

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



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

Compiled Body of Works in Field Epidemiology

By

Khalid Nassir

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

**May 2014
Addis Ababa**

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Advisors

Mr. Teklehaymanot G/Hiwot
Dr. Getahun Aynalem

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Approval by Examining Board

Chairman, School Graduate Committee

Advisor

Examiner

Examiner

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List of Abbreviations & Acronyms

AAU	Addis Ababa University
AD	Auto Disable
AFI	Acute Febrile Illness
AFP	Acute Flaccid Paralysis
AIDS	Acquire Immuno Deficiency Syndrome
ANC	Anti Natal Care
ANRHB	Amhara National Regional Health Bureau
AR	Attack Rate
ART	Anti Retro viral Therapy
AURI	Acute Upper Respiratory Infection
AURTI	Acute Upper Respiratory Tract Infection
AWD	Acute Watery Diarrhea
BF	Blood Film
BPR	Business Processing Re-engineering
BSC	Balanced Score Card
BSc	Bachelor of Science
CAR	Contraceptive Acceptance Rate
CBN	Community Based Nutrition
CDC	Center for Disease Control and prevention
CDCs	Communicable Disease Controls
CFC	Case Fatality Rate
CHD	Community Health Day
CMAM	Community Management Acute Malnutrition
CPR	Contraceptive Prevalence Rate
EC	Ethiopian Calendar
EDRMFSS	Ethiopia Disaster Risk Management and Food Security Sector
EFETP	Ethiopian Field Epidemiology Training program
EFY	Ethiopian Fiscal Year
EHNRI	Ethiopian Health and Nutrition Research Institute
EOS	Enhanced Outreach Strategy

EPHA	Ethiopian Public Health Association
EPRP	Epidemics Preparedness and Response Plan
ETB	Ethiopia Birr
FbP	Food by Prescription
FMoH	Federal Ministry of Health
FP	Family Planning
FY	Fiscal Year
GC	Gregorian Calendar
GP	General Practitioner
GPEI	Global polio Eradication programme
HC	Health Center
HDA	Health Development Army
HEW	Health Extension Worker
HH	House Hold
HIT	Health Information Technician
HMIS	Health Management Information System
HP	Health Post
HO	Health Office
HSDP	Health Sector Development Plan
HWs	Health Workers
IgM	Immunoglobulin M
IMNCI	Integrated Management of Neonatal and childhood Illness
IT	Information Technician
IRS	Indoor Residual Spraying
ISS	Integrated Supportive Supervision
ITN	Insecticide Treated Nets
JICA	Japan International Corporation Agency
KG	Kinder Garden
KM	Kilo Meters
LLIN	Long Lasting Insecticidal Nets
LP	Lumber Puncture

MaTra	Malaria and Trachoma
MAM	Moderate Acute Malnutrition
MCH	Mother and Child Health
MCV	Measles-Containing Vaccine
MDG	Millennium Development Goals
MIS	Malaria Indicator Survey
MoH	Ministry of Health
NGO	Non Governmental Organization
NID	National Immunization Day
NSP	National Strategic Plan
NVP	Nevirapine
OPD	Outpatient Department
OR	Odds Ratio
OTP	Outpatient Therapeutics Program
PAB	Protected At Birth
PBUH	Peace Be Up on Him
PEI	Polio eradication initiative
PF	Plasmodium Falcipaurm
PHEM	Public Health Emergency Management
PMTCT	Preventing Mather to Child Transmission
PICT	Provider Initiated Counseling and Testing
PLW	Pregnant and Lactating Women
PNC	Post Natal Care
PSNP	Productive Safety Net Program
PV	Plasmodium Vivax
RDT	Rapid Diagnostic Test
RH	Reproductive Health
RL	Ringer Lactate
RRT	Rapid Response Team
SC	Stabilization Center
SAM	Sever Acute Malnutrition

SIA	Supplementary Immunization Activity
SNID	Sub National Immunization days
SPH	School Of Public Health
TB	Tuberculosis
TBA	Traditional Birth Attendants
TCC	The Carter Center
TFP	Therapeutic Feeding Program
TSF	Targeted Supplementary Food
TTBA	Traditional Trained Birth Attendance
TVET	Technical Vocational Education and Training
U5	Under 5
Unicef	United Nation Children's Fund
UTI	Urinary Tract Infection
VCT	Voluntary Counseling and Testing
VitA	Vitamin A
WBHP	Woreda Based Health Sector Plan
WHO	World Health Organization
ZHD	Zonal Health Department

Executive Summary

Ethiopia Field Epidemiology Training Program (EFETP) is competency training program in field epidemiology modeled from on the mode of the United State Center for Disease Control and prevention (CDC) Epidemic Intelligence Service (EIS). The program is designed to assist Ministry of Health in building or strengthening health systems by producing public health professionals with skills and competencies developed through applied learning. FETP consists of 25% class-based learning and 75% at a field base where residents are expected to apply the principles learned in class to solve real world public health issues.

The EFETP residents spent 2 years in a field epidemiology training program focusing on investigating outbreaks, analysis and evaluation of surveillance systems, and other public health activities and residents compile a body of works consisting of their outbreak investigation reports, surveillance analyses, etc.

This compiled body of works contains many outputs which all of them were done during my residency time in the program. The body of works is categorized in to nine chapters as follows: The first chapter contains two outbreak investigations: the first outbreak investigation conducted was malaria outbreak in Kalu district, South Wollo zone, Amhara epi week from 41 to 44 weeks, 2013. The second investigated outbreak was measles in Sekela district, West Gojam zone, Amhara, 10-12-2013 until 03-01-2014. Abstracts from the two outbreak investigations submitted to EFETP coordinators to submit for 2014 EIS conference. The second chapter is surveillance data analysis of acute flaccid paralyses /AFP/ in Amhara Region, from July 2008 to June 2012. The third chapter is evaluation of malaria surveillance system in South Wollo zone of Amhara region. The fourth chapter is description of Health profile of Kombolcha district in South Wollo zone of Amhara region. The fifth and sixth chapters are development of manuscript and abstracts for scientific presentations and according to this three abstracts have been written and three of them were submitted.

The seventh output is Belg humanitarian need assessment which was conducted in selected districts of South Wollo and Oromia zone of Amhara region on June from 18-25/2013. The eighth output is an Epidemiologic Protocol/Proposal for Epidemiologic Research Project namely

Assessment of long-lasting insecticidal net utilization and associated factors in Bati woreda, Oromo Nation Zone, Amhara Region. which was also developed as one of output for accomplishment of this masters program.

The ninth chapter contains activities done in addition to the main out puts which are mentioned as follows; Malaria Training for lower level health professionals working on health facility, January 2014, Summary of integrated supportive supervision (ISS) report of South Wollo zone in Amhara Regional Health Bureau on March 2014, Supportive supervision for previous year outbreak affected areas in W/Gojjam (Quarit, Wemberma, Bure zuria and Jabitehnan districts), October 01-11/2013, Trainings, conference and other activities and participate in the preparation of weekly bulletin article in Amhara regional health bureau of PHEM core process.

Different trainings and conferences of public health have been conducted in different places at different times, to mention some of these:- malaria epidemic forecasting for lower level health professionals, Amhara regional health bureau EPI and PHEM annual review meeting in Dangilla, workshops in Hawassa on Meningitis post epidemic evaluation, the 5th AFENET conference in Addis Ababa, workshops on flooding affected areas and National PHEM review meeting in Bahirdar. I participated as a trainer and participant in those mention above and others, and included as the additional outputs.

Meanwhile, since the program's philosophy is learning by doing, numerous activities were carried out at the field base, which greatly contributes to strengthen the public health workforce capacity through training, conducting disease surveillance and emergency planning, preparedness and response activities.

Chapter I – Outbreak/Epidemic Investigations

1.1. Investigation of Malaria Outbreak- in Kalu woreda, South Wollo Zone, Amhara Regional State, October 2013

Khalid Nassir, T.H. G/Hiwot

Abstract

Background: Malaria is ranked as the leading communicable disease in Ethiopia, accounting for about 30% of the overall Disability Adjusted Life Years lost. Approximately 57.3 million (68%) of the 84.3 million population of Ethiopia live in areas at risk of malaria. On 16/10/2013 South Wollo zone, Amhara region reported case build ups of malaria from Kalu district. An investigation was conducted to verify the existence of the outbreak, to identify the risk factors for transmission of malaria and to undertake appropriate prevention and control interventions.

Method: The previous year's number of patients in that week multiplied by two is taken as a threshold and compared with current data (2013). We conducted a case control study case: control ratio 1:2.. Cases were defined as febrile cases confirmed by microscopy or RDT for plasmodium parasites. Controls were with no fever in recent months matched by age group, gender and living place. Case and controls were interviewed using structured questionnaire. School children assessed about utilization of bed nets. Environmental assessments were conducted and information on potential mosquitoes breeding sites was collected.

Result: A total of 308 cases were identified and the alert threshold crossed in October or 41 to 44 weeks. 60 cases and 120 controls were included for data analysis. 57% and 67% among cases and controls respectively have bed nets and utilize it. 80% of cases and 54% controls live close to gutter to collect rainwater. Bed net utilization (OR:0.6, 95% CI:0.3-1.2) was not significantly associated with illness. However, living close to gutter to collect rainwater(OR: 3.4, 95% CI: 1.6-7.0) was found to be significantly associated with malaria infection. 1800-2000 estimated gutters to collect rain water and mosquito larvae were found.

Conclusion: An outbreak of malaria occurred in Kalu district. So, Larvicide control measures should be applied.

Keywords: malaria, Amhara, case control, gutter to collect rainwater

Word count:295

Introduction

Over the last decade, the world has made major progress in the fight against malaria. Since 2000, malaria mortality rates have fallen by more than 25%, and 50 of the 99 countries with ongoing transmission are now on track to meet the 2015 World Health Assembly target of reducing incidence rates by more than 75%. A major scale-up of vector control interventions, together with increased access to diagnostic testing and quality-assured treatment, has been key to this progress.¹

But we are not there yet. Malaria still kills an estimated 660 000 people worldwide, mainly children under five years of age in sub-Saharan Africa. Every year, more than 200 million cases occur; most of these cases are never tested or registered. A recent plateauing of international funding has slowed down progress, and emerging drug and insecticide resistance threaten to reverse recent gains.¹

Malaria is ranked as the leading communicable disease in Ethiopia, accounting for about 30% of the overall Disability Adjusted Life Years lost. Approximately 57.3 million (68%) of the 84.3 million population of Ethiopia live in areas at risk of malaria. According to the FMOH, malaria was the leading cause of outpatient visits and health facility admissions in 2009/2010, accounting for 14% of reported outpatient visits and nearly 9% of admissions. Malaria also was among the ten leading causes of inpatient deaths among children less than five years of age. Because of a weak malaria disease surveillance system and the inability of the Health Management Information System (HMIS) to capture all necessary malaria related indicators, official estimates of the true burden of malaria in Ethiopia are imprecise².

Ethiopia is among the few countries with unstable malaria transmission. Consequently, malaria epidemics are serious public health emergencies. While malaria is mostly an endemic disease, it may also occur as outbreaks, for example in areas with low seasonal transmission³.

Ethiopia is also one of the most malaria epidemic-prone countries in Africa. Rates of morbidity and mortality increase dramatically (i.e. 3-5 fold) during epidemics. Since 2005, Ethiopia has scaled-up one of the largest and most ambitious malaria control programs in Africa, designed to support the country's Health Sector Development Plan (HSDP), the national strategic plan (NSP)

and the national child survival strategy, in order to reduce under-five mortality rates by two thirds by 2015⁴.

Possible precipitating factors of Malaria epidemics are :- abnormal weather conditions / rain fall, increase of vector capacity, deterioration of vector control operations, immigration of non-endemic into an endemic area, resistance to anti malaria drugs and constructions / dams, mining/.⁴

The main vector control activities implemented in Ethiopia include IRS, LLINs and mosquito larval source reduction. (MoH, January 2012) The challenge now is maintaining the existing high LLIN coverage and increasing utilization rates. Further, targeting IRS based on a epidemiologically sound, affordable and sustainable approach continues to be a challenge.⁴

While Ethiopia aims to achieve malaria elimination in selected geographical areas with historically low malaria transmission by 2015, outbreaks occurred in some areas of the country. One of the affected Ethiopia's region is Amhara. South Wollo zone reported malaria case build up from Kalu district on 16/10/2013 G.C. Based on the report from South Wollo zonal health department investigation was conducted in the affected kebele special name 'Jerjero' or 023 kebele. The woreda has a total population of 211,371 of whom (106,889 are male and 104,482 female) and 25,745 and 185,626 accounts for under 5 and above 5 age group respectively .with a population density of 218.64 square km. The affected kebele (i.e Jerjero or 023) takes 5257 population. The majority of the inhabitants were Muslim, with 96.76% of the population having reported they practiced that belief, while 3.14% of the population said they professed Ethiopian Orthodox Christianity. The altitude of this woreda ranges from 800 meters above sea level in the lowlands bordering the Oromia Zone to 1,750 meters at the foot of the mountains north of Kombolcha; the climate of Kalu varies from dry sub-humid to semi-arid. Important rivers include the Cheleleka and Borkana.

Objective

General objective:

- To investigate, describe and identify risk factors associated with malaria out-break in Kalu district.

Specific objectives:

1. To verify the existence of the outbreak
2. To describe the magnitude and distribution of the outbreak by place, person and time in Kalu woreda
3. To conduct environmental assessment
4. To identify the risk factor and propose control measures for the outbreak in Kalu woreda

Materials and Methods

Study design: Both descriptive and analytical matched case-control study design was used.

1. Descriptive epidemiology

A case of malaria was defined as an acute febrile illness with a peripheral blood smear positive for malaria parasite or a positive rapid antigen test in a resident of Jerjero kebele, Kalu district on October, 2013. Weekly malaria surveillance reports were reviewed for 2012 and the 2013 data was compared with the threshold which is determined by doubling the previous year weekly malaria data to determine whether the epidemic threshold had been crossed. Weekly Surveillance reports and facility patient registration book were reviewed. House to house active case search was conducted to address all febrile cases. An epidemic curve was constructed. Community leaders, patients and health workers were interviewed to collect qualitative information.

2. Analytical epidemiology

A 1:2 case-control study was conducted to identify the risk factors. Cases were selected based on the case definition mentioned above and those peoples with no fever for the recent months were selected as controls and matched by age group, gender and living place. A structured questionnaire was used to collect information about selected practices, including indoor residual spraying (IRS), utilization of insecticide treated nets and suspected risk factors near to their house like :- Water resource development programs, artificial water holding containers(i.e. gutter to collect rain water) and stagnant waters. Bivariate analyses were conducted and association

between the risk factor and exposure outcome were measured and tested using OR and confidence interval. Data entered and analyzed using Epi-info version 7.

3. Laboratory methods

Laboratory technologists and technicians use microscope to detect malaria parasites and Health Extension Workers confirm malaria species using Rapid Diagnostic Test.

4. Environmental assessment

Potential mosquitoes breeding sites were assessed and observed for larval density.

Results

1. Descriptive epidemiology

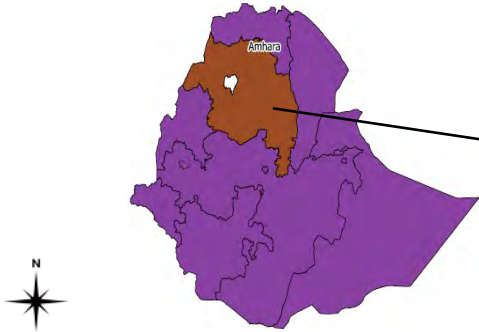
Kalu woreda, Jerjero kebele reported 308 cases of malaria (Attack rate: 5.86%) and there was no death during the epidemic time. The alert threshold(i.e. 2012 doubled weekly data) had been crossed in week 41 to week 44, October 2013 in Jerjero kebele. The proportion of slides that were positive (slide positivity rate in Jerjero kebele) 42.8%. On that basis, the event was determined to be an outbreak and not a seasonal increase in the number of cases.

The baseline incidence rate for malaria prior to the outbreak was 12/1000 population to 25/1000 starting week 41. The peak of the outbreak was first week and decreased to 10/1000 population in the last week of the outbreak.

There were population immigration for the area. Some peoples came back from work specially from Afar region salt production area. As the community member described their were high number of malaria affected patients in that work area. Specially servants from highlands. The specific site were not targeted for Indoor residual spray. Due to the district health office follow the previous study for indoor residual targeted kebeles.

Outbreak affected kebele_Kalu,South Wollo,Amhara, Ethiopia 2013

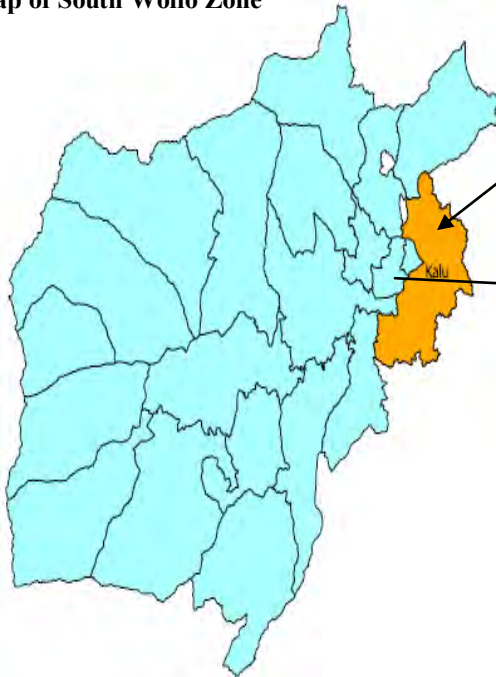
Map of Ethiopia



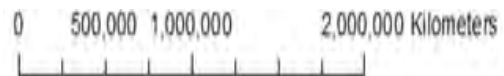
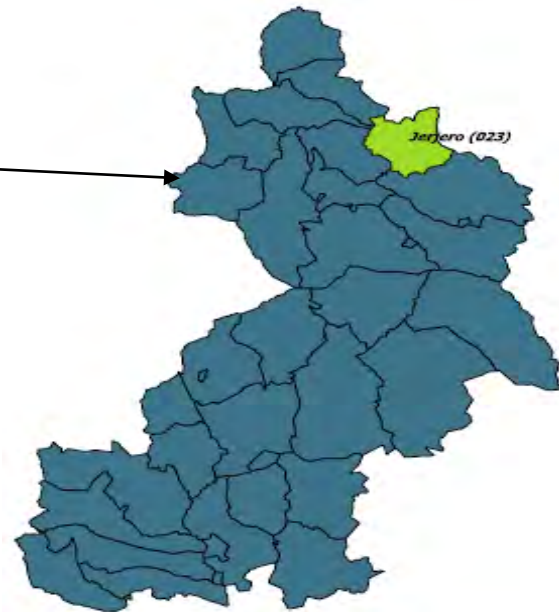
Map of Amhara



Map of South Wollo Zone



Map of Affected kebele in Kalu Woreda



Maps 1 Malaria outbreak kebele in Kalu,2013

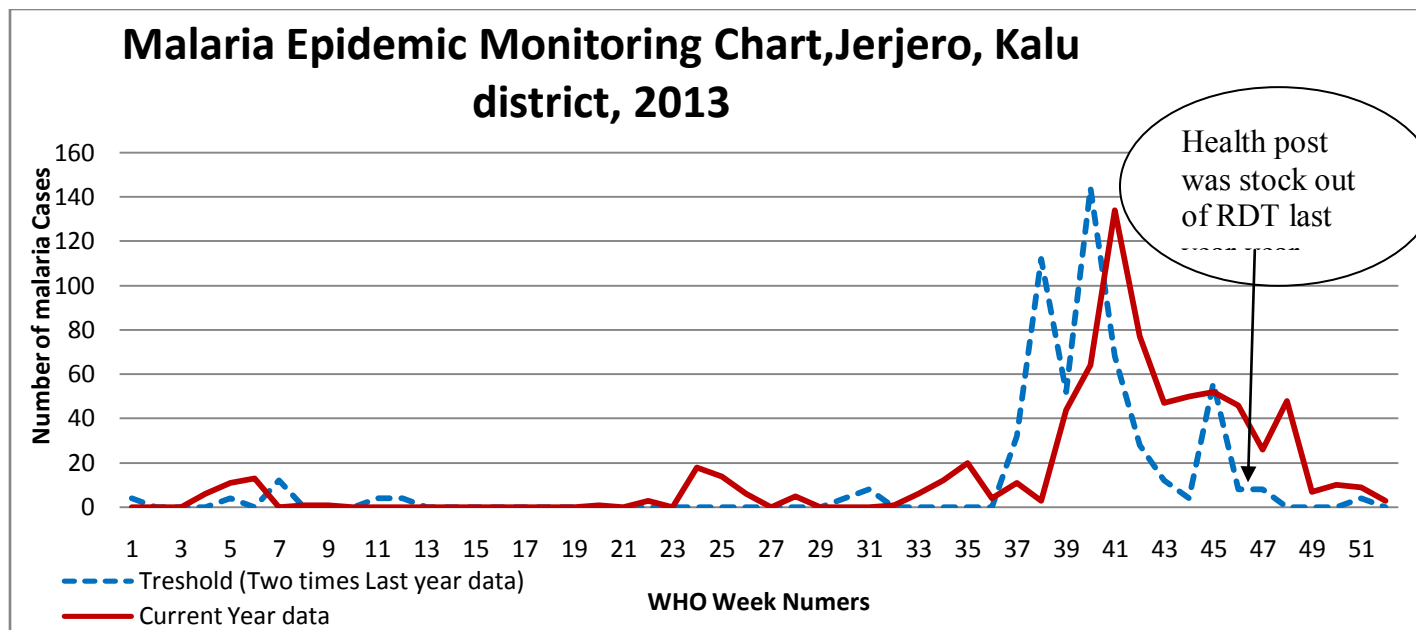


Figure 1 Malaria cases by weeks in Jerjero, Kalu 2013

Table 1 Malaria cases and deaths by age and sex, Jerjero, Kalu, South Wollo, Amhara region, Ethiopia, from 41 to 44 week 2013

Characteristics		Population	Cases	Deaths	Case Fatality Ratio(CFR)	Attack Rate (AR%)
Age	<5	640	27	0	0	4.22
	>5	4617	281	0	0	6.09
Sex	Male	2,658	194	0	0	7.30
	Female	2,599	114	0	0	4.39
Total		5257	308	0	0	5.86

2. Analytical epidemiology

Sixty newly diagnosed malaria cases were randomly selected and 120 controls matched by gender, age group and place of residence. The median age for cases and controls were 31 and 30 respectively. Using bivariate analysis, 57% and 67% among cases and controls respectively have bed nets and utilize but has no valid associated with malaria Odds Ratio (OR): 0.65, 95% confidence interval: 0.34-1.34. 80% of cases and 54% controls live close to gutter to collect rainwater and highly associated with malaria cases (OR: 3.38, 95% confidence interval: 1.63-7.00).

3. Laboratory

Between week 41 and week 44 2013 a total of 719 malaria blood tests done by Microscopy and Rapid Diagnostic Test (RDT) and 308 of them resulted positive for malaria species of which 103 (33%) were *P. falciparum* while the remaining 205 (67%) were *P. vivax*.

4. Environmental assessment

Artificial water holding containers(i.e. gutter to collect rain water) estimated number is 1,800 to 2,000 and it has 8x8=64m². Larvae of anopheline mosquito were found inside the artificial water holding containers and collected to show to decision makers and to educate health extension workers as well as other health professionals working at health center, trainees (i.e. larvicide chemical sprayer) and woreda health office.

Intervention

Health professionals assigned for those affected areas and gave house to house treatment and listed all cases. By prioritizing the affected 'gots' using health post data more than 1700 ITN distributed. School children were assessed about bed net utilization using the carter center(MalTra project) bed net assessment utilization tool/form. Jerjero elementary school serves more than 400 students including other neighboring kebeles. Among those students from households (HHs) with at least one net were 218(54%). Among those who have at least one net, students who slept under net in the previous night were only 176(44%). Larvae from gutter of collected rain water were kept in bottle and showed for administrative, health professionals, trainers and community members. Training was given for 18 persons selected by administration

how to conduct larvicide chemical (Temphos) for affected 'gots' and 40 Liter Temphos was given for kebele. Health education was given about the cause, transmission and prevention of the disease using government structure, schools, mosques and churches.

Discussion

Major epidemics of malaria have occurred at approximately 5-8 year intervals, though recently there has been a trend towards smaller-scale, more frequent, sporadic epidemics and seasonal case build ups.⁴ Malaria is mainly seasonal with unstable transmission in the highland fringe areas and of relatively longer transmission duration in lowland areas, river basins and valleys⁵ During the investigation season tried to identify the history of outbreak in kebele but there was no recent outbreak in the local village and in Jerjero kebele.

Malaria epidemics can occur as a result of variability or changes in the rate of infection and population immunity. Generally epidemics occur in places where there is low and unstable malaria transmission, and where people have low or no immunity.⁴ There was a number of residents back from Afar salt production area and there were infected by malaria.

An epidemic starts when the number of cases in a given week is higher than the threshold number (either the third quartile or double the number in previous year).⁴ The number of malaria confirmed current data compared with the threshold. It was crossed from 41 to 44 weeks. An increase above the weekly threshold were observed, it implies that there were an epidemic.

The outbreak investigation led to suspect that a number of factors operated such as ;- stagnant water bodies where the vector bred, low implementation of personal protection like use of ITN's specially using school children's. In addition, weak case detection delayed the response. During this outbreak, identification of risk factors was challenging. Near to two thousand gutter to collect rain water were Identified in square meters the size of the breeding sites which were positive for anopheline larvae and were being used by humans and animals. The national strategic plan (NSP) 2011-2015 has the targets scale up indoor residual spraying (IRS) coverage to 90% of the targeted areas by 2013 and maintain this coverage until 2015.⁴ Due to the district health follow the previous study/trend the kebele is not targeted for spraying.

The results of the case-control study suggest that location of house relative to breeding sites (i.e. gutter to collect rain water) is a more important risk factor for malaria. A similar analytic approach in Sri Lanka and Bengal India indicated that people living closer to established vector breeding sites were at higher risk for malaria than those living farther away.^{5,6} The study is limited to measure which level distance from breeding site is risk for malaria cases.

Conclusion

The kebele is one of the unstable malaria transmission area and it is not targeted for indoor residual spraying. No one knows about such like malaria cases in previous time. There was a number of peoples came back from malarious area that might have brought malaria to the area. The main risk factor for the outbreak were gutter to collect rain water and it was positive for anopheline larvae.

Recommendation

The kebele needs updated study whether targeted or not for IRS. One of the cause for malaria epidemics is migration of non-immune individuals to malarious areas so special attention should be given for those returned communities from another area. Agricultural development activities like gutter to collect rain water should include appropriate health safeguard components. Since the breeding site or the water is used by human and animal so larvicide control measure (using Temphos chemical) is recommended.

Acknowledgement

I would like to express my gratitude to Kalu district health office, head of Gerba cluster HC, HEW, Kebele administrative, TCC and SouthWollo ZHD

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Annex 1 Malaria Epidemic Investigation Questionnaire**Malaria Epidemic Investigation Questionnaire****I. Zone/woreda Health Information****A. Back ground**

1. Zone:_____ Woreda:_____ Total kebeles:___ Urban_____ Rural__
2. Total population:_____ M:_____ F:_____ <5 children:_____ Pregnant _____
3. Number of HF: Hospital:_____ HC:_____ Hp:_____
4. Health services coverage :_____ (%)

B. Malaria related information

1. Total number of malarias kebeles: _____ Total pop at risk:_____
2. Woreda ITNs coverage : _____ (%)
3. Was there recent Deltametrine spray: 1/ Yes 2/ No
4. If yes, total number of kebeles sprayed:_____
5. Total number of household spray _____
6. Was there malaria epidemic in the last 2 years: 1/ Yes 2/ No
If yes, when (year & month)_____ No. of cases _____ & Deaths _____
7. Did you sent the report to higher level zone/woreda? 1/Yes 2/No
8. This report is in response to a registered epidemic alert A/ yes B/no
(specify source and date of alert)
9. This report is a new epidemic alert 1/ yes 2/No
10. Case numbers have crossed the previously defined epidemic threshold 1/ Yes 2/ No
11. There is no threshold value, but case numbers are very much higher than at the same time last year 1/yes 2/No
12. If yes, by how many times?
8. There is no threshold value, but case numbers have risen very rapidly in the past few (2–4) weeks 1/ Yes 2/ No
9. There is a high case-fatality rate from malaria 1/ Yes 2/ No

- 10. There is a rising slide positivity rate in adults with symptoms of malaria 1/ Yes 2/ No
- 11. There has been an unusually high consumption of antimalarial drugs in the past 2 weeks
1/ Yes 2/ No
- 12. Trigger factors have been identified 1/ Yes 2/ No
- 13. If yes, list main trigger factors -----,-----,&-----
- 14. Human resources are adequate to deal with the outbreak 1/ Yes 2/ No
- 15. Do you have enough supplies stocks of anti-malaria drugs 1/ Yes 2/ No
- 16. The laboratory service is overloaded 1/ Yes 2/ No
- 17. Access to some affected areas is very difficult 1/ Yes 2/ No
- 18. There is an opportunity for vector control 1/ Yes 2/ No
- 19. List last five years number of malaria cases:

Year	July				August				September				October			
	W1	W2	W3	W4	W1	W2	W3	W4	W1	W2	W3	W4	W1	W2	W3	W4
2008																
2009																
2010																
2011																
2012																

II. Health Facility information

Zone: _____ Woreda: _____ Faculty Name: _____

- 1. Total catchment population : _____ M: _____ F: _____ <5 children: _____ Pregnant-----
- 2. Total kebeles: _____ Total number of malarial kebeles: _____
- 3. Total number of OPD visits in the last 3 months: July _____ Aug _____ Sept _____
- 4. Total number of febrile OPD visits in last 3 months: July _____ Aug _____ Sept _____
- 5. Total number of OPD malaria cases in last 3 months: July _____ Aug _____ Sept _____
 - 5.1. Children <5 years: July _____ Aug _____ Sept _____
 - 5.2. Pregnant: July _____ Aug _____ Sept _____
- 6. Total number of malaria lab confirmed malaria cases in the last 3 months.

	July	Aug	Sep
--	------	-----	-----

Year	Wk1	Wk2	Wk3	Wk4	Wk1	Wk2	Wk3	Wk4	Wk1	Wk2	Wk3	Wk4
2001												
2002												
2003												
2004												
2005												

8. Total admissions in the last 3 months:

July----- Aug-----Sept -----Children <5 years----- Pregnant -----

9. Total malaria admissions in the last 3 months:

1/ in Year 2003 July__ Aug__ Sept__ Children <5 years----- Pregnant -----

2/ in year 2004:Feb__ Mar__ Apr__ Children <5 years----- Pregnant -----

10. Total number of IPD deaths in the last 3 months:

July__ Aug__ Sept__ Death in Children <5 years ____ Death in pregnant: _____

11. Total IPD malaria deaths in the last 3 months:

July__ Aug__ Sept__ Death in Children <5 years ____ Death in pregnant: _____

12. Number of doses of anti malarial dispensed in the last 3 months:

1/ In Year 2003 July__ Aug__ Sept__ 2/ In year 2004 Feb__ Mar__ Apr__

Epidemic risk

1. Is the area known to be affected by epidemics of malaria? 1/Yes 2/No
2. Is this area having high malaria transmission all year round? 1/Yes 2/No

Factors in the human

1. Has a large group of people arrived recently? 1/Yes 2/No
2. If yes: are these the people who are mainly affected by the epidemic? 1/Yes 2/No
3. Was there malaria in their place of origin? 1/Yes 2/No
4. Have they travelled through a malarial area? 1/Yes 2/No

Increased vulnerability due to other (medical) conditions

1. Other health problems affecting the community more than usual hunger or malnutrition
1/Yes 2/No
2. (Forced) migration 1/Yes 2/No

3. Others

Factors related to the vector

1. Has the weather in the past few months been: unusual for this season? 1/Yes 2/No
2. Wetter than usual for this season? 1/Yes 2/No
3. Hotter than usual for this season? 1/Yes 2/No
4. If yes: are meteorological trend data available? 1/Yes 2/No
5. Are there any major environmental changes in the district that could have increased mosquito breeding sites (e.g. a new dam, or construction work, irrigation, rice-cultivation)?
.....
6. Is a new mosquito vector present in the region? 1/Yes 2/No
7. Have mosquito vectors become resistant to insecticides? 1/Yes 2/No
8. Has there been interruption of a malaria control programme in the past few years?
1/Yes 2/No (Describe))
9. What building materials are most commonly used for :
a) Houses?
b) Shelters for displaced persons?
10. Are there any cultural or other restrictions that could make it difficult for some people?
(e.g. women or religious or ethnic groups) to access the health facility?.....

Malaria prevention – vector control

1. Are houses sprayed indoors with insecticide? 1/Yes 2/No
2. If yes, when were the houses last sprayed and what % coverage was achieved? -----
3. Do people use insecticide-treated bed nets? 1/Yes 2/No
4. If yes, is there a system of regular re-impregnation with insecticide? 1/Yes 2/No
5. What is the estimated current coverage of households/high risk groups with ITNs? -----
6. Is there reason to suspect insecticide resistance? 1/Yes 2/No
7. If yes, why?

Annex 2 Malaria Case Control Study Questionnaire

Case control study

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 Student Pastoralist farmer
6. Total family members _____
7. Ethnicity: _____
8. Religious: Orthodox, Protestant, Muslim other
9. Marital status : Married, single Widowed Divorced
10. Education status: Illiterate Primary, Secondary tertiary , non-formal
11. Case status
 - a) Case Yes
 - b) Control yes

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?

Fever: Yes No , if yes duration of fever _____ Was it constant fever?: Yes No or every other days fever? Yes No

z) Vomiting : Yes No

aa) Diarrhea : Yes No ,

bb) Anorexia: : Yes No ,

cc) Headache: Yes No

dd) sweating,: Yes No ,

ee) Chilling and shivering : Yes No ,

ff) Weakness : Yes No ,

gg) Caught: : Yes No ,

hh) back pain : Yes No ,

ii) muscle pain : Yes No ,

jj) rigor: Yes No ,

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

Altered consciousness (e.g. confusion, sleepy, drowsy, comma) Yes No ,

- ll) Not able to drink or feed Yes No,
- mm) Severe dehydration, Yes No,
- nn) Persistent fever, Yes No,
- oo) Frequent vomiting Yes No,
- pp) Convulsion or recent history of convulsion Yes No,
- qq) Unable to sit or stand up Yes No,
- rr) pallor (Anemia) Yes No,
- ss) No urine output in the last 24 hours Yes No,
- tt) Bleeding Yes No,
- uu) Jaundice (yellowish coloration) Yes No,
- vv) Difficult breathing Yes No,

Other conditions that cannot be managed at this level _____

15. Did you visit health facilities? Yes No, if yes, when did you visit health facilities? DD/MM/YY _____

16. Did you get any treatment 1. Yes No, If yes, what treatment did you get?

- (a) Coartem Yes No, was it for PF Yes No,
- (b) Chloroquine? Yes No, was it for PV Yes No,
- (c) Quinine tablets Yes No, was it for pregnant and <5 Kg? Yes No,
- (d) Quinine injection Yes No, was it for sever malaria Yes No,
- (e) Other treatment given _____

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

18. Place of residence during 2 weeks before onset of illness; _____

19. Blood samples taken: Yes- No

20. If yes Q18, what was the result : Positive negative

III. Risk Factors:

*(For both cases and controls)

21. Specific living areas _____

22. Sleeping areas in side home _____ outside home _____

23. Do you stay outside over night? Yes- No

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

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

26. If yes Q 24, indicate

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

(b) the place of travel

(c) date when you returned back DDMMYY_____

27. If Q 24 is yes, were there sick patients (same symptoms) in the place where you have been Yes- No

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

29. Do you have bed net in your household Yes- No, If is yes, how often do you use Always Sometimes Never

30. Do mothers and children given priority of using bed nets? Yes- No

31. If yes Q 28 the number of bed nets _____

32. Was deltamethrine sprayed this year? Yes- No

33. If yes Q31 when? _____

34. If yesQ31 how many? Once twice

IV. Environmental investigation

35. Place of stay during night? _____

36. Is there any artificial water -holding containers close to your home? such as :
k. old tires: Yes- No,

l. Plant in the containers /flower -pots Yes- No,

m. plant with temporary water pools Yes- No,

n. Open deep well: Yes- No,

o. Broken glass bottles Yes- No ,

p. Cans Yes- No,

q. Plastic container Yes- No,

r. Gutter to collect rainwater: Yes- No,

s. Uncovered water storage/ septic tank Yes- No,

t. Stagnant water Yes- No,

37. Presence of mosquito vectors/ mosquitoes breeding sites around the home or vicinity? Yes- No,

38. If Q36 yes, presence of larvae in breeding sites Yes- No,

39. Types of house screened Yes- No , unscreened Yes- No ,

40. Do you use repellents Yes- No,

41. Protective clothing Yes- No,

42. Waste collection: Yes- No,

43. Unprotected irrigation Yes- No,

44. Presence of Intermittent rivers cloths to the community Yes- No,

Presence of tick grass Yes- No,

V. Awareness assessment

46. Do know malaria? Sign and symptoms -----

----- How it transmitted?-----

47. How it can be prevented?-----

1.2 Investigation of Measles Outbreak in Sekela Woreda, W/Gojjam Zone, Amhara Region, 2014

Khalid N. Qassim, T.H. G/Hiwot

Abstract

Author: Khalid N. Qassim

Co- authors: T.H. G/Hiwot

Name of FETP: Ethiopia FETP

FETP Graduation: 2013

Title: Investigation of Measles outbreak in Sekela Districts, West Gojjam zone, Amhara Regional State, Ethiopia, 2014

Abstract text:

Background: Measles remains a common disease and major contributor to child-mortality worldwide and kills approximately 1-3 of every 1000 infected individuals. An estimated 10 million cases and 164,000 deaths from measles occur worldwide each year. On 03/12/2013 West Gojjam zone, Amhara region reported suspected measles cases from Sekela district. As part of it West Gojjam zone has been reporting remarkable measles cases started 27-11-2013. An investigation was conducted to identify the cause of the outbreak and to undertake appropriate prevention and control interventions

Method: Active patients are searched house to house and interviewed. Registration books are assessed and suspected-measles cases are listed starting from 27-11-2013 in sekela district. Cases were defined as any person with fever and maculopapular (non-vesicular) generalized rash and cough, coryza or conjunctivitis (red eyes) or a suspected case with laboratory confirmation (positive IgM antibody) or epidemiologically linked to confirmed cases in an outbreak. Immunization coverage and vaccine cold-chain are assessed. Specimens are collected and tested. Descriptive analysis was conducted.

Result: A total of 221 suspected-measles cases (Attack Rate (AR): 0.14%) with 6 deaths (Case Fatality Rate (CFR): 2.8%) are identified. Sex specific attack rates were 0.15% for Female and 0.18% for males. The mean age of cases are 10 and the most affected age group is among 10-14 (AR=0.31%). The vaccination status is unknown for 78.8 % of cases. The average vaccination coverage was 93%. Five refrigerators used for vaccine storage and three of them are functional

but most of the time more than 8°C registered. Five specimens were collected and all are positive for measles IgM.

Conclusion: Most the cases vaccination status was unknown. So mass vaccination campaign from 6 months -14 years of age groups should be conducted to stop the transmission.

Keywords: Measles, Amhara, Cold chain, Vaccination, Outbreak

Word count:283

Introduction

Measles is an acute, highly contagious viral disease caused by measles virus. This highly contagious virus is transmitted primarily by respiratory droplets or airborne spray to mucous membranes in the upper respiratory tract or the conjunctiva.¹ Common source outbreaks associated with airborne transmission of measles virus have been documented.¹

Measles is one of the communicable diseases still causing preventable mortality and morbidity in the country.¹ Measles epidemic (hazard) in a community - The potential impact (and risk) will depend on vulnerability based on the immunization level, nutrition status etc²

The incubation period of measles ranges between 7 and 18 days and patients are infectious from about 4 days before developing the rash until 4 days after rash. The illness is presented by high fever, generalized rash, and cough, coryza (runny nose) or conjunctivitis (red eyes). Complications of measles include viral and bacterial pneumonias and severe diarrhoea. The disease can also lead to lifelong disabilities including brain damage, blindness and deafness. Measles kills more children than any other vaccine-preventable disease. An effective vaccine has been available since the 1960s, and all countries offer measles-containing vaccine (MCV) in their immunization programs.³

It remains one of the leading causes of death among young children globally, despite the availability of a safe and effective vaccine. Approximately 158 000 people died from measles in 2011 – mostly children under the age of five.³ Accelerated immunization activities have had a major impact on reducing measles deaths. Since 2000, more than one billion children in high risk countries were vaccinated against the disease through mass vaccination campaigns — about 225 million of them in 2011. Global measles deaths have decreased by 71% from an estimated 548 000 to 158 000.⁽³⁾ In 2012, there were 122 000 measles deaths globally – about 330 deaths every day or 14 deaths every hour.⁴

Transmission is primarily person-to-person via droplet spread; direct contact with nasal or throat secretions of infected persons and less commonly by articles freshly soiled with nose and throat secretions. Human beings are the only reservoir of the measles virus.⁴

Measles outbreaks can result in epidemics that cause many deaths, especially among young, malnourished children. In countries where measles has been largely eliminated, cases imported from other countries remain an important source of infection.³

Measles is highly transmissible; almost all non-immune children contract measles if exposed to infection. Poorly nourished children and those whose immune systems have been weakened by HIV/AIDS or other diseases are severely at high risk of developing measles complication and death.³

Measles occurs worldwide and it is still a significant cause of childhood morbidity and mortality despite the existence of effective vaccine. Measles infection has its greatest incidence in children below 2 years of age in the developing countries.³

Measles remains a common disease and major contributor to child-mortality worldwide and kills approximately 1-3 of every 1000 infected individuals, even in developed countries. An estimated 10 million cases and 164,000 deaths from measles occur worldwide each year.¹

The disease is a serious problem with a high mortality (10%) with malnutrition being an important factor. In temperate zone most cases of measles occur during winter and early spring. The incidence of measles increases during dry seasons in tropical zones.⁴

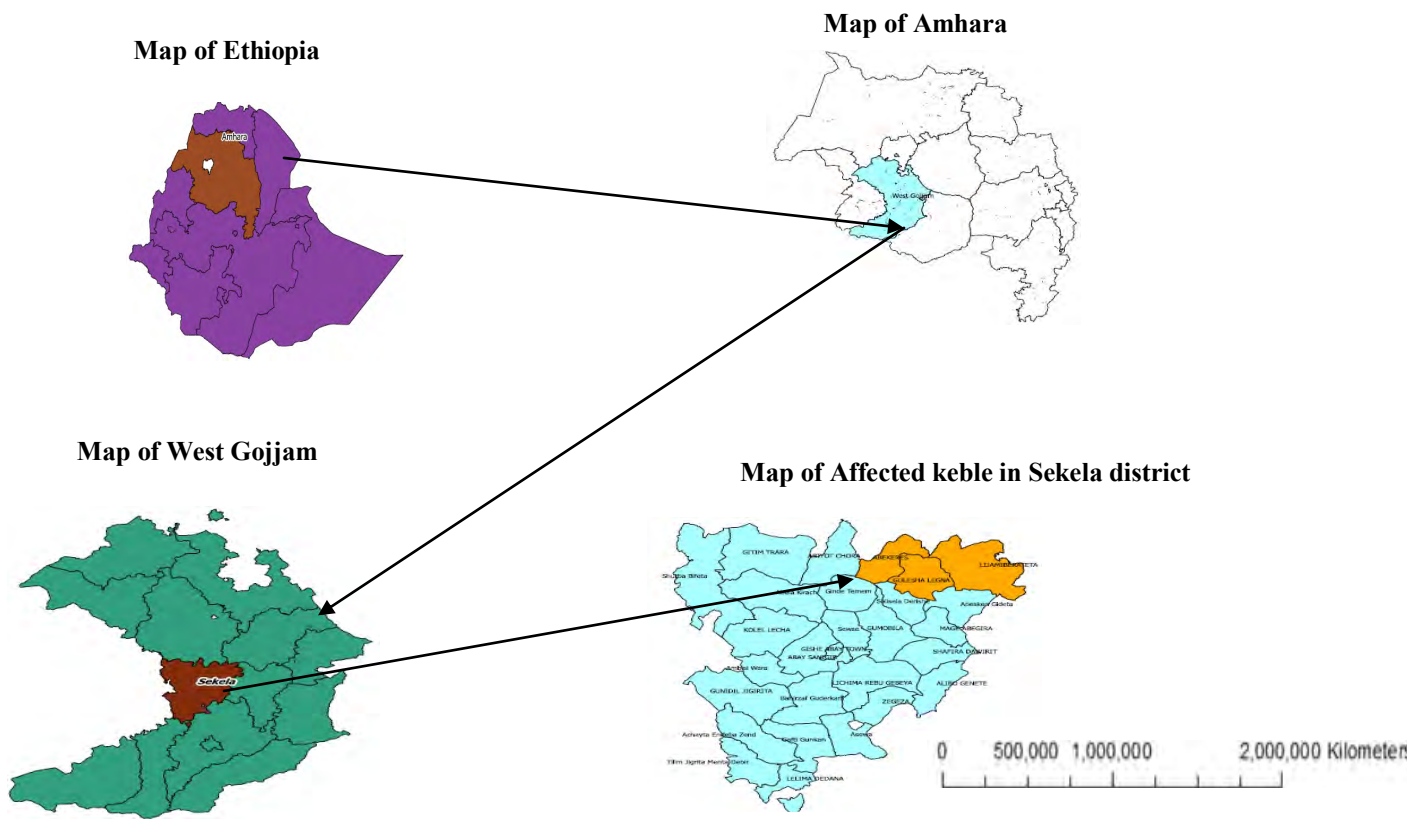
In Ethiopia, measles is among the most common cause for morbidity and mortality in children. However, routine measles immunization coverage has increased from 29% in 1994 to 59.7% in 1999. This is still relatively very low. Due to this low coverage rate and prevailing poor living conditions, measles outbreaks frequently occur in different parts of the country. Major outbreaks with large attack rates resulting in as high as 15 – 20% case fatality rates have been reported in this country. Measles related case fatality rates range between 3-5% in non-epidemic circumstances⁵

In 03/12/2013, Amhara region, West Gojjam zone been reported suspected measles cases from Sekela district. As part of it w/Gojjam zone has been reporting remarkable measles cases starting December 27-11-2013. The case reports were also from school teachers. The cases gradually increases and spread to another place in the district. Zonal health department together with district health office undertook prevention and control effort; unfortunately they could not control. Based on the report of the zonal health department a team having the objective to facilitate rapid implementation of control measures to reduce the extent of disease spread and associated morbidity and mortality and ensure that virus transmission is interrupted as soon as possible and raising community and health care professionals' awareness about measles and it's prevention.

Material and Method

Study area and population

This study was conducted in Sekela wereda which is one of the weredas in west Gojjam zone, Amhara regional state. Sekela is located at a distance of 175 kms from the regional town (Bahir dar) and 476 kms from Addis Ababa. The geographical location of the district is 100 59' 25'' North and 360 55' 25" West. The district shares boundaries with Quarit district in the West, Awi zone in the West, Mecha and Yilmanadensa district in the North and Jabitehnan & Burie zuria districts in the South. The catchment area of the district is 79317.19 hectares with a total population of 155612. The ethnic composition of the district is 100% Amhara and as for the religious composition more than 99.96% were followers of Orthodox Christian and 0.04% were followers of other religions. The district has 28 kebeles, 31 health posts and 5 health centers which are currently giving service. The physical health service coverage of the district is more than 100%. The district has history of outbreak and registered more than 500 cases before 3 years in different kebele of the district.



Maps 2 Sketch map of Sekela district

Case Definition:

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

Confirmed measles case: A suspected case with laboratory confirmation (positive IgM antibody) or epidemiologically linked to confirmed cases in an outbreak.

Measles death: defined as any death from an illness that occurs in a confirmed case or epidemiologically linked case of measles within one month of the onset of rash.

Data collection procedure:

Surveillance reports and patient registration were reviewed. Active cases were searched house to house. Line list and daily epidemic reporting formats were used. Suspected measles cases were identified from 27-11-2013 to 30-12-2014 using standard cases definition in Sekela district of W/Gojjam zone.

Immunization coverage and other health related data were collected from woreda health office. Cold chain monitoring chart assessed. Discussions were made with woreda health office and Guli Health center(which is found near to epidemics site/keble) health professionals and over all response activities were evaluated. Schools were visited to find out if students have information about measles and also school absenteeism were assessed. Line list and National measles surveillance guideline were used.

Laboratory investigation: Prior to the investigation period five blood serum samples were collected and sent to national measles and polio laboratory. Other cases were epidemiologically linked with laboratory confirmed cases.

Data analyses: Data were entered in Epi Info 7 and Excel. Descriptive analysis was done to describe the epidemic by place, person and time and clearly presented by graphs and tables.

Result

Totally 221 cases and 6 deaths (1 facility and 5 community deaths) were identified. Out of them five cases has sample taken and all of them were positive for measles IgM. Out of 221 total cases 136 (62%) were female and 85 (38%) were males. The mean age of the case was 10 with a range of 7 month to 35 years. The attack rate and case fatality rate were 0.14 and 2.7 per 100 respectively.

According to the information obtained from community, the first case was seen on 12/02/2006 E.C. which they locally call it Tikimt Michael. The 1st suspected case came from Mecha district, but there were no other cases for a month after the first case was observed, it was stopped for a month. Even though high number of school absenteeism were reported because of fear of the illness it is verified that most of absent students were not sick.

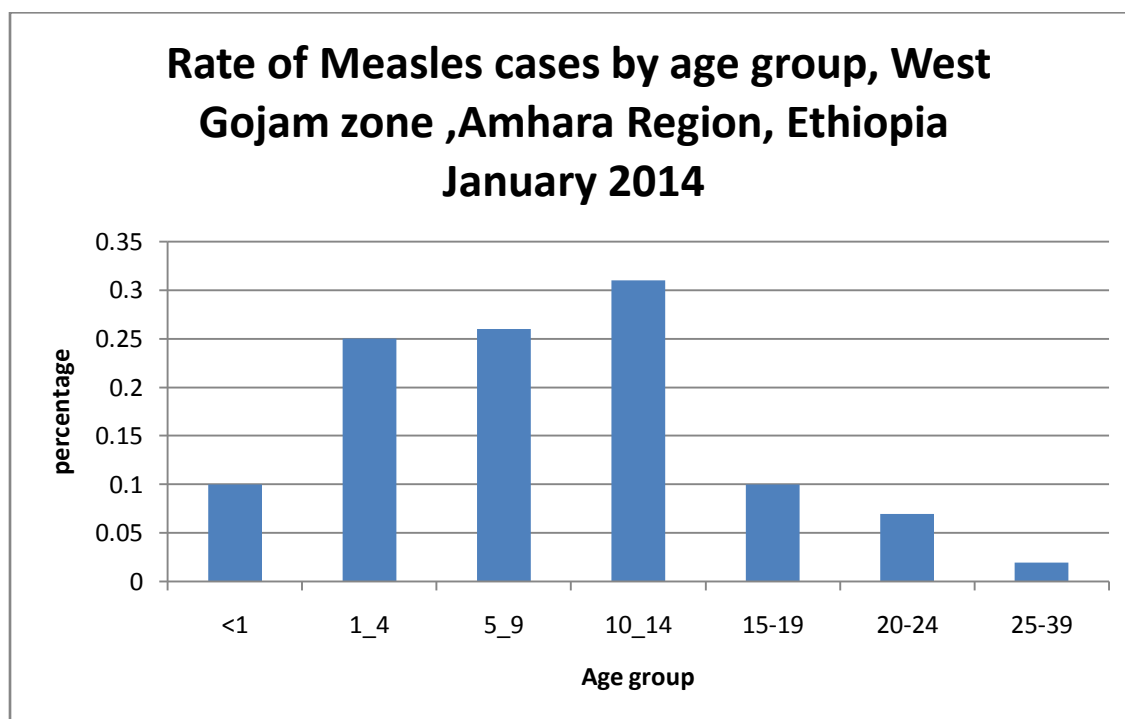


Figure 2 Rate of measles cases by age group, Sekela district 2014

Measles routine vaccination coverage of the two epidemic kebeles are 111% and 97% for 'Ateta' and 'Abekeres' respectively. The recent year district's measles routine vaccination 93%. District health office have five refrigerators used for vaccine storage and 3 of them

are functional and most of the time more than 8°C registered. Cold chain monitoring chart was not registered all the time.

When we see for the vaccination status, majority of the cases, 175(79%) were with unknown vaccination status in which the highest proportion is in the age group 15-35 years (94%). The proportion of vaccinated and unvaccinated cases is higher in under five age group as compared with the other age groups. Among the six deaths reported two were vaccinated, one not vaccinated and the rest 3 with unknown vaccination status.

Table 2 Measles Cases Distribution By Vaccination Status and Age Group -Sekela Districts, West Gojam Zone, Amhara Region from 10/12/2013 to 03/01/2014

Age(Group)	Cases(Percent) by Vaccination Status (N=221)			
	Vaccinated	unvaccinated	Not Known	Grand Total
<5	22(46)	6(13)	20(42)	48
5-14	12(9)	4(3)	125(89)	141
15-35	0(0)	2(6)	30(94)	32
Grand Total	34(15.4)	12(5.4)	175(79.2)	221

The cases were reported since 27-11-2013 from one of the district kebele named 'Ateta'. Similarly the cases were reported from another kebles of the district which are 'Abekeres' and Gulie on 10-12-2013 till 03-01-2014. Totally 180, 37 and 3 cases were reported from 'Ateta', 'Abekeres' and 'Gulie' kebeles respectively. Neighboring kebeles from another district 'Quarit' also report 1 cases.

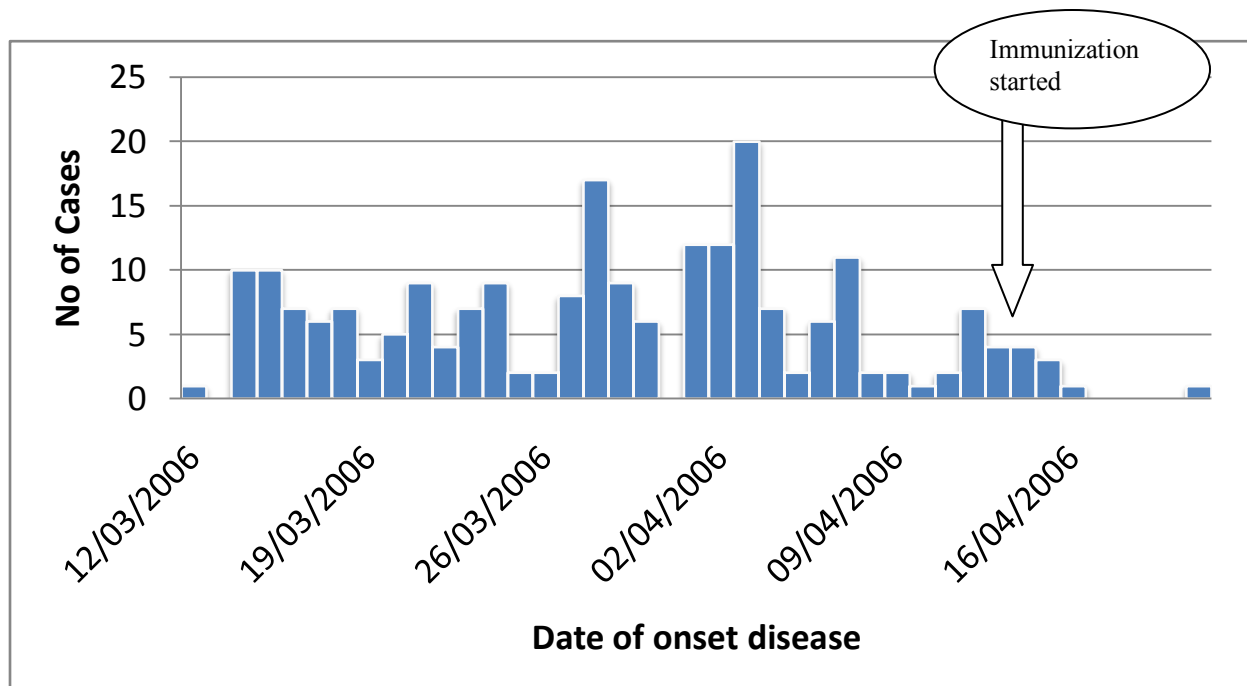


Figure 3 Distribution of Measles Cases by Date of Onset- Sekela District, West Gojjam Zone, Amhara , January 2014

As shown in the epi curve the index case was on 03/12/2006 EC but, it has fallacy with community report. Community has a report before months. Even though the peak of the outbreak were in 04/03/2006 EC there were not specially event or gathering before the day. The case trend was up and down but After starting the vaccination on 14/04/2006 EC the case declined and became zero.

The five blood samples tested at national polio and measles laboratory were all positive for measles IgM. We found all cases occurred in the districts were epidemiologically linked with laboratory confirmed cases. They shared markets, schools, churches etc. The geographical area of both confirmed and clinically suspected cases are neighboring to each other.

Discussion

Even if the district last year vaccination coverage is above 90%, periodic measles outbreaks can occur when a large number of susceptible accumulate in the community. Susceptible accumulate through time even in the setting of high routine measles vaccination coverage.¹ The district has

measles outbreak history before 3 years. So these event also contribute to minimize at risk groups.

The community has detected the measles cases came from another area before a month, but after exposure occurs it takes about 7-18 days for symptoms to start.¹ There might be under reporting cases after the 1st case happened.

The case fatality rate(CFR) of the measles is 2.7% in the district . So, it is low relative to major outbreaks with large attack rates resulting in as high as 15 – 20% case fatality rates have been reported in this country.⁵ In Ethiopia, the expected case-fatality rate is between 3% and 6%.¹ It shows there were good quality of case management.

Several factors may have contributed to the extent and magnitude of this outbreak. When there is measles outbreak the hypothesis is on the cause of the outbreak, either because of failure of vaccination or vaccine failure.¹ This investigation revealed that the recent and last year routine measles vaccination coverage of the district are above 90 % but there is no other previous year data. The 80% of cases vaccination status is unknown and 5% cases were unvaccinated. Most of affected age group was 10 up to 14 age group and the mean age of cases were 10. It might not be related with the recent measles immunization coverage. The large number of cases of measles in vaccinated children observed in developing countries have, therefore, been explained as natural vaccine failure (about 15% in children vaccinated at 9 months age), due to interference from maternal antibodies, & vaccine failure due to cold chain breaks (improper storage & transportation out of the proper range of temperature, and exposure of reconstituted vaccine to sun light.)⁵ This investigation revealed that the cold chain temperature monitoring chart registered most of the time more than 8°C and not fully registered all the time. While the recommended range of temperature is between 2⁰ C to 8⁰C at health facility level.¹ The cold chain used for vaccination storage needs to be functional and regularly monitored. Inappropriate storage may lead to reduction in the vaccine efficacy leading to significantly lowered vaccine effectiveness among the population.

Intervention

Health professionals assigned for those affected areas and gave house to house treatment and listed all cases even if they recovered. Those assigned health professionals used community

leaders to trace cases. Morning session has started to give equal awareness among health professionals about epidemic management specifically on measles case. Experts from regional health bureau, WHO officer, JICA international, zonal health department, district health offices and health facilities were deployed to the site and providing technical assistance. Health education is given for the community about the cause, transmission and prevention of the disease using government structure, schools and churches. Based on the investigation results micro-plan was developed for mass vaccination campaign. As a result, measles vaccination campaign conducted targeting for 6 month to 14 years age group for 6 kebeles and one neighboring kebele from Quarit district. Totally 7,896 children from Sekela district and 1936 children from Quarit district were addressed by vaccination campaign. Drugs like Amoxicillin, Cotrimoxazole, Ringer lactate, Paracetamol, IV canula, Measles vaccine, Mixing syringe and safety box, AD syringe and cotton supplied by the regional health bureau.

Conclusion

An outbreak of measles was confirmed in Sekela affecting primarily those 10 up to 14 age groups. Older age groups were affected by measles. This might be due to low vaccination coverage in previous years and vaccine failure due to cold chain breaks (improper storage & transportation out of the proper range of temperature, and exposure of reconstituted vaccine to sun light)

The disease progressively increasing and affecting more kebeles and spreading to neighboring districts and also a threat to kebeles of other districts.

Recommendation

Alert message should be sent to other neighboring districts. A huge number of cases were reported among children 5-14 years old so non selective mass vaccination campaign should be undertaken aims to increase population immunity by focusing upon quickly increasing measles coverage for all children regardless of vaccination status. Undertaking of routine vaccination, enhancing active case search, strengthening case management and social mobilization activities to the public at large should be continued. Cold chains used to vaccine storage should be regularly monitored.

Acknowledgement

I would like to acknowledge Sekela woreda health department for their kind assistance during outbreak investigation. I also express my gratitude to Amhara regional health bureau PHEM staffs those are helping me during the whole investigation mission. Special Thanks go to Mr. Getnet Abie Amhara field base residents supervisor , for his guidance and coordination regarding Vehicles and fuels. Finally I want to thanks EPHA for providing me per diem.

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Annex 3 Measle outbreak investigation checklist

Quationnaire

Measle outbreak investigation checklist

: date _____

Respondent Name _____

Names of investigators: _____,
 _____,

Interviewer: _____

I. Identification:

1. Name of Health facility /Wereda/zone: _____
2. Number of Epidemic sites: _____
3. List name of sites: _____
4. Total population of Epidemic site: _____ Male: _____ Female: _____
5. <1 year children: _____ 1-4 years children _____ 5-14years children _____ 15-44 years _____ 45+-----

II. About Cases:

6. On set of epidemic: _____ date/month/year.
7. When did the rumor reported from the site? _____ time/date/month/year.
8. Date of verification from district: _____ time/date/month/year.
9. Index case name:-----sex-----age-----Time of infection-----
 place----- out come-----
 9.1 Immunization status----- _
10. Updated total Number of cases: _____ M _____ F _____
11. Cases by age distribution: a. <1 year _____ M _____ F _____
 b. 1-4 year _____ M _____ F _____
 c. 5-14year _____ M _____ F _____
 D.15-44year _____ M _____ F _____
 e.45+year _____ M _____ F _____
12. Do you have line list of cases? Yes or No ;If yes have copies of it:

III. About deaths:

13. Updated total Number of deaths: _____M_____F_____

14. Facility deaths _____ Community deaths _____

15. deaths by age distribution: a. <1 year _____M_____F_____

b. 1-4 year _____M_____F_____

c. 5-14year _____M_____F_____

D.15-44year _____M_____F_____

e.45 & above year _____M_____F_____

IV. About Immunization:

16. Immunization coverage of epidemic site _____the Wereda immunization coverage: _____ Status of vaccine cold chain _____

17. Immunization status of cases: - 1 dose _____ 3 dose _____
2 dose _____ 4 dose _____ above4 dose _____

18. Immunization status of deaths: - 1 dose _____ 3 dose _____
2 dose _____ 4 dose _____ above 4 dose _____

19. Action taken: _____

20. Number of neighboring Gotis/Kebeles at risk to epidemic site: _____

V. About Laboratory Issue:

21. Is sample taken? yes or No

22. Number of sample taken? _____

23. Date of collection of blood sample: _____date/month/year.

24. Date of specimen received by the referral lab _____

25. Did result reported? Yes or No

26. If yes, is it: a. positive,

b. negative,

c. intermediate

Annex 4 Measles Supplementary Immunization(Mop up vaccination campaign) activity

Measles Supplementary Immunization(Mop up vaccination campaign) activity

Region: Amhara **Zone:** West Gojjam **Woreda:** Sekela & Quarit **Cluster HC:** Gulie and Arib Gebeya(Birrr Adama) **Date:** January,2014

S.No	Kebele	Total Population	Target children for measles 6mon - 14yrs	6- 11 months childrens receiving measles			12 - 59 months childrens receiving measles			1 - 14 years childrens receiving measles			Total children vaccinated before	Total children not vaccinated before	6months to 14 years vaccinated	6mon - 14 years coverage
				Vaccinated before	not vaccinated	Total	Vaccinated before	not vaccinated	Total	Vaccinated before	not vaccinated	Total				
1	Gulie	4314	1811	38	0	38	324	0	324	1289	21	1310	1651	21	1672	92.3%
2	Selsela	2221	932	16	12	28	253	0	253	573	44	617	842	56	898	96.4%
3	Abesken	3784	1589	9	18	27	335	0	335	1073	140	1213	1417	158	1575	99.1%
4	Abekeres	3553	1492	4	15	19	201	1	202	512	402	914	717	418	1135	76.1%
5	Lijambera	3848	1616	2	23	25	372	26	398	820	178	998	1194	227	1421	87.9%
6	Ateta	4169	1750	8	10	18	301	8	309	153	715	868	462	733	1195	68.3%
Total in Sekela Woreda		21889	9190	77	78	155	1786	35	1821	4420	1500	5920	6283	1613	7896	85.9%
Fengeta Chegodit (Quarit Woreda)		5097	2000	7	17	24	454	6	460	1384	68	1452	1845	91	1936	96.8%
Total		26986	11190	84	95	179	2240	41	2281	5804	1568	7372	8128	1704	9832	87.9%

Chapter II – Surveillance Data Analyses Report

2.1. Surveillance Data Analyses of Acute Flaccide Paralysis /AFP/ in Amhara Region, From
July 2008-June 2012
Khalid Nassir, T.H. G/Hiwot

Abstract

Background: Acute flaccid paralysis (AFP) can result from various causes and diseases including paralytic polio. So, AFP is a term given to any flaccid paralysis caused by many different diseases. The global incidence of polio increased by more than 99 percent – from 350,000 cases per year in 125 countries in 1988, to 1660 cases in 18 countries in 2008. In Ethiopia, there is no polio case report for the recent past years. The study was therefore undertaken to see the 5 year trend of AFP cases, describe the affected groups by place, person and time, and to evaluate the performance of the zones and to see some of the quality of surveillance.

Method: Amhara region Secondary data obtained from the existing WHO data base was analysed. Descriptive study method was conducted for the period from 2008-2012 using Microsoft excel.

Result: During the study period, the region detection rate is above 2 and the highest detection rate was in 2010. Bahirdar town has high performance but South Gonder has low performance. The most affected groups are less than 4 age and males. Non-polio acute flaccid paralysis rate was less than 10%.

Conclusion: The detection rate of the region is inconsistency and decline from the previous year and all the zones of the region have no equal performance and the quality of laboratory is less than expected. Since detection of acute flaccid paralysis is one of indicator for public health surveillance system the regional health bureau should support and fill the gaps of zone by supportive training and sharing experience with good performed areas.

Keywords: AFP, polio, Descriptive study, secondary data

Word count:258

Introduction

Polio is a viral infection most often recognized by the acute onset of flaccid paralysis. Acute paralysis can result from various causes and diseases including paralytic polio. A sensitive system for detecting and reporting flaccid paralysis is therefore, required to ensure that polio cases are not missed. To avoid missing any polio case, all children less than 15 years of age with acute flaccid paralysis (AFP) should be reported and their stool specimens should be tested in WHO accredited laboratory for the presence of wild poliovirus.¹ So, AFP is a term given to any flaccid paralysis caused by many different diseases. AFP can occur due to Gullian Barre' syndrome, transverse myelitis, traumatic neuritis (post injection neuritis), poliovirus, other enterovirus etc. It is not possible to differentiate between the cases of AFP that occurred after poliovirus infection or other causes based on clinical findings. Therefore, all clinicians should investigate all AFP cases with stool specimen collection following the procedure of case investigation.²

Polioviruses belong to the genus Enteroviruse in the family Picornaviridae which can cause paralysis. The poliovirus is rapidly inactivated by heat, chlorine and ultraviolet light. It occurs seasonal in temperate climate, while in tropical countries seasonality is less clearly defined; however some areas experience increase in number in the rainy season.³

Transmission is primarily person to person via the fecal-oral route. The virus multiplies in the intestines and spread through the feces. The virus is intermittently excreted for up to 2 months or more after infection. The maximum excretion occurs just before paralysis and during the first two weeks (14days) after onset of paralysis.¹

Poliovirus is found only in human beings; there is no animal reservoir & there is no long-term carrier state in immuno-competent hosts. Immunity is obtained through infection with the wild virus and/or through immunization and Infants born with antibodies for few weeks.⁴

Because of the nature of polio virus WHO target the disease to for eradication. Global Polio Eradication Initiative (GPEI) has reduced the global incidence of polio by more than 99 percent – from 350,000 cases per year in 125 countries in 1988, to 1660 cases in 18 countries in 2008. 91% of the polio cases in the world in 2008 were from just the four polio endemic countries of Nigeria (northern states), India (2 northern states), Pakistan, and southern provinces of

Afghanistan. The rest of the cases were from countries that were re-infected with poliovirus importations from either Nigeria or from India. Since the launch of GPEI in 1988, nearly five million people are today walking, who would otherwise have been paralyzed by the disease. An estimated more than 250,000 polio-related deaths have been prevented, in addition to more than 1.2 million childhood deaths averted by the systematic distribution of Vitamin A during polio supplementary immunization activities (SIAs).¹

There are four strategies for the global initiative to eradicate poliomyelitis. These are: Reaching and maintaining high routine immunization coverage (>80%) with oral polio vaccine (OPV); Conducting successful national immunization days (NIDs) and sub-national immunization days (SNIDs); Establishing surveillance for acute flaccid paralysis (AFP); and Targeted 'mopping-up' immunization in the later phase of eradication.¹

In Ethiopia 1997 AFP surveillance started, 2001 National committee for certification of polio eradication established, 1998 National Polio laboratory established, 2000-2003 AFP surveillance expanded to all parts of the country, 2001 National Expert review Committee established, 2005 Laboratory containment committee formed.¹

The initial challenges were the lack of awareness on the part of clinicians and health workers, and the lack of resources like communication facilities to allow for early case reporting. Training and sensitization sessions, initially targeting clinicians and surveillance AFP focal persons from governmental, non-governmental and private health institutions, are expanding to include traditional healers and holy water sites and influential community leaders recognizing the fact that late reporting occurs due to a high rate of visits to alternative practitioners.¹

Public health system is continually challenged by recurrent and unexpected disease outbreaks and is facing the challenge of managing health consequences of emergencies. These problems continue to disrupt the health care system.⁵

As the detection of any wild poliovirus is considered a national emergency, detailed and comprehensive documentation is required to describe the epidemiological background, findings of case investigation and surveys including laboratory results, description of immunization response and results of enhanced surveillance.⁶

Additionally, Countries are expected to document all information related to their PEI (Polio Eradication Initiatives) activities. This includes vaccination information from routine and campaigns, active case search visits, analysis and quality of surveillance information, clinical

and epidemiologic information of hot AFP cases and reports of investigations of confirmed outbreaks.³

Objective

General objectives

To assess the situation of AFP and AFP surveillance in Amhara region from 2008 to 2012.

Specific objectives

- To describe AFP by place person and time
- To assess the magnitude of AFP in the region
- To assess the quality of AFP surveillance

Methods and Materials

Study area, population and period

Amhara region is found in North western part of Ethiopia in an area of 170,000sq.km. It is situated between 9020`` to 14020`` latitude and 36020`` to 400 east longitude. And it has boundaries with Tigray in the north, Oromia in south, Afar in east, Benishangule in southwest and internationally with Sudan in northwest. The region is administratively divided in to 10 zones and 3 Town administration this further divided in to 166 weredas. The total population is estimated for 2013 to be 1,920,5590, which accounts one-fourth of the country's population. The rate of the natural increase of the population is 1.8%. Amhara region AFP surveillance data was analyzed from January 2008 to December 2012.

Source of data

Secondary data obtained from the existing WHO database was analyzed. The data base includes the variable sex, zone, woreda, Geographical area (e.g. district & province) names, date of birth, date of onset of paralysis, date of notification, date of case investigation, total polio vaccine doses received, fever at onset of paralysis, progression of paralysis within four days, asymmetric paralysis, date of 60-day follow-up exam, findings at 60-day follow-up, final classification, date of stool specimen collection, date stool specimen sent to lab, lab result.

Study Design

Descriptive study method conducted. The occurrences and distributions of AFP cases by person, place and time and some of AFP surveillance indicators presented by the using graphs.

Sample size and sampling method

All AFP cases included during 2008-2012 and reported to WHO.

Data analysis

Analysis started after official approval of the proposal. The first step was data cleaning and further analysis has done by using Microsoft Excel 2007. Finally the analyzed data was interpreted and presented to Amhara regional state health bureau PHEM core process and AAU/SPH/EFETP mentors, Supervisors and program coordinators.

Result

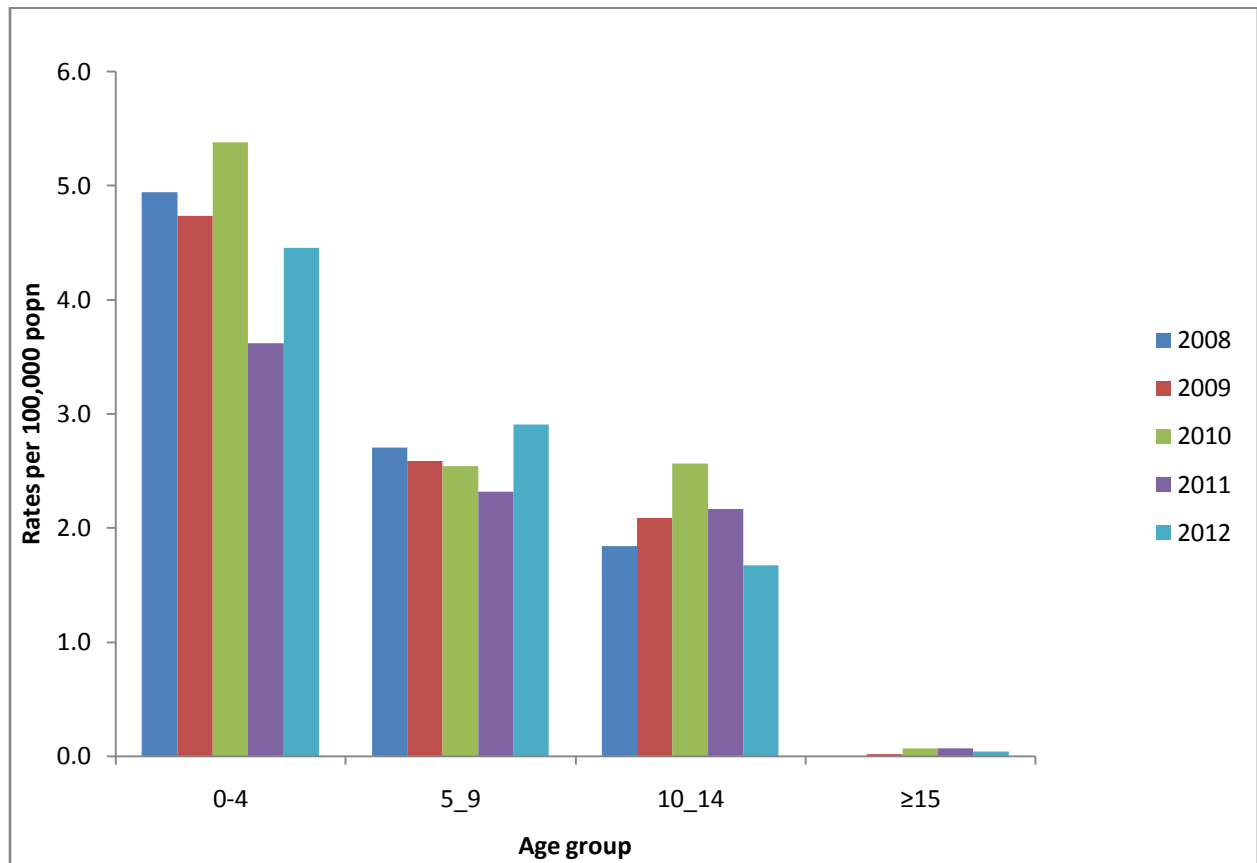


Figure 4 Detection rate Acute Flaccid Paralysis/AFP/ by Age, Amhara Region, Ethiopia from 2008–2012

As shown from the graph the most affected Age group was less than 4 years old. The number of cases decreased when come to high age group.

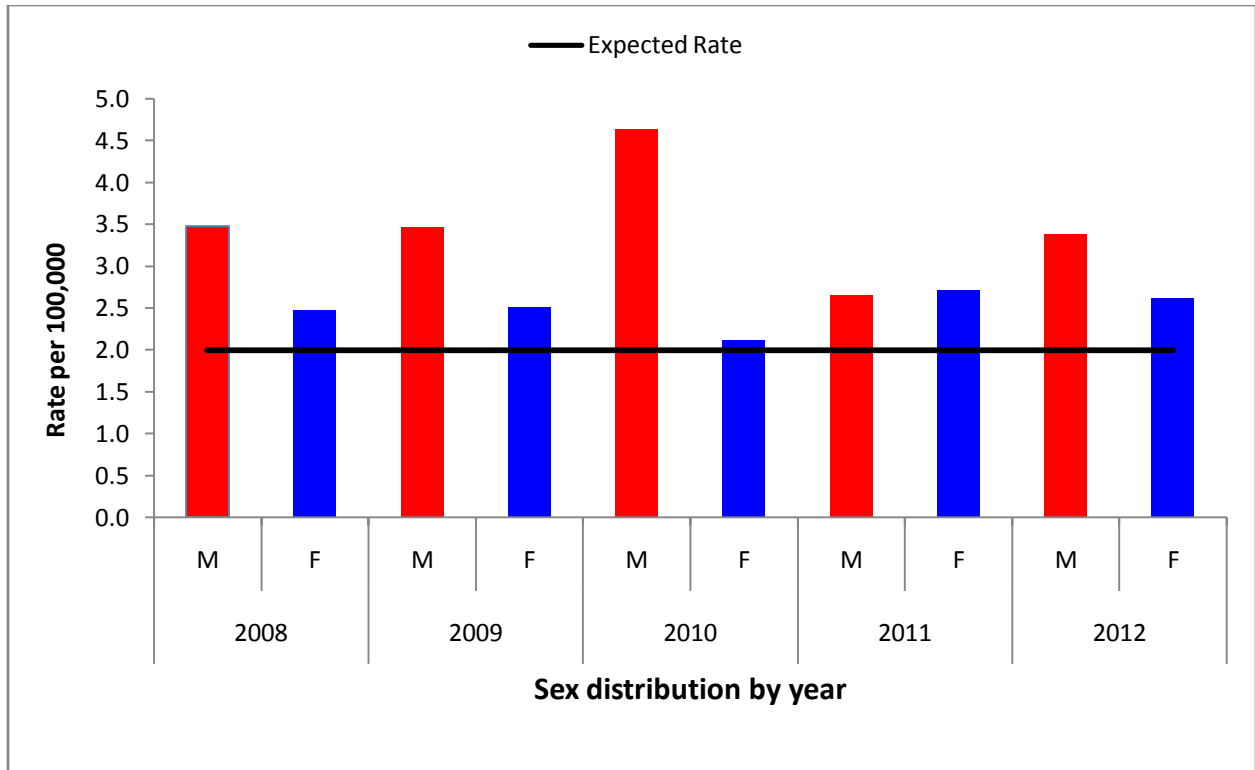


Figure 5 Detection Rate of Acute Flaccid Paralysis/AFP/ by Sex, Amhara region, Ethiopia from 2008–2012

As shown in figure 5 all over the year the most affected sex groups are males.

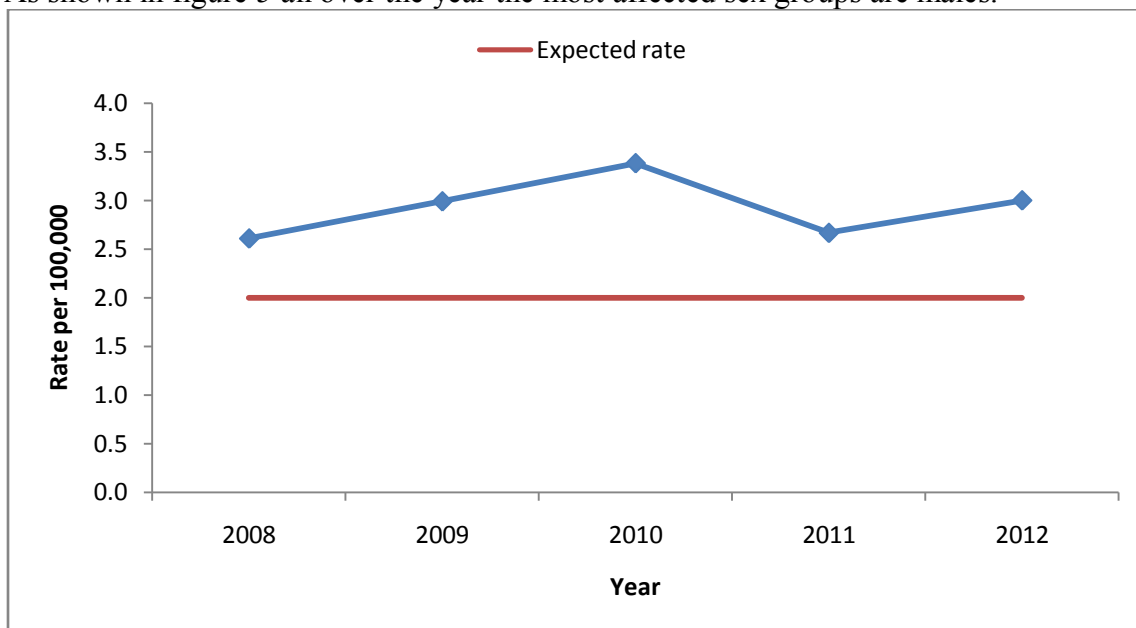


Figure 6 Acute Flaccid Paralysis/AFP/ Rate of Amhara Region, Ethiopia from 2008–2012

As shown in Figure 6 detection rate of Acute Flaccid Paralysis in Amhara region was above 2 and with the peak in 2010 (3.4 cases per 100,000).

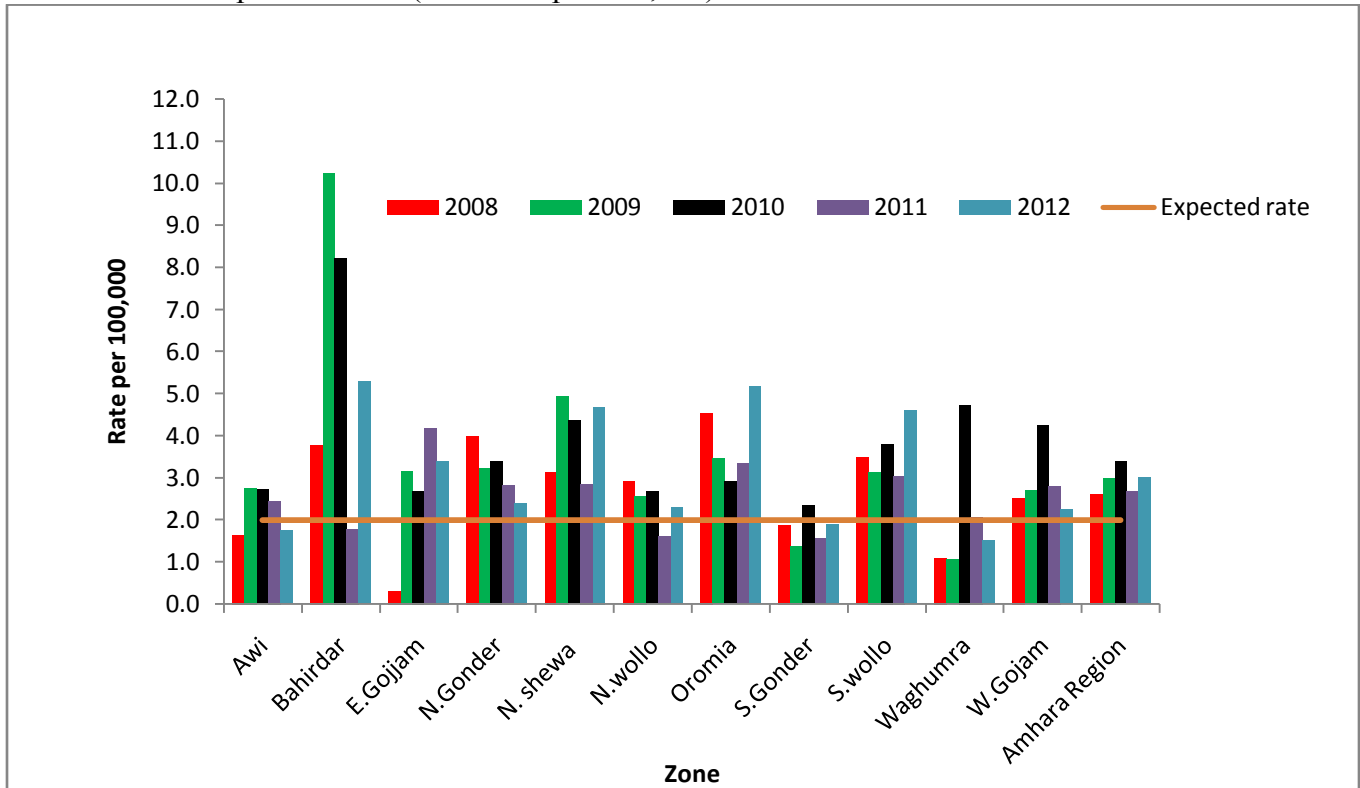


Figure 7 Acute Flaccid Paralysis/AFP/ Rate by zone, Amhara, Ethiopia from 2008–2012

As shown in figure 7 Bahirdar town has high performance and south Gonder has low performance and East gojjam shows improvement. N.gonder, w.gojam and waghumra zone performance is declined.

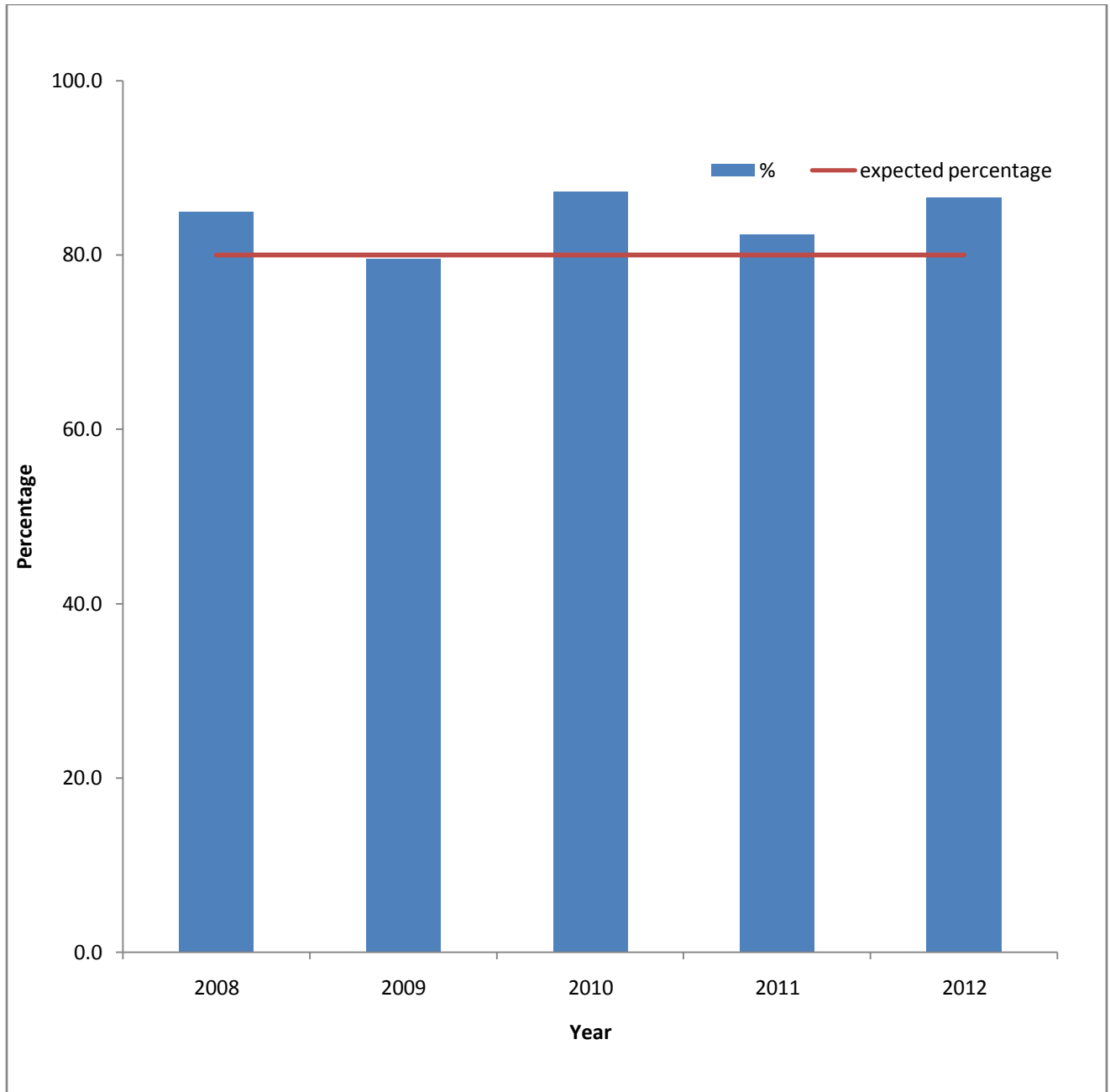


Figure 8 Reported Acute flaccid paralysis /AFP/ cases with 2 stool specimens collected < 14 days since paralysis onset ,Amhara Region, Ethiopia from 2008-2012

Fig 8 Shows the performance of early detection of case. Except 2009 the region detected cases early.

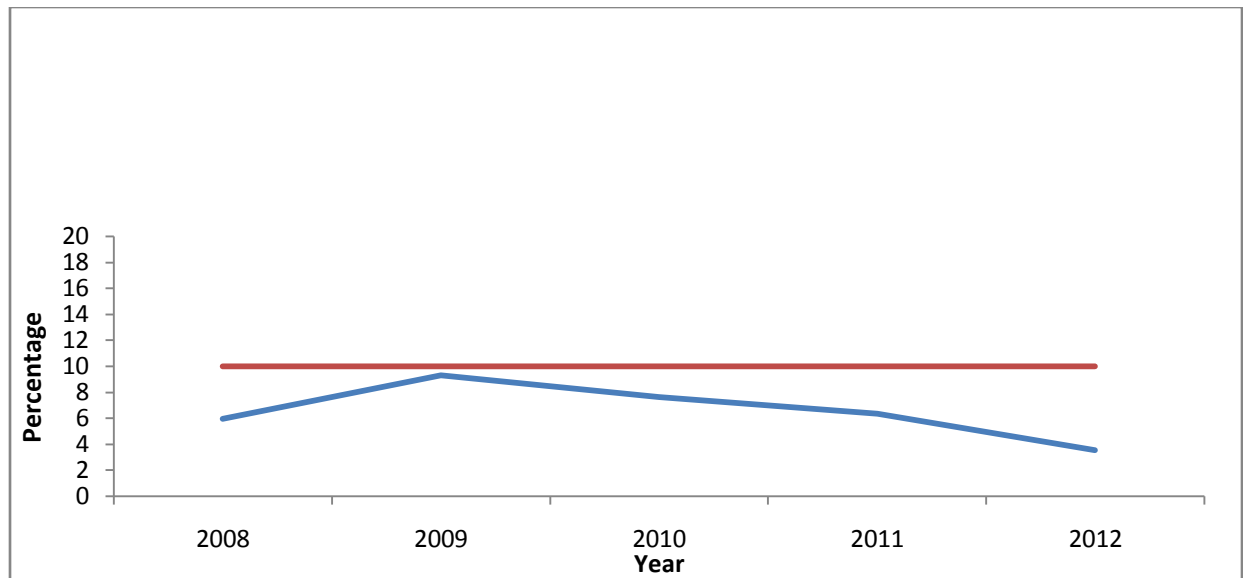


Figure 9 Non-polio AFP/Acute flaccid paralysis / Rate , Amhara region, Ethiopia 2008-2012

Fig.8 shows Stool specimens from which a non-polio enterovirus is isolated (Target > 10%)

This is an indicator of the quality of the “cold chain” (i.e. that the specimen has been continuously maintained at temperatures <8° C during transportation from the field to the laboratory) and how well the laboratory is able to perform routine isolation of enteroviruses. so all over the year the performance of the region is less than 10.

Discussion

Amhara region's acute flaccid paralysis surveillance shows us less than 4 age groups is highly affected and detection rate is more than 3 per one hundred thousand population. However, the detection rate is high according to the WHO standard but why those groups highly affected needs to be answered. Sex distribution also show us the most affected sex groups are males all over the year in the region.

The 5 year aggregated data of the region for detection rate shows above the minimum expected level which is 2 per 100,000 populations. The peak for detection rate was in 2010 (3.4 per 1000 population) that might show how much the surveillance was sensitive to detect AFP cases for this specific year.

Some of the zones of the region have persistent above 2 per 100,000 population of detection rates like Oromia, N.shewa and south wollo zones but some of them declined from previous but there detection rate is still above 2 per 100,000 population like N.gonder and w.gojam zones. Awi, S.gonder, Waghimra zone detection rate is declined it became less than 2 per 100,000 population and East gojjam shows improvement and Bahir Dar town detection rate is 10 per 100,000 population in 2009 but it was not persistent achievement for other years.

The proportion of 2 stool specimens collected < 14 days since paralysis onset for 5 years shows above WHO standard which is <80% except for 2009 so the early detection of AFP cases of the region shows improvement from time to time it might be because of the strength of the surveillance system of the region at lower level.¹

Non-polio AFP/acute flaccid paralyses / Rate shows Stool specimens from which a non-polio enterovirus is isolated (Target > 10%) This is an indicator of the quality of the “cold chain” (i.e. that the specimen has been continuously maintained at temperatures <8° C during transportation from the field to the laboratory) and how well the laboratory is able to perform routine isolation of enteroviruses.¹ All over the year the performance of the region was less than 10. So, it might be the cause for not detecting wild polio virus (WPV) for recent past years in the region. Additionally it might be because of lack of the skill of health professionals how to preserve and handle the sample from field site to the laboratory. This study lacks to include all AFP surveillance indicators because some of the data are not valid so it is difficult to generalize all about the quality of AFP surveillance.

Conclusion

The overall, during the study period most affected age group of cases were less than 4years and males and the detection rate of the region were more than expected specially in 2010.

Even if the overall detection rate of the region was higher than two the case detection of the region differ from zone to zone. There are high performed zones like Bahir Dar town but N.gonder, W.Gojam and Waghimra performance declined. East Gojjam showed improvement.

The proportion 2 stool specimens collected < 14 days since paralysis onset for 2009 was <80% which shows that there were not detecting cases early but it was >80% for the next years. So, the early detection of AFP case of the region is improved.

Stool specimens from which a non-polio enterovirus is isolated all over the year the performance of the region was less than 10%. So, which shows the low quality of the “cold chain and how well the laboratory is able to perform routine isolation of enteroviruses and also it may be one of the causes for WPV not detected in the recent past years in the region.

Recommendation

- Further analyses should be conducted for those affected specific groups (i.e. <4 age and males)
- Better to train Health workers at lower level on how to analyze surveillance data to monitor their own performance and how to handle samples
- The regional health bureau should assess the reason of performance declining zones
- The regional health bureau should expand the experience of good performed zones

Acknowledgment

I appreciate Mr. Teklehaymanot G/Hiwot for his comments of my concept paper which lead me to look forward in writing this work. I also acknowledge the RHB/ PHEM and WHO focal person Dr. Amare for providing the data base.

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Chapter III – Evaluation of Surveillance System

3.1 Evaluation of Surveillance Systems for Malaria, in South Wollo Zone, Amhara Region,

August 2013

Khalid Nassir

Abstract

Introduction:- A functional disease surveillance system is essential for defining problems and taking action. The FMOH/ PHEM of Ethiopia identified 20 top priority diseases which are epidemic prone, of international concern and diseases on eradication and elimination programs for surveillance activities. Therefore, this study had been conducted to evaluate the functionality of the surveillance system , to see effectiveness and efficiency of the system and identify the gap for the better improvement of the surveillance system of malaria in south wollo zone of Amhara Regional State in Ethiopia.

Method:- A cross-sectional descriptive study was conducted from August, 13-25/2013 in South Wollo Zone, Amhara Region. A total of 7 study units/sites were included in the study, these were South wollo zone health department, two district health offices, two health centers and two health posts. South Wollo zone is purposely selected two districts from others; depending on the 2012 performance report and districts health office (good and poor performing woredas in PHEM activity). From each selected district one health center and one health post were selected on convenience basis. Malaria used as a tool. Semi-Structured questionnaire was administered to collect primary and secondary data; Interviews were conducted, different related documents and reports were observed and checked. Then the data was entered in Microsoft Excel, Epi Info and summarized qualitative data to supplement the quantitative findings.

Result:- PHEM system has improved and became focus of even political leaders and budgeted in all districts but not based on the demand . It is helpful to detect outbreak. All of the districts and facilities has implemented prevention and control measures based on local data and gave responses within 48 hours of notification of most recently reported outbreak. All have prepared written epidemics preparedness and response plan (EPRP) but the epidemic management committee didn't evaluated their preparedness and response activities. The case definition of

malaria disease for identification of suspected cases are easy to understand and apply by all levels of health professionals. The malaria confirmatory test takes 10-15 minute at health post level using RDT and near to 1 hour at health center level using microscopy. Recording and reporting surveillance data takes 10-15 minutes. Mostly used telephone and rare time e-mail to transfer data. Data analyzed by person, place and time regularly at zonal level only. The current system can detect other newly occurring health conditions i.e. Hysteria . The system is allowed all the reporting agents accept and well engaged to the surveillance activities. But, all participants are not accept and engaged well . 71% of sites have no lack of report formats. Except Kombolcha town 08/Erfo health post all assessed area had and posted case definition of malaria and other priority diseases. All assessed areas used Telephone to report but 2(29%) of sites additionally uses e-mail and fax. In 2005 E.C. 64,510 BF done 17,172 confirmed cases such as P.V (54.7%) , PF (45.3%) and positivity rate (26.6 %). The 12 week report completeness and timeliness of zone were 89% and 88% respectively. A total of 57% woreda's of zones have trained personnel on disease surveillance. There is variations on the length of days and intensity of trainings among health professionals There is turnover among disease surveillance and malaria trained staffs. There is a plan to supervise once quarterly but not conducted as planned.

Discussion:-The surveillance activities became the concern of health professionals, stakeholders and political leaders. The system is useful for planning, implementing and evaluating the practice. All of the districts have written EPRP. Emergency committee didn't review their plans, actions, and learned experiences by epidemic response committees. There is variations on the length of days and intensity of trainings among health professionals and turnover among disease surveillance and malaria trained staffs. So, Motivating stakeholders to continue supporting the surveillance system and using the data for planning and evaluating the practice. The emergency committee should review their plans, actions, and learned experiences. Secured budget for surveillance at all level based on the demand of the system. Capacity building for assigned and other health care providers on regular basis in disease detection, reporting and data analysis is required by providing standard training, workshop and meeting. They should built a mechanism to control the attrition of trained staffs.

Introduction

A functional disease surveillance system is essential for defining problems and taking action. Proper understanding and use of this essential epidemiological tool (public health surveillance) helps health workers at the woreda and health units to set priorities, plan interventions, mobilize and allocate resources, detect epidemics early, initiate prompt response to epidemics, and evaluate and monitor health interventions. It also helps to assess long term disease trends.¹ Ethiopia underwent different strategies to have functioning and effective surveillance system. Too often, however, surveillance data for communicable diseases are neither reported nor analyzed on time. As a result, the opportunity to take action with an appropriate public health response and save lives is lost. Even in cases where adequate information is collected, it is often not available for use at the local level.²

PHEM is designed to ensure rapid detection of any public health threats, preparedness related to logistic and fund administration, and prompt response to and recovery from various public health emergencies, which range from recurrent epidemics, emerging infections, nutritional emergencies, chemical spills, and bioterrorism. The activities under this core process are to be implemented by appropriately trained and capable professionals. This core process is comprised of four sub-processes which are: Public Health Emergency Preparedness, Early Warning, Response, and Recovery.²

The FMoH/ PHEM of Ethiopia identified 20 top priority diseases which are epidemic prone, of international concern and diseases on eradication and elimination programs for surveillance activities. These diseases are monitored by a designated bodies through available means of communication- telephone, paper based reporting etc.² These diseases are set to be reported as mandatory notification (which are immediately reportable) diseases and routine surveillance (which are to be reported weekly).²

They are significant disease burdens to the public. Diseases like malaria are of the ten top diseases throughout the nation for more than a decade. Over the last decade, the world has made major progress in the fight against malaria. Since 2000, malaria mortality rates have fallen by more than 25%, and 50 of the 99 countries with ongoing transmission are now on track to meet

the 2015 World Health Assembly target of reducing incidence rates by more than 75%. A major scale-up of vector control interventions, together with increased access to diagnostic testing and quality-assured treatment, has been key to this progress.³

But we are not there yet. Malaria still kills an estimated 660 000 people worldwide, mainly children under five years of age in sub-Saharan Africa. Every year, more than 200 million cases occur; most of these cases are never tested or registered. A recent plateauing of international funding has slowed down progress, and emerging drug and insecticide resistance threaten to reverse recent gains.³

Malaria is ranked as the leading communicable disease in Ethiopia, accounting for about 30% of the overall Disability Adjusted Life Years lost. Approximately 57.3 million (68%) of the 84.3 million population of Ethiopia live in areas at risk of malaria. According to the FMOH, malaria was the leading cause of outpatient visits and health facility admissions in 2009/2010, accounting for 14% of reported outpatient visits and nearly 9% of admissions. Malaria also was among the ten leading causes of inpatient deaths among children less than five years of age. Because of a weak malaria disease surveillance system and the inability of the Health Management Information System (HMIS) to capture all necessary malaria related indicators, official estimates of the true burden of malaria in Ethiopia are imprecise.⁴

The surveillance system of South Wollo zone has not been evaluated before and malaria selected as a tool because Ethiopia aims to achieve malaria elimination in selected geographical areas with historically low malaria transmission by 2015, where universal coverage of malaria prevention interventions and strengthened surveillance has been well established. There will be an especially aggressive response to malaria case build ups and to epidemics within these areas. It is one of the main health problems of Amhara Region. Therefore, this study had been conducted to evaluate the functionality of the surveillance system , to see effectiveness and efficiency of the system and identify the gap for the better improvement of the surveillance system.

The overall purpose of surveillance of these diseases is to monitor the trend against the seated tolerance limits, as early warning and early response system, and pick any deviation from the

limit at the earliest point in time for prompt response. Furthermore as early warning system, it guides risk mapping and preparedness; and prevention and risk aversion actions like immunization, vector control and so on.

For these purposes, each of these diseases has case definition(s) and Public health emergency prone diseases reporting formats defined by the ministry of health and the WHO; and reporting is institutionalized into the health facilities and health offices. The general frame of work flow² is shown in figure 2.

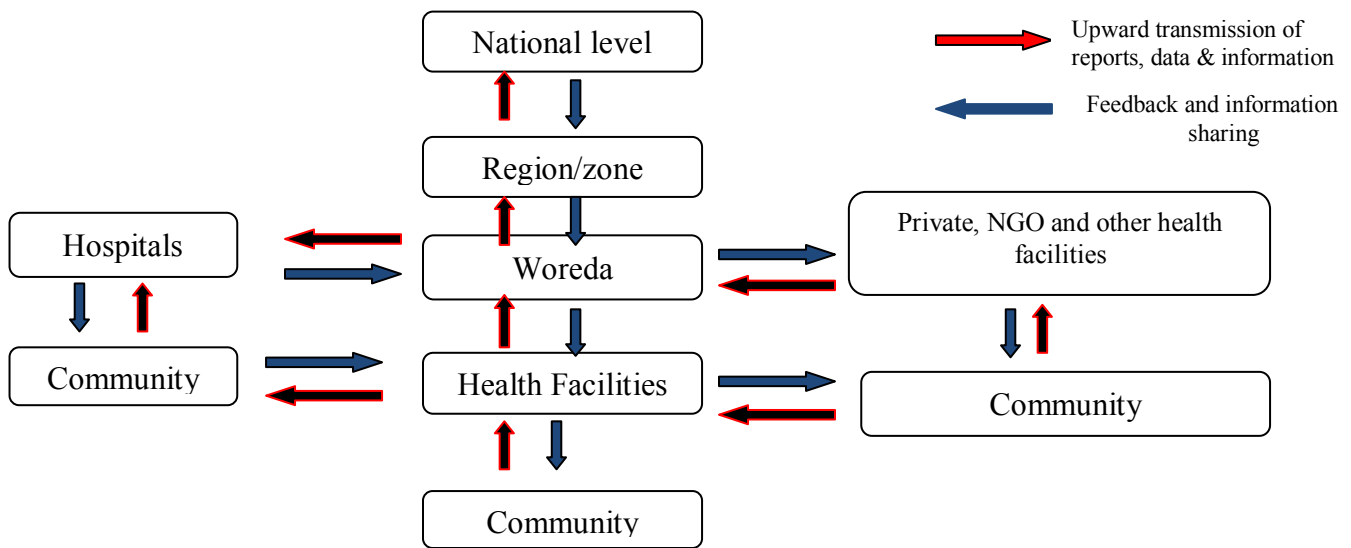


Figure 10 Diagram illustrating the formal and informal flow of surveillance data and information throughout a health system

(Source: EHNRI PHEM center, 2012 G.C, Public health emergency management guide line, Addis Ababa, Ethiopia)

Objective

General objective

- To evaluate the surveillance system of malaria and forward practical solutions for improvement.

Specific objectives

- To assess the core activities such as case detection, reporting analysis and response surveillance system in South Wollo zone.
- To evaluate the attributes of the surveillance system of the selected diseases in South Wollo zone.
- To assess the usefulness of surveillance system in early detection of diseases and outbreaks and decreasing morbidity and mortality.
- To assess major challenges of quality and stability of surveillance system

Materials and Methods

Study area

South wollo zone has a total population of 2,985,964 with primarily health coverage of 95% in 2013. The evaluation of the performance and attributes of the surveillance system involved assessment of the usefulness of the surveillance system, simplicity of the system, flexibility, quality of the data, acceptability, representativeness, timeliness and stability of the surveillance system.

Study design and period

A cross-sectional descriptive study was conducted from August 13- 25, 2013 in South Wollo Zone, Amhara Region.

Sample Size ,Sampling Technique and study unit

The study subjects were health facilities, health offices and zonal health department. A total of 7 study units/sites were included in the study. These were South wollo zone health department, two

district health offices, two health centers and two health posts. Selection of zones, districts and the district health facilities were performed as follows:

The zone was selected because of two reasons:- 1st it has not been evaluated before. 2nd there is aggressive response for epidemics within this areas. This evaluation of the surveillance system conducted using malaria. From the zone, two districts were selected by discussing with zonal health department (good and poor performing woredas in PHEM activity) and two district health offices were included in the study. From each selected district one health center and one health post were selected on convenience basis.

South wollo zonal health department, district/woreda health offices (Ambassel woreda and Kombolcha Town health offices), health centers(Kombolcha 05 health center from Kombolcha and Golbo Health center from Ambassel), health posts(Erfo/08 from Kombolcha and Chefe/05 health post from Ambassel Golbo health center cluster) were included.

Data collection methods

Semi-Structured questionnaire(The questionnaire were adapted from the generic questionnaire in annex 12 of WHO and CDC guidelines) was administered to collect primary and secondary data; Interviews were conducted with relevant officers and department as per the tool. Different related documents and reports were observed and checked.

Data analysis

We entered data and analyzed using the Microsoft Excel, Epi Info and summarized qualitative data to supplement the quantitative findings.

Data dissemination

Written report of both hard and soft copies prepared and shared to Addis Ababa University/School of Public Health, Amhara Regional Health Bureau PHEM department, South wollo zone health department and all visited district health offices, Ethiopia Field Epidemiology Training Program mentor, resident advisors and coordinators.

Result

Meeting

The principal investigator conducted a brief meeting with responsible persons (Head of institution, PHEM focal person) before assessing the objective of the study and its significance, and highlighted information after assessment, at different level. This meeting was also an important first step for assessment and recommendations; which will help for the implementation of recommendations and betterment of the surveillance and response of the major priority diseases of the evaluated zone. Zonal health focal person described about PHEM system has improved and became focus of even political leaders. However, costs couldn't judged with respect to the objectives and usefulness of a surveillance system all 21 woredas of zones has emergency budget totally nears to 957,197 birr for 2006 EFY. A total of 2,798,347 people under surveillance. They have accept MoH priority disease and listed 20 diseases.

Usefulness

All of the participants agreed up on the surveillance system is helpful to detect the outbreak of priority diseases early, to estimate the magnitude of morbidity and mortality related to these disease, including identification of factors associated with these diseases. To permit assessment of the effect of prevention and control programs and to observe /confirm interventions and diseases trends analyzed. All of the district's 100% of out breaks have been investigated within 48hours and facilities has implemented prevention and control measures based on local data and gave responses within 48 hours of notification recently reported outbreak. Zone and All of the districts has prepared written epidemics preparedness and response plan (EPRP). All of the districts excluding zone had emergency stocks of drugs and supplies at all times in the past year. None of the areas experienced shortage of drugs, vaccines or supplies during epidemics. All levels have conducted epidemiological investigation; the offices/facilities have benefitted from their investigation for early verification and prevention of public health events.

The challenge of all assessed area was none of epidemic management committee evaluated their preparedness and response activities.

Simplicity

The case definition of malaria disease for identification of suspected cases are easy to understand and apply by all levels of health professionals. The malaria confirmatory test takes 10-15 minute at health post level using RDT and near to 1 hour at health center level using microscopy. The system allows all professionals to fill data easily; and to record and report surveillance data on time and it takes 10-15 minutes. The report submitted to Zonal health department(ZHD), world health organization(WHO) and Amhara national regional health bureau(ANRHB). The most common way of transmitting data to the higher level is telephone, and rare times they use e-mail but ZHD uses both. They suggested to make it more simple :- using internet, using pad/standardize format for malaria(like PHEM reporting formats), cell phone for the department, 24 hours electric services and continuous refreshment training on surveillance and orientation about report formats to all staffs. Data is analyzed by person, place and time on ZHD and district level but not in the health facility.

Flexibility

The current system can detect other newly occurring health conditions. They have experiences about detected new cases which was 'massive hysteria' in school children. The cases affected only teenage females and they consider it as public health emergency due to the situations were clustered. The system is not complicated and easy to integrate with other systems, and able to continue its routine activities and operating appropriately.

Acceptability

The system is allowed all the reporting agents accept and well engaged to the surveillance activities. But, all participants are not accept and engaged well. Their reason is lack of understanding of the relevancy of the data to be collected and no feedback or recognition given by the higher bodies for their contribution i.e. no dissemination of the analyzed data back to reporting facilities.

The ZHD, Woreda offices and facilities have understanding on timeliness of receiving and reporting surveillance reports accordingly. For all assessed staffs reporting formats are neither

difficult to understand nor time consumers. The last year timeliness performance of zone was 100%.

Sensitivity and reporting

Zonal health department and districts had PHEM guide line but the health facilities had not guide lines. Zone up to health post had enough confirmatory test for malaria. Except Kombolcha town 08/Erfo health post all assessed area had and posted case definition of malaria and other priority diseases. In the past one month 7 measles from 79 expected cases per year, 1 AFP from 36 expected cases per year and 2 suspected Anthrax have been detected.

Among the assessed areas only two sites which are (Kombolcha town and zonal health department) has no lack of report format for the last 6 months; which means 71% of sites have no lack of report formats. All assessed areas used Telephone to report but 2(29%) of sites (Kombolcha town and zonal health department) additionally uses e-mail and fax.

Table 3. Malaria confirmation rate of south Wollo zone, Amhara region, 2005 E.C

Period	B/F or RDT done	Plasmodium vivax(Pv)	Plasmodium Falciparum(Pf)	Total confirmed cases	Positivity rate
1st quarter	15488	2372(57.7%)	1738(42.3%)	4110	26.5%
2nd quarter	18628	3018(50.8%)	2925(49.2%)	5943	31.9%
3rd quarter	15168	2178(60%)	1454(40%)	3632	23.9%
4th quarter	15226	1818(52.2%)	1669(47.9%)	3487	22.9%
Total	64510	9386(54.7%)	7786(45.3%)	17172	26.6%

They have registered 9 inpatient and 1 death due to malaria in 2005.

Representativeness and data quality

Even if this issue related with the health service coverage, the reporting rate of the health facilities, the health seeking behavior of the community, and the technical capacity of the health care providers and so on, all of the participants believe that the system is do not describe accurately the occurrence of a health event over time and its distribution in the population by place and person. So, the representativeness of the system is likely to be very low.

The data quality was also assessed on the basis of completeness of the reporting format and the timeliness of the report. There is missed variables in reporting formats specially in health post level. Some of the missed variables in the weekly reporting formats are date of report, week No, the expected number of health facilities to report and blank variables rather to fill zero case .The major reasons are not considering some of the variable as important. The reporting sites were not well trained or regularly supervised in all visited sites. There were no any regular crosschecking of the data and feedback.

Completeness and Timeliness

The reporting rates of the health facilities in the zone were found to be low relative to woreda health office and zonal health department . But it is difficult to set the exact figure of health facilities all over the year because of data quality. The table below shows the completeness of last 12 weeks or 3 months.

Table 4 Twelve week timeliness and completeness status of sampled areas, South Wollo Zone, Amhara Region, August 2013

Institution	Completeness (%)	Timeliness (%)
ZHD	89	88
Ambassel woreda	100	100
Kombolcha Town Administration	100	100
Golbo HC	83	83
Kombolcha HC	66	66
Chefa 05 HP	100	100
Erfu 08 HP	66	66

Last year zonal health department has sent a report timely to the region except week 28. So, it is almost near to 100%. As mentioned earlier in sensitivity part 10 immediately reportable disease has been detected and reported to the zone within 2-24 hrs. All over the year the report completeness of zone is above 80% and the graph below shows the trend of report completeness.

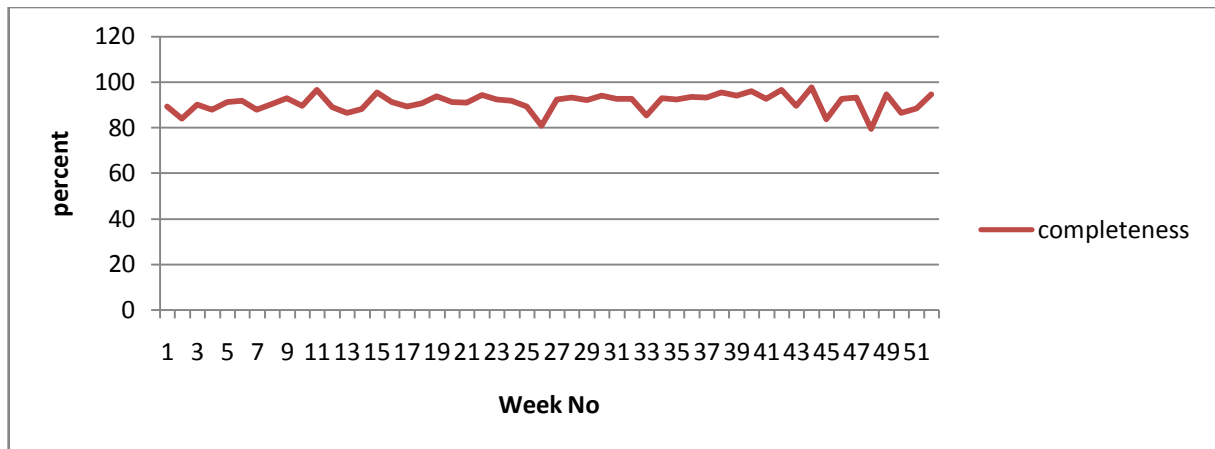


Figure 11 Report completeness from July 2012 to June 2013, South wollo zone, Amhara Region 2013

Training, supervision and Feedback

Zonal and woreda personnel has participated in PHEM training but 1 only from health facility have participated in PHEM training. There is variations on the length of days and intensity of trainings among health professionals. A total of 57% woreda's of zones have trained personnel on disease surveillance. But, there is no data about the general percentage of personnel trained in surveillance and epidemic management. There is turnover among disease surveillance and malaria trained staffs. It has implication on prevention and control activities.

There is a plan to supervise once quarterly. Whether integrated with other program or disease surveillance program specific alone. Zonal health department and health centers didn't conduct program specific supportive supervision last year. Kombolcha and Ambassel conducted supervision by them and to them, 2 and 1 times last year respectively. Written feedback has been given by woredas and zonal health department but there is no a trend of feedback to higher level as well as written feedback by health centers to health posts. Participants reason out lack of budget, time and being busy by immediate jobs to don't conduct supervision as per planned.

Discussion

Most of the participants agreed up on PHEM system has improved and became focus of even political leaders it might be emergency managers consider and take into account all hazards, all phases, all stakeholders, and all impacts relevant to emergencies and they have been synchronizing the activities of all relevant stakeholders to achieve a common purpose.

Evaluation is the important component for all program because all activity needs to see its efficiency and effectiveness.⁵ Surveillance is also essential for planning, implementation, and evaluation of public health practice. According to the south wollo zone all of the districts has prepared written epidemics preparedness and response plan (EPRP) but they didn't review their plans, actions, and learned experiences by epidemic response committees. All of the districts excluding zone had emergency stocks of drugs and supplies at all times in the past year. None of the areas experienced shortage of drugs, vaccines or supplies during epidemics. Furthermore, the districts health offices were allowed for emergency budget from the district administration office but not based on the demand of the system, which hampers timely investigation, and mitigation of expected events in the district by the district health office.

The south wollo main malaria parasites are *P. falciparum* and *P. vivax* , accounting for 45.3% and 54.7% of all cases when it compared with national figure *P. falciparum* and *P. vivax*, accounting for 60% and 40% of all cases, respectively.⁶ The last year positivity rate of malaria in south wollo shows 26.6%, unless there is an ongoing malaria epidemic, careful laboratory testing typically reveals confirmed malaria parasites in fewer than 50% (probably in the range of 20-30%) of the clinically suspected malaria cases in most settings in Ethiopia.⁶

Based on the recommendation of PHEM guideline all of the districts and facilities has implemented prevention and control measures based on local data and gave responses within 48 hours of notification of most recently reported outbreak. The report completeness and timeliness of the zone is above 85%. According to WHO acceptable report completeness is 80% and above and timeliness 85% and above. South wollo zone has experience of responding out of listed emergency diseases which were clustered cases classified as massive hysteria in school teenage girls it shows somewhat it flexibility of the system because Flexibility is probably best evaluated retrospectively by observing how a system has responded to a new demand.⁷

The focal person assigned for surveillance was trained but not other staffs. There is variations on the length of days and intensity of trainings among health professionals. There is turnover among disease surveillance and malaria trained staffs. This makes all reported diseases under surveillance unit not uniformly detected, record and response at all level of health profession and lack of understanding of the relevancy of the data to be collected and no feedback or recognition given by the higher bodies for their contribution i.e. no dissemination of the analyzed data back to reporting facilities. It makes the continuity of the system to be questionable.

Flow of data has so many obstacles with reporting means and infrastructure like vehicle for transport, telephone, fax machines and computers for data management and analysis. There is also a problem of describing data by person, place and time at all level. This might be due to shortage of trained man power, irregular supervision and feedback system, low or no legal enforcement to the surveillance activities, lack of sense of ownership, and lack of logistics. There are several limitations of this evaluation mainly with regard to duration of the evaluation sampling method, sample size and unavailability of data to see trends and inadequate literatures of similar study for better approach

Conclusion

The surveillance activities became the concern of health professionals, stakeholders and political leaders. The system is useful for planning, implementing and evaluating the practice. All of the districts have written EPRP. Emergency committee didn't review their plans, actions, and learned experiences by epidemic response committees. None of the district has experience of shortage of logistics during epidemics. All of the district has budget for epidemic response but not based on the demand of the system. The south wollo main malaria parasites are *P.falciparum* and *P. vivax* , accounting for 45.3% and 54.7% of all cases. The last year positivity rate of malaria in south wollo shows 26.6%. The report timeliness and completeness above 85%. They use local data for prevention and control measures. The system could responded the new health demand. There is variations on the length of days and intensity of trainings among health professionals and turnover among disease surveillance and malaria trained staffs. Flow of data is affected by lack of infrastructures. There is irregularity of supervision.

Recommendation

Motivating stakeholders to continue supporting the surveillance system and using the data for planning and evaluating the practice. The emergency committee should review their plans, actions, and learned experiences. Secured budget for surveillance at all level based on the demand of the system. Keeping up the trend of reporting and making to cover all the facility timely. Capacity building for assigned and other health care providers on regular basis in disease detection, reporting and data analysis is required by providing standard training, workshop and meeting. Availability of reporting formats and registration book at each level should be checked at regular basis. They should built a mechanism to control the attrition of trained staffs. Promoting using internet, using pad/ standardize format for malaria(like PHEM reporting formats), cell phone for the department and 24 hours electric services and orientation about report formats to all staffs. Supportive supervision should be regular and programmed.

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I would like to acknowledge, EPHA, AAU, SPH and Amhar regional Health Bureau PHEM Staffs for their unlimited contribution during this evaluation of surveillance system.

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I would like to appreciate health facility heads and public health emergency officers at all levels of the regional health system and health centers and health posts for their full cooperation to realize this assessment.

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Chapter IV – Health Profile Description Report

4.1. Kombolcha District Health Profile, Amhara region, Ethiopia, April 2013

Khalid Nassir

Abstract

Introduction : Health profile is a system of collecting and summarizing health and others health related events, demographic, socio-economic, political and cultural aspect of a particular district. it is important for public health officials. Describing health profile of a particular district is vital to describe health status and determine diseases burden to communicate health related information in a simple way. In April 2013, a district health profile was conducted in Kombolcha district of Amhara region.

Methods: Health and others health related data collected in Kombolcha district (Amhara Region) from April 23 up to May 05/05/2013. Interview and questionnaires used for data collection. Data source was district health office, education sector, district water resource office, Agricultural office, district finance bureau , district tourism office and municipality. Data compiled and analyzed using micro-soft excel.

Results –The district is one of industrial settings. It has 6 rural and 5 urban kebeles and it has well organized political and administrative structure. A total population of 104,695 from which urban 75481 and rural 29214 and 51 % of the total population was female and 59% of the population is dependent. cultivated area in summer 6632 hectares and in winter 4797 hectares, grazing area 9.34 hectares and land density of the district is 0.67 hectares/house hold. The district gained 7,421,517 birr bay tourism. It has 28 kinder garden, 31 primary schools, 1 secondary school and 1 secondary with preparatory school ,1 Dessie- Kombolcha university branch which is technology institute, 1 agricultural college and 1 TVET. 91% achievement of school attendant in 2005 E.C and 825 students dropped out of the school in 2004 E.C.4322 peoples have accessed for fixed telephone and 328 peoples have fixed wireless. 37,208 peoples have mobile phone. Power supply reaches to 13,185 households. Safe water covers 100% for urban and 70.7% in rural and daily water consumption per day per person__0.046809 to 0.05201 m3. There is 1 hospital on construction, 4 health center and 3 health posts. The leading

cause of mortality:- in adult is acute upper respiratory infection(14.9%) and in under 5 age non-bloody diarrhea (27.2%). The leading cause of admission is HIV(24 causes). Fully immunization coverage, measles and penta3 dropout rates are 69%, 9.6% and 6.2% respectively. Antenatal coverage and skilled birth attendant are 78% and 40% respectively. The latrine coverage is 91% & utilization rate is 98. Indoor residual spraying for malaria coverage is 88.9% and long lasting insecticide net (LLITN) was 100 % and utilization rate is 78%. ART services:- persons ever enrolled in HIV care 5317, persons ever started on ART 3238 and persons currently on ART 3021. 114 admission for outpatient therapeutic feeding , 1 admission and 376 persons food by prescription (FbP) are included in the last 3 quarters. District has 6 previous factories and 9 newly established factories but there is no strong waste control mechanism and most of them have no standardized treatment plant.

Conclusion – The district has a problem of drop out of students from school. The leading cause of the diseases in adult and child are AURI and diarrhea respectively. More than half the district population are dependent and the district immunization coverage and skilled birth attendant didn't achieve national target plan. So, district should assess highly prevalent diseases and they should have to develop means of income for those dependent population. They should have to evaluate their program based on national target and strategic plan for different program.

Introduction

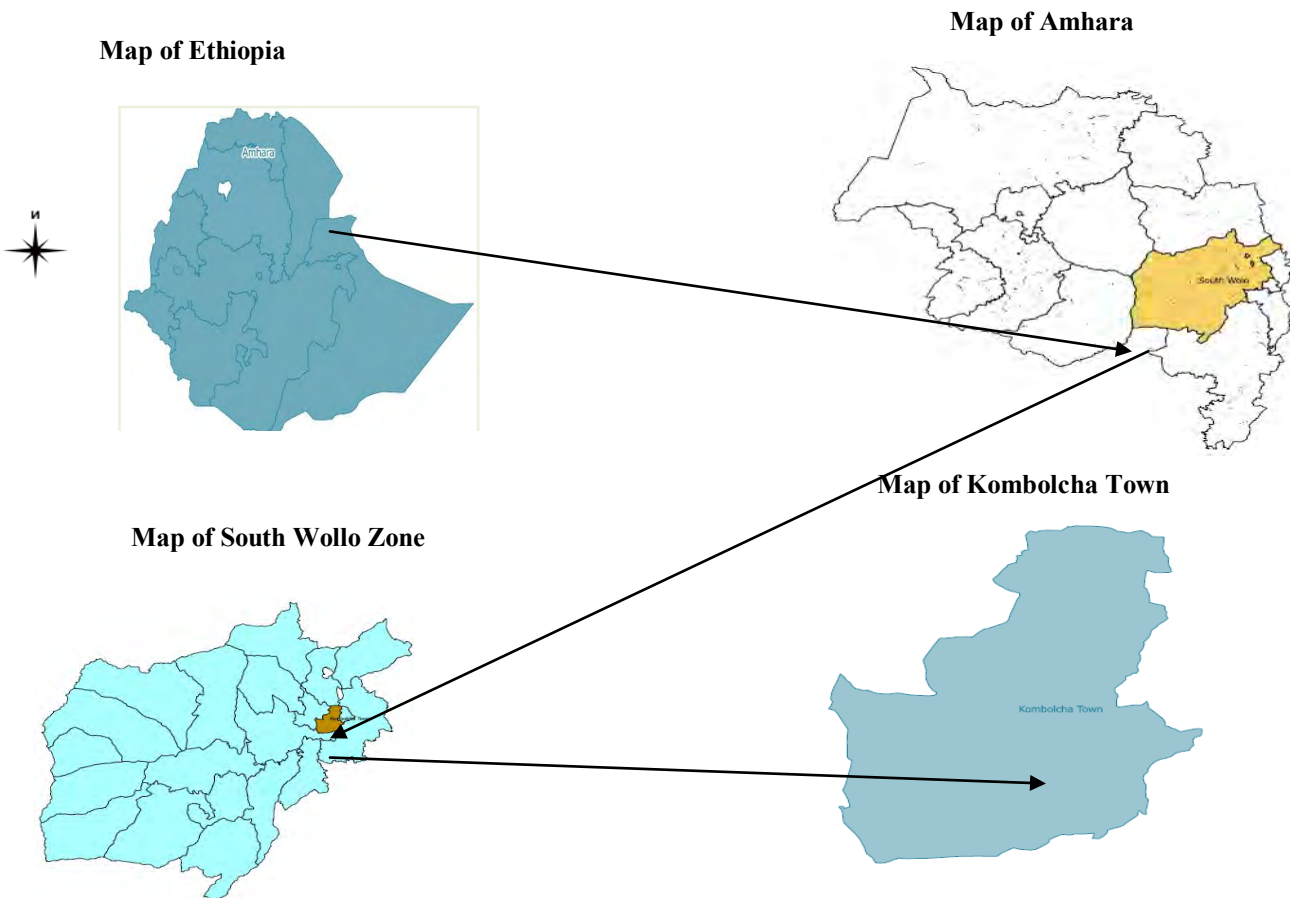
Health profile is a system of collecting and organizing or summarizing health and others health related events to describe health and others health related conditions, demographic, socio-economic, political, cultural and others aspect of a particular geographic areas of interest. In epidemiologic point of view, it is crucial to prioritizes health and others health related condition occurred within the communities. These summarized and prioritized data is important for public health surveillance officials, as they can uses it as a frontline of planning, implementation and evaluation of public health surveillance program conducted at communities level. The challenges of health profile description is non-existence of data especially in the remote area where there is no technologies implemented.

Kombolcha is one of the Ethiopia Town found in Amhara region south wollo zone which is far from Bahirdar 501 km and from Addis Ababa 375 km. It has 124.5 km² surface area (Town 21.811km² and rural 102.6889km²) . It has latitude and Longitude 11°6' and 39°45' respectively. The altitude is between 1842 and 1915 meters above sea level ,Kombolcha experiences bimodal rain fall ; the short rains with 36.9mm and 1000mm, respectively. The short rainy season in and around Kombolcha occurs usually from March to May. The long rainy season extends from June to September. The minimum and the maximum mean annual rain fall ranges from 750 to 900mm. Annual temperature ranges from 11.8°C to 26°C and the relative humidity of the region varies from 23.9% to 79%. Climatic zone of the woreda :- dega (8.06%), weynadega(74.84%) and kola(17.08%) . The woreda boundaries are in the north Tehuledere ,in the South kalu & Dessie zuria, in the east kalu and in the west Dessie zuria woredas.

Kombolcha is one of the industrial region selected by federal democratic republic of Ethiopia. It is one of the oldest district in Amhara region the previous name was "Biraro", following the Italian invasion the town has emerged center for different areas of previous Ethiopia Wollo ,Assab and Tigry in 1928 . There are two assumptions for the name given Kombolcha the first one is Italic word 'Kambo lochiya' means the town with light . The other and the most acceptable assumption is oromifa word 'kombelsha' means a town surrounded by white 'grar' acacia plants. The town has many historical aspects like the only church in Ethiopia named by saint Paul ,

yegof park, lugo 'gedam' (starting from 879 AD), zawyoch Islamic teaching center more than 250 year, mejit (a place highly respected and conduct yearly prophet Mohammed P.B.U.H birth day celebration) and Jebelu nejja which is ground mosque.

The district was selected because :-It is a town most known by factories and has high population mobility for work so describing the health profile of the town is help full to protect health of many people's other than residents. There is urbanization in Ethiopia and Ethiopia has a plan to be " industry led agriculture " , so study conducted in this district could be a base line study not only for Kombolcha even for the future of Ethiopia, They always reason out population figure for their failure (don't achieving the plane). It should be investigated and discuss with leaders. E.g. EPI coverage, case detection rate, etc. They have been implementing new program which is town health extension program so it is better to see the improvement of health services E.g. Tracing defaulters from different programs and other health services.



Maps 3 Map of Kombolcha district administration- Amhara Region- May 2013

Objective

The aims of this document are:

- To assess the health and others health related condition of the district
- To describe district health status, health indicators
- to identify problems for priority setting
- To determine disease burden and communicate health and other health related informations

Method

Health and others health related data was collected in Kombolcha district (Amhara Region) from April 23/04/up to May 05/05/2013

Interview using questionnaires and data reviewed were used as tools for data collection. Data source was district health office, education sector, district water resource office, Agricultural office, district finance bureau , district tourism office and municipality. Descriptive study method conducted and data was compiled and analyzed using micro-soft excel.

Results

Administrative and Political Organization

Kombolcha district has 6 rural kebels and 5 urban kebeles. It has well organized political and administrative structure working harmoniously with zonal as well as regional council. All sectors of the district are found in the town (Kombolcha) .

The district has several investments such as Kombolcha textile factory , BGI beer factory, Kombolcha steel production industry(KOSPI) ,Kombolcha Tannery factory, Kombolcha Industrial Abattoir(ELEFORA), Kombolcha flour factory and also there is new factories like Tikur Abay Transport industry and drivers training institute, Friendship, IVP, Green Valley textiles by Indian investors, HUXAU Textile by Chinese investors, waliya corky factory, MSA

oil seeds and cereals exporting and clearing S.C. , Tossa metal industry, Amhara forest enterprise ; these are the biggest investments contributed in supporting of the district.

There is also additional options for investment :- Industries like textile and garment ,sugar factory, metal and electric equipment factories, Hotel tourism(three star and above),social services like colleges, hospital and higher clinics, real states and agro processes sing ,food complex and flower production.

Population and Population structures

In 2005 E.C (2012/2013 G.C),the district population estimated to be 104,695 from which urban 75481and rural 29214 and 51 % of the total population was female; with 37 % (female) residing in the district urban kebele. Overall, 28 % of the population both male and female were living in the six rural kebeles of the district. Out of the total population, 3036 (3 %) ,8187(8%) and 14,631 (14 %) were under one years of age ,under 3 years of age and children less than five years of age respectively. Women under reproductive age (women 15-49 years of age) constitute 24687 (24 %) of the population segment. And population >64 and <15 is 4,452 and 44,631 respectively.

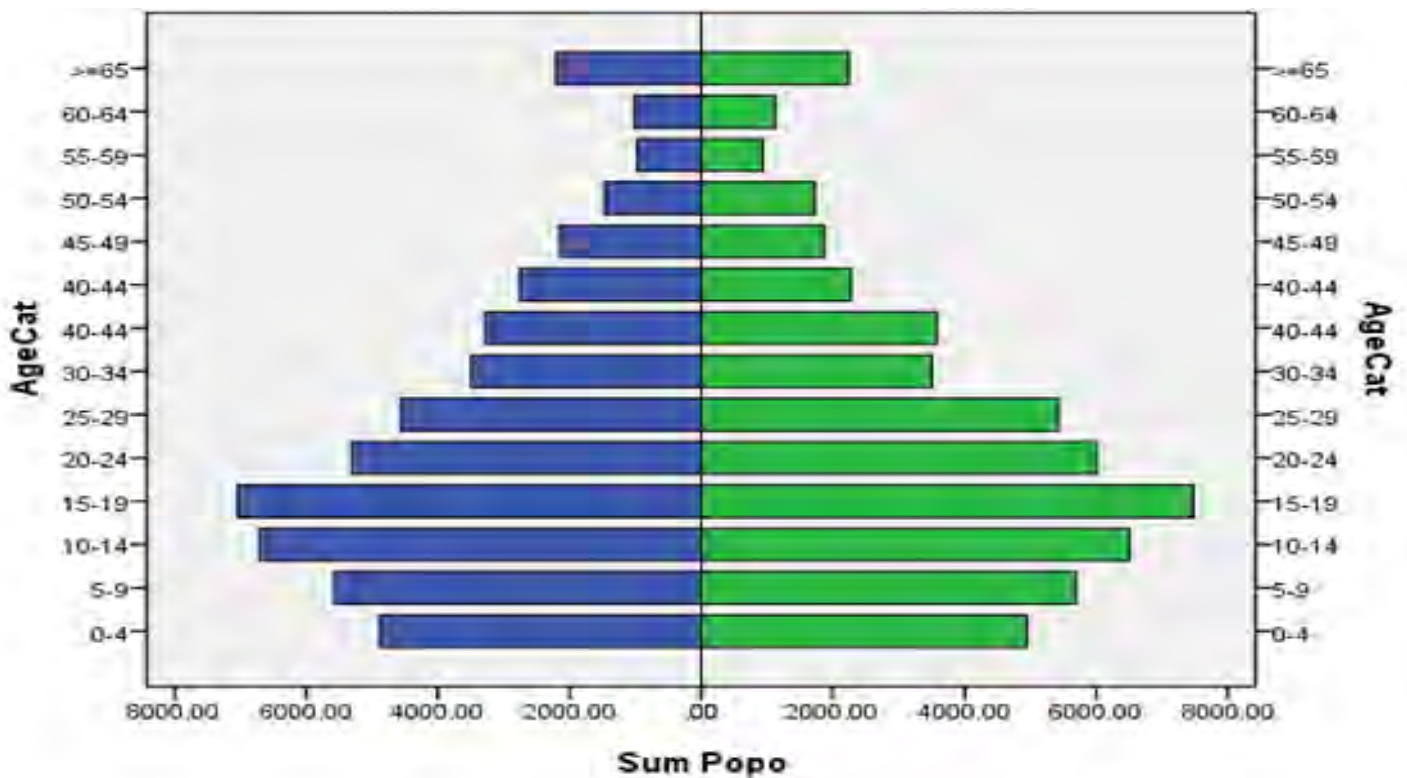


Figure 12:- Kombolcha town population pyramid, Amhara Region, May 2013G.C**Table 5: Population distribution by kebeles for 2005 E.C population estimation in Kombolcha district_ Amhara Region, may.2013**

Name of kebele	Population by national census	Population by health extension worker
Urban kebele		No data
01	9695	No data
02	22208	No data
03	23721	No data
04	18193	No data
05	1664	No data
Total	75481	No data
Rural kebele		
06	4820	6,649
07	5087	5,296
08	3949	5,914
09	4238	3,499
10	5749	8,458
11	5371	5,389
Total	29214	35,205
Total district population	104,695	No data

There is no district population data by ethnic and religious group .

Economy(mainstay of the economy, average income levels etc)

Even though the most of the people of the district lives in urban area some of the lands used for agriculture :- cultivated area in summer 6632 hectares and in winter 4797 hectares, grazing area 9.34 hectares, cropping season was 2 times a year before 3 or 4 years but now it becomes once a year because of shortage of rain, land density of the district is 0.67 hectares/house hold.

Agriculture office count district no of livestock in 2012 and found number of ox 19432, sheep 6,837, goat 11,034 , camel 308, chicken 28,490, bee 594 and Horse, mule and donkey 3452.

Culture and Tourism office also have a report tourism income gained in 2005 E.C 9 month report. The report divides in 3 parts which are :- from foreigners, domestic and conference tourism gained more than 1,287,855 ETB from 2,252 peoples, more than 5,547,662 ETB from

10,911 peoples and more than 586,000 ETB from 1250 attendants respectively. Totally more than 7,421,517 ETB gained until the 3rd quarter. In 2002 and 2003 E.C also have gained 5,783,580 ETB and 6,764,154 ETB respectively but no data for 2004 E.C..

However, trade and other business take most part of the district economy there is no data which could describe the figure and also the district community have different means of income sources but there is no data by house hold level.

Education and school Health

Kombolcha town administration /district has 28 kinder garden; 14 government and 14 private, 31 primary schools; 22 government and 9 private, 1 secondary school and 1 secondary with preparatory school ,1 wollo university branch which is technology institute, 1 agricultural college and 1 TVET.

Table 6: Kombolcha town administration education office 2005E.C school age targets and achievements, Kombolcha Town, Amhara Region, May 2013 G.C

School Age	Targeted	Achievements	Percent
Male	12,736	11,770	92
Female	12,504	11,086	89
Total	25,240	22, 856	91

The district school dropouts in 2004 E.C; 438(53%) male, 387(47%) female, totally 825 students dropped out of the school. The dropout rate is 3.6% District educational office try to identify possible causes of dropout of the school which are;- lack of support to continue, some of family prefers to engage their children for work to support them, losing hope because of 1st semester result, early marriage for females but not significant, female students leave the country specially to Arabian country.

The school health activity of the district; from 47 schools excluding 14 private KGs 40(85%) of schools with water supply ,7(15%) have no water supply but all are in rural kebele, 27(82%) schools with functional latrine and differ for male and female , 5(15%) schools use common

latrine for both sexes, 1(3%) schools without latrine. From 33 schools 30(91%) Schools with HIV/other health clubs. 1

The district office try to identify some of challenges for quality education which are low awareness of the community, school absenteeism, lack of logistics, and some the teachers have bad behavior and some of them are against school policy and strategy.

Educational status of the community was tried to assess but there is no data which described level of education of the community.

Facilities

The district has 3 main roads road to Addis Ababa ,to Dessie and to Afar and Djibouti and 19.414 km asphalt road, 18.02 km couple stone road , 81.1 km gravel road , Air port (it will be standardize to a time not far away) & Rail road from awash to woldia (on construction). From 6 rural kebeles 4 of them and all of urban kebeles have access to transportation. No data for flow of transportation per day.

4322 peoples have accessed for fixed telephone and 328 peoples have fixed wireless. 37,208 peoples have mobile phone and all kebel have network for mobile, 510 dial up,1X,broad band customers in the town.

The district has 1 post office,1 insurance(Ethiopia Insurance Corporation) and 8 Banks :- 3 Commercial Bank of Ethiopia, Wegagen Bank S.C , Dashen Bank S.C. ,Abay Bank S.C., Construction and Business Bank and Amhara micro finance.

The district Power supply reaches to 12000 households, 1080 organization and institution ,105 small and large scale industry ,totally 13,185 have access for electric power supply. And the district has 2 station for power supply, if one break up the other can give power supply.

The total safe water covers all of the kebeles of the district which are 100% for urban and 70.7% in rural, main source of water supply pipe (individual and common). Population getting safe

¹ Do not include KG schools because it is no standard for KG different latrine for male and female and to establish clubs.

water 75481 urban and 20,654 rural total 96,135 (92% of the town administration have got safe water). Daily water consumption per day 4500 m³/day to 5000 m³/day and daily water consumption per person 0.046809 to 0.05201 m³/day. Average monthly water consumption of the town is 146,000 m³/month .

Disaster situation in the woreda

There was reported suspected anthrax and measles. 1 women and 3 animals death and 8 human cases were registered in rumor log book because of suspected anthrax. The rapid response team sent to kebele on date 06/04/2013 G.C and gave possible interventions including vaccination against anthrax for animals. There was also suspected measles in KG early in march only 5 cases was reported but sample didn't sent for laboratory confirmation.

Social situation

The district has 1 public library, 7 local NGOs and near to 10 international NGOs working on public health and also 7 youth clubs found in the district.

Health service institutions and infrastructure

The district health office structure is well organized and is part of the woreda administrative council cabinet. Despite the district health officials took training on new policy designed by the government Business Processing and Re-engineering (BPR) and now a day balanced scored card(BSC) , but which is not functional as it was intended.

Table 7: Availability of health facilities by type in Kombolcha district -Amhara region, May .2013

S.N O	Type of health institution		No of institutions
1	Number of Hospitals	with sustainable/ 24 hour /electric power	1 Hospital on construction
		without sustainable/ 24 hour /electric power	
		with telephone service(cable based/mobile)	
		without telephone service (cable based/mobile)	
		with piped water supply	
		Without piped water supply	
2	Number of Health Centers	with sustainable/ 24 hour /electric power	4
		without sustainable/ 24 hour /electric power	0
		with telephone service (cable based/mobile)	4

		without telephone service (cable based/mobile)	0
		with piped water supply	3
		Without piped water supply	1
3	Number of Hospitals		0
4	Number of Health centers		4
5	Number of Health post		3
6	Number of private clinics	Lower	4
		Medium	14
		Higher	0
7	Number of Drug vendors		3
8	Number of Drug stores		7
9	Number of Pharmacies		2
10	Number of Diagnostic laboratories		1
11	Hospital to population ratio		0
12	Health center to population ratio		3.8
13	Health posts to population ratio		0.000103
14	Physical health service coverage		110 %

The district health office allocated 6,247,927 birr out of 59,803,666 birr woreda budget for 2005 EFY, it takes 10.5% of total budget. 30,000 birr allocated for emergency . There is also 190,584 birr donation budget for different programs :- EOS,RH support, Unicef for advisor salary and CHD/CMAM .

Community health services or services provided by community health workers namely traditional birth attendants or trained traditional birth attendants (TBAs/TTBAs) , health development army /HDA/ and health extension workers /HEWs/.There are 15 TBAs/TTBAs , but they have not any responsibility now other than helping mothers to go health facilities because of they are prohibited by law to deliver mothers at home. And 438 health development army, there are responsible for improving health extension package specially helping for achievement of MDG goals, conduct discussion with community, tracing defaulters and teaching mothers including how to save money for delivery. Health extension workers conduct training for health development army and monitor the health activities the community. Other also participate for community health service like Child, Youth and Women office and health office professionals.

*Top 10 diseases of morbidity and mortality:-***Table 8: Top ten causes of outpatients department visit in Adult and under 5, Kombolcha district- Amhara, region, May .2013**

Morbidity cases in adult OPD			Pediatrics/ <5 year		
Rank	Diseases	%	Rank	Disease	%
1	AURI	14.9	1	Non-bloody diarrhea	27.19
2	AFI	14.6	2	AURI	25
3	Dyspepsia	14.6	3	AFI	18.2
4	Disease of the musculo skeletal system & connective tissue	14.36	4	Pneumonia	10.5
5	UTI	11.09	5	Skin infection	4.75
6	Diarrhea	7.08	6	Eye & unspecified disease	3.2
7	Helminthiasis	7.08	7	Diarrhea with dehydration	3.1
8	Acute Bronchitis	6.87	8	Malaria clinical	2.8
9	Hypertention & related disease	6.02	9	Respiratory system	2.6
10	Infection of the skin & subcutaneous tissue	5.58	10	Bloody diarrhea	2.44

Table 9: Top ten causes of inpatient admission and mortality t in Adult and under 5 age, Kombolcha district- Amhara, region, May .2013

Adult			Pediatrics/ <5 year	
S.No	Causes of admission	Mortality	Causes of admission	Mortality
1	HIV (24)	Epilepsy (1)	No data	No data
2	Dyspepsia (16)		No data	No data
3	Typhoid fever (14)		No data	No data
4	AURI (6)		No data	No data
5	AIDS (6)		No data	No data
6	Diarrhea with dehydration (6)		No data	No data
7	Relapsing fever (6)		No data	No data
8	Nutrition and metabolic disease (4)		No data	No data
9	Epilepsy (4)		No data	No data

10	Hypertension (4)		No data	No data
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Child Health

There is 4 health centers in the district all of them provide integrated management of neonate and childhood illness /IMNCI/. And 872 live births in last 3 quarters 24 of them are <2500 gm. Moderate and severe malnutrition in <3 years are 698 and 77 respectively.

Table 10: Immunization coverage , Kombolcha district- Amhara, region, May .2013

Immunization activities	Coverage
Penta 3 coverage	72%
Measles coverage	69%
Full immunization coverage	69%
Measles dropout rate	9.6%
Penta 3 dropout rate	6.2%
PAB	75%

Health staff to population ratio:

Table 11:Health staff to population ratio in Kombolcha district –Amhara region, May.2013

	Name of professionals	Number				Health staff to population ratio
1	Physician (GP+specialist)	0				0
2	Health officers	16				0.000153
3	All type of nurses	45				0.000430
4	Mid-wife nurses	6				0.000057
5	Medical laboratory	10				0.000096
6	Pharmacy	10				0.000096
7	Environmental health	4				0.000038
8	Health education and promotion	0				0
9	Health extension worker	Urban	26	Rural	12	0.000363
10	HIT/IT	4				0.000038

There is no data to see expected number of health staffs based on business processing re-engineering / BPR/ and the gap.

Vital statistics and health indicators**Table 12: Distribution of vital statistics in Kombolcha district –Amhara region, May .2013**

S. No	Indicator	Rural	Urban	Total
1	Total population	29,214	75,481	104,695
2	Male	14,839	36,547	51,386
3	Female	14,375	38,934	53,309
4	Under 1 years old			3036
5	Under 5 years old			14,134
6	Under 15 years old			44,631
7	Productive age female (15-49 years)	6,859	23,285	46,570
8	Pregnant women			3350
9	Live births			3078
10	Total fertility rate			66/1000
11	Crude birth rate			29.4 /1000
12	Crude death rate			No data
13	maternal mortality rate			No data
14	Child mortality			No data
15	Under 5 mortality rate			No data
16	Infant mortality rate			No data
17	Dependency ratio	78%	53%	59%
18	Average household size			4.3

Maternal health coverage**Table 13: Maternal health services in Kombolcha district –Amhara region, May .2013**

S.No	Type of service	Coverage (%)
1	Antenatal care (ANC) Coverage at least 1 visit (%)	78 %
	Antenatal care (ANC) Coverage at least 4 visit (%)	No data
2	Contraceptive acceptance rate (CAR (%))	No data
3	Contraceptive prevalence rate (CPR (%))	No data
4	Post natal care (PNC) Coverage	39%
5	Proportion of delivery attended by skilled personnel	40%

Environmental health and sanitation

The district constructed 3 public latrine in 2005 EFY. The latrine coverage is 91% & utilization rate is 98%. There are 3 association for sorting waste and dispose to land fill, 1 latrine waste

treatment plant for the district, 3380 holes for solid and 3728 holes for liquid waste management at home, which is constructed by health extension package.

Health education has been given to the community different topics including hygiene and sanitation. Different officials participated in the program like health professionals, health extension workers, kebele and community leaders. The program would be given by prioritizing topics in the selected places like health facility, school, and different public gathering. Mostly selected topics are hygiene sanitation, TB, HIV, Malaria, MCH, FP.

Endemic disease

A) Tuberculosis and Leprosy

TB detection rate of the district is 65.3%, TB treatment success rate is 92.9%, TB treatment cur rate is 92.9% and no case defaulters. Leprosy cases are 10 in the district.

B) Malaria

Malaria is one of endemic disease in the district. In 2005 EC until 3rd quarter, a total of 1312 malaria cases were reported at outpatients department and 162 cases reported from under 5 OPD. The dominated species was plasmodium falciparum (Pf) it accounts 984 and plasmodium vivax 321 and 162 cases were reported from under 5 OPD. The health officials of the district were applied IRS and the coverage was 88.9% and long lasting insecticide net (LLITN) was 100% and the district health office try to assess the utilization rate of LLITN in partial of the kebeles and it was 78%.

C) HIV/AIDS

Even if HIV/AIDS is one of the endemic disease they haven't their own prevalence and incidence rate. They are using the regional health bureau prevalence and incidence for urban. In the past 3 quarter 11, 235 VCT, 1769 PMTCT (44 of them are reactive and 39 of them are received NVP), 12,490 PITC. The district health centers has high clients for ART services:- persons ever enrolled in HIV care 5317, persons ever started on ART 3238 and persons currently on ART 3021.

Nutrition and foods

There are different programs for food security. The district has 9 OTP sites with total admission of 114 , total SC site 1 with total admission 1, there is no other programs like TSF, CBN and PSNP. The other new established program is food by prescription (FbP) , it includes moderate acute malnutrition /MAM/ and sever acute malnutrition /SAM/ , orphan and street youths (less than 17 age) and immuno compromised persons totally 376 persons are included in the last 3 quarters.

Factories and control mechanism of wastes and health of the society

As it is mentioned in sub topic of the administrative and political part the district is industrial town. In general the town has 6 previous factories and 9 newly established factories. The district town administration has no strong control mechanism and also have lack of skilled man power and also there is a problem of staff turnover so it is difficult to control huge factories. But, they are trying to control as much as possible by scheduling seasonal and immediate program.

Even if it is difficult to measure the impact on health, there is simple observations how much the wastes damaging the plants like Avocado and other plants around leather and metal industry waste and frequently Childs develop itching around those industry wastes. The only safest and appreciated factory is Kombolcha Textile factory. It has their own standardized treatment plant.

Discussion

The intimate linkage between health and education has been firmly established in a number of studies which could potentially reinforce each other towards a rapid socio-economic development of a country, especially in developing economies. Education is one of the most critical variables in epidemiological and health service research in Ethiopia and illiteracy is usually associated with high risk and low health seeking behavior. In addition to a wide range of disease and child mortality associated with illiteracy or under education, unfortunately HIV/AIDS infection is disproportionately high in out of school youth. The general level of education in a country becomes a marker significantly influencing the spread of disease, shaping the health seeking behavior of individuals and communities including the utilization of modern health care service. (1), but the district has no literacy status of the community.

One of the woreda problem is drop out of school because of lack of support to continue, some of family prefers to engage their children for work to support them, losing hope because of 1st semester result, early marriage for females but not significant number, female students leave the country specially to Arabian country. Totally 825 students dropped out of the school in 2004 E.C.

Kombolcha district has access for animal anthrax laboratory testing service, there was reported 1 person /women/ and 3 animals death and 8 human cases by suspected anthrax and vaccination was given for animals in suspected Kebeles but they didn't confirm by laboratory.

The district health office allocated 6,247,927 birr out of 59,803,666 birr woreda budget for 2005 EFY, it takes 10.5% of total budget. Even if the health sectors have many donators for different programs it is less than MoH direction for health sector budget which is 15%.

Non-bloody diarrhea is a district public health problem leading by 27.19 % of the total diseases reported at under 5 age visited. But in adult OPD the leading case is AURI which is 14.9% . There was no death reported in the past one year because of those leading causes. This is due to perhaps: early diagnosis and treatment and quality of service or deaths could not be recorded.

Kombolcha town has Dependency ratio 59% total population. Countries that have a high dependency ratio have more people who are not of working age, and fewer who are working and paying taxes. The higher the number, the more people that need looking after. (2) A rising dependency ratio is a concern in many countries that are facing an aging population, since it becomes difficult for pension and social security systems to provide for a significantly older, non-working population. (3)

The district recorded sustainable immunization coverage in the year targeted to children less than one year old to prevent them from vaccine preventable diseases :- 69% of the child are fully immunized in the district it may not achieve HSDP IV target which is to 90% (4) and measles and penta 3 drop out is less than 10% (9.6% and 6.2% respectively) which is acceptable drop out level by WHO standard.

Health sector development plan IV target to reach 62% delivery attended by skilled personnel but the Proportion of delivery attended by skilled personnel of the district is 40% . (1) The district reach 1769 pregnant mothers for HIV testing PMTCT (44 of them are reactive and 39 of them are received NVP). Even if the objective of PMTCT is preventing children to be born with HIV infection 5 mothers didn't included or linked to ART services.

According to the district health officials, the main problems of the district are very limited regular budget and restriction of the most allocated budgets to programmatic activities which are not flexible and used for other demanding activities.

Conclusion

- Education is one of the most critical variables in epidemiological and health service research in Ethiopia and illiteracy is usually associated with high risk and low health seeking behavior. But the district has no literacy status of the community.
- The district has a problem of drop out of students from school
- The district officials didn't allocate budget according to the health offices demand
- The leading cause of the diseases in adult and child are AURI and diarrhea respectively

- More than half the district population are dependent
- The district immunization coverage and skilled birth attendant didn't achieve national target plan

Recommendation

The district should have literacy status of the community and trace reasons behind students drop out of the school and also the concerned sectors should have a mechanism to support those students to continue the school.

The district should assess the demand and allocate budget based on program needs and should give attention for those highly prevalent diseases. They should have to develop means of income for those dependent population and they should have to evaluate their program based on national target and strategic plan for different program.

Acknowledgement

I would like to express my gratitude to head of Kombolcha town health office, officers of different programs of different sectors for their contribution during profile data collection period.

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Chapter V – Scientific Manuscripts for Peer reviewed Journals

5.1. Investigation of Malaria Outbreak- in Kalu woreda, South Wollo Zone, Amhara Regional State, October 2013

Abstract

Title: Investigation of Malaria outbreak in Kalu Districts, South Wollo zone, Amhara Regional State, Ethiopia, 2013

Authors: Khalid N. Qassim¹, T.H. G/Hiwot²

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

Background: Malaria is ranked as the leading communicable disease in Ethiopia, accounting for about 30% of the overall Disability Adjusted Life Years lost. Approximately 57.3 million (68%) of the 84.3 million population of Ethiopia live in areas at risk of malaria. On 16/10/2013 South Wollo zone, Amhara region reported case build ups of malaria from Kalu district. An investigation was conducted to verify the existence of the outbreak, to identify the risk factors for transmission of outbreaks and to undertake appropriate prevention and control interventions.

Method: The previous year's number of patients in that week multiplied by two is taken as a threshold and compared with current data (2013). We conducted a case control study case: control ratio 1:2.. Cases were defined as febrile cases confirmed by microscopy or RDT for plasmodium parasites. Controls were with no fever in recent months matched by age group, gender and living place. Case and controls were interviewed using structured questionnaire. School children assessed about utilization of bed nets. Environmental assessments were conducted and information on potential mosquitoes breeding sites was collected.

Result: A total of 308 cases were identified and the alert threshold crossed in October or 41 to 44 weeks. 60 cases and 120 controls were included for data analysis. 57% and 67% among cases and controls respectively have bed nets and utilize it. 80% of cases and 54% controls live close to gutter to collect rainwater. Having bed nets and utilizing it (OR:0.6, 95% CI:0.3-1.2) was not significantly associated with illness. However, living close to gutter to collect rainwater (OR: 3.4, 95% CI: 1.6-7.0) was found to be significantly associated with malaria infection. 1800-2000 estimated gutters to collect rain water and mosquito larvae were found.

Conclusion: An outbreak of malaria occurred in Kalu district. So, Larvicide control measures should be applied.

Keywords: malaria, Amhara, case control, gutter to collect rainwater

Word count:295

Introduction

Over the last decade, the world has made major progress in the fight against malaria. Since 2000, malaria mortality rates have fallen by more than 25%, and 50 of the 99 countries with ongoing transmission are now on track to meet the 2015 World Health Assembly target of reducing incidence rates by more than 75%. A major scale-up of vector control interventions, together with increased access to diagnostic testing and quality-assured treatment, has been key to this progress.¹

But we are not there yet. Malaria still kills an estimated 660 000 people worldwide, mainly children under five years of age in sub-Saharan Africa. Every year, more than 200 million cases occur; most of these cases are never tested or registered. A recent plateauing of international funding has slowed down progress, and emerging drug and insecticide resistance threaten to reverse recent gains.¹

Malaria is ranked as the leading communicable disease in Ethiopia, accounting for about 30% of the overall Disability Adjusted Life Years lost. Approximately 57.3 million (68%) of the 84.3 million population of Ethiopia live in areas at risk of malaria. According to the FMOH, malaria was the leading cause of outpatient visits and health facility admissions in 2009/2010, accounting for 14% of reported outpatient visits and nearly 9% of admissions. Malaria also was among the ten leading causes of inpatient deaths among children less than five years of age. Because of a weak malaria disease surveillance system and the inability of the Health Management Information System (HMIS) to capture all necessary malaria related indicators, official estimates of the true burden of malaria in Ethiopia are imprecise.²

Ethiopia is among the few countries with unstable malaria transmission. Consequently, malaria epidemics are serious public health emergencies. While malaria is mostly an endemic disease, it may also occur as outbreaks, for example in areas with low seasonal transmission.³

Ethiopia is also one of the most malaria epidemic-prone countries in Africa. Rates of morbidity and mortality increase dramatically (i.e. 3-5 fold) during epidemics. Since 2005, Ethiopia has scaled-up one of the largest and most ambitious malaria control programs in Africa, designed to support the country's Health Sector Development Plan (HSDP), the national strategic plan (NSP) and the national child survival strategy, in order to reduce under-five mortality rates by two thirds by 2015.⁴

Possible precipitating Factors of Malaria epidemics are :-Abnormal weather conditions / Rain fall, Increase of vector capacity, Deterioration of vector control operations, Immigration of non-endemic into an endemic area, Resistance to anti malaria drugs and Constructions / Dams, mining/.⁴

The main vector control activities implemented in Ethiopia include IRS, LLINs and mosquito larval source reduction. (MoH, January 2012) The challenge now is maintaining the existing high LLIN coverage and increasing utilization rates. Further, targeting IRS based on an epidemiologically sound, affordable and sustainable approach continues to be a challenge.⁴

While Ethiopia aims to achieve malaria elimination in selected geographical areas with historically low malaria transmission by 2015, outbreaks occurred in some areas of the country. One of the affected Ethiopia region is Amhara. South Wollo zone reported malaria case build up from Kalu district on 16/10/2013 G.C. Based on the report from South Wollo zonal health department investigation was conducted in the affected kebele special name 'Jerjero' or 023 kebele. The woreda has a total population of 211,371 of whom (106,889 are male and 104,482 female) and 25,745 and 185,626 accounts for under 5 and above 5 age group respectively .with a population density of 218.64 square km. The affected kebele (i.e Jerjero or 023) takes 5257 population. The majority of the inhabitants were Muslim, with 96.76% of the population having reported they practiced that belief, while 3.14% of the population said they professed Ethiopian Orthodox Christianity. The altitude of this woreda ranges from 800 meters above sea level in the lowlands bordering the Oromia Zone to 1,750 meters at the foot of the mountains north of Kombolcha; the climate of Kalu varies from dry sub-humid to semi-arid. Important rivers include the Cheleleka and Borkana. So, the investigation was conducted to investigate and identify risk factors associated with malaria out-break in Kalu district.

Method and Material

Study design: Both descriptive and analytical matched case-control study design was used.

1. Descriptive epidemiology

A case of malaria was defined as an acute febrile illness with a peripheral blood smear positive for malaria parasite or a positive rapid antigen test in a resident of Jerjero kebele, Kalu district on October, 2013. Weekly malaria surveillance reports were reviewed for 2012 and the 2013 data was compared with the threshold which is determined by doubling the previous year weekly malaria data to determine whether the epidemic threshold had been crossed. Weekly Surveillance reports and facility patient registration book were reviewed. Home to home active case search was conducted to address all febrile cases. An epidemic curve was constructed. Community leaders, patients and health workers were interviewed to collect qualitative information.

2 . Analytical epidemiology

A 1:2 case-control study was conducted to identify the risk factors. Cases were selected based on the case definition mentioned above and those peoples with no fever for the recent months were selected as controls and matched by age group, gender and living place. A structured questionnaire was used to collect information about selected practices, including indoor residual spraying (IRS), utilization of insecticide treated nets and suspected risk factors near to their house like :- Water resource development programs, artificial water holding containers(i.e. gutter to collect rain water) and stagnant waters. Bivariate analyses were conducted and association between the risk factor and exposure outcome were measured and tested using OR and P-value. Data entered and analyzed using Epi-info version 7

3. Laboratory methods

Laboratory technologists and technicians use microscope to detect malaria parasites and Health Extension Workers confirm malaria species using Rapid Diagnostic Test.

4. Environmental assessment

Potential mosquitoes breeding sites were assessed and observed for larval density.

Results

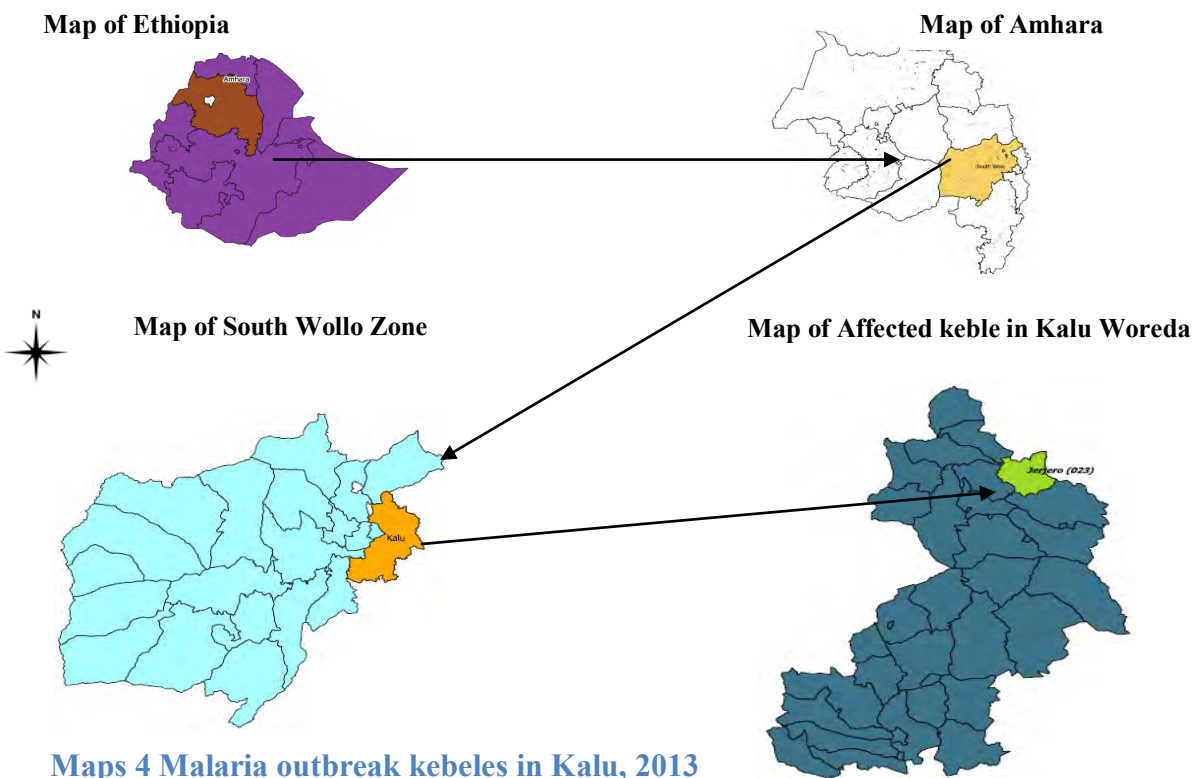
1. Descriptive epidemiology

Kalu woreda, Jerjero kebele reported 308 cases of malaria (Attack rate: 5.86%) and there was no death during the epidemic time. The alert threshold(i.e. 2012 doubled weekly data) had been crossed in week 41 to week 44,October 2013 in Jerjero kebele. The proportion of slides that were positive (slide positivity rate in Jerjero kebele) 42.8%. On that basis, the event was determined to be an outbreak and not a seasonal increase in the number of cases.

The baseline incidence rate for malaria prior to the outbreak was 12/1000 population to 25/1000 starting week 41. The peak of the outbreak was first week and decreased to 10/1000 population in the last week of the outbreak.

There were population immigration for the area. Some peoples came back from work specially from Afar region salt production area. The specific site were not targeted for Indoor residual spray. Due to the district health office follow the previous study for indoor residual targeted kebeles.

Outbreak affected kebele_Kalu,South Wollo,Amhara, Ethiopia 2013



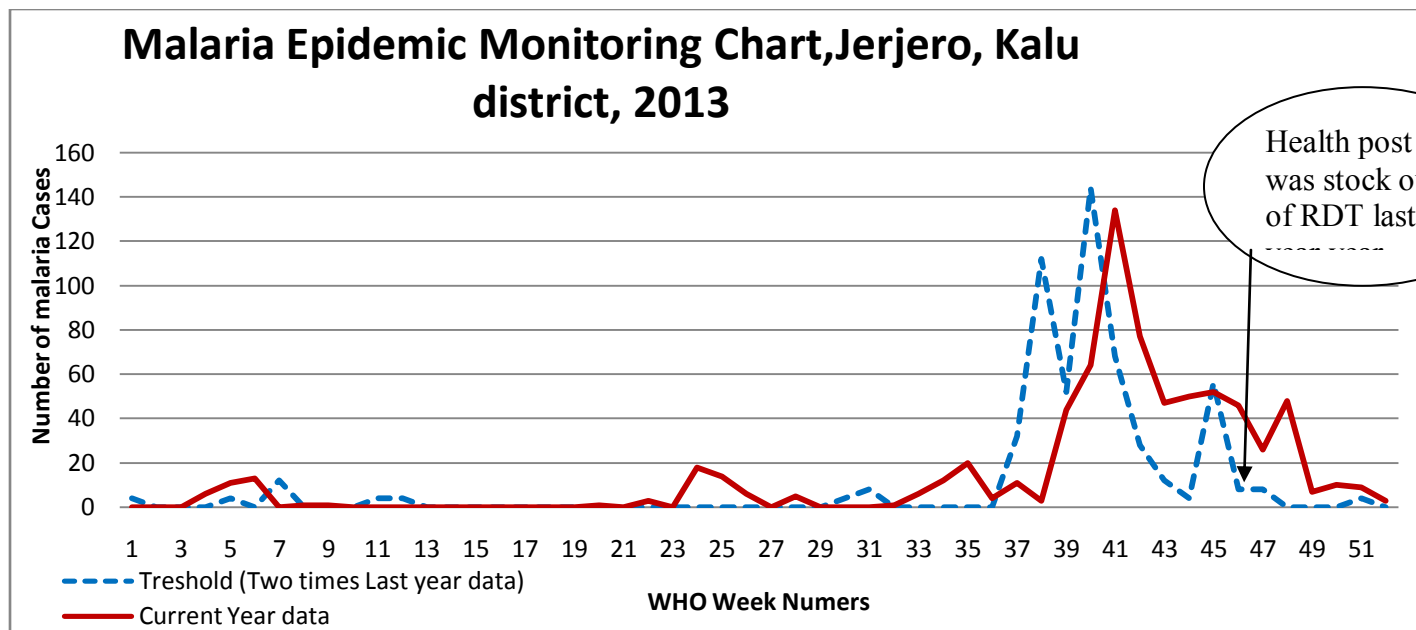


Figure 13 Malaria cases by weeks in Jerjero, Kalu

Table 14 Malaria cases and deaths by age and sex, Jerjero, South Wollo, Amhara region, Ethiopia, from 41 to 44 week 2013

Characteristics		Population	Cases	Deaths	Case Fatality Ratio(CFR)	Attack Rate (AR)
Age	<5	640	27	0	0	4.22
	>5	4617	281	0	0	6.09
Sex	Male	2,658	194	0	0	7.30
	Female	2,599	114	0	0	4.39
Total		5257	308	0	0	5.86

2. Analytical epidemiology

60 newly diagnosed malaria cases were randomly selected and 120 controls matched by gender, age group and place of residence. The median age for cases and controls were 31 and 30 respectively. Using bivariate Analysis, 57% and 67% among cases and controls respectively have bed nets and utilize but has no valid associated with malaria Odds Ratio (OR): 0.65, 95% confidence interval: 0.34-1.34, P-value was 0.25. 80% of cases and 54% controls live close to

gutter to collect rainwater and highly associated with malaria cases (OR: 3.38, 95% confidence interval: 1.63-7.00), p-value was 0.001.

3. Laboratory

Between week 41 and week 44 2013 a total of 719 malaria blood tests done by Microscopy and Rapid Diagnostic Test (RDT) and 308 of them resulted positive for malaria species of which 103 (33%) were *P. falciparum* while the remaining 205 (67%) were *P. vivax*.

4. Environmental assessment

Artificial water holding containers(i.e. gutter to collect rain water) estimated number is 1,800 to 2,000 and it has $8 \times 8 = 64 \text{m}^2$. Larvae of anopheline mosquito were found inside the artificial water holding containers and collected to show to decision makers and to educate health extension workers as well as other health professionals working at health center, trainees (i.e. larvicide chemical sprayer) and woreda health office.

Discussion

Since 1958, major epidemics of malaria have occurred at approximately 5-8 year intervals, though recently there has been a trend towards smaller-scale, more frequent, sporadic epidemics and seasonal case build ups.⁴ Malaria is mainly seasonal with unstable transmission in the highland fringe areas and of relatively longer transmission duration in lowland areas, river basins and valleys⁵ During the investigation season tried to identify the history of outbreak in kebele but there was no recent outbreak in the local village and in Jerjero kebele.

Malaria epidemics can occur as a result of variability or changes in the rate of infection and population immunity. Generally epidemics occur in places where there is low and unstable malaria transmission, and where people have low or no immunity.⁴ There was a number of residents back from Afar salt production area and there were infected by malaria.

An epidemic starts when the number of cases in a given week is higher than the threshold number (either the third quartile or double the number in previous year).⁴ The number of malaria confirmed current data compared with the threshold. It was crossed from 41 to 44 weeks. An increase above the weekly threshold were observed, it implies that there were an epidemic.

The outbreak investigation led to suspect that a number of factors operated such as ;- stagnant water bodies where the vector bred, low implementation of personal protection like use of ITN's

specially using school children's. In addition, weak case detection delayed the response. During this outbreak, identification of risk factors was challenging. Near to two thousand gutter to collect rain water were Identified in square meters the size of the breeding sites which were positive for anopheline larvae and were being used by humans and animals. The national strategic plan (NSP) 2011-2015 has the targets scale up indoor residual spraying (IRS) coverage to 90% of the targeted areas by 2013 and maintain this coverage until 2015.⁴ Due to the district health follow the previous study/trend the kebele is not targeted for spraying.

The results of the case-control study suggest that location of house relative to breeding sites (i.e. gutter to collect rain water) is a more important risk factor for malaria. A similar analytic approach in Sri Lanka and Bengal India indicated that people living closer to established vector breeding sites were at higher risk for malaria than those living farther away.^{5, 6} The study is limited to measure which level distance from breeding site is risk for malaria cases.

Intervention

Health professionals assigned for those affected areas and gave house to house treatment and listed all cases. By prioritizing the affected 'gots' more than 1700 ITN distributed. School children were assessed about bed net utilization using the carter center(MalTra project) bed net assessment utilization tool/form. Jerjero elementary school serves more than 400 students. Among those students from households (HHs) with at least one net were 218(54%). Among those who have at least one net, students who slept under net in the previous night were only 176(44%). Larvae from gutter of collected rain water were kept in bottle and showed for administrative, health professionals, trainers and community members. Training was given for 18 persons selected by administration how to conduct temphos for affected 'gots' and 40 Liter Temphos was given for kebele. Health education was given about the cause, transmission and prevention of the disease using government structure, schools, mosques and churches.

Conclusion

The kebele is one of the unstable malaria transmission area and it is not targeted for indoor residual spraying. No one knows about such like malaria cases in previous time. There was a number of peoples came back from malarias area that might have brought malaria to the area. The main risk factor for the outbreak were gutter to collect rain water and it was positive for anopheline larvae.

Recommendation

The kebele needs updated study whether targeted or not for IRS. One of the cause for malaria epidemics is migration of non-immune individuals to malarious areas so special attention should be given for those returned communities from another area. Agricultural development activities like gutter to collect rain water should include appropriate health safeguard components. Since the breeding site or the water is used by human and animal so larvicide control measure is recommended.

Acknowledgement

I would like to express my gratitude to Kalu district health office, head of Gerba cluster HC, HEW, Kebele administrative, TCC and South Wollo ZHD

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Chapter VI – Abstracts for Scientific Presentation

6.1. Surveillance data analysis of acute flaccid paralyses/AFP/ in Amhara region from July 2008 to June 2012

Abstract

Title: Surveillance data analysis of acute flaccid paralyses/AFP/ in Amhara region from July 2008 to June 2012

Authors: Khalid N. Qassim¹, T.H. G/Hiwot²

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

Background: Acute flaccid paralysis (AFP) can result from various causes and diseases including paralytic polio. So, AFP is a term given to any flaccid paralysis caused by many different diseases. The global incidence of polio increased by more than 99 percent – from 350,000 cases per year in 125 countries in 1988, to 1660 cases in 18 countries in 2008. In Ethiopia, there is no polio case report for the recent past years. The study was therefore undertaken to see the 5 year trend of AFP cases, describe the affected groups by place, person and time, and to evaluate the performance of the zones and to see some of the quality of surveillance.

Method: Amhara region Secondary data obtained from the existing WHO data base was analysed. Descriptive study method was conducted for the period from 2008-2012 using Microsoft excel.

Result: During the study period, the region detection rate is above 2 and the highest detection rate was in 2010. Bahirdar town has high performance but South Gonder has low performance. The most affected groups are less than 4 age and males. Non-polio acute flaccid paralyses rate was less than 10%.

Conclusion: The detection rate of the region is inconsistency and decline from the previous year and all the zones of the region have no equal performance and the quality of laboratory is less than expected. Since detection of acute flaccid paralyses is one of indicator for public health surveillance system the regional health bureau should support and fill the gaps of zone by supportive training and sharing experience with good performed areas.

Keywords: AFP, polio, Descriptive study, secondary data

Word count:258

6.2. Investigation of Measles outbreak in Sekela Districts, West Gojjam zone, Amhara Regional State, Ethiopia, 2014

Abstract

Title: Investigation of Measles outbreak in Sekela Districts, West Gojjam zone, Amhara Regional State, Ethiopia, 2014

Authors: Khalid N. Qassim¹, T.H. G/Hiwot²

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

Background: Measles remains a common disease and major contributor to child-mortality worldwide and kills approximately 1-3 of every 1000 infected individuals. An estimated 10 million cases and 164,000 deaths from measles occur worldwide each year. On 03/12/2013 West Gojjam zone, Amhara region reported suspected measles cases from Sekela district. As part of it West Gojjam zone has been reporting remarkable measles cases started 27-11-2013. An investigation was conducted to identify the cause of the outbreak and to undertake appropriate prevention and control interventions

Method: active patients are searched house to house and interviewed. Registration books are assessed and suspected-measles cases are listed starting from 27-11-2013 in Sekela district. Cases were defined as any person with fever and maculopapular (non-vesicular) generalized rash and cough, coryza or conjunctivitis (red eyes) or a suspected case with laboratory confirmation (positive IgM antibody) or epidemiologically linked to confirmed cases in an outbreak. Immunization coverage and vaccine cold-chain are assessed. Specimens are collected and tested. Descriptive analysis was conducted. .

Result: A total of 221 suspected-measles cases (Attack Rate (AR): 0.14%) with 6 deaths (Case Fatality Rate (CFR): 2.8%) are identified. Sex specific attack rates were 0.15% for Female and 0.18% for males. The mean age of cases are 10 and the most affected age group is among 10-14 (AR=0.31%). The vaccination status is unknown for 78.8 % of cases. The average vaccination coverage was 93%. Five refrigerators used for vaccine storage and three of them are functional but most of the time more than 8°C registered. Five specimens were collected and all are positive for measles IgM.

Conclusion: Most the cases vaccination status was unknown. So mass vaccination campaign from 6months -14 years of age groups should be conducted to stop the transmission.

Keywords: Measles, Amhara, Cold chain, Vaccination, Outbreak

Word count:283

6.3. Investigation of Malaria Outbreak- in Kalu woreda, South Wollo Zone, Amhara Regional State, October 2013

Abstract

Title: Investigation of Malaria outbreak in Kalu Districts, South Wollo zone, Amhara Regional State, Ethiopia, 2013

Authors: Khalid N. Qassim¹, T.H. Kidan Mariyam²

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

Background: Malaria is ranked as the leading communicable disease in Ethiopia, accounting for about 30% of the overall Disability Adjusted Life Years lost. Approximately 57.3 million (68%) of the 84.3 million population of Ethiopia live in areas at risk of malaria. On 16/10/2013 South Wollo zone, Amhara region reported case build ups of malaria from Kalu district. An investigation was conducted to verify the existence of the outbreak, to identify the risk factors for transmission of outbreaks and to undertake appropriate prevention and control interventions.

Method: The previous year's number of patients in that week multiplied by two is taken as a threshold and compared with current data (2013). 1:2 case control study was conducted. Cases were defined as febrile cases confirmed by microscopy or RDT for plasmodium parasites. Controls were no fever in recent months matched by age group, gender and living place and interviewed using structured questionnaire. School children assessed about utilization of bed nets, environmental assessments were conducted and qualitative information on potential mosquitoes breeding sites collected.

Result: Totally 308 cases are identified and the alert threshold crossed in October or 41 to 44 weeks. 60 cases and 120 controls were included for data analysis. 57% and 67% among cases and controls respectively have bed nets and utilize but (odds ratio [OR]=0.6) with confidence interval [CI]=0.3-1.2. 80% of cases and 54% controls live close to gutter to collect rainwater with OR=3.4(CI=1.6-7.0). 1800-2000 estimated gutters to collect rain water and mosquito larvae were found.

Conclusion: An outbreak of malaria occurred in Kalu district. So, Larvicide control measures should be applied.

Keywords: malaria, Amhara, case control, gutter to collect rainwater

Word count:258

Chapter VII – Narrative Summary of Disaster Situation Visited Belg Human Health and Nutrition Emergency needs assessment- South Wollo and Oromia Zones ,Amhara, Ethiopia, June 2013

Executive summary

Disaster situation assessment is conducted two times a year "Meher" and "Belg" in collaboration of governmental and nongovernmental organization together. The assessment was therefore undertaken to assess and identify public health emergency needs of the region following "Belg" season. Briefing and debriefing was conducted at regional, zonal and woreda level and two zones (oromia and south wollo) and five woredas assessed using checklists and discussion. From total of two zonal population of 369,177 (21.3%) population assessed. Assessed woreda have no functional multi sectoral public health emergency management coordination forum and their leading causes of mortality is diarrhea followed by Pneumonia in under five age and AFI followed by Pneumonia in adult. A total of 6 outbreaks were occurred in assessed woreda last 6 months. The outbreaks were measles in Tenta woreda (74 cases and 4 deaths with CFR of 5.4%), Dessie zuria woreda 8 cases, Bati woreda 7 cases. Clustered diarrheal cases in tenta woreda (50 cases and 4 deaths with CFR of 8%), and typhoid fever in Dalanta woreda 54 cases. Oromia zone anticipated malaria, AWD, measles, meningitis, malnutrition and south wollo anticipated measles, typhoid, malnutrition and AWD for the coming seasons. Assessed woredas have shortage for AWD (Doxycycline, ORS and R/L), for measles (Vit A, TTC eye Ointment, Amoxicillin Syrup), for Meningitis (Vaccine, LP set, Pasterox and oily CAF, ceftriaxon) and for Malaria: Artesunate, Quinine, RDT. A total of 984 SAM (sever acute malnutrition) and 757 moderate malnutrition cases were reported in the assessed woredas from January to May 2013. Tenta woreda takes the higher score for SAM which is (31%). All assessed woredas have OTP(outpatient therapeutic program) and SC(stabilization center) site. Woreda emergency task force members should consider emergency situations than other activities. They should make functional the committee and outbreak affected woredas should be given priority for preparedness and support.

Introduction

Disaster situation assessment conduct two times a year with a collaboration with different sectors from governmental organization and nongovernmental organization together. It leads by Ethiopia disaster risk management and food security sector (EDRMFSS). This multi sectoral seasonal assessment mostly focus on post harvest in "Belg" and "Meher". And also the team divides in to two main groups which are food and non-food teams and tried to assess belg dependent woredas because the season is belg. Food teams tried to assess woredas weather condition, crop production, planted area and timeliness of planting, crop production prospect (both cash and food ,crop stage ,weather impact, crop pest and disease, over all crop production performance, future seed availability) ,livestock condition, market condition, other sources of cash income, coping strategies of community. The non-food team responsible to assess health and nutrition, water and education.

This report focus on health and nutrition part of assessed woredas in Amhara region , south wollo zone (Dalanta, legambo, desse zuria and tenta woredas) and oromia zone (Bati zuria) .

Objective:-

General objective

To assess and identify public health emergency needs of the Region

Specific objectives

- To assess the current capacity of the districts health system to manage emergencies
- To assess the type, magnitude and risk of epidemics of different public health emergencies of the most vulnerable districts
- To allocate budget for public health emergency for most at risk districts

Method

- Briefing was conducted at regional level and different teams assigned for different areas which are belg season dependent for production
- Briefing conducted at zonal and woreda level
- Primary and secondary health related data were collected using checklists
- Formal discussion and interview was made with respective sector offices
- Final report submitted to the team leader and debriefing conducted on assessment findings to visited weredas, zones and regional level

Result

Socio- Demographic profile

Table 15 Assessed woredas different type of population

Name of woreda	Male population	Female population	Total population	Reproductive age women (15-49) years	Pregnant women	Tot No of PLW	U5 age group
Dalanta	66,111	67,445	133,556	27,111	4273	4273	18030
Tenta	90,905	92,717	183,622		5876		
Legambo	89,622	92355	181,977				22679
Desse zuria	84,539	87,989	172,528	40,682	5590	6901	23,291
Bati	38000	37363	75363	17771	2412	2412	10174

South wollo zone population 2,985,964 and assessed woreda total population 671,683 (22%) and oromia zone population 510,295 and assessed woreda population 75363 (15%). A total of 369,177 (21%) of two zone population assessed .

There were no special population which are pastoralists, refuges, internal displaced population or migrant workers in assessed woredas.

Health profile

Coordination

All assessed woreda has multi sectoral public health emergency management coordination forum but none of them are functional and there is no regular meeting. All woredas have preparedness

plan. Except oromia zone bati all assessed woredas have fund from government for preparedness.

Morbidity in last 3 quarter

The leading causes of morbidity in under 5 age are diarrhea, Pneumonia, AFI, diarrhea with dehydration and in adult AFI, Pneumonia, AURTI and diarrheal disease respectively.

List of emergency disease starting from January 2013

A total of 6 outbreak has occurred; measles 74 cases and 4 deaths in tenta woreda the CFR was 5.4%, 8 cases desse zuria and 7 cases bati woreda. Clustered diarrheal cases in tenta woreda 50 cases and 4 deaths the CFR was 8%. Typhoid 25 cases in February and 29 cases in April in Dalanta woreda.

Malaria cases also reported from all woreda except Tenta woreda a total of 695 cases

See the graph below

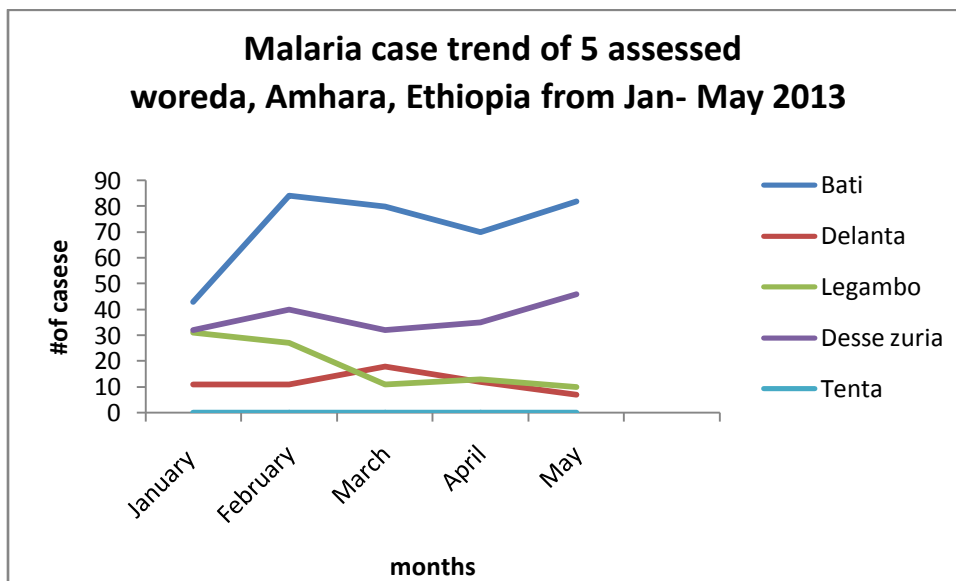


Figure 14 Malaria case trend of 5 assessed woreda, Amhara, Ethiopia from Jan- May 2013

There was no ongoing outbreak report from the assessed woredas.

Anticipated epidemics

Table 16 Anticipated epidemics in oromia and south wollo zones 2013 G.C. Amhara Region

Zones	Anticipated epidemics	Woredas	Risk Population
Oromia	Malaria	Jile-Timuga, Artuma-fursi, Dewa-chefa & Kemisse town	343,998
	AWD	Artuma-fursi, Dewa-chefa and bati woreda	284,383
	Measles	Jile-Timuga, Dewa-chefa and Bati woreda	273,318
	Meningitis	Jile-Timuga	80,722
	Malnutrition	Bati woreda and Bati town	120,726
South wollo	Measles	Tenta, Desse zuria	356,150
	Typhoid	Dalanta	133,556
	AWD	Tenta	183,622

N.B:- this table didn't include south wollo zonal situation ,it's only assessed woredas.

Emergency drugs and supplies for preparedness

There is gap for some drugs and supplies in assessed woredas:- for AWD (Doxycycline, ORS and R/L), for measles (Vit A, TTC eye Ointment, Amoxacillin Syrup), for Meningities (Vaccine, LP set, Pasterox and oily CAF, ceftriaxon) and for Malaria: Artesunate, Quinine, RDT.

All of the woreda distributed PHEM guidelines except Tenta woreda. 3 woredas have trained RRT.

Timeliness and completeness of weekly report of assessed woreda

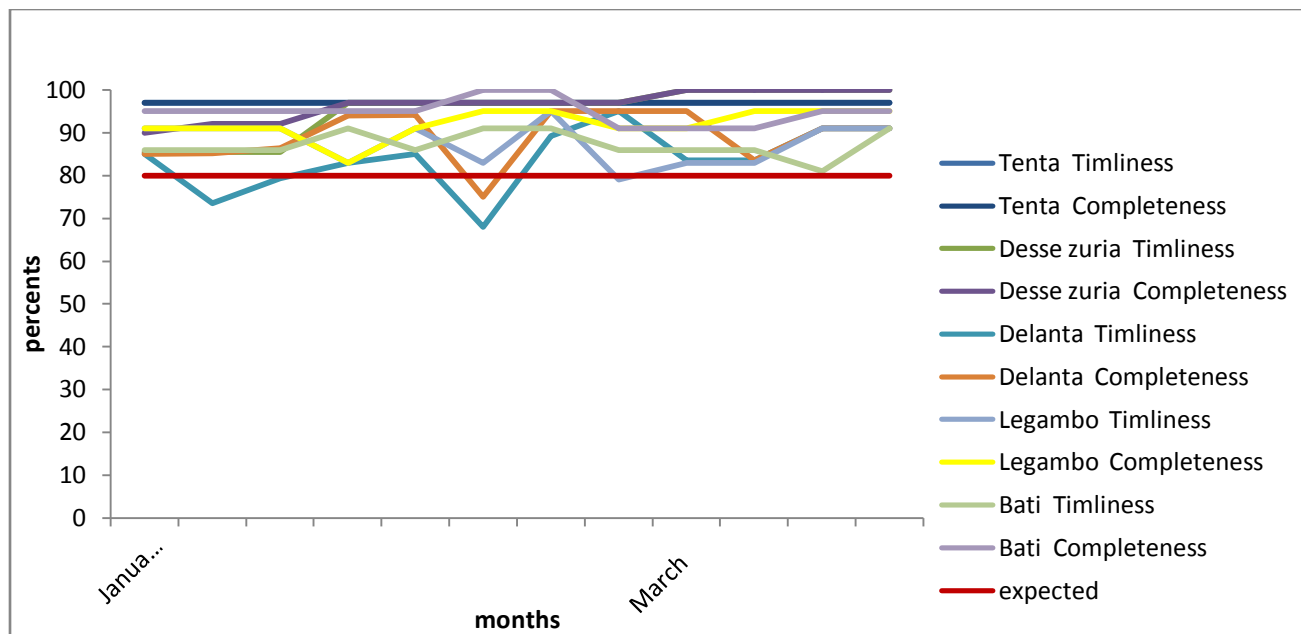


Figure 15 Timliness and completness of 5 assessed woreda, Amhara, Ethiopia from January - march 2013

Risk Factors

Risk Factors for Epidemic to occur

Malaria

Except Tenta and legambo woreda in south wollo zone, all the assessed woreda have endemic kebele for malaria. But all woreda have breeding sites, interrupting rivers and unprotected irrigations. All woreda LLINs coverage less than 80% because there was no replacement recently. Woredas that are endemic for malaria IRS coverage was 80% and above. And also all woreda health workers trained on the new malaria guide line.

Meningitis

All the visited woredas did not reported meningitis epidemic in the last three months. But some woredas have anticipate the case may happen :- from oromia zone jile-timuga woreda. All

woredas didn't conduct vaccination in the past three months. None of woreda health personnel took training on meningitis outbreak management.

AWD

There was no AWD epidemic in the last three months in all assessed woredas. But Most of Woredas are at risk of outbreak due to past history of AWD. Even if most of assessed woreda latrine coverage is more than 80% the utilization coverage is less than 70%. And also safe water coverage is 52-79%.

Measles

All woreda Measles vaccination coverage for less than 1 year is 89- 97% and all woreda has been conducted SIA. Target age group is children 9 month up to 49 months. All woreda have trained personnel on measles case.

Nutrition

A total of 984 SAM (sever acute malnutrition) and 757 moderate malnutrition(MAM) cases were in 5 assessed woredas from January to May 2013. Tenta woreda takes the higher score for SAM which was (31%). All assessed woredas have OTP and SC site. Also all woreda have adequate therapeutic supply but starting from April some of woredas such are;- Desse zuria, Tenta and Bati face shortage for F100 and F75 . The only woreda which is not referred children discharged from TFP(therapeutic feeding program) to SFP(supplementary feeding program) is Dalanta woreda. All of woredas requested refreshment training for health extension worker on OTP program.

Discussion

All woreda have responsibility for functional PHEM coordination forum . it is responsible to assess woredas emergency situation some interval days. Unfortunately, none of the woreda PHEM committee is functional.

A total of 6 outbreak has occurred; measles 74 cases and 4 deaths in tenta woreda, 8 cases desse zuria and 7 cases bati woreda. Clustered diarrheal cases in tenta woreda 50 cases and 4 deaths.

Typhoid 25 cases in February and 29 cases in April in Dalanta woreda. So all those woredas exposed for outbreak in last 3 months and anticipated epidemics needs special attention for the coming seasons. The target for Timeliness and completeness report is to be 100% because it is helpful to detect events easily. But sometimes it becomes lower than 80% which is a minimum expected level.

The nutrition situation as well looks stable till now, though admissions of children and PLW screened for SAM and MAM during community health day (CHD) is considered high. The implication is whenever there is better community mobilization and door to door services, a lot of children malnourished still remain hidden at home without getting the service during the routine service delivery, though the case is already there. It also implies the prevalence or existence of Malnutrition in the community is still significantly high. However from the analysis of food security perspective i.e. the rain condition was so unfavorable for crop production and the expected production is minimal to zero, the live stock condition is being affected and would be more affected, there was no better crop production as well in the neighboring meher producing kebeles, i.e. all would need to buy crops and sell live stocks, the price of cheap crops has even raised to four fold and live stock price went down by half and the term of trade (TOT) does not favor all households and this aggravates the food security gap. Besides making use of alternative unsafe source of drinking water is already in place, with signs poor immunity the nutritional situation is expected to be in challenge if immediate actions are taken to minimize the household food security gaps ahead and health deliveries and nutritional programs are strengthened further.

Conclusion

- There is no functional PHEM coordination forum in assessed woreda.
- Some woredas are affected by outbreak in the last 3 months
- Report timeliness and completeness is not above 80% for all woredas
- CHD program can trace more malnourished cases than before so it shows the case already there

Recommendation

Woreda emergency task force members should assess themselves and consider emergency situations than other activities and they should make functional the committee. Outbreak affected woredas should be given priority for preparedness and support. Report timeliness and completeness should be improved and it should achieve the expected level. CHD program can trace many malnourished cases so it should continue in strong manner.

Annex 5 Belg Assessment Questionnaire for health sector. Region/Zone

Interviewer name _____		Institution: ___ Oromia ZHD _____	
Interview Date: (dd) ____/(mm) ____/2013		Region: _____ Zone: _____	
Main contact at this location:	Name: _____ -	Position: _____	Tel: _____
1. COORDINATION			
A. Is there a functional multisectoral coordination forum for the health sector?		Yes <input type="checkbox"/>	No <input type="checkbox"/>
B. Are all relevant government, NGOs and UN agencies represented?		Yes <input type="checkbox"/>	No <input type="checkbox"/>
C. Frequency of regular meeting? (Weekly, Every 2 weeks, monthly.....)		_____	
2. Outbreak?			
Was there any outbreak in the last 3 months?		Yes <input type="checkbox"/>	No <input type="checkbox"/>
If yes, specify the name of disease outbreak			
Disease outbreak _____	# of cases : _____	Deaths _____	(time period) _____
Disease outbreak _____	# of cases : _____	Deaths _____	(time period) _____
Disease outbreak _____	# of cases : _____	Deaths _____	(time period) _____
3. Mention anticipated epidemics _Malaria, measles, meningitis and AWD			
If yes please indicate Zone/Woreda at risk and risk population per anticipated risk: <i>(Use the back side)</i>			
<i>Anticipated epidemics</i>	<i>woredas</i>		
<i>Malaria</i>	(_____)		
<i>Measles</i>	(_____)		
<i>AWD</i>	(_____)		
<i>Meningitis</i>	(_____)		
4. Public Health emergency Management			
A. Is there a Public Health Emergency Preparedness and Response plan?		Yes <input type="checkbox"/>	No <input type="checkbox"/>
If yes, is the plan budgeted/ funded?		Yes <input type="checkbox"/>	No <input type="checkbox"/>
B. Is there a trained staff on PHEM (Regional/Zonal/Woreda/HFs)		Yes <input type="checkbox"/>	No <input type="checkbox"/>
If yes specify number of trained personnel per level:			

Region: Female _____ Male _____ Zone: Female _____ Male _____ Woreda: Female _____ Male _____					
C.		Is there a Regional trained Rapid Response team (RRT)?		Yes <input type="checkbox"/> No <input type="checkbox"/>	
D.		Are there trained staff on Minimum Initial Service Package for RH		Yes <input type="checkbox"/> No <input type="checkbox"/>	
If yes specify number of trained personnel per level: Region: Female _____ Male _____ Zone: Female _____ Male _____ Woreda: Female _____ Male _____					
	Drugs and medical supplies		Total requirement	Available	Gap
	i. Meningitis vaccine				
	ii. Drugs:	Coartem			
		Artesunate (rectal)			
		Artesunate (Inj)			
		Artemether IM			
		Quinine (PO)			
		Quinine (IV)			
		Chloroquine			
		Ceftriaxone			
		Oily CAF			
		Doxycycline			
		Ringer lactate			
		ORS			
	Vit A.				
	iii. Lab supplies	RDT (Malaria)			
		Pastorex (Meningitis)			
		LP set			
TI bottle					
CTC Kit (AWD)					

	Medical Supplies	Gloves,			
		Syringe			
		PPE			
	Clinical Delivery Assistance kit PART A: Reusable Equipment				
	Clinical Delivery Assistance kit PART B: Drugs & Disposable Equip.				
	Mgt. of Complications of Abortion kit (Manual Vacuum Asp. Set)				

Summary: Requirements/Needs/ 2013

Region	Zone	Woreda at Risk	Type of Risk	At risk Population

Comments:

Keep up the assessment and try to make budgeted for preparedness

¹ ***Total estimated beneficiaries for Emergency Reproductive Health are Women of Reproductive Age and their number is calculated at 23% of the total of at risk population.***

Annex 6 Belg assessment- Health Sector: Woreda level Questionnaire 2013

Serial No _____

Interviewer name _____

Interview Date: (dd) ____ / (mm) ____ / 2013

Region: _____

Zone: __ Oromia __ Woreda __ Bati __

Main contact at this location: Name: _____

Position: _____ Tel: _____

SECTION I: SOCIO- DEMOGRAPHIC PROFILE

1.1. Woreda total population:	M: ____ F: ____	Under 5	Total:	
	No. of women of reproductive age (age 15-49 yrs.): ____			
	No. of pregnant women : ____			
	No. of lactating women: ____			
Total no. of PLW : ____				
1.2. Special Population (<i>if any</i>):	Pastorals ____	Refugees ____	IDPs ____	Migrant Workers ____

SECTION II: HEALTH PROFILE**2.1. Coordination**

Is there a functional multi sectoral PHEM coordination forum?	Yes <input type="checkbox"/> No <input type="checkbox"/>
Is there a PHE preparedness and response plan?	Yes <input type="checkbox"/> No <input type="checkbox"/>
Is there accessible emergency response fund	Yes <input type="checkbox"/> No <input type="checkbox"/>
Is there fund allocated for Preparedness activities	Yes <input type="checkbox"/> No <input type="checkbox"/>

2.2. Morbidity (List top 5 causes of Morbidity) in the year 2005 EC (Meskerem to Megabit) (2012-2013 GC)

a. Morbidity below 5 years	Morbidity above 5 years

2.3. List number of cases/deaths from Tir 2005 to Ginbot 2005 (Jan–May 2013)

Month	AWD	Malaria	Measles	Meningitis	Other(specify)
-------	-----	---------	---------	------------	----------------

	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths
Jan 2013										
Feb 2013										
Mar 2013										
April 2013										
May 2013										

NB: Number of cases and deaths of the specific disease could be total case reported by the routine surveillance system during the period and not necessarily outbreak report

2.4. Outbreak?

Was there any outbreak in the last 3 months? (August- October)

Yes No

If yes, specify the disease:

Disease outbreak _____ Deaths No _ (time period DD/MM/YY) __

Disease outbreak _____ # of cases : _____ Deaths _____ (time period DD/MM/YY) _____

Is there any ongoing outbreak of any disease?

Yes No

Disease outbreak _____ # of cases : _____ Deaths _____ (Start date) _____

Disease outbreak _____ # of cases : _____ Deaths _____ (Start date) _____

Disease outbreak _____ # of cases : _____ Deaths _____ (Start date) _____

2.5. Preparedness: Is there emergency drugs and supplies enough for 1 month? Or easily accessible on need? (NB: Use the stock matrix to calculate this)

Ringer Lactate (to treat AWD cases)

Yes No

ORS (to treat AWD cases):

Yes No

Doxycycline (to treat AWD cases):

Yes No

Consumables : Syringes, Gloves (for AWD management):

Yes No

Amoxil susp (measles)

Yes No

Tetracycline ointment (measles)	Yes <input type="checkbox"/>	No <input type="checkbox"/>		
Vit A (measles)	Yes <input type="checkbox"/>	No <input type="checkbox"/>		
Coartem for Malaria	Yes <input type="checkbox"/>	No <input type="checkbox"/>		
Artesunate (rectal) for Malaria	Yes <input type="checkbox"/>	No <input type="checkbox"/>		
Artesunate (Injection) for Malaria	Yes <input type="checkbox"/>	No <input type="checkbox"/>		
Artemether IM for Malaria	Yes <input type="checkbox"/>	No <input type="checkbox"/>		
Quinine (PO) for Malaria	Yes <input type="checkbox"/>	No <input type="checkbox"/>		
Quinine (IV) for Malaria	Yes <input type="checkbox"/>	No <input type="checkbox"/>		
Chloroquine for Malaria	Yes <input type="checkbox"/>	No <input type="checkbox"/>		
Ceftriaxone (Meningitis)	Yes <input type="checkbox"/>	No <input type="checkbox"/>		
Lab supply: RDT for Malaria	Yes <input type="checkbox"/>	No <input type="checkbox"/>		
Lab supply: RDT (pastorex) for Meningitis LP set	Yes <input type="checkbox"/>	No <input type="checkbox"/>		
Number of CTC kit available: (for AWD)	Yes <input type="checkbox"/>	No <input type="checkbox"/>		
Clinical Delivery Assistance kit PART A: Reusable Equipment	Yes <input type="checkbox"/>	No <input type="checkbox"/>		
Clinical Delivery Assistance kit PART B: Drugs & Disposable Equip.	Yes <input type="checkbox"/>	No <input type="checkbox"/>		
Mgt. of Complications of Abortion kit (Manual Vacuum Asp. Set)	Yes <input type="checkbox"/>	No <input type="checkbox"/>		
Main shortage (if any): Specify				
Is budget allocated for emergency Rapid response by the woreda Health office?	Yes <input type="checkbox"/>	No <input type="checkbox"/>		
Is PHEM guideline distributed to all Health institutions	Yes <input type="checkbox"/>	No <input type="checkbox"/>		
Is there a trained woreda Rapid Response Team?	Yes <input type="checkbox"/>	No <input type="checkbox"/>		
Are there staffs trained on Minimum Initial Service Package for Reproductive Health?	Yes <input type="checkbox"/>	No <input type="checkbox"/>		
If " Yes" please state the number of trained personnel : Male : _____ Female : _____ Total : _____				
Weekly Timeliness and Completeness (%) of Surveillance report for August – October				
Month	T/C (%)	T/C (%)	T/C (%)	T/C (%)
August 2012				
September 2012				

October -2012				
SECTION III: RISK FACTORS				
Diseases	Risk factors for epidemics to occur			
Malaria	Malaria endemic area	Yes <input type="checkbox"/> No <input type="checkbox"/>		
	Presence of malaria breeding site	Yes <input type="checkbox"/> No <input type="checkbox"/>		
	Interrupted or potentially interrupting rivers	Yes <input type="checkbox"/> No <input type="checkbox"/>		
	Unprotected irrigation in the area	Yes <input type="checkbox"/> No <input type="checkbox"/>		
	LLINs coverage <80%	Yes <input type="checkbox"/> No <input type="checkbox"/>		
	Indicate the coverage of IRS 2005 _____			
	Depleted prevention and control activities	Yes <input type="checkbox"/> No <input type="checkbox"/>		
	Malaria Guideline (new) distributed to all Health facilities	Yes <input type="checkbox"/> No <input type="checkbox"/>		
	Health workers trained on the new Malaria guideline	Yes <input type="checkbox"/> No <input type="checkbox"/>		
	Number of malarious kebeles and total population in these Kebeles	Keb _____ Pop(F) _____ (M) _____		
Meningitis	Was there Meningitis epidemic in the last 3 years (If yes specify year) _____			
	Has vaccination been conducted in the past 3 years	Yes <input type="checkbox"/> No <input type="checkbox"/>		
	If yes : Indicate the date and number of people vaccinated	Date _____	No _____	
	Is there Meningitis outbreak control Guideline	Yes <input type="checkbox"/> No <input type="checkbox"/>		
	Are health workers trained on Meningitis outbreak management	Yes <input type="checkbox"/> No <input type="checkbox"/>		
AWD	Was there AWD epidemic in the last three years (If yes specify date) _____		Yes <input type="checkbox"/> No <input type="checkbox"/>	
	Latrine coverage			
	Latrine utilization			
	Safe water coverage			
	Is Cholera outbreak control Guideline distributed to all HFs		Yes <input type="checkbox"/> No <input type="checkbox"/>	
Measles	Is there ongoing measles outbreak		Yes <input type="checkbox"/> No <input type="checkbox"/>	
	What is the measles vaccination coverage of 2004, less than one year (Hamle 2003-Sene 2004)		89%	
	Is Measles Guideline distributed to all Health facilities?		Yes <input type="checkbox"/> No <input type="checkbox"/>	
	Are health workers trained on Measles		Yes <input type="checkbox"/> No <input type="checkbox"/>	
	Has SIA been conducted in 2004 EFY		Yes <input type="checkbox"/> No <input type="checkbox"/>	
	If yes, Indicate the month and number of children vaccinated including the age group		Month _____	
No. Vaccinated _____				
Age group _____				

Any other observations you made or any risks of epidemics?

What were the major challenges in your Epidemic response experience?

Section IV: Nutrition - TFP admissions at woreda level January to May 2013

Month	Total new SAM Cases	Total Number of TFP (OTP/SC) in the woreda	Number of SC.	Number of OTP.	Total Number of OTP/SC reported.	Therapeutic Supplies Y/N			Children Discharged from TFP referred to SFP Y/N
						RUTF	F100	F75	
Jan									
Feb									
Mar									
April									
May									

Therapeutic Supplies enough for the next 1 month : YES _____;
 NO _____

Any comment

Chapter VIII – Protocol/Proposal for Epidemiologic Research Project

8.1. Assessment of long-lasting insecticidal net utilization and associated factors in Bati woreda, Oromo Nation Zone, Amhara Region, Ethiopia, 2014

ADIS ABABA UNIVERSITY
FACULTY OF MEDICINE
SCHOOL OF PUBLIC HEALTH

MASTER OF PUBLIC HEALTH
RESEARCH PROJECT SUBMISSION FORM

Name of investigator	Khalid Nassir Qassim
Name of Advisor(s)	Mr. Teklehaymanot G/Hiwot Dr. Getahun Aynalem
Full title of the research project	Assessment of long-lasting insecticidal net utilization and associated factors in Bati woreda, Oromo Nation Zone, Amhara Region, Ethiopia, 2014
Duration of project	2 months
Study Area	Bati Woreda
Total Cost of the project	56,043.60 birr
Address of investigator	Tel:+251-0911095967 E-mail: khalidnassir31@yahoo.com

Introduction

Background

Malaria is a life-threatening parasitic disease caused by plasmodium and transmitted from person to person when malaria parasite infected female anopheles mosquito is biting healthy person in search of blood meal.

Over the last decade, the world has made major progress in the fight against malaria. Since 2000, malaria mortality rates have fallen by more than 25%, and 50 of the 99 countries with ongoing transmission are now on track to meet the 2015 World Health Assembly target of reducing incidence rates by more than 75%. A major scale-up of vector control interventions, together with increased access to diagnostic testing and quality-assured treatment, has been key to this progress.¹ Malaria still kills an estimated 660 000 people worldwide, mainly children under five years of age in sub-Saharan Africa. Every year, more than 200 million cases occur; most of these cases are never tested or registered. A recent plateauing of international funding has slowed down progress, and emerging drug and insecticide resistance threaten to reverse recent gains.¹

Malaria is ranked as the leading communicable disease in Ethiopia, accounting for about 30% of the overall Disability Adjusted Life Years lost. Approximately 57.3 million (68%) of the 84.3 million population of Ethiopia live in areas at risk of malaria. According to the FMOH, malaria was the leading cause of outpatient visits and health facility admissions in 2009/2010, accounting for 14% of reported outpatient visits and nearly 9% of admissions. Malaria also was among the ten leading causes of inpatient deaths among children less than five years of age. Because of a weak malaria disease surveillance system and the inability of the Health Management Information System (HMIS) to capture all necessary malaria related indicators, official estimates of the true burden of malaria in Ethiopia are imprecise².

The main vector control activities implemented in Ethiopia include IRS, LLINs and mosquito larval source reduction.⁴ The challenge now is maintaining the existing high LLIN coverage and increasing utilization rates.⁴

Statement of the problem

Malaria and Other Vector Born Disease Prevention and Control Department of Amhara Regional Health Bureau, malaria is responsible for the significant proportion of fever cases, outpatient consultations and hospital admissions. In addition, it causes a considerable amount of workdays lost by the victim, economic cost, and absenteeism from school, reduction of productivity and days missed by women and men due to malaria episode of their children or other family members.

Malaria transmission in Bati woreda occurs throughout the year. Even if malaria transmission occurs throughout the year the peak malaria transmission season of the area is between March-April and June/July-September following rainy season. Bati woreda is one of identified malarious woreda by Ministry of health and it has recent malaria epidemic history.

The effectiveness of LLINs for epidemic control depends on whether most at-risk populations have sufficient LLINs and are using available LLINs properly.⁴ According to carter center Amhara, a total of 10,463 households were assessed in 2012. Household net ownership was high (84%), but not sufficient to cover all sleeping spaces (64%). More critically, only 31% of households reported that all members slept under an LLIN the previous night, and only 38% of households were found to have LLINs hanging at appropriate height. Nets appeared to be in good condition however, as only 38% of households owned nets that were in need of repair. School-based assessments evaluated net ownership and utilization for 38,896 students in 227 (3.2%) schools in Amhara. While 82% of students reported that their household owned at least one LLIN, only 43% of students reported sleeping under a LLIN the previous night.⁵

Rational of the study

As it had been observed in some parts of Africa; Gambia (Alessandro D, et al., 1995), Kenya (Nevill, et al., 1996) and Ghana (Binka, et al, 1996)), the use of insecticide treated bed nets has become the most popular and widely used method of reducing morbidity and mortality related to malaria. If ITNs are appropriately used and maintained they can reduce all-cause mortality in children by an average of 17% and the occurrence of sever and mild malaria episodes by 45-48%(Jonathon L., Bruce A., Alexander Zusman, &Sydney Rose, et al, 2002)a they can give protection at personal, household and community levels from malaria (WHO,2002)⁶

By protecting people from being bitten by infected mosquitoes, LLINs are an effective tool to significantly reduce morbidity and mortality due to malaria. Additionally, when coverage rates are high and if a large proportion of human biting by local vectors takes place after people have gone to sleep, LLINs also can have an impact on vector populations.⁴ But, data from the recent MIS survey show that major malaria prevention measures LLIN coverage and utilization have not yet reached agreed targets.⁵ This study will, therefore, help to evaluate LLIN utilization and associated factors. So that the policy makers and concerned bodies could take appropriate measures.

Literature Review

The main vector control activities implemented in Ethiopia include IRS, LLINs and mosquito larval source reduction.⁴ The challenge now is maintaining the existing high LLIN coverage and increasing utilization rates. Further, targeting IRS based on a epidemiologically sound, affordable and sustainable approach continues to be a challenge

Persons living within 1 km of recent malaria cases should be advised to sleep under their long-lasting insecticidal nets (LLINs).⁴ All mosquito nets act as a physical barrier, preventing access by vector mosquitoes and thus providing personal protection against malaria to the individual(s) using the nets. Pyrethroid insecticides, which are used to treat nets, have an excito-repellent effect that adds a chemical barrier to the physical one, further reducing human–vector contact and increasing the protective efficacy of the mosquito nets. Most commonly, the insecticide kills

the malaria vectors that come into contact with the ITN. By reducing the vector population in this way, ITNs, when used by a majority of the target population, provide protection for all people in the community, including those who do not themselves sleep under nets.^{7,8} A recent study has shown that relatively modest coverage (around 60%) of all adults and children can achieve equitable community-wide benefits.⁹ ITNs thus work in this case as a vector control intervention for reducing malaria transmission.

ITNs have been shown to avert around 50% of malaria cases, making protective efficacy significantly higher than that of untreated nets which, under ideal conditions (such as those found in research settings), usually provide about half the protection of nets treated with an effective insecticide.¹⁰ In “real life” situations, the protective efficacy of untreated nets is significantly compromised by their poor physical condition. Currently, most mosquito nets are made of polyester and rarely last longer than 2–3 years under field situations. However, new technologies and materials such as polyethylene have been developed to produce nets that are stronger and longer-lasting.

Social marketing is the process of increasing the use of quality health products by low income and vulnerable groups to achieve health impact. To encourage sustained and appropriate use of products, demand creation activities and research-based communication strategies are employed. The social marketing approach can achieve high coverage of target groups in a relatively short period of time and serve as a catalyst for private sector LLIN distribution by overcoming barriers to private sector participation.⁴

Ethiopia is also one of the most malaria epidemic-prone countries in Africa. Rates of morbidity and mortality increase dramatically (i.e. 3-5 fold) during epidemics. Since 2005, Ethiopia has scaled-up one of the largest and most ambitious malaria control programs in Africa, designed to support the country’s Health Sector Development Plan (HSDP), the national strategic plan (NSP) and the national child survival strategy, in order to reduce under-five mortality rates by two thirds by 2015⁴. Ethiopia is among the few countries with unstable malaria transmission. Consequently, malaria epidemics are serious public health emergencies. While malaria is mostly an endemic disease, it may also occur as outbreaks, for example in areas with low seasonal transmission.³ All patients, however, should be notified when they are in a malaria “hot zone”

(i.e. an area of increased risk of malaria), and should be strongly advised to use available LLINs to the maximum extent possible, especially pregnant women and young children.⁴

Possible precipitating Factors of Malaria epidemics are :-Abnormal weather conditions / Rain fall, Increase of vector capacity, Deterioration of vector control operations, Immigration of non endemic into an endemic area, Resistance to anti malaria drugs and Constructions / Dams, mining/.⁴

Objective

General objectives

To assess the coverage and use of insecticide treated mosquito nets and associated factors in Bati woreda, Oromia Special Zone, Amhara region, Ethiopia.

Specific objectives

- To assess Insecticide treated mosquito net ownership and use in the woreda
- To assess awareness level towards malaria, mosquitoes and insecticide treated nets in the woreda.
- To identify factors that influence insecticide treated mosquito net ownership and use in the woreda
- Assess the current condition of mosquito nets already obtained by the households
- To provide recommendations on how to advance the utilization of insecticide treated mosquito nets in the prevention or control of malaria in the area

Research Methodology

Study Design

A community based cross sectional survey study will be employed to assess long-lasting insecticide net utilization and associated factors in Bati woreda, Oromo Nation Zone, Amhara

Study area

Bati woreda is one of the 7 districts in Oromo Nation Zone of Amhara regional state. It is bordered on the south by Dawa Harewa, on the South East by the Argoba special woreda, on the west and north South Wollo Zone, and on the east by the Afar Region. It fares around 543 km from Bahir Dar and 417 from Addis Ababa. With an area of 1,132.16 square kilometers, Bati has a population density of 94.85, which is less than the Zone average of 131.78 persons per square kilometer. The woreda divided in to 5 cluster and 26 kebles. Concerning health care service, there are 6 health center and 26 health posts.

Population

The woreda total number of population and households are 89,920 and 20,911 respectively.

Target population

The source population will be total households in Bati woreda.

The study population

Households which are going to be selected and included in the study during the sampling procedure

Sampling technique

By using systematic sampling technique the households will be selected from each kebele to identify the study subjects. Assigning of the households from each kebele will be done by using proportional allocation to the size of the households of each selected kebeles. Sampling interval will be determined by dividing the total number of households in each kebele by the corresponding number of households to be interviewed in each kebele. The first household will be selected randomly then the next household will be selected systematically based on the sampling intervals.

Sample Size

The sample size is calculated by using the standard sample size calculation formula using one sample proportion

The following assumption will be considered: the proportion of LLIN users will be 50 % ($p=0.5$), because the proportion of LLIN users in the study area is not known, the confidence interval will be 95% ($\alpha=0.05$), the marginal error of the study will be 5 % ($e=.05$) and 10% non response rate will be added. Based on the above assumptions the minimum sample size required for the study will be

$$n = \frac{(z_{\alpha/2})^2 \times pq}{e^2}$$

$$n = \frac{1.96 \times 1.96 \times 0.5 \times 0.5}{0.05 \times 0.05} = 384$$

By adding 10% non response rate, the final sample size will be $384 + (384 \times 0.1) = \underline{422}$ house holds

Development of tools and instruments

Questionnaire development

After reviewing different literatures on LLIN, a structured questionnaire (Annex 4) developed based on the objectives of the study and local situation of the study area. The structured questionnaires prepared in English and will translate in to Amharic language and then back translated to English. Before starting filling questionnaire their willingness will be asked using consent form (Annex 3).

The structured questionnaire will include questions related to socio-demographic and economic characteristics, knowledge questions related to malaria, mosquito, and mosquito nets and also questions related to bed net use.

Before the actual data collection process starts, the structured questionnaire will be pretested on similar population using 5% of the sample size by involving the data collectors, supervisors and the principal investigator, after pretesting if any ambiguity or difficulty occurs, related to data collector or questionnaire, any modification and correction measures will be given before the actual data collection process will be carried out.

Data collection procedures

For data collection either grade 10 completed, grade 12 completed or above will be recruited. They will be residences of the study area and who know the local culture and belief of the community. Data collectors will be trained by the principal investigator. The training will include discussing about the objective, significance of the study, and how to administer the questionnaires.

For supervisor either BSc or diploma graduate health professionals will be selected. And they will train on the objective of the study, the relevance of the study and how to supervise the data collectors. The supervisor together with the principal investigator will supervise data collection process.

Completed questionnaires will be collected every day after checking for possible inconsistencies, errors and omissions. Questionnaire formats with problems will return back to interviewers for re-interview. The principal investigator will responsible for overall coordination of data collection process

Data analysis

Data will be entered, cleaned and analyzed using Epi-info software version 7.1.3.0 and displayed using tables and figures.

Data quality measures

To control the quality of the data , before the actual data collection procedure starts, pretesting will be carried out in the study area and thorough discussion, will be done with the data collectors and supervisors about the overall procedures that will be carried out. The principal investigator will check all of the questionnaires filled by the data collectors daily whether it is filled correctly or not. Five percent of the completed questionnaire will be re-interviewed again by the principal investigator to check the validity of the collected data.

Every day at the field, data will be checked for completeness and consistency by supervisors. If there is any mistake made by data collector while filling the questionnaires. The data collector will be send back to the household to fill the questionnaire again.

Operational definitions

Bed net: Any mosquito nets used for sleeping either treated or untreated with insecticide.

Household: A domestic unit consisting of the numbers of a family who lives together along with non relatives such as servants.

Net ownership: Households owning at least one mosquito net of any type in their house

ITN : Either a long-lasting net that does not require re-treatment or a pretreated net obtained within the last 12 months inclusive, or a net that has been soaked with insecticide within the last 12 months inclusive.

ITN use: Household members (especially children under five and pregnant mothers) Sleeping under the hanging ITN the night before the survey

Household ITN ownership: Households having at least one ITN in their house

Variables

Dependent variables

ITN ownership

ITN utilization

Independent variables

Socio demographic characteristics, such as residence, age, religion, education, sex, marital status, occupation ,monthly income, ownership of radio, Knowledge about mosquitoes, knowledge about ITN and malaria ,housing condition , attitude towards use of nets ,family size ,condition of nets ,treatment status and sleeping arrangement.

Ethical Consideration:

The ethical approval and clearance will be obtained from Medical Faculty of Addis Ababa University ethical committee. Permission will be also obtained from the concerned bodies of Amhara Regional State Health Bureau, Oromo Nation Zonal Health Department and Bati woreda Health Office. The data collectors will be oriented during the training so that they would provide proper advice for the respondents regarding any malpractice they have come across. Similar information provision will be done by the principal investigator for the participants of the focus

group discussions. Interview will be carried out only with full consent of the person being interviewed. Before each interview, clear explanation will be given about the aim of the study will not neither to evaluate the performance of the individual nor to blame anyone for weakness but to gather information and opinions that may lead to eventual improvement in the utilization of latrine. Each respondent will assured that the information provided by them would be confidential and used only for the purpose of research.

Dissemination of findings:

Results will be submitted to AAU Department of Community Health and presented orally. To help in future interventions the result will be communicated to governmental and non-governmental bodies. These include the Bati Woreda Health Office, Oromo Nation Zonal Health Department, Amhara regional health bureau, Federal Ministry of Health (FMoH), WHO country office, United Nation Children's Fund (UNICEF), The Carter Center(TTC) and others. One day conference will arranged at district level to present the study results. In addition effort will be exerted to publish the paper and disseminate it via presentation on different national and international conferences.

Expected outcomes:

No of households owned ITNs, source of ITNs; Free, subsidized or cash base, Proportion of ;households uses ITN, under 5 age children slept under ITN in the previous night, pregnant women slept under ITN in the previous night and how is the perception of the community towards ITN for malaria prevention.

Budget and Implementations Time

A total of 56,043.50 birr will be needed to conduct the study. Break down is annexed (Annex 1). The project will take about 2 month including preparation of final report, detail is annexed (Annex 2). Study will be started within two weeks after grant released.

Reference

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Annex 7 Epi Project Budget Break Down

Sr. No	Item	Unit cost (in Birr) ETB\$
	Translation and back retranslation of questionnaire from English to local from local to English language.10pagesX2times translation X70birr/page	1400.00
Sub total		1400.00
	Training of data collectors and supervisor for 2 days	
1	10 data collectors *100birr/day*2 days	2000.00
2	5 supervisors *160birr/day*2 days	1600.00
3	1 Evaluator *200birr/day*2days	400.00
4	Trainer for two days	800.00
5	Training hall rent for 2 days	400.00
6	17pens*2.50birr/pc	42.50
7	17 pencils*1.00	17.00
8	Data collection from 40 non targeted households to pre test the quality of the questionnaire developed (Five days activity) 5 (200+(160x5)+(10x100)	10,000.00
Sub –total		15259.50
	Data Collection for 10 days	
1	10data collectors *100birr/day*10 days	5000.00
2	5 supervisors *160 birr/day*10 days	3500.00
3	1 Evaluator *200 birr/day*10days	1250.00
4	2 Car rent for 10 days service 1000birr/day	20,000.00
5	Fuel to the car 2x1500birr/dayX10days	3000.00
Sub total		32,750
	Stationeries, printings and photo copies	
1	Flash diskette 1 GB	500.00
2	Photo copy paper (210 x 297 mm) x 24packet x 100birr	2400.00
3	17 pcs of writing pads for data Notes collection 17X10birr	170.00
4	Printing of translated questionnaires 10pages X 2 X 4birr/page	80.00
5	Photo copying 10 pages questionnaires for 500 household survey X0.50 birr/page	2500.00
6	Final report Writing and printing 120pgsX4birr/pgs	480.00
7	Photo copying the final report 120pgs X 7 copyX0.50 birr/pgs	420.00
8	Binding the final documents 7copies X12birr/document	84.00
Sub total		6634.00

Grand total	56,043.50
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Annex 8 Epi Project implementation time

Thematic area	Activities	Tentative time
Adopting and finalizing the tools	Translation of data collection tool to local language	“
Training of data collectors	Invite data collectors, preparation for training, conduct training	“
Pretest	Check for the validity of data collection tools	“
Data collection	Field visit	“
Data analysis	Enter data and analysis	“
Report writing	Writing report	“
Submission of report	Submission of report	“

Annex 9 Epi Project Consent Form

Title: Assessment of long-lasting insecticidal net utilization and associated factors in Bati woreda, Oromia Nation Zone , Amhara Region, Ethiopia, 2014

Objective: To assess the coverage and use of insecticide treated mosquito nets and associated factors in Bati woreda, Oromia Special Zone, zone in order to produce information to point public health intervention. .

Procedure: This project will take about 30 minutes of your time. There are two parts. First, we will clearly explain you the purpose, benefits and risks of the study. We will give you a chance to ask questions and gate answers about the study. Second, we will ask you about bed net utilization and associated factors among your family. All information collected during this study will be kept private and will only be known by the investigators.

Benefits: This project will help the government of Ethiopia and all level government health sectors to enhance the utilization of bed nets and maximize the benefits.

Risks: There is no risk to you from answering the questions or being participated in this study. We will give you a copy of this consent.

Privacy: We will keep information about you private. We will not collect your name. Only the investigators will have access to the data and only for study purpose. We will not use any information that might identify you when we present or publish the study's results.

Payment: There is no cost to you for being part of the project. The approximate time that this study will take is 30 minutes. There will be no involvement past today.

Participant Agreement: The project has been explained for me. I have been given a chance to ask questions. I feel that all my questions have been answered. Being in this study is my choice. I may change my mind and leave the study any time during the interview.

The purpose of the study and confidentiality procedures has been explained to me and me on my own consent: a) Agree _____ b) Disagree _____

Signature of Interviewer _____

Date of interview _____ Time started _____ Time completed _____

Checked by supervisor: Name _____ Signature _____ Date _____

Annex 10 Epi Project Structured questionnaires

Introduction:

Questionnaire ID NO-----

Hello, my name is..... . I am Addis Ababa University Research Team member. Thank you for taking the time to speak with us today. We are conducting an Assessment of long-lasting insecticidal net utilization and associated factors in Bati woreda and wanted to speak with heads of house hold and/or spouse. Our goal is to figure out factors affecting the utilization of bed nets in the community. We are very interested in your experiences and your point of view.

We will start by asking your willingness to participate in the study and clearly explain you the objective, benefit and risks of the study to get your consent. And then we will ask you all a multiple of questions for discussion. Questions are simple and what you are clearly known in your daily activities. Please feel free to speak your mind; your name, position, and anything that could identify you personally will not be used in any official reports or presentations. (Feel consent Form).

Identification code

Name household heads -----

House numbers -----

Kebele -----

Residence 1 Urban 2 Rural

INSTRUCTIONS please circle or write the appropriate response of the respondents based on the given questions.

PART - I Socio demographic characteristics of the respondents

101. Age of the respondent ----- years
102. Sex of the respondent:
1 Male 2 Female
103. Marital status of the respondent:
1 Married 3 Divorced
2 Unmarried/single 4 Widowed
104. Ethnicity:
1 Amhara 4 Oromo
2 Kembata 5 Shinasha
3 Agew 6 Tigerie
7 Others -----
105. Religion:
1 Orthodox 4 Protestant
2 Muslim 5 Others -----
3 Catholic
106. Educational status of head of the households:
1 Unable to read and write
2 Able to read and write but not attend formal education
3 highest grades completed-----
107. Educational status of the spouse of head of the house holds
1 Unable to read and write
2 Able to read and write but not attend formal education
3 Highest grades completed-----

108. Occupation of the respondents
- | | |
|------------------------|------------------|
| 1 Farmer | 4 Daily laborers |
| 2 Merchant | 5 House wife |
| 3 Government employers | 6 others----- |
109. Occupation of your spouse
- | | |
|------------------------|------------------|
| 1 Farmer | 4 Daily laborers |
| 2 Merchant | 5 House wife |
| 3 Government employers | 6 others----- |
110. What is your monthly house hold income? -----birr
111. Type of roof of the house
- 1 corrugated iron sheet
 - 2 thatched roof
 - 3 others specify
112. Type of wall of the house
- | | |
|----------|--------------------------------|
| 1 Mud | 3 Only wood (no mud or cement) |
| 2 Cement | 4 others ----- |
113. Type of floor of the house
- | | |
|----------|---------------|
| 1 Cement | 3 Wood |
| 2 Mud | 4 Others----- |
114. The main source of drinking water for the house holds
- | | |
|-----------------------|--------------------|
| 1 pipe water | 5 unprotected well |
| 2 protected spring | 6 River |
| 3 unprotected springs | 7 others----- |
| 4 protected well | |
115. Do you have toilet/latrine?
- | | |
|-------|------|
| 1 Yes | 2 No |
|-------|------|
116. If your answers yes what kind of latrine do you have?
- | | |
|--------------------------|---------------|
| 1 individual Pit latrine | 3 others----- |
| 2 common pit latrines | |
117. Type of energy used for cooking
- | | |
|------------|---------------|
| 1 wood | 4 Electricity |
| 2 cow dung | 5 Gas |
| 3 Charcoal | 6 others----- |
118. Do you have functioning radio in your house?
- | | |
|-------|------|
| 1 yes | 2 no |
|-------|------|
119. Total number of people living in this house -----
120. Total number of under five children's living in this house -----
121. Number of pregnant mothers in the house hold (if there is pregnant mothers) -----
122. How many rooms do you have in your house? -----
123. How many beds do you have in your home? -----
124. How many people usually sleep in your home? -----
125. How many sleeping mats do you have in your home? -----
126. How many people in your home usually sleep on beds? -----
127. How many people in your home usually sleep on mats? -----

PART II Questions Related To Malaria Knowledge

201. Is malaria the major health problem in your area?
1 Yes 2 No 3 I don't know
202. What main symptoms of malaria you aware of? (Multiple answers is Possible)
- | | |
|-----------------------------------|---------------------------|
| 1 Fever (hotness of body) | 7 Body pain or joint pain |
| 2 Feeling cold (Chills/shivering) | 8 Eye become yellow |
| 3 Headache | 9 Profuse sweating |
| 4 Vomiting | 10 Diarrhea |
| 5 Body weakness | 11 don't know |
| 6 Loss of appetite | 12 other specify----- |
203. What is the main cause of malaria?
- | | |
|-------------------------------|-------------------------------|
| 1 Being in the rain | 6 another person with malaria |
| 2 Working in the sun | 7 Mosquitoes bites |
| 3 Exposure to cold weather | 8 God/Allah |
| 4 Drinking dirty water | 9 Don't know |
| 5 living near collected water | 10 other specify ----- |
204. Which group of people are more affected by malaria (multiple answer are possible)
- | | |
|--------------------------------|--------------------------------|
| 1 Adults | 4 pregnant women |
| 2 Elderly people | 5 Children less than five year |
| 3 Younger people | 6 All are equally affected |
| 7 other (please specify) ----- | |
205. Do you think malaria can be transmitted from one person to another?
1 Yes 2 No 3 I don't know
206. How is malaria transmitted from one person to another?
- | | |
|----------------------------|-----------------------|
| 1 Sleeping together | 5 Mosquito bites |
| 2 Eating together | 6 sharing clothes |
| 3 Living in the same house | 7 I don't know |
| 4 Nursing the sick | 8 others specify----- |
207. Do you think that malaria is a preventable disease?
1 Yes 2 No 3 I don't know
208. If yes to Q 307 would you tell me the preventive measures of malaria you aware of?
- | | |
|--|--------------------------------|
| 1 Use a mosquito net | 7 Burning things to make smoke |
| 2 Taking drug | 8 use traditional medicine |
| 3 Use insecticides sprays | 9 use curtains |
| 4 Close the doors and windows at night | 10 Nothing |
| 5 lighting fire in the house | 11 others specify----- |
| 6 Keep the house and surrounds clean/draining standing water | |

PART III KNOWLEDGE QUESTIONS RELATED TO MOSQUITOES

301. Do mosquitoes cause any trouble to you?
1 Yes 2 No
302. If yes, in what ways do they cause you trouble? (Multiple responses possible)
- | | |
|-------------|----------------|
| 1 They bite | 4 I don't know |
|-------------|----------------|

- 2 They carry disease 5 others, specify _____
 3 They make noise
303. During what season do you notice a lot of mosquitoes? Do not prompt
 1 During the dry season 4 don't know
 2 During the rainy season 5 other (specify) -----
 3 Throughout the year
304. At what time of the day do mosquitoes bite most? Do not prompt
 1 in the morning 5 All day
 2 in the afternoon 6 Don't know
 3 in the evening 7 other (please specify) -----
 4 At night in the bed
305. What methods are you currently using to protect your household from mosquitoes?
 (Multiple responses possible)
 1 Use a mosquito net 7 Do nothing
 2 Use insecticide spray 8 others specify-----
 3 Close windows and doors
 4 Light fire in the house
 5 Burn cow dung/traditional plants
 6 Clean surroundings/drain standing water

PART IV KNOWLEDGE QUESTION RELATED TO MOSQUITO NETS

401. Have you heard/ seen any education message about mosquito nets
 1 yes 2 No
402. If yes from where did you see or hear these education message (multiple response)
 1 Radio 6 Parents
 2 TV 7 health worker
 3 news paper /magazine 8 Government
 4 Posters/notice 9 church /mosque
 5 Friends 10 School
 11 Others
403. What are the benefits of sleeping under the bed nets (multiple answers?)
 1 Not bitten by mosquitoes 5 It gives warmth
 2 To prevent malaria 6 No benefit
 3 To protect other insect biting 7 don't know
 4 Sleep better 8 Others specify
404. Is there any problem associated with sleeping under a bed net?
 1 Yes 2 No
405. If yes what are they (multiple response possible)
 1 It is too hot to sleeping
 2 Mosquitoes can bite through a net
 3 it is difficult if you want to get up in the night
 4 it takes time to tuck the net each night
 5 there is no enough air
 6 other specify

406. Mosquito nets can have different shapes which shape do you prefer (only one answer)
 1 Rectangular 3 Triangular
 2 Round /conical 4 others specify
407. Bed net has different colors which colors would you prefer (one answer only)
 1 White 3 Black
 2 Blue 4 Green 5 Others-----
408. Bed nets has different size which size would you prefer (only one answer)
 1 Single size 2 Double size 3 Family size
409. For whom do you give priority in case of shortage of bed nets in the house hold?
 1 under five children only 3 parents
 2 pregnant mothers only 5 Children greater than five years
 4 both under five children and pregenat mothers
 6 Others specify-----

PART V QUESTION S RELATED TO BED NET UTILIZATION

501. Do you have a bed net in the house hold currently?
 1 Yes 2 No (skip to question 523)
502. If yes to question 501, what type of bed net do you have (verify by observation)
 1 ITN (LLITN or Retreat able)
 2 Local made bed net
 3 Others specify
503. How many bed nets do you have -----?
504. How did you obtain your bed nets? (Multiple responses possible)
 1 Were given to me free 3 I can t remember/don't know
 2 I bought it/them 4 other specify____
505. Where do you obtain the bed net?
 1 At the health center/post 4 from market
 2 from kebele 5 from private drug vendors
 3 From Shops 6 Others
506. How much would you paid for the bed net (if you bought it) ----- birr
507. How long ago did your household obtain the bed net-----months/years?
508. If there is no free distribution of ITN in your locality are you willing to buy the bed net?
 1 Yes 2 no
509. If yes how much will you pay to buy the bed net----- birr?
510. Is the net (are the nets) being used currently?
 1 yes 2 no
511. If yes, to question 510, how many? -----
512. If yes to question 510, what is the main reason you use bed nets in your house?
 1 To prevent against mosquito bites
 2 To prevent malaria
 3 To prevent annoyance by other insects
 4 To prevent other boring insects and vermin
 5 Prevent falling roof debris /dusts
 6 Others specify----

521. If yes to Q How often do you wash the bed net?
- 1 ----- Times a week
 - 2 ----- Times in month
 - 3 -----Times in three months
 - 4 ----- Times in six months
 - 5 ----- Times in year
 - 6 Others
522. What was the reason for washing your bed net?
- 1 Net is dirty
 - 2 net is soiled
 - 3 due to bad smelling of chemicals
523. If NO to Q 501, what are the reasons for not having (buying) bed nets for your Household?
1. I do not know what mosquito (bed) net is
 2. Net is not a priority to my household
 3. I do not have money to buy
 4. Net is too expensive to buy
 5. Net is not available in this area
 6. I do not know where to buy net
 7. Waiting for free distribution of bed nets by the government
 8. I do not like sleeping under net
 9. I do not know its benefit
 10. Other (Specify): _____

PART VI Fill the following by observing the bed net

Number of bed net in the house during observation -----

	Things to be observed	1st bed net to be Observed Put "X" mark for each option given below	2nd bed net to be observed Put "X" mark for each option given below	3rd bed net to be observed Put "X" mark for each option given below
1	Type of bed net			
	Permanent (long lasting ITN)			
	Treatable ITN			
	Locally made net			
	Others			
2	Size of bed net			
	Small (W x L X H =70x180x150)			
	Medium (100x180x150)			
	Large (130x180x170)			
3	Shape of bed net			
	Conical			
	Rectangular			
4	The bed net			
	Hanged			
	In the package			
	Used for other purpose			
5	If hanged			
	on the bed			
	on the sleeping floor / mat			
	If not hanged why?			
	Used for other purpose			
	Hang during the night			
	We don't know how to hang			
	It is not convenient to hang			
	Others			
6	Nets for holes and tears			
	No holes and tears(intact)			
	Small Visible holes and tears			
	Large visible holes and tears (damaged)			
7	Cleanness of the bed net			
	clean			
	Dirty			

Chapter IX – Other Additional Output Reports / Works

- 9.1. Malaria Training for lower level health professionals working on health facility, January 2014
- 9.2. Summary of ISS report of South Wollo zone, ANRS Health Bureau, March 2014
- 9.3. Supportive supervision for previous year outbreak affected areas, W/Gojjam (Quarit, Wemberma, Bure zuria and Jabitehnan districts), October 01-11/2013
- 9.4. Trainings, conference and other activities

9.1. Malaria Training for lower level health professionals working on health facility, January 2014

Executive Summary

Malaria is ancient program in Ethiopia, so training on malaria is common. Amhara National Regional Health Bureau Public Health Emergency Management (ANRHB/PHEM) center has planned to conduct training by dividing East and West Amhara for lower level health workers. So, the training were given for West Amhara in Finot Selam. This training was given to make familiar and motive lower level health professionals on malaria program. Power point presentations, videos, discussions and demonstration were used as training methods. . Following each presentation heated discussions were held. Soft copies of the training materials were given for the trainees. The training was given for 82 (25 Females and 57Males) trainees from health centers and woreda health officials. The training addressed Introduction to malaria Prevention & control, Management of Uncomplicated Malaria, Managements of Severe Malaria, Malaria in pregnancy, Malaria in Children, Malaria & HIV, Overview of Artesunate injection using video, Malaria Epidemic Forecasting Using MMC and Mitigation Measures (practica demonstration were presented), malaria Formats and Documentation, National Malaria Strategic Plan and Role of Health Development Army on Malaria Control. The way forward emphasized on close follow up and availing supplies should be emphasized so as to support the program. A total cost covered by Unicef and 107,421.43 birr was used to conduct the training.

Introduction

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.

The feasibility of preventing epidemic occurrences within the available lead-time depends on the level of decentralized responsibility through the health system and the capacity of the health system to make use of available data at each level to early detect malaria, if not forecast epidemics. So, the 3 day training was arranged for lower level health professionals from west Amhara region(E/Gojjam, Awi, W/Gojjam zones and Bahir Dar Town), in Finot Selam Town.

Objective

- To inform the generic malaria cycle
- To note potential intervention options at each stage of the parasite and vector development
- To familiarize the main malaria species that infect humans and
- To outline the distinctive characteristics of each malaria species
- To discuss the main features of the life cycle of a mosquito vector
- To describe the major behavioral characteristics that influence success as a malaria vector
- To discuss how to prevent Malaria Prevention based on Life cycle of the Malaria Vector
- To give awareness how to manage Malaria cases
- To discuss the national strategic plan of 2011-2015

Methods and Materials

Date of the training, number of trainees and duration of training were decided by PHEM/malaria case teams of the region. Invitation letters were developed and sent to woreda health office through zonal health department one weeks ago before the date of training. Training proposal and schedule was drafted by training coordinator and submitted to PHEM core process owner for ratification and then to finance manager of regional health bureau. Training topics were identified and trainers were assigned based on their interest and areas of expertise. For each training sections moderators were also assigned. The trainees were nominated by respective woredas and health centers. Training venue was selected by training coordinators. Accommodation was facilitated to use the time wisely and maximize active participation of the trainees. Stationery materials such as note books and pens were distributed to all trainees. All trainees' addresses were registered and documented upon their arrival. Pretest and post test were conducted to evaluate the effectiveness of the training. LCD, video and flip charts were used for presentation. After each presentation the floor was opened for questions and discussions. A

number of questions were raised by trainees and answers were given by trainers. Demonstration was conducted , specially how to construct malaria monitoring chart using five year weekly data or by doubling the number in the same week of last year's data to familiarize the trainees on how to forecast the epidemics. Trainees also invited to share their experience and challenges they faced during implementation malaria control program. Finally at the end of the training soft copy of the training packages were provided to all trainees.

Achievement

The training was successfully conducted according to the schedule (Annex 1). Most of expected trainees from zones and woredas participated. Totally 82(57 male and 25 female) trainees and 6 trainers attended the training. All participants were nurses and health officers. Following each presentation heated discussions were held. The importance of the availability of continuous feedbacks at each level was raised by participants and got acceptance. The issue of generating quality data and utilization of data even at health facilities also got emphasis during the training. The responsibility of each level was also clearly presented in the training to strengthen malaria control and elimination (in selected geographical areas with historically low malaria transmission by 2015) program in the region. The objective of the trainings and specific selected topics was also clearly presented.

Expectation from the Training:

The training will enable all trainees to implement malaria program according to the guideline. Having attended the training, all trainees were familiarized with the objectives of malaria program as a whole and specifically prevention programs so as to contribute a lot for the program. Training was used as motivation and information sharing mechanism, hence trainees clearly understood the gaps, problems with malaria data and how to improve and utilize data at all levels. All clinicians from health centers will be expected to identify all malaria cases and report to woreda and document. We expect the data quality will be significantly improved and all variables on reporting formats will be completed. Weekly summary report will be disaggregated by age, sex and reported as per the report format.

Training Highlights

During the three day training, over ten topics were addressed by different trainers from regional PHEM, global fund, field epidemiology resident and Felege Hiwot Hospital. Among them, Introduction to malaria Prevention & control, Management of Uncomplicated Malaria, Managements of Severe Malaria, Malaria in pregnancy, Malaria in Children, Malaria & HIV, Overview of Artesunate injection using video, Malaria Epidemic Forecasting Using MMC and Mitigation Measures (practica demonstration were presented), malaria Formats and Documentation, National Malaria Strategic Plan and Role of Health Development Army on Malaria Control.

Way forward

Workshops will be periodically organized to inspire and enlighten all individuals and stakeholders participating in malaria program. Continuous supportive supervisions will need to be carried out at all levels to closely identify potential problems and give solution at the grass root levels. Data will be analyzed and utilized at all levels. Feedback should be given frequently for health officials at all levels and health providers at the ground level. Even if malaria program is very aged program, still it is the problem of the community. So, it needs close follow up and availing supplies should be emphasized so as to support the program.

Training Cost:

To facilitate the training all training costs were covered by Unicef. All trainees came to the training site by public transport. The transport expenses were reimbursed for all trainees' based on their receipt. Per diem were also covered by Unicef. Finally a total of 107,421.43 birr was used to conduct the training.

Annex 11 Malaria Training Schedule by Amhara National Regional Health Bureau, January 03-05/2014, Finot Selam

Date	Time	Agenda Item	Facilitator	Remark
Day 1,	08:30- 08:45	Welcome, self-Introductions, and Admin Activities	RHB/ZHD Representative	RHB/ZHD

Date	Time	Agenda Item	Facilitator	Remark
2014	08:45-09:00	Training Agenda & Learning Objectives	Tsehay	RHB
	09:00-09:30	Pre-test of trainees	Tsehay/Khalid/Mastewal/ZHD	RHB
	09:30-10:30	Introduction to malaria Prevention & control <ul style="list-style-type: none"> 2.5 minutes YouTube on transmission and antimalarial drugs 	Tsehaye/Tekle	RHB
	10:30-10:45	Tea Break	RHB	RHB
	10:45-11:00	<ul style="list-style-type: none"> Group Exercise-1 Medication of malaria in relation to the parasite life cycle? 	Tsehaye/Khalid/ZHD	RHB/ZHD
	11:00-12:30	<ul style="list-style-type: none"> Group Exercise-2 Prevention and Control activities in relation to the malaria vector life cycle? 	Tsehaye/Khalid/ZHD	
	12:30-02:30	Lunch break	Individual	
	02:00-02:30	Feedback on Exercises		RHB/ZHD
	02:30-03:30	Management of Uncomplicated Malaria	Dr. Ayenew	RHB/ZHD
	03:30-03:45	Tea Break	RHB	
03:45-05:30	Uncomplicated Malaria Management cont'd, Case study...	Dr. Ayenew	RHB/ZHD	
Day-2				
Day 2, 2014	08:30-08:45	Recap of Day-1 by randomly selected participant	Khalid/ZHD	RHB/ZHD
	08:45-10:30	Managements of Severe Malaria	Dr. Ayenew	RHB/ZHD
	10:30-10:45	Tea Break	RHB	RHB/ZHD
	10:45-11:45	Managements of Severe Malaria cont'd, Case studies on management of severe malaria	Dr. Ayenew	RHB/ZHD
	11:45-12:30	Malaria in pregnancy	Tsehay	RHB/ZHD
	12:30-2:00	Lunch Break	Individual	
	02:00-03:00	Malaria in Children	Tsehay/ZHD	RHB/ZHD
	03:00-03:45	Malaria & HIV	Tsehay	RHB/ZHD
	03:45-04:00	Tea Break		RHB/ZHD
	04:00-05:30	Overview of Artesunate injection with video	Dr. Ayenew	RHB/ZHD
Day-3				
Day 3, 2014	08:30-08:45	Recap of Day-2 by randomly selected participant	Getinet	RHB/ZHD

Date	Time	Agenda Item	Facilitator	Remark
	08:45-10:30	Malaria Epidemic Forecasting Using MMC and Mitigation Measures	Khalid	RHB/ZHD
	10:30-10:45	Tea Break	RHB	RHB/ZHD
	10:45-11:45	National Malaria Strategic Plan,	Tsehay	RHB/ZHD
	11:45-12:30	Role of Health Development Army on Malaria Control	Tsehay/Getinet	RHB/ZHD
	12:30-2:00	Lunch Break	Individual	
	02:00-03:00	General Discussion Session	RHB/ZHD	RHB/ZHD
	03:00-03:30	Post-test of trainees & course evaluation by participants	RHB/ZHD	RHB/ZHD
	03:30-03:45	Tea Break	RHB/ZHD	RHB/ZHD
	03:45-04:30	Feedbacks on test and course evaluation by participants	RHB/ZHD	RHB/ZHD
	04:30-04:45	Closing	RHB/ZHD Representative	RHB/ZHD

9.2. Summary of ISS report of South Wollo zone, ANRS Health Bureau, March 2014

Introduction

Amhara National Regional Health Bureau (ANRS) monitor the performance status of planned activities by implementers (ZHD, WoHO and Health facilities) in different ways. Among many ways one and most frequently used is conducting quarterly integrated supportive supervision (ISS) to all Zonal Health Departments (ZHD), selected Woreda Health Offices (WoHO) and Health Facilities and communities. Based on this fact ANRS Health bureau organized 12 teams comprising different expertise and partners to conduct integrated supportive supervision to all zones and city administration. One of the team assigned to conduct ISS to South wollo zone from March 14 to 30/2014.

Objective:

To assess 2nd quarter health service coverage at different levels.

To identify the major strength and gaps in the first midyear implementation period and to support them accordingly.

To check the status of health development army at facility and community level.

Strategy used during ISS:

- Interview using ISS check list
- Reviewing 2nd quarter report , service registration and tally sheet
- Observation
- Home to home visit

Major findings of ISS

Strengths

Weakness

At Health Post and Community level

- Health development Army was well established at most supervised community .
- At some gote House number not handled properly (

(Most women know what HDA and their 1 to 5 leader and conduct meeting every week also they have a plan of Health extension package)

- They started to use latrine and improved stove.
- They used separate rooms for animals.
- They properly handle utensils.
- They have good knowledge where to give birth
- HEWs routinely do home visits to check the proper implementation of HEP by the community mms.
- Most HEW registered under one children and pregnant women under their catchment area and check timely provision of appropriate services respectively .
- HEWs refer suspect TB patient and term pregnant mothers to HCs for appropriate services
- cancelled, digits not standard)
- At some gote latrines not well constructed not properly used
- Demographic and sanitation information of CHIS not used for provision of service in the kebele
- EPI and malaria monitoring chart are not properly used by HEWs in some Kebele.
- No HEP model in most HPs
- Poor data quality
- Most HPs don't provide delivery services

At health center (HC) level

- In most HCs there is great commitment to attract laboring mothers to give birth at HCs
(They facilitate monthly pregnant mothers conference, prepare maternal waiting room with necessary utensils, they give free ambulance service to transport pregnant mothers to HCs and to accompany home after delivery, they permit mms of families to support mothers during laboring, provide porridge and coffee for mothers and her families)
- Most HCS start HCF, PMTCT and provide long term family planning services in large scale
- They used pantograph for laboring mothers
- They are working hard to create Home delivery free and ODF kebels under their cluster.
- Collect sputum samples for IGA,EQA
- They do screening for Tb at all SDP and contact tracing for
- Most HCs don't provide YFS
- Decreased coverage of skilled delivery, EPI, TB detection rate.
- HCT is not MARPs focused
- In most HCs no proper GMP , micronutrient supplements for malnourished children and EPI services
- No regular ISS for HPs based on standard ISS check list.
- No compiled data which show HEP implementation status of the cluster.
- Wastes from different service

families.

- They provide IMNCI service for children
- They keep cold chain properly.
- They sent timely IDSR report.

delivery points are not well segregated by type and disposed accordingly.

- No placenta pit and incinerator in most HCs.
- IPLS is not well implemented
- Data quality is not regularly validated by HMIS performance committee.
- Most HCs don't customized annual plan to their context and cascade to quarter, month and week and monitor accordingly.

At the end of each supervision verbal and written feedback was given to supervised site at spot and Summary of ISS findings was communicated to respective administration office to involve them in process of solution.

Annex 12 List of selected area for ISS

Woreda	Date of visit	HCs	HPs	Communities
	March 15	Introduction and selection of supervised sites		
Borena WoHO	March17/2014	Tewa	Menedeyu	Aredie gote
	March 18/2014	Degadebie	Degadebie	Wodejebo
Sayent WoHO	March19/2014	Ewa	Ewa	Ewa
	March20/2014	Sayent	Segerat	Segerat
Legambo WoHO	March 21/2014	Gentie	Kebele 09	Hudade
	March 22/2014	Gimba	Merqemecha	Aba hiera
Kutaber WoHO	March 24/2014	kutaber	Elesa	Chefera
	March 25/2014	Quendie	Quendie	Gadula
Worbabu WoHO	March27/2014	Goaha	Goaha	Meja
	March 28/2014	Bisitima	Bulebulo	Keskeso
South Wollo ZHD	March 29/2014	Debriefing findings of ISS		

Annex 13 Members of ISS team

No	Name	Position
1	Seidu Fente	Health promotion and disease prevention
2	Khalid Nassir	ANRS PHEM/Field Epidemiology Resident
3	Dagnewu Awoke	ANRS Health promotion and disease prevention
4	Woldtensay Desallegne	ANRS Plan, monitoring and Evaluation
5	Gebeyhu Zelalme	ANRS Health Bureau Deriver

9.3. Supportive supervision for previous year malaria outbreak affected areas, W/Gojjam(Quarit, Wemberma, Bure zuria and Jabitehnan districts),October 2013

Introduction

Amhara National Regional Health Bureau/Public Health Emergency Management (ANRHB/PHEM) monitor the trend disease more focus on epidemic prone diseases like malaria in different way. One of the way used by the department is conducting programmatic supervision. Based on this fact ANRHB/PHEM organized the team from different expertise and partners and select woredas based on malaria case loads and last year outbreak affected areas. One of the team assigned to West Gojjam (Quarit, Wemberma, Bure zuria and Jabitehnan districts) and conduct the supervision from 01-11/ October 2013.

Objective:

To identify the major strength and gaps concerning malaria program

To see preparedness to prevent malaria epidemics

To check the status of health development army concerning malaria

To give feedback concerning malaria program activity

Strategy used during SS:

- Interview using check list
- Reviewing reports
- Observation
- Home to home visit

Comments and suggestion based on findings

Level of supervision

Suggestion and comment from supervisors

	Woreda/Districts	<ul style="list-style-type: none"> ➤ Follow and verify environmental management reports ➤ Distribute abate chemicals ➤ stock up anti malaria commodities and distribute based on case load timely and adequately ➤ follow daily output of IRS operation ➤ Analyze weekly malaria data and give regular written feedback ➤ report malaria situation to administration ➤ distribute IEC/BCC material ➤ ask written feedback from ZHD
Quarit		
	HC	<ul style="list-style-type: none"> ➤ Plan for environmental mgt and IRS at cluster level ➤ Analyze weekly malaria data and give regular written feedback to HPs
	HP	<ul style="list-style-type: none"> ➤ They have plan but needs strengthen documentation and follow up environmental management activities of the community ➤ stock up anti malaria commodities timely and adequately ➤ Engage HEWs in IRS planning and operation ➤ ask IEC/BCC material and feedback from WoHO ➤ Ensure copy of weekly malaria data reports are organized and filed ➤ On job training on MMC ➤ Promote LLIN utilization ➤ Strengthen HDA and 1to5 structure for malaria prevention and control purpose
	Community	
	Woreda Health office	<ul style="list-style-type: none"> ➤ Continue distributing abate chemical ➤ stock up anti malaria commodities timely and adequately ➤ analyze weekly malaria data disaggregated by clusters and kebles ➤ report malaria prevention and control activities to administration ➤ ask IEC/BCC material and written feedback from ZHD
Bure zuria		
	HC	<ul style="list-style-type: none"> ➤ there is no Plan for environmental mgt and IRS ➤ stock up anti malaria commodities

		and distribute based on case load timely and adequately
	HP	<ul style="list-style-type: none"> ➤ Analyze weekly malaria data and give regular written feedback to HPs ➤ support HPs for utilization of MMC ➤ ask IEC/BCC material and feedback from WoHO ➤ there is no Plan for environmental mgt and IRS but HEW Partially engaged in IRS operation ➤ stock up anti malaria commodities timely and adequately ➤ Ensure copy of weekly malaria data reports are organized and filed ➤ Utilize MMC at all HPs ➤ Ask written feedback from higher level ➤ Relatively better organized 1to5 and HDA structure and Keep on it
	Community	<ul style="list-style-type: none"> ➤ Promote LLIN utilization ➤ Promote early diagnosis and treatment of returnee migrant workers when febrile
Wemberma	Woreda Health office	<ul style="list-style-type: none"> ➤ Distribute abate chemical ➤ stock up anti malaria commodities timely and adequately ➤ analyze weekly malaria data disaggregated by clusters and kebles ➤ provide and build norm of written feed back at all levels ➤ report malaria prevention and control activities to administration ➤ work with administration to build functional HDAs
	HC	<ul style="list-style-type: none"> ➤ Cluster Plan for environmental management and IRS and build verification mechanism ➤ Distribution based on case load ➤ stock up anti malaria commodities timely and adequately ➤ provide and build norm of written feed back at all levels ➤ support HPs for utilization of MMC ➤ request for IEC/BCC material ➤ fix meeting program with administration

HP	<ul style="list-style-type: none">➤ Analyze weekly malaria data of HPs➤ Plan for environmental management➤ stock up anti malaria commodities timely and adequately➤ Engage HEWs in IRS planning and operation➤ Ensure copy of weekly malaria data reports are organized and filed➤ Ask written feedback from HC/WoHO➤ Plan for community mobilization➤ Strengthen relation with kebele administration and advocate malaria prevention and control➤ Ask for IEC/BCC material from HC/WoHO
Community	<ul style="list-style-type: none">➤ Make functional HDA and 1to5 structure➤ Encourage follow up of environmental management by 1to5 and HDA leaders➤ Increase understanding of post IRS care➤ Promote LLIN utilization by washing and mending
Woreda Health office	<ul style="list-style-type: none">➤ Update type and number of mosquito breeding sites➤ Distribute abate chemical
Jabitehnan	<ul style="list-style-type: none">➤ stock up anti malaria commodities and keep on distributing based on case load timely and adequately➤ cascade IRS and environmental mgt plans to clusters and kebeles➤ provide and build norm of written feed back at all levels➤ ensure continuous leadership for malaria prevention and control activities➤ distribute IEC/BCC material on malaria➤ work with administration to build functional HDAs➤ re introduce analyzing weekly malaria data disaggregated by clusters and kebeles

HC

- Communicate with large farm owners to involve them in malaria prevention and control activities
- SS for large farm clinic
- Strengthen SS to HPs
- Analyze weekly malaria data of HPs and provide written feed back
- Engage in IRS planning and operation
- Encourage to provide on job training on MMC utilization for HEWs
- stock up anti malaria commodities and distribute based on case load timely and adequately e.g. quinine tab and injection
- plan on environmental management and its verification mechanism
- plan community mobilization on malaria prevention and control

HP

- They have plan but needs strengthen documentation and follow up environmental management activities of the community
- Engage HEWs in IRS planning and operation
- Ensure copy of weekly malaria data reports are organized and filed
- Institute MMC utilization and timely update
- Build norm of written feedback
- stock up anti malaria commodities timely and adequately

Community

- Increase understanding post IRS care
- Increase understanding of the community on the importance of malaria diagnostic test and treatment
- Strengthen relationship between the health sector and kebele administration to use the community 1to 5and HDA structures
- Encourage follow up of environmental management by 1to5 and HDA leaders

ZHD***Issues raised by Zonal health malaria officer***

- There is no standards for IRS planning
- ZHD assumes Malaria case decreased because of climatic condition
- Lack of technical personnel concerning IRS activity
- HEW Lacked to be concerned in malaria prevention and control activity (more concerned on treatment of cases)

Suggestions and comments

- plan and verify environmental management reports
- ensure woredas have distributed Abate chemical and follow its use
- communicate with PFSA/RHB to stock up anti-malaria commodities at all level
- actively follow IRS operation
- ask IRS chemical distribution copy from the region to woreda and follow their utilization
- analyze weekly malaria data disaggregated by woreda and provide written feedback
- make woreda to follow MMC under health facilities in their catchment area

At the end of each supervision we left supervision checklists to visited area to follow the comments and verbal and written feedback was given to supervised site at spot and summary of findings was communicated to respective administration office.

9.4. Training ,Conference and other activities

AFENET 5th conference

I have attended 5th AFENET scientific conference in Addis Ababa starting from 17-21 Nov 2013.

The five day conference provided a platform for hundreds participants including trainees and graduates from various Field Epidemiology and Laboratory Training programs (FELTPs) to benefit from oral and oral poster presentations that were presented.

Presenters, key note speakers, public health professionals and trainees from Field Epidemiology and Laboratory Training Programs (FELTPs) from over 20 African countries attended the conference and exhibition. The program not only involved oral and poster scientific presentations, themed workshops and keynote addresses but also excursions and social events such as the opening cocktail, cultural dinner, and finally the international night.

The conference concluded on a high note with a closing ceremony and international night at the Sheraton Hotel, Addis Ababa, in which representatives from the various countries presented songs and dances reflecting a variety of cultures. Awards and certificates were given to the best oral and poster presenters and different contributor for the success of conference.

5S training

I attend one day training on 5s(sort, set, shine, standardized and sustain) Jan 22, 2013

The training given by JICA (Japan International Corporation Agency). The training will help us how to make easy accessing office materials

Measles Post Epidemic Evaluation

I have attended 2 days workshops in Hawassa on Meningitis post epidemic evaluation, 19-21/09/2013 G.C

Supportive supervision on Malaria

Malaria program specific Supervision from may 12-24/2013 W/Gojjam zone(Dembecha and Dega Damot districts) and E/Gojjam(Gozamn and Enarj Enawga districts)

Workshop on flooding prone areas

Disaster situation work shop and proposal development on flood prone areas in Amhara region, August 2013

PHEM National Review Meeting

I have attended PHEM National annual review meeting from April 15-19,2013

PHEM and EPI review meeting

I attend Amhara regional health bureau EPI and PHEM annual review meeting at Dangila Town from 22 and 23/02/2013.

Bulletin Article

I have contributed on the preparation on of weekly Bulletin Article Amhara National Regional State Health Bureau of Public health emergency management (PHEM) core process.

Annexes

For simplicity of reading and printing of separate chapters annexes are placed both at the end of each chapter title and in the table of contents

