

**SAINT PAUL'S HOSPITAL MILLENNIUM MEDICAL
COLLEGE DEPARTMENT OF PUBLIC HEALTH**



**ETHIOPIAN FIELD EPIDEMIOLOGY TRAINING PROGRAM (EFETP)
COMPILED BODY OF WORKS IN FIELD EPIDEMIOLOGY**

BY: - ZERIHUN ALEMU (BSc)

**A COMPILED BODY OF WORK SUBMITTED TO SAINT PAUL'S
HOSPITAL MILLENNIUM MEDICAL COLLEGE DEPARTMENT OF
PUBLIC HEALTH IN PARTIAL FULFILLMENT FOR THE
REQUIREMENT OF THE DEGREE OF MASTER IN PUBLIC HEALTH
IN FIELD EPIDEMIOLOGY**

**MARCH, 2018
ADDIS ABABA, ETHIOPIA**

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DEPARTMENT OF PUBLIC HEALTH

LETTER FOR DECLARATION (body of work with thesis)

I, the under signed, declared that this is my bona fide original work, has never been presented in this or any other University, and that all the resources and materials used for the body of work with thesis, have been fully acknowledged.

Student Name: Zerihun Alemu

Signature: _____

Date: 26/03/2018

Place: Addis Ababa

Date of submission: 26/03/2018

This body of work with thesis has been submitted for examination with our approval as **Candidate's advisors.**

_____ Name of Primary advisor	_____ Signature	_____ Date
_____ Name of Co-advisor	_____ Signature	_____ Date
_____ Name of FETP Coordinator	_____ Signature	_____ Date

**DEPARTMENT OF PUBLIC HEALTH GRADUATE STUDIES FINAL BODY OF
WORK WITH THESIS APPROVAL FORM**

As members of the Board of Examiners of the final body of work with thesis open defense, we certify that we have read and evaluated the body of work with thesis prepared by Zerihun Alemu under the thesis entitled “Prevalence of preeclampsia and its associated factors among pregnant women attending antenatal care clinic in public hospitals, Addis Ababa, Ethiopia” and recommencement for the *degree of Master of Public Health in Field Epidemiology*.

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Acronyms/Abbreviations

AAHB	Addis Ababa Health Bureau
AIDS	Acquire Immunodeficiency Syndrome
AIDS	Acquire Immune Deficiency Syndrome
ANC	Antenatal Care Service
AOR	Adjusted Odd Ratio
AR	Attack Rate
ART	Anti-Retroviral Therapy
AWD	Acute Watery Diarrhoea
BCG	Bacille Calmette-Guerin
BLH	Black Lions Teaching and Specialization Hospital
BMI	Body Mass Index
CBN	Community Base Nutrition
CDC	Centers for Disease Control and Prevention
CFR	Case Fatality Rate
CHW/P	Community Health Workers /Practitioners
CTC	Cholera Treatment Center
DM	Diabetic Mellitus
DOB	Diastolic Blood pressure
EC	Ethiopian Calendar
EFEP	Ethiopian Field Epidemiology Program
EPI	Expanded Program on Immunization
FP	Family Planning
HDP	Hypertensive Disorder in Pregnancy
HIV	Human Immunodeficiency Virus
HMIS	Health Management Information System
HUS	Hemolytic Uremic Syndrome
IDSR	Integrated Disease Surveillance and Responses
IEC	Information, Education, and Communication
MCH	Maternal and Child Health
MOH	Ministry of Health
NGO	Non-Governmental Organization
NPW	Non Pregnant Women
OPD	Out Patient Department
OPV	Oral Polio Vaccine
OR	Odds Ratio
ORT	Oral Rehydration Therapy
OTP	Outpatient Therapeutic Program
PHEM	Public Health Emergency Management
PITC	Provider Initiated Test and Counseling

PLWHA	People Living With HIV/ADS
PMTCT	Prevention of Mother to Child Transmission
PTB	Pulmonary Tuberculosis
PW	Pregnant Women
RF	Relapsing Fever
Rx	Treatment
SC	Stabilizing Center
SD1	Shigella dysenteriae type 1, or Shiga's bacillus
SOP	Systolic Blood pressure
SPHMMC	Saint. Paul's Hospital Millennium Medical College
SRS	Simple Random Sampling
SyRS	Systematic Random Sampling
TB	Tuberculosis
TSF	Targeted Supplementary Food
TTBA	Trained Traditional Birth Attendant
VCT	Voluntary Counseling Test
WDA	Women Development Army
WHO	World Health Organization

Executive summary

This compiled body of work has five main chapters all of which were done during the academic years of the program. The four chapters are expected outputs during the residency time; outbreak investigation, surveillance data analysis, evaluation of the surveillance system and health profile report including research thesis. The overall outputs of the two years field residency in the program and the research thesis are presented in a summarized way;

The first chapter contains outbreak investigations of AWD in 08 June – 30 September 2016. This outbreak was studied with the method unmatched community based case control studies was conducted in Addis Ketema subcity, Addis Ababa Ethiopia. Consumption of raw meat and fruit were found as risk factors of disease.

Second chapter contains four years (2012_2015) surveillance data of bacillary dysentery surveillance data were analyzed in Addis Ketema subcity Addis Ababa Ethiopia in 2016. Data inconsistency was a big challenge to the data analysis because HMIS data and surveillance data reports were not the same and the reported surveillance data was lack of personal variables like age and sex.

Third chapter contains surveillance systems evaluation was conducted on relapsing fever in Woreda 1, Woreda 7 and Woreda 8 due to high burden of the disease in Addis Ketema subcity. Addis Ababa, Ethiopia 2017, The finding showed the surveillance system of the Woredas were simple in terms of data recording and reporting, However lack of communication facility, budget for emergency preparedness activities and well organized supervision and feedback system

Fourth chapter addressed health profile assessment was done in Woreda 4 Addis Ketema subcity Addis Ababa, Ethiopia in 2016. The assessed health and health related profile of Woreda 4 showed acute upper respiratory tract infection, musculoskeletal and acute febrile illness were leading cause of adult mortality while acute upper respiratory tract infection, pneumonia and diarrhea were the leading cause of in under five mortality

Chapter five contains research theses conducted on the entitled; prevalence of preeclampsia and its associated factors among pregnant women attending antenatal care in public hospitals Addis Ababa Ethiopia 2017. It was found that prevalence of preeclampsia was 6.3 % in Addis Ababa public hospitals and previous hypertension and preeclampsia history of the woman were identified risk factors of the diseases is also documented.

Chapter 1

AWD outbreak Investigation in Addis ketema subcity in 2016

Abstract

Background: Diarrhoeal disease outbreaks are cause of major Public health emergencies in Addis ketema subcity. AWD outbreak was occurred in Addis ketema subcity from (June 2016 to October 2016) in Addis ketema subcity, Addis Ababa, Ethiopia. This investigation was made in order to describe the epidemiology and identify factors associated AWD which was helped to recommend the control measures.

Methods: community-based 1:2 case control study was conducted between July 2016 and October 2016. Cases were defined as any person reporting to Addis ketema CTC line list from registered and diagnosed as AWD by clinicians. Controls were persons without AWD and living in the same community as the case during investigation period. Data was collected by principal investigator using standard questioners. Data was entered and cleaned by EpiInfo version 7 software and analyzed with SPSS software version 21 by calculating odds ratio using binary logistic regression method used as measure of association with confidence level set at 95% and p-value<0.05

Results: Out of 50 cases 26(52%) were females and the rest 24(48%) were males and the median Age of the case was 34 with quartile range 28 and 55 years were mostly affected with AWD and out of 100 controls 34 (34%) males and 66(66%) females the median Age of control was 30 with inter quartile range 23 and 40 years were used to the study in Addis ketema sub-city. The following risk factors was found to be associated with AWD consumption of raw meat and fruit (AOR 8.114, 95% CL.3.170-20.771; AOR 8.204, 95% CL.3.389-19.859) respectively with p-value<0.05.

Conclusion and Recommendation: consumption of raw meat and fruit were the risk factors, whereas, accessing communal latrine was preventive for AWD outbreak in Addis ketema subcity. In order to reduce the risk of AWD, sanitary standards for meat and fruit should be observed at all point from production to consumptions ,the population should be educated regarding hygienic food storage ,transportation, preparation and serving prior to consumption and accessing communal latrine should be strengthen

Keywords: AWD Outbreak, Addis Ketema Sub-city, Addis Ababa, Ethiopia

Introduction

Background

Acute watery diarrhoea (AWD) is a diarrhoeal disease caused by infection of the intestine with the bacterium *Vibrio cholerae*, either type O1 or O139. Both children and adults can be infected. About 20% of those who are infected develop acute watery diarrhoea – 10–20% of these individuals develop severe watery diarrhoea with vomiting. If these patients are not promptly and adequately treated, the loss of such large amounts of fluid and salts can lead to severe dehydration and death within hours. The case-fatality rate in untreated cases may reach 30–50%. Treatment is straightforward (basically rehydration) and, if applied appropriately, should keep case-fatality rate below 1%.[1] AWD is usually transmitted through faecally contaminated water or food and remains an ever-present risk in many countries. New outbreaks can occur sporadically in any part of the world where water supply, sanitation, food safety, and hygiene are inadequate. The greatest risk occurs in over-populated communities and refugee settings characterized by poor sanitation, unsafe drinking-water, and increased person-to person transmission, because the incubation period is very short (2 hours to 5 days), the number of cases can rise extremely quickly[2].

As of 2000, the incidence of cholera has increased steadily, culminating in 317,534 reported cases worldwide, including 7543 deaths with a case-fatality rate of 2.38 % in 2010 [3]. The disease is now considered to be endemic in many countries and the pathogen causing AWD cannot currently be eliminated from the environment [4]. Regions of the world where AWD is currently prevalent are Africa, Asia and parts of the Middle East. Sub-Saharan Africa is broadly affected by many cholera epidemics [5]. It is impossible to prevent cholera from being introduced into an area – but spread of the disease within an area can be prevented through early detection and confirmation of cases, followed by appropriate response. Identifying the associated factors of AWD is crucial in order to give effective response. Response activities should always be followed by the planning and implementation of preparedness activities that will allow future cholera outbreaks to be dealt with more effectively [5].

The current AWD outbreak in Addis Ababa was started on 8 June 2016 and confirmed by laboratory investigation on 8 June 2016 the tested patient caught with vibro-cholera, and the residence of this index patient was in kolfe_ kerano subcity and he was working as dry waste collector in his community. Then in the following day the friend's of this index patient's who was engaged the same job had the same complaints of AWD and both of them were confirmed

AWD cases. Similarly another patient resides in Addis ketema subcity was identified had AWD he was admitted in teklehimanot private hospital and in the same day at night this patient 's wife was traced had AWD by that time she was Admitted at Ras Desta Damtew memorial hospital both cases were confirmed AWD cases , concurrently from that day on ward the number of cases had been increasing and reported from different sub cites and neighborhoods of Addis to Addis Ababa health bureau ; meanwhile to halt the outbreak a lot of activities were made initially when there were few cases temporary one CTC center was established at Mikeleland , which was found in Gullele subcity , latter on the number of the cases had increased to handle these cases all sub cities had opened two CTC to received AWD patients referred from all CTC center for higher level treatment. In parallel the surveillance system, emergency preparedness and response team were established and strengthens to control the outbreak. Different stakeholders were participated and the government playing the leading roles and by organizing effort to reduced the impact and enables to control the outbreak as much as possible with in short period of time. Totally in Addis ketema subcity 760 cases were reported had AWD. Out of which 477 (62.8%) were males and 283(37.2%) females were respectively, And the attack rate was 2.5 per 1000 cases and the case fatality rate was 0.53% population respectively In Addis ketema sub_city AWD outbreak was occurred from June 2016 to October 2016.norder to give appropriate response and control the outbreak identifying the associated factor was important activities.

During that outbreak Saint Paul's hospital millennium medical college cohort two field epidemiology residents were deployed by EPHI and AAHB to mitigate response to the occurred outbreak. Therefore this case control study was conducted by one filed epidemiology resident to identify the predictor factor AWD outbreak used to provide workable recommendation and for a lesson in the future.

Problem statement

AWD is categorized as a water and food born disease through fecal-oral transmission contaminated water is more common as usual vehicle for transmission in less developed countries than in more developed ones .[4]. The lack of infrastructure to provide clean water and safe water has made many part of sub-Sahara African susceptible to AWD [6]. Many studies have indicated that AWD outbreak were associated with inadequate sanitation. [7] Other study showed epidemic cholera remains a problem in poor countries that lack adequate water and sanitation infrastructure, particularly among populations in crowded, unsanitary conditions [8]. Addis ketema subcity is a place where dense population and crowdedly living, and have unsanitary condition, in this area AWD outbreak was occurred in 9 June 216. However, the subcity rapid responses teams have been giving respond. The outbreak was protracted. So prevention and control activities need to be carefully defined with a view to bringing intervention to a targeted population to eliminate risk factors of AWD, .Recently ,there has been a growing sense that purely individual based analysis of the causes of disease are insufficient and fail to capture important disease determinant [9].therefore without identifying the associated factors of the outbreak transmission it was difficult to develop appropriate method of intervention used to controlled the outbreak in the area .

Significance of the study

The rationale of the study was to develop workable preventive measures used to stop AWD outbreak in the study area by conducting outbreak investigation was enables to identify associated factors and described the epidemiology description..Hence this study findings might be befitted to primarily for Addis ketema subcity and secondly Addis Ababa health bureau and other stockholders by utilizing the suggested factors which have significant associations to the outbreak was helped to control the outbreak or it can be used as a lesson for the future

General objectives

To describe the epidemiology and identify associated factors of AWD outbreak in Addis ketema subcity, Addis Ababa, Ethiopia 2016.

Specific objectives

Describe the epidemic by time, place and person in Addis ketema subcity, Addis Ababa, 2016.

Identify associated factors of the outbreak in Addis ketema subcity, Addis Ababa, 2016.

Method and materials

Study Area

Addis Ababa is the capital city of Ethiopia. It has a population of 3,384,569 according to the 2007 population census and the city geographical lie on an elevation of 2,300 meter located at 9°1'48"N 38°44'24"E, and the city has a complex mix of high climate zone with temperature difference 10 C (18F) to 22C (52F), Addis Ababa is divided in to 10 subcity, Addis ketema is one of the subcity located in the center of the city. The word Addis ketema meaning 'new cities' is one of the ten sub-city as of 2016 the projected population was 297,793 and the total area it covers 863.85558area hectare [10] The sub city includes mesalemia, Merkato, ehel –berenda menhria and sefere –selam 'and others those are the oldest historical place named are found in this sub-city .And also it is a place where very dense population and crowdedly living area .Merkato which is the largest open market found in this subcity. In this market pace many people daily in and out in for different reasons such as: for self consumption , for trade and other activates .Merkato creates many jobs not only for many street food vendors, hotels and restaurant providing service to the consumers , but also many homeless and daily laborers working here to serve themselves. But the sanitation and hygienic environment might be contributed to the occurrence of the AWD outbreak.

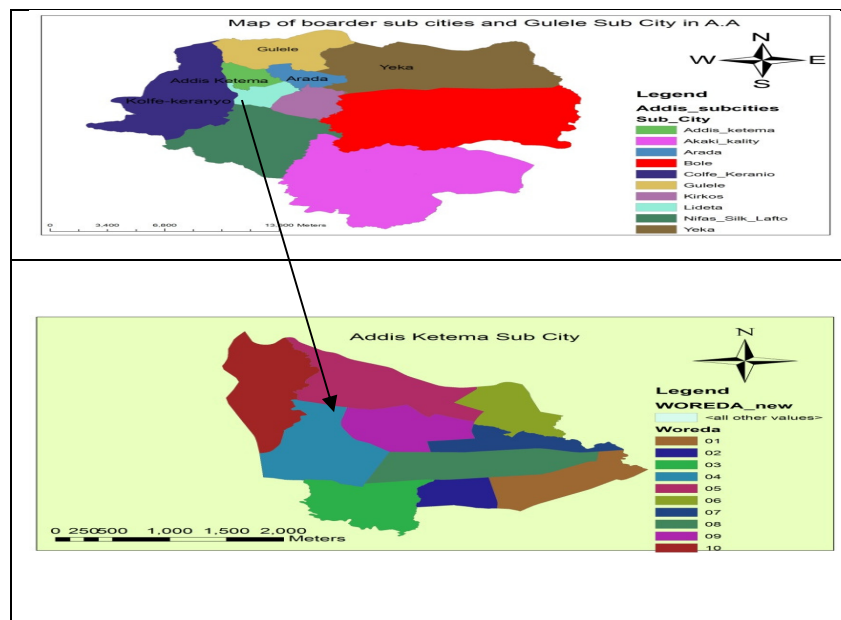


Figure 1: Map of Addis Ababa sub cites and Addis ketema subcity

Study Design

A community -based 1: 2 case control study was conducted to identify the associated factors and describe epidemiology of the outbreak.

Investigation Period

The investigations was done in the period between June 2016 to October 2016

Source population

Case: all AWD cases there age is above five found in Addis ketema subcity in 2016

Controls: all population whose age is above five found in Addis ketema free from AWD in the outbreak period

Study population

Case: all AWD cases listed in the CTC line list of Addis ketema_ city satisfied the inclusion criteria of cases

Control: all people's lives in the place where the case living community satisfied the inclusion criteria of controls

Inclusion criteria for cases

The participants of the study included all persons living in Addis ketema subcity confirmed with AWD or had epidemiological linkage with confirmed AWD cases detected during the outbreak

Inclusion criteria for controls

The participant of the study includes all persons living in Addis ketema subcity they were free from AWD from June 09/2016 up to administered questionnaire date and lived the same as the cases lived community during the outbreak period

Exclusion criteria for controls

Persons who had AWD from June 09/2016 up to administered questionnaire date

Exclusion criteria for cases

Persons whose age is less than five

Sample size determination and sampling

A sample size of 150 (50 cases and 100 controls) was calculated using Epi-Info version 7. This was calculated based on an alpha of 0.05, at two sided confidence level of 95%, power of 80%. OR 0.2 and 29% proportion of control exposure was taken from previous study; hand washing was 80% protective from being develop AWD than non hand washing practiced [11]

The cases were selected from the CTC conveniently diagnosed cases by clinicians, and the controls were selected from the community where the places of the cases lived randomly. . For one case two controls were selected and always the controls were selected as the same day of the case selection day.

Selection of cases

Cases were selected from CTC which were registered in line list form.

Selection of control

Controls were selected from the same community as the cases lived. The procedure was after one case picked from the CTC went to the community to find the correspondence of two controls. Randomly one woreda was selected using lottery method then went to that woreda and stand on one arbitrary place to spun a bottle in the approximate center of the house, the immediate house hold was selected for initial counting then went in the direction until the roads bend to look for the last household then again spun a bottle in the approximate center of house to mark last house hold then count all households between the two point intervals. Finally systematically randomly the two household were selected in order to select one control for each household. When more than one member found in the same house hold used lottery method to select the control .100 household were visited to find the required number of controls for all 50 cases.

Variables

Independent variables

Source of water for drinking and for household purpose; Buy/sold food from local vendors, farm/garden and supermarket; Food and beverages, any type of raw meat, partially roasted meat, fruit, vegetable salad, un boiled fresh milk; ate food from, home, hotel, restaurant, at social gathering.; ate cold leftover food, home, hotel, restaurant, at social gathering; hygiene and sanitation, latrine type, private, communal,; hand, washing and before eating after defecation

Dependent variable

AWD

Data collection method

Data was collected by principal investigator using pretested standardized questionnaire which was adopted from Addis Ababa regional health bureau, was used to collect demographic, clinical and exposure history from the cases and controls. Questionnaires were administered to the cases as they were detected in the CTC, and the questioners were administered to the control as they were found in the community. The questions were asked about age, sources of drinking water,

main source of food (whether home prepared or vended foods), hand washing practices, type of toilet use and household waste disposal practices between June 2016 and October 2016.

Data quality and assurance

Data quality was maintained in two steps first data was collected with pretested standard questioners, which was adopted from Addis Ababa regional bureau, and tried to collect complete data that enabled to catch up the intended information, and second during data entry stage the missed data, wrongly filled data was cleaned and corrected with EpiInfo software version 7 prior to data analysis.

Data management and Analysis

The collected data was coded before entered into EpiInfo software for data cleaning and entry then transported to SPSS software version 21 and data clean up was performed by running frequency, proportion, percentage was used to check the completeness and consistency of the collected data. After checked the completeness of the data descriptive analysis was made to describe the case in person, place and time. Then to identify associated factors of AWD primarily Bivariate analysis was made to select the candidate for multivariable binary logistic regression at $p \leq 0.2$ then multivariable binary logistic regression method was used to assess odds of associated factors with 95% confidence level at p value < 0.05 .

Ethical considerations

Permission has got from Addis Ababa regional health bureau and Informed oral permission was sought from the participants before administered questioners, After explaining the participants have the right not to participate to the study and protected the privacy of the participants through use of codes and confidentiality assured by the gathered information used for this study purpose only or not to disclose the third party without permission of the interviewee. However, ethical committee review did not apply for this case because this was a public health response to an outbreak.

Data dissemination

This final document was submitted and shared to Saint Paul's hospital millennium medical college public health department, Addis Ketema subcity office in hard and softcopy, and is to be reserved at SPHMMC library to make accessible for the readers.

Case definition

Suspected case

A case of AWD in this study is: A patient aged 5 years or more who develops profuse acute watery diarrhea, with or without vomiting

Confirmed cases

A suspected case in which vibro cholerae 01 or 0139 has been isolated from their stool

Results

Descriptive Epidemiology

To conduct case control study 150 samples were taken 50 samples were cases and 100 samples were controls used respectively. Out of 50 cases 26(52%) were females and the rest 24(48%) were males and the median Age of the case was 34 with quartile range 28 and 55 years were mostly affected with AWD and out of 100 controls 34 (34%) males and 66(66%) females the median Age of control was 30 with inter quartile range 23 and 40 years were used for case control study.

Distribution of AWD by Time

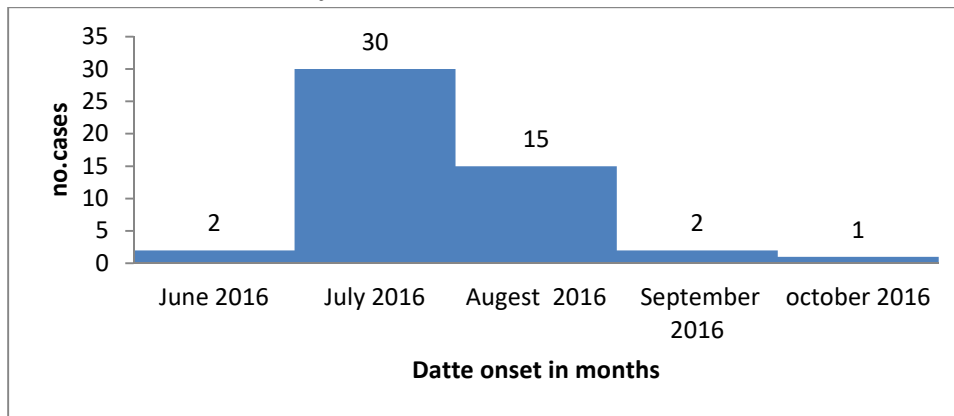


Figure 2: Distribution of AWD outbreak in months in Addis ketema subcity, Addis Ababa, Ethiopia 2016

The time graph described AWD cases was started on June 2016 and the number of the case was sharply picked on July 2016 and went to decline down wards from August 2016 to October 2016. And the least cases were registered on October 2016.

Distribution of AWD cases by place

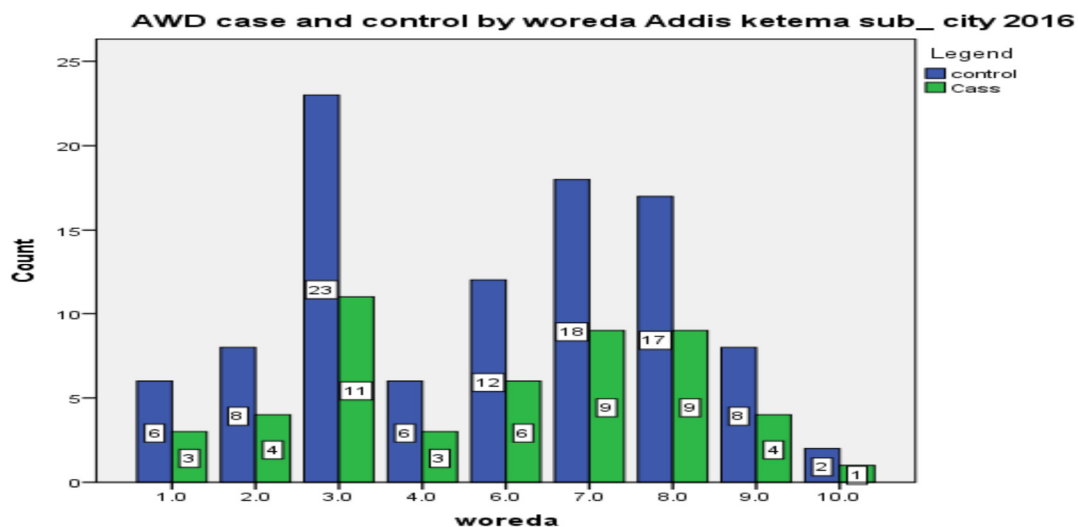
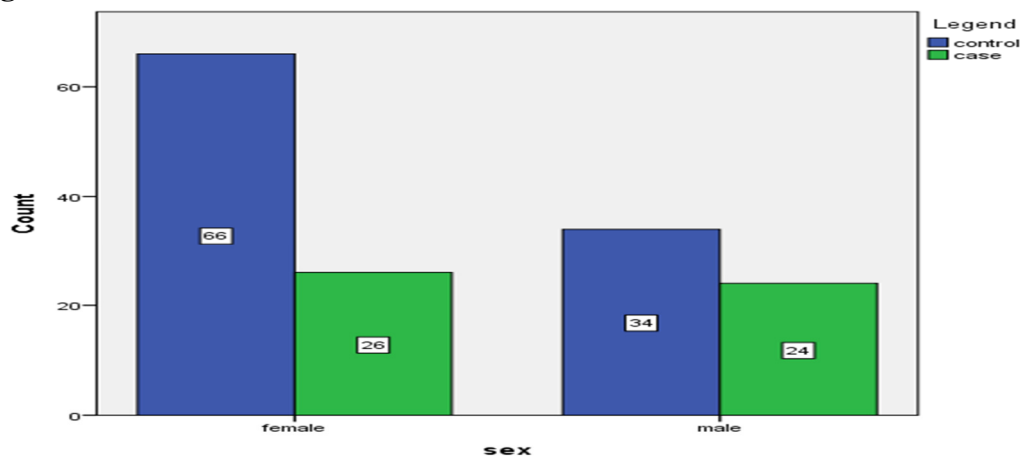


Figure 3: Distribution of AWD cases by woreda in Addis ketema subcity, Addis Ababa, 2016

Of total 50 cases 11(22%) of cases was reported in woreda 3 and followed by 9(18%) cases was reported in woreda 7 and 8 and the least 1(2%) case was reported in woreda 10.

Age sex distribution of cases



The above graph illustrated, of total 50 cases 26(52 %) were female cases and the rest 24(48%) were male.

Distribution of cases and controls by Age groups in Addis ketema sub-city 2016

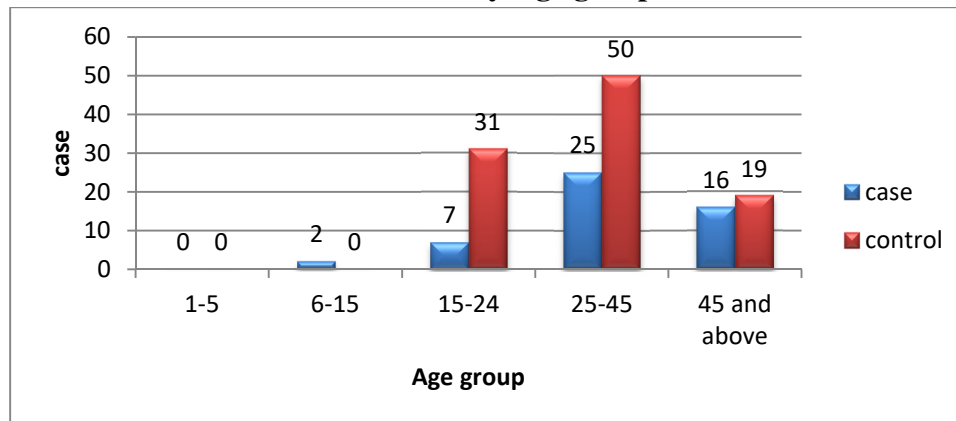


Figure 4: Distribution of case control study by age group of AWD outbreak in Addis ketema subcity, Addis Ababa, Ethiopia 2016

The above graph described that out total 50 cases half of the case were affected in the age group found between 25 to 45 years, followed by 16(32%) cases was affected in the age groups found 45 years and above and the least 2(4%) cases were affected in the age group between 6to 14.

Factors associated with AWD

Stepwise binary logistic regression analysis was done to identify factors that have significant association with AWD, eating raw meat fruit and used communal latrine were the identified factors of AWD (Table1)

In Bivariate analysis ,vegetable salad ,fruit, any type of raw meat ,partially roasted meat ,eating food outside ,ate at social gathering, ate cold leftover food, communal latrine variables were brought to multivariable binary logistic regression analysis with the cut line p value <0.2. However ,regular wash hand with soap and water before eating ,regular wash hand with soap and water after defecation ate at social gathering from school/work/cafeteria, ate leftover food from hotel /restaurant, travel history in AWD infected area ,contact with have history AWD patients ,attending at funeral ceremony with AWD corpus variables were not screened with Bivariate analysis at that p- value, But all the variables with the cut point at $p < 0.2$ were further assessed in multivariable logistic regression except the cells less than 10 in the unadjusted odds ratio tables were excluded from the analysis, because it widen confidence interval would made it weak association(table 1)

Analytical Study

The multivariable binary logistic regression analysis showed the association at 95% confidence level with adjusted odds ratio; fruit has association to AWD outbreak with adjusted odds ratio AOR 7.168(2.909,17.656) and raw meat has association to AWD with adjusted odds ratio AOR= 7.142 (2.753,18,523) .However, eating food from outside ,eating food from hotel and private latrine were not have association with AWD . (In Table 2)

Table 1 : Bivariate and Multivariable binary logistic regression statistically significant exposure among AWD cases and controls, Addis Ketema subcity, Addis Ababa, Ethiopia, 2016

	Exposure	Yes /No	Cases (N=50)	Controls (N=100)	COR at 95%CL	AOR at 95%CL
1	Fruit	Yes	24(48%)	15(15%)	5.231(2.397-11.416)	7.168(2.909-17.654)**
		No	26(52%)	85(75%)	1	
2	Any types of raw meat	Yes	20(40%)	12(12%)	4.889(2.138-11.178)*	7.142(2.753-18.523)**
		No	30(60%)	88/(88%)	1	
3	Eat food out side	Yes	35(70%)	44(44%)	2.970(1.442-6.115)*	1.665(0.681-4.070)
		No	15(30%)	56(56%)	1	
4	Eat food outside from Hotel	Yes	12(24%)	12(12%)	2.316(0.955-5.617)*	1.346(0.450-4.026)
		No	38(76%)	88(88%)	1	
5	Vegetable salad	Yes	8(16%)	3/(3%)	6.557(1.557-24.368)*	-
		No	42(84%)	97(97%)	1	
6	Partially roasted meat	Yes	8(16%)	3/3%	6.159(1.557-24.368)*	-
		No	42/50(84%)	97/100((97%)	1	

*significant level at p value <0.2 and ** Significant level at p value <0.05

Discussions

The study done in Bangladesh in 2013 vibrio cholera was isolated from 40 types of food samples categorically include meat, fish, vegetables and fruits ,street food, bakery shop food, fast food, sweet and dairy product[12] .Another study done in Lao Peoples Democratic Republic (Lao PDR) the food sample were collected in two market places categorized domestic animal meat (beef ,water buffalo ,pork ,chicken duck and egg) vibrio cholera were identified over an extended period of time as contaminated strain in food available in market in town and city and responsible factors of the occurred cholera outbreak[13] .Another study done in Zambia 2008 showed that contaminated food was a major vehicle of transmission of AWD during an outbreak.[14] Another study done in Cameroon 2015 was shown that food can be contaminated through soiled kitchen ware [15]. This study finding in line with the study findings meat was risk for AWD outbreak the meat might be contaminated in market place or due to storage, preparation in un cleaned kitchen wheelhouse

The study done in Iran 2016 showed that consumption of unsafe fruit and vegetable were the risk of cholera [16]. Another study done in Peruvian 1994 showed that fruit and vegetable were associated with Cholera outbreak [17]. This study finding in line with those studies eating fruit was risk factor for AWD outbreak. The risk of fruit might be due to contamination when fruit was washed with river water or eating unwashed fruit.

Limitation of the study

The controls were not confirmed with laboratory test they were free from AWD

Recalled biased by the controls

Conclusions

Consumption of raw meat and fruit was the risk factors of AWD outbreak in Addis ketema subcity in the year of 2016.

Recommendations

In order to reduce the risk of AWD, sanitary standards for meat and fruit should be observed at all point from production to consumptions ,the population should be educated regarding hygienic food storage ,transportation, preparation and serving prior to consumption

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Chapter 2

Bacillary dysentery surveillance data Analysis in Addis ketema subcity Addis Ababa 2016

Abstract

Background: Bacillary dysentery is considered as one of public health problem and weekly reportable disease in Ethiopia. However Bacillary dysentery surveillance system had not been analyzed before in Addis ketema sub city in Addis Ababa region, therefore in order to determine the progress made toward reduce communicable disease and determine the burden and geographic distribution of the disease bacillary dysentery case data should be analyzed.

Objective: The objective of this document is to assess and describe the epidemiology of bacillary dysentery in Addis ketema sub city and explained the disease burden, trend and distribution interims of time, place and person due to limit this kind of information in the sub-city use information for sound decision.

Methods and Materials: A Descriptive retrospective cross sectional study was undertaken on the Addis Ketema sub city surveillance data from (2012-2015). The data was obtained from Addis Ababa health bureau surveillance report of bacillary dysentery, and the data was collected by the investigator after obtaining ethical clearance, ensuring confidentiality and privacy to use the data, then four years (2014-2015) bacillary dysentery data of AAHB was retrospectively reviewed and analyzed using Microsoft excel, and the obtained result was presented in text, table and graph.

Result: Out of the total 8445 bacillary dysentery cases was reported from Addis ketema sub city in last four consecutive years in period (2012-2015), the most case 2610(31%) was reported in 2015 and the least case 1497 (17.7%) was reported in 2012. The analyzed monthly trend showed the highest cases was reported in May 841(10%) and the lowest cases was reported in August 515(6.1%). The annual prevalence rate of the sub city of the past four years was ranged from 5.4, 8, 5.6, 8.8 case per 1000 population respectively, and the mean prevalence was 6.97. And no death case was reported in the study period.

Conclusion and recommendation: Bacillary dysentery is one of the public health problem of the country, the total cases was 8445, the mean prevalence of the cases was 6.97 , the case fatality rate was zero and the trend of the disease was irregular , and seasonality was not to a be factor of the disease in Addis ketema subcity .In order to reduce the burden of the disease public awareness about sanitation should be given.

Introduction

Background

Public health surveillance has been defined as the ongoing, systematic collection, analysis, interpretation and dissemination of data regarding a health related event for use in Public Health action to reduce mortality and to improve health (1). Data generated from such public health surveillance systems is used for guiding immediate public health action, program planning and evaluation, monitor trends in the burden of disease and formulating research hypotheses (1, 2). As an essential to public health action and for surveillance purposes, the public health information systems involved need to include a variety of data sources (1,2).

Shigellosis, also known as bacillary dysentery, is acute infectious enteritis of human and subhuman primates caused by bacteria of the genus *Shigellae*.(3) It usually causes frequent passage of small-volume, bloody mucoid stools, accompanied by abdominal cramps and rectal pain. Life-threatening complications of shigellosis include hemolytic uremic syndrome (HUS), encephalopathies, colonic ulceration and perforation, shigellemia, toxic megacolon, intestinal stenosis and obstruction, persistent diarrhea, severe malnutrition, and wasting.(4) Disease can result from infection with any one of four known shigella species, but only *Sh. dysenteriae* type 1 (SD1 or Shiga's bacillus) is known to cause outbreaks of epidemic proportion. Dysentery epidemics exacerbate the already important burden of endemic shigellosis in developing countries. Shigellosis is transmitted by fecal-oral contamination directly through person-to-person contact (direct [hand-to-hand-to-mouth] or indirect [hand-to-fomites/food/water-to-mouth]), or indirectly through fecal contamination of food (food borne) and water sources (waterborne), and houseflies (fly-borne). Person-to-person contact seems to be the most important mode of shigellosis transmission (5)

Globally the annual number of Shigelloses cases is estimated to be 164.7 million, of which 163.2 million were in developing countries (with 1.1 million deaths) and 1.5 million in industrialized countries, and seasonal changes appear to be factors leading to the increase in the number of cases during certain periods of the year. In Burundi, for example, annual epidemics have been occurring during the rainy season—a higher number of cases occur from September through December—every year for the last 10 years. The environmental factors that lead to seasonal transmission are not well understood. It may be that peaks during the rainy season may be related to increased contamination of water supplies, seasonal worsening of nutritional status, or increased susceptibility to infection (6). In developing countries including Ethiopia *Shigella*

flexneri is the dominant serogroup.(7.8) .Comprehensive surveillance data on laboratory confirmed cases of Shigellosis is limited in Ethiopia . However, bloody diarrhea can be used as an indicator of shigellosis cases. From the year 2006 to 2008 a mean of 75,531 outpatient cases of bloody diarrhea were reported per year (approximately 98/100,000 persons per year); the mean number of admission was 1901 patients and 72 deaths per year by the surveillance system of the government. Addis Ababa reported the highest mean rate of 204 cases/100,000 population per year in this period (9).

Problem statement

Bacillary dysentery is seriously one of the public health problem in developing countries because of threatening human health and the cause of many mortality and morbidity problem of human health, bacillary dysentery epidemic occurred many times in developing countries due to Inadequate sanitary infrastructure, poor standards of personal hygiene, lack of early recognition of the epidemic, inadequate laboratory facilities, supplies, and expertise, inappropriate antibiotic treatment, and poor understanding of the epidemiology of infections and the interaction of Shiga's bacillus with humans have led to the rapid and uncontrolled spread of infection(9). Beside of this, People living in poor, overcrowded urban communities with poor sanitation and hygiene have the greatest risk of developing shigellosis (8). In Ethiopia, as in other developing countries adequate and reliable information on food borne diseases including shigellosis are lacking; however, Bacillary dysentery is considered as one of the public health problem and weekly reportable disease in Ethiopia, by compiling the reported data properly and making analysis then possibly can predicate the disease trend by observing the disease pattern, distribution, source of infecting and threshold. the socio demographic and geographic factors of Addis ketema sub-city is/are dense ,overcrowded and poor socio-status people are living and the infrastructures are poor waste disposal and sewage system and the people are highly mobilize since the biggest” autobus- tra “and open market of the country available, so there could be food born disease like bacillary dysentery can easily abrupt and change in to epidemic unless timely appropriate action taken .therefore this kind of surveillance trend analysis of bacillary dysentery is essential to track the disease status of subcity. Since this study is new for the sub-city is fill a gap by providing epidemiological description of the disease in the subcity,

Significant of the study

The rationale of the study was to analyzed data generated from bacillary dysentery cases weekly reportable surveillance system and give forward recommendation is useful for public health authority because is used for guiding public health action ,program planning and evaluation, and monitor trends in the burden of disease in order to have proper planning in the future outbreak. However, due to lack of documented evidence in Addis ketema sub city. Bacillary dysentery cases analysis is important to control disease burden, predict out break by identifying geographical area, seasonality respected to month to month and year to year trends and measures to ward progress and achievement couldn't be practiced. therefore, this study provide four years descriptive cross-sectional trend analysis of bacillary dysentery case in Addis ketema sub city, which help them to truck diseased trend in terms of time place and person and up on the result not only the sub city and/or AAHB is used for taking appropriate decision making but also the analyzed data used to minimize shortage of Aggregate data for the researchers and finally the study document was disseminated in hard copy and soft copy to the sub city office ,SPHMMC and to make accessible for others reserved in SPHMMC library.

Objective

General objective

The main objective of this study is to describe the epidemiology of bacillary dysentery in Addis ketema sub-city, Addis Ababa. Ethiopia 2016.

Specific objectives

- To describe the magnitude of bacillary dysentery in Addis ketema sub-city, Addis Ababa
- To asses trend and seasonality of bacillary dysentery in Addis ketema sub-city, Addis Ababa
- To determine bacillary dysentery cases and deaths by person place and time, Addis Ababa

Methods and Materials

Study area

Addis Ababa is the capital city of Ethiopia. It has a population of 3,384,569 according to the 2007 population census and the city geographical lie on an elevation of 2,300 meter located at 9°1'48"N 38°44'24"E, and the city has a complex mix of high climate zone with temperature difference 10 C (18F) to 22C (52F), Addis Ababa is divided in to 10 subcity, Addis ketema is one of the subcity located in the center of the city. The word Addis ketema meaning 'new cities' is one of the ten sub-city as of 2016 the projected population was 297793 and the total area it covers 863.85558area hectare [10]

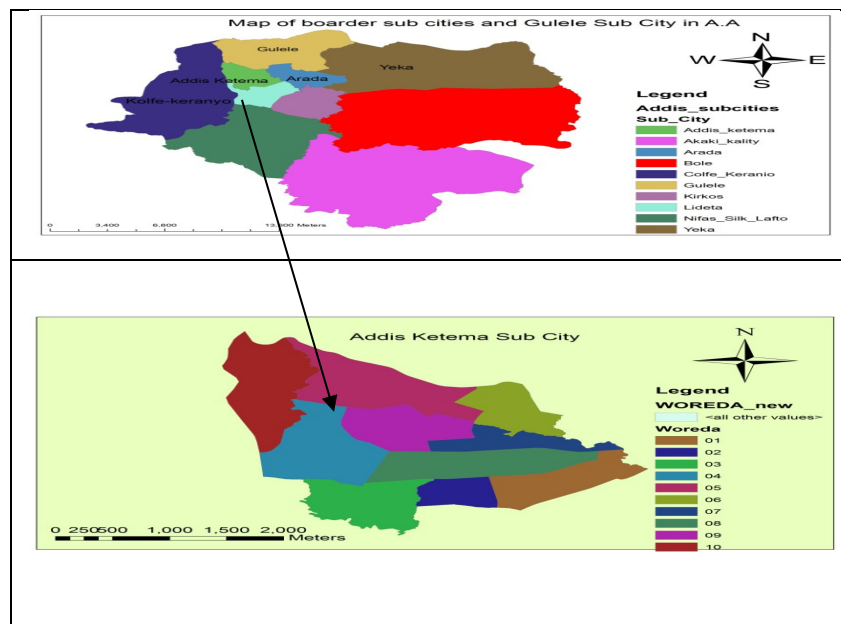


Figure 5: Addis ketema subcity Map 2016

Study design and period

We conducted retrospective record review of the regional health bureau bacillary dysentery data set from May 20, 2016- June 13, 2016 of Addis ketema sub city .Addis Ababa, Ethiopia,

Population under surveillance

Study populations were all resident live in Addis Ketema sub city. The size of Addis Ketema population includes 297793 as of 2014 CSA, mini EDHS.

Source of data

Aggregated data of bacillary dysentery cases of weekly surveillance report obtained Addis Ababa health bureau which was sent from Addis Ketema sub city and stored at data base of regional health bureau .The surveillance data include four years data having the variable of only number of cases in month and year and in each sub city of Addis Ababa

Data collection techniques and procedure

Data was collected by principal investigator. The formal written letter from Saint Paul's hospital millennium medical college submitted to Addis ketema subcity health office to get permission enable to access surveillance data of the subcity. However the subcity allowed accessing the data. Documented five years bacillary dysentery surveillance data was not available in the subcity. According to the subcity PHEM officer's explanation the subcity PHEM was newly organized as a case team and it had no documented surveillance data more than one year. Upon their suggestion the data can be available at regional health bureau or used HMIS data an alternative. Then the data was collected from Addis Ababa health bureau by researcher itself, before accessing the data only bacillary dysentery surveillance data reported by Addis ketema subcity was filtered from regional health bureau surveillance data base. Out of which four years surveillance data was reviewed retrospectively from 2012-2015EFY.

Data Analysis

A descriptive analysis was made, all cases that were reported from surveillance report obtained from Addis regional health bureau from year 2012 to 2015 was used for analysis. Data cleaning and analyzing was made by excel 2010 of application software and prominent finding of analyzed data were presented in text, table and figure in order to give meaning full sense,

Case definition

Suspected

A person with diarrhea with visible blood in the stool

Confirmed

Suspected case with stool culture positive for shigella dysenteriae 1

Dissemination of finding

The result of this study is disseminated to Addis ketema sub-city health office, Addis ketema, st. Paulo's hospital millennium medical college and visited health offices in hard copy and soft copy and to make accessible reserve in SPHMMC library.

Ethical Clearance

Permission was obtained from Addis Ababa health bureau to access the surveillance data. After explaining the purpose of study and submitted supportive letter written from Saint Paul's hospital millennium medical college with assured the gathered data used only for the study purpose.

Result

Background and geographical location of Addis ketema sub-city, Addis Ababa

Addis Ababa lies $9^{\circ}1'48''\text{N}$ latitude and $38^{\circ}44'24''\text{E}$ longitude. The city is located at the heart of the country, at an altitude ranging from 2,100 meters at Akaki in the south to 3,000(9,800 ft) meters at Entoto Hill in the North. This makes Addis Ababa the third highest city in the world, after La Paz and Quito in Latin America. Its time zone is categorized in East Africa Time (UTC+3). The city occupies a total area of 540 Sq.Km2. Addis ketema sub cite located in the northwest area of the city not too far from its center. It border with the sub city of Gullele in the north, Arada in the east, Lideta in the south and kolfe -keranio in the west. Merkato is located in Addis ketema which is African's largest open air market .according to 2014 mini EDHS the Addis ketema sub city has a total of 297793 population of which 144954 male and 152839 female respectively and sex ratio 94.84 and the population density of the sub city is 3447254.40 population per kilometer squire and the sub city covers 863.86 area hectors and the sub city is sub divided in to 10 woreds. The number of health facility in the sub city are 1 governmental and 3 private hospitals and also have ten government and 1 non government health centers have giving service the public.(10)

Map of Addis Ababa and Addis ketema subcity

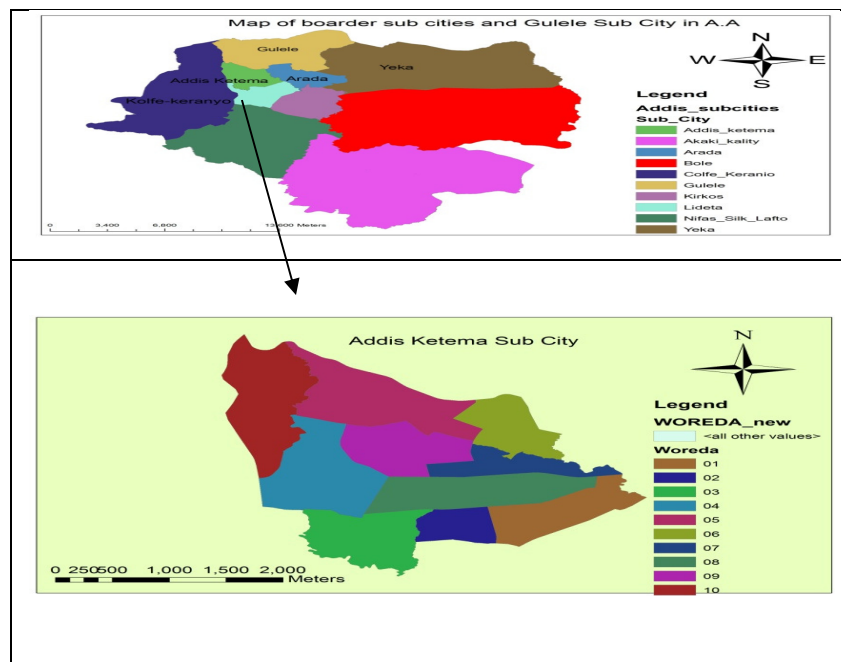


Figure 6: Administrative Map of Addis Ababa and Addis ketema sub city

Bacillary dysentery case report in the year 2012

A total 1947 dysentery cases were reported in monthly base at Addis ketema sub city health office in 2012 .the largest number dysentery cases were reported on May of 2012 and the smallest case were reported on September of 2012. All patient were treated an outpatient and no death was reported in that fiscal year

Bacillary dysentery monthly reported in the year 2013

A total 2265 dysentery cases were reported in monthly base at Addis ketema sub city health office in 2013 .the largest number dysentery cases were reported on May of 2013 and the smallest case were reported on November of 2013. All patient were treated an outpatient and no death was reported in that fiscal year

Bacillary dysentery monthly reported in the year 2014

A total 1623 dysentery cases were reported in monthly base at Addis ketema sub city health office in 2014 .the largest number dysentery cases were reported on January of 2014 and the smallest case were reported on August of 2014. All patient were treated an outpatient and no death reported in bacillary dysentery cases.

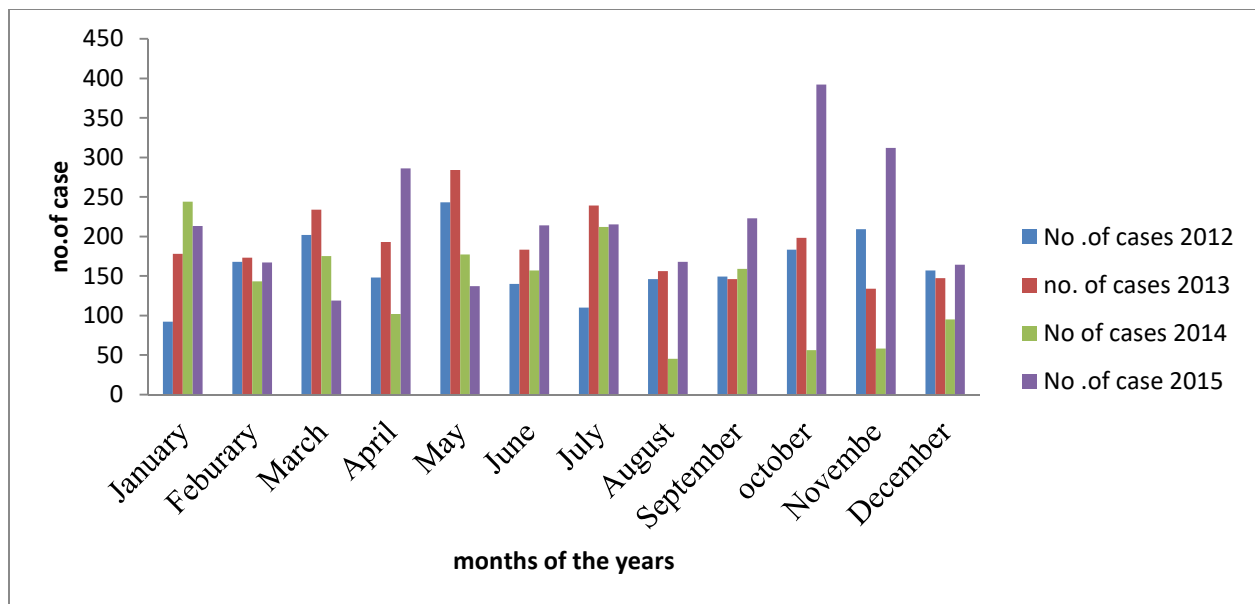
Bacillary dysentery disease tend report in 2015

A total 2610 dysentery cases were reported in monthly base at Addis ketema sub city health office in 2015 .the largest number dysentery cases were reported on October of 2015 and the smallest case were reported on March of 2015. All patient were treated an outpatient and no death reported in bacillary dysentery cases.

Bacillary dysentery four years trend from 2012 -2015

A four years Bacillary dysentery surveillance data reported on monthly based at Addis ketema sub cites from (2012 -2015) .Out of 8445 of four years bacillary dysentery surveillance data record the largest case were recorded on October at 2015 which was 392 cases were reported and the smallest case was reported on August 2014 which was 45 cases .The past four years bacillary dysentery disease trends were irregularity in month and years.

Four years bacillary dysentery reported cases by months and years.(2012-2015)



. Table 2 : Bacillary dysentery motherly reported cases in the past four years from (2012-2015), Addis ketema sub city Addis Ababa, Ethiopia

Bacillary dysentery four years disease trend in Addis ketema subcity

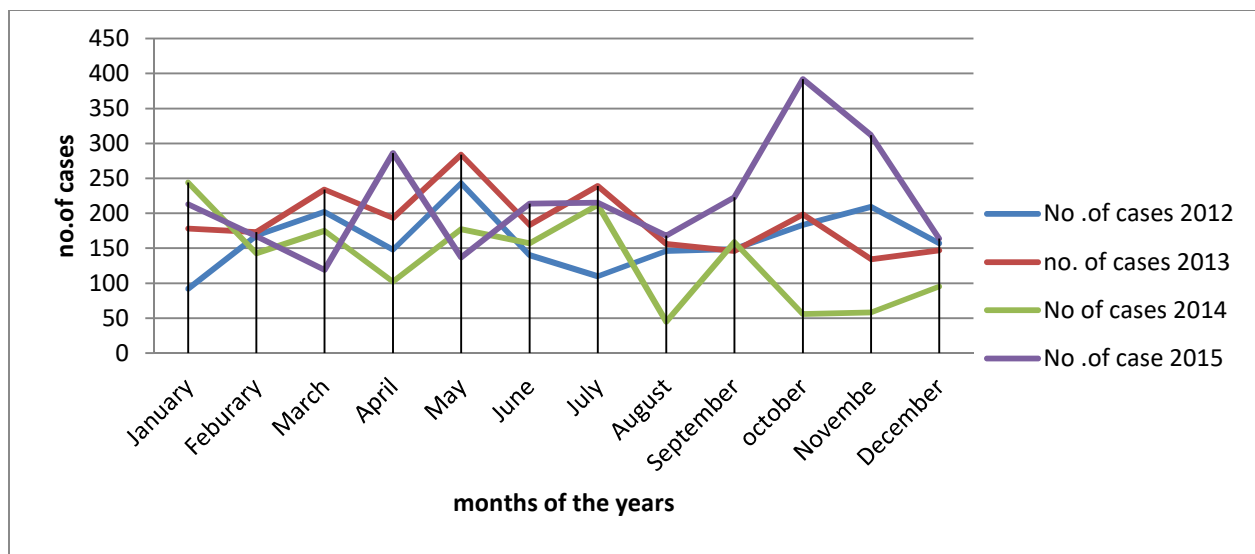


Figure 7: Bacillary dysentery cases trend between the period of four years (2012 and 2015)

The following summery table is described below is a total of 8445 bacillary dysentery cases (100%) were reported from Addis ketema sub city between 2012 and 2015 ,over all 2610 cases (30%) were reported on 2015 and the least 1947 (23%) cases were reported on 2012 .and the seasonality trend were seen it was irregular in months and years in each reported period and

months .Generally in the aggregated data the highest case 841(10%) on may months and the lowest case 515(6.1%) were reported on August .

Summary bacillary dysentery reported surveillance data from (2012-2015) by Addis ketema subcity health office.

Subcity(place)	Year	No .of cases 2012	no. of cases 2013	No of cases 2014	No .of case 2015	No .of death	Total
Addis Ketema	January	92	178	244	213	0	727
Addis Ketema	February	168	173	143	167	0	651
Addis Ketema	March	202	234	175	119	0	730
Addis Ketema	April	148	193	102	286	0	729
Addis Ketema	May	243	284	177	137	0	841
Addis Ketema	June	140	183	157	214	0	694
Addis Ketema	July	110	239	212	215	0	776
Addis Ketema	August	146	156	45	168	0	515
Addis Ketema	September	149	146	159	223	0	677
Addis Ketema	October	183	198	56	392	0	829
Addis Ketema	November	209	134	58	312	0	713
Addis Ketema	December	157	147	95	164	0	563
Total		1947	2265	1623	2610	0	8445

Table 3: Bacillary dysentery case summery per months of the years from 2012 to 2012

Bacillary dysentery prevalence and case fatality rate from (2012-2015)

Year	Population	Cases	Prevalence /1000	death	CFR
2012	276012	1497	5.4	0	0
2013	283089	2265	8	0	0
2014	290348	1623	5.6	0	0
2015	297793	2610	8.8	0	0

Table 4: Bacillary dysentery cases prevalence and case fatality rate in the reporting period in year (2012-2015) at Addis ketema sub city Addis Ababa, Ethiopia

Discussion

Bacillary dysentery is one of weekly reportable disease in Ethiopia and any cluster of bloody diarrhea among person need to be reported this help to recognize and detect outbreak early .however food born disease including shigellosis is not reported in Addis ketema subcity. outbreak of dysentery have not been documented and reported the four years surveillance data The analyzed data showed total 8845 cases of bacillary dysentery were reported in Addis ketema from (2012-2014) ,the prevalence was 5.4 ,8, 5.6 and 8.8 respectively, in the reporting period, despite a lot of effort have been made on health program improvement in the country, the prevalence of the bacillary dysentery cases were not reduced when compared to shigellosis surveillance cases reported on 2006 to 2008 by Addis Ababa health bureau, it was 204 case per 100,000 population may the current increment of the cases attributed to health seeking behavior of the population showed improvement or the laboratory system the health facility improved or it might be improvement of reporting. In Ethiopia at different times bacillary dysentery outbreaks were occurred. For these the study was made by Fesehaye Almseged at Jimma university showed that there was outbreak in Jimma from December 12 to December 2008 the prevalence was 64.5 and there was another outbreak occurred at Addis Ababa university from March 2010 to April 2010 studied by Admasu, the study showed the prevalence was 40% and the attack rate was reached at 6.8 , when it compare to the current surveillance study done in Addis ketema the prevalence was 6.97 per 1000 population, this implies not significantly reduced the problem , it may be persisted due to the place where of Addie ketema has many slum area , overcrowded ,low socioeconomic status ,shortage of latrine, poor sewerage system may contributed to not decreased, the cases . And the current surveillance study showed the case fatality rate was zero; in contrast; the previous surveillance report showed on shigellosis from the year 2006 to 2008 at Addis Ababa there were 72 deaths per year. The reason may be improvement of the health caring system or improvement of public awareness about prevention and health seeking behavior of the population improved it may be under reporting and lack of death auditing, recording and reporting problem. In this study highest cases was reported in May and lowest cases was recorded in August when it compared to other study In Burundi, annual epidemics have been occurring during the rainy season a higher number of cases was occurred from September through December—every year for the last 10 years when they explained the possible factors like the environmental factors that lead to seasonal transmission are not well

understood. It may be that peaks during the rainy season may be related to increased contamination of water supplies, seasonal worsening of nutritional status, or increased susceptibility to infection finally they conclude seasonal changes appear to be factors leading to the increase in the number of cases .in contrary, the current study showed highest cases was recorded in may which is a dry season in Ethiopia and lowest cases was recorded in August which is rainy season in ethiopia ,the reason might during dry season there would be water scarcity this leads the surface of earth not washed due to this the bacteria can survive any place of the land and water scarcity brought faced difficulty of washed raw vegetables, fruit and food utensils to keep hygiene properly or it may be need further study. To conclude seasonality change was not considered to be factor of the diseases in this study

Limitation of the study

- Significant socio demographic data had missing on important variables on the data set found in Addis Ababa health bureau (i.e. .sex, Age .address of the case) that made meaningful to give descriptive information.
- The number of death was likely grossly under reported
- Documented reported surveillance data was not found in the Addis ketema sub city
- Sever acute malnutrition (SAM) and Moderate Malnutrition (MAM) was important variable not assessed but lack of available data.

Conclusion

Out of the total 8445 bacillary dysentery cases reported in the study period from the year (2012-2015), the most case 2610(31%) was reported in 2015 and the least case 1497 (17.7%) was reported in 2012. And the highest cases was reported in May 841(10%) and the lowest cases was reported in August 515 (6.1). the annual prevalence rate of the sub city in the study period of four years ranged from 5.4-8.8 case per 1000 population respectively and the mean prevalence was 6.97. And case fatality rate of bacillary dysentery in the sub city was zero and seasonal change was not a factor for the cases increment.

Recommendation

- HMIS data and surveillance data should be consistent.
- The weekly reportable format should be revised and should include socio-demographic variables like age and sex.
- A further study needed despite the health care delivery system has been improved the number of cases not reduced.
- A further study needed while there was a large number of cases year to year there is no death reported.
- Organized and documented surveillance data should be available in the sub city.

Reference

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Chapter 3

Surveillance system Evaluation of relapsing fever

Abstract

Background: The ministry of health Ethiopia has adapted a strategy implemented at all levels of the country to strengthen public health emergency management of the 21 priority disease under surveillance. However the surveillance systems of the country have showed a dramatic improvement from the grass root up to the Regional and National levels since its implementation, the performance of the core surveillance activities, their attributes and supportive functions of the system has not yet been assessed in Addis ketema sub_ city. Among the 21 priority reportable disease relapsing fever was selected for the surveillance system of the sub_ city PHEM due to its high burden of the cases in the sub_ city selected area.

Objective: the objective of this study was to evaluate the surveillance system performance of core functions, supportive activities and system attributes of relapsing fever in three woredas of the subcity for three months study period (January 2017 to March 2017) in Addis ketema sub_ city, Addis Ababa, Ethiopia.

Method: cross-sectional study was conducted from (January 2017 to March 2017) reported surveillance data reporting system of the sub_ city and purposefully from Addis ketema sub_ city woredas PHEMs woreda1, woreda7 and woreda 8 PHEM offices, three health centers found in those woredas were selected due to high burden of relapsing fever occurrence in the areas. Data was collected by principal investigator using data collection abstraction tool customized from WHO and CDC surveillance reference tools administered to surveillance focal person (officers) from the selected health facilities and woreda health offices. And one year (January 2016-December 2016) record review was also one part of data collection tools.

Result: At subcity and woredas level there were assigned PHEM officers who have full responsibility on public health emergency management. But at facilities level there were no assigned surveillance focal people dedicated for the PHEM only, rather they have another primary responsibility. The selected facilities focal persons (officers) responded that the weekly reporting form of the surveillance system was simple in terms of data recording and reporting. But concerning data analysis the respondents said that the surveillance data lacks personal variables like age and sex. All of the respondents explained that the system is flexible i.e. it is possible to add in the system other newly occurring health events. The data quality at subcity and

woreda level was good. However lack of communication facility, budget for emergency preparedness activities and well organized supervision and feedback system.

Conclusion: The overall structure and data flow from facilities to subcity level were good .However, lacks of communication facilities, emergency drugs stock and budget were the major constrains. And at facilities level not full time worker were assigned for surveillance activities rather most of their time engaged in health facility activities it makes the surveillance system affect future sustainability.

Recommendation: The surveillance system at facility level should be improved by availing communication facility, assigning dedicated focal person at facilities, allocating budget for emergency preparedness team ,and supervision and feedback system should be strengthen. These will be realized not only through active participations all PHEM officers, but also local political leaders such as subcity health office, woredas health office and health facility heads efforts are needed.

Key words: Surveillance, Evaluation, Relapsing Fever, Addis Ketema Sub_ city, Addis Ababa, Ethiopia.

Introduction

Background

Relapsing fever is a vector born disease it is an acute infection characterized by recurrent fever with the features of fever, chills, headache nausea and vomiting, and muscle and joint pain the disease is transmitted by vectors (TBRF) and (LBRF) . The LBRF is known cause of epidemic of relapsing fever which is caused by the spirochetes borrelia recurrentis and transmitted by body lice; pediculus human's corporis (1). The Louse borne relapsing fever is endemic in Ethiopia, the Sudan and Rwanda, whereas tick borne relapsing fever is widely spread in Africa (2). Ethiopia is the main endemic focus of louse borne relapsing fever (2). Because these vector lives in clothes and multiplies when conditions like cold weather, lack of hygiene or war are present. Its prevalence reflects poor socioeconomic level of the society and determined by the weather, humidity, poverty, and lack of hygiene (3,4). The reason of selecting this case for surveillance evolution was it is one of weekly surveillance reportable disease (5), In addition to this; the outbreak of these diseases was occurred in the Addis ketema sub_ city and still the problem not yet totally alleviated used as a sample to evaluate the performance of the sub_ city PHEM activities. The core activities and components of surveillance system are includes case detection case registration, case confirmation, reporting, data analysis and interpretation, epidemic preparedness, response and control and feedback. And the supportive functions are having standard guideline ,training, supervision ,communication facility ,monitoring and evaluation and coordination are the key activities implemented in the surveillance system evaluation of surveillance system and the attributes are includes simplicity, flexibility, stability, timeliness, representativeness ,sensitivity, predictive positive value, quality of data and usefulness of the system.(6)

The purpose of evaluating relapsing fever surveillance systems is to ensure that problems of public health importance are being monitored efficiently and effectively and data disseminated by a public health surveillance system can be used for immediate public health action, program planning and evaluation and formulating research hypothesis (7).

Problem statement

Most of the current disease surveillance systems are neither working effectively to measure the health impacts of major diseases nor adequately evaluate current disease control programs nor detecting outbreaks for early intervention (8). A functional surveillance system is useful for priority setting, planning, resource mobilization and allocation, prediction and early detection of epidemics and monitoring and evaluation of intervention programs (8).

Disease control and prevention programs was successful when resources would be dedicated to detecting communicable disease obtaining laboratory confirmation of the disease, and using thresholds to initiate action at the woreda level. So that evaluations is vital components of any surveillance and response system to ensure that communicable diseases should be monitored efficiently and effectively (9).

The ability of a surveillance system is to detect outbreaks and monitor epidemiologic trends depends on its sensitivity. The enhanced supportive supervision including logistical support are essential to the functioning of an effective surveillance system. So evaluating the functionality of the surveillance system of the sub_ city PHEM is important to early out break detection and mitigation of prompt response and it also used for responding, quantitative estimates of the magnitude of relapsing fever evaluating control and preventive measures, monitoring changes in infectious agent, detecting changes in health practice and planning..

However, the surveillance system of Addis ketema subcity was detected relapsing fever outbreak in certain area of the subcity in the year 2016. The ability of detecting outbreak and monitoring epidemiology trends of sensitivity and functional capability of the systems was not yet evaluated.

Significance of the Study

The rationale of the study was to evaluate the surveillance system of Addis ketema subcity health office, selected woredas health offices and health facilities were met the objectives or not with evaluating the surveillance system of the selected facilities were assessed to identifying the strength and gaps of the surveillance system. Hence the study can give benefit for Addis ketema subcity health office ,woreda one ,woreda seven and woreda 8 health offices; and Addis- raye ,Ginbot 20 and woreda eight health centers and others stakeholders like regional health bureaus, EPHI etc. by obtaining feedback and way forward used to improve the surveillance system in the study area .

Objective

General objective

To evaluate the surveillance system performance of core and supportive functions; and system attributes of relapsing fever in Addis ketema subcity, Addis Ababa, Ethiopia, 2016.

Specific objectives

- To evaluate the core and supportive function of the surveillance system.
- To evaluate the attribute of surveillance.

Methods and Materials

Study area

Addis ketema subcity is found in the capital city of Ethiopia as of 2016 subcity base plan projection 319,138 population reside in this subcity .The subcity has ten administrative woredas for this study three woredas were selected such as woreda 1, woreda 7 and woreda 8 health offices were selected purposefully, and among health facilities Ginbot 20, Addis raeye and woreda eight health centers found in those woredas were selected. Because of those woredas were a hot spot of relapsing fever epidemic occurred in 2016. That makes them performed for the study.

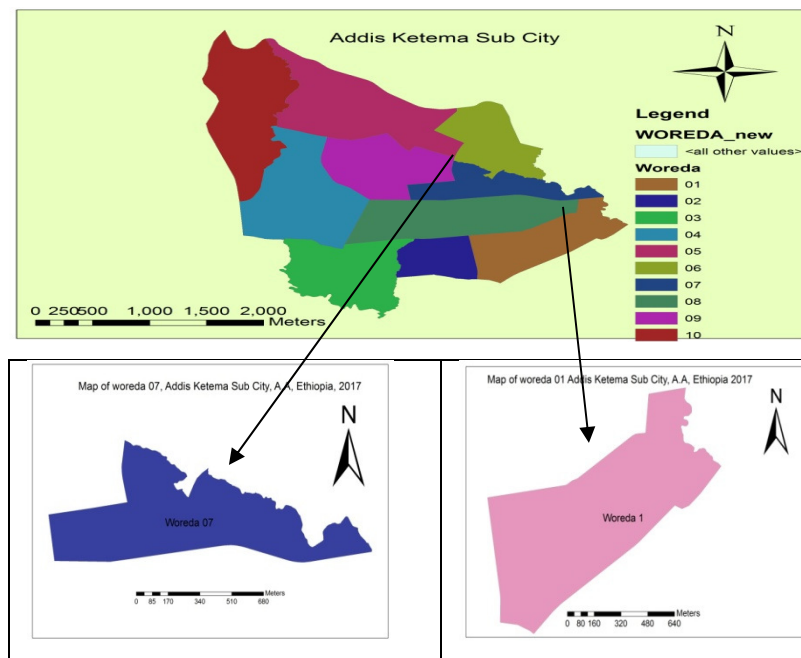


Figure 8: Map of woreda one and woreda seven in Addis ketema subcity Addis Ababa, Ethiopia, 2017

Study period

This study was conducted from January 2017 – March 2017

Study design

Cross-sectional study

Study population

All woredas health officers and health center in the sub_ city including Addis ketema sub_city.

Study participant

The study participant were seven facilities those were Addis ketema health office, woreda 1, woreda7 and woreda 8 heath offices, Ginobot 20, Adis_ray and woreda 8 health centers.

Sample size and sampling

Purposive sampling was used to select three woredas and the health centers within the woreda were selected. Those were woreda one, woreda eight and woreda seven. Ginbot 20 health center, Addis-raye health center and woreda 8 health centers were selected on the basis of their relative high burden of relapsing fever for case evaluation study including sub_ city PHEM.

Data quality and assurance

Data quality was maintained the data was collected WHO check list and the tools was pretested in other woreda and some modification made to catch up the intended information, and cross checked data was made , data completeness, data consistency and data Cleaned were the followed steps to improved data quality prior to analysis.

Data collection procedure

Data was collected by principal investigator using pre tested data collection abstraction tool from WHO check list, the data was collected from surveillance PHEMs officers of the selected health facilities, woreda health offices PHEMs and subcity health office PHEMs. And different data sources were reviewed such as annual report, weekly bulletin was supported to evaluate the surveillance system of Addis ketema subcity.

Data analysis

Data was analyzed using Microsoft excel and the results were presented in text, figure and tables.

Dissemination of finding

This final document was submitted and shared to Saint Paul's hospital millennium medical college public health department, Addis ketema subcity office and studied woredas in hard and softcopy, and is to be reserved at SPHMMC library to make accessible for the readers

Ethical issue

Permission was obtained from Addis ketema subcity health office and its selected woredas after supportive letter received from SPHMMC and sent to Addis ketema health office in order to have permission for data collection, after explaining the purpose of study by assuring the gathered data used for this study purpose only and assured the gathered information is not be disclosed to third parity.

Case definition**Suspected case**

Any person presented with an abrupt onset of rigors with fever, usually remittent, headache, arthralgia and myalgia, dry cough, epistaxis

Confirmed case: A suspected case with demonstration of Borrelia in peripheral blood film

Operational definitions attributes of surveillance system

Usefulness

The usefulness of the surveillance data and the system should be evaluated in the context of the two key surveillance functions i.e. early warning and permit assessment of prevention and control program/ monitoring of relapsing fever at Addis ketema subcity.

Completeness of reporting

Completeness -includes completeness of reporting sites, surveillance forms, completeness of cases reporting and completeness of surveillance data of relapsing fever in Addis ketema subcity.

Timeliness

The ability of the system to have recorded reported and information of relapsing fever cases according to the national timetable (Proportion of all expected reports in a reporting system received by a given due date) in Addis ketema subcity.

Acceptability

Is a reflection of the willingness of surveillance staff to implement the system, and the end users of the data to accept and use the data generated by the system.

Flexibility

Is the ability of relapsing fever surveillance system in Addis ketema subcity to adapt to changing needs with little additional time, persons or allocated funds and integrated with other system.

Representativeness

Ability of the system to accurately describe relapsing fever cases by place and person over time in Addis ketema subcity.

Sensitivity

Ability of the system (case definition) to detect relapsing fever cases, or detect outbreaks through trends analysis surveillance data in Addis ketema sub_city

Predictive Value Positive

Is the ability of the system detecting true relapsing fever cases and proportion from suspected relapsing fever cases or confirmed true cases to total disease person in Addis ketema subcity.

Feedback and supervision

There is supportive supervision in the sub_ city, woreda health office and health facilities once in six months period but surveillance information or supervision at woreda health office and health center of the system have had written feedback .

Stability

Stability is reliability (the ability to collect, manage, and provide data properly without failure) and availability (the ability to be operational when it is needed) of the public health surveillance systems have sent report divided by the number of total facilities expected to report.

Simplicity

Simplicity of relapsing fever surveillance system refers to both its structure and ease of operation to meet objectives in Addis ketema subcity.

Specificity

Refers the proportion of persons without relapsing fever in Addis ketema subcity that are considered by the surveillance system

Results

A simplified flow chart of the surveillance system showing data transmission channels from health facilities to the national level has been found and functioning at all levels. When a suspected relapsing case presents to a health facility, health workers diagnose it based on case definition and confirmed using microscopy and recorded on a registration book. Using weekly standard reporting forms, health facilities report cases to the woreda level on Monday of each week. Reports from health facilities are compiled at the woreda and submitted to the subcity level on Tuesdays. Reports from woreda are compiled at subcity and the summary reported to the Region till mid Wednesday. At the Regional level, reports are compiled and sent to the Ministry of Health and EPHI on Thursday using standard PHEM weekly reporting forms.

NATIONAL ROUTINE FLOW OF SURVEILLANCE DATA

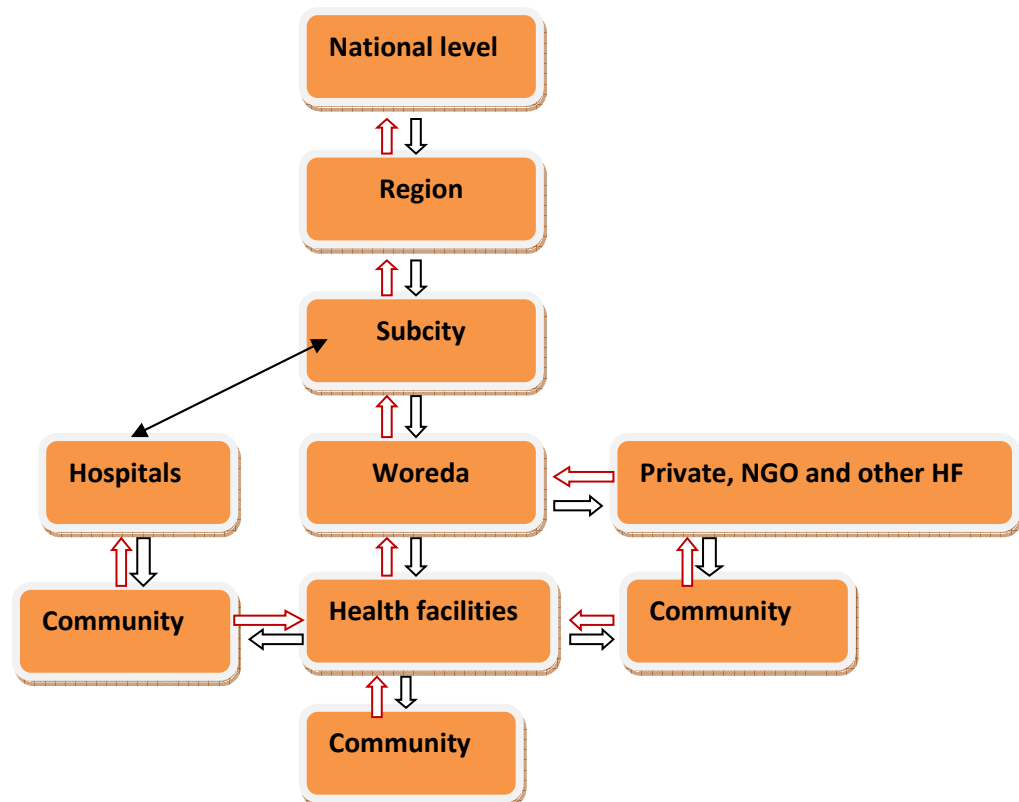


Figure 9: Flow of surveillance data and information throughout the health system (PHEM Guide line 2012)

LIST OF PHEM WEEKLY AND IMMEDIATELY REPORTABLE DISEASE

s.no	Immediately Reportable Diseases	s.no	Weekly reportable disease
1	Acute Flaccid Paralysis	14	Dysentery
2	Anthrax	15	Malaria
3	Avian Human Influenza	16	Meningococcal Meningitis
4	Cholera	17	Relapsing fever
5	Dracunculiasis / Guinea worm	18	Severe Malnutrition
6	Measles	19	Typhoid fever
7	NNT	20	Typhus
8	Pandemic Influenza A	21	Maternal death surveillance(MDSR)
9	Rabies		
10	Small pox		
11	Severe Acute Respiratory Syndrome (SARS)		
12	Viral Hemorrhagic Fever (VHF)		
13	Yellow fever		

Table 5: Immediately reportable diseases are to be reported immediately on detection and weekly as zero report and the other seven diseases are reported weekly.

Relevance and importance of the surveillance system of relapsing fever

In order to evaluate the surveillance system of Addis ketema subcity among the 21 priority reportable diseases relapsing fever disease reporting system was selected purposefully due to high burden of the diseases in selected areas of the subcity. The three woreda PHEM officers, assigned health facility PHEM focal persons and subcity PHEM officers were administered questioners and their reporting system was evaluated .At subcity level there were an assigned two PHEM officers who have full responsibility on public health emergency management and each woredas has one PHEM officer recruited to carryout surveillance activities. But in the three health centers during assessment time there was no assigned public health expert for the PHEM only, rather surveillance focal person who have another primary responsibility do the PHEM activities. The magnitude of relapsing fever cases were high in the reporting period of 2016 it was 245 these was above the threshold relapsing fever cases reported in that year. And out of 245 reported cases highest burden was reported 96 (39%) in woreda seven, secondly 71 (29%) in woreda one and last 48(20%) in woreda 8 and the rest 30(12.2%) shared by the other seven woredas found in the subcity. And all the reported cases were confirmed for relapsing fever tested with microscopy of blood film and they were positive for *Borrelia spirocate*.

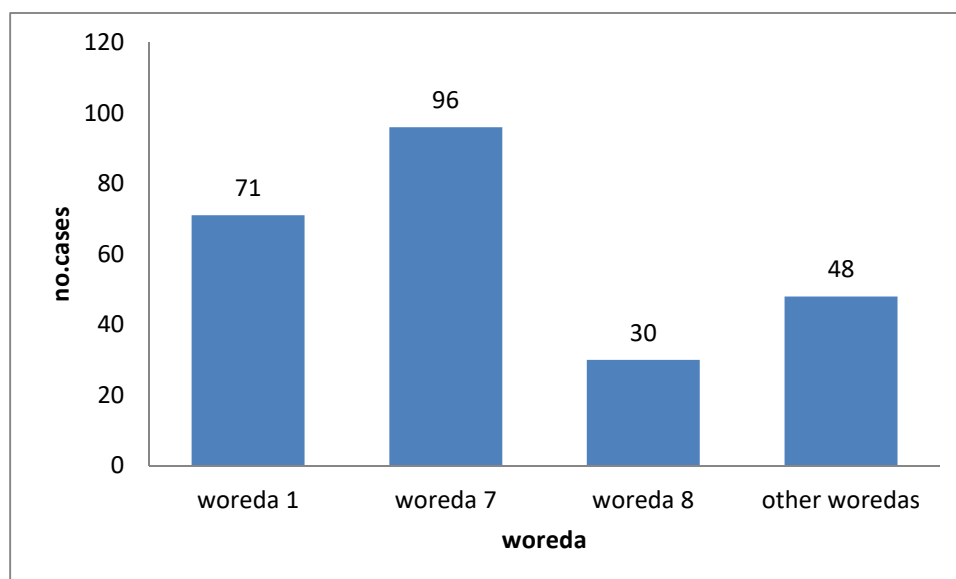


Figure 10: Relapsing fever cases burden in woredas of Addis ketema subcity, Addis Ababa, Ethiopia

Trend of relapsing fever in the year 2016, Addis ketema subcity, Addis Ababa Ethiopia

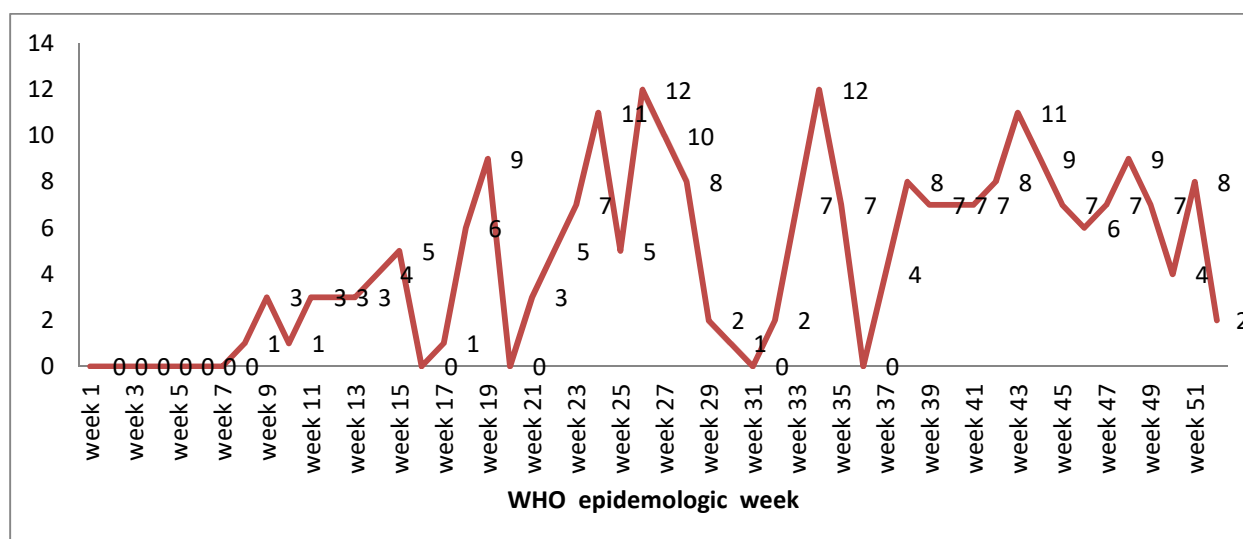
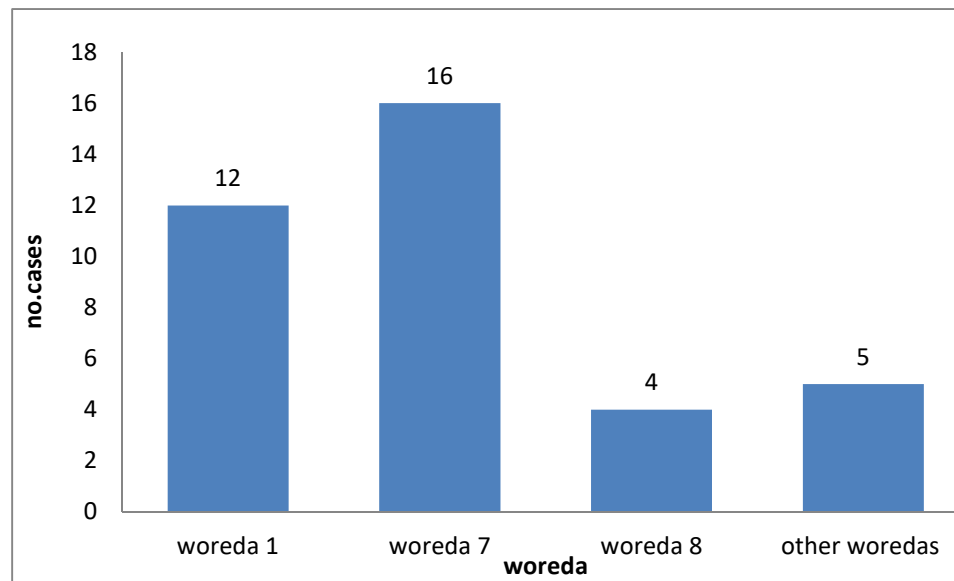


Figure 11: Trends of relapsing fever in the year 2016 in Addis ketema subcity, Addis Ababa, Ethiopia

Relapsing fever case burden by woreda report from week 1-week 12 /2017



Figure; Relapsing fever case burden report in period (week 1-week 12) 2017, Addis ketema subcity, Addis Ababa, Ethiopia

Relapsing fever time trend from (week 1 –week 12)2107 in Addis ketema subcity

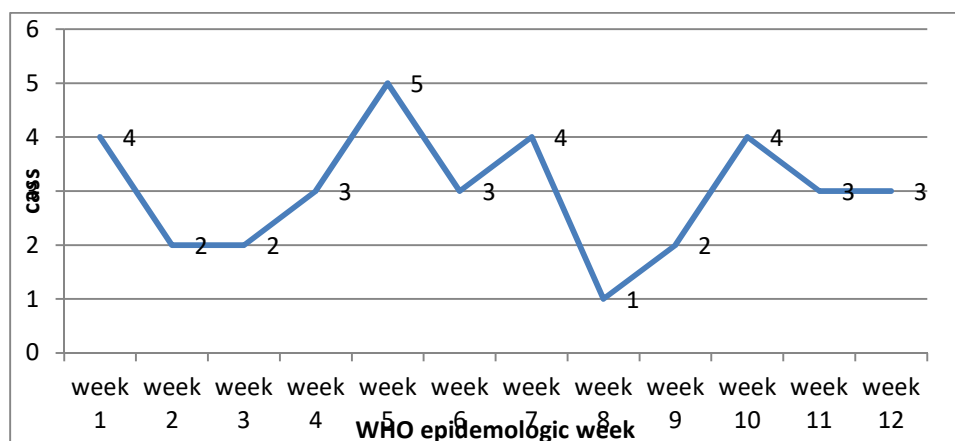


Figure 12: Trends of relapsing fever in the year 2017 in Addis ketema subcity, Addis Ababa, Ethiopia

In 2017 also 36 relapsing fever cases was reported from ten woredas of Addis ketema subcity in the reporting period from WHO weeks (week 1-week12) 2017 .relatively more case 5(13.8%) of relapsing fever was reported by week 5 and followed by 4(11.1%) cases was reported in week 7 and week 8 respectively .and the least 1 (2.8%) case was reported in week 8 of WHO epidemiology weeks between (week 1-week 12) 2017 reporting period.

Level of Usefulness of the Surveillance System for country priority diseases

All the assessed participants responded that the surveillance system was helpful at subcity, woredas health office and health center for detecting outbreaks of priority diseases early on time. It also helps to have and permit accurate diagnosis. Surveillance system also enables to estimate the magnitude of morbidity and mortality relapsing fever disease; including identification of factors associated with these diseases at all levels of health service providing institutions. The effect of prevention and control programs can be evaluated by the surveillance system. The assessed woredas health offices and health centers including subcity health office agreed that surveillance system had been recognized and understood by assigned PHEMs officers used as the base for controlling the public health emergencies.

Performance of existing surveillance system to population under surveillance

Population health emergency management targets all the populations living in assessed health facilities were to be under surveillance for twenty one priorities diseases.

Table 6: population distribution in ten woredas projected in 2016 in Addis ketema subcity, Addis Ababa, Ethiopia.

S.N	Name of woredas	Health centers	Total projected population in 2016
1	Woreda 1	Ginbot 20 health center	27,183
2	Woreda 7	Addis_raye health center	35,272
3	Woreda 8	Woreda 8 health center	35,444
4	Addis ketema subcity	Addis ketema subcity PHEM	319,139
Total	3 and subcity	4	

Describing Each System Attributes

Simplicity

The simplicity of the surveillance system was assessed the respondent replied that the woredas health offices and health centers surveillance system it was simple in terms of data sharing, data management and data recording and reporting. The subcity and woreda PHEM officers and health centers focal persons explained that the weekly reporting form of the surveillance system was simple. However, concerning data analysis, respondents said that the surveillance data lacks personal variables like age and sex. The absence of these individual variables makes the report non indicative on who is affected more by age sex, religion and so on.

Flexibility

A flexible public health surveillance system can be adapted to changing information needs or operating conditions with little additional time, personnel, or allocated funds. Based on these

criteria the assessed PHEMs officers explained that the system is flexible 100% i.e. it is possible to add in the system other newly occurring health events. The participants also explained that the existing procedure on case detection and reporting system can be modified with no changing its basic aim.

Data quality

The three month data (January 1/2017 to March 2017) was evaluated and assessed data quality of the surveillance reported data. All the reported data were 100% completed, clearly filled and valid. None reported format was found partially and or un clearly recorded and also none data discrepancy was observed among assessed woredas reported and health facilities reported including subcity PHEM department data .The reported relapsing fever cases data were comparable to laboratory test result. Therefore the data quality of the studied facilities were 100%

Acceptability

Acceptability reflects the willingness of persons and organizations to participate in the surveillance system. Relapsing fever surveillance was acceptable by assessed PHEM officers and health professionals because they were using standard cases definitions of relapsing fever case detection. And reporting was held weekly and timely with reporting format, however, the sub_city PHEM officer explained some private facilities not fully engaged in surveillance reporting and the officers reasoned due to negligence or lack of understanding the relevance of surveillance data. The acceptance of the surveillance system was found to be good because they used standard cases definitions and standard reporting formats.

Representativeness

All the assessed health facilities agreed and explained that the health coverage of the studied area was 100% because each facility was give service for less than 40,000 populations, therefore relapsing fever surveillance system was representative it showed the disease trend over time and disease distribution in the population by place, However; It has limitation in describing the health events by person (age and sex and other socio demographic characters). Absence of the above mentioned epidemiologic variables it difficult to identify which age groups and sex were more affected. This was the drawback of the surveillance system in weekly reporting.

Timeliness

The reporting timeliness of the health facilities were assessed from January 1/2017 to March 31/2017 reported timeliness .the result showed that the reporting time of the health facilities in

the subcity were clearly registered and documented by observing this document the timelines of all woredas and health facilities were 100% all assessed health facilities send report to subcity PHEM with scheduled reporting time which was beyond PHEM guideline 2012 criteria 80% timeliness is acceptable

Table 7: Weekly subcity, woredas and health facilities reports received on time for 2016/17 report by WHO epidemic week (January 2017 —March, 2017)

WHO epid wk	NO of woreda s health office reported on time	NO of woredas not reported on time	NO of report health facilities expected to report	No of health facilities not report on time
1	3(100%)	0	3(100%)	0
2	3(100%)	0	3(100%)	0
3	3(100%)	0	3(100%)	0
4	3(100%)	0	3(100%)	0
5	3(100%)	0	3(100%)	0
6	3(100%)	0	3(100%)	0
7	3(100%)	0	3(100%)	0
8	3(100%)	0	3(100%)	0
9	3(100%)	0	3(100%)	0
10	3(100%)	0	2(100%)	0
11	2(100%)	0	2(100%)	0
12	2(100%)	0	2(100%)	0
13	2(100%)	0	2(100%)	0

Completeness

Completeness of the surveillance system weekly report is measured by dividing the number of facilities that sent report divided by the number of total facilities expected to report. The completeness of the weekly surveillance report for the year 2016 was incomplete the reason might be there was no recruited woreda PHEM officer and the task was fall on subcity PHEM officers and health institution surveillance focal person these made them over burden and AWD outbreak can also be the cause of incompleteness because attention was given to manage and control the outbreak during the assessed year. However ,After October 2017 woreda PHEM officer recruited by subcity PHEM and have got training the completeness reporting system has showed dramatic improvement ,thus the past three months surveillance evaluation from 1/ January 2017 to 31/March 2017 the completeness was reached 100% that meet the expected.

Stability

The surveillance system of the assessed health facilities were stable based on availability of standard reporting format at woredas and health facilities and easily integrated with other

diseases, and the system was stable to captured relapsing fever cases, compiled and reported properly and no data discrepancy observed. However, there were several factors assessed that may affect the system stability. Such as at facilities level there is not assigned dedicated focal person engaged only surveillance activities rather the assigned focal person works additional health facility activities and in case of surveillance focal person was absent there was no person overtake the task, lack of training, logistics and budget allocated for surveillance system are to mention some of them. Thus due to the above enumerated factors the stability of the system may not be promising in the future.

Describing the Resources Used to Operate the Surveillance System and The performance of the system

Communication and reporting system assessment

To strengthen the surveillance system reporting timely with the participation of all expected facilities is most important. For this, health offices and health facilities are expected to have communication facilities including addresses of their respective higher and lower PHEM section officers. The subcity PHEM unit and the assessed three woredas and three health centers have the address of their respective higher and/or lower PHEM officers. However, there were lack of electronic facilities dedicated for PHEM offices; the communication from facilities to subcity level was strong. During assessment time all the woredas and health facilities responded that their communication with their respective lower and/or higher PHEM departments was bi weekly and was not delayed than expected time. The reasons explained by the respondents were that they have been used others departments communication facilities. None of the health facilities, woreda health office and subcity PHEM had their own communication materials such as wired phone, mobile, fax, computers they have been using the communication resource from other departments. The frequency of communication of subcity PHEM unit with the regional and woreda level PHEM officers is mostly done weekly with scheduled reporting day, and during emergency times it can be daily.

Assessment of availability of Surveillance Documentation, Registers, and Forms

All surveillance guidelines and reporting formats were available at the subcity level. The woreda health office and facilities have all the necessary surveillance manuals, reporting formats and surveillance guideline and uses a weekly reporting format which is the recent one. Standard case definitions are available at all (subcity, woreda and health facility level), but at facility level the case definition not posted in all working areas which is visible by health personnel's, and all

reportable disease case definitions were not posted rather only few cases like AWD, measles ,neonatal tetanus and AFP were posted ,And Guidelines for specimen collection, handling and transportation to the next level are available only in PHEM guideline book not separately available in all levels , and no shortage of reporting formats was explained by the respondents at all levels.

Data analysis, Computer skill and training assessment

The subcity PHEM officers were trained on surveillance for one week in May 2016 at Adama by regional PHEM, and all woredas PHEM officers and health facilities focal person have got short orientation/onsite training in October 2016 by subcity PHEM department for one week, in addition to these, all subcity and woredas PHEM officers and health facilities focal persons have got one week training on surveillance guide line in December 2016 at Adama by regional PHEM. But when the three health facilities were assessed there were gap in surveillance data handling, analyzing and interpreting, meanwhile, the facilities focal persons explained refreshment training are needed to enhance their performance particularly using application software. Data was compiled at all levels, but not analyzed. Even though the subcity and woreda level PHEMs respond as they analyze data at regular time interval (quarterly), there was no any analyzed and interpreted data by place person and time except in health facilities, there were some analysis results (graphs) posted .The other gaps observed at all levels were the absence of computers. Therefore, data entry and compilation used at all health facility level and in all woredas were manual. The subcity PHEM officers and officers in woredas have computer skills on application software except EpiInfo, but at health facility level the PHEM focal persons have doubt skills on computer. At woreda and subcity level some short summaries about disease epidemics are written and send to the subcity/woreda administrative heads.

Epidemic response and preparedness assessment

At subcity, woreda and health facility level plan for epidemic response and preparedness was not available, even though they answered as they have, no prepared plan was seen at the time of assessment. At all levels there was no any stock of drug prepared for emergency management. All woredas and health centers use drugs from the already available drugs in their store bought for health facilities by the regular budget after decision was made by the management committee. In year 2016 relapsing fever and AWD outbreak were occurred in Addis ketema subcity majority of relapsing fever cases were occurred in woreda one, woreda seven and woreda eight among ten woredas of the subcity, the possible cause might be those three woredas were

relatively over overcrowding, poor sanitation and population settlements. And many people live with low cost with poor housing standards those factors may overwhelm the abruptness of relapsing fever outbreak. The subcity and woreda health offices explained rapid response teams were organized with the member health extension workers, women development army, woreda office heads and other partners to give response for relapsing fever outbreak, however, lack of budget was the challenge and still there was no allocated budget for PHEM used to emergency preparedness activities. And at subcity and all woreda levels, Epidemic management committee, Rapid response team and multi-sectorial emergency preparedness and response task force for PHEM were available, but these committees have no any regularly scheduled meeting/discussion time (they are not fully functional).

Outbreak investigation and case confirmation assessment

It was also assessed that the ability of cases detection and confirmation of relapsing fever as soon as a patient came with the complaint of fever, headache, epistaxis with some or part of clinical signs and symptoms of relapsing fever at health facility outpatient the attending health professional using the case definition of relapsing fever if it is similar they conclude that the patient is suspected for relapsing fever to confirm the case work up for laboratory confirmation. The assessed health facilities were equipped with laboratory medical equipment and skilled personnel too. The assessed health facility laboratory explained that the suspected patient for relapsing fever is sent to laboratory for laboratory investigation by the physician or attending health personnel then in the laboratory blood sample taken from suspected patient 's followed the procedure and make dark blood film in order to be visualized by microscopic when borrelia spirochetes is observed they confirmed that the patient has relapsing fever if not the patient is assessed for other differential diagnosis. So detection and reporting was not difficult and was understood by all levels of health workers and the PHEM officer explained, if the number of cases exceeds routine reported numbers evaluated weekly when it passes the threshold level they conclude the occurrence of the outbreak and outbreak investigation and response were proceeded.

Supervision and feedback assessment

However, there is lack of vehicles for transportation and no per diem budget for transportation the subcity PHEM unit has annual supervision plan and supervision checklists prepared at subcity level. They have supervised the woredas and health facilities according to the plan. And the subcity is also supervised by higher level supervisors at least one in month during 2008 EFY and observed the received feedback. The woredas were supervised by subcity PHEM at least once in

a month and received written feedback were seen at woredas level, however, the woredas PHEMs claimed they were supervised the health facility weekly .no written feedback observed in all assessed health facilities .The challenges explained by all PHEM officers to conduct supervision successfully were lack of transportation or per diem budget.

Discussion

The understanding of health care providers to the case definition of relapsing fever was found to be good because only the confirmed cases were tracked .But the collected cases were not described in time place and person that makes difficult to give epidemiological description of the diseases. Regarding documentation and data reporting the woreda PHEMs and facilities surveillance focal person were clear about the weekly reporting formats. The structure of data reporting flow from the lower to the upper level was well organized in simple and defined roles and responsibilities of each reporting entities. However, communication and means of reporting have many obstacles like telephone, fax and computer and other equipments ,The report was arrived on time from lower to upper level due to others department resource sharing and individual PHEM officers efforts .

However, the computer skills of PHEM officers using application software were found to be good. The facilities focal persons claim that they need basic computer training. And none of them was having EpiInfo, Arc GIS software skills. Practicing supervision and giving feedback of the system was assessed. It was found that the woredas PHEMS were supervised at least once in a month and have got feedback, whereas there were gaps in all facilities none health centers have regular supervision and evidence written feedback

The epidemic preparedness and response activities of the subcity were not well organized and had only plan without financial and/or logistic support. Besides of this, the epidemic response committees and rapid response team had no regular meetings and didn't review their plans, taken actions, and learn from their experiences used to reduce their dependence from Regional Health Bureau in case of disasters/outbreak happened in the future. This makes the responses to be late and if disasters happened it can spread fast and may cause many suffering & preventable death. Furthermore, the subcity administrations were not allocated budget for emergency, which hampers timely investigation and mitigation when events happened in the woredas.

At woredas and facilities levels they were used, manual data entry, lack of quick and simple way for data transmission and resource used for communication facilities .And at facilities level not full time worker were assigned for surveillance activities rather most of their time engaged in health facility activities it makes the surveillance system affect future sustainability.

Limitation of the study

Evaluating the two surveillance system attributes of relapsing fever were difficult

Specificity and positive predictive value (PPV)

Conclusion

The overall structure and data flow from facilities to subcity level were good .However, lacks of communication facilities, emergency drugs stock and budget were the major constrains. And at facilities level not full time worker were assigned for surveillance activities rather most of their time engaged in health facility activities it makes the surveillance system affect future sustainability. In addition practicing supervision and feedback particularly at facilities was poor and functional emergency preparedness team at all assessed woredas and health facilitates were gaps identified.

Recommendation

Communication facilities should be available at PHEMs department and emergency preparedness team should be available at all woredas and facilities and it should be supported with budget to be functional. At facility level supervision and feedback should be strengthen and also dedicate PHEM officers should be assigned at facility levels. Health education and awareness creation focusing on how keep personal and environment hygiene to community is important to prevent relapsing fever in the area all these activities should be implemented and supported by the subcity and woreda health offices and health facilities including the woreda and subcity food, medicine and health care administration (FMHCA) offices.

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Chapter 4

Woreda 4 health profile in Addis ketema subcity Addis Ababa 2016

Abstract

Background: - Health profile is vital for prioritizing prominent health and health related problems of the community at any level. It is basic for planning and for appropriate intervention and is an entry point for operational research. Stake holders in health and health related areas of the community will have evidence based information from well compiled health profile.

Objective: - The purpose of this document was to assess and describe the health and health related issues in the Woreda 4 and communicate the local burden of disease and other health related information due to absent of this kind of document at woreda level for possible intervention.

Method: - Data collection tools were used to collect health and health related data in woreda 4 from April 5/2016- 20/2016. The data sources were the woreda Health Office, Addis Ketema Health center; Education other sectors in woreda, and reviewed records, reports ,literature, national census report and interviewed key informant then the data were compiled analyzed by using Microsoft excel and the obtained result were presented in texts, tables and graphs

Result: Out of total population of the woreda 37429(100%) of which 17966 (48%) were male and 19463(52%) were female respectively, On maternal and child health service the analyzed report data of the woreda showed proportion of pregnant women who attended at least one ANC1 and ANC4 services were 100%, and all deliveries were attended by midwives and the fully immunization coverage of the woreda were100% vaccinated. Out of total 46606 (100%) adult patient acute upper respiratory infection 13959(30%) was the first disease and out of 23284(100%) under five years patient acute upper respiratory tract infection 8956(38.5) was the first top leading causes of under five year morbidity were recorded in the year from (2012/13-2015/16)

Conclusion and recommendation: The woreda 4 communities were accessible to health care system, however, lack of latrine; overcrowding, poor house condition and low socioeconomic status were the challenge. So that all stakeholders need to work together to improve the above described problems

Introduction

Background

The purpose of preparing this health profile was scientifically assessed the health status, indicators and determinant, in addition to this, to simplify, package and communicate complex information on vital statistics and the woreda burden of disease in practical and accessible format for woreda for health planning, (1) It is intended for use by Woreda Health Office, sub cities /Regional Governments and other development partners. Most of the information of the data source got from Addis ketema health center; however, specific data in this report was gathered from woreda sector office bureau and national census report. The primary objectives of this health profile is to assess the existence of functional structures and managerial processes at woreda level that enable to the provision of essential health care services to the population, Organization and management of a health system at woreda level in terms of its structures, priority health activities and availability of resources to provide a broad overview of the social, economic, demographic and geographic health status of the Woreda 4 health service.(2) The Woreda Health profile should be a living document, which is filled in WoHo in order to use by WoHo, Regional Government and other development partner to create favorable environment for health unit for planning, intervention of health event based on their priority in order to meet changing demography and health seeking behavior of the community. It is common knowledge that the health and socio-economic well-being of people are fundamentally linked to their natural and built environment. In time, the Woreda Health Profile include an environmental health report that is outlined environmental health indicators such as disease and injury prevalence, health hazard types and trends, and other emergent environmental factors that impact on human health. The health system of the woreda has a vital part to play and responsibility for achieving the Millennium Development Goals by 2015. These profiles include most performance targeted for achieving the MDG and beginning of HSTP

Problem Statement

health profile is a vital for prioritizing prominent health and related problem of the community at any level .it is a basic for planning and for appropriate intervention and is an entry point for operational research, stakeholder in health and health related areas of the community should have evidence based information from well compiled health profile so that in the absence of this kind of document it is difficult to describe health and health related issues which is used for possible intervention at woreda level, similarly in woreda 4 an organized health and health related indicator which determine the health status of the community is not available these contribute a gap in planning and taking evidence based information for action. Based on pre assessed information woreda 4 had no health profile and there is no organized health and health related information, so that, making available health profile for woreda 4 health office it has many advantages to get easily analyzed data and facilitate getting generated data about health status of the woreda 4 community from this health profile description project but also it helps Addis ketema Health center and other stakeholders for public health planning, resource allocation, interventions and evaluation. Such information is essential for sustaining increased investments in on health. And systematic assessment of health facility performance based on accepted standard and norms may also help to improve service quality

Significant of the study

The rationale of the study was to analysis the collected data from woreda health office and other sector found in woreda has directly and indirectly impact for health and it was useful for public health authority because woreda health office and other stockholders have a need of credible information to the health status of the community. Well designed and developed health profile is used for guiding public health actions .program planning and evaluation and monitor trends in the burden of disease or health problem of the woreda. In Addis ketema subcity particularly woreda 4 health office compiled health profile document which gives adequate and reliable information showing the health status of the community was lacking. (9).Due to lack of documented evidence, make readily available health profile is important to control disease burden ,predict health problem by identifying geographical area demographic and socioeconomic status of the woreda community after review the woreda health plane and achievement in comparison with the country health program. Therefore this study provide woreda 4 health profile which is used for taking appropriate decision making for the woreda used to the health betterment of the woreda 4 community, and finally the study document was disseminated in hard copy and soft copy to the sub city office ,SPHMMC and to make accessible for others reserved in SPHMMC library.

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Objective

General Objective

To describe health and health related information of woreda 4 and to identify problems for priority setting

Specific objectives

To describe social, demographic and geographical status of woreda 4, Addis ketema subcity

To assess and describe health and health related issues like health status and health indicators of woreda 4, Addis ketema subcity.

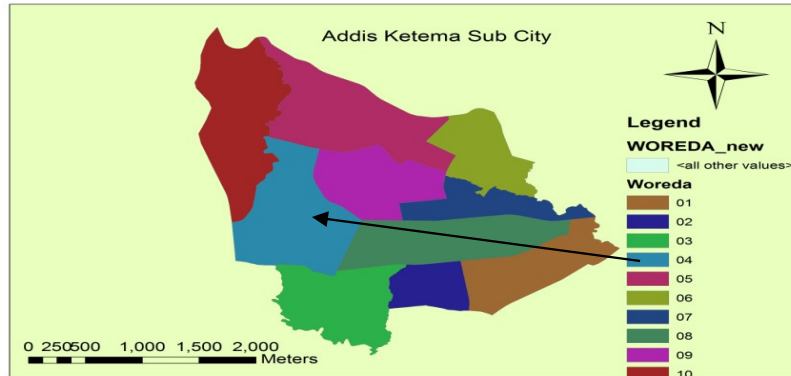
To describe existing health problems woreda 4 residents live in Addis ketema subcity.

To identify priority health problems of woreda 4 indwellers live in Addis ketema subcity.

Methods and Materials

Study Area

Addis ketema subcity is one of the 10 subcity found in Addis Ababa .This subcity have 10 woredas. Among 10 woredas found in the subcity woreda 4 is one having dense population in the subcity .The total population are 37429.Out of which 17966(52%) male and 19463(52%) female, the estimated ages groups are 838 less than one year and 2680 are under five and the reproductive age group of female between (15-49) are 12965 as of woreda 4 health base plan



Study period

Data was collected from April 3, 2016-May 20, 2016

Study design

Descriptive cross sectional study was conducted

Source Population

All sectors offices found in the woreda 4 that have directly or indirectly related the health of population. .

Study population

All sectors offices found in the woreda 4 that have directly or indirectly related the health of population

Data collection techniques and procedure

Data was collected different sectors found in the woreda from April 10/2016 -May20/2016. Moreover, publication and literature about the area was reviewed. Check list/tool adopted from different literatures was used to collect the health profile data. Interview was conducted with relevant officers &office head of the woreda health office, and Health center, Education, water and others offices based on data need, the data collected by principal investigator and after getting permission for ethical clearance to use the woreda 4 health data.

Data Analysis

A descriptive analysis was made the data that were obtained from woreda 4 health office and sector offices found in the woreda from year May 2016 to June 2016 ,Data cleaned and analyzed by excel 2010 application software and prominent finding of the analyzed data were presented in figure, table and text in order to give meaning full sense,

Dissemination of result

This study result was disseminated to Addis ketema sub -city health office, Addis ketema health center, Woreda Health Office, saint Paulo's millennium medical college and visited health offices in hard copy and soft copy and to make accessible reserved in SPHMMC library.

Ethical Consideration

Supportive letter was obtained from Saint Paul's hospital millennium medical College and sent to Addis ketema subcity health office for seeking permission. After explaining the purpose of study to the subcity and woreda gave permission to access a data.

Results

Background of woreda 4

Addis ketema meaning ‘new cities ‘ is one of the ten sub-city of Addis Ababa capital city of Ethiopia ,as of 2014 mini EDHS 2014, its population was 297793 and the total area it covers 863.85558area hectare. The sub city includes mesalemia, Merkato, ehel –berenda menhria and sefere –selam ‘and others those are the oldest historical place named are found in this sub-city .It is a place where very dense population and crowdedly lives similarly woreda 4 has dense population, according to woreda 4 base plan report, woreda 4 has 37427 population, the population socio economic status were low and the health coverage of the woreda was reached 100%. Addis ketema health center is one of the oldest and known governmental health center found in this woreda is serving the woreda 4 community , this health center was established 1943 during emperor Hileselassie regimen the previous name was Merab health center latter on the name was changed to the current name of Addis ketema health center .currently the health center is on dynamic changes to meet the unmet need of the community health problem ,the health center is working a lot to improve its quality and efficiency of health delivery system. According to the health center medical director explanation for its excellent achievement and endeavor the center has got recognition and award repeatedly, from MOH,AAHB and other stakeholders , however many effort have been made to alleviate the health problem of the woreda 4 community. The woreda 4 health problem are still tremendous may due to many factors such as slummed areas, poor housing ,low socio-economic status ,poor environmental sanitation was the challenge of the woreda.

Geography and climate

Woreda 4 is located in the north east area woreda 9 and east west woreda 10 and in south west woreda 4 make border the woreda. The weather condition is weynadega it shares Addis Ababa whether climate

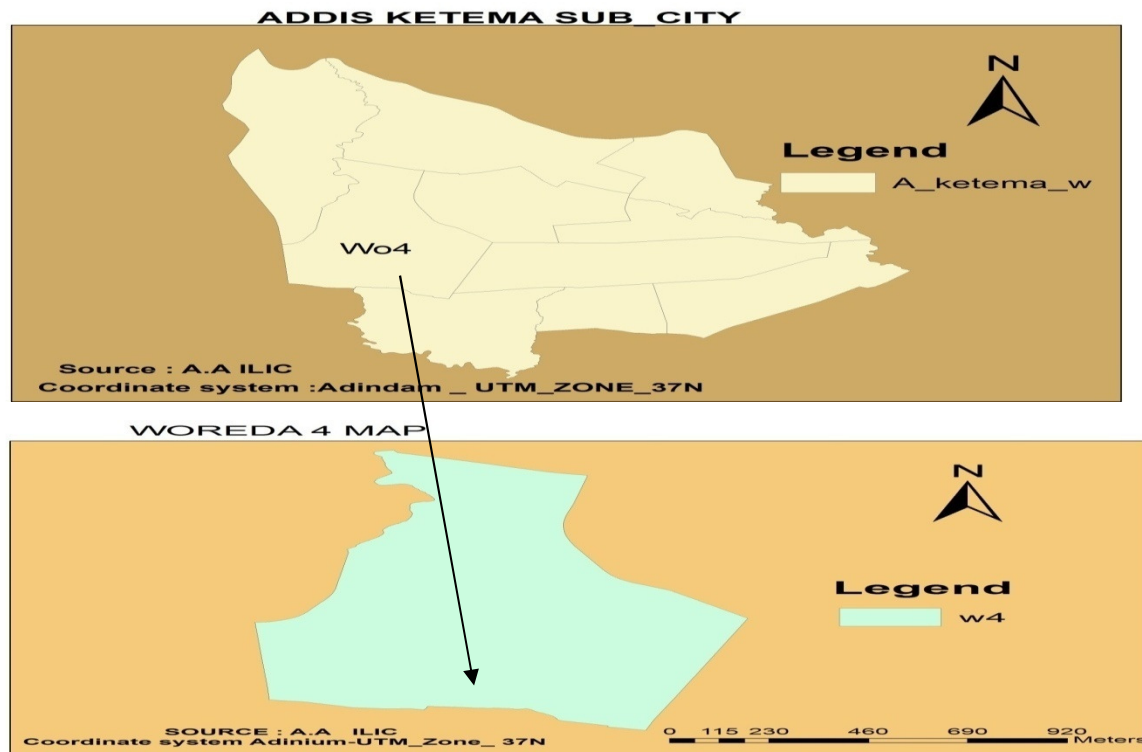


Figure 13: Addis ketema sub-city and woreda 4 map

Administrative and Political Organization

In the Woreda 4 there were a total of 5 kebeles it includes Kebele 26, Kebele 17, kebeles 10/24, Kebele 01 and kebele 08. The Woreda has its own council and representative in the Federal Parliament and all governmental sector offices were found in woreda4. The office of woreda 4 is located near to sefer -selam and its has own three floor building the same as other woreda built in Addis Ababa,

Demography

According to the 2001 EDHS census and projections by 2.1 % increment in the year 2012/13 the size of Woreda 4 population, including four kebeles were 37,429 of which 17966 (48%) male and 19463 (52%) female which means more female than male. the Age structure reflect 2680 were under 5 and 838 were less than 1 year and the reproductive age group which was 15-49 are 12965 with an average family size 4.1

Economic situation

The incomes of the residents are Marketer, governmental employee, private employee and self business makers in 05 kebeles, which make a substantial contribution to the economy. Most of the woreda resident are living with poor socio economic statues except in some place where are very proximity to 'autobus- tera' and 'Ehel berenda' are running a big business and trade is the

major source of income which is directly or indirectly linked with has a great contribution to the country economy, but most of the owner of the business are not the residency of woreda 4

Health budget allocation

Based on the information from the sub city Finance & Economic Development office, the annual budget allocated for the Addis ketema health center including salary was 6,881,817.74 million, including for salary, for Health Facilities drugs and constructions with including 716,800 revenue of health care financing, Comparing from in 2013/14 there was increment by 14%.

Education

Education is a key determinant of individual opportunities, attitudes, and economic and social status. Studies have consistently shown that educational attainment has a strong effect on reproductive behavior, fertility, infant and child mortality and morbidity, and attitudes and awareness related to family health, use of family planning, and sanitation[3]. In the year 2013/15, in the Woreda there were 6(K.G) grade-level of school. Similarly there were 6 (1- 8) and no (9- 12) grade-level of schools. It had one TVET and one private collage. The numbers of students enrolled were 4446 of which 2068 and 2378 were males and females students respectively. Not include TVET and private college students due to unavailable data

Table 8: School Enrolment by Sex Woreda 4 Addis ketema sub city, Ethiopia, 2015/16

S.N	GRADE	MALE STUDENTS	FEMALE STUDENTS	TOTAL
1	KG	572	558	1130
2	1-4	698	808	1506
3	5-8	798	1012	1810
4	9-10	NA	NA	NA
5	11-12	NA	NA	NA
6	COLLAGE	NA	NA	NA
	TOTAL	2068	2378	4446

NA= Not Available

Water Supply coverage

Water access and adequacy is one of the condition that makes an urban center comfortable place to live in, According to city administration of Addis Ababa worked hard to meet the ever growing needs of the resident .potable water is one of the favorable condition of urban center that attract people to live in. In this regard, the city administration is working aggressively to meeting water need of the growing population. The total safe water supply coverage of the woreda 4 is 100% based on the woreda water and energy bureau, and the woreda resident get water supply through pipe to individual house and some of them get water from common pipe

(bonoweha), but the problem of the woreda 4 are crowdedness, poor housing, poor infrastructure and poor living condition can affect the portability of water in utilization.

Transport, Telecommunication, Power supply

Woreda 4 had got accesses of roads, telecommunication and electric power, the road types were asphalted grave and cobblestone all are accessible both in dry and rainy sessions. And all kebeles have access to transportation and the recent cell mobile net work system covers the whole kebeles. In energy resource, all households and institutions are covered by hydroelectric power and some institutions used backup generators.

ADDIS KETEMA HEALTH CENTER STRUCTURE

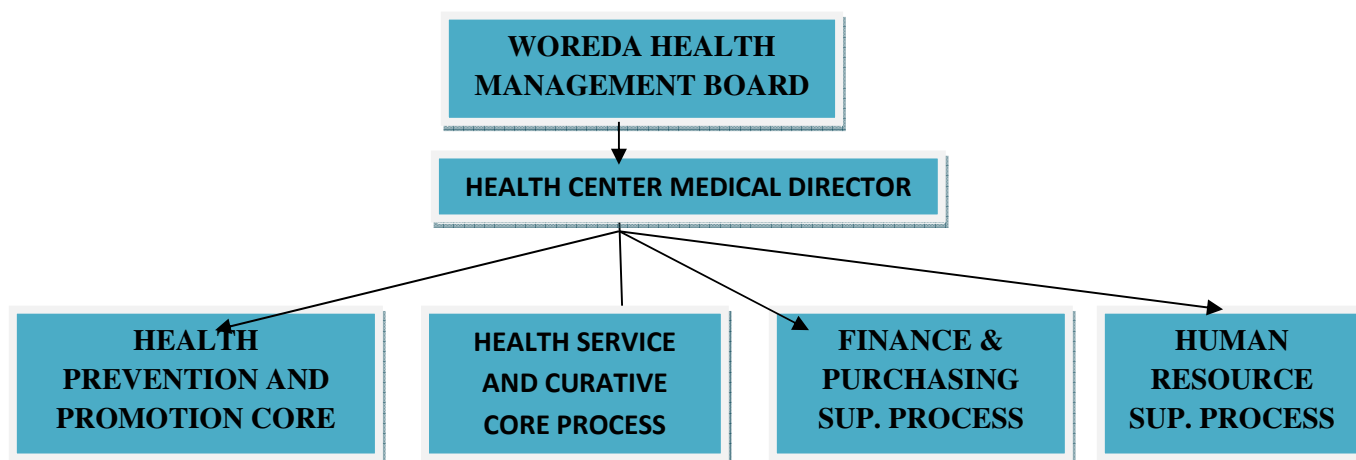


Figure 14: Addis Ketema Health center structure, woreda 4, Addis Ketema sub-city 2016

Addis ketema health center structure was organized under two main core process and two supportive process, the two main process are Disease promotion and prevention core process, and health service and facility core process owner ,and also the two supportive process includes management supportive process and finance and purchasing process , and all these four processes are leaded by medical director of the health center which is under board of the woreda team .therefore, Undertaking all management responsibilities to ensure smooth implementation of health services in the Woreda 4

Health Infrastructure

The numbers of health institutions administered under the Addis ketema sub city that directly provide services to all people of the Woreda. In 2016 there were one governmental health centers and two private clinics and one pharmacy provide service in the woreda 4.

Table 9: Health service coverage of Woreda 4, Addis ketema sub city Addis Ababa, 2016.

S.N	Type of Health Institution	Number	HF: population Ratio	Remark
1	Government Health Center	1	1:37,429	
2	Private Hospital	1	1:37,429	
3	Private clinic	2	1:18,715	
4	Pharmacy	6	1:6238	
	Total	10		

Human resource; health workers and supportive staffs

The Addis Ketema health center had a total of 142 health workers and 70 supportive employees.

The health workers found in the health center were; one General Practitioners , twenty one Health Officer sixteen Nurses, nine Mid wives , eight Laboratory Technicians , eight Pharmacists and 9 Health Extension Workers.

Table 10: Addis ketema health center human resource of Woreda 4, Addis ketema sub-city 2016

S.N	Type of Health Institution	Number	HF: population Ratio	Remark
1	General practitioner	1	1:37,429	
2	Health officer	21	1:1782	
3	Nurses	16	1:2339	
4	Midwives	9	1:4159	
5	Laboratory	8	1:4677	
4	Pharmacy	8	1:4677	
6	Health extension workers	9	1:4159	
7	Supportive staffs	70	1:535	
	Total	142		

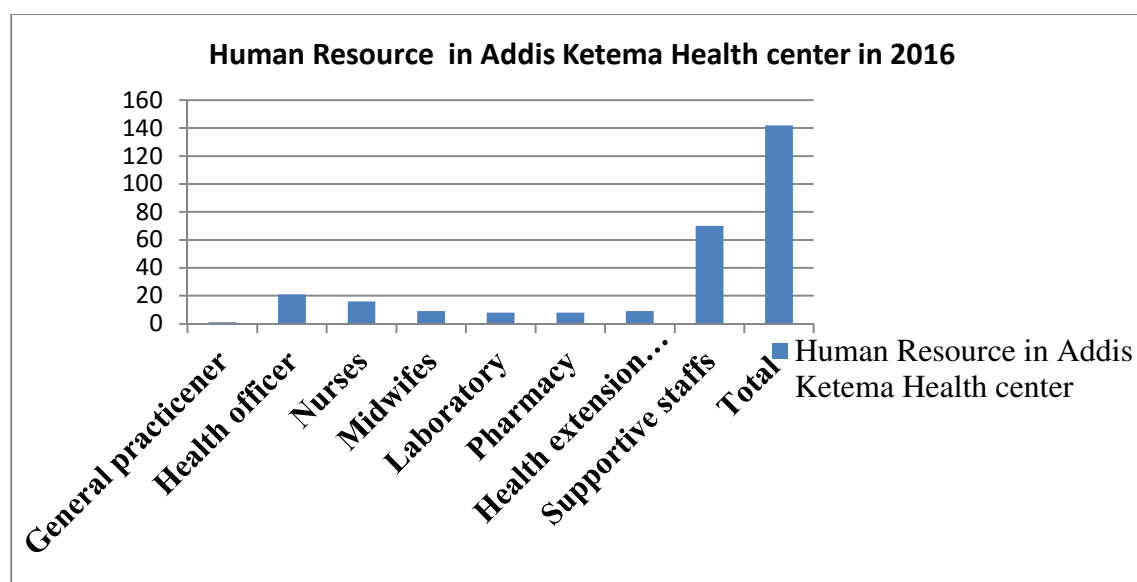


Figure 15 : Addis Ketema health center Human resource of woreda 4, and Addis Ketema sub-city 2016

Vital Statistics

Regarding vital statistics crude birth rate, crude death, maternal death, infant mortality and child mortality status could not found data because there was no record in woreda level in the year 2014/15

Immunization Coverage

The history of immunization services in Ethiopia prior to 1980 has not been documented very well although the smallpox eradication activities have left some legendary memories. The Expanded Program on Immunization (EPI) was launched in Ethiopia in 1980 based on the international, as well as national, experiences and resources gained during the smallpox eradication activities in the late 1970s. Addis ketema health center has been delivering vaccination for children for preventing and control of vaccine-preventable diseases. The immunization coverage in the Woreda in 2014/15 were 1038 (100%) for BCG, 1601 (100%) for Measles, 1038 (100%) for Penta 3, 754 (100%) for PCV3, 1281 (100%) for PAB and 1022 (100%) for fully immunization (Table 4).

Table 11: Immunization coverage by antigen woreda 4

S.N	Antigen	Plan to Vaccinate	Coverage	Percent
1	BCG	838	1601	218%
2	Measles	670	1038	>100%
3	Penta 1	754	1282	>100%
4	Penta 3	754	1282	>100%
5	PCV 1	754	1282	>100%
6	PCV 3	754	1282	>100%
7	PAB	828	1022	>100%
8	Fully Immunization	670	1038	>100%

The woreda 4 immunization coverage is over exaggerated; the reason for inflated result was the new catchment area was changed and some kebeles were shifted to adjust woreda. So there plan was adjusted accordingly. But most of the clients were had been used from the previous catchments area due to this fact the achievement become more exaggerated than planned.

Maternal Health Service

Proper medical attention and hygienic conditions during delivery can reduce the risk of complications and infections that can cause the death or serious illness of the mother and/or the newborn baby. An important component of efforts to reduce health risks to mothers and children is increasing the proportion of babies that are delivered in health facilities. In Woreda 4, there were 872 estimated pregnant women in 2014/15. Among those women 1779 (>100%) got antenatal care service, 831 (95%) had their delivery attended by skilled birth personnel, 0 (0%)

had their delivery by Health Extension Workers, 915 (>100%) was the Post natal care coverage of those Target Eligible in the Woreda 4.

Table 12: Maternal health service Woreda 4, Addis ketema sub city, Addis Ababa, Ethiopia 2014

S.N	Service delivered	Target Eligible	Coverage	%
1	Family Planning	8298	3988	48%
2	Ante natal Care (ANC)	872	1799	>100%
3	ANC 1 st visit	872	1799	>100%
4	ANC 4 th visit	872	1109	>100%
5	Skilled Delivery	872	831	95%
6	Delivery by HEW	0	0	0
7	Post natal Care (PNC)	784	915	>100%
8	TT2+Pregnant Women	828	1022	>100%
9	TT2+ Non -Pregnant Women	0	0	0

One of the targets of the Ministry of Health, with respect to improving maternal and child health is to increase the contraceptive prevalence rate (CPR) to 66 percent by 2015. The Woreda contraceptive prevalence rate was promising to achieve the national program, A similar pattern was observed in other maternal and child health services. The Woreda post natal care coverage (>100%) is higher than compared to the national report (100%) in 20015/16.

Environmental Health and Sanitation

Environmental health program is one of the main components of the current National Health Policy as it is evident that environmental factors are major determinants of public health outcomes. The main objective of the programmed is to contribute the attainment of a significant reduction in morbidity and mortality due to environmental health related conditions. Ensuring adequate sanitation facilities is to achieve the setting health service development program. Regarding Latrine coverage in Woreda 4, there was no data that shows house hold latrine coverage .according to woreda health office that the environmental sanitation is the big problem of the woreda the situation are aggravated by dense population low socio economic status , have slummed areas and low health awareness are factors .in this woreda people use private latrine ,common latrine, and some of them used open filed or used ‘festal’ and through in to the ditch because of lack of awareness and some homeless people also reside in the woreda and according to the woreda office some of the problem are beyond the community the woreda because there was no solid and liquid waste management facility and poor housing .poor infrastructure also another challenge of the woreda4

Health education

Health Extension Worker and health providers used to give health awareness to the community go to house to house and give health education 5 days per week and there is a program which is a family health program designed to serve the community, particularly for poor & chronic patients more attention paid such as go to patient home to give basic treatment and care or facilitate referral to health center, health awareness creation to the community is one the fundamental activity of the health extension worker. and the health center health education program is an integral activity to other services ,so that ,the health center always in the morning give health education the client who came to health center ,and another way of reaching the community is through addressing deferent segment of population like youth friendly approach , sport place and 'Eder'. The government started from 2010 The urban Health extension program came to practice many health achievement were made not only health awareness creation but also create sense of ownership that encourage community involvement to keep their health at house hold level, and recently created the female development army more amplified this activity at grass root level, for instance In this year 2013/14 total 91 women development armies were graduated in 15 packages of health program. Most of topic covered the impact of Harmful Traditional practices, diarrheal diseases, family planning, water, hygiene and sanitation, HIV/AIDS and tuberculosis. And each women is net worked 1 to 5 families in the woreda , the woreda give recognition to 204 model woman who were an exemplary of good health practice preformed based on their got training .The women development army were playing a great role such increasing awareness to the community at house hold level through networked 1to5 families ,these help to share their knowledge and experience about how to keep their health by themselves, and side by side the health extension workers assist them and give feedback . The purpose of trained woman is not only condemning harmful traditional practice but also to increased health awareness about how to keep their personal and environmental hygiene and to bring health seeking behavioral of the community

Top ten leading causes of OPD visit (morbidity)

According to the information obtained from the Addis Ketema health center, the ten leading causes of outpatient visit in the Woreda during 2012/13, 2013/14&2014/15 are listed below in their descending order (Table 6-Table 11).the enumerated table describe in the past three years both adult and under five cases were seen an outpatient cases at Addis ketema health center.

Table 13: Ten Top Causes Morbidity for above 15 years Category for Addis Ketema Health center year 2012/13

Disease	2012/13
Acute upper respiratory infection	5292
Disease of musculoskeletal system	2346
Acute Febrile illness	1704
Dyspepsia	1660
Urinary Tract infection	1572
Trauma	1039
Helimnthisis	988
Other or Unspecified disease of eye and adexia	1020
Diarrhea disease watery	1146
Infection of the skin and subcutaneous tissue	1002
total	17769

Top ten leading causes of OPD visit (morbidity)

Table 14: Ten Top Causes Morbidity for above 5 years Category for Addis Ketema Health center year 2013/14

Disease	2013/14
Acute upper respiratory infection	3769
Disease of musculoskeletal system	1934
Acute Febrile illness	1320
Dyspepsia	1158
Urinary Tract infection	1115
Trauma	808
Helimnthisis	789
Other or Unspecified disease of eye and adexia	747
Diarrhea disease watery	744
Infection of the skin and subcutaneous tissue	725
total	13110

Table 15: Ten Top Causes Morbidity for above 5 years, Addis Ketema Health center year 2015/16

Disease	2015/16
Acute upper respiratory infection	4898
Disease of musculoskeletal system	2061
Acute Febrile illness	1089
Dyspepsia	1593
Urinary Tract infection	942
Trauma	1259
Helimnthisis	996
Other or Unspecified disease of eye and adexia	895
Diarrhea disease watery	1029
Infection of the skin and subcutaneous tissue	965
total	15727

Table 16: Ten Top Causes Morbidity for above 5 years from (2012/13-2015/16) Category for Addis Ketema Health center year 2014/15

Disease	2012/13	2013/14	2015/16	Total
Acute upper respiratory infection	5292	3769	4898	13959
Disease of musculoskeletal system	2346	1934	2061	6341
Acute Febrile illness	1704	1320	1089	4113
Dyspepsia	1660	1158	1593	4411
Urinary Tract infection	1572	1115	942	3629
Trauma	1039	808	1259	3106
Helimnthisis	988	787	996	2771
Other or Unspecified disease of eye and adexia	1020	747	895	2662
Diarrhea disease watery	1146	744	1029	2919
Infection of the skin and subcutaneous tissue	1002	728	965	2695
total	17769	13110	15727	46606

Ten top of morbidity for above 5 years, Addis ketema health center (2012-2015)

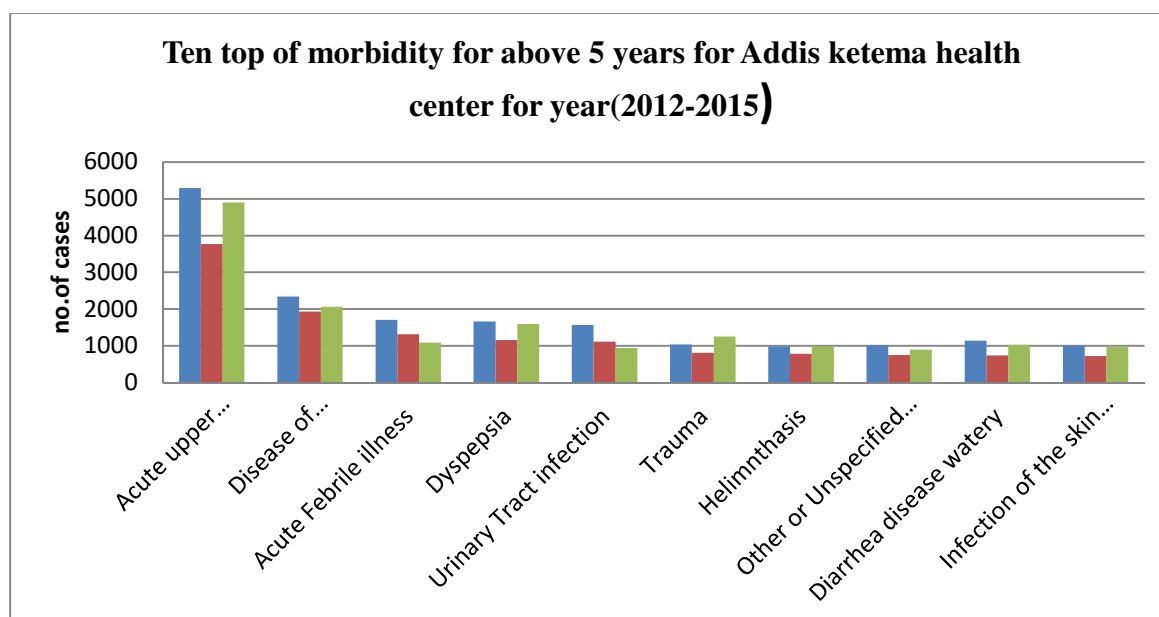


Figure 16: Ten Top Causes Morbidity for above 5 years Category for Addis Ketema Health center year 2015/16

Acute Upper Respiratory Infections was the first from the top ten leading causes and Disease of Musculoskeletal system was the 2nd ten top was seen in OPD visit in the past three years.

Table 17: Ten Top Causes Morbidity for under 5 years Category for Addis Ketema Health center year 2012/13

Disease	Number of cases 2012/13
Acute upper respiratory infection	2827
Pneumonia	1831
Diarrhea (non bloody)	1167
Infection of the skin and subcutaneous tissue	944
Helimnthisis	409
Other or unspecified disease of the eye and adexia	321
Otitis	125
Moderate Acute malnutrition	230
Sever Acute malnutrition	98
Dental and gum disease	77
Total	8029

Ten top causes of morbidity for under 5 years Addis ketema health center year 2012/13

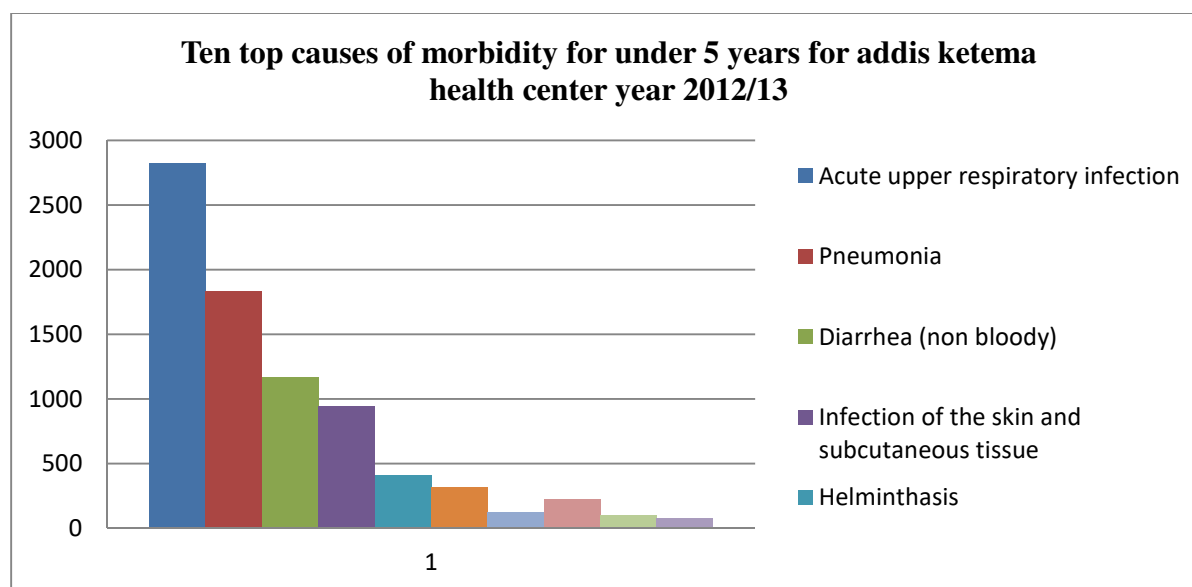


Figure 17: Ten Top Causes Morbidity for less than 5 years Category for Addis Ketema Health center year 2012/13

Table 18: Ten Top Causes Morbidity for under 5 years Category for Addis Ketema Health center year 2013/14

Disease	Number of cases 2013/14
Acute upper respiratory infection	3172
Pneumonia	1750
Diarrhea (non bloody)	817
Infection of the skin and subcutaneous tissue	682
Helimnthasis	210
Other or unspecified disease of the eye and adexia	218
Otitis	125
Moderate Acute malnutrition	212
Sever Acute malnutrition	56
Dental and gum disease	90
Total	7332

Table 19: Ten Top Causes Morbidity for under 5 years Category for Addis Ketema Health center year 2015/16

Disease	Number of cases 2015/16
Acute upper respiratory infection	2960
Pneumonia	2199
Diarrhea (non bloody)	1313
Infection of the skin and subcutaneous tissue	876
Helimnthisis	157
Other or unspecified disease of the eye and adexia	176
Otitis	81
Moderate Acute malnutrition	57
Sever Acute malnutrition	53
Dental and gum disease	49
Total	7921

Table 20: Ten Top Causes Morbidity for under 5 years Category from period (2012/13-2014/15) for Addis Ketema Health center year 2014/15

Disease	2012/13	2013/14	2014/15	Total
Acute upper respiratory infection	2827	3172	2960	8959
Pneumonia	1831	1750	2199	5780
Diarrhea (non bloody)	1167	817	1313	3297
Infection of the skin and subcutaneous tissue	944	682	876	2502
Helimnthisis	409	210	157	776
Other or unspecified disease of the eye and adexia	321	218	176	715
Otitis	125	125	81	331
Moderate Acute malnutrition	230	212	57	499
Sever Acute malnutrition	98	56	53	207
Dental and gum disease	77	90	49	216
Total	8029	7332	7921	23282

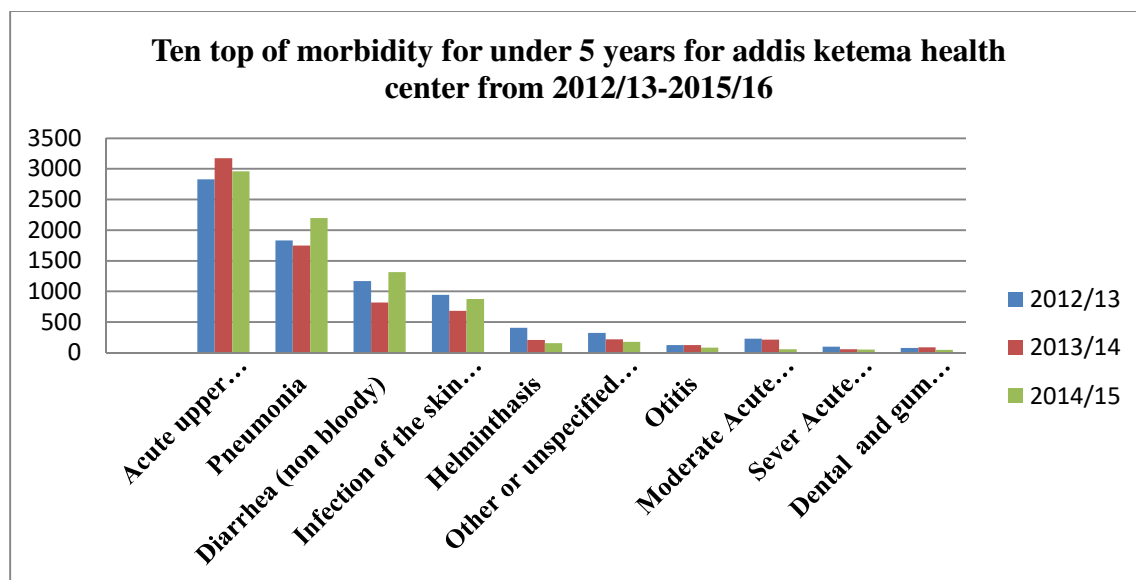


Figure 18: Ten Top Causes Morbidity for less than 5 years Category for Addis Ketema Health center from year (2012/13-2015/16)

Acute Upper Respiratory Infections was the first from the top ten leading causes and pneumonia was the 2nd ten top was seen in OPD visit in the past three years.

Top ten causes of admissions (Morbidity)

Most of health center worked in Addis Ababa gives primary health care more preventive and some curative activates and referred system cases if it is beyond the health center .Addis ketema health center has nearly started admit patens but the documented data are very few to show admission rate ,

HIV/AIDS prevention and control

The priority intervention area in the Woreda in relation to HIV/AIDS to date were IEC/BCC, condom promotion and According to the 20007 E.C Addis Ketema health center Report, 437(11%) people got VCT service and from those 35 (8%) were HIV positive (13 males and 22 female) were positive for HIV.A total of 140 (96%) TB positive people were tested for HIV and from those 43 (30.7%) were positive for HIV. Of 1779 the mothers following ANC services that were tested for HIV, 17 (0.95%) pregnant women was positive for HIV. There were 3943 people living with HIV/AIDS in the Woreda and of those, 2019 (51.2%) were taking anti retroviral (ART) drugs. Number of condom distributed was planned 10800 then achieved 7154(66%) in 2015/16. and STI cases managed were 266(69%).

The priority intervention area in the Woreda in relation to HIV/AIDS to date were IEC/BCC, condom promotion and distribution, voluntary counseling and testing (VCT), management of

sexually transmitted infections (STIs), prevention of mother to child transmission of HIV (PMTCT), management of opportunistic infections, infection prevention/universal precaution, care and support to the infected and affected.

TB and Leprosy

The Woreda TB prevalence was 5.2 per 10,000 populations and other TB indicators are listed bellow in table 13.

Table 21: TB indicators, woreda 4 .Addis ketema sub city Addis Ababa, and Ethiopia 20014/15

S.N	TB indicators	Health center achievement %	AAHB targeted
1	Tuberculosis detection rate	92%	75%
2	TB treatment completion rate	92%	85%
3	Tuberculosis cure rate	81%	80%
4	TB treatment success rate	92%	85%
5	Total TB patients screened for HIV	96%	80%

Source: Addis Ketema Health center

The target set nationally for TB control in 2015/16 was to increase TB detection rate from 65% to 75% but here it reaches 92; which is better 53.7 WHO stop TB REPORT 2014 TB treatment Success rate from 84% to 85%, the woreda achieved 91% which is equal to TB stop report 2014 ,and TB cure rate from 65% to 80% here also reached 81% which is better than TB stop report 2014 ,69% .and increase the proportion of PLWHA screened for TB from 15% to 80% here reach to 96%(4).In the Woreda in 2015/16, TB detection rate and TB patients screened for HIV was increased above the target set nationally for the year 2014/15, while TB treatment completion rate and TB treatment success rate was showing improvement target set by the year. There was zero leprosy case report in the Woreda in the year 2015/16, which is true since leprosy is more confined to the highland parts of the country.

Nutrition, Food Shortage and any Other Disasters

The health center found in woreda 4 has no outpatient or out reached therapeutic program(OTP), but in under five treatment unit there is always growth and monitoring made to screen the child weight then record in growth monitoring chart by doing so the child weight status evaluated and categorized by not malnourished ,some malnourished ,moderate malnourished and sever malnourished , and for some moderate malnourished children advice given to their mother or caretaker how to feed their child to make increase their weight and for sever malnourished child plmpenet given and meticulous follow up made until stabilize their weight and for those child who are sever malnourished with complication referred to yekatite hospital for better work up

,in similar manner for ART&TB patents who are under weight plmpenet given in order to gain their weight.

Essential drugs shortage

Essential drugs and other supplies According to the health center logistic and store head in 2015/16 a total of birr was allocated for drug and other medical supplies, the health center medial director also reported that there was a shortage of laboratory reagent which we did not get from PFSA in addition to this also reported that they have not faced any shortage of essential drug and stock out drug very improved in this year comparing to the previous. And the health center has started implementing APTS program in the future this improved the performance of the pharmacy; the director said

Discussion

In woreda 4 upper respiratory tract infection was most frequently occurred disease in adult and under five children in year 2014/15 and similarly it was 1st place in ten top diseases of lists in that year at national level , the major causes of under five mortality based on 2014 mini EDHS estimated upper respiratory tract infection was the majored cause of morbidity.(8) Following to musculoskeletal system for adult and pneumonia for under five children were most frequently occurred diseases in the 2nd in the woreda .In addition, the ten top diseases were not only the major problems of the woreda HIV/AIDS and TB/Leprosy had impact on the community health. Although the disease prevention and control department of Addis ketema HIV/AIDS cases were decreased by 50% compared to last year reporting period of 2015/16(2). Similarly HIV new infection has dropped by 90% and death reduced by 50 % at national level, might be due to initiation of ART and other interventions. (3). The targeted set nationally for TB control program in 2015/16 was to increase TB detection rate from 65% to 75% compared to woreda achievement 92 %; which was better than 53.7 targeted by WHO stop TB 2014 .And the targeted TB treatment Success rate at national level in 2015/16 was from 84% to 85% comparatively the woreda achieved 91% , which was equal to targeted by TB stop 2014 in similar manner TB cure rate was targeted from 65% to 80% compared to woreda achieved 81% ,which was better than 69% targeted by WHO stop TB 2014 . None pregnant women TT converge of the woreda was very low compared to the national targeted; the reason might be shortage of TT2 vaccine supply. The fully immunization converged of the woreda was 100 % which was better than EDHS mini 2014 report was 24 and to reduce maternal mortality ANC follow up is important the woreda 4 ANC1st and ANC 4th visit converge were 100 % which was better compared to mini EDHS 2014 ANC1=57.2 AND ANC4=31.6 report , this might be resulted from increased public awareness and improved accessibility of health service and all delivery of the woreda done carried out by midwifery compared to min EDHS 2014 delivery by skilled personnel only16 % the reason might the capacity building of health professional at national showing improvement . About health care service accessibility Addis ketema health center is dedicated to serve woreda 4 community have 37429 population and it compared HSDP4 criteria urban health center should serve (25000:40000 population). So it hit the target. On the other hand, infrastructure has a key role to keep the community health, in woreda 4 improved water supplies was 100% and 24 hours

electric power supplied and the road is accessible in dry and rainy season compared to EDHS 2011 report in urban improved water supply was 92.3% and 24 hours electric power.

Skilled, qualified and adequate numbers of health professionals are very essential to deliver quality health care service (10). In this regard health workforce density in Ethiopia has increased from 0.84 to 1.3 per 1000 population between 2008 to 2013 indicative an improvement in supply and availability of health worker. However, the doctor and midwife health officer of population ratio is 0.7 per 1000 population far behind the minimum threshold 2.4. (HRH strategy MOH 2014). In Woreda 4 health center at the end of 2015 the health workforce densities was about 0.02, 0.16 and 0.05 per 1000 population for health officer, nurse and midwife respectively (GP 1: 37429, H.O 1:1782 Nurse 1:2339, M. Wife 1:4159, LAB 1:4677, PHARMACY 1:4677 and supportive staff 1:535). Furthermore, based on BPR human resource structure at health center level 8 health officers, 21 nurses (B.sc and Diploma), 10 midwives, 6 pharmacies, 8 laboratories and 1 HIT with a total of 54 health professionals are needed in one health center. Compared to the health center manpower there were 8 HO, 16 nurse (B.sc and Diploma), 9 midwife, 8 pharmacy, 8 laboratory and 9 HEW with a total of 71 health professionals compared to Woreda 4 it was above the standards.

Challenges and Limitations

In the Woreda 4, socio demographic factors like Language, Religion and Occupational characteristics were not clearly documented, and some essential health and economic indicators like Infant mortality, Child mortality, a maternal mortality rate were difficult to calculate because there was no compiled vital statistics record in the Woreda. Moreover, there was also difficulty to find out detailed information about the Woreda Disaster situation. And data availability and completeness was a challenge during the time of data collection.

Conclusion

The Woreda 4 Health profile includes both previously identified health issues, and the identification of new, emerging health issues. Compared to the last three years, Acute Upper Respiratory tract Infection and disease of musculoskeletal system were the top cause of morbidity in adult, and acute upper respiratory tract infection, pneumonia were the leading causes of Morbidity in under five age groups .And lack of latrine , over crowdedness, poor housing were the main challenge of the woreda.

Recommendation

- Upper respiratory tract infection was the leading cause morbidity for both adult and under five ages of years, so people living condition and health care system should be improved.
- Poor solid and liquid waste disposal system can speed up communicable disease transmission so the government, stockholder and the community at large should participate to reverse the situation.
- Lack of latrine was the big problem of the woreda, so to alleviate the problem organized effort are needed with government and other stockholders like private owners, NGOs and the community.
- Employing awareness creation is important to prevent communicable disease about personal and environmental hygiene.
- Crowdedness, poor housing and slummed area were the challenge of the community, so attention are needed to reverse the situation
- Poor socioeconomic status was big challenges to the betterment of life .so different mechanism should be designed in order to have their own income

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Chapter 5

Research Thesis

Magnitude and Associated Factors of Preeclampsia among Woman attending Antenatal Care Service in Public Hospitals Addis Ababa Ethiopia 2017

Abstract

Background: Preeclampsia is one of the leading causes of maternal mortality and morbidity to the mothers and fetus worldwide. In Ethiopia annually estimated 54000-216000 mothers are expected to have preeclampsia/eclampsia from total 2.7 million deliveries annually. This problem has been increasing and linked to multiple factors, making prevention of the disease unresolved challenge and still the cause of preeclampsia is not well known.

Objective: This study was conducted to assess the prevalence of preeclampsia and its associated factors among pregnant women attending antenatal care in selected public hospitals, Addis Ababa, Ethiopia.

Methods: Hospital based cross- sectional study was conducted in Addis Ababa three public hospitals those are Zewditu Memorial hospital, Gandhi Memorial hospital and Saint Paul's hospitals between November and December 2016. All pregnant women who had antenatal follow up at those hospitals were included. A total 570 pregnant women were enrolled to the study. Pretested and structured questionnaire via face to face interview was used for data collection. The data was entered in EpiInfo 7 software and exported to SPSS version 21 for further analysis. Descriptive statistics were used to describe the data in relation to relevant variables. Both Bivariate and multivariable logistic regression analyses were computed to identify factors associated with preeclampsia.

Result: The prevalence proportion of preeclampsia among pregnant women in Addis Ababa public hospitals was found to be 6.3%. Women having previous history of hypertension [Adjusted Odds Ratio (AOR: 14.314, 95% CI: 6.542, 31.314)] was found to be associated with preeclampsia.

Conclusion and recommendation: The prevalence of preeclampsia in Addis Ababa public hospitals was slightly higher than other study done in Addis Ababa. Having hypertension history of the women in the previous pregnancy is a predictor factor of preeclampsia. It is important to give health education in order to make the women develop health seeking behavior but also health provider should take detailed hypertension history of the pregnant women during antenatal visit is needed. So they would get a chance to be diagnosed of preeclampsia as early as possible

Keyword: preeclampsia, magnitude, associated factors, Addis Ababa, Ethiopia.

Introduction

Background

Preeclampsia is a disorder of pregnancy which is characterized by the occurrence of hypertension and significant proteinuria in a previously healthy woman on or after the 20th week of gestation(1).The disorder usually occurs in the third trimester of pregnancy and gets worse over time characterized by elevated blood pressure and significant protein in the urine (2) A systolic blood pressure ≥ 160 or diastolic blood pressure ≥ 110 and/or proteinuria $>5\text{g}$ in a 24-hour period is indicative of severe preeclampsia. Organ dysfunction disorder is a progressive sign of severe preeclampsia. Clinically, individuals with severe preeclampsia may also present right upper quadrant abdominal pain, headaches, and vomiting. Severe preeclampsia is a significant risk factor for intrauterine fetal death (3)

World Health Organization (WHO) estimates the incidence of preeclampsia to be seven times higher in developing countries (2.8% of live births) than in developed countries (0.4%)and the risk of maternal death increase in both developed countries (0.5 to 1.8%) and in developing countries (as high as 15%) (10). A few studies conducted in Ethiopia showed that the prevalence of preeclampsia varies from 5% to 18.4(4,5). The national emergency and obstetric care (EmOC) study showed that preeclampsia contributed for the complication of approximately 1% of all delivery and 5% all pregnancy(6). However, there are few studies in Ethiopia (4,5,7). Those have different objectives and study population .Hence this studies can assess the prevalence and its associated factors of preeclampsia among pregnant women attending antenatal care in public hospitals Addis Ababa.

Statement of the problem

Globally, an estimated 292,982 maternal deaths occurred in 2013 among this global burden. Of which 85% (249,000) occurred in developing countries. Sub-Saharan Africa accounts (56%) and southern Asia (29%) accounts all maternal death. More than 70% of maternal deaths are due to five major complications: hemorrhage, infection, unsafe abortion, obstructed labor, and hypertensive disorders of pregnancy including preeclampsia and eclampsia (5).

The World Health organization (WHO) estimates the incidence of preeclampsia 7 times higher in low–middle income countries than high income countries, and the risk of women in low income countries dying of preeclampsia/eclampsia is 300 times that of women in high income countries. (8), (9),(10). The risk of death due to preeclampsia / eclampsia disease increases when eclampsia supervene on the clinical of preeclampsia is responsible for an estimated 16% of global mortality or 63000 maternal death annually .So preeclampsia has remained a significant global public health treat both in developed and developing countries that contribute to maternal and prenatal mortality and morbidity..Since Ethiopia is a one of developing counties preeclampsia is the leading causes of maternal mortality as other developing countries (9). However, Ethiopia has shown many improvement respected to reducing maternal mortality and morbidity with improving health service and accessibility to pregnant mothers the EDHS 2016 report showed that ANC service given by skilled provider was reached 62%, birth attended by skilled personnel's was reached to 28% and the maternal mortality was decreased 412 death per 100,000 live birth compared to EDHS 2011(11). The Incidence of preeclampsia is increasing year to year from the study done in Addis Ababa showed the prevalence of preeclampsia in pregnant women had been increasing from 2.2% to 5.5% in 2009 to 2013 respectively (5). A few studies were done in Ethiopia about preeclampsia (5),(12). Those have different objectives, methodology and study areas. Therefore, preeclampsia remains a major problem both in maternal and infants morbidity and mortality. But the risk factors for preeclampsia have not been well documented in Ethiopia.

Significance of the study

Complications that arise from uncontrolled increase of blood pressure (pre-eclampsia) are the most common causes of maternal mortality in developing countries. These deaths are avoidable and could also be prevented by increasing evidence based information for risk of preeclampsia. Knowing the risk factors is crucial to intervene on this problem, So that the knowledge of the most important associated factors of preeclampsia could be useful for clinician to predict the potential who pregnant women is at risk for develop preeclampsia. Identifying the risk factors is important for early screening and intervention but also the evidence suggested in this study contribute to the programmers on this area.

Literature review

Overview

The World Health organization (WHO) estimates preeclampsia contributed the cause of an estimated 63000 maternal death annually. The incidence of preeclampsia to be seven times higher in developing countries (2.8% of live births) than in developed countries (0.4%) and preeclampsia increases the risk of maternal death in both developed countries and developing countries with the range (0.5 to 1.8%) and in developing countries (as high as 15%) compared to developed countries (9). According to ministry of health Ethiopia report 2008\09 showed annually estimated 54000-216000 Ethiopia mother are expected to have preeclampsia\ eclampsia based on the predicted prevalence of 2% to 8% of total 2.7 million deliveries per year(6) Different studies postulated that there are different factors contributed to the occurrence of preeclampsia during pregnancy such as maternal socio-demographic factors of the women, current and past medical history of the women, obstetric history of the women and behavioral history of the women including her family medical history could have association to predict the chance of the pregnant women developing preeclampsia .

Prevalence

The prevalence of preeclampsia was varying across regions with the ranged from less than 1% in Angola and 8% in Brazil such variability is observing among countries to countries and within the same regions(9). Nigeria preeclampsia proportional of three years prevalence was 1.2 % and (13). Minister of Ethiopia annually estimated 54000 to 21000 expected to have preeclampsia from 2.7 million deliveries annually with calculated 2-8% prevalence rate (6). The study done in Dessie referral hospital showed the prevalence of preeclampsia was 8.4% (12) .The study done in Addis Ababa showed the past three years proportion of prevalence was 4.2% and each year the prevalence was increasing from 2009 to 2013 in years 2.2% to 5% respectively (5).

Factors Associated of preeclampsia

Socio -demographic factors

Socio-demographic factors were studied by different researchers to identify have association to preeclampsia and such factors are suggested having association with preeclampsia those increased maternal age particularly more than 35 years and increased body mass index were risk factors for preeclampsia (14),(15),(13)(16)(12)(17). Another studies showed low education status of the pregnant mothers were found to be risk of preeclampsia (15),(18) (13)(4).other studies identified low monthly income of the pregnant mother was found to risk of preeclampsia. (14)

In contrary, other study explained high body mass index, woman age and socio-demographic factors have no association with preeclampsia

Maternal medical history

Different studies have similar findings that showed current or past maternal medical history of the pregnant women have association for developing preeclampsia there suggested factors were history of hypertension, history of diabetic mellitus and history of preeclampsia in previous pregnancy were the risk for the women to develop preeclampsia (15),(14),(19) (20),(12),(16) (14) (17)and (4) .Another studies suggested renal disease and UTI were risk for preeclampsia (14),(9) and (4) . Another study suggested having history of cardiac disease was the risk for preeclampsia (9). Another study has finding black compare to white was risk for preeclampsia. In contrary, one study suggested history of diabetic mellitus was not risk for preeclampsia (9).

Family medical history

Different studies have consistent findings family history of pregnant mother have association for developing preeclampsia, the reviewed studies agreed that pregnant women having family history of hypertension is risk for developing preeclampsia (14),(15),(19) (12)(14) and (4) . Similarly other studies agreed that family history of having diabetic mellitus is risk for developing preeclampsia(12) ,(14) (4) and multiple gestation(21)

Obstetric history

Different studies suggested that obstetric history of pregnant mother have association for preeclampsia the suggested predicted factors are early pregnancy is risk (14). null parity is risk (14),(20),(12),(9), (4) and multiple pregnancy is risk (14)(19) and(4) , and age at menarche less than 12 years is risk (14), and Para gravid who having four or more children is risk (18) , and Interval of 10 years since from previous pregnancy and autoimmune disease are risk(18)

Conceptual frame work of preeclampsia and variables relationships

This Conceptual frame work was done from literature (17).

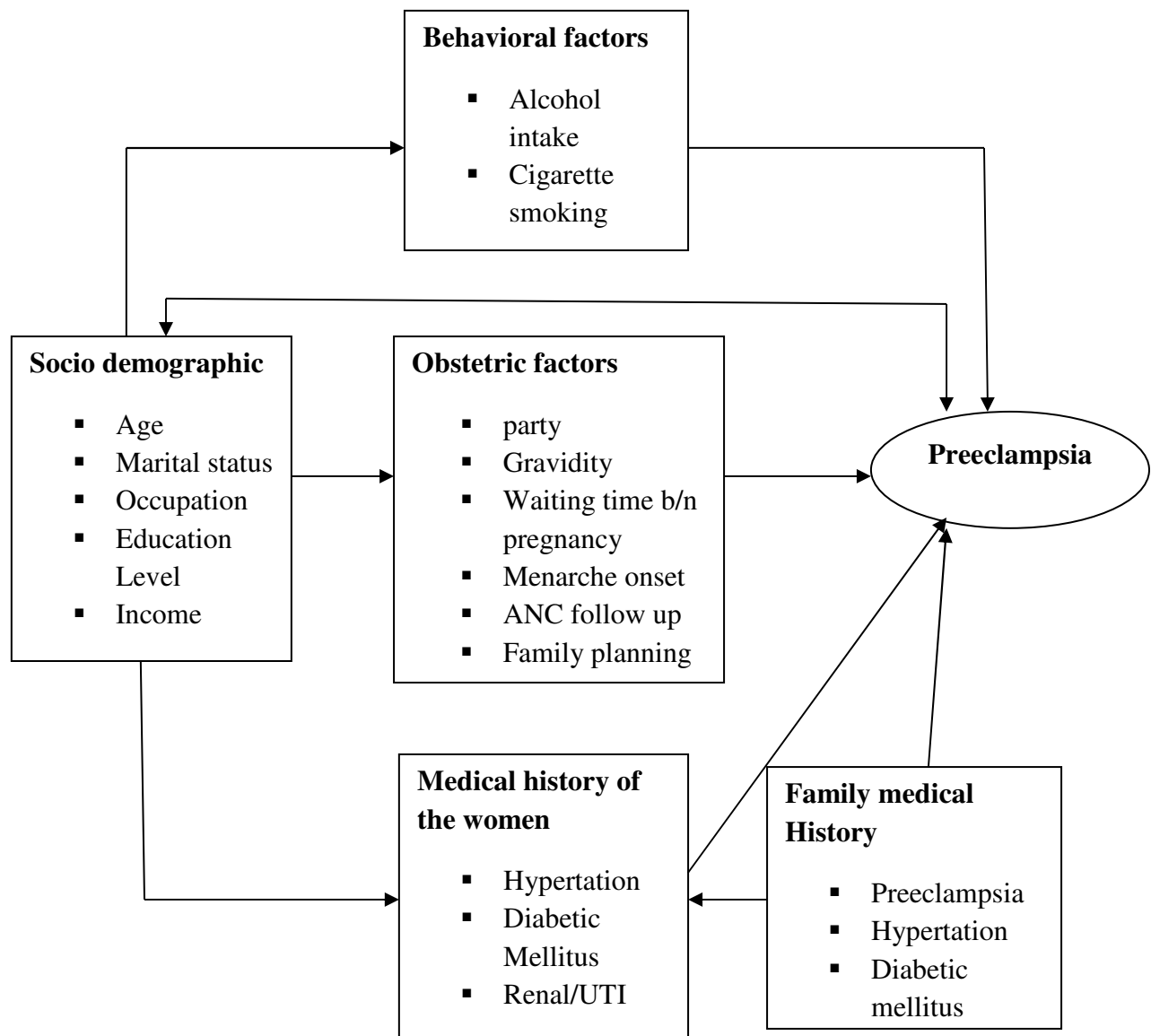


Figure 19: conceptual frame work showed relationships between independent and dependent Variables

Objectives of the study**General objective**

To assess the prevalence and factors associated with preeclampsia among pregnant women attending antenatal care in public hospitals, Addis Ababa, Ethiopia 2017.

Specific objective

To determine the prevalence of preeclampsia among pregnant mothers attending ANC in public hospitals, Addis Ababa. Ethiopia, 2017

Identify associated factors of preeclampsia among pregnant mothers attending ANC in public hospitals of Addis Ababa, Ethiopia, 2017

Research question

Is there different exposure on medical disease, obstetric and behavioral factors between preeclampsia and non preeclampsia women?

Method and materials

Study Area

Addis Ababa City is located at the center of the country. The total population of Addis Ababa is about 3,433,999 as projected for 2017. Addis Ababa is divided into 10 Sub-Cities and 117 Woredas. In Addis Ababa, there are 11 governmental hospitals, 98 HCs, 904 private health facilities and 16 NGO health Facilities. (Addis Ababa health bureau report 2017). For this study public hospitals which have not give antenatal care service are excluded.

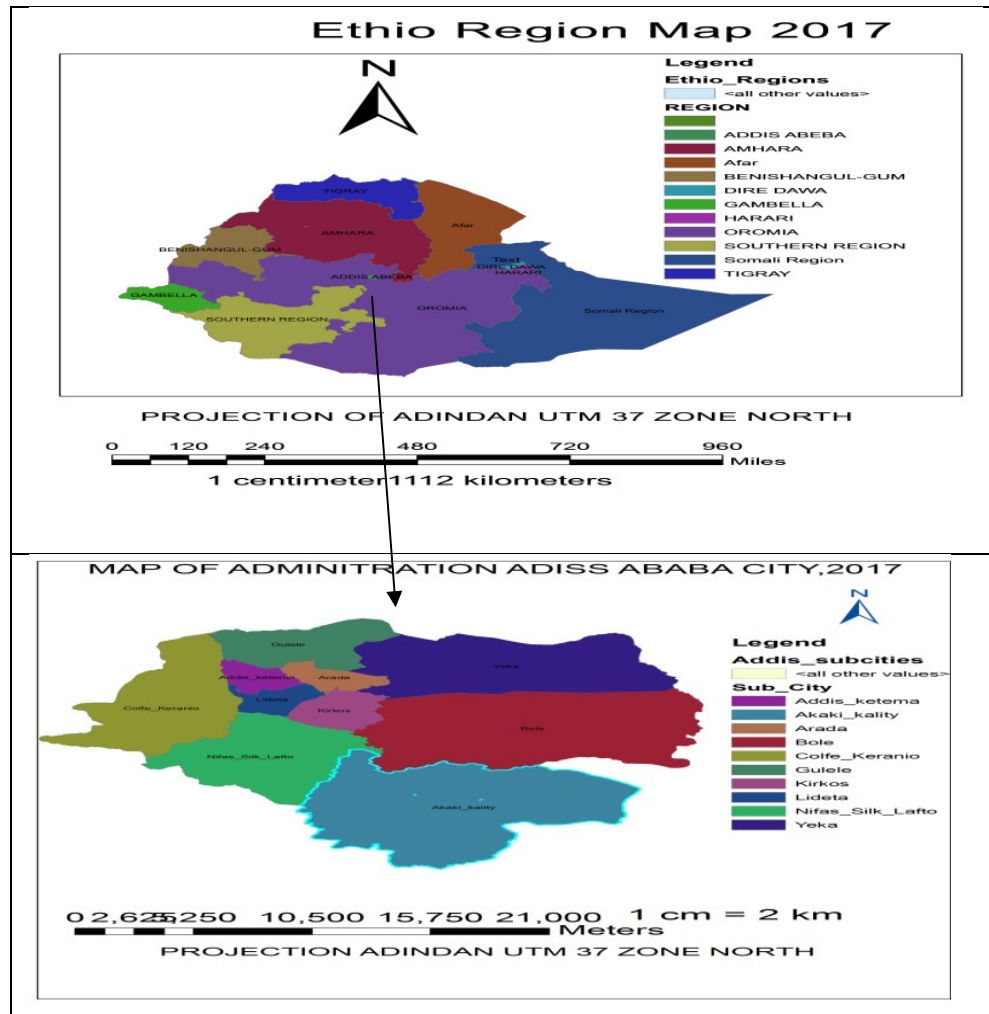


Figure 20: Map of Addis Ababa, Ethiopia, 2017

Study period

Data collection period was from 10 November 2017 to 10 December 2017.

Study design

Facility based cross sectional study was conducted among pregnant women attending antenatal care in public hospitals.

Source population

All pregnant women attended antenatal care in public hospitals in Addis Ababa, Ethiopia.

Study population

All pregnant women attended antenatal care in selected public hospitals and having their gestational age is 20 and above.

Exclusion criteria

All pregnant women there gestational ages are less than 20 weeks of gestation are excluded

Sample size determination

For Objective 1: To determine the prevalence of preeclampsia attending antenatal care in public hospitals single proportion formula was used from previous study in Addis Ababa prevalence preeclampsia was in 4.2 %(5).

Single proportion formula

P= previous study prevalence = 4.2%

CI =confidence level at 95%

d= marginal error 0.025 $n = \frac{(z\alpha/2)^2 p(1-P)}{d^2}$

P= 4.2%

$n = z^2 p(1-P)/d^2$

$(1.96)^2 * (0.042) * (0.958) / (0.025)^2$

=247.3

For objective 2:-To identify associated factors of preeclampsia double proportion formula was used to estimate the required sample size calculated with EpiInfo 7 software statcalc.(Table 1)

Table 22: Described sample size was calculated based on previous studies indicated associated factors prevalence estimated for preeclampsia calculated by EpiInfo 7 software statcalc.

Associated factors	Preeclampsia prevalence		CI 95%	Power 80%	Ratio	OR	Sample size		Total sample size	Reference
	Outcome exposed	Outcome unexposed					Exposed	Unexposed		
Age (30-34)	16.49%	5.74%	95%	80%	3	3.24 27	97	276	368*	(12)
Prim gravid	43.07%	26.77%	95%	80%	2	2.06 9	108	215	323	(18)
Gravid 5+	60%	26.77%	95%	80%	2	4.10 29	30	59	89	(18)
Chronic history of hypertension	33.33%	7.415	95%	80%	4	6.24 2	24	96	120	(5)
Family history of hypertension	28.08	3.99%	95%	80%	4	9.39 9	23	91	114	(5)
History of DM	24.12%	6.25%	95%	80%	4	4.77	40	159	199	(5)
History of Alcohol intake	33.33%	16.17%	95%	80%	2	2.59 1	80	160	224	(4)

*Large sample size was selected from Dessie referral hospital previous study which is 368 samples.

To have adequate sample size the two samples were compared from single populations sample size with double population sample size were 230 and 304 respectively. However; 368 samples was the larger sample size. The sampling technique was passed through two stages (multi stage sampling) with considering design effect the sample was multiplied with 1.5 and adds 10% for non response rate was calculated in order to estimated final sample size

Since multi stage is used $n * 1.5$ (design effect) hence = $1.5 * 368 = 552$

Non respond rate 10% of $n = 552 * 0.1 = 55.2 = 56$

$n = 552 + 56 = 608$ = the final sample size is = 608

Sampling technique

Out of 10 Public hospitals found in Addis Ababa giving antenatal care service to pregnant women three hospitals were selected using lottery methods. Those are Zewditu Memorial hospital, Saint Paul's hospital and Gandhi memorial hospital. To facilitate sample selection

information was gathered a head off from those selected hospitals to estimate client flow per month by observed the past three month reported ANC clinics client flow report and took the average.

- Zewditu hospital averagely estimated expected monthly ANC clients attendant was 600 and from above clients flow proportional allocated sample was 184
- Gandhi memorial hospital averagely estimated expected monthly ANC clients attendant was 1700 and from above clients flow proportional allocated sample size was 195.
- Saint Paul's hospitals averagely estimated expected monthly ANC clients attendant was 2000 and from above clients flow proportional allocated sample size was 229
- A total 570(93.3%) response rate was collected from the above selected three hospitals up on their allocated sample size.
- Convenient sampling method was applied to administered questionnaire to each client.

SCHEMATIC DIAGRAM OF SAMPLE SELECTION

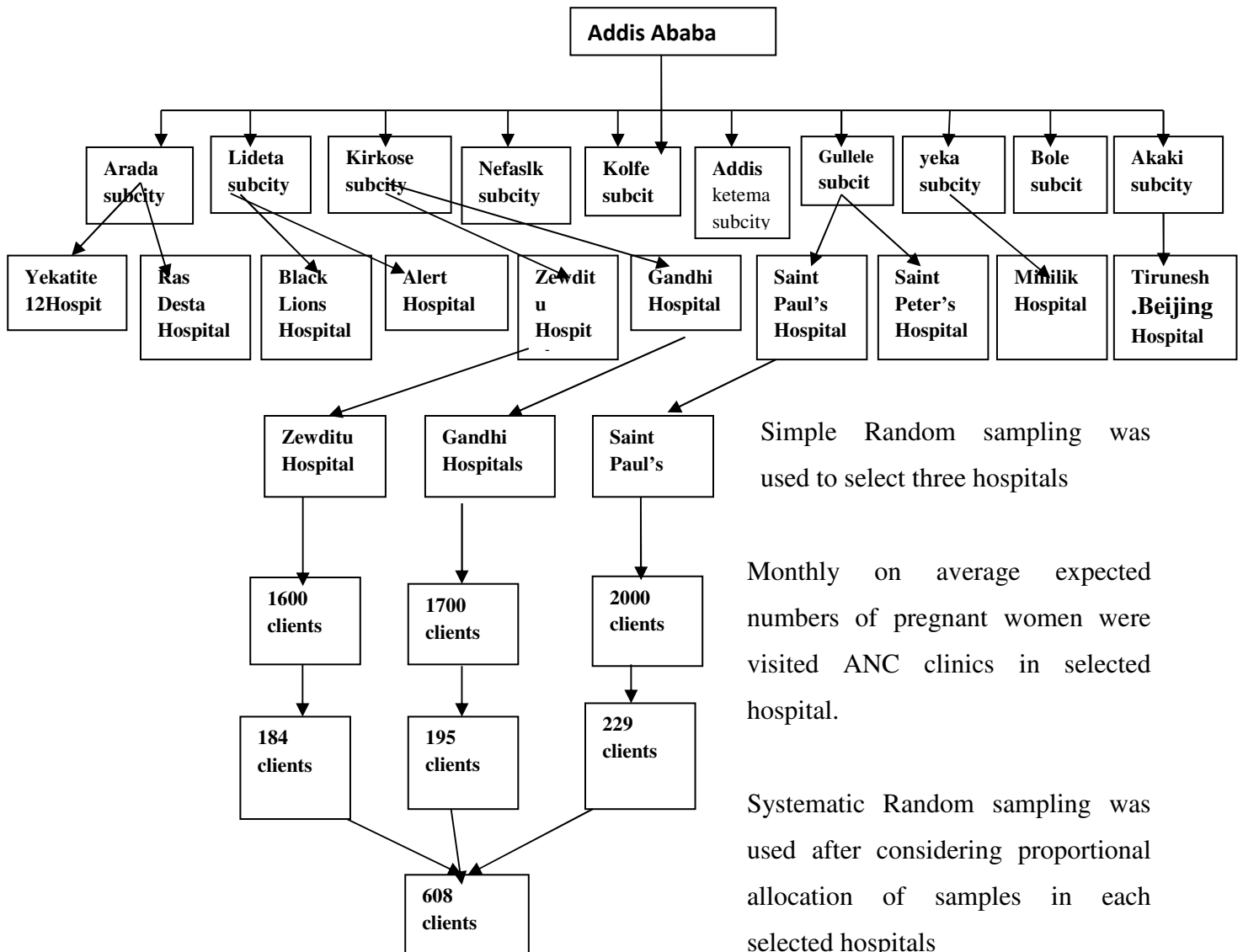


Figure 21: schematic diagram of hospital sample selection

Data collection procedure

Data were collected by face to face interview using structured and pretested questioners adopted from literatures(17). Before the commencement of data collection the questioner was translated from English language in to Amharic languages and back to English language. Data collections were conducted by six midwife nurses and two supervisors. The principal investigators play a role in organizing and leading the overall data collection process. The data collection instrument was pretested prior to the main data collection in other governmental hospital to ensure the consistency and validity the data .The procedure of data collection was the data need measurements like blood pressure, weight, height and urinalysis result were taken from clients chart, and other required data were collected from clients administered respond by data collector. Prior to data collection formal letters having from regional health bureau PHEMs core process was submitted to study hospitals , After briefly discussing the importance of the study, study department, data collection period ,about data collectors profession and kept confidentiality of the collected information including respect the right of study participants.

Data quality assurance

Training was given for data collectors for two days on issues concerning the questionnaires.(on the objective study, the how of approaching the participant, how to administer and collect the questioner timely was done).

A pre-test was conducted on 5% (30) of the pregnant women attending in one public hospital in Addis Ababa. This helped us to verify the validity and reliability issues. The task of supervisor was supervising the data collectors daily during data collection period and reviewed the completeness, the consistency and properly filled the questioners.

Data Management and Analysis

The collected data was coded before entered into EpiInfo software for data cleaning and entry then transported to SPSS software version 21 and data clean up was performed by running frequency ,proportion ,percentage was used to check the completeness and consistency of the collected data . Then after completed the data analysis was made. Bivariate analysis was used to select the candidate for multivariable binary logistic regression at $p \leq 0.2$ then multivariable binary logistic regression method was used to assess odds of associated factors with 95% confidence level at p value < 0.05 .

Variables**Dependent variables**

- Preeclampsia status

Independent variable

Independent variables are socio-demographic factors include age, marital status, education status, occupations and Income level. Medical history factors include hypertension, diabetic mellitus, renal, preeclampsia and body mass index, blood pressure and protein urea. Behavioral variables include alcohol intake and smoking history of the woman. Woman family medical history was assessed variables including family hypertension, family diabetic mellitus and family preeclampsia. Obstetric history of the women was another assessed variables includes parity, gravidity, age at menarche, age at previous pregnancy, spacing between previous pregnancy, antenatal follow up completion and modern contraceptive used were assessed.

Ethical consideration

Ethical clearance was obtained from IRB of SPHMMC and Addis Ababa health bureau PHEMs core process. Which also for facilitation an official letters was written and submitted to selected hospitals to get their permission and cooperation for the study .Approval was needed from participating hospitals and informed consent was obtained from each participant by assuring participants' anonymity and confidentiality was being kept. The respondent was the right not to participate in or withdraw for the study at any time.

Plan for dissemination of the findings

After this study is completed, the final document will be prepared and shared to Saint Paul's hospital millennium medical college public health department, Addis Ababa PHEMs core process, zewditu memorial hospital Gandhi memorial hospital and Saint Paul's hospital and to make accessible for the readers the final document will be reserved at SPHMMC library.

Operational definition

Preeclampsia: Refers to a rise gestational blood pressure beyond the normal (systolic blood pressure (SBP) ≥ 140 mmHg and/or diastolic blood pressure (DBP) ≥ 90 mmHg) after 20 weeks of gestation and the presence of greater than normal value of proteins in urine (Protein urea) (4). Protein urea measured with dipstick which is greater than or equal to plus one.

Result

5.1 Demographic and socio-economic characteristics of the study participants

A total of 570 pregnant women were enrolled in the study .Most (97.7%) were married and 308 were house wife, majority (92.5%) of the women were literate.

Table 23: Demographic and Socio-economic characteristics of women attending antenatal care at Addis Ababa public hospitals 2017(n=570)

Variables	Frequency	Percent
Age at pregnancy		
Less than 24 years	356	23.3%
25- 29 years	221	38.8%
30-35 years	172	30.2%
Above 35 years	44	7.7%
Marital status		
Married	557	97.7%
single	4	0.7%
Divorced	4	0.7%
Separated	4	0.7%
Widowed	1	0.2%
Occupation		
Governmental employee	96	16.8%
House wife	308	54%
Merchant	57	10%
Other	3	5%
Student	8	1.4%
Education level		
Illiterate	43	7.5%
Primary level	158	27.7%
Secondary school	226	39.6%
Vocational school/TVET	52	9.1%
University /college	91	16.0%
Income level		
Less than 1500ETB	95	16.7%
1500-3000 ETB	238	41.8%
3001-5000 ETB	116	20,4%
Above 5000ETB	121	21.2%

5.1.1 Medical history of the respondent

From total 570 participant .84(14.7%) women had hypertension history and 22(3.9%) had history of diabetic mellitus .About other medical history 44(7.7%) has renal or UTI history and 7(1.2%) has history of cardiac illness

Table 24: Past and current medical history of the women attending antenatal care at Addis Ababa public hospitals 2017

Hypertation history		
Yes	84	14.7%
No	486	85.3%
Diabetic mellitus history		
Yes	22	3.9%
No	548	96.1%
Renal/UTI history		
Yes	44	7.7%
No	526	92.3%
Cardiac history		
Yes	7	1.2%
No	563	98.8%
Body mass index (BMI)		
Less than 18.5	7	1.2%
18.5-24.5	283	49.6%
24.6-30	208	36.5%
Above 30	72	12.6%
Blood pressure result		
Yes (Have hypertension)	68	11.9
No (Not have hypertention)	502	88.1

5.1.2 Family medical history of the study participant

From total 570 participant 92(16.1%) of the women has family history of hypertension and 33(5.8%) of the woman has family history of diabetic mellitus

Table 25: Family medical history of women attending antenatal care at Addis Ababa public hospitals 2017

Family Hypertation		
Yes	92	16.1
No	478	83.3%
Family Diabetic mellitus		
Yes	33	5.8%
No	537	94.2

5.1.3 Reproductive and obstetric characteristics of the respondent

From total 570 study participant, 416(73%) were menarche onset at age 13-15. Regarding pregnancy 200(35.1%) were presented with first time pregnancy and 3(5%) had more than five delivery .About 20(3.5%) of pregnant women has history of twins.

Table 26: Obstetric history of the women attending antenatal care at Addis Ababa public hospitals 2017

Gravidity		
One pregnancy	138	24.2%
2-5 pregnancy	417	73.2%
Above five pregnancy	14	2.5%
Total	570	100%
Parity		
Nuliparous	200	35.1%
One delivery	214	37.5%
2-5 delivery	153	26.8%
More than five delivery	3	5%
Total	570	100%
Waiting time between pregnancy		
First pregnancy	138	24.2
One year	77	13.5
2-10 years	342	60%
Above 10 years	13	2.3%
Total	570	100%
Menarche onset		
Below 13 years	40	7%
13-15 years	416	73%
16-18 years	108	18.9%
Above 18 years	6	1.1%
Total	570	100%
Multiplicity of pregnancy		
Single tone	550	96.5%
Twins	20	3.5%
ANC attended in previous pregnancy		
Yes	520	91.2%
No	50	8.8%
Used family planning before		
Yes	395	69.3
No	175	30.7%

5.1.4 Behavioral characteristics of the participants

In this study only one (0.2%) women was smoking cigarette while 65(11.4%) women were drinking alcohol

Table 27: Behavioral factors of the women attending antenatal care at Addis Ababa public hospitals 2017

Alcohol intake		
Yes	65	11.4%
No	505	88.6%
Tobacco used		
Yes	1	0.2%
No	569	99.8%

5.1.5 Preeclampsia status of the study participant

From total 570 participants. 36(6.3%) women have preeclampsia.

Table 28: Preeclampsia status of the women attending antenatal care at Addis Ababa public hospitals 2017

Yes	36	6.3
No	534	93.7
Total	570	100%

5.2 Factor Associated with preeclampsia

In Bivariate analysis previous history of preeclampsia ,family history of hypertension ,kidney/UTI disease of the women ,Age at pregnancy and educational status of the women were brought to multivariable binary logistic regression analysis with the cut line P-value <0.2

Table 29: Bivariate analysis

	Factors	Yes/ No	Preeclampsia N (%)	None preeclampsia (N (%))	COR at 95%CL	P value
1	Previous hypertension history (PIHPN)	Yes	24(66.7)	60(11.2 %)	15.8(7.514,33.221)	0.000*
		No	12(33.3%)	474(88.8%)	1	
2	Family hypertension history	Yes	11(30.6%)	81(15.2%)	2.461(1.165,5.196)	0.028*
		No	25(69.4%)	453(84.8%)	1	
3	Kidney /UTI illness history	Yes	6(16.7%)	38(7.1%)	2.611(1.023,6.650)	0.079*
		No	30(83.3%)	496(97%)	1	
4	Age at pregnancy (<30 years / 30 years & above)	Yes	20(55.6%)	196(36.7%)	2.156(1.091,4.257)	0.038*
		No	16(44.4%)	338(63.3%)	1	
5	Education status history (illiterate/literate)	Yes	29(80.6%)	498(93.3%)	0.299(0.123,0.731)	0.014*
		No	7(19.4%)	36/(6.7%)	1	
6	Cardiac illness	Yes	1(2.8%)	6(1.1%)	2.514(0.294,21.466)	0.928
		No	35(97.2%)	528(98.9%)	1	
7	Menstruation age(13-15/16-18) years	Yes	11(30.6%)	97(18.2%)	1.982(0.943,4.165)	0.109
		No	25(69.4%)	437(81.8%)	1	
8	Gravidity(one/2-5)	Yes	10(27.8%)	129(24.2%)	1.208(0.567,2.571)	0.772
		No	26(72.2%)	405(75.8%)	1	
9	Abortion history	Yes	11(30.6%)	167(31.3%)	0.967(0.465,2.011)	1.000
		No	25(69.4%)	367(68.7%)	1	
10	Multiple pregnancy(singleton/Twins)	Yes	1(2.8%)	19(3.6%)	0.774(0.101,5.955)	1.000
		No	35(97.2%)	515(96.4%)	1	
11	ANC attended	No	35(97.2%)	485(90.8%)	3.536(0.474,26.374)	0.313
		Yes	1(2.8%)	49(9.2%)	1	
12	Family planning	Yes	30(83.3%)	365(68.4%)	2.315(0.946,5.667)	0.089
		No	6(16.7%)	169(31.6%)	1	
13	Alcohol intake	Yes	2(5.6%)	63(11.8%)	0.440(0.103,1.875)	0.385
		No	34(94.4%)	471(88.2)	1	

* P value at < 0.2 N= number of response

Table 30: Bivariate and Multivariable binary logistic regression analysis risk factors for women attending Antenatal care in selected public hospitals. Addis Ababa, Ethiopia 2017.

	Factors	Yes/ No	Preeclampsia N (%)	None preeclampsia N (%)	COR at 95%CL	AOR at 95%CL
1	Previous hypertension (PIHPN) history	Yes	24(66.7)	60(11.2 %)	15.8(7.514,33.221)*	14.314(6.542, 31.314)**
		No	12(33.3%)	474(88.8%)	1	
2	Family hypertension history	Yes	11(30.6%)	81(15.2%)	2.461(1.165,5.196)*	-
		No	25(69.4%)	453(84.8%)	1	
3	Kidney /UTI illness history	Yes	6(16.7%)	38(7.1%)	2.611(1.023,6.650)*	-
		No	30(83.3%)	496(97%)	1	
4	Age at pregnancy (<30 years / 30 years & above)	Yes	20(55.6%)	196(36.7%)	2.156(1.091,4.257)*	-
		No	16(44.4%)	338(63.3%)	1	
5	Education status history (illiterate/ literate)	Yes	29(80.6%)	498(93.3%)	0.299(0.123,0.731)*	-
		No	7(19.4%)	36/(6.7%)	1	

1. *selected at p value <0.2 from COR

2. ** Significant level at p value < 0.05

Discussion

Preeclampsia is a disorder of pregnancy which is characterized by the occurrence of hypertension and significant proteinuria in a previously healthy woman on or after the 20th week of gestation(1), this is a major contributor to maternal and fetal mortality and morbidity in the world and the problem is more in developing countries (22). This study examined the prevalence and factor associated to preeclampsia in pregnant women attending antenatal care clinic in selected public hospitals Addis Ababa. The finding of the study showed that 36(6.3%) of pregnant women had preeclampsia in the current pregnancy. this study was similar to 4.2 % and 8.4% that had been reported from Addis Ababa and Dessie referral hospital respectively(5,12).It is larger than the study done in Nigeria 1.2 % (13) .However it was smaller than 18.2% had been reported by from the study done in Arbaminch(10). The factor that may be responsible for the different prevalence of preeclampsia in our study could be due to difference health seeking behavioral and having better health service access.

This study identified that there is a significant association between women who had history preeclampsia in previous pregnancy with the occurrence of preeclampsia to the current pregnancy. This finding in line with many studies' (12,14–16,19,20) and (23) Which showed that woman who had preeclampsia history in previous pregnancy was more likely to develop preeclampsia in the future as compared to woman who had not have history of preeclampsia in previous pregnancy. This might have occurred due to the fact that genetic factors that contributes to the physiology predisposition of preeclampsia

Limitation

This study was conducted in referral hospitals and the women seen in those hospitals may not be representative to the whole population.

Conclusion

This study identified the prevalence of preeclampsia is slightly higher than other study done in Addis Ababa public hospitals and development of preeclampsia was associated with previous preeclampsia history of the woman was predictor factor for preeclampsia

Recommendation

- Every Antenatal care service providing health workers should take detailed previous history of hypertension and preeclampsia during antenatal visit of the pregnant women in order get a chance to be diagnosed of preeclampsia as early as possible for monitor and manage them appropriately to prevent maternal and neonatal mortality.
- Researchers should focus on conduct further research to identify the cause of preeclampsia prevalent increments.

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LIST OF ANNEXES

Annex 1: AWD Information and consent form

Title: Suspected Acute Watery Diarrhea Outbreak Investigation- in Addis ketema subcity Addis Ababa, Ethiopia, June 2016

Introduction: Hello, my name is..... I am a member of AWD outbreak Investigation team. Thank you for taking the time to speak with us today. We are investigating AWD outbreak occurred in Addis ketema subcity Addis Ababa, Ethiopia. We are very interested in your experiences and your point of view.

Purpose: To identify associated factors of AWD outbreak in Addis ketema subcity Addis Ababa, Ethiopia.

Procedure: If you agree to take part, this interview will take about 30 minutes of your time. There are two parts. First, we will ask you about demographic information of you and your family, your history of acute watery diarrhea, water, sanitation and hygiene information and your feeding practice.

Benefits: This study will help you and other people living in Addis ketema. We will use these results to prevent and control AWD outbreak in the city.

Risks: There is no risk to you from answering the questions

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 investigation 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 study. The approximate time that this study will take is 30 minutes.

Participant Agreement: The study has been explained for me and my house hold members. 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.

Participant Signature_____

Date_____

Name of persons obtaining consent_____

Signature of persons obtaining consent_____

Annex 2: AWD Outbreak questioners

Part A: General information

1. Serial No/code-----
2. Case ☐ Control ☐
3. Age (in years):-----
4. Sex : Male ☐ Female ☐
5. Main current occupation_____
6. Residential Address-----
7. Sub-city-----
8. Telephone Number-----

Clinical Information (for cases)

1. Date of onset (dd/mm/yyyy) -----
2. Presenting symptoms
Watery Diarrhoea ☐ Vomiting ☐ Dehydration ☐ Others (specify) _____
3. Hospitalized? Yes ☐ No ☐
4. Date of hospitalization (dd/mm/yyyy)-----

Part B: Exposures

Water

1. What is your regular source of water for domestic use in the last 5 days?
Household Tap water ☐ Communal tap water ☐ River ☐ Well ☐
Borehole ☐ Spring ☐ Street vended water ☐
Tanker water (Roto) ☐ Bottled water others (specify) _____
2. What is your regular source of drinking water within the last five days?
Household Tap water ☐ Communal tap water ☐ River ☐ Well ☐
Borehole ☐ Spring ☐ Street vended water ☐
Tanker water (Roto) ☐ Bottled water others (specify) _____
3. Did you treat the water before drinking? Yes ☐ No ☐
4. If yes, how did you treat it? Filter ☐ Boiling ☐ Aqua tab ☐
waterguard ☐ Bishangare ☐ Pure ☐
Other(specify) _____
5. Did you drink water from a holy water site in the last five days? Yes ☐ No ☐

6. If yes, what is the source of the holy water? Spring ☐ Piped water ☐ Well ☐
others (specify)_____

Food and Beverages

7. Did you eat any of the following food items in the last 5 days?

Vegetable salad ☐ Fruits ☐ any type of raw meat ☐

Partially roasted meat ☐

Fish ☐ unboiled fresh milk ☐ others (specify)-----

8. Where did you get (or buy) food for your household?

Local market ☐ Private garden/farm ☐ Street shops ☐ Supermarkets ☐

Others (specify)_____

9. Did you eat food outside your home in the last 5 days? Yes ☐ No ☐

10. If yes, where? Sold by street vendors ☐ Hotel ☐ Restaurant ☐

At a gathering ☐ School/work cafeteria ☐

Others (specify)_____

11. Did you eat any cold left-over food in the last 5 days? Yes ☐ No ☐

12. If Yes, where is the source of the food? Home ☐ Hotel ☐ Resta ☐ University ☐

Others (specify)_____

13. Did you drink any of the following locally-made beverages in the last 5 days?

Shameta ☐ Borde ☐ Besso ☐ Others (specify)_____

Hygiene and sanitation

14. Do you regularly wash your hands with soap before eating? Yes ☐ No ☐

15. Do you have a latrine? Yes ☐ No ☐

16. If yes, is the latrine communal or private? Communal ☐ Private ☐

17. If No to Q.15, where do you discharge human waste (faeces)?

Open defecation ☐ In the river ☐ bury in the soil ☐

Others (specify) _____

18. Do you regularly wash your hands with soap after defecation? Yes ☐ No ☐

19. Where do you dispose of your refuse? Open dumping ☐

Open pit ☐ In the river ☐ Bury ☐ Burn ☐

Others (specify)_____

Other exposures

20. In the last one week, did anyone in your household have diarrhea or vomiting?

Yes ☐ No ☐

21. Did you visit anyone having diarrhea or vomiting Yes ☐ No ☐

22. Did you attend a funeral within the last five days? Yes ☐ No ☐

23. Did you travel to a place affected with diarrhea and vomiting illness?

Yes ☐ No ☐

24. If Yes, where? _____ (Name of Kebele/Ketena, Woredas,)

Annex 2: Surveillance data collection tool

Trends of bacillary dysentery in Addis ketema sub city, Addis Ababa city administration from 2011/12-2014/15

Years	Population at risk	No of cases	Incidence rate	Remark
2011/12				
2012/13				
2013/14				
2014/15				

Number of bacillary dysentery cases by month, in Addis ketema sub city, Addis Ababa city administration from 2011/12-2014/15

Months	Years			
	2011/12	2012/13	2013/14	2014/15
July				
August				
Sep.				
Oct.				
Nov				
Dec				
January				
Feb				
March				
April				
May				
June				
Total				

Distribution of relapsing fever cases by woreda, in Addis ketema sub city, Addis Ababa city administration from 2011/12-2014/15

Sr.no	Name of woreda	years				Remark
		2011/12	2012/13	2013/14	2014/15	
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
total						

Incidence of bacillary dysentery by woreda, in Addis ketema sub city, Addis Ababa city administration
from 2011/12-2014/15

Sr.no	Name of woreda	Population at risk				Number of new cases				Incidence rate				remark
		2011/ 12	201 2/13	201 3/14	201 4/15	2011/ 12	2012/ 13	201 3/14	2014/ 15	201 1/12	201 2/13	20 13/ 14	201 4/15	
1														
2														
3														
4														
5														
6														
7														
8														
9														
10														
total														

Distribution of bacillary dysentery cases by age & sex, in Addis ketema sub city, Addis Ababa city administration from 2011/12-2014/15

Year	Age(years)						
	≤4		5-14		≥15		Total
	male	female	male	female	Male	female	
2011/12							
2012/13							
2013/14							
2014/15							
Total							

Annex 3: Surveillance evaluation Tools

Questionnaire for Attributes and level of Usefulness:

Total population under surveillance -----male-----female-----Under5-----

Level of Usefulness of the Surveillance System for country priority diseases

Is the surveillance system help?

1. To detect outbreaks of priority diseases early on time to permit accurate diagnosis? ☐ Yes ☐ no

2. To estimate the magnitude of morbidity and mortality related to the diseases, including identification of factors associated with these diseases? ☐ Yes ☐ No

3. Permit assessment of the effect of prevention and control programs? ☐ Yes ☐ No

4. To estimate research intended to lead to prevention and control? ☐ Yes ☐ No

Describe Each System Attributes:

i. Simplicity:

1. Is the case definition of the priority diseases easy for case detection by all level health professionals? ☐ Yes ☐ No

2. the surveillance system allow all levels of professionals to fill data ☐ Yes ☐ No

3. Does the surveillance system help to record and report data on time? ☐ Yes ☐ No

4. Does the surveillance system have necessary information for investigation? ☐ Yes ☐ No

5. Does the surveillance system allow updating data on the cases? ☐ Yes ☐ No

6. How long it takes to fill the format? ☐ <5 minute ☐ 5 to 10 minute ☐ 10 to 15 minutes ☐ >15 minutes

7. How long does it take to have laboratory confirmation? -----

ii. Flexibility

1. Can the current reporting formats be used for other newly occurring health event (disease) without much difficulty? ☐ Yes ☐ No

2. Did you think that any change in the existing procedure of case detection and reporting formats will be difficult to implement? ☐ Yes ☐ No , Add your explanation-----

3. Is the system easy to add new variables? ☐ Yes ☐ No

4. Is the surveillance system easy to integrate with other systems? ☐ Yes ☐ No

5. Is the surveillance system easy to add new disease on report? ☐ Yes ☐ No

6. Is the system easy to add new information technology? ☐ Yes ☐ No

iii. Data quality (Completeness of the reporting forms/and validity of the recorded data)

1. Are all reported forms Complete? ☐ Yes ☐ No

2. If answer for Q1 is No, how many unfilled spaces are in your 2008 EFY report? -----

3. Percentage of unknown or blank responses to variables from the total reports of 2008 EFY report-----

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

5. Is the recorded data clear to read and understand? ☐ Yes ☐ No

6. If answer for Q5 is No, how many records are not clear/are difficult to understand in 2008 EFY report? -----

7. Percent of records which are difficult to read/ understand. -----

iv. Acceptability

1. Do you think all the reporting agents accept and well engaged to the surveillance activities?

☐ Yes ☐ No

2. If yes, how many are active participants (of the expected)? -----

3. If No, what is the reason for their poor participation in the surveillance activity?

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

B) No feedback / or recognition given by the higher bodies for their contribution; i.e. no dissemination of the analysis data back to reporting facilities

C) Reporting formats are difficult to understand

D) Report formats are time consuming

E) Other: -----

4. Were all participants using the standard case definition to identify cases? ☐ Yes ☐ No

5. Were all the reporting agents send their report using the current and appropriate surveillance reporting format? ☐ Yes ☐ No

6. Were all the health professionals aware about the surveillance system? ☐ Yes ☐ No

7. Was all PHEM officers send report on time? ☐ Yes ☐ No

v. Representativeness

1. was the surveillance system enabled to follow the health and health related events in the whole community? ☐ Yes ☐ No

2. If answer for Q1 is no, who do you think is well benefited by the surveillance system? ☐
The urban ☐ the rural ☐ both

3. Are all the Socio demographic variables included in the surveillance reporting format? ☐
Yes ☐ No

4. If the answer for Q3 is No, which a) Sex----- b) age group-----
C) ethnic group----- d) religion----- is less represented?

vi. Timeliness

1. Are all woredas/health facilities reporting on time? ☐ Yes ☐ No

2. Percent of woredas that report on time. -----

3. Are all Hospitals reporting on time? ☐ Yes ☐ No

4. Percent of hospitals that report on time. -----

Fill the table below

A). Weekly Sub_ city reports received on time for 2008 EFY report by WHO epidemic week (January 2017 — March, 2016) (to be field at Sub_ city health department)

B). Weekly woredas reports received on time for 2008 EFY report by WHO epidemic week (January 2017 — March, 2016) (to be field at woreda health department)

vii. Completeness

1. Are all woredas reporting (including late report)? ☐ Yes ☐ No

2. Percent of woredas that send report of each week in 2008 EFY. -----

3. Are all hospitals reporting? ☐ Yes ☐ No

4. Percent of hospitals that send report of each week in 2008 EFY. -----

Fill the table below

A). Total weekly reports received from woredas/Hospitals (including late reports, from July 2015—June, 2016)(for Sub_ city health desk

B). Total weekly reports received from Health centers/health posts (including late reports. from July 2015— June, 2016) (for woreda health office)

viii. Stability

1. Was any new restructuring affected the procedures and activities of the surveillance of these diseases? ☐ Yes ☐ No

2. Was there lack of resources that interrupt the surveillance system? ☐ Yes ☐ No
3. Was there any time /condition in which the surveillance is not fully operatin ☐ Yes ☐ No
4. If the answer for Q3 is yes When/what is the condition that talks the system not to function properly?-----

Questionnaires for Sub city PHEM

A. Communication and reporting system assessment

1. Which communication material did you have? ☐ E-mail ☐ wired phone ☐ mobile ☐ radio ☐ fax ☐ other-----
2. Did you have address of regional PHEM officers? ☐ Yes ☐ No
3. How frequently are you communicating with the regional PHEM officers on emergencies and other daily activities? ☐ Daily ☐ weekly ☐ every 2 week ☐ monthly ☐ quarterly ☐ every 6 month ☐ yearly ☐ others-----
4. Did you have address of woreda/health facility PHEM officers? ☐ Yes ☐ No
5. How frequently are you communicating with the woreda/health facility PHEM officers on emergencies and other daily activities? ☐ Daily ☐ weekly ☐ every 2 week ☐ monthly ☐ quarterly ☐ every 6 month ☐ yearly ☐ others-----
6. When are you expected to send weekly report to the Regional PHEM unit? ☐ Monday ☐ Tuesday ☐ Wednesday ☐ Thursday ☐ Friday ☐ Saturday ☐ Sunday
7. When are you expected to receive weekly report from woredas /health facilities? ☐ Monday ☐ Tuesday ☐ Wednesday ☐ Thursday ☐ Friday ☐ Saturday ☐ Sunday
8. How is the Zone communicating the woreda/health facility PHEM officers in case of immediately reportable diseases? ☐ by e-mail ☐ by phone ☐ by fax ☐ regular weekly report ☐ others-----
9. Did you send summary or short report to the administrative /program leaders or other responsible organs on planning, prevention and control activities addressing important issues at community level that have arisen through the surveillance system?☐ Yes ☐ No
10. If answer for Q9 is yes to whom did you send? -----

11. If you faced any problems on communicating and reporting, list them-----

12. Mention the alternative solutions that you take to tackle the problems you above? -----

B. Assessment of availability of Surveillance Documentation, Registers, and Forms

1. Did you have National Guide line for PHEM? ☐ Yes ☐ No ☐ Not Applicable

2. Did you have standard case definition for all country priority diseases? ☐ Yes ☐ No ☐ Not Applicable

3. Was the case definition posted? ☐ Yes ☐ No

4. If answer for Q2 is No, for which disease(s) did you lack the case definition?-----

5. Did you have case reporting formats for out breaks? ☐ Yes ☐ No ☐ Not Applicable

6. Was there national manual for surveillance? ☐ Yes ☐ No ☐ Not Applicable

7. Was there guide line for specimen collection, handling and transportation to the next level? ☐ Yes ☐ No ☐ Not Applicable

8. Did you have line list for reporting outbreaks? ☐ Yes ☐ No ☐ Not Applicable

9. Did you face shortage of surveillance reporting and recording formats? ☐ Yes ☐ No

10. If answer for Q9 is yes, which form? -----

C. Data analysis, Computer skill and training assessment

1. Had you trained on surveillance system? ☐ Yes ☐ No

2. If answer for Q1 is yes a) when-----? b) Topic-----?

c) For how long? -----

3. Did you give any onsite training / orientation about surveillance system for the woreda or health facility PHEM focal persons? ☐ Yes ☐ No

4. Was data compiled and registered? ☐ Yes ☐ No

5. Did you have computer on your office? ☐ Yes ☐ No

6. Did you have computer on your department (PHEM unit)? ☐ Yes ☐ No

7. What is the data entry and compilation instrument? ☐ Manual ☐ Computer ☐ other-----
8. Did you have computer skill on ☐ Ms word ☐ Ms excel ☐ MS power point ☐ Epi-info
9. Did you analyze data of the surveillance system? ☐ Yes ☐ No
10. If answer for Q9 is yes, did you describe data by ☐ time ☐ place ☐ person
11. Did you have denominators for data analysis? ☐ total population ☐ male ☐ female ☐ U5
12. Please indicate the frequency of your data analysis. ☐ Weekly ☐ every two week
☐ Monthly ☐ quarterly ☐ every 6 month ☐ annually ☐ No regular time
13. Did you notify the results of your analysis to the higher level PHEM? ☐ Yes ☐ No
14. Did you notify the results of your analysis to the lower level PHEM? ☐ Yes ☐ No
15. If answer for Q9 is No, what is the reason? ☐ lack of knowledge ☐ shortage of time do you to work load ☐ less attention given to data analysis ☐ shortage of materials ☐ analysis is not familiar activity in place ☐ negligence ☐ Other-----

D. Epidemic response and preparedness assessment

1. Did you have plan for epidemic response and preparedness? ☐ Yes ☐ No
2. Did you have emergency stocks of drugs and supplies? ☐ Yes ☐ No
3. If answer for Q2 is No, how did you control epidemics? -----

4. Had you experienced shortage of drugs, vaccines and supplies in 2008 EFY? ☐ Yes ☐ No
5. Was an epidemic management committee built in your office? ☐ Yes ☐ No ☐ Not Applicable
6. Did the epidemic management committee have regularly scheduled meeting time? ☐
Yes ☐ No
7. Was Rapid response team built in your office? ☐ Yes ☐ No ☐ Not Applicable
8. Did the Rapid response team have regularly scheduled meeting time during epidemics?
☐ Yes ☐ No
9. Did you have case management protocol for epidemic prone diseases? ☐ Yes
☐ No ☐ Not Applicable
10. Did your PHEM have multi sectoral emergency preparedness and response task force?
☐ Yes ☐ No ☐ Not Applicable
11. In what frequency did the task force meet during outbreaks? -----
12. Were partners working together with your office on emergencies? ☐ Yes ☐ No

13. If answer for Q12 is yes, what type of supports did they give to your office? -----

14. Was there a budget for epidemic response? ☐ Yes ☐ No

15. Who had the authority to mobilize the emergency finance? ☐ Sub_ cityl head ☐ Sub_ cityl health department ☐ experts ☐ other-----

16. Had you a car assigned for emergencies (PHEM)? ☐ Yes ☐ No ☐ Not functional

17. If answer for Q16 is NO, how did you address emergencies? -----

18. Had you faced any Challenges on epidemic response and preparedness in 2008 EFY?

☐ Yes ☐ No

19. If answer for Q18 is yes,

a) list the challenges-----

b) what measures did you take to tackle the challenges?-----

E. Outbreak investigation and case confirmation assessment

1. Had you investigated any outbreak in 2008 EFY? ☐ Yes ☐ No

2. Did you have outbreak investigation check list? ☐ Yes ☐ No

3. If answer for Q2 is No, how did you know possible factors for the outbreak? -----

4. Where was laboratory confirmation of cases done? ☐ regional laboratory ☐ Hospital ☐ EPHI ☐ health center ☐ contracted private laboratory ☐ other-----

5. Who was responsible to investigate an outbreak? ☐ rapid response team ☐ HEW ☐ staffs of woreda health office ☐ experts organized randomly ☐ health facility staffs ☐ other-----

6. If answer for Q1 is yes how many out breaks did you investigated in 2008 EFY?-----

Fill the table below

7. Had you faced any challenge in outbreak investigation in 2008 EFY? ☐ Yes ☐ No

8. If answer for Q7 is yes,

a) list the challenges-----

b) list the alternatives that you take to tackle the challenges.-----

F. Supervision and feedback assessment

1. Did you have supervision plan in 2008 EFY? ☐ Yes ☐ No

2. If answer for Q1 is No, how did you supervise? -----

3. If answer for Q1 is yes, did you supervise the woredas and health facilities? ☐ Yes ☐ No

4. If answer for Q3 is No, what is the reason? -----

5. If answer for Q3 is yes, how many times did you supervise each woreda and health facilities in 2008 EFY? Woreda----- Health facility-----

6. Had you reviewed about surveillance practice by higher level supervision ☐ Yes ☐ No

7. Did you have regular supervision checklist? ☐ Yes ☐ No

8. If answer for Q7 is No, how did you supervise the woredas and health facilities? -----

9. Were you supervised by higher level (regional) officers in 2008 EFY? ☐ Yes ☐ No

10. If answer for Q9 is yes, how many times in 2008 EFY? -----

11. Did you send feedback of your supervision to the woredas and health facilities commenting/indicating their strong and weak sides? ☐ Yes ☐ No

12. If answer for Q11 is No, why?-----

13. If answer for Q11 is yes, for how many woredas and health facilities did you send a feedback in 2008 EFY? Woreda----- health facilities-----

14. Had you received feedback from higher level supervisors in 2008 EFY? ☐ Yes ☐ No

15. If answer for Q14 is yes, how many feedbacks did you received in 2008 EFY? -----

16. Had you faced any challenge on supervision and feedback in 2008 EFY? ☐ Yes ☐ No

17. If answer for Q16 is yes,

a) list the challenges.-----

b) list the measures that you take to tackle the challenges.-----

Questionnaire for the woreda health offices

A. Communication and reporting system assessment

1. Which communication material did you have? ☐ E-mail ☐ wired phone ☐ mobile ☐
radio ☐ fax ☐ other-----

2. Did you have address of Sub_ city PHEM officers? ☐ Yes ☐ No

3. How frequently are you communicating with the Sub_ city PHEM officers on emergencies and other daily activities? ☐ Daily ☐ weekly ☐ every 2 week ☐ monthly ☐ quarterly ☐
every 6 month ☐ yearly ☐ others-----

4. Did you have address of HC/HP PHEM focal persons? ☐ Yes ☐ No

5. How frequently are you communicating with the HC/HP PHEM focal persons on emergencies and other daily activities? ☐ daily ☐ weekly ☐ every 2 week ☐ monthly ☐ quarterly ☐
every 6 month ☐ yearly ☐ others-----

6. When are you expected to send weekly report to the Sub_ city PHEM unit? ☐ Monday
☐ Tuesday ☐ Wednesday ☐ Thursday ☐ Friday ☐ Saturday ☐ Sunday

7. When are you expected to receive weekly report from HCs/HPs? ☐ Monday ☐ Tuesday ☐
Wednesday ☐ Thursday ☐ Friday ☐ Saturday ☐ Sunday

8. How is the woreda communicating the HCs/HPs PHEM officers in case of immediately reportable diseases? ☐ by e-mail ☐ by phone ☐ by fax ☐ regular weekly report ☐ others

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

10. If answer for Q9 is yes to whom did you send? -----

11. If you faced any problems on communicating and reporting, list them-----

12. Mention the alternative solutions that you take to tackle the problems you above? -----

B. Assessment of availability of Surveillance Documentation, Registers, and Forms

1. Did you have National Guide line for PHEM? ☐ Yes ☐ No ☐ Not Applicable
2. Did you have standard case definition for all country priority diseases? ☐ Yes ☐ No ☐ Not Applicable
3. Was the case definition posted? ☐ Yes ☐ No
4. If answer for Q2 is No, for which disease(s) did you lack the case definition? -----

5. Did you have case based reporting formats for out breaks? ☐ Yes ☐ No ☐ Not Applicable
6. Was there national manual for surveillance? ☐ Yes ☐ No ☐ Not Applicable
7. Was there guide line for specimen collection, handling and transportation to the next level? ☐ Yes ☐ No ☐ Not Applicable
8. Did you have line list for reporting outbreaks? ☐ Yes ☐ No ☐ Not Applicable
9. Did you face shortage of surveillance reporting and recording formats? ☐ Yes ☐ No
10. If answer for Q9 is yes, which form? -----

C. Data analysis, Computer skill and training assessment

1. Had you trained on surveillance system? ☐ Yes ☐ No
2. If answer for Q1 is yes a) when-----? b) Topic-----? c)
For how long? -----
3. Did you give any onsite training / orientation about surveillance system for the HC and HP PHEM focal persons? ☐ Yes ☐ No
4. Was data compiled? ☐ Yes ☐ No
5. Did you have computer on your office? ☐ Yes ☐ No
6. Did you have computer on your department (PHEM unit)? ☐ Yes ☐ No
7. What is the data entry and compilation instrument? ☐ Manual ☐ Computer
☐ other-----
8. Did you have computer skill on ☐ Ms word ☐ Ms excel ☐ MS power point ☐ Epi-info
9. Did you analyze data of the surveillance system? ☐ Yes ☐ No
10. If answer for Q9 is yes, did you describe data by, ☐ time ☐ place ☐ person
11. Did you have denominators for data analysis? ☐ total population ☐ male ☐ female
☐ under five

12. Please indicate the frequency of your data analysis. ☐ weekly ☐ every two week ☐ Monthly ☐ quarterly ☐ every 6 month ☐ annually ☐ No regular time

13. Did you notify the results of your analysis to the higher level PHEM? ☐ Yes ☐ No

14. Did you notify the results of your analysis to the lower level PHEM? ☐ Yes ☐ No

15. If answer for Q9 is No, what is the reason? ☐ lack of knowledge ☐ shortage of time do you to work load ☐ less attention given to data analysis ☐ shortage of materials ☐ analysis is not familiar activity in place ☐ negligence ☐ Other-----

D. Epidemic response and preparedness assessment

1. Did you have plan for epidemic response and preparedness? ☐ Yes ☐ No

2. Did you have emergency stocks of drugs and supplies? ☐ Yes ☐ No

3. If answer for Q2 is No, how did you control epidemics? -----

4. Had you experienced shortage of drugs, vaccines and supplies in 2008 EFY? ☐ Yes ☐ No

5. Was an epidemic management committee built in your office? ☐ Yes ☐ No ☐

Not Applicable

6. Did the epidemic management committee have regularly scheduled meeting time? ☐

Yes ☐ No

7. Was Rapid response team built in your office? ☐ Yes ☐ No ☐ Not Applicable

8. Did the Rapid response team have regularly scheduled meeting time during epidemics? ☐

Yes ☐ No

9. Did you have case management protocol for epidemic prone diseases? ☐ Yes ☐ No ☐

Not Applicable

10. Did your PHEM have multi- sect oral emergency preparedness and response task force?

☐ Yes ☐ No ☐ Not Applicable

11. In what frequency did the task force meet during outbreaks? -----

12. Were partners working together with your office on emergencies? ☐ Yes ☐ No

13. If answer for Q12 is yes, what type of supports did they give to your office? -----

14. Was there a budget for epidemic response? ☐ Yes ☐ No

15. Who had the authority to mobilize the emergency finance? ☐woreda head ☐ woreda health department ☐ experts ☐ other-----

16. Had you a car assigned for emergencies (PHEM)? ☐ Yes ☐ No ☐ Not functional

17. If answer for Q16 is NO, how did you address emergencies? -----

18. Had you faced any Challenges on epidemic response and preparedness in 2008 EFY? ☐

Yes ☐ No

19. If answer for Q18 is yes,

a) list the challenges-----

b) what measures did you take to tackle the challenges?-----

E. Outbreak investigation and case confirmation assessment

1. Had you investigated any outbreak in 2008 EFY? ☐ Yes ☐ No

2. Did you have outbreak investigation check list? ☐ Yes ☐ No

3. If answer for Q2 is No, how did you know possible factors for the outbreak? -----

4. Where was laboratory confirmation of cases done? ☐ Regional laboratory ☐ Hospital ☐ EPHI
☐ health center ☐ contracted private laboratory ☐ other-----

5. Who was responsible to investigate an outbreak? ☐ rapid response team ☐ HEWs ☐
staffs of woreda health office ☐ experts organized randomly ☐ health facility staffs
☐ other-----

6. If answer for Q1 is yes how many out breaks did you investigated in 2008 EFY?-----

-Fill the table below

7. Had you faced any challenge in outbreak investigation in 2008 EFY? ☐ Yes ☐ No

8. If answer for Q7 is yes, a) list the challenges-----

b) list the alternatives that you take to tackle the challenges.-----

F. Supervision and feedback assessment

1. Did you have supervision plan in 2008 EFY? ☐ Yes ☐ No

2. If answer for Q1 is No, how did you supervise? -----

3. If answer for Q1 is yes, did you supervise the health centers (HCS) and health posts (HPs) according to your plan in 2008 EFY? ☐ Yes ☐ No

4. If answer for Q3 is No, what is the reason? -----

5. If answer for Q3 is yes, how many times did you supervise each health center (HC) and health post (HP) in 2008 EFY? Health center----- health post-----

6. Had you reviewed about surveillance practice by higher level supervision? ☐ Yes ☐ No

7. Did you have regular supervision checklist? ☐ Yes ☐ No

8. If answer for Q7 is No, how did you supervise the woredas and health facilities? -----

9. Were you supervised by higher level officers in 2008 EFY? ☐ Yes ☐ No

10. If answer for Q9 is yes how many times in 2008 EFY? -----

11. Did you send feedback of your supervision to the health centers (HCS) and health posts (HPs) commenting/indicating their strong and weak sides? ☐ Yes ☐ No

12. If answer for Q11 is No, why?-----

13. If answer for Q11 is yes, for how many HCs and HPs did you send a feedback in 2008 EFY? HC----- and health post-----

14. Had you received feedback from higher level supervisors in 2008 EFY? ☐ Yes ☐ No

15. If answer for Q14 is yes how many feedbacks did you received in 2008 EFY? -----

16. Had you faced any challenge on supervision and feedback in 2008 EFY? ☐ Yes ☐ No

17. If answer for Q16 is yes

a) list the challenges.-----

b) list the measures that you take to tackle the challenges.-----

Questionnaires for Health facilities

A. Communication and reporting assessment

1. Which communication material did you have? ☐ E-mail ☐ wired phone ☐ mobile ☐ radio
☐ fax ☐ other-----
2. Did you have address of Sub_ city woreda PHEM officers? ☐ Yes ☐ No
3. How frequently are you communicating with the Sub_ city/woreda PHEM officers on emergencies and other daily activities? ☐ Daily ☐ weekly ☐ every 2 week ☐ monthly ☐ quarterly ☐ every 6 month ☐ yearly ☐ others-----
4. When are you expected to send weekly report to the Sub_ city/woreda PHEM unit? ☐ Monday ☐ Tuesday ☐ Wednesday ☐ Thursday ☐ Friday ☐ Saturday ☐ Sunday
5. How is your facility communicating the Sub_ city/woreda PHEM officers in case of immediately reportable diseases? ☐ by e-mail ☐ by phone ☐ by fax ☐ regular weekly report ☐ others-----
6. Did you send summary or short report to the administrative /program leaders or other responsible organs on planning, prevention and control activities addressing Important issues at community level that have arisen through the surveillance system? ☐ Yes ☐ No
7. If answer for Q6 is yes, to whom did you send? -----

8. If you faced any problems on communicating and reporting, list them-----

9. Mention the alternative solutions that you take to tackle the problems you above? -----

B. Assessment of availability of Surveillance Documentation, Registers, and Forms

1. Did you have National Guide line for PHEM? ☐ Yes ☐ No ☐ Not Applicable
2. Did you have standard case definition for all country priority diseases? ☐ Yes ☐ No ☐ Not Applicable
3. Was the case definition posted? ☐ Yes ☐ No
4. If answer for Q2 is No, for which disease(s) did you lack the case definition?-----
5. Did you have case reporting formats for out breaks? ☐ Yes ☐ No ☐ Not Applicable
6. Was there national manual for surveillance? ☐ Yes ☐ No ☐ Not Applicable

7. Was there guide line for specimen collection, handling and transportation to the next level? ☐ Yes ☐ No ☐ Not Applicable

8. Did you have line list for reporting outbreaks? ☐ Yes ☐ No ☐ Not Applicable

9. Was there a clinical register/logbook in your health facility? ☐ Yes ☐ No ☐ Not Applicable

10. Did you face shortage of surveillance reporting and recording formats? ☐ Yes ☐ No 11. If answer for Q10 is yes, which form? -----

C. Data analysis, Computer skill and training assessment

1. Had you trained on surveillance system? ☐ Yes ☐ No

2. If answer for Q1 is yes a) when-----? b) Topic-----? c) For how long? -----

3. Was data compiled? ☐ Yes ☐ No

4. Did you have computer on your office? ☐ Yes ☐ No

5. Did you have computer on your department (PHEM unit)? ☐ Yes ☐ No

6. What is the data entry and compilation instrument? ☐ Manual ☐ Computer ☐ other-----

7. Did you have computer skill on ☐ Ms Word ☐ Ms excel ☐ MS power point ☐ Epi-info

8. Did you analyze data of the surveillance system? ☐ Yes ☐ No

9. If answer for Q8 is yes, did you describe data by ☐ time ☐ place ☐ person

10. Did you have denominators for data analysis? ☐ Total population ☐ male ☐ female ☐ U5 11. Please indicate the frequency of your data analysis. ☐ Weekly ☐ every two week ☐ Monthly ☐ quarterly ☐ every 6 month ☐ annually ☐ No regular time

12. Did you notify the results of your analysis to the higher level PHEM? ☐ Yes ☐ No

13. If answer for Q8 is No, what is the reason? ☐ lack of knowledge ☐ shortage of time do you to work load ☐ less attention given to data analysis ☐ shortage of materials ☐ analysis is not familiar activity in place ☐ negligence ☐ Other-----

D. Epidemic response and preparedness assessment

1. Did you have plan for epidemic response and preparedness? ☐ Yes ☐ No

2. Did you have emergency stocks of drugs and supplies? ☐ Yes ☐ No

3. If answer for Q2 is No, how did you control epidemics? -----

4. Had you experienced shortage of drugs, vaccines and supplies in 2008 EFY ☐ Yes ☐ No
5. Was an epidemic management committee built in your facility? ☐ Yes ☐ No ☐ Not Applicable
6. Did the epidemic management committee have regularly scheduled meeting time? ☐ Yes ☐ No
7. Was Rapid response team built in your office? ☐ Yes ☐ No ☐ Not Applicable
8. Did the Rapid response team have regularly scheduled meeting time during epidemics? ☐ Yes ☐ No
9. Did you have case management protocol for epidemic prone diseases? ☐ Yes ☐ No ☐ Not Applicable
10. Did your PHEM have multi sectoral emergency preparedness and response task force? ☐ Yes ☐ No ☐ Not Applicable
11. In what frequency did the task force meet during outbreaks? -----

12. Were partners working together with your office on emergencies? ☐ Yes ☐ No
13. If answer for Q12 is yes, what type of supports did they give to your office? -----
14. Was there a budget for epidemic response? ☐ Yes ☐ No
15. Who had the authority to mobilize the emergency finance? ☐ Sub_ city/woreda head ☐ Sub_ city/woreda health department ☐ experts ☐ other-----

16. Had you faced any Challenges on epidemic response and preparedness in 2008 EFY? ☐ Yes ☐ No
17. If answer for Q16 is yes,
- a) list the challenges-----
- b) what measures did you take to tackle the challenges?-----

E. Outbreak investigation and case confirmation assessment

1. Had you investigated any outbreak in 2008 EFY? ☐ Yes ☐ No
2. Did you have outbreak investigation check list? ☐ Yes ☐ No
3. If answer for Q2 is No, how did you know possible factors for the outbreak? -----

4. Where was laboratory confirmation of cases done? ☐ Regional laboratory ☐ Hospital ☐ EPHI
☐ health center ☐ contracted private laboratory ☐ other-----

5. Who was responsible to investigate an outbreak? ☐ rapid response team ☐ HEW ☐ staffs of
woreda health office ☐ experts organized randomly ☐ health facility staffs ☐
other-----

6. If answer for Q1 is yes how many out breaks did you investigated in 2008 EFY?-----

Fill the table below

7. Had you faced any challenge in outbreak investigation in 2008 EFY? ☐ Yes ☐ No

8. If answer for Q7 is yes,

a) list the challenges-----

b) list the alternatives that you take to tackle the challenges.-----

F. Supervision and feedback assessment

1. Had you reviewed about surveillance practice by higher level supervision? ☐ Yes ☐ No

2. Were you supervised by higher level (regional) officers in 2008 EFY? ☐ Yes ☐ No

3. If answer for Q2 is yes, how many times in 2008 EFY? -----

4. Had you received feedback from higher level supervisors in 2008 EFY? ☐ Yes ☐ No

5. If answer for Q4 is yes, how many feedbacks did you received in 2008 EFY? -----

6. Had you faced any challenge on supervision and feedback in 2008 EFY? ☐ Yes ☐ No

7. If answer for Q6 is yes

a) list the challenges.-----

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

Annex 4: Health profile collection tools

1. Historical Aspects of the woreda.

Name of woreda _____

When the woreda was established _____ E.C

Any other historical aspect _____

2. Geography and Climate (including map, altitudes, ecological zones etc)

Woreda map _____

Location (AA city municipality) _____ Direction _____

Altitude _____ High _____

Surface Area _____

Woreda boundaries

3. Political and Administrative Organization

Total no. of kebeles: _____

4. Population and Population structures

❖ Demographic data

Total Population _____ Male _____ Female _____ sex ratio _____

Population under 1yrs _____

Population under five yrs _____

Population < 15 years _____

Population >64 years _____

Women 15_49 years of age _____

Total population by kebele (each Kebele pop) _____

Average household size _____

Annual population growth rate (%) _____

A. Religion

Orthodox _____ (_____ %), Muslim _____ (_____ %),

Protestant _____ (_____ %), Other _____ (_____ %)

5. Economy (source of income)

Main income sources

- Government employee % _____
- Private employee % _____

- Self business% _____
- Other business% _____

6. Education

Number of educational institution

- K.G. _____
- Primarily School _____
- Secondary School _____
- Preparatory _____
- College/ University _____
- TVET _____

Total School Age Children (target)

KG _____ male _____ female _____
 1-4 grade _____ male _____ female _____
 5-8 grade _____ male _____ female _____
 9-10 grade _____ male _____ female _____
 11-12 grade _____ male _____ female _____

Educational status of the resident

✓ Total Educated people _____

Male _____

Female _____

Number of teacher in the sub-city _____ m _____ f _____

7. Facilities

A. Transport

Road network with respect to health facility

Health center access to Road_(Yes/No) _____

B. Bank(any financial institute) _____

C. Power supply _____

D. Telecommunication

E. Water

Total safe water coverage ____ (____%)

Safe water supply coverage by Kebele _____

Latrine utilization .which type use

-open filed____

-Pit latrine____

- Improved latrine (water flash, ventilated, world class etc)____

8. Woreda Health system

The general health system structure of the woreda 4 structure

Is there health management team (HMT and performance monitoring team) at wereda level?
Yes/No

If yes, describe the HMT in detail (composition and function)_____

Do you have NGOs working on health and health related issues? Yes/No

List the NGOs and their work in relation to health

9. Vital Statistics and Health Indicators

Maternal Mortality Rate_____ (of 2005-2007E.C total maternal deaths_____)

Infant Mortality Rate (IMR) _____(total <1 yr deaths of 2005-2007E.C _____)

Child Mortality Rate_____ (2005-7E.C total <15 yr deaths_____)

Crude Birth Rate_____

Crude Death Rate_____ (total deaths of 2005-2007E.C _____)

ANC rate (how many of the total expected pregnancies attended 1st ANC visit) ____

ANC rate (how many of the total expected pregnancies attended 4th ANC visit) ____

Percentage of deliveries attended by skilled birth attendants_____

Percentage of deliveries attended by TBA_____

Is there free kebele (woreda) of delivery yes/no if no describe_____

Immunization Coverage (for children and Women);

- BCG _____ . (____ %),
- OPV0____ (____ %), OPV1____ (____ %), OPV2____(____%)
- Penta1____ (____ %), penta2 ____ (____ %) penta3____ (____ %)
- Measles____ (____ %).
- Rota 1 ____ (____ %) Rota 2_____(____ %)
- Full immunization coverage _____(%)
- PCV--1____ (____ %), PCV-2 ,PCV-3____ (____ %),
- TT2+peregenant women ____ (____ %),
- TT2+ Non pregnant women____ (____ %)
- TT coverage_____

10. Health Service

A. Type and Number of Health Institution

Type		Number	Total No. of beds
Government Hospital			
Government Health center			
Private Health facilities (clinics/diagnostic laboratories /drug stores)	Clinics (all type)		
	Diagnostic Laboratory		
	Drug store &pharmacy		
NGOs	Health centers		
	Hospitals		
	Clinics		
Facilities under constructions	Health centers		
	Hospital		

Health institution to population ratio: Hospital: Pop-----,HC: Pop-----

Health service coverage-----

B. Type and Number of health professionals and administrative staffs

Type	Male	Female	Total
Specialist			
General practitioner			
Health officers			
Nurses (Degree. and Diploma.)			
Mid wife (Degree. and Diploma.)			
Lab. (Degree. and Diploma.)			
Pharmacy (Degree. and Diploma.)			
Environmental. Health (Degree. and Diploma)			
HMIS			
HEPs			
Administrative staffs			
Other			
Total			

Doctor: pop. Ratio ____ Nurse: pop. Ratio ____ Health office r:pop.Ratio

Mid. Wife: pop. Ratio ____ HEPS: pop. ratio

C. Top Ten causes of morbidity and mortality

Top ten leading causes of OPD visit (morbidity):

Adult			Pediatrics/ < 5 years
1		1	
2		2	
3		3	
4		4	
5		5	
6		6	
7		7	
8		8	
9		9	
10		10	

D. Top ten causes of morbidity and mortality

Top ten leading causes of OPD visit (mortality):

Adult			Pediatrics/ < 5 years
1		1	
2		2	
3		3	
4		4	
5		5	
6		6	
7		7	
8		8	
9		9	
10		10	

Top ten causes of admissions

Adult			Pediatrics/ <5 year
1		1	
2		2	
3		3	
4		4	
5		5	
6		6	
7		7	
8		8	
9		9	
10		10	

Top ten causes of deaths (mortality).

The chance of death in this health center is very rare because referral to near hospital is accessible

D. Health budget allocation:

Government

- Annual budget allocated for the Wereda (birr) _____
- Annual budget allocated for health or health institutions _____(____%)
- Annual budget allocation for the three years_____

Funds from NGO

- Total _____ (purpose/programs)_____

11. Community Health Services;

Status of services provided by community health workers

▪ No. of Women development army and no.of 1to 5 net work_____ and their responsibility _____

▪ Responsibility of HEPs and no HEPs ratio to H.H _____

▪ Others_____

12. Status of Primary Health Care Components – with focus on the eight PHC elements and MDG.

A.MCH (Delivery, ANC/PMTC, PNC) : ANC 1,____,ANC 4____,Delivery by Skilled attendants _____,PNC_____

B.FP

Methods, (Short term, _____%Long term,_____%)

Contraceptive prevalence rate, (CPR)_____

Contraceptive acceptance rate (CAR)_____

C. EPI (outreach service, (Y/N _____)cold chain,(G/F/P)_____ vaccine availability,_____%)

D. Environmental l Health & sanitation.

▪ Latrine coverage_____ & utilization rate_____

▪ Solid waste management_____

▪ Liquid waste management _____

• Endemic diseases;

▪ TB/Leprosy

▪ Total TB cases_____

▪ PTB negative_____

▪ PTB positive_____

▪ Extra PTB _____

▪ TB detection rate _____

▪ TB Rx completion rate _____

▪ TB cure rate _____

▪ TB Rx success rate _____

▪ TB defaulter_____

▪ Death on TB Rx_____

▪ Total TB patients screened for HIV_____

- Total Leprosy case s _____ on Rx _____
- HIV/AIDS;
- Total people screened for HIV (Annually for the last three years)___
- HCT :2005,_____2006,_____2007_____
- VCT :2005,_____2006,_____2007_____
- PITC :2005,_____2006,_____2007_____
- ANC PMTCT: 2005,_____2006,_____2007_____
- HIV prevalence :2005,_____2006,_____2007_____
- HIV Incidence (new cases/yr): 2005,_____2006,_____2007_____
- Total PLWHA _____
- ON ART _____ on Pre-ART _____
- Other HIV prevention activities _____
- Nutrition (malnutrition related (SC,TSF,CBN and PSNP activities)/ & Early warning
- Total OTP sites_____, total admissions to OTP/yr _____
- Total SC sites,_____, Newly opened/yr_____, total admissions to SC/yr _____
- Is there TSF (targeted supplementary feeding) program in the woreda _____
- CBN program _____ PSNP _____ other _____
- General food security condition _____
- Essential _____ drugs _____ (shortage):-

▪ Type of service rendering free of charge(charge exempted)

- _____
- _____
- _____

13. Disaster situation in the woreda

Was there any disaster (natural or manmade) in the woreda in the last three years?

Any recent disease outbreak or other public health emergency occurred in previous years. Yes/no

If yes what type of _____ no. of cases _____ and deaths _____

14. Discussion of the highlights and the main findings of the health profile assessment and description

1. Problem Identification and Priority Setting – set priority health problems based on the public health importance in terms of magnitude, seriousness, community concern, feasibility

2. Conclusions made about the health status of the Woreda based on the findings

3. Action plan and recommendations- on how to address the problems identified clearly depicting responsibilities, required resource and timeline

Annex 5: preeclampsia thesis study Information sheets for study

Title: prevalence of preeclampsia and its associated factors among pregnant women attending antenatal care in public hospitals Addis Ababa, Ethiopia 2017

Introduction: Hello, my name is _____. I am a trained data collector and member of research team. Thank you for taking the time to speak with us today. We are assessing the prevalence of preeclampsia and associated factors among pregnant women attending antenatal care in public hospitals Addis Ababa. We are very interested in your experience and your point of view. Purpose: To determine the prevalence and identify associated factors of preeclampsia among pregnant women attending antenatal clinic in public hospitals Addis Ababa.

Procedure: if you are agree to take part, this interview will take about 30 minutes of your time.

There are five parts. First we will I ask you about socio-demographic information about you, your current and past medical history, your obstetric history and your family medical history

Benefit: I would like to inform you that the response that you provide to the questions are very essential, not only, for the successful accomplishment of the study, but also for producing relevant information which will be helpful in the planning and implementation of intervention activities to prevent preeclampsia /eclampsia and improve maternal and neonatal survival.

Risk: there is no risk to you from answering the question

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

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

Participant agreement: The project has been explained for me. I have been given 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 at any time during the interview.

Participant signature_____

Date_____

Name of the persons obtaining consent _____

Signature of persons obtaining consent _____

Annex: preeclampsia thesis study questioner

S.N	Questioner		Skip
Demographic and Socioeconomic factors			
101	How old were you at your last birthday?	_____ in years	
102	What is your occupation?	1. House wife 2. Merchant 3. Government employee 4. Private employee 5. Students 6. Others (specify)_____	
103	Please tell me what your marital status is?	1. Never married 2. Married or living together 3. Divorced 4. Separated 5. Widowed	
104	Have you ever attended school?	1. Yes 2. No	108
105	What is the highest level of school you attended?	1. Primary 2. Secondary 3. Technical/vocational/TVET 4. university/college	
106	Tell me your monthly house hold income?	_____ Ethiopian Birr	
Medical illness factors			
201	Had any body from your family had or have hypertension? (check all that apply for first degree relatives only)	1. Yes 2. No	
202	. If yes, who?	1. Father 2. Mother 3. Sister 4. Brother	
203	Had anybody from your family had or have Diabetes mellitus? (check all that apply for first degree relatives only)	1. Yes 2. No	205
204	. If yes, who?	1. Father 2. Mother 3. Sister 4. Brother	
205	. Have you been told by a physician that	1. Yes	

	you had or have Diabetes mellitus?	2. No	
206	206. Have you been told by a physician that you had or have cardiac disease?	1. Yes 2. No	
207	207. Have you been told by a physician that you had or have Renal disease?	1. Yes 2. No	
Personal reproductive related factors			
301	. What was your age in your 1 st menarche? .	Year____ month ____	
302	. Have you been pregnant before this pregnancy? (Include all pregnancies that ended in life births, spontaneous or induced abortions, ectopic pregnancy and stillbirth as well)	1. Yes 2. No	
302	How many have you been pregnant?	_____Times	
303	How many have you been pregnant?	_____Times	
304	What was the time interval between previous and this pregnancy?	1____year____ month	
305	. Had the midwife or doctor told you that you had high blood pressure during that pregnancy?	1. Yes 2. No	
306	Had the midwife or doctor told you that you had Gestational diabetes?	1. Yes 2. No	
307	Have you ever had history of abortion?	1. Yes 2. No	
308	. How many abortions do you had	_____Times	
309	Now I would like to ask about all the births you have had during your life. How many times have you given birth?	_____Times	
310	When you got pregnant, did you want to get pregnant at that time?	1. Yes 2. No	
311	. What is the multiplicity of mother's pregnancy?(fill this after delivery if the multiplicity is unknown during pregnancy)	1. Single 2. Twins	
312	Have you attend ANC clinic for this pregnancy?	1. Yes 2. No	315

313	Number of ANC clinic visit	_____ times	
314	Were you using modern contraceptive before this pregnancy?	1. Yes 2. No	
315	What type?	1. Pill 2. Inject able 3. Implant 4. Condom 5. IUCD	
316	What is the blood pressure level of the pregnant mother in mg/dl? (Check from medical chart)	_____ mg/dl	
317	What is the height of the pregnant mother in meter? (Check from medical chart)	_____ Meter	
318	. What is the weight of the pregnant mother in mg/dl? (Check from medical chart)	_____ mg/dl	
319	What is the blood protein urea level of the mother in mg/dl? (check from medical chart)	_____ mg/dl	
310	Is the woman has preeclampsia	Yes No	
Pregnancy behavior factors			
401	Were you smoking during the pregnancy?	Yes . No	403
402	. if yes .How often?	1. Daily:_____cigarette per day 2. Sometimes:_____cigarette per week 3. I stopped smoking at_____ weeks of that pregnancy	
403	Were you drinking alcohol during the pregnancy (Read: Beer, Tala, Katikala, Wine, Tej or others)?	1. Yes 2. No	
404	If yes Which type?	1. Beer 2. Tala 3. Katikala 4. Wine	

		5. Tej 6. Others specify _____	
405	Is the pregnant women has preeclampsia in this pregnancy? (check from medical chart)	1. yes 2. No	

አማርኛ የተዘጋጀ ጥናታዊ መረጃ መሰብሰቢያ ቅጽ

መግቢያ ጤና ይስጥልኝ፡ ስሜ _____ እባላለሁ የመጣሁት አቶ ዘረሁን ዓለሙ የተባሉት ለ ሁለተኛ ድግሪ መመረቂያ የሚሆን ጥናታዊ ጽሁፍ በእርግዝና ግዜ የሚከሰት የደም ገፊት መንስኤዎች በተመለከተ መረጃ ለመሰብሰብ ነው። ይህ ለመሰራት ደግሞ በቅዱስ ጳውሎስ ሆስፒታል ሚሊኒየም ሜዲካል ኮሌጅና በአዲስ አበባ ጤና ቢሮ ክፍል ፍቃድ አግኝተዋል። መረጃ የሚሰበሰበው በአዲስ አበባ የመንግስት ሆስፒታሎች የነፍሰጡር ክትትል ለማድረግ የመጡ እናቶች ላይ ነው። እርስዎ በ አንድ የመንግስት ሆስፒታል ከሚያደርጉት የነፍሰጡር ክትትል ጋር ተያይዞ በእጣ በጥናቱ ላይ ተሳታፊ ሆነዋል። ይህ መረጃ ለመሰብሰብ በሆስፒታሉ ሃላፊ ያስፈቀድን ሲሆን እርስዎ የሚሰጡኝ መረጃ ሚስጢራዊነቱ የተጠበቀ እና ለ ጥናቱ ብቻ የሚውል ነው። ስለዚህ ፍቃደኛ ከሆኑ አንድ አንድ ከጤና ጋር የተያያዙ መረጃዎች ከ 15 ደቂቃ ያልበለጠ እጠይቅዎታለሁ። ጥናቱ ላይ ለመሳተፍ በፍቃደኝነት ስለሆነ ስጠይቅዎት በመሐል መጠይቅ፤ ጥያቄው መዝለል፤ ብሎም ማስቆም ይችላሉ። የእርስዎ ጥናቱ ላይ መሳተፍ አሁን ለግልዎ ጥቅም ባይነረውም የሚሰጡኝ መረጃ ግን በእርግዝና ግዜ ለሚከሰተው የደም ግፊት መንስኤዎች ለመዳሰስ ትልቅ ጥቅም አለው። እርስዎ በጥናቱ ላይ ስለተሳተፉ የሚደርስብዎት ችግር የለም። እስከ አሁን ከነገርኩዎት ወይም ጥናቱ ላይ በተመለከተ ሊብራራልዎት የሚፈልጉት አለ?

አሁን ጥናቱ ላይ ለመሳተፍ ፍቃደኛ ኖዎት? አዎ አደለሁም ጥናቱ ላይ ስለተሳተፍ አመሰግናለሁ

የስምምነት ቅጽ

ከቅዱስ ጳውሎስ ሚሊኒየም የህክምና ኮሌጅ በመጡ በእርግዝና ግዜ የሚከሰት የደም ግፊት መንስኤዎች ለመዳሰስ በሚደረገው ጥናት ለመሳተፍ ፍቃደኛ ነኝ። ስለ ማህበራዊ ኩነቶች፤እርግዝና እና ወሊድ ኩነቶች፤የግልባህረያት እና ከግል ጤና ችግር ጋር የተያያዙ ጥያቄዎች እንደምጠየቅ ተገንዝቤያለሁ። ጥናቱ በአዲስ አበባ በሚገኙ የቅዱስ ጳውሎስ ሆስፒታል ፡ ዘውዲቱ እና ጋንዲ ሆስፒታሎች የሚደረግ ሲሆን 15 ደቂቃ የሚሆን ግዜ እንደሚወስድብኝ ተነግሮኛል። በተጨማሪም ጥያቄ መዝለል ብሎም ማስቆም እንደሚችል የተነገረኝ ሁኖ መረጃው ለጥናቱ ብቻ የሚውል ከመሆኑ ጋር ተያይዞ በጥናቱ ላይ ለመሳተፍ በፍላጎቴ መሆኑን በፊርማዬ አረጋግጣለሁ።

የተጠያቂው ፊርማ _____ ቀን _____ የጠያቂው ፊርማ _____ ቀን _____

በቅዱስ ጳውሎስ ሆስፒታል ሚሊኒየም የህክምና ኮሌጅ በነፍሰጡር እናቶች ላይ ለሚከሰት የደም ግፊት መንስኤዎችን ለመዳሰስ ለሚደረግ ጥናት የሚያገለግል መጠይቅ።

ክፍል 1: ስነ ህዝብና ማህበረሰብ ኩነቶች ጋር የተያያዙ ጥያቄዎች			
ተ.ቁ	ጥያቄዎች	አማራጭ መልሶች	ሽግግር
101	ባለፈው ልደትዎ ሲያከብሩ ዕድሜዎ ስንት ነበር?	_____ አመት	
102	የስራ ድርሻዎ ምንድነው?	1. የቤት እመቤት 2. ነጋዴ 3. የመንግስት ሰራተኛ 4. የግል ተቀጣሪ 5. ተማሪ 6. ሌላ ከሆነ ይገለጽ _____	
103	የትዳርዎ ሁኔታ ምንድነው?	1. አላገባሁም 2. አግብቻለሁ/አብረን እንኖራለን 3. ተፋትተናል 4. ተለያይተን ነው የምንነረው 5. ባለቤቴ በሂወት የለም	
104	መደበኛ ትምህርት ተምረው ያውቃሉ?	1. አዎ 2. አልተማርኩም.....	108
105	የትምህርት ደረጃዎ ስንት ነው? (ያጠናቀቁት)	1. አንደኛ ደረጃ 2. ሁለተኛ ደረጃ 3. የሞያ ትምህርት/TVET 4. ከፍተኛ ትምህርት	
106	በአማካይ የቤተሰብዎ ገቢ በወር ስንት ይሆናል?	_____ ብር	
ክፍል ሁለት፤ የጤና ችግር ጋር የተያያዙ ጥያቄዎች			
201	በቤተሰብዎ ውስጥ የደም ግፊት በሽታ የነበረው ወይም ያለው አለ?	1. አዎ 2. የለም.....	203
202	ይህ በሽታ ያለው በማን በኩል ነው?	1. አባት 2. እናት 3. ወንድም 4. እህት	
203	በቤተሰብዎ ውስጥ የሰኳር ህመም የነበረው ወይም ያለው አለ?	1. አዎ 2. የለም.....	205
204	ይህ በሽታ ያለው በማን በኩል ነው?	1. አባት 2. እናት 3. ወንድም 4. እህት	

205	ከዚ በፊት የሰኪር ህመም እንዳልዎት በዶክተር ተነግሮዎት ያውቃል?	1. አዎ 2. አልተነገረኝም	
206	ከዚ በፊት የልብ በሽታ እንዳልዎት በዶክተር ተነግሮዎት ያውቃል?	1. አዎ 2. አልተነገረኝም	
207	ከዚ በፊት የኩላሊት ውይም የሽንት ቧንቧ ኢንፌክሽን በሽታ እንዳልዎት በዶክተር ተነግሮዎት ያውቃል?	1. አዎ 2. አልተነገረኝም	
ክፍል ሦስት፤ የዕርግዝና እና ወሊድን ሁኔታ የተመለከቱ ጥያቄዎች			
301	ለመጀመሪያ ጊዜ የወር አበባዎን ሲያዩ እድሜዎ ስንት ነበር	_____ አመት _____ ወር	
302	ከዚ በፊት አርግዘው ያውቃሉ?	1. አዎ 2. አላረገዝኩም.....	309
302	በህይወቶች ስንት ጊዜ አርግዘዋል?	_____ ጊዜ	
303	በዚህ እና ባለፈው እርግዝናዎ መካከል ያለው የጊዜ ልዩነት ምን ያህል ነበር?	_____ አመት _____ ወር	
304	በእርግዝና የሚከሰት የደም ግፊት እንደነበረዎት በዶክተር ወይም በአዋለጅ ነርስ ተነግሮዎት ነበር?	1. አዎ 2. አልተነገረኝም	
305	ከዚ በፊት በእርግዝና የሚከሰት የሰኪር ህመም እንዳልዎት ወይም እንደነበረዎት በዶክተር ተነግሮዎት ያውቃል?	1. አዎ 2. አልተነገረኝም	
306	የጽንሰ ማቋረጥ ገጥሞት ያውቃል?	1. አዎ 2. አያውቅም.....	308
307	የጽንሰ ማቋረጥ ምን ያህል ጊዜ ገጥሞት ያውቃል?	_____ ጊዜ	
308	ስንት ጊዜ ወልደዋል?	_____ ጊዜ	
309	በመጀመሪያ ጊዜ ስታረግዢ አድሜሽ ስንት ነበር ?	_____ አመት _____ ወር	
310	የእርግዝናው አይነት	1. አንድ 2. መንትየዎች	
311	የአሁኑ እርግዝና ጾታው ምንድነው?	1. ወንድ 2. ሴት	
312	ለዚህ እርግዝና የቅድመ ወሊድ ክትትል ነበረዎት?	1. አዎ 2. አልተከታተልኩም.....	315
313	ስንት ጊዜ ተከታትለዋል?	_____ ጊዜ	
314	ከዚ እርግዝና በፊት ዘመናዊ የቤተሰብ ምጣኔ ይጠቀሙ ነበር?	1. አዎ 2. አልተጠቀምኩም	
315	የተኛው ነበር የሚጠቀሙት?	1. ክኒን 2. በመርፌ የሚሰጥ	

		3. በክንድ የሚቀበር 4. ኮንደም 5. ሉፕ/በማህፀን የሚገባ	
316	የነፍሰጡሯ የደም ግፊት ስንት ነው (የነፍሰጡሯ ካርድ አይተው ይሙሉ)	_____mm/hg	
317	የነፍሰጡሯ ቁመት ስንት ነው (የነፍሰጡሯ ካርድ አይተው ይሙሉ)	_____meter	
318	የነፍሰጡሯ ክብደት ስንት ነው (የነፍሰጡሯ ካርድ አይተው ይሙሉ)	_____killogram	
319	የነፍሰጡሯ ፕሮቲን ዩሪያ መጠን ስንት ነው? (የነፍሰጡሯ ካርድ አይተው ይሙሉ)	_____	
320	ባለፈው እርገዝናዎ በእርገዝና ጊዜ የሚከሰት የደም ግፊት በሀኪሞች ተነግሮት ነበር (preeclampsia)	አዎ 2.አልተነገኝም	
ክፍል አራት፤ የግል ባህሪያት ጋር የተያያዙ ጥያቄዎች			
401	በእርገዝና ጊዜ ያጨሱ ነበር?	1. አዎ 2. አላጨሰም.....	403
402	መልሶ አዎ ከሆነምን ያህል ያጨሱ ነበር?	1. በየቀኑ፤ በቀን _____ ሲጋራ 2.አልፎ አልፎ፤ በሳምንት _____ ሲጋራ 3.እርገዝናው _____ሳምንት ሲሆነው ጊዜ አቁሜያለሁ	
403	በእርገዝና ጊዜ አልኮል (ቢራ፣ ጠላ፣ አረቄ/ካቲካላ፣ ጠጅ፣ ዋይን የመሳሰሉት) ይጠጡ ነበር?	1. አዎ 2. አልጠጣም.....	መጠይቁ ያበቃል
404	መልሶ አዎ ከሆነ፤ አይነቱ?	1. ቢራ 2. ጠላ 3. አረቄ/ካቲካላ 4. ጠጅ 5. ዋይን 6. ሌላ ካለ ይገለጽ_____	

እናመሰግናለን!

Annex 6: My Biography

My name is Zerihun Alemu Gebremichael. I was born on January 27, 1982 G.C in Addis Ababa, Ethiopia. I attended my primary education and secondary school at Dejach Balcha Abanefiso primary school and Addis Ketema secondary school Addis Ababa, Ethiopia respectively. Then I joined Addis Ababa University Centralized School of Nursing graduated with diploma in nursing in 2000 G.C, and I continued my education by joining Addis Ababa University College of Commerce graduated with B.A degree in business administration and information system in 2008 G.C, and I also enrolled Kea-Med Medical College graduated with B.S.C degree in public health officer in 2012 G.C. Regarding my work experience after graduated with nursing I am worked in Meshulekya health center in Kirkose subcity Addis Ababa with clinical nursing profession. Then after, I am worked in African AIDS Initiative International Affiliated with Addis Ababa University worked on HIV/AIDS project. My last work place was Addis Ketema subcity health office. Currently I have been attending my MPH studies in field epidemiology training program at Saint Paul's Hospital Millennium Medical College.