malnutrition.

4.1.8. Conclusion: Severe acute Malnutrition and Malaria are the districts priority problem. The low performance of TB detection rate less than 60% is one low achieved activity according to the

plan of the district Tembaro. Malaria was problem of the woreda before years even though currently there is no malaria case increment. In year 2015 there was no outbreak of malaria.

4.1.9. Recommendation:

- ✓ Malnutrition management of the patients should be enhanced for admitted cases and malt sectoral approach for prevent malnutrition has to be done
- ✓ Early community based nutrition for less than 2 years children have to be enhanced
- ✓ The malaria prevention and control activities like Indoor Residual Spray and others has to be given priority because 73 % of the woreda kebeles are known to be malarious
- ✓ TB Detection has to be done for all clients with cough of two weeks and more

2.1.11. References

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Chapter –V- Scientific Manuscript for Peer Reviewed Journals

Title

5.1. Malaria Outbreak investigation, in Le-Zembara Kebele, Tembaro District, Kembata Tembaro Zone, SNNPR, Ethiopia, January 2016 GC

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Abstract

Back Ground: In January 2016, increment of malaria cases was reported from Le-Zembara kebele, Tembaro district, Kembata Tembaro Zone, SNNPR, Ethiopia. We conducted outbreak investigation, described its magnitude, identified risk factors and control measures implemented.

Method: We defined cases and controls. Laboratory smear or Rapid Diagnostic Test (RDT) positive within that two weeks being the cases and persons who are not cases plus without malaria symptoms within that two weeks among kebele residents. We conducted the case control study with randomly selected 44 cases and 88 unmatched community controls. It's magnitude described by person, place and time. It's threshold compared by using the previous same season case data. Epi Info7.1.4 and Microsoft Excel were used for data entry and analysis. We also assessed environmental risk factors for the outbreak.

Result: A total of 659 confirmed malaria cases (Attack Rate: 106 per 1000) and zero death were reported from Jan to Feb 2016. Positivity rate was 77.8 % among with sign symptoms tested. Presence of stagnant water and intermittent rivers found (OR: 6.2, 95% CI 1.5-24.8) and (OR of 1.6, 95%, 0.7-3.3) respectively. Using bed net was preventive effect (OR: 0.6, 95% CI, and 0.7-1.4).

Conclusion and Recommendation:- Presence of stagnant water bodies nearby living area and low use of bed nets are most associated factors for this outbreak. Stagnant water bodies drained, additional bed nets distributed and indoor residual chemical sprayed for households.

Key Words: Malaria, Outbreak, Case-Control, Le-Zembara, Ethiopia

Introduction

Malaria is mosquito-borne parasitic disease and one of the most major public health problems of human beings. It makes occur 300 to 500 million episodes of acute illness and 1.2 million deaths per year worldwide. Malaria is affecting more than 100 countries of tropical and subtropical regions of the world. It is one of the leading causes of death in children under 5 years in Sub-Saharan African countries and accounts nearly 25% of all deaths.

Ethiopia is among the few countries with unstable malaria transmission. Consequently, malaria epidemics are serious public health emergencies. In most situations, malaria epidemics develop over several weeks, allowing some lead-time to act proactively to avoid larger numbers of illnesses and to prevent transmission. Although historically there have been an estimated 10 million clinical malaria cases annually, cases have reduced since 2006(National Malaria Guideline of Ethiopia, 3rd Edition, 2012).

Due to Ethiopian's complex topography and seasonal rainfall supports largely seasonal short term transmission, malaria is generally unstable that put population non immuned[Epidemiology and Ecology of disease and Health in Ethiopia, 3rd Edition Edited by Yemane Berhane; Damene Haile Mariam; Helmut kloos, Ethiopia 2011]. Unlike other Sub Saharan countries asymptomatic paracitimia is not a common phenomenon in Ethiopia. Recurrent outbreaks and epidemics are associated with cyclical climatic variations that lead to increased vector survival in the country. Generally malaria cases are peaked after two rainy seasons (March to May and July to September). The country has entertained the worst malaria Epidemic in 1958 with million cases and 150,000 mortality [Draft guideline for malaria control in Ethiopia; Malaria and other vector borne diseases prevention and control Department; Federal ministry of health; Addis Ababa Ethiopia, January 2002]

Methods and Materials

Method - Study Design

Descriptive Epidemiology & Analytic Epidemiology was conducted to investigate the outbreak.

Method -Data Collection

Unmatched case –control study was conducted to identify risk factors associated with disease from January 30 to February 8/2016. Community controls were selected from recently (within two weeks of interview) confirmed Malaria case patient's 1:2 ratio

Method

Method Data Analysis: – The data analyzed with Epi Info and Microsoft Excel.

Method Definition

Community Case definition

Any person with fever OR fever with headache, Back pain, chills, rigor, sweating, muscle pain, Nausea and vomiting OR suspected case confirmed by RDT.

Standard case Definition

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

Result

Laboratory result

From January to March 2016, a total of 847 blood smear tests were done by microscopy and RDT for suspected malaria cases at all sites of the Le-Zembara kebele including the Health post, the Health center , and the community outreach in site in the Kebele and 659 (77.8%)were positive . From the positive cases, 406(61.6%) were p. falciparum, 76(11.5%) were p.vivax and 177(26.8%) were mixed malaria cases.

Descriptive Epidemiology

A total of 659 cases per 6208 risk population (Attack Rate =106 per 1000) confirmed malaria cases were reported from Le-Zembara Kebele of Tembaro district from January to March 2, 2016(Table1). Death was not reported during the outbreak period. Slide positivity rate of the malaria during this outbreak period was 77.8% and increased by 70.8% compared to the same months of previous year January to February. The outbreak was detected at the 21 of the January 2016, that the Epi week3 report of the malaria cases were crossed the Epidemic threshold of 2015 (80 cases were reported for a threshold of the 2cases). The highest number of cases was reported there in WK 8 of 2016 that is 245 cases. Total of the 428 cases were reported at the total

of WK 5-8 in one month (four weeks duration) duration. During the last four weeks 2012-2015 there was no increment of malaria cases in that Le-Zembara Kebele. A total of 23 cases were reported in 2 months duration of 8 WKS with the same period of the four years in 2012-2015. But 659 cases in 2016 year are reported within two Months duration.

Table 1.5.1 Malaria Attack Rate Per 100 And Case Fatality Ratio By Age And Sex, Within Two Months Of The Same Period, In Le-Zembara Kebele, Tembaro District, Kembata Tembaro Zone, SNNPR, Ethiopia, 2011-2016

Variables		Population of kebele	Malaria population	risk	≠of cases	≠Deaths	Attack per1000	Rate	Case Fatality Ratio (%)
Age	0-4	1018	1018		29	0	28		0
	>4	5190	5190		630	0	121		0
Sex	Male	3075	3075		354	0	115		0
	Female	3135	3135		276	0	88		0

0-2 1.5.2: Demographic; Personal and Environmental Protection Factors among Malaria cases and unmatched Controls; Le-Zembara Kebele, Tembaro district, Kembata Tembaro Zone, SSNPR, Ethiopia, 2016.

Characteristics		Case (N=44)	Control (N=87)	Estimated Odds Ratio	95% Confidence Interval
Educational Status	illiterate	11	9	2.8	1.09-7.6
	Literate	33	78		
Occupation	unemployed	2	2	2	0.2-14.8
	Employed	42	85		
Sleeping under ITNS	yes	10	27	0.6	0.7-1.4
	No	34	60		
Presence of person in home with malaria S/S within two WKS	Yes	6	3	4.4	1.04-18.6
	No	38	84		
Presence of river water nearby living home	Yes	20	30	1.6	0.7-3.3
	No	24	57		
Plant in container at nearby living home	Yes	1	2	1	0.08-11.2
	No	43	85		
Broken glasses	Yes	2	2	2	0.2-14.8
	NO	42	85		
Gutter nearby	YES	3	5	1.2	0.3-5.2
	NO	41	82		
Presence stagnant water nearby	Yes	8	3	6.2	1.5-24.8
	No	36	84		

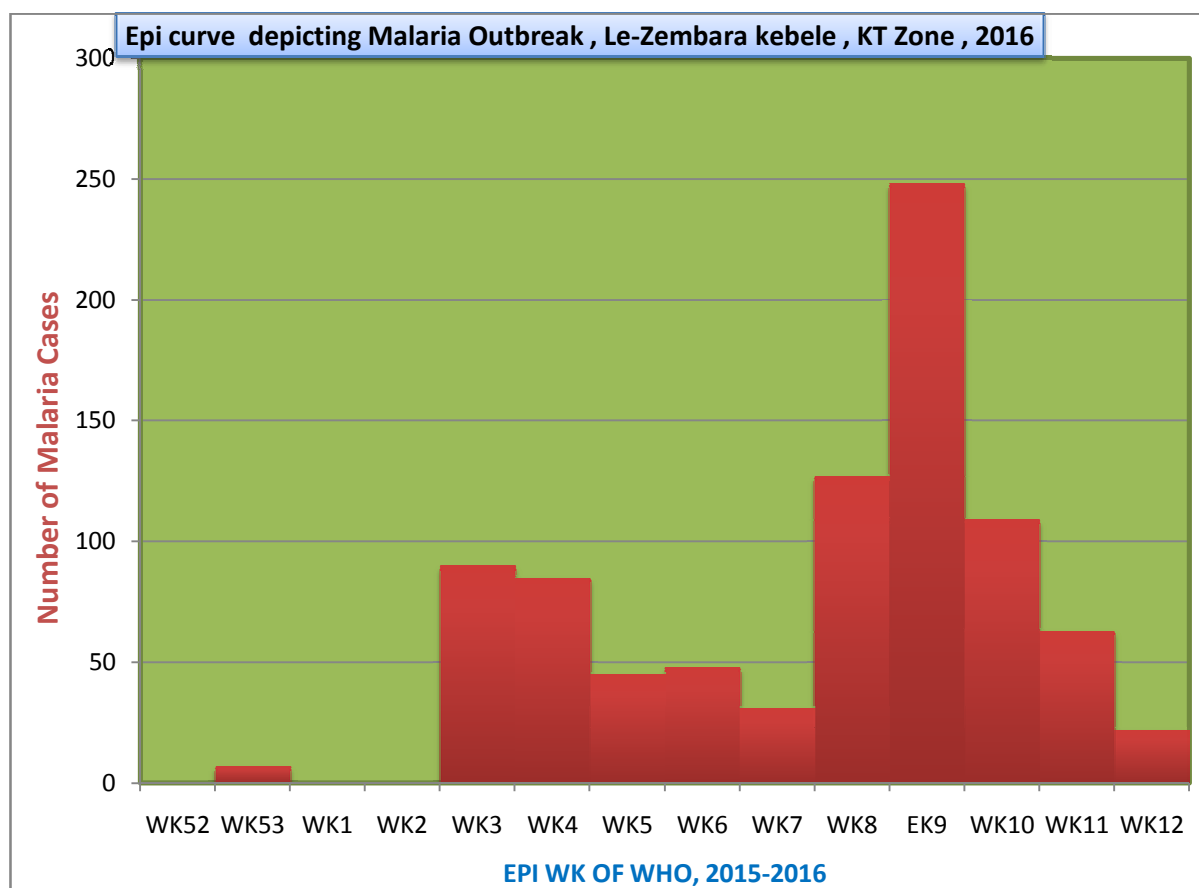


Figure 29Fig. 1.5.1 Epi curve of Malaria outbreak investigation, in Le-Zembara kebele, Tembaro District, Kembata Tembaro Zone, SNNPR, Ethiopia, 2011-2016

Analytic Epidemiology

During this case control study 44 malaria case patients and 87 community controls were selected and investigated from Le-Zembara kebele. Selected cases and controls are unmatched. Of 44 case patients 28 (63.6%) were males and 15(36.4%) were females. The mean and median age of the cases and controls were 18 by 21years and 20 by 23 respectively.

Presence of person with similar signs and symptoms in the home before 2 weeks of onset was associated with the disease (Odds ratio: 4.4, 95% confidence interval: 1.04 – 18.6). Cases were less likely to use insecticide treated bed nets compared to controls that are 22% among cases and 31% among controls using ITNS with Odds ratio of 0.6 and 95% confidence interval: 0.7-1.4.

Discussion

Many factors may have contributed to the occurrence of this outbreak in Le-Zembara Kebele. Multiple risk factors were assessed during the investigation besides intervention activities. Usually poor individual practice of towards Malaria prevention, Temperature, rain fall, population movement is contributors for malaria the existence of malaria outbreak. This outbreak was detected after the middle of January 2016. The small amount of rain fall in kebele made stagnant water in this kebele of seasonal rain and some local river water bodies became stagnant due to road construction bridges and unwashed away of small stagnant waters increased malaria incidence in the kebele. Besides to these the high temperature and the low altitudes (some areas registered 1490 m by GPS measurement) are also contributed the breeding of mosquito on the site. There were no death recorded in the kebele, the possible reason could be strong case detection and management at time of outbreak management including at the period of outbreak.

The Study done at India on risk factors of malaria outbreak indicates the lower risk of malaria attack people sleep under ITNs, and it almost concedes with this study. Also the case control study which was conducted assessing risk factor for malaria outbreak by Gemechu Shume in Oromia Region, Ethiopia ; has almost the similar findings with this study on stagnant water is the risk factor for malaria outbreak.

The presence of stagnant water nearby living environment is found to be the major cause for this out break since it is the good media for mosquito larvae breeding and observed by naked eye. The Villages closer to those water bodies are more affected than others. Research conducted in Gurau Region of Peru also showed the availability of water bodies has higher association with malaria attack rate and transmission possibility in human population. Besides to these the last year the kebele spray was skipped due to shortage of chemical for Indoor Residual Spray and this probably gave weakling gate for mosquito availability and resting in households.

Conclusion:- There was malaria Outbreak in Le-zembara Kebele, Tembaro district, Kembata Tembaro Zone, SNNPR. The age group of above four years is more affected in the outbreak of malaria disease. The villages called Lemeja and 3rd Zembara is more affected by malaria outbreak. The presence of stagnant water, staying outside the home during night time, some uncovered wells for mosquito breeding plus the presence of person with malaria sign and

symptoms are associated factors for having or contracting the malaria disease in this Le-Zembara kebele. Even though the outbreak was notified timely, the combating strategies like Indoor residual for focal spray was late due to shortage of the chemical. The already available old ITNs is was not being monitored for proper utilization in the HHs, and the Abate chemical for spraying on water bodies for larvaecidale purpose was bit expired and the kebele is still utilizing it. Due to shortage of Propecxure chemical for the kebele at previous year time, it was not totally sprayed in the kebele at expected time period of spray in 2015.

Public Intervention

A total of 1,300 pieces of new ITNS (Insecticide Treated bed nets) distributed for the kebele during the outbreak. The environmental management like draining of the stagnant water due to newly being constructed road is bridges is also made drain during the intervention time.

Community was mobilized and the proper utilization of ITNs in the HH is enhanced. The case detection and case management at each level like outreach community, Health posts and Health centers level was well done during the outbreak management period.

Recommendation

- ➡ Identifying and draining potential mosquito breeding site has to be done.
- ➡ Since the kebele is malarious, the ITNs should be distributed as standard for the kebele households and the proper utilization of the ITNs should be monitored and maximized.
- ➡ Regular indoor residual spray per required standard should be kept in place and sprayed with in standard.
- ➡ At weekly basis trend of malaria cases should be monitored and reported for the next level.
- ➡ Community ownership strengthening has to be done in 1to5 level and at health Development army level to manage the environment at abate chemical spray community participation. Besides to this multi-sectoral collaboration and woreda administration has to play great role on facilitating the outbreak control managing activities.
- ➡ Weekly and monthly morbidity data has to be kept and documented.
- ➡ ITNs coverage analysis has to be done at yearly basis in district and kebele levels.

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CHAPTER VI: - Abstracts For Scientific Presentation.

Title

6.1. Malaria Outbreak investigation, in Le-Zembara Kebele, Tembaro District, Kembata Tembaro Zone, SNNPR, Ethiopia, January 2016 GC

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Name of FETP: Ethiopia FETP

FETP Entry/Graduation: 2015/16

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Abstract

Back Ground: In January 2016, increment of malaria cases was reported from Le-Zembara kebele, Tembaro district, Kembata Tembaro Zone, SNNPR, Ethiopia. We conducted outbreak investigation, described its magnitude, identified risk factors with this outbreak and control measures implemented.

Method: We defined cases and controls. Laboratory smear or Rapid Diagnostic Test (RDT) positive within that two weeks being the cases and persons who are not cases plus without malaria symptoms within that two weeks among kebele residents. We conducted the case control study with randomly selected 44 cases and 88 unmatched community controls. It's magnitude described by person, place and time. It's threshold compared by using the previous same season case data. Epi Info7.1.4 and Microsoft Excel were used for data entry and analysis. We also assessed environmental risk factors for the outbreak.

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Conclusion and Recommendation:- Presence of stagnant water bodies nearby living area and low use of bed nets are most associated factors for this outbreak. Stagnant water bodies drained, additional bed nets distributed and indoor residual chemical sprayed for households.

Key Words:- Malaria, Outbreak, Case-Control, Le-Zembara, Ethiopia.

Title

6.2. Surveillance Data Analysis of Severe Acute Malnutrition, Kembata Tembaro Zone, SNNP Region, Ethiopia, 2004-2008 E.C

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Abstract

Background: Malnutrition causes child death in developing countries including Ethiopia. Kembata Tembaro Zone is on among prone zone in SNNPR for severe acute malnutrition currently. This study is intended to analyze severe acute malnutrition (SAM) reports of this zone to understand its trends and propose recommendation.

Methods: Cross-sectional descriptive study was conducted during collection of SAM data. Five years (2004 - 2008 E.C) report of SAM from the Zone and Regional database were reviewed. Different variables such as, SAM admissions, deaths, cures, total discharges in different age category with respect to time and place were included in the analysis of SAM report.

Results: In the zone total of 18, 175 SAM cases admitted during consecutive five years (2004 - 2008 E.C). Children 6-59 months of age constituted almost all % of new admissions. Admissions decreased from 2004 to 2008 E.C, but for recent 4 years it was increasing. In five-year's report 32 deaths with a fatality rate of 0.18 to 0.42% reported.

Conclusion and Recommendation: Therapeutic Feeding Program admissions Sites increased from 2004 to 2008 E.C. Deaths number was high in 2008 EC. This may be due to admission of severe cases due to the year's Eli Niño effect in 2008 EC. The existing reporting format needs to be revised to include sex, pregnancy, and lactation status category.

Keywords: Severe Acute Malnutrition, Surveillance Data Analysis, Kembata Tembaro Zone, Ethiopia

Title

6.3. Scabies Outbreak Investigation, Kacha Birra District, Kembata Tembaro Zone, SNNP region, Ethiopia, November 11-20, 2016

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Abstract

Introduction: Scabies is one of the common but neglected parasitic diseases and major public health problem globally and resource limited country in particularly. It affects about 300 million people worldwide yearly with increased incidences during natural and manmade disasters. It affects all age group, sexes, races and social class. It spreads by direct, prolonged, skin-to-skin contact with a person who has scabies infestation.

Objective: To investigate the Scabies suspected outbreak and its risk factors in Kacha Birra district of Kembata Tembaro Zone, Southern nation nationality people Region, Ethiopia.

Methods: We conducted community based unmatched case-control (1:3) study design. Data were collected Using face to face interview administered structured questionnaire. Data were coded entered, cleaned and then analyzed using Epi info and MS Excel is also Used.

Result: we collected a total of 517 scabies suspected cases line list from 3 Kebeles with overall attack rate of 2.8/1,000 population with no scabies related death (CFR=0). The mean age was 12 year with ranges from 1year to 65 year and most affected age group was 5-14 years with an attack rate of 1.6/1,000 populations. On Multivariate analysis, contact history with scabies cases in past 2 month ,being age-group less than fifteen years were risk factor for developing the scabies infestation and statistically significant with an AOR of 146 [95%CI=54.3-396.6 P= < 0.0001] and 2.355 [95%CI=1.36-4.03, P<0.0001] respectively. Active case search, health education & drug treatment conducted during investigation.

Conclusion and recommendations: we confirmed scabies outbreak was occurred in Kacha Birra District of Kembata Tembaro Zone, SNNP region. Contact history, presence of person infested with scabies in the family and age less than 15 years were risk factors for transmission of scabies. We recommend continuous active case search at all kebele levels, Prevention methods, controls especially at community level including schools and mass treatment.

Keywords: Scabies outbreak, risk factors, Kaca Birra District.

CHAPTER VII:- Belg assessment Narrative Summary Report

7.1. Belg assessment Narrative Summary Report on in South Omo and Segen Area people's Zone, SNNPR, Ethiopia, 2016

Executive Summary

Total of 06 teams established SNNPR regional level for Belg Assessment, one of the six was assigned at South Omo and Segen area people's zones in selected five woredas of both zones. Both zones are located at Southern West of the SNNPR Region. This assessment is intended to investigate the extent, types, magnitude, severity and likelihood of different risks in most vulnerable woredas and develop the response plan based on the findings.

The visited districts were selected by discussing with Zonal Epidemic Preparedness Task force and taking in to consideration those selected by the Regional Task forces. The same procedures were done at district level to select visited Kebeles, Health Facilities and Villages. By following these procedures, from South Omo Zone three woredas namely; (Malle, Benatsemay and Dasench) and from Segen Area People's Zone the two woredas namely; (Gedole and Alle) were assessed from June 7 to 15, 2016. At each level interviews and discussions were conducted with concerned bodies including community members by using prepared checklist. Additionally, review of document at zonal and woreda level was conducted.

Despite of the fact that both Zones did not conduct the regular meeting, the multi-sectoral coordination forum was being conducted in both zones at zonal level. In South Omo Zone there was yellow Fever with total case of 22 and with Mortality of 5 cases and also salmonella outbreak with total 772 cases and no death, contained two weeks prior to the assessment and in Segen Area people's zone there was outbreak of AWD with 9 cases no death at total from March to June 2016. There were no other severe outbreaks in both zones in assessed time period. There was shortage of emergency drug supplies in both visited zones. The water coverage of both visited zones was blow 50% and schools Health Facilities and community level potable water points and coverage was low and most of the health facilities and schools are without water points. Anticipated outbreaks in both zones are AWD, Malaria, Meningitis and Measles in addition to this Yellow fever is anticipated for outbreak in South Omo Zone.

Emergency Preparedness plan Task Force meeting has to be conducted regularly in both visited zones and also the multi-sectoral coordination should be strengthened in both Zones and the woredas level too.

Back ground

South Omo and Segen zones are two of neighboring zones in the Southern part of the region. South Omo has 8 woredas whereas Segen has 5 woredas. The total population of South Omo and Segen zones is 714, 588 and 718,886 respectively. South Omo is one of the malaria endemic zones of the region. In Addition yellow fever, meningitis, measles are some of the diseases that could cause outbreak in this zone (South Omo). The majority of the populations in South Omo are pastoralists or semi pastoralists. South Omo is one of the tourist destinations and investment corridors of the country.

Introduction

Access to food and the maintenance of adequate nutritional status are critical determinants of people's survival in a disaster. Malnutrition can be the most serious public health problem and may be a leading cause of death, whether directly or indirectly. The resilience of livelihoods and people's subsequent food security determine their health and nutrition in the short term and their future survival and well-being. Food aid can be important in protecting and providing for food security and nutrition, as part of a combination of measures.

Malnutrition in one or more of its various forms frequently characterizes emergency situations, both natural and man-made. Access to food and maintenance of adequate nutritional status is a critical determinant of people's survival in the initial stages of an emergency. Ensuring that the food and nutritional needs of disaster-stricken populations, refugees or internally displaced people are adequately met is often the principal component of the humanitarian, logistic, management and financial response to an emergency. When the nutritional needs of a population or population subgroup – are not adequately met, some form of malnutrition soon emerges, usually among the most vulnerable individuals. Malnutrition can be the most serious public health problem and may be a leading cause of death, whether directly or indirectly.

Health and nutrition are indeed closely linked: disease contributes to malnutrition and malnutrition makes an individual more susceptible to disease and consequently more likely to

die. Severe Acute Malnutrition especially increases the incidence, duration and severity of infectious disease. The most common types of disease suffered by young children in both stable and emergency situations include: diarrhea, acute respiratory infections, measles and malaria. All of these conditions may in turn contribute to increased malnutrition through loss of appetite, mal-absorption of nutrients, loss of nutrients through diarrhea or vomiting, or through altered metabolism (which increases the body's need for nutrients). Death rates among children who are severely malnourished are about six times greater than among those who are healthy and well-nourished in the same population, and twenty to fifty times greater than the rate in rich and prosperous countries.

Water and sanitation are critical determinants for survival in the initial stages of a disaster. People affected by disasters are generally much more susceptible to illness and death from disease, which are related to a large extent to inadequate sanitation, inadequate water supplies and poor hygiene. The most significant of these diseases are diarrheal diseases and infectious diseases transmitted by the faeco-oral route. Other water- and sanitation-related diseases include those carried by vectors associated with solid waste and water. The main objective of water supply and sanitation programs in disasters is to reduce the transmission of faeco-oral diseases and exposure to disease-bearing vectors through the promotion of good hygiene practices, the provision of safe drinking water and the reduction of environmental health risks and by establishing the conditions that allow people to live with good health, dignity, comfort and security.

In order to achieve the maximum benefit from a response, it is imperative to ensure that disaster-affected people have the necessary information, knowledge and understanding to prevent water- and sanitation-related disease and to mobilize their involvement in the design and maintenance of those facilities.

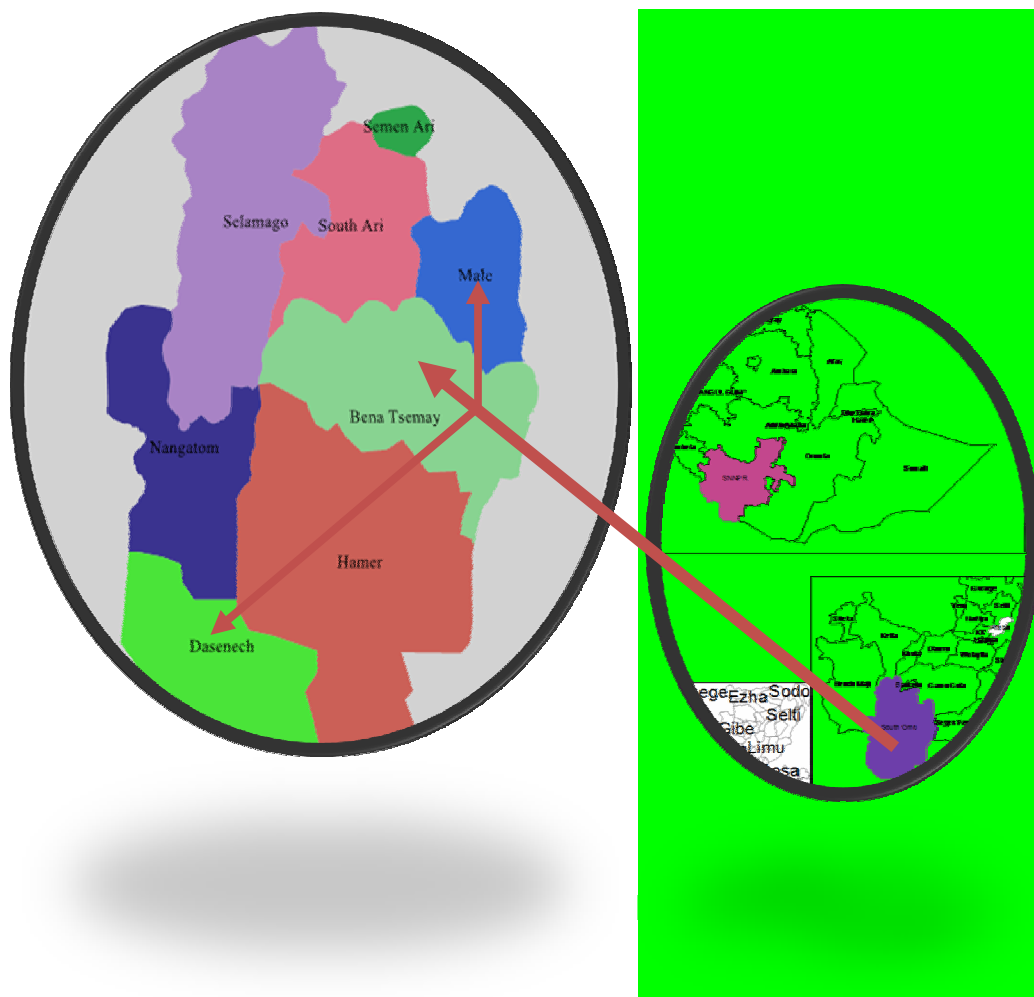


Figure 30 Fig. 1.7.1 Map of South Omo Woredas visited in cases of Belg Assessment by the Regional and federal composed team members Including Residents, Oct, 2016.

Map of Segen area Peoples' Woredas seen by Belg Assesment

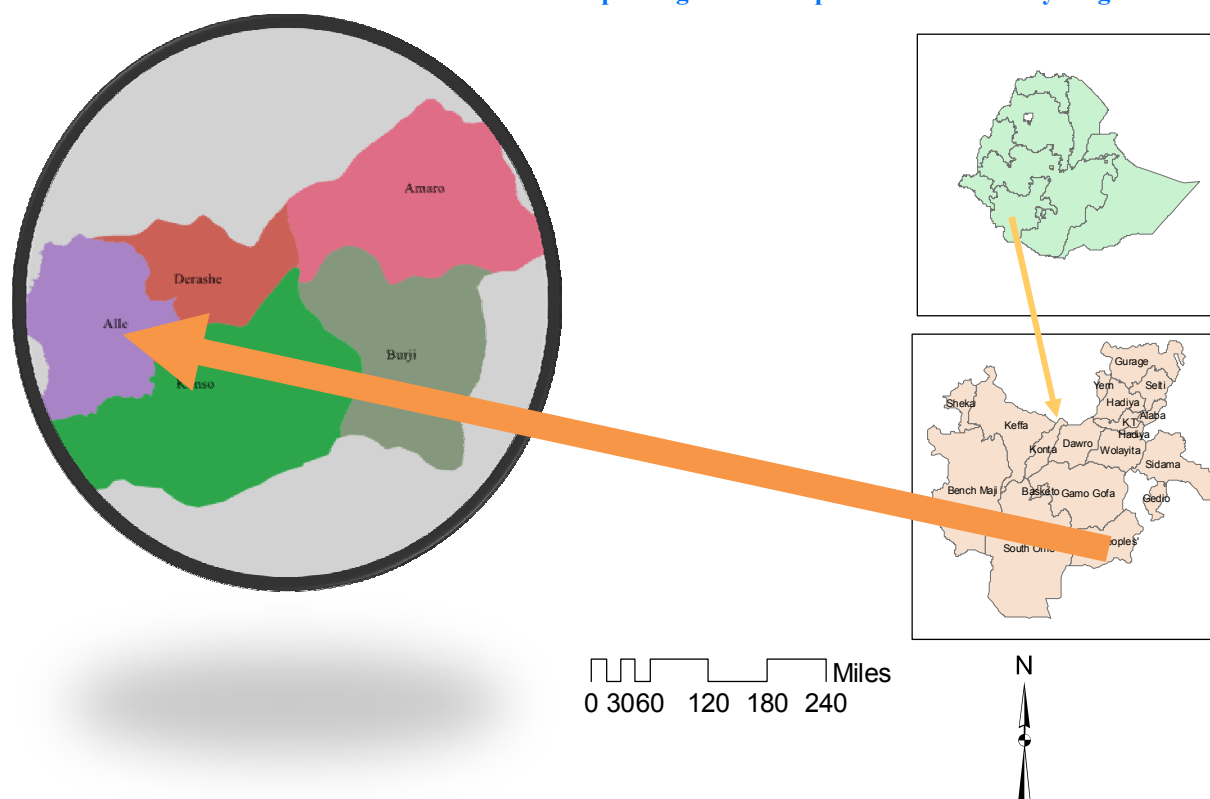


Figure 31. 1.7.2. Map of Segen Area People's Zone Woredas visited in cases of Belg Assessment by the Regional and Federal composed team members Including Residents, Oct, 2016.

Objectives

- ➡ To assess the extent, types, magnitude, severity and likelihood of different hazards (drought, human epidemics, conflict, floods, etc) and risks to the populations in most vulnerable woredas (Including to identify the most vulnerable populations) for WASH, Health, Nutrition and Education Emergencies in South Omo, and Segen Zones.
- ➡ To identify areas where Emergency assistance (WASH, Health, Nutrition and Education) might be needed during the next six months of the year 2009 E C. due to acute problems and come up with reasonable estimates of the size of the population needing the emergency assistance for the upcoming six months period.

- ➡ Based on the findings of the assessment the need to address potential emergencies to develop; necessary plans and complete preparedness actions early in WASH, Health, Nutrition and Education sectors for adequately addressing the potential Emergency

Methodology and Procedures

The assessment was conducted from June 7 to 16, 2016 in South Omo and Segen Zones, which has a total population of 714,588 and 718,886 respectively. Three woredas from South Omo (Benatsemay, Dasenech and Malle) and two woredas from Segen zone (Alle and Derashe) were included in the assessment. The team submitted the permission letter to the zone administration and the administration arranged a multi-sectoral meeting including (Early warning, education office, Water mineral and energy office, Health department, Women and youth office) for briefing.

The contents of the briefing are: weather condition; crop and livestock situation; Health and nutrition; Water hygiene and Sanitation education and prospect of the Belg harvest. Based on these each sector presented their plan and achievements for the year 2016. The team asked different questions to have a depth understanding of the current status of respective zones. Finally the team and the zone administration reached in a common consensus on which woredas to be included in the assessment. Subsequently the team travelled to selected woredas and did similar briefing to the woreda administration and sector office representatives. The team captured important data using a structured questionnaire prepared by National Disaster Risk Management Commission, visit to the affected kebeles, key informant interview and document review. Before departing each visited zone and woreda the team gave debriefing to the respective administrations about the preliminary findings of the assessment.

Results of Belg Assessment in South Omo Zone

Coordination

In all woredas the coordination of the multi- sectoral body is there but the gap is the members are not having a meeting regularly. The NGOs and other related bodies are being assembled when the need rises only like when the emergency phenomenon occurs.

Public Health Preparedness plan

In all visited woredas the public health emergency plan is there but the plan is not supported by the woreda administration.

Outbreak

Even though at the period of Belg assessment the whole woredas of the two zones are free from the outbreak prior to the assessment weeks there was out break in Benatsemay and Male woreda of South Omo case of salmonellosis of nearly 889 cases. Again in South Ari woreda the suspected yellow fever cases were reported as a total of 22 cases and 5 deaths were reported. Besides to these the Amaro woreda of Segen Peoples zone Entertained 9 cases of AWD and no deaths were reported.

Ongoing Outbreak of any Disease

There was no any ongoing outbreak in all assessed zones of the woredas currently as when the team observes the woredas for Belg assessment.

Preventive treatment given

The preventive treatments are given accordingly when the outbreaks are present in the outbreak occurred woredas. For example the salmonella of South Omo zone was treated by antibiotics and other treatments.

Drug and supply preparedness

In most woredas of the two zones the ringer lactate, ORS, doxycycline, coartem and laboratory supplies are available. The rest items like antibiotics and CTC Kits for AWD, LP sets are not available in the woreda and in the zonal level before the occurrence of the outbreaks.

Risk factors

Almost in all woredas of the assessed zones there are risk factors for Malaria, Meningitis, AWD, Measles, and yellow fever. The occurrence of the malaria epidemics and others are common in both zones of woredas. So that, the risk is high for those mentioned diseases like malaria, meningitis, Measles, AWD and yellow fever.

Nutrition

During discussion with multi-sectoral team in all assessed Woredas of South Omo zone, increased malnutrition cases were specified as a major problem of children and women in recent weeks. Reports of OTP and CHD screening data indicate that there have been cases of malnutrition in most of the woredas. Farther deterioration of nutritional status of vulnerable group may happen due to significant reduction of milk production and loss of crop production due the drought. As per the information from woreda health offices there is inadequate therapeutic supply (F100 and F75) for the treatment of severe acute malnutrition cases for the next months.

Facilities with SAM Management in Male woreda

The male woreda is one of the South Omo woredas and it has a total of 27 Health posts OTP functioning and 3 health centers SC functioning for the whole Oct to May 2015/2016. The SAM facility performance is 100% at Male woreda compared to the available health facilities. Table 1 .7.1. depicts the trend below.

Table (0-1) 1.7.1 Facilities with SAM management in Ma'le Woreda, South Omo, 2016

Month	Total # of H centers/hospitals	Total # of H posts	Number of SC.	% of HCs/hospitals with a SC.	Number of OTP	% of HPs with OTP	Total # of OTP/SC reported	% of OTP/SC who have reported
Oct	4	27	3	75%	27	100%	27/3	100%
Nov	4	27	3	75%	27	100%	27/3	100%
Dec	4	27	3	75%	27	100%	27/3	100%
Jan	4	27	3	75%	27	100%	27/3	100%
Feb	4	27	3	75%	27	100%	27/3	100%
Mar	4	27	3	75%	27	100%	27/3	100%
Apr	4	27	3	75%	27	100%	27/3	100%
May	4	27	3	75%	27	100%	27/3	100%

Admission and Performance of TFP MAM management

As we have seen in the 2007 and 2008 E.C the SAM case trend is not increased in 2008 E.C. The total case of 2007 E.C and 2008 E.C new admission 256 and 186 consecutively. So, it is in decreasing trend. Besides to these the defaulter rate in 2007 EC. Was 4%, 10.5% and 7% in Oct, January and April respectively. So it needs the due attention in tracing back the defaulters from the community in the Male woreda. The trend is depicted in the table 1.7.2 below.

Table(0-2). 1.7.2 Admission and Performance of therapeutic feeding program, Ma'le woreda, South Omo, 2016

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	31	22	93%	4%	0	0	1%
Nov	26	10	95%	0	0	0	1%
Dec	26	32	95%	0	0	0	1%
Jan	28	21	84%	10%	0	0	1%
Feb	30	34	100%	0	0	0	0
Mar	36	28	88%	0	0	0	3%
Apr	41	17	78%	7%	0	0	4%
May	38	22	96%	0	0	0	1%

The trends of malnutrition in Ma'le woreda in 2008 E.C is showing a decreasing trend and also lower compared to cases of last year in most of the months of the year. This could be explained partially by the monthly routine screening of children during CHD and manage accordingly before developing Severe malnutrition. Except December and February months of the year 2008 E.C the trend of the screening was in decreasing trend for the whole year. Fig1.7.3 indicating the trend decreasing.

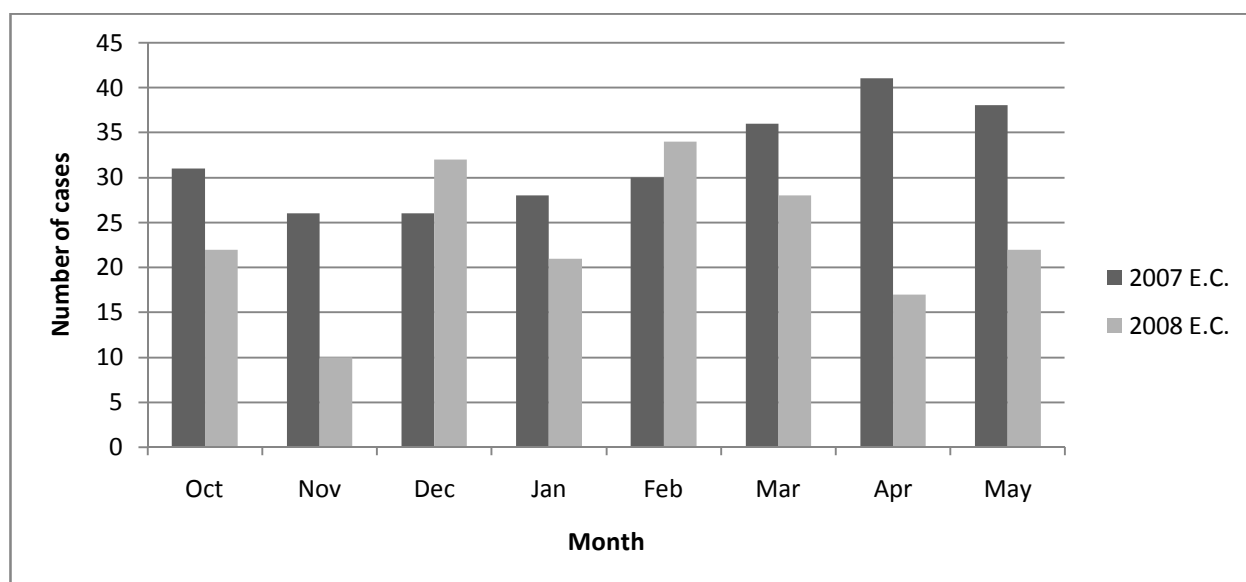


Figure 32 Fig. 1.7.3 Comparison of SAM cases in 2015 and 2016, Ma'le woreda, South Omo, 2016

Availability of Therapeutic supplies

In all the assessed woredas the supplies for OTP and SC are available and some shortage in Dasenech Woreda of the F100 and F75 are assessed. In all the rest assessed woredas the supply of plump nut, F100 and F75 are available.

The screening performance of the Male Woreda

The screening coverage in Male wore compared for the 8 months of the year and the performance coverage ranges from minimum 55% to maximum 92 % at January and May 2015/2016 from the target under five children. The SAM percentage of the children screened was 0.1% and 0.2% in minimum and Maximum months respectively. Besides to this the GAM percentage of the screening is 0.4% and 1.5% in minimum and in maximum respectively. As a total the SAM cases in Male woreda were in decreasing trend when we compare the 8 months trend.

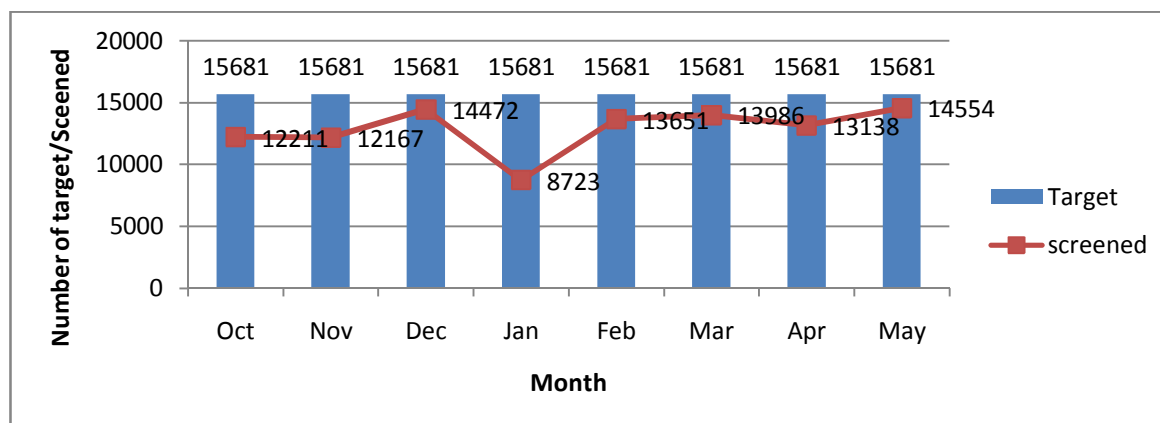


Figure 33. Fig 1.7.4 Screening performance of children Ma'le woreda, South Omo, 2016

The screening performance for PLW in Male woreda

The screening coverage in male woreda is seen as low coverage which ranges from 37% to 77% minimum and maximum percent of the coverages respectively. The percentage of the proxy GAM of women is 0.3% to 1.7% in minimum and maximum months respectively. Even though the percent of the GAM for PLW is low, it needs the screening of the total target PLW in the woreda to address whole population in the target group. Fig 4 below depicts the screening

performance of PLW in Male woreda.

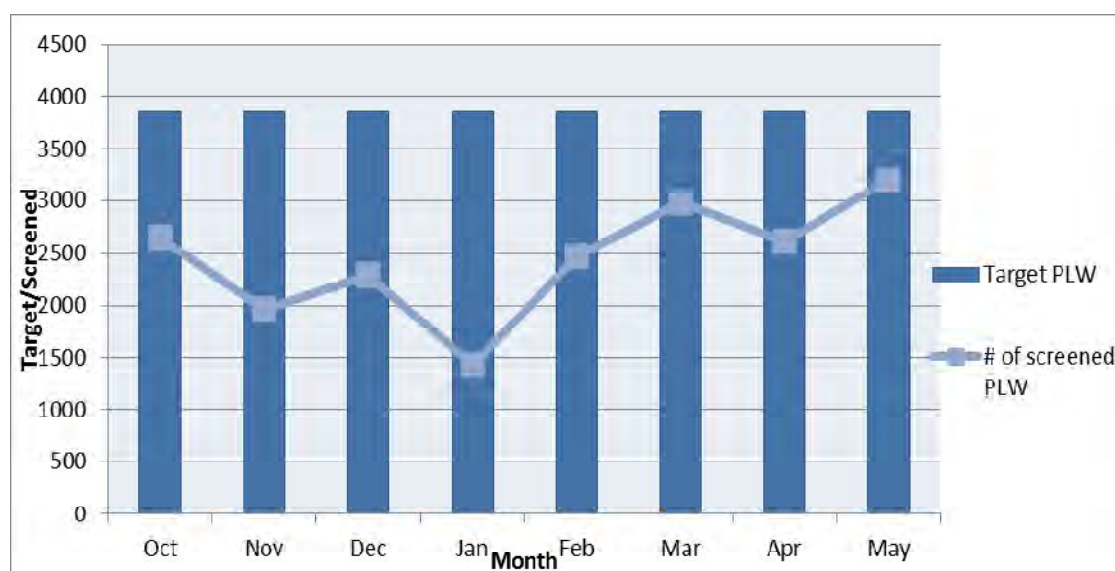


Figure 34. Fig 1.7.5 Screening performance for Pregnant and lactating

Facilities with SAM management in Benatsemay Woreda

The total of 32 health facilities in Benatsemay 4 HC and 28 HP the OTP service is being given in all the health facilities including the 4 health center of the woreda. But the contrary to the fact , the SC service is being given in only single health center which is 25% of the SC service according to the Health center to the service ratio. The rest 3 Health centers need to give a service in woreda, according to the standard to address the community problems.

Admission and TFP for SAM in Benatsemay Woreda

The total cases with SAM are more in 2008 EC months than in 2007 E C Months of the year. The coverage of the cured children is increased time to time in the 2008 EC months. But the defaulted children ranges from 6% to 62% minimum and maximum .This needs great attention to make properly finish the treatment course of the SAM management. Fig 1.7.6 below shows the trend of the SAM admission cases in Benatsemay woreda.

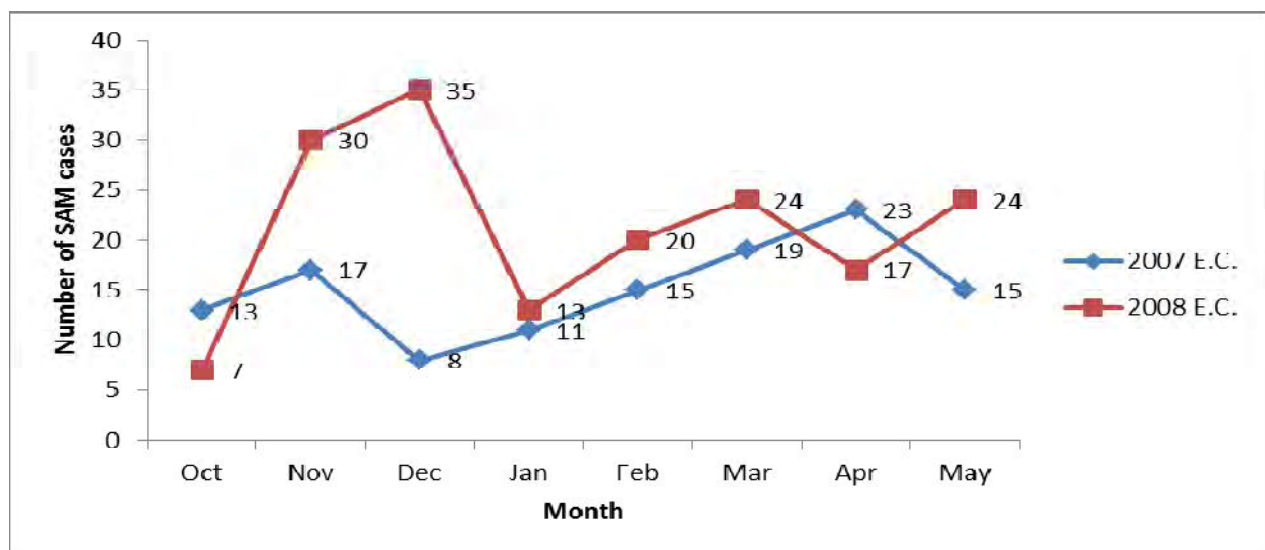


Figure 35. Fig 1.7.6 Trends of SAM cases in Benatsemay Woreda, South Omo, 2016

The under 5 Screening coverage in Benatsemay woreda

The performance of screening coverage in Benatsemay woreda was in improving manner from Oct to January months of the year 2015/2016. The lowest GAM percent is recorded 0.3% and highest is 1.58% on April and January. The same is true for the percentage of the SAM in the same months respectively 0.1% and 0.65% in May and January. Table 1.7.7 shows the screening performance of the Benatsemay woreda.

The screening performance in PLW in Benatsemay woreda

The minimum screening coverage was performed in month Oct and Jan which is 43% and 72% and the rest months are almost in good coverage of the performance. The GAM percentage is also not high which indicates good status of the PLW in the woreda for this assessed year. The table 1.7.8.8 shows it below.

The screening performance in PLW in Benatsemay woreda

The minimum screening coverage was performed in month Oct and Jan which is 43% and 72% and the rest months are almost in good coverage of the performance. The GAM percentage is also not high which indicates good status of the PLW in the woreda for this assessed year. The Fig 1.7.8 shows it below again.



Figure 36. Fig 1.7.7 Screening performance for children in Benatsemay woreda, South Omo, 2016

The screening performance in PLW in Benatsemay woreda

The minimum screening coverage was performed in month Oct and Jan which is 43% and 72% and the rest months are almost in good coverage of the performance. The GAM percentage is also not high which indicates good status of the PLW in the woreda for this assessed year. The Fig. 1.7.8.8 shows it below.

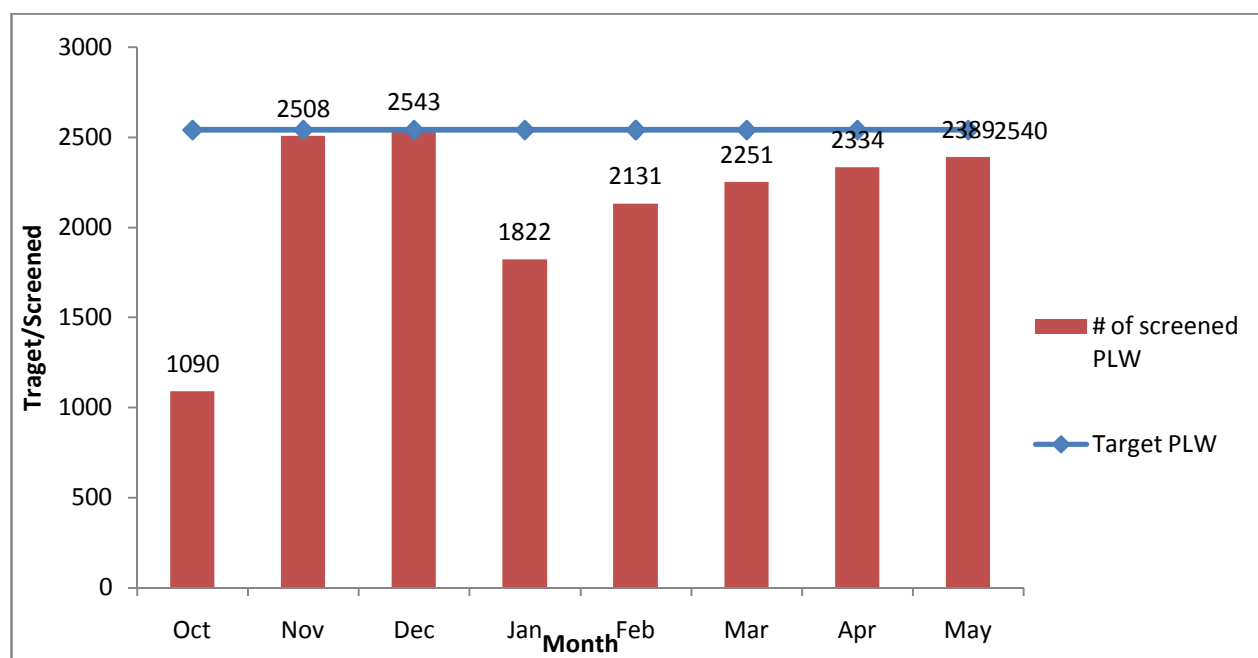


Figure 37. Fig 1.7.8 Screening performance for pregnant and lactating women in Benatsemay woreda, South Omo, 2016

The facilities with SAM management of the Dasenech Woreda

Among the total of 22 health facilities whole are giving the service of the OTP in the woreda accordingly. The 22 sites are with OTP service and the facilities regarding the service are 100% with 3 health center and 19 health posts. The table 9 sows the facilities with OTP and SC. Even though the facilities are there for SC in one HC due to different solvable reasons children with SAM are being referred to Turmi Health center which is very far from Dasenech woreda. This act is commented by the assessment team and it promised by the woreda will start the service in near future for SC in the rest HC. Table blow shows the SAM facilities in Dasenech Woreda.

Table (0-3 Tab. 1.7.3 Facilities with SAM management in Dasenech woreda, South Omo, 2016

Month	Total Number of Health centers/	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	3	19	3	100%	22	100%	19/3	100%
Nov	3	19	3	100%	22	100%	19/3	100%
Dec	3	19	3	100%	22	100%	19/3	100%
Jan	3	19	3	100%	22	100%	19/3	100%
Feb	3	20	3	100%	23	100%	20/3	100%
Mar	3	21	3	100%	24	100%	21/3	100%
Apr	3	21	3	100%	24	100%	21/3	100%
May	3	21	3	100%	24	100%	21/3	100%

The admission performance of SAM cases in Dasenech Woreda

The admission performance was being done in all months of the year in the woreda, which is with the good cure rates in all months observed except the month of the December which is with defaulter rate of the 1.6%. The total cases admitted with SAM cases are increased in year 2008 EC than in 2007 EC which is 361 and 291 respectively. Table 1.7.4 shows the admission of SAM cases in Dasenech woreda.

Table (0-4). Tab. 1.7.4 Admission and Performance of therapeutic feeding program for SAM management Dasenech woreda,

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	90	49	100%	0	0	0	0
Nov	62	65	100%	0	0	0	0
Dec	36	36	98%	1.6%	0	0	0
Jan	20	44	100%	0	0	0	0
Feb	22	26	97.6%	0	0	0	2.4%
Mar	19	59	100%	0	0	0	0
Apr	28	33	100%	0	0	0	0
May	14	49	97.9%	0	2.1%	0	0

Trend of Malaria cases in Dasenech Woreda

The malaria cases in Dasenech woreda are shown in figure that shows the cases in 2008 EC were high in number than in 2007 EC except the month October. The rest months are registered with case number of increasing trend and still in this assessed month the case number is increasing sharply to when compared to the last year one. Different preventive mechanisms like IRS, ITNS and others are needed to combat the situation. The ITNs coverage was not 100% and the woreda was complaining about its shortage for the team. Also the woreda forwarded the challenge about the IRS in pastoralist community its feasibility. Anti Malaria drugs were there to treat the cases when the need arises.

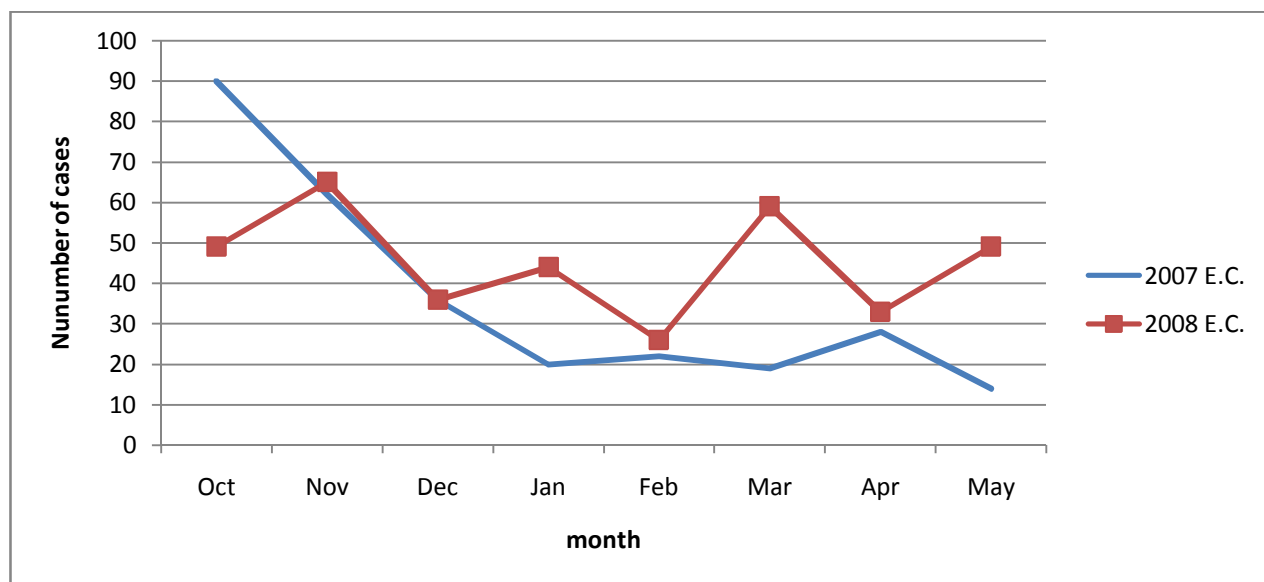


Figure 38. fig. 1.7.9 Trends of malaria cases in Dasenech woreda 2007 and 2008 E.C, South Omo, 2016

Screening performance in Dasenech Woreda

The screening performance in Dasenech Woreda was assessed as with some omissions in some months like February 2008 EC and by rest months screenings were performed. All the rest months were with the coverage above 70% except in months April and May which is 28% and 64% respectively. This low screening coverage has to be improved for the rest months of the year and the recommendation was given by the assessment team. Also the screening coverage of the PLW is low in the woreda with minimum overages 23%, 41% and 57% April Jan and Dec respectively. The average 8 months screening coverage is 61% for PLW in Dasenech woreda which is very low coverage. Tables below shows that the screening in children and in PLWs.

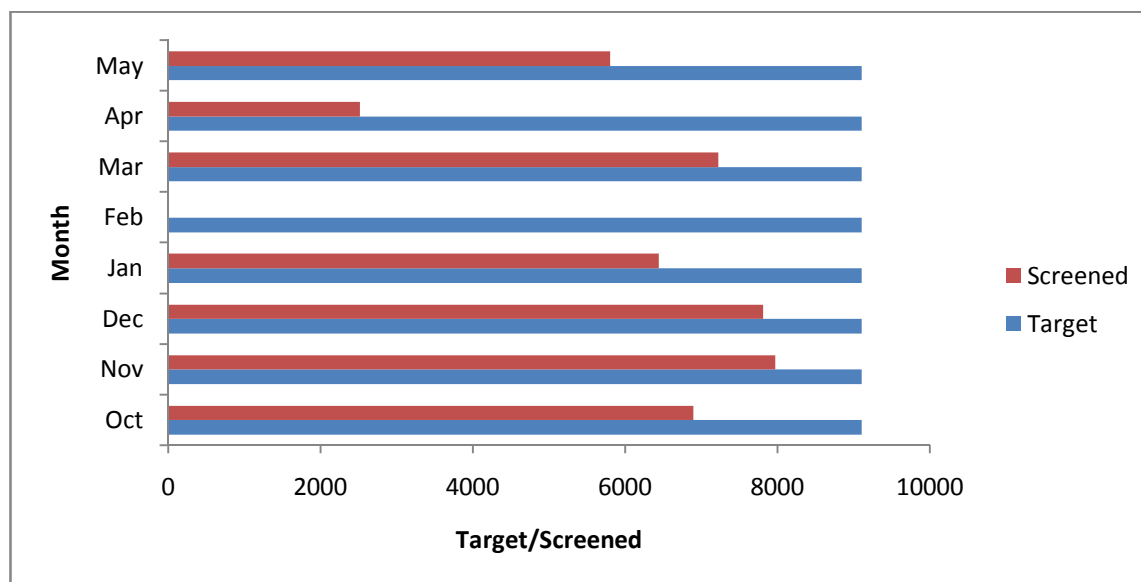


Figure 39. Fig. 1.7.10. Screening performance for children in Dasenech woreda, South Omo, 2016

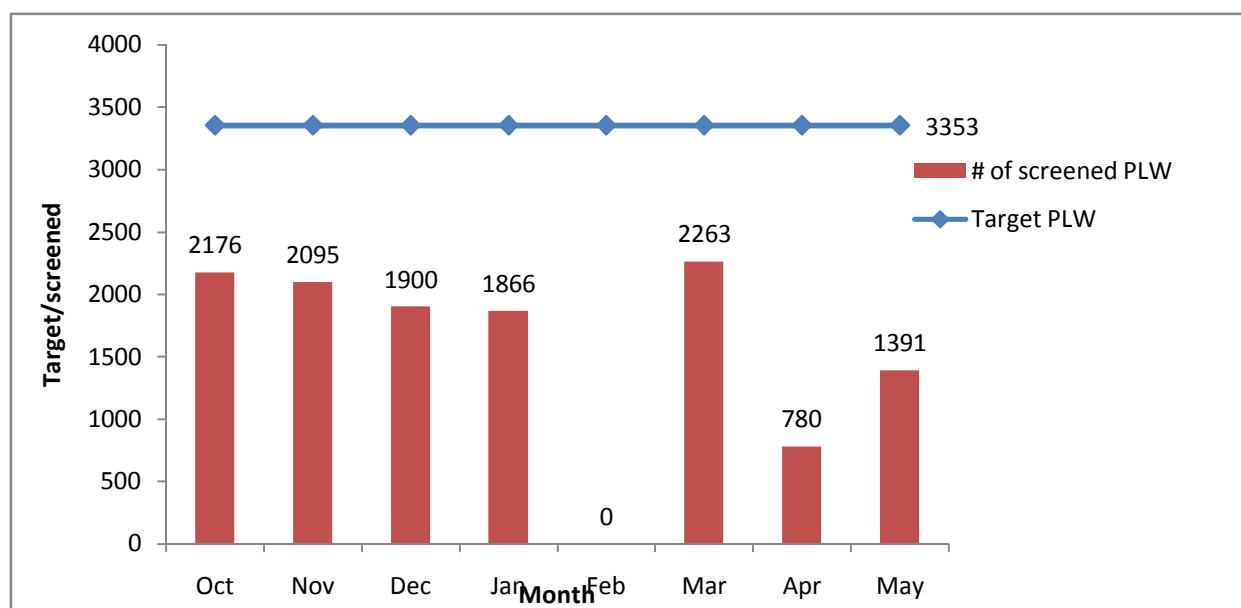


Figure 40. Fig. 1.7.11. Screening performance of pregnant and lactating women in Dasenech woreda, South Omo, 2016

South Omo zone Summary

Facilities with SAM management in south in South Omo

Almost all the health facilities are giving the OTP service in the zone in this year as assessed in the time. The total number of the Health posts is 237 and total number of the Health center is 32. Among the total 32 health centers only 10 are giving the service of the SC for child treatment with SAM which is 31% only from the standard. The shortage of the SC service sites in the zone may cause the cure rate and the defaulter rate of the children with SAM will be high. The remedy has to be set for this to on at all sites of the health centers in near future. Table 1.7.5 shows the facilities with SAM management.

Table (0-5) Tab. 1.7.5. Facilities with SAM management in South Omo zone, 2016

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	32	237	10	31.25%	237	100%	237/10	100%
Nov	32	237	10	31.25%	237	100%	237/10	100%
Dec	32	237	10	31.25%	237	100%	237/10	100%
Jan	32	237	10	31.25%	237	100%	237/10	100%
Feb	32	237	10	31.25%	237	100%	237/10	100%
Mar	32	237	10	31.25%	237	100%	237/10	100%
Apr	32	237	10	31.25%	237	100%	237/10	100%
May	32	237	10	31.25%	237	100%	237/10	100%

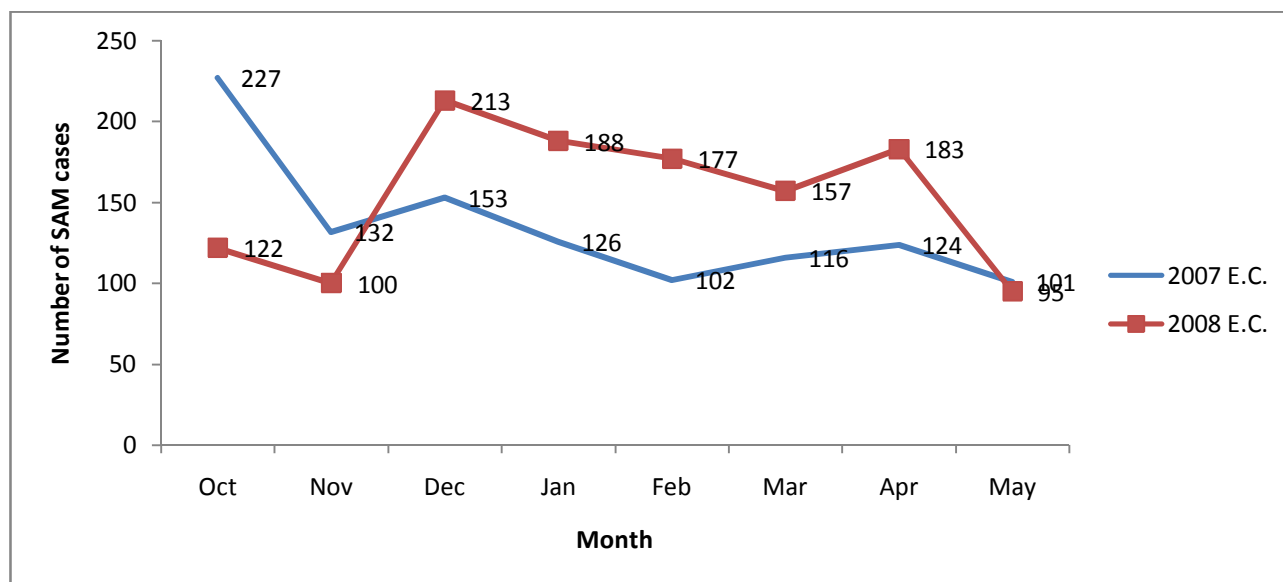


Figure 41. Fig. 1.7.12. Trends of SAM cases in South Omo zone, SNNPR, 2016

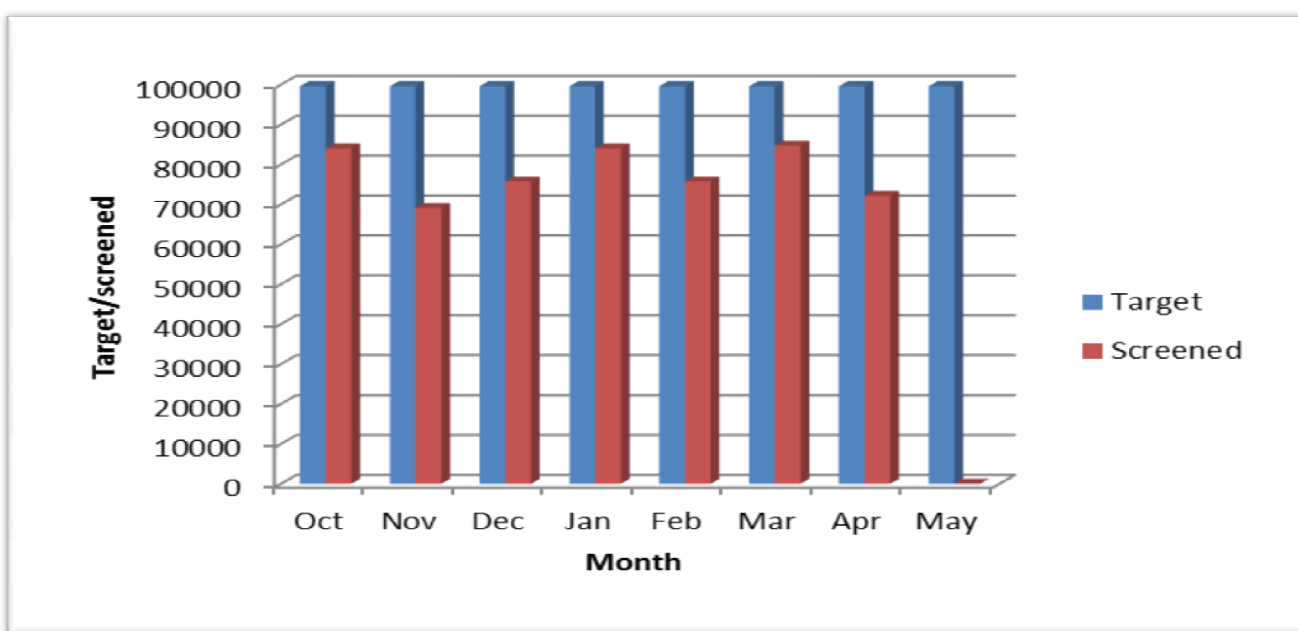


Figure 42. Fig. 1.7.13. Screening performance of children in South Omo, SNNPR, 2016

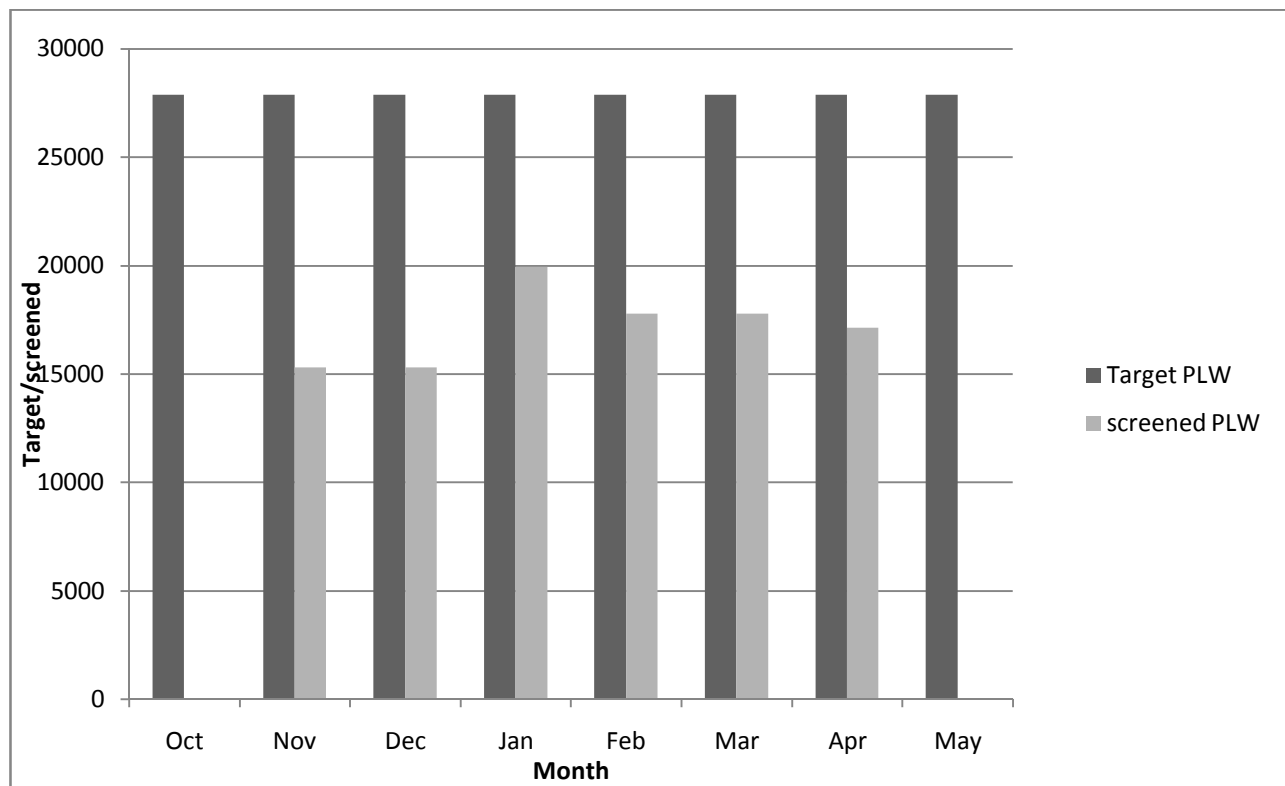


Figure 43. Fig 1.7.14. Screening performance for pregnant and lactating women in South Omo, SNNPR, 2016

Results of Belg Assessment in Segen Zone

Nutrition

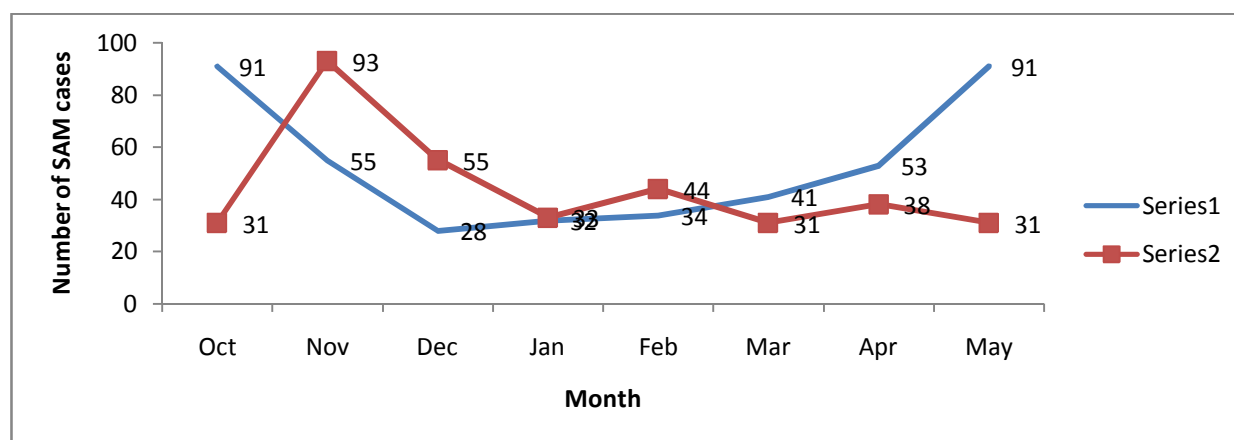


Figure 44. Fig 1.7.15. Trend of SAM cases in Alle Woreda, Segen, 2016.

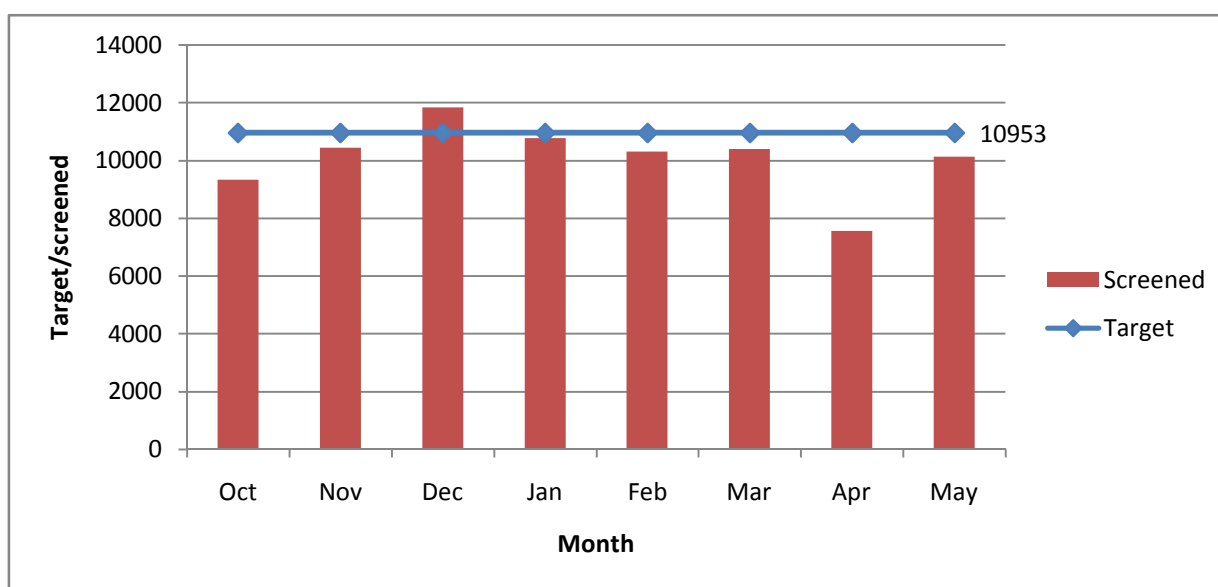


Figure 45. Fig.1.7.16. Screening Performance for children for malnutrition in Alle woreda, Segen, 2016

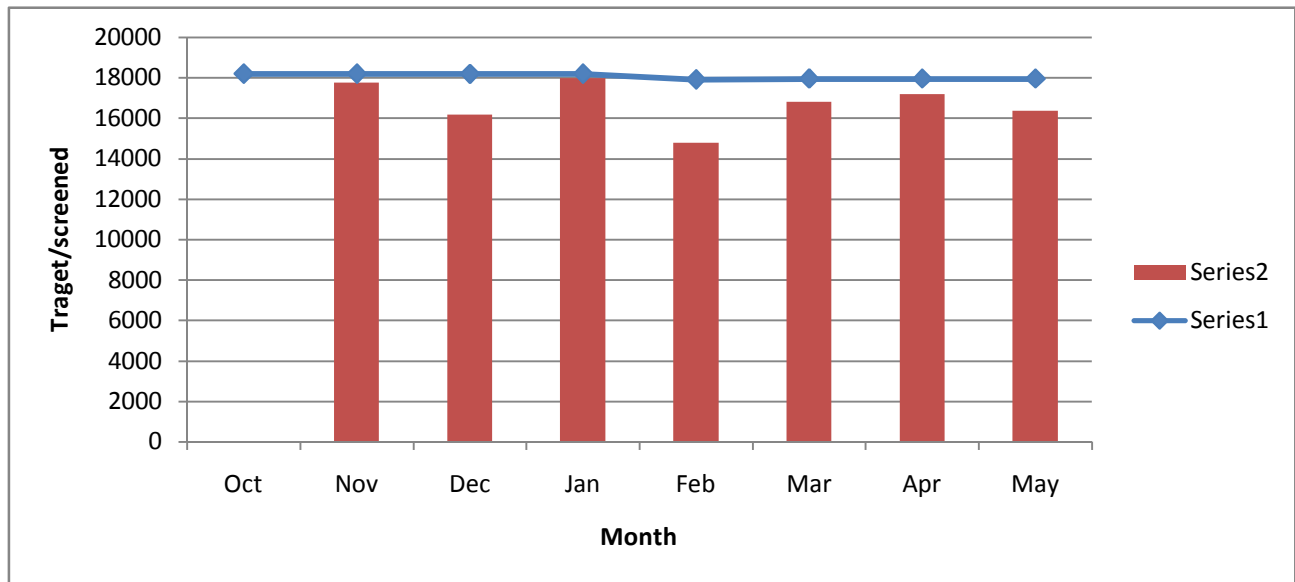


Figure 46. Fig 1.7.18. Screening performance for children in Derashe woreda, Segen, 2016

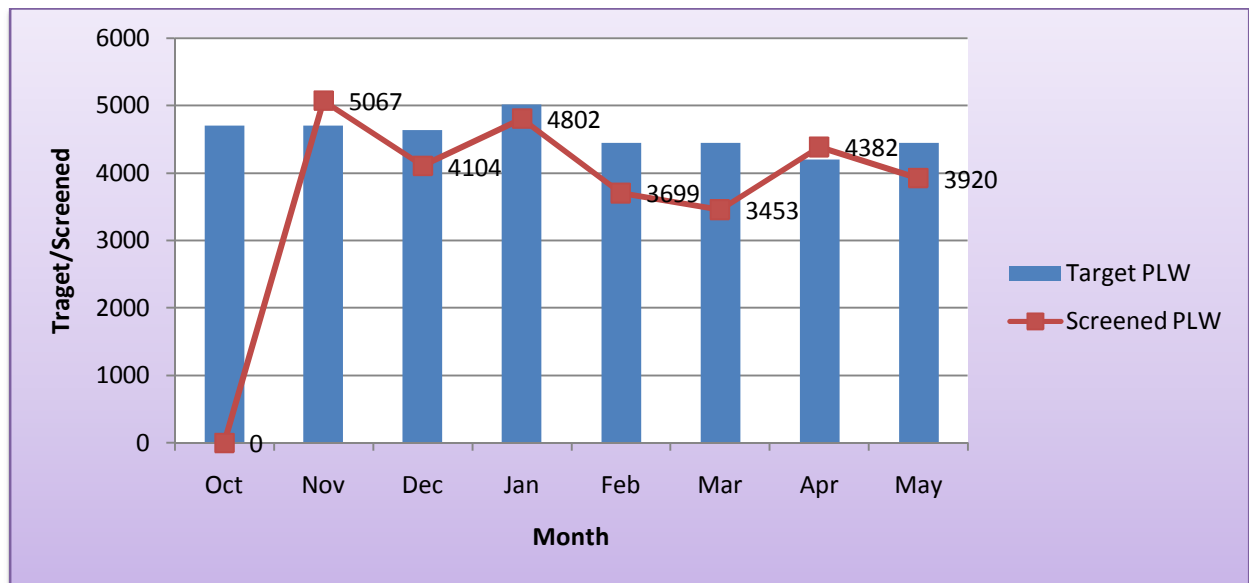


Figure 47. Fig 1.7.19. Screening performance for pregnant and lactating women in Derashe woreda, Segen Zone, SNNPR, 2016.

Summary of Segen zone

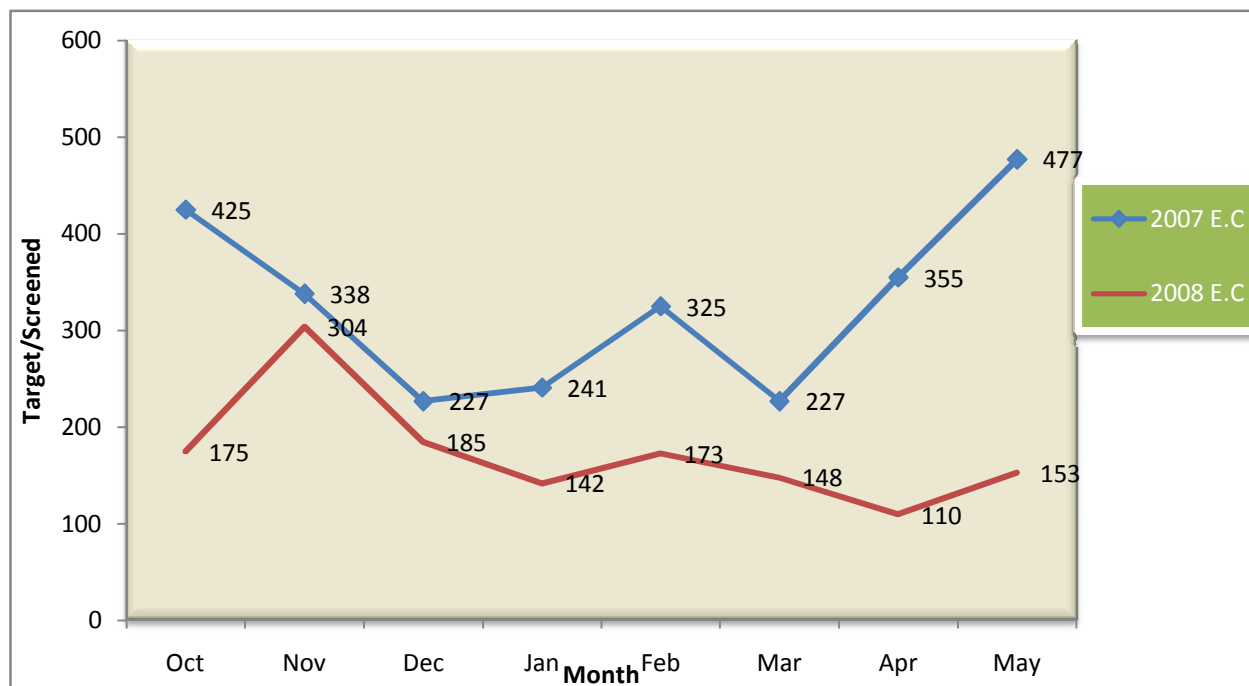


Figure 48. Fig. 1.7.20 Trendas of SAM cases in Segen zone, 2016

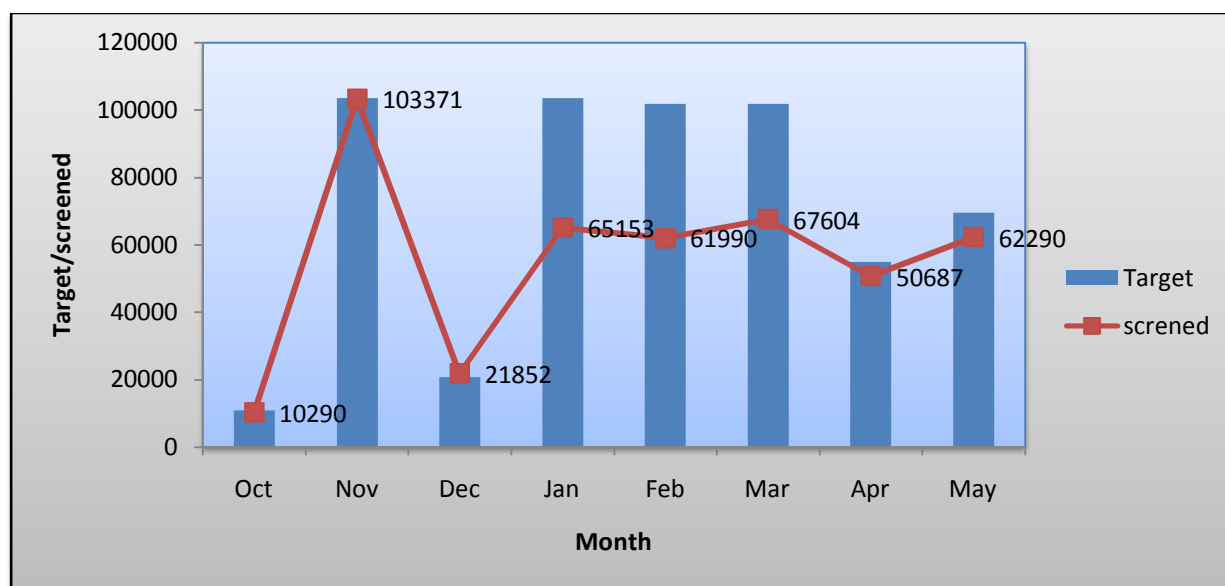


Figure 49. Fig 1.7.21. Screening performance for children for malnutrition in Segen, 2016

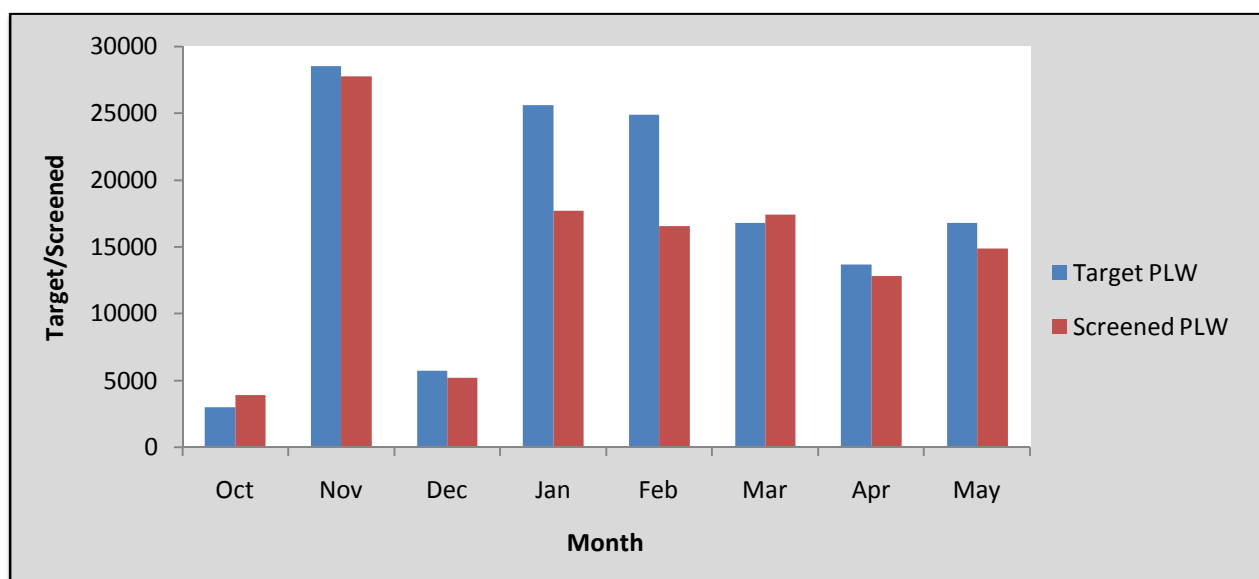


Figure 50. Fig. 1.7.22 Screening performance for pregnant and lactating women in Segen, 2016

Challenges

- Shortage of supplies and drugs for SAM management
- Some SC sites are referring patients to other sites (Dasesnech woreda)
- High turnover of trained staff of Health Workers of SAM training
- recent increase in the number of admissions in SC (Karat hospital 23 cases and Gedole 13 cases in one week in Segen Zone)

Recommendations

- Avail supplies and drugs for SC/OTP management by the RHB
- Basic and refresher training for health professionals who are managing SAM cases
- Improve screening of children and PLW for malnutrition
- Refresher and basic training on SAM case management
- Improve record keeping in health facilities

Water Hygiene and Sanitation

Assessment findings of WASH

The zone has identified four woredas as the most critical water supply shortage due to the current drought. These are listed as follows in their priority order Debub Ari, Malle, Benatsemay, and Dasenech. Again a total of 25 kebeles were selected as highly affected and in need of immediate interventions. Even though the team visited only two woredas, the situation in other affected woredas is not as such different since Most of the zone woredas are lowland woredas. Water supply coverage of the zone was 44.2 % only which is low. As well as the water supply for livestock is also becoming very critical in some kebeles unless the rain will come until end of June. The situation will be much deteriorated especially for human consumption unless immediate response is provided. The following points were observed by the team.

- The number of non-functional water schemes in the assessed woredas is increasing following the El-nino effect. The attributed factors are the dropdown of the water tables and the mechanical problems of the pumps and generators due to over utilization. It is reported that about 152 water supply schemes were not functioning out of 440 which is 35% currently.
- The proportion of zonal people having access to safe water is only 44.2%. The remaining 55.8% are using unsafe water sources such as unprotected spring, river and ponds as a main water source. These sources are highly dependent on the performance of the rain.
- As obtained from the key informants' interview and questioners' the shortage of water is driving people to travel long distances to the neighboring safe and unsafe water sources. It has been observed that those sources are over-crowded by people traveling from other villages and kebeles. This is creating an adverse effect on quality and quantity of the water sources.
- Most of motorized schemes in all woredas were functioning for long year without maintenance and currently the yield is becoming decreasing as well as the electromechanical materials are on high risk.
- In addition to the above mentioned gaps in terms of accessing safe water supply there were also very less human power observed from both zones and woredas.
- Some of the assessed woredas do not have support of WASH development projects either from One WASH, World Bank or UNICEF and other NGOs.

- The current hygiene and sanitation condition in all the woredas is also hampered. WAH related disease outbreak or AWD outbreak occurred in Amaro and also some suspected cases reported in Konso.
- The problem of water shortage is similarly impacting the overall education activities in the zone. Lack of water supply system in the school or surrounding areas is discouraging students to come to schools. Moreover, late comers of students are becoming a common phenomenon since water fetching to families is taking longer than the normal time.

0-6).Tab. 1.7.6. Status of water supply schemes in drought affected woredas of Segen area people's zone, SNNPR

Woredaa	BH		SWs		HDW		Spring with distribution	
	Fun	NF	Fun	NF	Fun	NF	Fun	NF
Debub Ari	4	0	23	12	26	31	78	31
Malle	2	0	0	1	4	3	9	0
Benatsemay	3	1	42	37	10	6	5	0
Dasenech	0	0	19	20	14	9	0	0
Gngangatom	0	0	1	4	11	12	0	0
Salamago	0	1	38	3	3	4	5	0
Jinka	5	0	9	3	6	0	3	0
Semen Ari	1	0	3	1	1	0	11	4
Hamer	3	2	58	26	15	19	0	0
Sub total	18	4	193	107	90	84	111	35

Benatsemay woreda

The woreda has 72,740 people in 32 administrative kebeles. It is among the woredas recurrently affected by drought in zone. About 86% of the woreda is lowland and almost all kebeles of the woreda are in high water shortage both for human and animal consumption. The water coverage of the woreda is about 30.5 percent. In the woreda, most kebeles depend on motorized schemes and shallow well for access to safe water sources.

Dasenech woreda

The woreda is affected by recurrent droughts and Omo river flash /flood. The water supply coverage in the woreda is 19 percent only. Out of the total 62 existing water supply schemes in the woreda 29 are non-functional. There are no other water supply sources rather than shallow wells and hand dug wells in the woreda.

Challenges

- The number of non-functional water supply schemes is increasing due to over utilization and drop down of water table.
- Women and children travel long distance in search of water.
- Most of health facilities have no water access despite implementation of nutrition programs.
- Many health facilities are forced to buy unsafe water either from river or pond.
- Poor hygiene practice and sanitation situation.
- Less skilled human power in the woreda

Recommendations

- Maintaining the functionality of the existed water supply schemes should be the priority activity in responding to water shortage of the affected woredas.
- The urgency of averting the current emergency should be well recognized by the zonal and woreda administration. Therefore the zone and woredas should allocate their internal budget for response activities.
- Since the zone is adjacent to Oromiya region where currently AWD outbreak occurred, water treatment chemical distribution, and hygiene promotion activities will be strongly recommended to continued.
- Zone and woreda water office should have to fill gaps related to human power and provide competency strengthening capacity building training for water technicians.

- In Dasench Woreda most of SWs are not serving due to high salinity content, therefore, before drilling SW and HDW in this are the woreda must conduct geophysics assessment.

Education

The team assessed 2 zones and 5 woredas and the education sector situation analysis and needs assessment are based on secondary data from desk review and checklist collected from the selected zones and woredas of the region. These include number of schools currently closed as a result of emergency, number of schools currently damaged as result of emergency/partially functioning, and number of schools functional but overcrowded as a result of emergency. According to the assessment finding there is no any major manmade or Natural factors causing disruption of school systems in the visited Woredas.

According to the assessment findings from the visited zones and woredas the current enrollment of students when compared with previous year south Omo zone showed progressive increment by 21,481 i.e. from 179,102 in 2007 E.C to 200,583 in 2008 E.C. Segen people zone showed decrement by 7,352 i.e. from 182,258 in 2007 E.C to 174,906 in 2008 E.C

From the assessed Woredas the students drop out compared with the last year as shown in the above table, the assessment finding indicates Benatsemay Woreda was increased dropout rate from 1.43 % in 2007 to 4.8% in the year 2008. The other woredas except Malie are decreasing the dropouts significantly from the year 2007 to 2008 E.C. We could not get Malie woreda dropout rates of the year 2007 due to regional grade 8 examination, the office was closed. Derashe Woreda greatly reduces the dropout rate from 9.87% to 6.49% in 2007 to 2008 respectively. A lot to be done specially in Segen zone in Konso woreda to know the teaching and learning process. The woreda has no chain with the zone, no proper government structure in that Woreda.

The dropout number of Konso woreda is not included due to conflict in structure with Segen people's Zone.

According to the table above, comparing zone to zone the highest drop-out rate is registered in Seen people's Zone increasing from 2.0% to 3.30% by 1.3% from the last year. The Segen Zone needs a great effort to reduce dropout rate in the coming school year.

Possible reasons for drop out

- ✧ To find daily labor to satisfy their temporary needs
- ✧ Low awareness of Parents about benefits of education
- ✧ Families do not send more than one child to school for exploiting children labor
- ✧ Early Marriage starting at grade 5 level students(14 years age)
- ✧ Movement from place to place in pastoral areas
- ✧ Social problem and conflict between ethnic groups
- ✧ Shortage of water and latrine in the schools
- ✧ Shortage of food in pastoralist areas
- ✧ School feeding problem
- ✧ Flooding problem
- ✧ Lack of daily follow up school leaders and coordinators

Based on the assessment finding, in the visited woreda Malie two schools of 9 section classrooms and 3 blocks latrine were damaged more than average by high winds and the schools were closed for two weeks until it repaired by woreda and the community. We do not get the number of enrolled students after the maintenance of the schools.

In Dasenech Woreda due to flood:

- ✧ Three (3) formal schools and seven (7) ABE schools were surrounded by flood and one school damaged
- ✧ **327**male and **244** female total of **571** students were displaced from these schools
- ✧ **257**male and **225** female total 482 students were distributed to five other schools and two tents
- ✧ Out of 571 displaced students from formal school 28male and 8 female students, finally from ABE 42 male and 11 female totals of 89 students did not return to school after flood.

Based on the assessment schools in the woredas two woredas Benatsemay and Alle do not affected by any of emergency and the teaching and learning process were going smoothly except in the above mentioned woredas.

Extent of damaged schools

- Benatsemay woreda 1 school damaged
- Derashe 2 blocks of building and 8 classrooms seriously damaged
- Malie woreda 2 schools of nine rooms and three latrine blocks seriously damaged

Emergency responses from Agencies

The Regional education office sends to Dasenech woreda 402 Quintal foods on May 26/2008 E.C and distributed to 26 flooded and non-flooded schools. By the feeding program 653male and 478 female students was beneficiary.

- + One tent for one ABE were donated by UNICEF after flooding
- + UNICEF support money to Alie woreda to purchase reference books of six cluster center schools. The reference books are beneficiary for 3301male and 2331female students
- + WFP supports school feeding till now in Alie woreda because of this 5 schools of 1217male and 944 are beneficiaries in addition to this WFP purchases shoes, exercise book, pen and pencil for all the five school students in Alie Woreda.
- + In all the rest assessed woredas WFP were supporting till the end of January 2008E.C, unfortunately the feeding program stopped in February first.
- + Save the children built 10 roof catchment water and four standard latrines for boys and girls in Benatsemay woreda

Conclusions Executive

Diseases like Malaria, yellow fever, measles and AWD were identified risks for Epidemic prone areas in woredas visited.

Many woredas among the visited Zones have low Malnutrition screening Coverage

Under five children SC sites were in few health centers, some Health centers are not treating inpatient malnutrition Cases and referring to long sites for SC.

Some woredas were with shortage of SC treatment logistics

Some drop out of school students was observed due to shortage of food in schools feeding areas.

Some schools constructions taken away by flood in Dasenech wareda of South omo Zone .

The EPRP Plan was there in visited Woredas but budget was not supported by government

Except for Malaria Spray budget

There was no regular meeting of EPRP Committee in woredas except the Zonal levels.

Some drought affected areas in South Omo shifted their cattle to Omo river lines.

Recommendations

- ✎ The plan for epidemic prone disease like malaria, measles, yellow fever and AWD should be budgeted by Woreda
- ✎ The malnutrition screening has to be enhanced to 100% for children.
- ✎ All health center has to give treatment for SC treatment
- ✎ School feeding has to be continued to decrease school dropout
- ✎ The food items for human and cattle have to be provided by the government and different stake holders.
- ✎ The woredas has to allocate the budget for emergency preparedness.

CHAPTER – VIII- FLOOD DISASTER SITUATION VISITED

8.1. Narrative Report of Flood Disaster Situation Visited on Halaba special

Woreda, SNNPR, May 2016.

Background

Halaba special Woreda is found in Southern Nations, Nationalities and Peoples Regional State (SNNPRS). The Woreda's Capital town is Halaba Kulito, which is located at a distance of 315 kilometers south west of Addis Ababa, through Addis Ababa – Arbaminch highway road and 90 kilometers far from the regional city, Hawassa.

Halaba Special Woreda is situated in the east African rift valley at a cross connection point of 07° 05'N and 38° 35'E Latitude and longitude respectively. The Woreda is bounded by Silti zone of SNNPR in the north, Kembata Tembaro zone of SNNPR in the South West, Hadiya zone of SNNPR in the North West and South West, and Oromiya Region in the East.

The total area of the Woreda is about 973.7 Sq. Km and has a topographic feature that ranges from 1554-2149 meters above sea level. The climate is characterized as temperate or locally called “woina-dega”, mean annual temperature is about 17.6 _ 22.5 °C and the mean annual rainfall reaches 857-1200mm.

It is divided in to 2 urban sub- cities with a total of 5 urban Kebeles and with 79 rural Kebeles. Based on figures from the Central Statistical Agency of Ethiopia (CSA, 2013), the Woreda has an estimated projected total population of 310,690 in 2016 GC. An estimated 12.4 % (38,525) urban and 87.6 % (272,164) rural population lives in it. From the total population less than one year children 9,911, < 5 years 48,508 and pregnant women 10,750.

Introduction

Floods is a natural catastrophe that can be caused by many different events, including overflowing of natural or manmade bodies of water, surface water, tidal water, rainwater runoff, rising ground water, sewer back-up, or from blocked yard and roof drainage systems. Flooding

poses a greater threat in low-lying areas, near a body of water, or downstream from dams, but even the smallest streams, creek beds, ditches, culverts, or drains can overflow and create flooding. Some floods develop slowly over a period of days, but flash floods can develop within a few minutes to a few hours and possibly without any visible signs of rain.

In Ethiopia, floods are the second natural disaster next to drought. It has been occurring more frequently and affecting the country almost every year between 1993 and 2013. Based on limited available data, between 1980 and 2010 an estimated 45 flooding events had happened in different parts of the country. The main types of floods in Ethiopia are flash and river-ine (overflow of rivers and inundating the nearby regions). The most catastrophic floods documented have been in 2006, which affected many regions of Ethiopia and an estimate of over 600 people were killed and more than 500,000 people affected. Limited studies have been carried out on how flood events affect human health in the country.

Halaba special woreda flood disaster effect

Halaba Special woreda has 79 rural and 5 urban kebeles 84 as total and it lie in SNNPR. The woreda population mainly produces different cereals like maize, teff, beans and others for food. Besides to these the people of the woreda also used cattle as cash production and food production like the sheep, goat, ox, cow, hen, horse, donkey and others for different activities.

On Halaba special woreda the flood occurred due to heavy rain since 28/8/2008 EC. The flood caused very devastating loss of property and live loss on different kebeles of the Special woreda. The heavy rain occurred on almost all kebeles of the woreda but the severely affected kebeles of the woredas are nearly 34 out of 79 kebeles. Which is 43 % of the total kebeles of the total population of the 2,235 population are displaced people and 13,318 populations are affected due to the flood effect on the people's house and farm circumscribed by the flood. Due to the disaster nearly 14 persons are died at incident of the flood from the rural kebeles and no death was occurred at urban kebeles except displacement and severe loss of property from Halaba District Hospital and individuals households.

Table (0-1) Tab 1.8.1. Table Depicting the Total Flood Affected Kebeles in Halaba special Woreda and the number of affected population.

R.No.	Kebele	Kebele Total population	HH	Affected HH	Affected population
1	2 nd Koncha	2,088	346	53	265
2	Kobo Getu	2,567	290	118	590
3	Kobo Chobare	3,870	447	149	745
4	Chobare Mino	4,102	598	153	765
5	Gedeba	2,645	590	11	55
6	Yanbo	3,202	477	72	360
7	Girme	3,137	494	12	60
8	Kufe	4,787	709	10	50
9	Tachigna Arsho	5,898	783	12	60
10	Asore	2,805	530	55	275
11	1 st Mekala	2,672	485	116	580
12	Wanja	2,032	599	69	345
13	Shekate	3,487	590	63	315
14	2nd Mekala	4,223	625	25	125
15	Ajo Huluko	3,807	511	35	175
16	Muda Meyafa	3,472	498	6	30
17	Kuncho Yeye	3,624	491	15	75
18	Second Hansha	3,550	558	57	285
19	La Lenda	3,219	513	28	140
20	Bendo Cholakisa	5,791	929	165	825
21	Udana Meno	2,544	446	195	975

22	Muda Dinokosa	3,750	502	15	75
R.No.	Kebele	Kebele Total population	Total HH	Affected HH	Affected population
23	Gurura	4,199	602	2	10
24	Shewako	7,128	483	3	15
25	BokoTibame	2,151	429	84	420
26	Udana Cholakisa	3,127	456	180	900
27	2nd Ashoka	3,705	619	23	115
28	2nd Mekala Ha	1,444	263	20	100
29	Meja	3,165	607	16	80
30	Le Bedene	3,373	548	81	405
31	Ansho Korabuti	3,807	700	152	760
32	1st Ashoka	2,539	475	52	260
33	Aymele	3,170	530	20	100
34	Sinbita	3,032	596	168	840
35	Zala	4235	847	236	1157
36	Wanza Ber	3813	762	201	986
Total		126,160	19,928	2,672	13,318

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Figure 52 Figure 1.8.2.(A &B). Photo of Flood Affected Halaba kulito Towon which displaced 509 Household May/2/2008E.C



Figure 53 Fig.1.8.3. Halaba special woreda kulito TAown flood Taken Halaba district Hospital cold chain Equipment to road sides distant from Hospital and B) Udana Mino kebele picture after flood, with highest displaced population among the Halaba Special Woreda kebele, May, 2008 EC

By being in a field of Disaster visit to Halaba Special Woreda we identified certain need assessments and health risks to the population immediately and long run.

Immediate Public Health Risks

The main public health threats of this flooding are related to communicable diseases, related to the risk factors listed below.

Interruption of safe water and sanitation supplies

The populations displaced by flooding are at immediate and high risk of outbreaks of waterborne and food borne diseases, such as AWD.

Population displacement with overcrowding

Populations in the affected areas have been displaced into schools, temporary shelters/camps or with host families, and are at immediate and high risk for transmission of measles and meningitis and increased incidence of acute respiratory infections (ARI), especially pneumonia in children under 5 years.

Vector breeding

Flooding can result in the proliferation of vector breeding sites, increasing the medium-term (weeks to months) risk of malaria.

Poor access to quality health services

Is of immediate concern, as the health infrastructure could have been overwhelmed

Malnutrition and transmission of communicable diseases

Malnutrition compromises natural immunity, leading to more frequent, severe and prolonged episodes of infections.

Waterborne and food borne diseases

The populations affected by the flooding are at immediate risk from outbreaks of waterborne and food borne diseases, particularly AWD, typhoid, Shigellosis, hepatitis A and E.

Population displacement, crowding, poor access to safe water, inadequate hygiene and toilet facilities, and unsafe food preparation and handling practices are associated with transmission. Usual water sources can become unsafe for drinking for several reasons: the incursion of flood waters; faecal contamination caused by overflow of latrines and inadequate sanitation;

contamination by dead animals; and upstream contamination if water sources are interconnected. Since AWD transmission was documented before the current flooding in the neighboring Shala district of the Oromiya region and there are routinely reported cases of diarrhea and dysentery, the immediate risk of further cases will remain extremely high.

Vector-borne diseases

Malaria is endemic in all flood-affected Kebeles of the district. Even though now a day the burden of malaria in the district is low, in previous years the Woreda had experience or history of seasonal epidemics and populations will be at increased risk due to the proliferation of vector breeding sites secondary to flooding. Water supply and storage of safe water practices should also be put in place to prevent vector breeding in water storage containers. Discarded tires and other water holding containers could further facilitate vector breeding.

Diseases associated with crowding

Population displacement caused by flooding can result in crowding in resettlement areas, raising the risk of transmission of certain communicable diseases. Measles, ARI and meningococcal disease are transmitted from person to person, and risk is increased in situations of forced relocation to shared areas of high ground, often with inadequate shelter. Crowding can also increase the likelihood of transmission of waterborne and vector-borne diseases.

Other communicable diseases

When an emergency develops, people may be subjected to situations that substantially increase their risk of contracting: Sexually transmitted infection, including HIV and Transmission of tuberculosis (TB) may also increase.

Table (0-2) Table1.8.1. Summary of risk of communicable diseases in flood-affected population, Halaba special woreda, May 2016

Communicable disease	Immediate likelihood of occurrence following floods	likelihood of occurrence in weeks to months following floods
AWD/Typhoid/Shigellosis	+++	-
Acute lower respiratory tract infections	+++	-
Hepatitis A & E	++	-
Leptospirosis	++	-
Measles	++	-
Malaria	++	+++
Tuberculosis	++	++
Meningitis	++	++
HIV/AIDS	++	++
Key: - = Unknown 0 = No risk + = low risk ++ = moderate risk +++ = high risk		

Other Public Health Risks:

Includes Injuries and disabilities, Snakebites, mental health disorders and psychosocial problems, malnutrition, maternal and child health care.

A) Malnutrition

If the crisis is prolonged and there is a lack of access to appropriate and adequate food, including complementary foods, risk of malnutrition could increase for vulnerable groups such as young children, pregnant and lactating women and older persons. The risk is also likely to increase if there is a lack of or inadequate support for, mothers or caretakers to exclusively breastfeed for six months and to continue breastfeeding up to two years, with appropriate and safe complementary feeding.

PRIORITY INTERVENTIONS

Health sector priorities

- Multi- Sectoral assessments to identify needs, gaps and priorities
- Restore access to basic and secondary health care services including provision of temporary mobile health services with relevant medicines and supplies to increase access to care.
- Ensure appropriate triage and referral systems for emergency medical, surgical and obstetric care.
- Resume vaccination services as soon as possible and consider mass measles vaccination in crowded settings/camps.
- Prevent disease outbreaks and ensure capacity for early detection and rapid response to public health emergencies by strengthening EWARN and ensuring outbreak preparedness and prepositioning.
- Support adequate maternal and newborn health services, ensuring privacy and cultural sensitivity, with registration in camps, early detection of and referral for complications of pregnancy and childbirth, safe delivery, and provision of relevant commodities.
- Support appropriate infant and young child feeding, supplementation for pregnant and lactating mothers, and management of malnutrition, including building health worker capacity and supporting referral and hospital care for management of severe malnutrition.
- Intensify community social mobilization including health risk communication to promote safe water, sanitation and hygiene practices.
- Assess the early recovery needs of the affected population and prioritize recovery interventions.

Non-health sector priorities impacting health

- Ensure adequately sized and ventilated shelter.
- Provide sufficient and safe water.
- Provide adequate sanitation and hygiene facilities.
- Provide blankets and non-food items in camps

Provide safe food, including complementary food for children less than two years of age.

The Woreda is one of the prone areas for natural disasters of flood usually lead to lose of life and properties, and also to sickness and population displacement

Situation of the current flood event

The rainy and dry season of Halaba Special Woreda is from April to September and October to March respectively. On 27/08/2008 E.C there was a torrential rain fall through the night which caused flash floods in many areas of the lowland Kebeles in the Woreda. This could be the worst flooding in many years. It has left 13 people dead and many displaced. Since then a total of 36 Kebeles are severely and 17 moderately affected. The hardest hit Kebeles by the flood are Udana Meno, Chobare Meno, Bendo Choloksa, Sinbita, Hanshekora Buti, Ajo Huluko, Buko Tibame, Yato Bereho among the rural and Lendaber and Mehal Arada from Halaba town Administration. An estimated 35,708 (33,876 from rural and 1832 urban) population have been affected with this flood. The total number of households displaced from these 53 Kebeles are 3721 (3212 rural and 509 urban) with a population of 18,203.

Many houses and 4 health posts submerged in the flood. In addition parts of Kulito Primary Hospital, particularly stabilization center (Sc); medical supplies store, Laundry room and staff dormitory with their medical and non medical supplies was damaged by flood.

Condition of Mobile Clinics in temporary shelter areas for displaced people.

Many mobile clinics formed with temporary shelters arranged places. The mobile clinics are functioning for acute cases treatment and the other cases are being treated with health centers and others like delivery services are being taken to Health centers by Ambulance service. Every item of the logistics and medical equipment are being availed in the nearby temporary clinics.

The flood Emergency management was led by woreda administrator, Health office head and other bodies

Daily meeting after the field work was being led by the woreda administration and the technical working group of the woreda also gives daily meeting feed back to the main leaders. The major updates shared daily and the lesson and the immediate solutions will be given immediately and accordingly. Some issues are resource intensive and they take short or long time to be solved. For example, rationing the food immediately after the flood hours and days is short time solution seeking issues. The other like draining water from the affected land and farm is somehow long term issue relatively. Those short and long term interventions have been done accordingly to the special woreda.

Table (0-3) Table 1.8.2.Intensified plan of action for flood response by key thematic areas of intervention, Halaba special woreda, SNNPR PHEM, May 2016

S. No	Key thematic areas of intervention	Activities to be done	Responsible body	Indicator
1	Social mobilization and awareness creation	– Carry out community mobilization on sanitation and hygiene at temporary shelter – Conduct sanitation campaign – Conduct Social mobilization by using mobile Van and Loudspeaker – Strengthen institutional health education (schools, churches, mosques, health facilities, market place and other mass gathering areas) – Hygiene and sanitation training for health workers, Health Extension Workers, school directors, agricultural experts and kebele leaders – Distribute leaflets and posters for the displaced community – Media brief and radio spot at local FM radio in different languages – Orient HDAs on key messages and practices of water, hygiene and sanitation at temporary settlement areas – Mass health education and awareness creation at temporary shelters	– Special Woreda Education, Health, Communication, Agriculture, Women & children bureau – Woreda Administration, Health, communication, women and children, – Primary and secondary schools, churches, mosques – Kebeles leaders, women association, CBOs, and FBOs – UNICEF, IFHP, WHO	– Number of awareness creation session conducted – Number of sanitation campaign held – Number of training sessions conducted – Strengthened institutional health education – Distributed leaflets and posters – Media briefing and radio spot conducted – Health education and awareness creation sessions organized and conducted

S. No	Key thematic areas of intervention	Activities to be done	Responsible body	Indicator
2	Water, Hygiene and Sanitation	– Risk re-assessment on highly flood affected kebeles – Avail water tanker/Roto with a capacity of 5,000 or 10,000 liter – Water trucking in area where no water source – Supply and distribute water treatment chemicals (Bishan Gari, aqua tab, water guard and PUR) – Avail jerry cans – Provide laundry and hand washing soap – Test water quality – Assess for latrine coverage at each temporary shelters – Construct adequate latrine and shower points at temporary shelter – Provide Laundering washing basin – Monitor utilization of latrine – Drainage of logged flood water – Re-construct public latrines damaged by the flood – Inspection of food and water at shelters	– Regional Water and Health bureau – Special Woreda Health and Water Department – Woreda Health and water office, – Kebeles leaders, Community, CBOs, Idirs, – Early warning bureau at each level – UNICEF, WHO, IRC, Save the children, Red cross	– No. of kebeles re-assessed for risk identification/mapping – Number of Roto/water tanker availed – Number of water trucking vehicle deployed and supplied water – Water treatment chemicals supplied and distributed – Number of jerry cans distributed – Number of soaps distributed – Conducted Water quality test – Number of appropriate pit latrine constructed and utilized – Number of shower constructed at temporary shelters – Logged flood water drained – Number of re-constructed public latrines at affected kebeles – Conducted inspections to assure food and water safety
3	Surveillance, and malaria prevention and control	– Distribute standard case definition for expected communicable diseases in temporary shelters – Ensure daily active case searching including rumor documentation and verification at community, health posts, health centre and hospital level – Conduct appropriate Investigation for any rumor received from the affected areas – Establish formal reporting system – Distribute reporting formats – Regular surveillance data collection, analysis & reporting from temporary clinics – Outbreak event notification to the respective higher levels	– RHB, PHEM, – Special Woreda health department, PHEM – Woreda health office, PHEM, HC, Hospital, schools – Kebeles leaders, idirs, women associations, HEWs, Community – WHO, malaria consortium, UNICEF	– Number of distributed Standard case definition – Disease rumour documented and verified – Number of outbreaks investigated, confirmed and reported – Disaster alert letter sent to zones/special woredas – Number of distributed formats – Number of Surveillance data collected, analyzed and reported – Availability and utilization of ITNs ensured – Number of mosquito

S. No	Key thematic areas of intervention	Activities to be done	Responsible body	Indicator
		– Ensure availability and utilization of ITNs – Environmental management and drainage of logged flood water		breeding site eliminated
4	Case management and sample collection	– Establish standard temporary clinics at each shelter – Orient health workers and HEWs on case management and infection prevention – Preposition and distribution of emergency drugs and medical supplies – Assign adequate number of health professionals to emergency clinics – Avail reporting format and registration books – Collect samples and transport – Monitor management of cases based on the protocol – Properly report cases managed at temporary clinics and referred to HC/hospital – Avail case management guideline and case definitions – Referral of complicated cases to nearby Health Center/Hospital – Ensure the availability of Infection prevention supplies and guidelines – Capture appropriate patient data using registers and report on daily base – Routine Screening of malnutrition for under 5 children, pregnant women and lactating mother and link to OTP/TSF program – Provide supplementation food program for under five children, pregnant and lactating mothers – Ensure that no routine MCH service utilization interrupted	– RHB, ZHD, Woreda health office, HC, Hospital, health post – WHO, UNICEF, WFP, Save the children	– Number of properly established and functioning temporary clinics – Emergency drugs and medical supplies distributed in adequate quantity – Number of assigned health professionals at each temporary clinic – Properly availed Reporting formats – Number of distributed registration books – Number of reports sent to next level – Complicated cases referred to HC/Hospital – Number of distributed infection prevention supplies and guidelines – Number of screened children for SAM & MAM – Number of pregnant and lactating mother provided Supplementary feeding
5	Logistic and resource mobilization	– Detail supplies need requirements and request based on the identified gaps – Check stock balance – Mapping of resources – Monitor the availability of resources and maintain the stock level for the response – Ensure the provision of adequate and safe Food	– Regional food security, Health, Early warning, Water and Finance Bureau – Special Woreda Health, Water, Finance, early warning, Departments	– Number of supply requested – Number of resources mapped – Ensured food safety and adequacy – Number of Emergency drug kits availed – Number of affected population who get

S. No	Key thematic areas of intervention	Activities to be done	Responsible body	Indicator
		- Request and avail Emergency drug kit - Ensure the provision of adequate Non Food Items/NFI/ kit for displaced ones - Request and avail Sanitation and hygiene kit - Avail needed tents - Avail Water tankers - ITNS Supply and distribution - Conduct IRS (Indoor Residual Spray) Chemicals - Spray water logged areas by Abet chemical	- Woreda health, water, food security, finance and Early warning offices - UNICEF, WHO, IRC, Save the children, IFHP, WFP , malaria consortium	appropriate NFIs - Number of hygiene and sanitation kit requested and availed - Number of tents availed - Number of water tankers distributed - Supplied and distributed ITNs - Number of kebeles held IRS - Number of water logged areas sprayed by Abet chemical
6	Rehabilitation of health and health related infrastructures	- Construction and maintenance of rural roads - Construction/rehabilitation of damaged health posts - Equip damaged health posts with medical supply and furniture - Rehabilitation of damaged schools - Disinfection of damaged households with chlorine solution - Rehabilitation of damaged water supply schemes/ pipe line - Provision of school materials to flood affected children - Rehabilitation of school that were temporary shelter - Restocking of livelihood	- Regional Road Authority, Health Bureau, Education Bureau, Agricultural bureau, livelihood bureau and Water bureau - Regional Road Authority, health, Education, Water, livelihood, and Agriculture departments - Woreda health, education, water, livelihood, and agriculture offices - UNICEF, IRC, Save the children	- Number of rural roads maintained - Damaged health posts rehabilitated - Number of Health posts equipped with adequate supply and furniture - Damaged schools rehabilitated - Number of houses disinfected - Number of water schemes rehabilitated - Children who have got school materials - Number of schools rehabilitated after temporary shelter - Number of households restocked for livelihood
7	Coordination	- Ensure coordination committee in place at each level - Strengthen disaster Response Task Force and technical team at each level - Conduct regular meetings with task force and technical teams - Conduct regular field visits to support affected communities - Support and lead sub-committees - Prepare and implement emergency response plan at each level	- Regional health, water, education and early warning bureau - Regional PHEM - Special woreda Administration - Kebele leaders	- Ensured Coordination committee in place - Number of review meeting conducted which chaired by woreda administrator - Number of Supportive Field visits conducted - Number of response plans prepared and on implementation - Reports prepared and disseminated

S. No	Key thematic areas of intervention	Activities to be done	Responsible body	Indicator
		– Prepare and disseminate reports to decision makers timely		
8	Monitoring and Evaluation	– Monitor the magnitude of the disaster and progress of intervention activities – Monitor the performance of the coordination mechanisms at different levels – Provision of timely reports for immediate actions and for decision makers – Strengthening Flood forecasting system for resettled areas and other areas	– Regional health, education, water, food security, road authority, and early warning bureaus – Special Woreda health, education, water, early warning, food security, road authority – WHO, UNICEF	– Number of monitoring visits conducted – Status of coordination at Zonal and woreda level monitored and evaluated – Actions taken depending on submitted Reports – Floods forecasted to take action as early as possible

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- ✚ The UNICEF ,WHO, SAVE Children , and other NGO by working as a team members in the daily meeting in the woreda for building different new ideas and Flood Disaster Emergency Response.

CHAPTER –IX - Project Proposal

9.1. Project Proposal on prevalence and factors associated with hypertension among adults in Halaba Kulito Town Administration, Halaba Special Woreda, Southern Ethiopia, 2016.

Abstract

Introduction: Double burden of communicable and non communicable chronic disease like hypertension are undergoing epidemiological transition worldwide. The problem is of special concern in sub Saharan Africa due to this double burden of disease and transition to a more Western lifestyle. Ethiopia being one of the Sub-Saharan Africa may share this problem that needs intervention.

Objectives: The aim of this study is to assess prevalence and factors associated with hypertension among adults, Halaba Kulito Town residents, Southern Ethiopia, 2016.

Methods: A community based cross sectional study will be conducted from November 15 to December 14, 2016 among adults of Halaba Kulito Town residents. The study will include 422 adults (age >30) residing in Halaba Kulito Town who will be selected from the study population using systematic random sampling technique. Data on risk factors will be collected by interview method using Questionnaire adapted from WHO STEP wise approach to Surveillance on non communicable disease. In-addition measurements on Blood pressure, height and weight will be taken by using standard mercury sphygmomanometer, tape meter and digital balance respectively. The data will be entered into EPI-Info 7.1 & analyzed.

Frequency tables, graphs, percentages, means and standard deviations will be used to describe the study population in relation to relevant variables. Bivariate and multivariate analysis to see the effect of independent on dependent variable will be done.

Work plan and Budget: the study will be conducted from November 15 to March 25, 2016 /2017 and budget required for this project is 5,000 USD.

1.0 Introduction

1.1. Statement of the problem

Double burden of communicable and non communicable disease are undergoing epidemiological transition worldwide. According to report from WHO chronic non communicable disease are among the major causes of mortality and morbidity contributing for more than half of all death all over the world, Of all the non-communicable chronic disease hypertension is one of the most important causes of mortality and morbidity(1, 2).

Hypertension is the force of blood against the wall of arteries which increase the chance of heart diseases it is also called silent killer. Hypertension augments the risk of cardiovascular diseases, including coronary heart disease, congestive heart failure, ischemic and hemorrhagic stroke, renal failure, and peripheral arterial disease. Hypertension is an independent predisposing factor for heart failure, coronary artery disease, stroke, renal disease, and peripheral arterial disease. It is often linked with additional cardiovascular disease risk factors and the risk of cardiovascular disease increases with the total burden of risk factors(3).

In some developed countries like U.S.A 81.9% adults with hypertension were aware of their blood pressure status and 76.4% were currently taking medication to lower their blood pressure. There have been significant boost in hypertension control over time among persons with hypertension, from 48.4% in 2007–2008 to 53.3% in 2009–2010. Unlike U.S.A, although antihypertensive therapy clearly reduces the risks of hypertension, large segments of the hypertensive population are either untreated or inadequately treated largely in the world(3, 4,).

The rising burden of chronic illness such as hypertension what have been historically considered Western disease also threatened millions in Africa particularly the sub-Saharan Africa due to transition to a more Western lifestyle(Developed Countries' life Style) especially in urban areas of the region (5).

According to the latest WHO data published in April 2011 hypertension Deaths in Ethiopia reached 9,743 or 1.19% of total deaths which rank 12 from the top 20 cause of death in the country. The age adjusted Death Rate is 29.89 per 100,000 of population ranks Ethiopia number 72 in the world. for 3,709 adults in Addis Ababa on whom verbal autopsies were completed

Overall, 51% of deaths were attributed to non communicable diseases. Of this the leading cause of death was cardiovascular disease (24%) hypertension taking the greatest proportions for all (12%) (6, 7)

1.2. Literature Review

Analysis of worldwide data reported prevalence of hypertension around the world varies from 3.4% to 72.5%, the lowest prevalence being in rural India men and the highest prevalence in Poland in women. The same review has summarized the global prevalence of hypertension was estimated 26% of the adult population in the year 2000(8).

Population-based studies done in Some developed countries like in France showed the Prevalence of hypertension to be 37.7% in males and 22.2% in females and the prevalent cardiovascular risk factor was shown to increase with the severity of hypertension except smoking, in Brazilian capital the overall prevalence was 36.4% for the male (41.8%) and females (31.8%) association between Hypertension with Body Mass Index and age was strong. The female gender and higher income were protective factors against high blood pressure and there was no correlation with education(9, 10). This studies shows higher prevalence of hypertension unlike the lower prevalence found in Population-based cross-sectional surveys done among Canadian adults to be 16% of men and 13% of women in this study Hypertensive subjects showed a higher prevalence of elevated total cholesterol, high body mass index, diabetes and sedentary lifestyle than normotensive subjects (11).

In the study of high blood pressure among Canadian adults the prevalence of hypertension sharply increased in men (40%) and women (49%) 65 to 74 years old and similar study in Portugal showed the age-specific prevalence of hypertension in three age groups studied--younger than 35 years, 35-64 years and older than 64 years--was 26.2, 54.7 and 79% in men and 12.4, 41.1 and 78.7% in women, respectively (11, 12).

Some African countries like in Cameroon Community-based multicentre Cross-sectional study in major cities showed the overall prevalence of hypertension was 47.5% which shows a higher prevalence like similar study in Tunisia adolescents has showed a high prevalence of hypertension to be 35.1% [32.9-37.4] through a national cross-sectional study(13, 14).

Two linked cross-sectional population-based surveys in urban and rural area of Tanzania showed Hypertension prevalence was 30% (25.1-34.9%) in men and 28.6% (24.3-32.9%) in women in Ilala, and 32.2% (27.7-36.7%) in men and 31.5% (27.8-35.2%) in women in Shari the study showed Old age,

smoking, heavy alcohol consumption, physical inactivity, diabetes and greater body mass indices had more risk factors for hypertension and its complications than non-hypertensive's(15).

A cross-sectional survey conducted in Kinshasa showed the prevalence of hypertension was 21.3%. Hypertension was associated with aging and alcohol intake .similar study done on a random sample drawn from a population register study in Ghana showed prevalence of hypertension was 19.3% where BP was significantly associated with age, BMI(16, 17).

In studies conducted in Nigeria and Eritrea prevalence of hypertension was, 10.3% (CI, 8.4%, 12.2%) and 16 % in the general population by cross sectional study among all the ethnic groups respectively. Of this studies the study in Eritrea showed the highest levels of hypertension in unemployed people and local merchants the prevalence of hypertension steadily increased with age in both sexes and BMI was positively correlated with BP (18, 19).

Cross-sectional study employed among adults in Addis Ababa City, Ethiopia, showed the age-adjusted prevalence of high blood pressure or reported use of anti-hypertensive medication to be 31.5% (29.0, 33.9) among males and 28.9% (26.8, 30.9) among females. In this study age and BMI were significantly associated ($P < 0.001$) with mean SBP and DBP in males and females sex, while educational level was inversely associated with both blood pressure in males. Current daily smoking was associated with BP, while level of total physical activity was inversely association with SBP in males (20).

A community based cross sectional study conducted among adults in Gondar city, Northern Ethiopia, revealed that the overall prevalence of hypertension was 28.3% (95%CI: 24.9-31.7) The study showed that among subjects aged 55 years and above the AOR of hypertension was 3.33 [95%CI: 1.88-5.90] as compared to those 35–44 years old. Participants with family history of hypertension were three times more at risk of hypertension compared to thus from normotensive family. Participants how had self-reported diabetes were about four times more likely to be hypertensive. Thus who did not walk at least for 10 minutes continuously on daily basis were about three times highly likely to be hypertensive. compared to having normal BMI obesity was significantly associated with hypertension(21).

A cross-sectional comparative study conducted in Southern Ethiopia at Sidama Zone in the same region with this study area found a prevalence of hypertension to 18.8%(22).

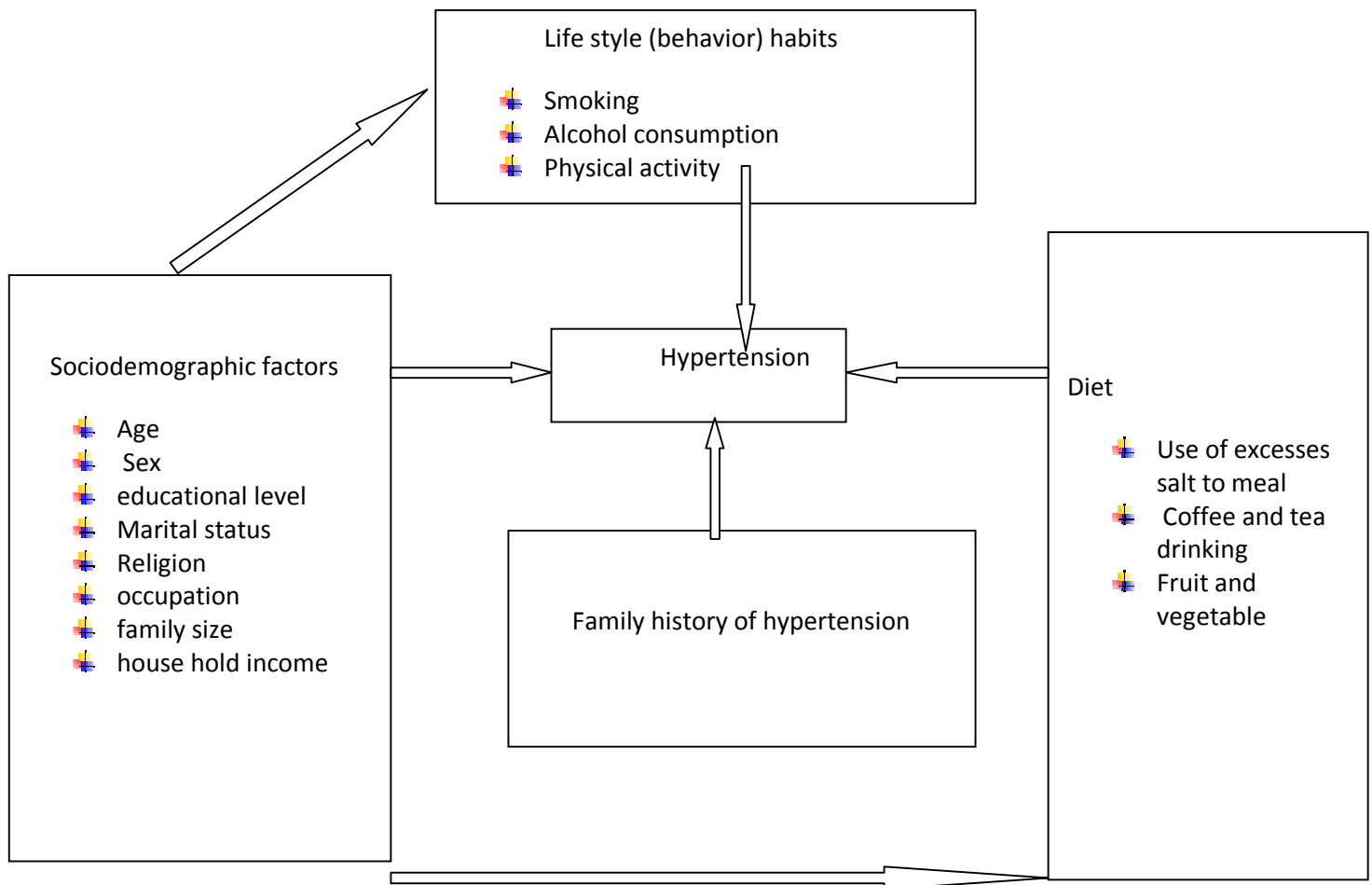


Figure 54 Conceptual frame work of hypertension Disease Risk Factors.

1.3 Justification of the study

Chronic non communicable diseases are taking the share for mortality and morbidity in developing nations. Hypertension being a silent killer has a great contribution to increases the number of mortality related to chronic disease and co morbidity.

This rising burden of disease such as hypertension what have been historically considered Western disease also threatened millions in Africa particularly the sub-Saharan Africa due to transition to a more Western lifestyle especially in urban areas of the Ethiopia Regions.

Moreover hypertension has a great impact on economy, unsubsidized long lasting cost paid by individuals, resulting on decreased productivity.

Reliable information about the prevalence and risk factors of hypertension is essential for assigning sufficient priority and resources to prevention and control of this condition

To the best of my knowledge no study is done in the area this study is intended to be conducted therefore this study will be the first study and will be base line for further studies in the study area

2. Objective

2.1. General objective

To assess prevalence and factors associated with hypertension among adults in Halaba Kulito Town Administration, Halaba Special Woreda, Southern Ethiopia, 2016.

2.2. Specific objectives

To determine the prevalence of hypertension among adults in Halaba Kulito Town Administration, Halaba Special Woreda, Southern Ethiopia 2016

To identify factors associated with hypertension among adults in Halaba Kulito Town Administration, Halaba Special Woreda, and Southern Ethiopia 2016.

3. Methods

3.1. Study Design

A community based cross sectional quantitative study design will be employed.

3.2. Study Period

The study will be conducted from November 15 to December 14, 2016

3.3 Study Area

The study will be carried out in Halaba Kulito Town Administration, Halaba Special Woreda, SNNPR, which is located 315 Km far from Addis Ababa in the southern part of the country. Halaba Kulito Town Administration is the only Town Administration of Halaba Special Woreda, bounded by Halaba Special Woreda in all the four directions. The Town Administration has a total of 7,872 households. Total population size of the Town Administration is 38,577 of which 18,903 are males and 19,674 females.(23) In the Town Administration there is one district hospital, 3 primary level private clinics, 1 health center and 05 drug stores .

3.4. Source Population

All adult population (age >30) of Halaba Kulito town administration

3.5. Study population

Adult population (age >30) of Halaba Kulito town administration in the selected house holds

3.5.1 Inclusion criteria

All adults (age >30) who lived in the study area for six months and/or more will be included in the study.

3.5.2 Exclusion criteria

Pregnant mothers whose gestational age is greater than 5 months will be excluded.

3.6 Sample size and sampling technique

The Sample size required for this study is determined using the formula for single population proportion and considering the following assumptions:

Prevalence 50%

Therefore (p=0.5 and q=0.5)

95% confidence level (z=1.96) and

Margin of error to be 4% (d = 0.05)

$$n = \frac{(Z^{\alpha/2})^2 P(1 - P)}{d^2}$$

$$n = 384$$

Taking 10% non response rate the final sample size will be

$$N = 422$$

A systematic random sampling will be employed to select study participants. The total number of households (7,872) will be taken from the town administration. The total number of households will be divided by 422 and we get the interval (k) =18. The first house hold will be selected by pen throwing method, and then the subsequent households will be selected by adding the interval 18 until the sample size 422 is reached. If there are more than one adult in a household one adult will be selected by lottery method.

3.7 Variables of study

3.7.1 Dependent variables

Hypertension status

3.7.2 Independent variables

- ✓ Socio-demographical factors: age, sex, educational level, Marital status, religion, occupation, family size, house hold income
- ✓ Diet
 - Use of excesses salt
 - Coffee and tea drinking
 - Fruit and vegetable consumption
- ✓ Family history of hypertension
- ✓ DM status
- ✓ lifestyle habits(behaviors) such as
 - Smoking,
 - Alcohol consumption,
 - Physical activity
- ✓ physical measurements such as
 - Weight,
 - Height
 - BMI

3.8. Operational definitions

- ✚ Hypertension defined as systolic (and/or diastolic) blood pressure (BP) $\geq 140 / 90$ mmHg or on antihypertensive therapy.
- ✚ Excess salt intake is consumption top add salt on the plate{ (considered as More than 6g salt per day (about one teaspoon))} for adults.

3.9. Data collection tools and procedures

Questionnaire adapted according to the local setup from WHO STEP wise approach to Surveillance non communicable disease instrument will be used to collect data on risk factors. Blood pressure and anthropometric measurements will be taken as per WHO guidelines.

Data will be collected by trained nurses and the training will be given for two days by supervisors and principal investigator.

Three separate measurements will be obtained on the left arm of the seated subject using a cuff of an appropriate size and BP reading will be recorded. The average of the readings will be taken as the BP of the participant. The blood pressure measurements will be obtained after the subject has rest for at least five minutes in a seated position. It will be made sure that the subjects have not consumed any hot beverages, such as tea or coffee, smoked cigarette or undertaken vigorous physical activity within the last 30 minutes preceding the interview if so the measurement will be postponed for 30 minutes. Height of the participant will be measured at standing upright position on bare footed and weight of participant wearing light cloth.

3.10. Data processing and analysis

The data will be entered, cleaned and edited by EPI-Info 7 and statistical further analysis will be done. Data cleaning will be performed to check for accuracy, consistencies and missed values and variables.

Descriptive statistics of the collected data will be done for variables in the study using statistical measurements. Frequency tables, graphs, percentages, means and standard deviations will be used. Bivariate analysis will be conducted primarily to check which variables have association with the dependent variable individually. Variables found to have association with the dependent variables at 0.2 P-value will be entered in to multivariate logistic regression for controlling the possible effect of confounders and finally the variables which have significant association will be identified on the basis of Odds Ratio OR, with 95%CI and 0.05 p-values to fit into the final regression model.

3.11 Data Quality Assurance

To assure data quality questionnaire will be prepared in English and translated into Amharic and back to English, data collectors will be trained on the data collection techniques and measurements. The data collection tools will be pre-tested on non-selected study participants; to check for ambiguity and sequencing of questions, prior to the actual data collection time in other place than Halaba Kulito Town. In addition, the completeness, accuracy and consistency of the collected data will be checked on daily basis during the data collection time, by the principal investigator and supervisor.

4. Ethical considerations

The study will be carried out after getting approval from the Institutional Review Board of Institute of public health, university of Addis Ababa, Ethiopia. A letter of support which indicates the objective of the

study will be written to SNNPR, health bureau, from University of Addis Ababa. Permission letter will be obtained from the regional health bureau (RHB), Halaba Special Woreda health office and Halaba Kulito Town Administration health office. The Addis Ababa University IRB committee will conduct the ethical clearance approval.

The purpose and importance of the study will be explained to the participants. Data will be collected after full informed written consent obtained and confidentiality of the information will also be maintained by omitting their names and personal identification or privacy.

For all participant information on their blood pressure status will be given. If participants is found to be hypertensive information will be given how to control or prevent and referral to health facility if in hypertension crisis.

5. Dissemination of Results

The final report will be presented for Halaba Kulito Town Administration and for district level leaders, Regional level Leaders and Ministry of Health of Ethiopia as needed and for the university of Addis Ababa, College of Health Science for Scientific community in TEPHINET. Also the document will be written in body of work for degree of Master in public health to, Addis Ababa University. Findings of the study will be submitted to University of Addis Ababa, school of Public Health and College of Health science, also the results will be disseminated by making different types of Governmental meetings and seminars in the study are level, and other seminars and Annual Regional Health Meetings by gating permission first from the government. Besides to this the finding will be presented for Addis Ababa university, Ethiopia, where I am taking the study of Musters in Field Epidemiology currently so that, the findings will be presented in invited scientific communities level and will address many readers through the level of Publication in international scientific journals through correct procedures.

6 .Work Plan

Table (0-1) Table 1.9.1 work plan for the assessment of prevalence and risk factors associated with hypertension among adults in Halaba Kulito Town, Halaba Special Woreda , Southern Ethiopia, from November March , 2016-2017.

s.n	Activity to be performed	Responsible person	Oct.	Nov.	Dec	Jan.	Feb.	March
1	Consulting respected Mentors On proposal	Respected Mentors and Principal Investigator						
2	Questioners writing and feedback from Mentors	Mentors and Principal Investigator						
3	Ethical clearance	University And Principal Investigator						
4	Training of data Collectors and	PI & Supervisors						
	Data collection	Interviewers						
5	Data compilation and analysis	Principal Investigator						
6	Report writing	Principal Investigator						
7	Submission of Draft report	Principal Investigator						
8	Submission of final report	Principal Investigator						
9	Dissemination of study Findings to local communities, partners and other stakeholders	Principal Investigator						

Table (0-2) Table 1.9.2 Budget cost breakdown for the assessment of prevalence and risk factors associated with hypertension among adults in Halaba Kulito Town, Halaba Special Woreda, Southern Ethiopia, 2016

Total Cost of the budget breakdown (November -March, 2016-2017)				
Budget Items	Unit cost	Quantity	Duration	Total Cost (USD)
Perduim				2,705
Data collectors Training	13.8	10	2 days	275
Perdium of data Collectors	13.8	10	10 days	1,380
Supervisors Training	13.8	2	2 days	55
Perdium for supervision	13.8	2	10 days	138
For investigator Supervision	13.8	1	10 days	138
For Data Entry	13.8	1	12 days	166
For investigator data Analysis	13.8	1	25 days	345
For result Dissemination	13.8	3	5 days	207
Supplies and Equipment				676
Digital Weight scale	23	10	buying once	230
Bp cuff	19	10	buying once	190
Stethoscope	9.5	10	buying once	95
Bag	14.2	10	buying once	143
Meter for Height Measurement	1.42	10	buying once	14
Pen	0.235	13	buying once	3
Pencil	0.09	10	buying once	1
Travel				1,486
Car Rental	66.95	1 car	15 days	1004
Fuel	0.715	45 Liter	15 days	482
Other Miscellaneous Cost				133
Printing and Copying	0.19	422	Printing Once	80
Result Documentation by Hard Copy and Soft copy	26.5	2	Documenting Once	53
Grand Total				5,000 USD

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CHAPTER- X- Additional Output on Conflict Disaster Situation Need Assessment Done

9.1 Conflict Disaster Situation Need Assessment on Geode Zone, SNNPR, Ethiopia, Oct, 2016

INTRODUCTION

The global number of people internally displaced by violence; armed conflict; natural disaster; inter alia; stood at 26.4 million, a number that surpasses global estimates of refugees. This number is approximately 6 million larger than the figure at the fall of 1999. Internally displaced people are people or groups of people who have been forced or obliged to flee or to leave their homes or places of habitual residence, in particular as a result of or in order to avoid the effects of armed conflict, situations of generalized violence, violations of human rights or natural or human-made disasters, and who have not crossed an internationally recognized State border.

Ethiopia has been affected by natural (drought, disease outbreaks, flooding) and manmade disasters (internal and external conflicts). Such conditions are known to increase and aggravate the incidence of diseases and effect of health threats including the spread of communicable diseases, diseases outbreaks, and malnutrition in a given population. Children and mothers are the most at risk for increased morbidity and mortality from these diseases. In Ethiopia, emergencies of natural and manmade cause are very common, among which the major ones are disease outbreaks, IDPs and severe acute malnutrition due to recurrent droughts.

Gedeo Zone is densely populated zone in the region. It has a population of 1,112,951. The zone administered with 6 districts and two town administrations. There are 3 Hospitals, 39 health centers and 144 Health posts in the zone. Majority of the zone is bordered with Oromiya region.

On Sept 27/2008 EC, there was a conflict between Gedeo Zone people themselves at Dilla Town, Yirgachafe town, Dilla zuria, Wonago, Kochre and Gedeb Woredas within the same week near to all woredas. As some people explained, the conflict was between community members who support the Yirga chafe Union and those who support the Dilla town merchants.

During at this conflict time a number of house completely burned and a significant number of people displaced from their Residences.

There for, due to this internal conflict, households which are found at 5 woredas and two towns Administration of Gedeo Zone namely Dilla Town, Yirgachafe town, Dilla Zuria woreda, Wonago woreda, Yirgachafe woreda, Kochore and Gedeb wordas are affected or damaged by burn. According to zonal administrative data, by this crisis, a total of 3300 house hold heads are internally displaced. Total number of Population displaced is 14,787.

From these IDPs under-five children counts 1873 children_as well as there are some pregnant mothers. The IDPs are initially settled in different areas (Churches, Mosques, Kebele houses, and with their relatives) and Dara woreda.

Table (0-1)Table 1.10.1. IDPs and Displaced (Affected woredas) Due to Conflict in Gedeo Zone, OCT, 2016

Se No	Affected woredas	HHs	Popn	Remark
1	Dilla Town	151	719	
2	Yirgachafe Town and woreda	479	3100	
3	Dilla Zuria	164	1303	
4	Wonago	143	1087	
4	Kochore	414	1707	
5	Gedeb	65	355	
6	Displaced Pop from Gedeo Zone in Dara woreda	1825	6516	
7	Total	3241	14787	

NB: - HHs in this table, actual number of the population not by conversion factors

Objectives

General Objective

To reduce mortality, morbidity, health impacts of conflicts and rehabilitate the displaced community in Gedeo Zone, September, 2016

Specific Objectives

- ✓ To provide emergency medical services in all displaced community
- ✓ To provide health promotion and psycho-Social support for the affected population
- ✓ To improve access to latrine, shower and hand washing facilities
- ✓ To improve the quality of shelter for displaced community as per the standard
- ✓ To secure food and non food items for displaced community

Current Emergency response Coordination

- ✚ To address the basic need of IDPs, we are implementing every activity in a coordinated manner. Functional coordination committees established by dividing it in to main & Sub-technical committees
- ✚ Coordination meeting established which is leading by Zonal Administrator and it is conducting every day. Members of this multiagency meeting are Health office, water office, early warning, Security/protection office, Agriculture, Education, women and young children.
- ✚ Further, all sectors established the coordination committees per thematic areas. besides, they are evaluating their daily performance with their immediate coordinators
- ✚ The emergency response plan prepared at zonal level and is on track for utilization

Emergency Health service

- ✚ In Gedeo Zone, Initially, Regional health bureau representatives, and zonal health department representatives are coordinating the overall health activities
- ✚ The health team established functional health coordination committee into three basic thematic areas (**Team 1**- Case management, surveillance and logistics, **Team 2**- Social mobilization and psychosocial support team and **Team 3**- Hygiene and sanitation team); the sub-committee is evaluating its daily activities in a regular bases.

Table (0-2) Tab 1.10.2. Shows injured Patients treated in Dilla Hospital by their age category

Se No	Injured Patients		Death due to injury		Remark
	Age	Total	Age	Total	
1	<15yrs	8	<15yrs	1	
2	20-40	40	20-40	6	
3	21-30	73	21-30	9	
4	31-50	12	31-50	3	
5	50-65	15	50-65	2	
6	>65yrs	3	>65yrs	0	
7	Unknown	15	Unknown	2	
	Total	166	Total	23	

Table (0-3) Tab. 1.10.3. Shows Total injured Patients In Gedee Zone by their woredas

Se No	Injured Patients			
	Woreda	Injured Patients	Death	Total
1	Dilla Hospital	170	24	194
2	Wonago	12	-	12
3	Dara (displaced people from Dilla Town and Dilla Zuria woreda)	14	-	14
4	Yirigachafe Woreda	63	-	63
5	Kochore	0		0
6	Gedeb	0		0
	Total	259		283

Medical and non-medical supplies required

Food Need: As shown on Table below, a total of 12,000 people are in need of emergency food aid for a period of three months as of September 2009 E.C. The duration of food assistance may be even longer in the case of the property loss due to burn, people in some Districts like Dilla town and Yirgachefe Town, Dilla zuria, Wonago, Yirigachafe woreda, Kochore and Gedeb Woreda as they will be forced to stay under emergency relief environment until the conflict resolved and until they return back to their residential area. On the other hand children and women share the highest number which needs special attention in case of food emergency respons

Table (0-4)Tab. 1.10.4 Budget summary for emergency response in IDPs in Gedeo Zone affected districts, SNNPR, Sept 2016

S.No	Proposed Interventions/Activities	Budget Required (Birr)
1	Emergency case management	
1.1	Emergency drug kit	311,040
1.3	Malaria case management	168,127.40
1.4	Management of Malnutrition	185,832.57
2	Sanitation and Hygiene	0
2.1	Construction of sanitation facilities for Internal Displace People	0
2.2	Construction/Rehabilitation institutional sanitation Facilities (latrines with hand washing)	0
2.3	Hygiene promotion and social mobilization through orientation, advocacy, distribution of hygiene promotion materials, disseminate key hygiene messages through local Mass Media etc.	1,011,830
3	Water Supply	0
4	Provision of WASH Supplies	0
4.1	Provision of WASH Emergency supplies: (water treatment chemicals, Jerry cans, Rotos, Soaps, Cloth washing basins, Waste bins etc)	0
4.2	Water trucking	0
Total		1,676,829.97

Observed Gaps or Identified Gaps during assessment

1. Poor data handling practice in order to know the exact number of program beneficiaries
2. Shortage of Man power(Health professionals)due to fear of conflict
3. Inadequate data about displaced population
4. Shortage of Anti malaria drugs

Recommendations

- Strengthen data management and sharing system at all level
- Resource mapping, mobilizing, distribution and proper utilization
- Priority interventions to pregnant, lactating mothers and under five children from the District health office, RHB and other stakeholders
- Re-establish damaged HHs
- Strengthening active surveillance in all affected Gotts
- Further risk mapping and vulnerability assessment for better risk mitigation and early warning
- M&E for further emergency response activities

Chapter –x- ANNEXES

10-1. Trainings Provided On Residency times in SNNPR, 2016-2017

A. Program Specific Trainings

Introduction

Early warning is the process with set of defined activities that help to provide, anticipated health hazard or health threats, information in order to minimize its potential impact or prevent disaster. 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 effective response to reduce the risk.

Surveillance is systematic ongoing collecting, organized, analyzing, and dissemination of health data (information) that used for planning, implementation, and evaluation of health service or intervention. It is also defined as information for action. A functional disease surveillance system is essential for understanding problems and taking action. Understanding about public health surveillance system helps health workers that work in the surveillance system for priority setting, initiate prompt response to epidemics and improve the quality of the surveillance system functions.

Preparedness is defined as the range of "deliberate, critical tasks and activities necessary to build, sustain, and improve the operational capability to prevent, protect against, respond to, and recover from incidents".

- ✚ The public health emergency preparedness capabilities includes
- ✚ Putting in place the necessary logistic and funding
- ✚ Building the essential systems specific to protection, prevention and response
- ✚ Equipping public health personnel and respondents with the necessary knowledge and tools, and
- ✚ Educating the public on related measures to be taken to prevent and control the event.

Outbreak investigation is a set of procedures used to identify public health threat.

The purpose of outbreak investigation is;-

- ✚ Stop the outbreak

- Ensure public's health / Prevent spread of disease
- Usually requires:
 - Identifying the agent, reservoir, source, and/or mode of transmission
 - Determining who is at risk for disease, place, time
 - Identifying the exposures or risk factors that increase risk of disease

✚ Prevent future outbreaks

✚ Improve surveillance and outbreak detection

Rational of the training

In the case of 2016 and 2017, the SNNP region entertained different outbreaks and disasters. Namely; the outbreaks are AWD, Scabies, Measles, Malaria and others. The training of Capacity on different types of diseases is very mandatory investigate and control the diseases in the community.

For support of regional health workers who are working in different Zones and Woredas, we gave trainings on some crucial topics bases on the need of the SNNP Regional Health Bureau.

According to the need, we deployed to different zones and Woredas of the region besides to the Outbreak investigations, we gave trainings on various topics.

1. Training Given on AWD cases management its Outbreak control strategies.

Topics covered 1.Epidemiology of AWD

2. AWD Case Managemene

3. Organizing CTC on Outbreak control

4. Disinfecting the case Households and corpse

Training period =June 20-21 for 02 Days

Participants: - Woreda and Health Center staffs

-Arbaminch Zuria Woreda staffs

- Arbaminch Zuria Woreda Different Health center staffs

- Infection Prevention staffs on CTC of the site

Number of Participants

Planned -Health Workers; 15 Health Workers

-Supportive staffs ; 10

Total Planned= 25

Attended= 25

Achievement 100%

Training Venue: Shelemela Health Center Hall, Shelemela

2. Training Given on AWD and Scabies outbreak Control and Case management

Topics Covered

On Scabies

- Epidemiology of scabies and life cycle
- Case Management and Mass drug Treatment
- Public health response
- Coordination
- Ongoing Responses
- Challenges
- Develop Action Plan For Scabies outbreak control

On AWD

- .Epidemiology of AWD
- AWD Case Managemene
- Organizing CTC on Outbreak control
- Disinfecting the case Households and corpse

Training on Public Health Surveillance

- Definition of Surveillance
- Types of Surveillance
- Purpose of Surveillance
- Diseases Under Surveillance
- Case Definition
- Reporting channels

Training period =January 10-14 for 05 Days

Participants: - Zonal, Woreda and Health Center staffs

- Hawassa Town Health Departement & its Structure health workers
- Hawassa Zuria Woreda Staff and its structure Health Workers
- Halaba Special Woreda Health Office and its Structure health workers

Number of Participants

Planned -Health Workers; 32

Attended= 32

Achievement 100%

Training Venue: Hawassa Millineum Health Center Hall, Hawassa

3. Training Given Scabies outbreak Control and Case management

Topics Covered

- Epidemiology of scabies and life cycle
- Case Management and Mass drug Treatment
- Public health response
- Coordination
- Ongoing Responses
- Challenges
- Develop Action Plan For Scabies outbreak control

Training period =November 21-22 for 02 Days

Participants: - Zonal and Woreda Health staffs

- Kembata Tembaro Zone and its Woredas Office
- Gurage Zone and its Woreda Health Office
- Hadiya Zone and Its Health Office

Number of Participants

Planned -Health Workers; 52

Attended= 52

Achievement 100%

Training Venue: Wolyta Gutara Hall, Wolyta Sodo

**The Same Scabies outbreak Control and Case management
With similar Topics given to the Gedio zone & its Woreda Health Staffs**

Training period = April 10-11 for 02 Days

Participants: - Zonal and Woreda Health staffs

- Gedio Zone Health Staffs
- Sidama Zone Health Staffs
- Wonago Woreda



[Photo on Training of Scabies case Management
and outbreak Control,Dilla, April 2017](#)

- as Health Office staffs

- Dilla Zuria Woreda Health Staffs
- Ganguwa Woreda Health Staffs –(Oromia Woreda Adjacent to Gedio Zone)
- Dara Woreda Health staffs

Number of Participants Planned = 50

Attended= 50

Achievement 100%

Training Venue: Dilla Lem Hotel Hall, Dilla

10-2 . Photos Pictures Taken at field sites in differen occassions 2016-2017

10.1 Annexes Of photos taken at Different Sites of the field, including AWD management Training, Scabies outbreak Management Training, Disaster Situation Visited , Conflict situation need assessed , outbreaks field visited and output of outbreak investigation presentation for RHB annual Review Meeting.

A



B



Annexes 1 . The PHOTO A,Taken WHEN Orientation Given For Shele Mela CTC disinfecting team Members, Guards and cleaners Nearby CTC and in the community House from where AWD Case appeared and Photo B Photo Taken In Shelemela CTC, Arbamich Zuria woreda, visualizing its inside view.



Annexes 2 Picture. 11.2 The Gedio Zone conflict Disaster Situation Visited, picture of the vehicles burnt in the Dilla Town.



Annexes 3 Fig 11.3 Photo Taken during Rapid Need assessment at Dilla Hospital, Injured people on treatment, October 2016.

Annexes 4 Table 1.11.1 Figarative dipction of Number of injuries and case fatality, Shows injured Patients treated in Dilla Hospital by their age category

Life loss and displacement due to conflict disaster.

Case fatality of the conflict Disaster

Se No	Injured Patients		Death due to injury		Remark
	Age	Total	Age	Total	
1	<15yrs	8	<15yrs	1	
2	20-40	40	20-40	6	
3	21-30	73	21-30	9	
4	31-50	12	31-50	3	
5	50-65	15	50-65	2	
6	>65yrs	3	>65yrs	0	
7	Unknown	15	Unknown	2	
	Total	166	Total	23	

Number of displaced HHs and Population from each Woreda and Town Administration

Se No	Affected woredas	HHs	Popn	Remark
1	Dilla Town	151	719	
2	Yirgachafe Town and woreda	479	3100	
3	Dilla Zuria	164	1303	
4	Wonago	143	1087	
4	Kochore	414	1707	
5	Gedeb	65	355	
6	Displaced Population from Gedeo Zone in Dara woreda	1825	6516	
7	Difference	3241	14787	



Annexes 5 Photo 11.4. Picture taken During Malaria OUTBREAK Investigation field work in Tembaro District, in kebele of Lemeja,2016.

A) Larvae observation on stagnant water



B) RDT Testing in Health Post



C &D) Stagnant Water under constructed road newly



Annexes 6 Photos of Stagnant Water Bodies on observation of larvae of mosquito, RDT of Malaria testing in the kebele Health post health Extension workers, of the kebele being drained beneath the Dum of road Newly Under construction road, Photos taken in Field Visit if Malaria Out break Investigation, Tembaro District in Kembata Tembaro Zone SNNPR, Feb,2016



Annexes 7Photo taken in Halaba & Lanfuro Woreda flood Emergency when the team Members crossing the local river after sudden raining when the team is at field, on May, 2016.



Photo A. Flood Disaster in Halaba Kulito Town, May 2016.



Photo B, Flood Disaster in Halaba Special Woreda Rural Kebele, crops over eroded and Covered by flood water.

Annexes 8Photo A & B Deicting the Halaba Kulito Town Flood Disaster and the rural Kebele crops erosion by the flood, SNNPR, May 2016.



Photo A, Temporary clinic established at site of Displaced peoples Refuge area due to flood Disaster, Halaba special Woreda, SNNPR, 2016



Photo B, Flood affected areas and Temporary refuge sites people discussing about emergency basic needs, in Halaba Special Woreda, SNNPR, May, 2016.

Annexes 9Photo A & B Depicting the Halaba special Woreda displaced people due to flood established Temporary clinic in temporary settlement sites and people discussing for emergency basic needs.



Annexes 10Photo Taken the Higher officials visited the Flood Disaster occurrence area, Halaba special Woreda and Lanfaro woreda, SNNPR, 2016. (SNNP Regional State Head Administrator and Other Higher officials on Site visit of Victim Woredas, SNNPR, May 2016



Annexes 11 Photo Taken at SNNPR Health Bureau PHEM Core process annual Review meeting and WE residents presenting the OUTBREAK Investigations findings for the meeting participants , Markos Gurmamo (Malaria OBI), discussion after presentation (Hawassa), 17 August,2016.

10-3. Various Outbreak Investigation & Project Proposal Questionnaires

Annexes 12A Questionnaires of Malaria Outbreak Investigation Questionnaire, Tembaro District Kembata Tembaro Zone, SNNPR Ethiopia, 2016.

I. Socio-demographic information:

1. ID number of respondent _____
2. Age in years _____
3. Sex: M ☐ F ☐
4. Address: Region _____ Zone _____ Woreda _____ kebele
_____ village _____
5. Occupation: Employed ☐ unemployed
☐ S t u d e n t ☐ f a r m e r
☐
6. Total family members _____
7. Ethnicity: _____
8. Religious: Orthodox, ☐ P r o t e s t a n t,
☐ M u s l i m ☐ o t h e r
☐
9. Marital status : Married, ☐ single
☐ W i d o w e d ☐
Divorced ☐
10. Education status: Illiterate ☐ P r i m a r y,
☐ S e c o n d a r y ☐ t e r t i a r y
☐ , n o n - f o r m a l ☐
11. Case status
 - a) Case ☐ ,
 - b) Control ☐

II. Clinical presentations:

***(For case only)**

12. What was the first symptom? _____

13. When was the 1st symptom started(date of onset of symptoms)

DD/MM/YY _____

14. What were others symptoms?

- a) Fever: Yes ☐ No ☐ ,
- b) Vomiting : Yes ☐ N o ☐
- c) Diarrhea : Yes ☐ N o ☐ ,
- d) Anorexia (appetite loss): : Yes ☐
No ☐ ,
- e) Headache: Yes ☐ N o ☐
- f) sweating,: Yes ☐ N o ☐ ,
- g) Chilling and shivering : Yes ☐
No ☐ ,
- h) Weakness : Yes ☐ N o ☐ ,
- i) Caught: : Yes ☐ N o ☐ ,
- j) back pain : Yes ☐ N o ☐ ,
- k) muscle pain : Yes ☐ N o ☐ ,
- l) rigor: Yes ☐ N o ☐ ,

➡ ***Ask the following signs (M to Y) for complicated malaria only***

- m) Altered consciousness (e.g. confusion, sleepy, drowsy, comma) Yes
☐ N o ☐ ,

- n) Not able to drink or feed Yes ☐
No ☐ ,
- o) Severe dehydration, Yes ☐
No ☐ ,
- p) Persistent fever, Yes ☐ N o ☐ ,
- q) Frequent vomiting Yes ☐ No ☐ ,
- r) Convulsion or recent history of convulsion Yes ☐
No ☐ ,
- s) Unable to sit or stand up Yes ☐
No ☐ ,
- t) pallor (Anemia) Yes ☐ N o ☐ ,
- u) No urine output in the last 24 hours Yes ☐
No ☐ ,
- v) Bleeding Yes ☐ N o ☐ ,
- w) Jaundice (yellowish coloration) Yes ☐
No ☐ ,
- x) Difficult breathing Yes ☐ No ☐ ,

y) Other conditions that cannot be managed at this
leve_____

15. The distance from Health facility by Kms-_____

16. Did you visit health facilities? Yes ☐

No ☐ ,

17. If Q 16 yes, when did you visit health facilities? DD/MM/YY_____

18. If Q 16 yes, did you give blood sample? Yes ☐

No ☐ ,

19 .If Q 17 yes, was the result positive? Yes ☐

No ☐ ,

20 . If Q 19 yes, which strain? PF ☐ P V

☐ M i x e d ☐

21. Have you been treated? Yes ☐ N o ☐

22 If yes , where did you get the treatment? HC ☐ H P
☐ O u t reach like in community ☐

23.If yes, what treatment did you get?

(a) Coartem Yes ☐ N o ☐ ,

(b) Chloroquine ? Yes ☐ N o ☐ ,

(c) Quinine tablets Yes ☐
No ☐ ,

(d) Quinine injection Yes ☐
No ☐ ,

(e) Other treatment given

24. Did you recover completely after the treatment: Yes- ☐ No ☐

25 Place of residence during 2 weeks before onset of illness; _____

III. Risk Factors:

*(For both cases and controls)

26. Specific living areas _____

27. Sleeping areas in side home _____ outside home _____

28. Do you stay outside over night? Yes- ☐
No ☐

29. Is there anybody in your home with similar sign and symptoms? Yes-
☐ No ☐

30. Did you travel outside your village in the past 2-3 wks Yes-
☐ No ☐

31. If yes Q 24, indicate

(a) date of travel DD/MM/Y _____

(b) the place of travel

(c) date when you returned back DDMMYY _____

32. If Q 30 is yes, were there sick patients (same symptoms) in the place where you have been Yes- ☐ No ☐

33. is there a similar sick patient in your house hold Yes- ☐
No ☐

34. Do you have bed net in your household Yes- ☐
No ☐ ,

35. If yes Q 34 yes, the number of bed nets per family numbers (a/b) _____

36. Year of provision-----

37. If yes do you utilize the bed net? Yes-☐

No ☐ ,

38. If Q 37 yes , how often do you use ? Always☐ S o m e times

39. If Q 37 yes ,do mothers and children given priority of using bed nets? Yes-

☐ N o ☐

40. Did you hung properly when observed the bed net in HH- Ok

☐ n o t ok ☐

41. Was deltamethrine/ Propecxure sprayed with in this year (12 months)? Yes-

☐ N o ☐

42. If yes Q 41 when?_____

43. If Q 41yes, how many Times per year ? Once ☐ t w i c e

☐

IV. Environmental investigation

44. Place of stay during night? _____

45. Is there any artificial water -holding containers close to your home? such as :

a. old tires: Yes- ☐ N o ☐ ,

b. Plant in the containers /flower -pots Yes-☐

No ☐ ,

c. plant with temporary water pools Yes-☐

No ☐ ,

d. Open deep well: Yes- ☐

No ☐ ,

- e. Broken glass bottles Yes-☐ N o ☐
☐ ,
- f. Cans Yes- ☐ N o ☐ ,
- g. Plastic container Yes- ☐
 No ☐ ,
- h. Gutter to collect rainwater: Yes-☐
 No ☐ ,
- i. Uncovered water storage/ septic tank Yes-☐
 No ☐ ,
- j. Stagnant water Yes- ☐ N o ☐ ,
46. Presence of mosquito vectors/ mosquitoes breeding sites around the home or vicinity? Yes- ☐ N o ☐ ,
47. If Q 46 yes, presence of larvae in breeding sites Yes- ☐
 No ☐ , I don't know☐
48. Do you use repellents Yes-☐ N o ☐ ,
49. Protective clothing Yes- ☐ No ☐ ,
50. Unprotected irrigation Yes-☐
 No ☐ ,
51. Presence of Intermittent rivers cloths to the community Yes-
☐ N o ☐ ,
52. Presence of tick grass Yes-☐ N o ☐ ,

V. Awareness assessment

53. Do you know malaria's Sign and symptoms -----

54. How it can be transmitted?-----

55. Mention malaria prevention methods?-----

Annexes 13 A consent forms and a questionnaire prepared to assess prevalence and associated factors of hypertension among adults in Halaba Kulito Town, Halaba Special Woreda, and Southern Ethiopia.

Greeting

I am _____ Recruited as a data collector for the research that will be conducted by University of Addis Ababa Resident Markos Gurmamo Kalore, among adults of Halaba Town administration residents on high blood pressure. As you are randomly selected, I kindly request you to participate in this study. It includes asking you few questions on the risk factors for raised blood pressure and taking measurements of your blood pressure, weight and height.

Your name will not be included in the information. I promise to keep the confidentiality of your response. It takes us about 30 minutes.

I have been briefly informed about the study and I clearly understood the objective. Consequently, I hereby approve my consent to take part in the study as an Interviewee with my signature.

Signature _____

Date _____

Name of kebele _____

Name of data collector; _____ Signature _____

Serial no. _____

Date; _____

Start time; ____

Annex B: Questionnaire A questionnaire prepared to assess prevalence and associated factors of hypertension among adults in Halaba Kulito Town, Halaba Special Woreda, Southern Ethiopia.

Section I – Assessment of Socio-demographic and socio-economic variables

No.	Questions	Responses	Remark
101.	Sex	1 male 2 female	
102	Age in years	-----years	
103.	Ethnicity	1.Halaba 2.Kembata 3. Hadiya 4.Walayita 5.others (specify)	
104.	Religion	1.protestant 2.orthodox 3.catholic 4.musilim 5.others (specify)	
105.	Marital status	1. single 2. married 3. divorced 4.widowed 5. others (specify)	
106.	Educational level	1.illitirate 2.read and write 3. primary education(1-8) 4.secondary education(9-12) 5. diploma and above	
107.	Occupation	1. Government employee 2. Daily laborer 3 .Merchant 4. Farmer 5 .House wife 6. Retired 7 .Others	
108.	Average household (family) income per	----- USD	

	month		
109	Family size in number with in a house hold	-----	

Section II Behavioral Measurements

Tobacco Use			
No.	Question	Response	Remark
201	Do you currently smoke tobacco products daily?	1. Yes 2. No	
202	On average, how much tobacco products do you smoke each day		
203	If no. for Q201 did you use to smoke previously	1. Yes 2. No	
Alcohol Consumption			
204	Have you ever consumed an alcoholic drink	1. Yes 2. No	
205	How frequently have you had at least one bottle alcoholic drink?	1. Daily 2. 5-6 days per week 3. 1-4 days per week 4. 1-3 days per week	
Caffeine Consumption			
206	Coffee	1. One cup a day 2. Two cups a day 3. Three and more cups a day	
207	Tea	1. one cup a day 2. two cups a day	

		3 .three and more cups a day	
Diet			
208	how many days do you eat fruit in a week in number	-----	
209	How many servings of fruit do you eat in these days	-----	
210	how many days do you eat vegetables in a week in number	-----	
211	How many servings of vegetables do you eat in these days	-----	
Salt Consumption			
212	Do you use excessive salt?	1 .Yes 2. No	
Physical Activity			
213	Does your work involve vigorous-intensity activity that causes large increases in breathing or heart rate like (carrying or lifting heavy loads, digging or construction work) for at least 10 minutes continuously?	1. Yes 2 .No	
Travel to and from places			
214	Do you walk or use vehicle <i>for</i> at least 10 minutes continuously to get to and from places?	1. Use vehicle 2 .Walk on foot	
History of Raised Blood Pressure			
215	Have you ever had your blood pressure measured by a doctor or other health worker?	1. Yes 2. No	
216	Have you ever been told by a doctor	1. Yes	

	or other health worker that you have raised blood pressure or hypertension?	2. No	
217	Are you currently receiving any medication, treatments/advice for high blood pressure prescribed by a doctor or other health worker	1. Yes 2. No	
218	Is there anyone from your family (<i>father, mother or siblings</i>) who have history of high blood pressure	1. Yes 2. No	
219	Have you ever been told by a doctor or health worker that you have diabetes?	1. Yes 2. No	

Section III Physical Measurements

Height and Weight			
No.	Question	Response	Remark
301	Height in cm	_____cm	
302	Weight in kg	_____kg	
303	BMI		
Blood Pressure			
304	Reading 1	____Systolic (mmHg)	
		____Diastolic (mmHg)	
305	Reading 2	____Systolic (mmHg)	
		____Diastolic (mmHg)	
306	Reading 3	____Systolic (mmHg)	
		____Diastolic (mmHg)	

Title of the Research Project

Assessment of prevalence and factors associated with hypertension among adults in Halaba Kulito Town Administration, Halaba Special Woreda, Southern Ethiopia, 2016

Name of Principal Investigator: Markos Gurmamo Kalore

Name of Advisors: 1. Dr. Adamu Addissie (MD, MA, MPH, PhD) – 1st Mentor

2. Mr. Muluken Gizaw (BSC, MPH, Candidate PhD)-2nd Mentor

Name of the Organization: Addis Ababa University, College of Health Science, School of Public Health.

Name of the Sponsor: TEPHINET (Training Programs in Epidemiology and Public Health Interventions Network)

Introduction

This information sheet is prepared with the aim of explaining about the research project that you are asked to join by the group of research investigators. The research group includes one main principal investigator, 10 trained data collectors, two Supervisors and two Mentors from University of Addis Ababa, Ethiopia.

Purpose of the research project.

The purpose of this project is to assess prevalence and factors associated with hypertension among adults in Halaba Kulito Town Administration, Halaba Special Woreda, Southern Ethiopia.

Procedure

The study mainly uses data obtained through study subjects interview and physical measurement. Permission will be obtained from University of Addis Ababa, SNNP regional health bureau, Halaba Special Woreda, Halaba Kulito Town Administration health office and the selected study subjects.

Risk and/or Discomfort

By participating in this research project you will not feel any discomfort except wasting some time (around 30 minutes). Every piece of information will be kept confidentially. There is no risk in participating in this research.

Benefits

There will not be monetary benefits or any provided incentives to you for participating in this research project but you will be told about your blood pressure status, how to prevent and control blood pressure and the results of the study are very important in improving program on chronic non communicable disease.

Confidentiality

The information collected for this research project will be kept confidential and information will be stored in a file and kept without your name, but a code number assigned to it. And it will not be accessed by anyone except the principal investigator.

Right to Refusal or Withdraw

Your participation in this research study is voluntary. You may choose not to participate and you may withdraw your consent to participate at any time without losing any of your right.

Person to contact

This research project was reviewed and approved by the Ethical clearance Committee of University of Addis Ababa. If you want to know more information you can contact the committee through the address below. If you have any questions or concerns about this study please contact the following individuals:

Annexes 14A Questionnaire for Scabies Outbreak Investigation in Kacha Bira Woreda, Kembata Tembaro Zone, SNNPR, Ethiopia, 2016

A. Identification

Interviewer's name _____ Phone number _____

Date of Data collection: _____

Region _____ Zone _____ District _____ Kebele _____ Got _____

Status of respondent: 1. Case 2. Control

B. Socio-demographic information

1. Age in years _____ or in month _____

2. Sex 1. Male 2. Female

3. Ethnicity 1. Kembata 2. Hadiya 3. Tembaro 4. Amhara 5. Other/specify _____

4. Religion 1. Orthodox 2. Muslim 3. Protestant 4. other/specify _____

5. Occupation 1. Farmer 2. Merchant 3. Unemployed 4. Employed 5. Student 6. Daily laborer 7. NA 8. Other/specify _____

6. Educational status

1. Illiterate 2. Read and write only 3. Primary 4. Secondary 5. Tertiary 6. NA

7. Parents of case/control educational status if the respondent is a child (< 7 years of age)

Mother- 1. Illiterate 2. Read and write only 3. Primary 4. Secondary 5. Tertiary

Father- 1. Illiterate 2. Read and write only 3. Primary 4. Secondary 5. Tertiary

8. Marital Status 1. Single 2. Married 3. Divorced 4. Widowed 5. NA

9. How many Family members residing with you: _____

10. Is there any person infested with Itching skin rash and Crusts on the skin in your house? 1. yes 2. No

11. If Yes to Q9, number of sick person _____

C. Questions related to knowledge of respondents about the disease

12. Do you know what scabies is? 1. Yes 2. No

13. What do you think the cause of scabies? 1. Parasites 2. Consequence of curse 3. Witchcraft
4. other/specify_____
14. How do you think scabies is transmitted? (You can pick more than one response). 1. By direct skin to skin contact with ill person 2. By sharing clothes of ill person 3. Hugging (hold in your arms) 4. Other/specify _____
15. Do you think scabies preventable diseases? 1. Yes 2. No 3. Don't know
16. If yes for Q12, How it can be prevented?
1. Personal hygiene& sanitation 2. Avoid contact with Scabies patient(s) 3. Don't know
4. Other/specify _____
17. Who do you think can be affected more by Scabies?
1. Children less than 5 years old 2. Children between 5-18 years 3. People over 18 years old 4. People of any age group 5. don't know
18. Where did you go first when you get Scabies?
1. Health Facility 2. Traditional Healers 3. Holy Water 4. Stayed at home
5. other/Specify_____
19. How do you think Scabies can be cured?
1. Using modern medicine 2. Using traditional Medicine 3. Holly water 4. by feeding nutritious foods 5. Keeping the sick person in door 6. Other (Specify) _____

D. Clinical features & management of the disease(for cases ONLY)

20. What are the signs & symptoms of the disease?
A. skin rash: 1. Yes 2. No D. relentless itching: 1. Yes 2. No
B. red bumps and blisters: 1. Yes 2. No E. Crusts on the skin 1. Yes 2. No
C. tiny red burrows: 1. Yes 2. No F. Sign of secondary infection (observe) 1. Yes 2. No
21. Site of rash on the body (you can select as more responses as possible)
1. Flexor wrist surface 2. inter digital spaces 3. Abdomen 4. Inter gluteal cleft
5. Buttocks 6. Highs 7. Elbow 8. Feet 9. Ankles 10. Anterior axillary (under arm folds).
11. Other/specify_____
22. Date of rash onset ____/____/____(dd.mm. yy)

23. How long have you had a rash? (Duration of rash) _____ days/months
24. Did you visit health facility for this illness? 1. Yes 2. No
25. If yes, date went to facility ____/____/____)
26. Treatment given 1. Yes 2. No
27. If yes, type of treatment
1. 5% Permethrin cream 2. 25% benzyl benzoate lotion (BBL) 3. 10% Sulfur ointment
 4. Ivermectine
28. Status of the patient after treatment has given
1. Patient cured 2. Partially cured / Improved 3. Re-infected 4.
- Other/specify _____
29. How long were you ill before visiting the health facility? _____ days/hours

E. Questions related to risk factors

30. Did you travel outside of your village _____? 1. Yes 2. No
31. If the answer is no for question number 29, where have you been?
- Woreda _____ Keble _____ Got _____
32. Did you contact a person who has been infested with scabies? 1. Yes 2. No
33. If yes, type of contact
1. Sleeping together 2. playing together 3. Sharing clothes 4.
- Other/specify _____
34. What is the **source** of water for your personal hygiene, drinking and cooking purposes? 1. Pipe water 2. Spring 3. Hand dug well 4. Deep well 5. Pond 6. River 7. Other/ specify _____
35. What is the **amount** of water usually found in the house for drinking, cooking & personal hygiene in a daily bases?
1. Less than 20 liters 2. 21-40 liters 3. 41-60 liters 4. 61-80 liters 5. more than 81 liters
36. In order to fetch water, what is the walking distance from your house to the water source?
1. Less than 500 meters 2. 500-1000 meters 3. 1-5 kilometers
 4. 5-10 kilometers 5. More than 10kilometers
37. What is queuing time at a water point/source?
- ☐ Less than 30 minutes ☐ 31-60 minutes ☐ 1-2hours ☐ more than 2 hours

38. Do you have soap for personal hygiene & washing clothes whenever there is a need? 1. Yes
2. No
39. If yes, how often do you wash your clothes?
1. Two times per week 2. Once in a week 3. Once per 2 weeks 4. Once in a month 5. Other/specify_____
40. How often do you take shower?
1. Two times per week 2. Once in a week 3. Once per 2 weeks 4. Once in a month 5. Other/specify_____
41. If your answer for Q37 is no, what is the reason? _____
42. How often do you change your clothes/wears?
1. Two times per week 2. Once in a week 3. Once per 2 weeks
4. Once in a month 5. Other/specify_____
43. Do you wash your hand regularly? 1. Yes 2. No
44. What is the area of the house where the respondent is living (in meter square)? _____
45. Are you living in an area/kebele affected by flood or any disaster? 1. Yes 2. No
46. If yes, was your home affected by the flood or any disaster? 1. Yes 2. No
47. What was the damage in your livelihood that was caused by the flood or disaster? _____

10-4. PHEM WEEKLY BULLETIN (Week 47), 2016

Highlights of Bulletin

- ✈ Scabies outbreak is increasing rampantly in the region
- ✈ AWD outbreaks is ongoing in Tembaro woreda
- ✈ SAM cases are decreasing since week 44

Background: PHEM is the process of anticipating, preventing, pre-paring for, detecting, responding to, controlling and recovering from consequences of public health threats in order that health and economic impacts are minimized. Analyzing weekly surveillance data and sharing to different stakeholders and to those who can support could strengthen PHEM in the region as well in the country.

1. Weekly surveillance report completeness

All 15 zones and 4 special woredas of the region reported 47th epidemiological week of 2016 weekly IDSR. Out of expected 4,635 governmental health facilities in the region, 4,267 health facilities submitted IDSR report, representing 92 % of report completeness which meet the regional target, 90%.

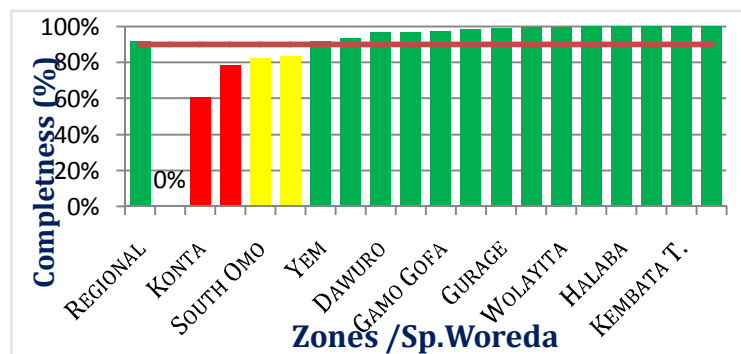


Fig.1: PHEM report completeness by zones/special woredas in SNNPR, Week 47, 2016

As it is presented in figure 1 above, five zones namely Silite, Kembata Tembaro, Hawassa, Wolayita zones, Hawassa city administration and Halaba special woreda reported 100% whereas KONTA and Basketo are reported less than 80% and Segen Area People's Zone whole woredas and from Bench Maji Zone Gura Ferda woreda is not Reported totally to RHB.

2. Weekly surveillance report Timeliness

Timeliness of the region in the 47th week 2016 is about 68%. Bench Maji zone, KONTA Special Woreda, Kembata Tembaro, and Wolyta zones have late report in the week for the region. Every zones and special woredas

should give great emphasis for timely reporting in which timely detection of events due attention early control and prevention.

Malaria

Totally 3,667 outpatient and 28 inpatient malaria cases were treated in different health facilities in this week. Out of 32,408 suspected malaria case examined by RDT/microscopy, 2,027(6.25%) cases and 1,621 (5.00%) cases were reported as confirmed malaria for *P. falciparum* and *P. vivax* respectively. In general, a total of 3,648 (98.7%) confirmed and 47 (1.3%) clinical cases of malaria were reported in the week

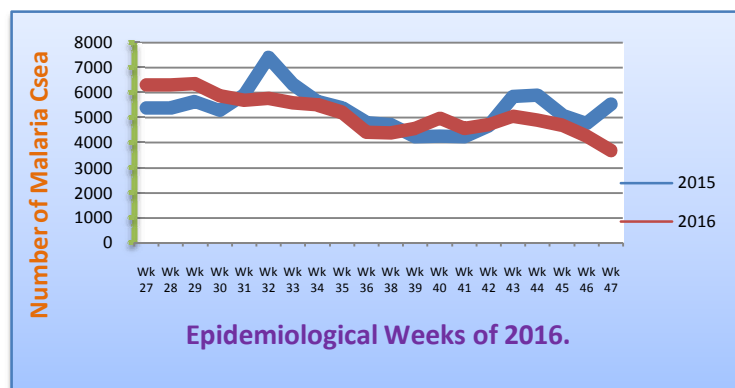


Fig.2: Trend of Malaria cases over the last 20 weeks in SNNPR, week 47, years 2015 and 2016.

As compared with the last week (4,277 cases), number of malaria cases decreased in this week by 582 cases. As it is described in figure 2 above, the number of malaria cases starting from week 43 the trend in 2016 is decreasing. Certain Woredas like Selamago, Sawula Town Administration Wolkite, Basketo and so on still the cases are in high incidence rate.

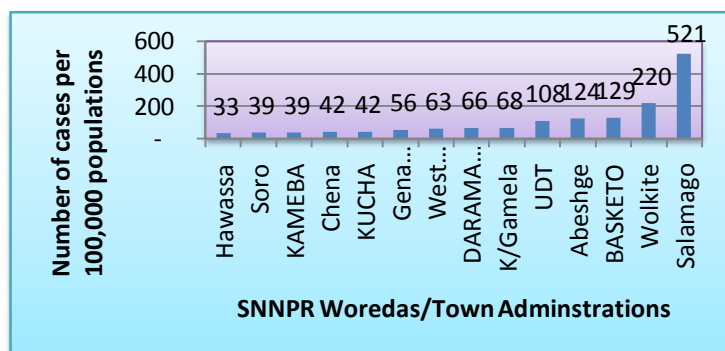


Fig.3: Malaria cases per 100,000 population by woredas & Town Administration in SNNPR, week 47, 2016

As this week week (WK47) ,Sawula Town Adminstration, Selamago woreda , Wolkite Basketo Special Woreda , Abeshige , Uba Debretsehay reported with the highest occurrence of malaria with in 100,000 population 574, to 108The top 6 identified woredas and town Administrations. The Salamago woreda was leading with case load in year 2016 and still its attack rate per (100,000) Population is 2nd highest to Sawula Towon Aminstration which is 521 and 574 respectively. Basketo Special Woreda was the first in the last weeks attack rate and still it is high and 129 per 100,000 Population.

The report of Malaria cases of Sawula Hospital is included in Sawula Town Administration cases and the population of Sawula Town Administration is taken as the whole for comparison Purpose. The smallest attack rates in this week in woredas is 33 from the top 15 malarious reported Cities and woredas which is Hawassa city. The attack rate is calculated for the top 15 woredas or cities reported for the Region

As depicted in the above Table 1.

Table 1: Number of malaria cases in 15highest reporting woreda in SNNPR, Week 46 in 2016.

Top 15 woredas of Malaria Case in week 47,2016		
S.No.	Woreda	week 47
1	Salamago	180
2	Sawla Town Administration	126
3	Abeshge	94
4	Uba Debretsahay	93
5	Basketo	91
6	Soro WoHO	91
7	West Badewacho WoHO	91
8	Cheha	82
9	kucha	78
10	Kemba	76
11	Kedida Gamela WoHO	75
12	Hawassa sub city	74
13	Daramalo WoHO	66
14	Welkite Town Ad.	65
15	Sawula HSP	61

These 15 woredas contributed 1,343 (36%) of total malaria which is 3,695 in (week 47). Prevention and control activities should be strengthened in these areas before the worst scenario occurs to those woredas in case of Morbidity and Mortality. Selamago reported the highest case that is 180 in this week and Sawula Town Adminstration is the second to the Salamago woreda. Abeshge , Ubaba Debretsehay, Basketo , Soro , and West Badewacho are the 3rd to 7th respectively in case load of this week. The total case is taken and it may vary in the case of attack rate due to the woredas population difference when we calculate the attack rate with in 100,000 populations. Even though the different prevention and control measures are being done in the areas, malaria morbidity is still high that needs intensive follow up of the intervention activities. (See table 2)

Table 2: Top 20 woredas with highest malaria case in last five weeks, SNNPR, week 47,2016

Top 20 woreda for malaria case for last one month, wk 47, 2016						
s.no.	Woredas	week 44	week 45	week 46	week 47	Total
1	Salamago	278	189	221	180	868
2	kucha	127	98	84	78	387
3	Arba Minch taHO	143	110	84	37	374
4	Shone taHO	123	96	115	0	334
5	Uba Debretsahay	146	87	117	93	443
6	Abeshge	125	81	91	94	391
7	Hawassa sub city	108	127	117	74	426
8	Daramalo WoHO	120	66	93	51	330
9	Zalla WoHO	92	86	75	37	290
10	Cheha	107	98	87	82	374
11	Malie	67	45	40	32	184
12	Welkite Town Ad.	96	65	42	65	268
13	Shashago WoHO	78	84	93	5	260
14	Konta	58	84	67	58	267
15	Amaro WoHO	58	69	69		196
16	Arba Minch Zuria	71	90	57	9	227
17	Gena Bosa WoHO	129	107	50	60	346
18	East Badwacho WoHO	71	51	55	0	177
19	Damot WoHO	59	45	34	51	189

Meningitis

In this week, Zero suspected outpatient and 17 suspected inpatient meningitis cases with Zero death were reported in the region. These

Outpatient cases were reported from Dilla Town Administration (4 cases), from Mizan Town Administration (3cases), Bona Hospital (2cases), Worabe Hospital (2 cases), Gimbo Woreda (1 case) and Hawassa Sub City (1case), reported in week 47 Nov, 2016. This week (WK 47) cases decreases by 4 from last week (wk 46) and also no death case due to Meningitis. But the cases were slightly increased since week 38, 2016 in the year, and the number of case crosses line of 2015 on week 44. (See figure 4) Active case search and surveillance should be taken into consideration in Gedeo, Sidama, Wolayita zones and Halaba special woreda as they reported significant number of meningitis cases since week 26, 2016 to investigate whether the meningitis outbreak is there or not in those mentioned sites.

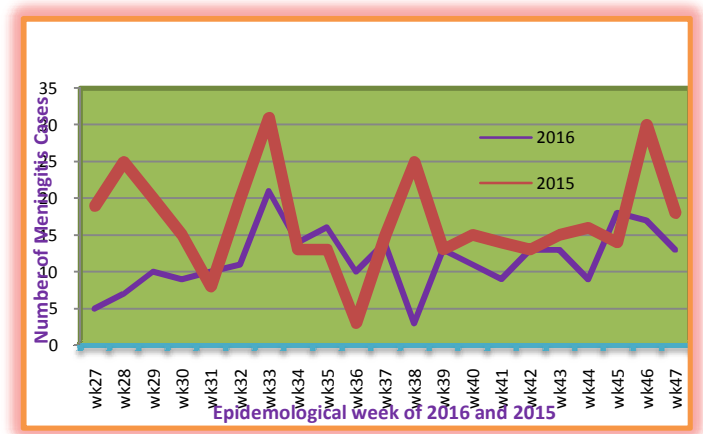


Fig.4: Trend of suspected meningitis cases over the last 20 weeks in SNNPR, week 47, of years 2015 and 2016.

Dysentery

A total of 490 dysentery cases (489 OPD and 1 IPD) with zero death were reported from governmental and non-governmental health facilities in the 47th week 2016. The number of dysentery cases decreased by 58 as compared to the last 46th week (548 cases were reported in week 46). As it is depicted in fig. 5 below the dysentery cases were stable for the last 20 weeks with slight decrease except week 39 still it is slightly decreasing.

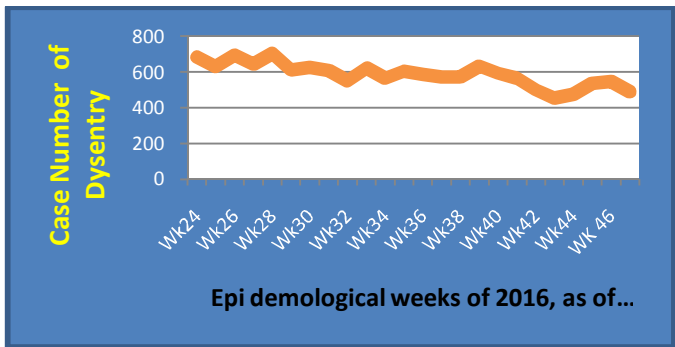


Fig.5: Trend of dysentery cases for the last 20 weeks, SNNPR, week 47, 2016.

As described in fig. 6, Basketo special woreda was reported the highest number of dysentery cases following Enemor Ener, Hawassa sub city, She-Bench and Gedebero Gutazer Woredas. (See figure 6)

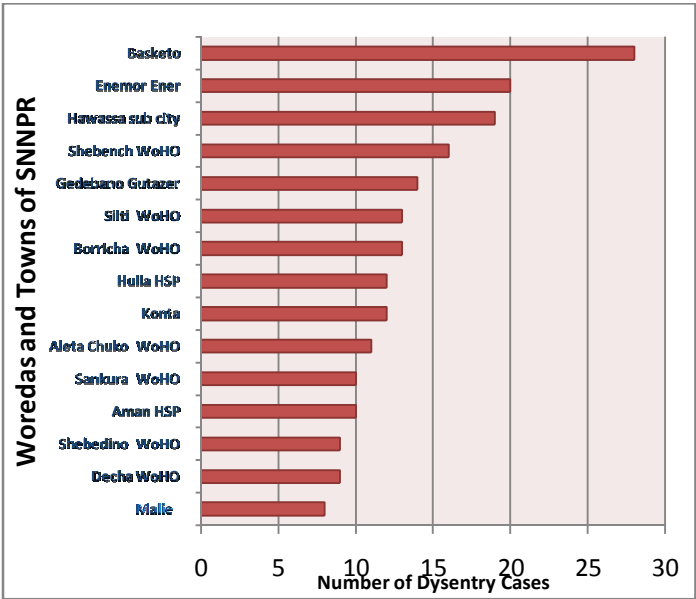


Fig. 6: Top Fifteen woredas/town of dysentery cases, SNNPR, week 47, 2016.

Severe Acute Malnutrition

In this week a total of 521 severe acute malnutrition (SAM) cases were reported in the region. Of these 459 were outpatient and 62 were inpatient cases with 4 deaths during the week. The death was reported from Dilla Town Administration(2), Hawassa Referral Hospital (1) and Sodo Hospital (1)deaths were reported. The SC cases were decreased to 62 at regional level which is decreased from the (week 46). The difference is 56 and more SC Cases were at last week report. The decrement of SC Case in this week compared to the last week may be due to absence of report from Segen Area People's Zone. In addition to that Segen Area Peoples Zone was reporting more cases of SC and OTP from week to week. In other Words the completeness of the report in this week is 92% and Other Zonal Health Facilities also contributed the artificial decrement of the SC cases in this week.

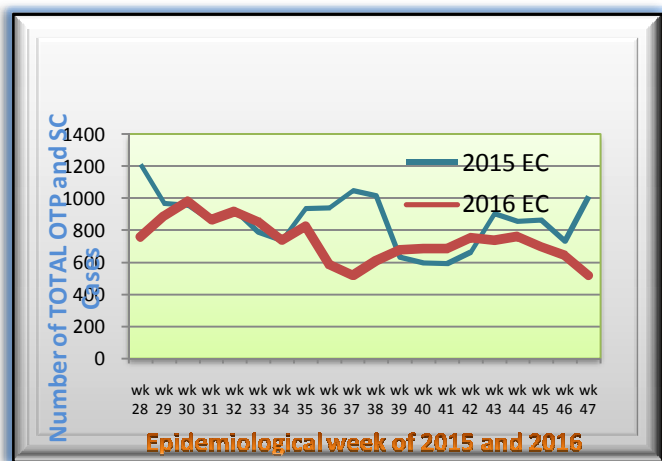


Fig. 8: Trend of Total SAM cases over the last 20 weeks in SNNPR week 47, 2015 and 2016.

Figure 8 depicts that Total SAM cases decreases in the week as compared with the same week of last year. These may indicate as we discussed above for SC cases decrement, the completeness being 92% percent is one factor that may conceal the true cases in unreported zones to Regional Health Bureau the full cases of morbidities in the week.

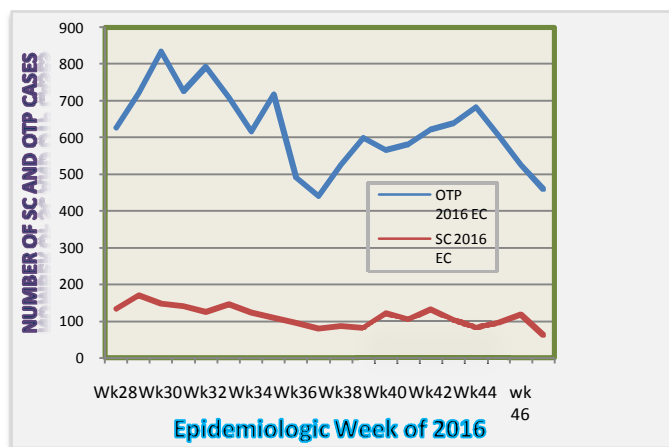


Fig. 8: Trend of OTP and SC cases over the last 20 weeks in SNNPR week 47, year 2016 only

Sidama zone reported the highest SAM cases, 119 (110 OTP and 9 SC) cases in the week & Gamo Goffa , Wolyta and Gurage zones reported the second to fourth highest SAM cases in the week.

Table 3: Top 15 woredas with high SAM Cases in week 47, 2016

Top 15 woredas /Facilities of SAM in Week 47,2016			
Woreda / Facility	OTP	SC	Total SAM
Silti WoHO	19	1	20
Welkite Town Ad.	20	0	20
Kemba	15	1	16
Dara WoHO	16	0	16
Dale WoHO	13	2	15
Bensa WoHO	14	0	14
Ofifa WoHO	12	1	13
Sawla HSP	9	2	11
Chencha HSP	10	1	11
Boreda WoHO	11	0	11
Duna WoHO	11	0	11
Malie	11	0	11
kucha	7	3	10
Hawassa Refederal HSP	0	9	9
Aroressa WoHO	9	0	9

Table 3: Top fifteen highest malnutrition cases by zones/ Sp.woredas, SNNPR, week 47, 2016

Cumulative SAM Cases in Week 47 by Zones and Special woredas			
Zones/ Sp.Woredas	OTP	SC	Total
Sidama	110	9	119
Gamo Gofa	67	15	82
Wolayita	51	7	58
Gurage	58	0	58
Gedeo	35	6	41
Silite	31	6	37
Hadiya	29	0	29
South Omo	24	0	24
Dawuro	24	0	24
Kembata Tembaro	13	4	17
Hawassa Town	3	9	12
Halaba	6	1	7
Bench Maji	1	3	4
Konta	3	0	3
Basketo	2	1	3
Kefa	2	0	2
Sheka	1	0	1
Segen			
Yem	0	0	0
Total of week	459	62	521

Scabies

In week 47 a total of 9,281 new cases of Scabies were reported to the Regional Health Bureau.

Table5. Scabies cases in the region since November 26, 2009 EC

Zone/Sp. Woreda	Total Population	Scabies cases	New cases in the wk	Total	AR/100,000 populations
Basketo	70,299	217	-	217	309
Konta	113,792	5114	-	5,114	4,494
Gamo	1,992,955	1337	156	1,493	75
Wolayta	1,882,833	11858	2,408	14,266	758
Dawro	609,719	10440	-	10,440	1,712
Gurage	1,609,908	731	-	731	45
Hadiya	1,573,841	11691	1,257	12,948	823
Kembata	857,375	1753	1,978	3,731	435
Halaba sp.	310,690	34271	-	34,271	11,031
Silite	937,007	254	-	254	27
Sidama	3,628,716	10679	3,482	14,161	390
Total	13,587,135	88,345	9,281	97,626	719

The total cases of the scabies in the region since the case started in 2016 are 97,626. When we see the week 47 cases the zones which contributed to this high number are Sidama Zone 3,482 new cases, Wolyta zone 2,408 new cases Kembata Tembaro Zone 1978 new cases

and Hadiya Zone 1,257 new cases were reported. Some Zones didn't report to the Region the update in 47th week. Besides to this the attack rate per 100,000 population is 719 and in Halaba Special woreda is 11,031 which is maximum and the smallest Silte Zone in the region. And some Zones didn't report the update should report the updates timely in order to facilitate logistics and intervention by RHB, Ministry of health and other stakeholders.

AFP

In the 47th week, 3 suspected AFP cases were reported in the region. The cases were reported from Hamer Zone of South Omo, Gedeb Zone of Gedio, Hawassa Referral Hospital Town Of Hawassa .

Measles cases

Totally 10 suspected measles cases were reported in this week. Wonago Woreda (4 cases), Kochore woreda(2 cases), Dilla Hospital hospital (1 case) and Hula Woreda (case) and the rest (1) case is Reported from Durame Town Administration.

Epidemic Typhus

In the 47th week, totally 1834 outpatient and 42 inpatient epidemic typhus cases reported in the region. The number of cases decreased by 163 as compared to week 46 (2,018). Hawassa sub city 267, Yirgalem Hospital 155, Chench Hospital 96 , and Tula Woreda 92 cases were the highest among the Reported Woredas and Health Facilities.

Typhoid Fever

There were a total of 7,648 typhoid fever cases (7634 OPD and 14 IPD) were reported in this week with zero death report. The number of cases increased by 398 cases as compared to week 46, (8,046). Hawassa sub city (390), Enemor Ener woreda (260), Hossana Hospital (185), Dilla hospital (173) and Yirgale Hospital (161) were five highest typhoid fever reported areas.

AWD

AWD outbreak is ongoing in Tembaro woreda of Kembata Tembaro zone since Nov 24, 2016. As of December 05, 2016, a total of 94 AWD cases are reported through line list. Team composed of RHB & partners has been deployed and working out on respoce activities.

Besides, AWD outbreak rumor is reported from Halaba special woreda and investigation are underway to further assess the outbreak.

Maternal Death

Zero maternal death was reported in the region in this week.

NNT: One case or death of NNT from Dilla Town Administration reported and 10 Cases of dog bite reported (5) from Tercha and (5) from Dilla Hospital. No cases of yellow fever, Anthrax, AHI, SARS, Pandemic influenza, Viral Hemorrhagic Fever, Guinea worm and Smallpox were reporting period.

Annexes 16 Declaration Statement

I, the undersigned, declare that this is my original work and has never been presented by another person in this or any other University and that all the source materials and references used for this thesis have been duly acknowledged.

Name: Markos Gurmamo Kalore

Signature: _____

Place: _____

Date of Submission: _____

The thesis has been submitted for examination with my approval as a university advisor.

Name of advisor:

Signature: _____

Date: _____