EARLY INFANT DIAGNOSIS AND ASSOCIATED FACTORS AMONG TESTED HIV EXPOSED INFANTS IN WEST SHOA ZONE, ETHIOPIA: RETROSPECTIVE STUDY

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A THESIS SUBMITTED TO THE DEPARTMENT OF POPULATION AND FAMILY HEALTH FACULTY OF PUBLIC HEALTH, JIMMA UNIVERSITY INSTITUTE OF HEALTH SCIENCE, IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR MASTERS OF PUBLIC HEALTH (MPH) IN REPRODUCTIVE HEALTH

JUNE, 2018

JIMMA, ETHIOPIA

JIMMA UNIVERSITY

INSTITUTE OF HEALTH

FACULTY OF PUBLIC HEALTH

DEPARTMENT OF POPULATION AND FAMILY HEALTH

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ABSTRACT

Background: Early diagnosis of HIV infection in infants is recognizing HIV infection early using age-appropriate test before or at six weeks of age. It is important since they are among those most vulnerable to HIV/AIDS and without treatment, about one third of children living with HIV die by their first birthday and half by age two years. Early infant diagnosis for HIV infection is one of the services incorporated in PMTCT program in Ethiopia, in which much is not known regarding the extent of early diagnosis of infants and various associated factors.

Objective: To asses proportion of early infant diagnosis and associated factors among tested HIV exposed infants in West Shoa Zone, Oromia regional state, Ethiopia, 2018.

Methods: Facility based cross sectional study was done among 342 HIV exposed infants who were enrolled and tested in January 01, 2014-December 30, 2017 in infant diagnosis service providing health facilities. The study was conducted from March 10-April 22, 2018. Data was collected by document review using checklist for quantitative data and in-depth interview and observation by using semi structured questionnaire for qualitative data. Data was cleaned, coded and entered into the EpiData manager and exported to SPSS version 22 for analysis. Bivariate and multivariable logistic regression analyses were carried out. Statistical significance was declared by the confidence interval.

Result: Fifty eight percent of HIV exposed infants were diagnosed early. Having children less than four (AOR=4.69, 95% CI: 2.55-8.64), disclosing of mothers HIV sero-status (AOR=6.28, 95% CI: 3.42-11.57), having linkage to mothers support group (AOR=2.24, 95% CI: 1.25-4) and infants who received Neverapine prophylaxis (AOR=6.05, 95% CI: 2.48-14.73) were significant predictors of HIV exposed infants early HIV diagnosis.

Conclusion: About two third of HIV exposed infants in the study area were diagnosed before and at six weeks of age but, it was unacceptably low. Special attention is required for infants born to HIV-infected women who have four and above living children, doesn't disclose their HIV status and in improving mothers' supportive group linkage and insuring availability of the group; also starting neverapine prophylaxis early in order to improve early infant diagnosis of an HIV exposed infant.

Key Words- *Early Infant Diagnosis, HIV, HIV Exposed Infant, West Shoa Zone, Ethiopia*

ACKNOWLEDGMENT

Praise to almighty God, for everything He has done in my life!

I would like to thank Jimma University, Institute of Health science, the department of Population and Family Health for giving me this opportunity.

I would like to pass my deepest gratitude and special thanks to my advisors Dr Gurmessa Tura and Mrs Mahilet Berhanu for their unreserved guidance and support.

My special thanks and appreciation goes to west shoa zonal health office, all wereda health offices, health facility directors and workers, participants of this study for their unreserved cooperation.

My family and friends who were there for me in my difficult times!

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ACRONYMS

AIDS-Acquired Immune Deficiency Syndrome

ART- Anti Retroviral Treatment

CD4- Cluster Differentiation Cell

CDC-Center for Disease Control

CTC- Chronic Treatment and Care

DBS- Dry Blood Spot

DNA - Di ribonucleic Acid

EPHI- Ethiopian Public Health Institute

EID- Early Infant Diagnosis

HEI- HIV Exposed Infant

HIV-Human Immune Virus

KII-Key Informant Interview

MTCT- Mother to Child Transmission

PCR - Polymerase Chain Reaction

PEPFAR- President Emergency Plan for AIDS Relief

PMTCT- Prevention of Mother to Child Transmission

SPSS- Statistical Package for Social Science

UNAIDS- United Nation on HIV/AIDS Program

HCW-Health Care Worker

WHO- World Health Organization

CHAPTER ONE: INTRODUCTION

1.1BACKGROUND

Adult HIV prevalence in Ethiopia is estimated to be 1.0% in 2017. There are 128,233 children (0-14) living with HIV AIDS and 1,984 New HIV Infections in 2017.By 2014, almost half of the 58 WHO HIV focus countries including Ethiopia had adopted the WHO recommendation to provide lifelong ART to all pregnant women living with HIV and also recommendation for all infants born to HIV-infected women to have DNA PCR test at six weeks of age HIV(1,2,3,4).

Early diagnosis of HIV infection in infants and children is recognizing HIV infection early using age-appropriate test before or at six weeks of age and it is important because, without treatment about one third of children living with HIV die by their first birthday and half by age two. More than 90% of children acquire HIV from their mothers, infants born to HIV positive women can be infected with HIV during pregnancy, labor and through breast feeding. Beginning antiretroviral therapy before the twelfth week of life reduces HIV-related mortality in children living with HIV by 75% (5,6).

Goals of Early Diagnosis of HIV in Infants and Children is to recognize HIV infection early using age-appropriate testing , to minimize risk of vertical transmission of HIV, to prevent opportunistic infections and to enroll HIV-infected children into ART care early which reduces morbidity and mortality. Passively transferred maternal HIV antibodies make interpretation of positive antibody tests difficult. DNA-PCR using DBS is the preferred method for infant diagnosis since it is easier to obtain, store and transport for centralized testing. Ethiopian guideline recommends all infants born to HIV-infected women should have DNA PCR at six weeks of age or at the first opportunity thereafter. Results of the initial DNA PCR test should be made available to caregiver on second visit. Follow up of HIV exposed infant is recommended to be done monthly for the first six months of life then every 3 months until infection status is determined. DNA PCR for EID was introduced in in Ethiopia since 2006 in one central laboratory (EPHI),in 2010 become seven testing laboratories (6–8).

1.2 PROBLEM STATEMENT

Prevention of mother-to-child transmission (PMTCT) of HIV has been at the forefront of global HIV prevention efforts since 1998 and in Ethiopia since 2001. HIV/AIDS is a global epidemic with its epicenter in Sub Saharan Africa and it is still unfinished business. 76.1 million People have become infected with HIV and 35.0 million people have died from AIDS-related illnesses since the start of the epidemic, 2.1 million children (<15 years) are living with HIV in 2016.Since 1995, antiretroviral therapy has averted 7.6 million deaths globally, including 4.8 million deaths in sub-Saharan Africa. The African region also accounts for almost two thirds of the global total of new HIV infections. Of the 3.2 million children living with HIV, 91% live in sub-Saharan Africa (5,9,10).

In 2014, in low- and middle-income countries only 1 in 3 of the 2.6 million children living with HIV is on treatment and 25 children are still infected with HIV every hour. ART for pregnant and breastfeeding women should ideally be delivered within maternal, newborn and child health clinics by integrating HIV and antenatal care. However, achieving integration will depend on the context and the resources available in terms of staff time and physical space (4,8).

Significant challenges remain to reach children with treatment and care services. In 2013, while 38% of adults living with HIV worldwide received antiretroviral therapy, only 24% of children living with HIV obtained HIV treatment. Also PMTCT intervention uptake like ARV usage for PMTCT is higher in mothers than infants (3,11,12).

Evidence showed that early initiation of antiretroviral drugs in infants with HIV can save lives; yet, coverage of critical intervention among children remains very low. While there has been slowly progressing report in scaling up access to treatment for children living with HIV, the 90-90-90 treatment targets which calls for 90% of those living with HIV to know their status, 90% of those who know their status to be on treatment, and 90% of those on treatment to be virally suppressed (13).

Early infant diagnosis of HIV infection at the primary care level in a resource-poor setting is challenging. Many infants in the HIV diagnosis and treatment programs haven't showed up for early diagnosis and were lost to follow-up at various stages. Diagnostic tools with higher positive

predictive value and point-of-care capacity, and better infrastructures for administering ART are needed to improve the management of HIV-exposed and HIV-infected infants (14).

Even though early infant diagnosis is being expanded in many countries the overall testing for infants remains low. In 2013, only 42% of infants born to mothers living with HIV in low- and middle-income countries received this test within two months. Evidence showed that in resources-limited setting EID services uptake have faced many challenges. In Malawi 75.8% of the infants of the HIV-positive mothers presented for early infant diagnosis and only 60% of the mothers of tested infants returned to the study centers to receive the results of the initial testing. In 2013, in neighbor country Kenya only 56.7% of the infants were examined for HIV by dried blood spot at 6 weeks and 10.6% of the infected infants were started on treatment immediately (5,15,16).

Even though HIV testing for HIV exposed infant has been provided at primary health care level, early diagnosis of HEI utilization has not been done consistently. According to WHO global update on the health sector response to HIV, number of HIV exposed infants receiving virological testing at two month were 21% in 2013 in Ethiopia. However, CDC-Ethiopia office report in 2012 showed that HIV exposed infants enrollment in antiretroviral therapy increased from 13%(2001) to 97%(2013) (3, 17) .

A UNICEF analysis of UNAIDS data suggests that without accelerated action, the 2020 super-fast-track targets for eliminating HIV transmission and for increasing HIV treatment will not be met unless very effort should be made to engage the HIV-exposed infant (HEI) into care by 6 weeks of age (13).

As showed by WHO report, in Ethiopia virologicaly tested HIV exposed infants within two month of birth were 21% in 2013 while study conducted in neighbor country Kenya showed that only 56.7% of the infants were examined for HIV by dried blood spot at 6 weeks in 2013. However, the magnitude and factors associated with early diagnosis of HIV-exposed infants are not studied well in Ethiopia and also in the study area (3,16).

Therefore this study will assess proportion of Early Infant Diagnosis (EID) and associated factors among HIV exposed infants in West Shoa Zone, Oromia regional state, Ethiopia.

1.3 SIGNIFICANCE OF THE STUDY

EID for HIV infection is one of the services incorporated in PMTCT program in Ethiopia, in which much is not known regarding the extent of early diagnosis of infants and associated factors. Therefore, the aim of this study is to give deep insight on the magnitude of early diagnosis and associated factors among HIV exposed and tested infants in West Shoa Zone, Oromia regional state.

This study will make a significant contribution to the literature on HEI diagnosis related area. The result of this study help to give recommendation on appropriate strategies, program implementation considerations by policy makers, program partners, different stalk holders, health offices at different levels and HEI care providers in health facilities in improving early diagnosing these infants.

CHAPTER TWO: LITRATURE REVIEW

2.1 PROPORTION OF HIV EXPOSED INFANT EARLY DIAGNOSIS

According to WHO report on global update 2013, among the 21 global plan priority countries in the WHO African Region, three achieved substantial increases in the number of infants receiving early HIV testing: Burundi, Malawi and Zimbabwe. Only six of those 21 countries were providing early infant diagnosis to more than 50% of HIV-exposed infants in 2013: Swaziland (89%), South Africa (78%), Botswana (58%), Namibia (56%), Zambia (55%) and Zimbabwe (50%). In the remaining Global Plan countries, the number of infants receiving virological testing was less than 50% and was unchanged or decreased slightly from previous years and Early infant diagnosis provision were 21% in Ethiopia (3).

A cross-sectional study conducted in Coast region , Tanzania in 2012 shows from a total of 238 HIV-exposed infants, the magnitude of HIV testing among HIV-exposed infants was 87%.One hundred and forty three (70%) of tested HIV-exposed infants/children were reported to have received their DBS HIV DNA PCR results. The prevalence of HIV infection among HIV-exposed infants who underwent testing was 13% (18).

According to study done in rural Kenya in 2008, 75 (32%) out of 233 were enrolled for care within the first 2 months of life. The median age at enrolment was 5.0 months. Sixty (43%) of the 139 drop outs occurred within 2 months after enrolment. Seventy-four (32%) of the infants enrolled were still in follow up at 18 months of age (19).

A cross sectional study done in two informal settlements in Nairobi, Kenya in 2013 showed that only 56.7% of HIV exposed infants had tested for HIV at 6 weeks. While 19.7% of infants tested HIV positive, only 10.6% of infected infants were started on treatment immediately(16).

According to a multicenter retrospective study conducted in Northwest Ethiopia,2014, Of the 266 HIV-exposed infants identified from the health facilities, only 109 (41.0%) had early HIV DNA-PCR tests before or at 6 weeks of age(20).

A cross sectional study done in Western Ethiopia in 2014 showed that the proportion of HIV testing among HIV exposed infants/young children(age 4 week-18months) was 83.7% with 6 weeks median age for HIV testing.(21)

In FY 2016, the number of HEIs tested by 12 months of age at PEPFAR-supported PMTCT sites was 80% (1).

2.2 FACTORS ASSOCIATED WITH HIV EXPOSED INFANT EARLY DIAGNOSIS

2.2.1 Mother related characteristics

Study done in South Africa by reviewing Secondary data from 3 cross-sectional facility-based national PMTCT surveys in 2010-13 shows that Mother factors: Age, Education, province, marital status and HIV knowledge were associated with EID (22).

Results of a national study in South Africa in 2015 showed that fear of discrimination, and inadequate knowledge about mother-to-child HIV transmission were associated with EID(23).

A cross-sectional study done in Coast region ,Tanzania showed that early HIV diagnosis during pregnancy ,disclosing of HIV status, enrollment to CTC and receiving of PMTCT prophylaxis were significantly associated with utilization of EID(18).

Study conducted in rural Kenya showed that caregivers knowledge about vertical transmission to occur during pregnancy, EID care , disclosure and stigma, concerns about tests being painful to the children and that too much blood being taken, costs of travel to health facility and lack of social support linkage were mentioned by several services providers and caregivers as a factors for HEI not to be diagnosed early (19) .

A cross sectional study conducted in two informal settlements in Nairobi, Kenya in 2013 showed that mother's age and household income, maternal delivery at a public health facility, receiving of psychosocial support, maternal knowledge on PMTCT , mothers on ARV therapy and mother on ARV prophylaxis were the main factors associated with EID at 6 weeks (16).

According to a multicenter retrospective cohort study conducted in Northwest Ethiopia, in 2014, the predictors of EID were the mother having prenatal care, maternal receipt of ART during

pregnancy and place of birth, women who received their HIV diagnosis before or during the current pregnancy were more likely to successfully complete EID compared to those without these factors.(20)

A cross sectional study done in Western Ethiopia showed that mothers who resides in urban and who disclose their sero- status to their partner were nearly three times more likely to utilize early HIV infection testing service respectively, number of live children mother has were also significant predictors for testing of HIV exposed infants and young children (21).

2.2.2 Infant related characteristics

A cross-sectional study done in Coast region, Tanzania showed that PMTCT prophylaxis (Neverapine receiving) was significantly associated with utilization of EID. And also a cross sectional study done in Western Ethiopia showed that early age enrollment of infants to care were also significant predictors for testing of HIV exposed infants and young children (18)(21).

2.2.3 Health facility related characteristics

Study done in South Africa by reviewing Secondary data from 3 cross-sectional facility-based national PMTCT surveys in 2010, 2011-12, and 2012-13 shows that Health system factors: place of delivery, support from HCW were associated with EID (22).

Study conducted in rural Kenya showed that distance of health facility, long waiting times , service providers knowledge about number and exact time points or type of tests to be done for EID, lack of appropriate social support structures, stock outs of test kits and delayed availability of PCR results were mentioned by several services providers and caregivers as a factors for HEI not to be diagnosed early (19).

A cross sectional study done in Western Ethiopia showed that linkage to mother support group at the health facility were a significant predictor for testing of HIV exposed infants and young children (21).

2.3 CONCEPTUAL FRAMEWORK

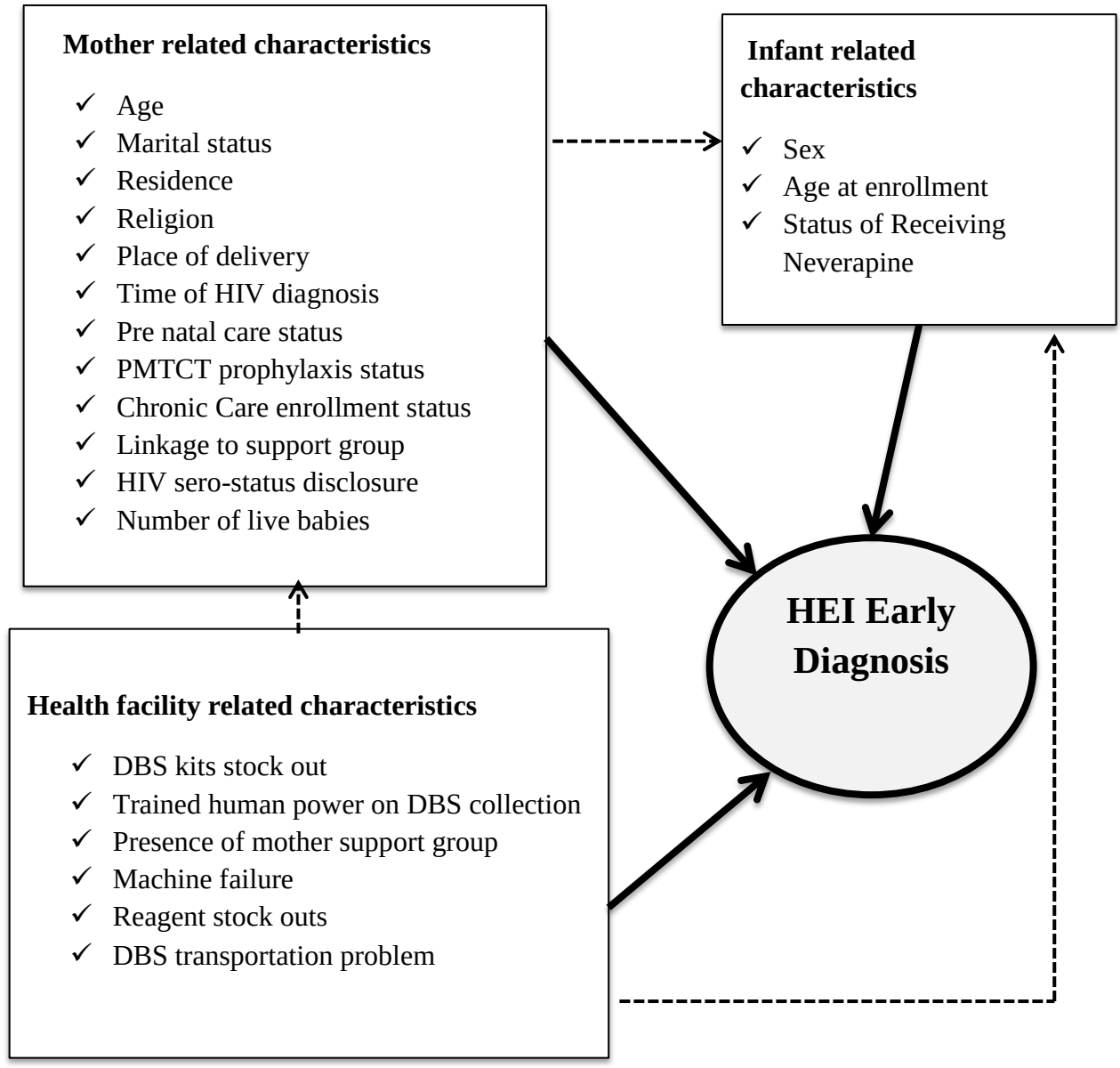

Figure 1 Conceptual frame work EID and associated factors, West Shoa Zone, Ethiopia 2018. adapted from different literatures (16,18–23)

Label: → = Direct association

------> = Indirect association (not studied in this study)

CHAPTER THREE: OBJECTIVES OF THE STUDY

3.1. GENERAL OBJECTIVE

To assess proportion of early infant diagnosis and associated factors among tested HIV exposed infants in health facilities of West Showa Zone, Oromia Regional State, Ethiopia, in 2018

3.2. SPECIFIC OBJECTIVES

1. To determine proportion of early infant diagnosis among tested HIV exposed infants in health facilities of West Showa Zone, Oromia Regional State, Ethiopia, in 2018.
2. To identify factors associated with early infant diagnosis among tested HIV exposed infants in health facilities of West Showa Zone, Oromia Regional State, Ethiopia, in 2018.

CHAPTER FOUR: METHODS AND MATERIALS

4.1 STUDY AREA AND PERIOD

Study was conducted in West Shoa zone, Oromia region. There are one Referral Hospital, six District Hospitals and 80 Health Centers. A total of 26 health facilities enrolled before January, 2014 for early infant diagnosis service for HIV exposed infants using dry blood spots sample referral to Nekemt, Adama and EPHI Regional Laboratory. 894 HEIs were enrolled and tested after January 2014-2017(Report from HMIS).

The study was conducted from March 10-April 22, 2018.

4.2 STUDY DESIGN

Facility based cross sectional study was done with a retrospective record review.

4.3. POPULATION

4.3.1. SOURCE POPULATION

All HIV exposed infant enrolled and tested from January 01, 2014-December 30, 2017 in Health facilities in West Shoa Zone, Ethiopia.

4.3.2. STUDY POPULATION

All HIV exposed infants enrolled and tested from January 01, 2014-December 30, 2017 in randomly selected health facilities in West Showa Zone.

QUALITATIVE DATA

Zonal HIV focal person, Laboratory technician in regional laboratory, HCW, Mothers support group member, HEI's mothers.

4.3.3. STUDY UNIT

HIV exposed infant and its mother's record enrolled and tested from January 01, 2014-December 30, 2017 in randomly selected health facilities in West Showa Zone.

QUALITATIVE DATA

Purposively (judgmentally) selected; Zonal HIV focal person, Laboratory technician in regional laboratory, HCW, HEW, Mothers support group member, HEI's mothers.

4.4 INCLUSION AND EXCLUSION CRITERIA

4.4.1 **Inclusion criteria**

HIV exposed infants and their mother's record enrolled and tested from January 01, 2014-December 30, 2017 in selected health facilities in West Showa Zone.

HIV exposed infants and their mother's record enrolled and tested from January 01, 2014-December 30, 2017 in selected health facilities in West Showa Zone.

4.4.2 Exclusion criteria

Infant-mother pairs those transferred in after being tested from other facilities.
Infants and mothers who have no record/ document.
QUALITATIVE DATA

Key Informants who were unable to communicate because of illness or disability.

4.5 SAMPLE SIZE AND SAMPLING TECHNIQUE

4.4.1 SAMPLE SIZE DETERMINATION

Using Epi Info version 7 with the assumptions of

For the first objective: 95% Confidence level, margin of error 5%, 10% non-retrieval rate, Correction for population size = 894 (Report from HMIS in Jan,2014-Dec,2017).

For the second objective: Confidence level = 95%, Margin of error = 5% and power for double population proportion= 80%,

Table 1: Sample size determination for early HEI Diagnosis, West Shoa Zone, Ethiopia 2018.

Population		Proportion of EID	Sample size	10% non response	Final Sample size
Proportion of EID (20)		41.0%	263	26	**289**
Place of Delivery(20)	Gov. Hospital	70.6%	90	9	99
	Home	22.9%			
ARV during pregnancy (20)	HAART	52.4%	160	16	176
	None	16.8%			
Mother HIV status disclosure (21)	Disclosed	85.3	106	11	117
	Not disclosed	59.1			

Therefore; the final minimum sample size was **289** Record of Infant- mother pair.

4.4.2. SAMPLING TECHNIQUE

For Quantitative Study: First, a list of health facilities providing HEI care service for more than four years was generated. Then, more than 30% (9 out of 26) health facilities were selected by lottery method. In each selected Health facilities, the sample size was allocated proportionally. But, the difference between sample size allocated and total number of HEIs enrolled per health facility was very small, so decision was made to include all. Therefore, all (342) HIV exposed and tested infants document and their mother's document in all selected health facilities were included.

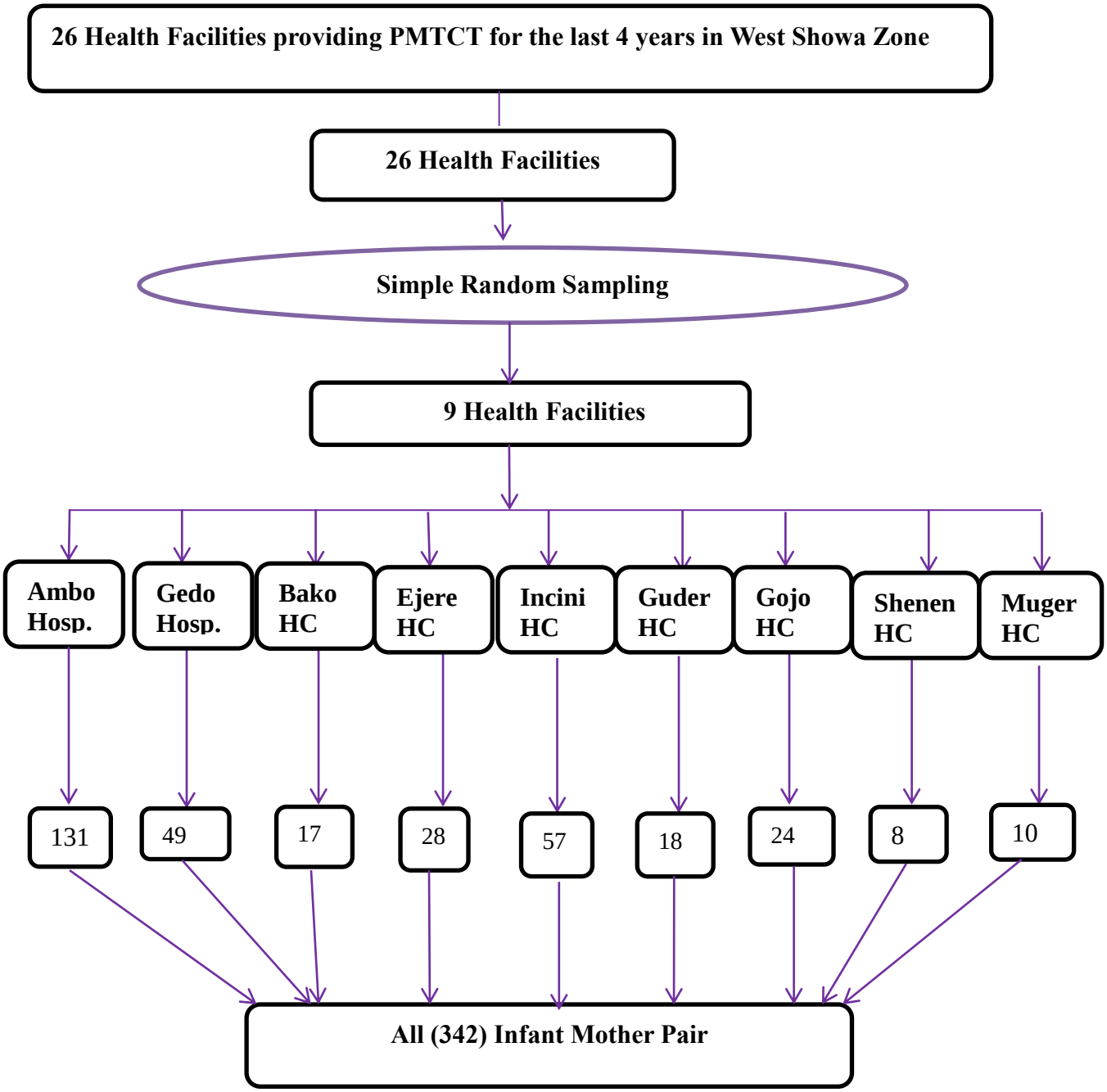

Figure 2: Sampling technique for the study Early HEI Diagnosis, West Shoa Zone, Ethiopia 2018.

4.5. DATA COLLECTION TOOLS AND PROCEDURES

4.5.1. DATA COLLECTION TOOLS

Quantitative data collection tool: Data were collected using structured check list.

Qualitative data collection tool: Semi structured questionnaire (Interview guide) for in-depth interview and check lists were used for observation.

4.5.2. DATA COLLECTION PROCEDURE

Quantitative data collection procedure

Review of Infants' registry/card and their mothers' registry/card were done by two trained data collectors who are working in ART/PMTCT clinics in non-selected health facilities.

Qualitative data collection procedure

In depth interview and observation were used to collect qualitative data by one interviewer and one note taker/recorder.

4.6. STUDY VARIABLES

4.6.1 DEPENDENT VARIABLE

HIV exposed infant early diagnosis

4.6.2. INDEPENDENT VARIABLES

Infant related characteristics

- ✓ Sex , Infant age at enrollment , Status Infant Received Neverapine

Mother related characteristics

- ✓ Age, Marital status, Residence, Place of delivery, Time of HIV diagnosis, pre natal care status, Presence of PMTCT prophylaxis status, Chronic Care enrollment status, linkage to support group, HIV sero-status disclosure, Number of living Children

Health facility related characteristics

DBS kits stock out, trained human power on DBS Sample collection, Presence of mother support Group at facility, presence of support from HCW, Machine failure, Reagent stock outs, DBS transportation problem

4.7. DATA ANALYSIS PROCEDURE

Quantitative study:

Data were entered into EpiData version manager and then exported to SPSS version 22 for windows where recoding, computing, counting and other statistical analysis of the variables were done. First univariate analysis was conducted to see frequency distribution, central tendency and shape of the overall distribution of independent variables.

Bivariate logistic regression were done to select candidate variable (p value<0.25) for multivariable logistic regression. Multi collinearity between different predictor variables were checked using variance inflation factor and maximum VIF was 3.05.To identify independent predictor of early infant diagnosis and to control confounder multivariable logistic regression model were fitted using backward method. In multivariable logistic regression, adjusted odds ratio with its 95% Confidence Interval were computed for variables those maintained in the final model and statistical significance were declared by the confidence interval. Model fitness checked by using Hosmer and Lemeshow test with 5 degree of freedom and significance level of 0.981.

Qualitative data:

Thematic analysis was employed manually and result was narrated.

4.8. DATA QUALITY MANAGEMENT

Data collectors were Health care workers in ART/PMTCT clinics in non-selected health facility. Supervisor /facilitator who have ART/PMTCT and data collection working experience were recruited. Quantitative data collectors were blind to the objective of the study to minimize bias. They were trained for two days on data collection ethics and to be familiarized with data collection tools to increase accuracy and completeness of the data. The tool was developed depending on record book of HEI care, PMTCT and ART sheet. After data collection the data

were checked for completeness, consistency and coded manually. Entered to prepared template scheme on EpiData version 4.1 by controlling skip patterns and legal values.

Qualitative Data: In-depth interviewer and note taker who have ART/PMTCT working experience with additional data collection working experience were recruited.

All the data from each health facilities were checked for completeness, accuracy, and consistency by supervisor and principal investigator daily.

4.9. ETHICAL CONSIDERATION

Ethical clearance was obtained from Institutional review board of Jimma University institute of health science. Permission letter was obtained from Zonal and Woreda Health offices and health facilities managers. By assuring the confidential nature of responses informed consent was obtained from the study participant's (for In-depth interview) and data collection was conducted.

4.10. OPERATIONAL DEFINITIONS

Availability of DBS kit: Kit unavailability for less than one weak in the study period.

Availability of trained human power: Health professional who has trained on DBS sample collection.

DBS kits stock out: Kit unavailability for more than one weak with in the study period.

DBS transportation problem: No means of transportation for sample sending to regional laboratory.

Disclosing sero status:

Disclosed- If the mother disclosed her sero status at least to one person (husband, parent, children, siblings, non-relative, others)

Not disclosed- If the mother haven't disclosed her sero status to anyone.

HEI: A baby age less than 12 month (0-47 weeks) of age born from known HIV positive women.

HEI Diagnosis:

Early - HIV exposed Infant for whom whole blood (DBS sample) was collected for a test before or at 6 week of age to confirm HIV status by DNA- PCR.

Late -For HIV exposed Infant for whom whole blood (DBS sample) was collected for a test after 6 week of age to confirm HIV status by DNA- PCR and after 6 weeks of breast feeding cessation using antibody test or by DNA- PCR test.

Linkage to Mothers supportive groups: Referred for care and support to Mothers supportive groups or mother name registered on Mothers supportive group registration book.

Infant Neverapine Receiving:

Yes - Infant receiving neverapine syrup at least once before sample is taken.

No - Never received neverapine syrup before sample taking day.

Machine Failure: Machine failed to perform DNA PCR test for more than one weak in last four years.

Number of living Children: living children registered on the document plus this HEI (an infant enrolled in the study); 1-3 living children = Low, four and more live children =High.

CHAPTER FIVE: RESULT

5.1 Socio-Demographic Characteristics

Among 342 HIV exposed infants recruited for the study, 190(55.5%) resides in Rural, half of infants were males 172(50.3%). 233(68.1%) of HEI mothers were married, 154(45%) were in the age group of 31-40, with the mean age of 30.8(±6.7) years. Regarding their educational status 142(41.5%) were secondary and above, 141(41.2%) were Orthodox Christian religion followers.

Table 2: Socio-Demographic Characteristics of HEI and their Mothers, West Shoa Zone, 2018

Variables	Variables categories	Total (n=342)
Infant sex	Male	172(50.3%)
	Female	170(49.7%)
Infant enrolment Age	In a month	246(72%)
	After a month	96(28%)
Residence	Rural	190(55.5%)
	Urban	152(44.4%)
Age of the mother	Less than 20	25(7.3%)
	21 to 30	137(40%)
	31 to 40	154(45%)
	Greater than 40	26(7.6%)
Educational status	No formal Education	94(27.4%)
	Primary	103(30.1%)
	Secondary and above	142(41.5%)
	Unknown	3(.9%)
Religion of the mother	Orthodox Christians	141(41.2%)
	Muslim	39(11.4%)
	Protestant	107(31.3%)
	Catholic	11(3.2%)
	Other	44(12.9%)
Occupation of the mother	Employed(Gov.)	56(16.4%)
	Not government employed	286(83.6%)

5.2 Proportion of early HEI Diagnosis

From 342 HEI enrolled in the study; more than half (58.5%) of HEIs were diagnosed early. 175(71.1%) of early diagnosed HEIs were enrolled in to the care in one month of birth. 239(69.9%) of HEIs were tested at second visit.

Only 71(28.8%) of HEI who were enrolled in one month of birth were not diagnosed early. The median testing age of an infant was 6 weeks with the mean age of 11.2 weeks. Of all tested HEIs 13(3.8%) were Positive, only 4(30.8%) of them were diagnosed early.

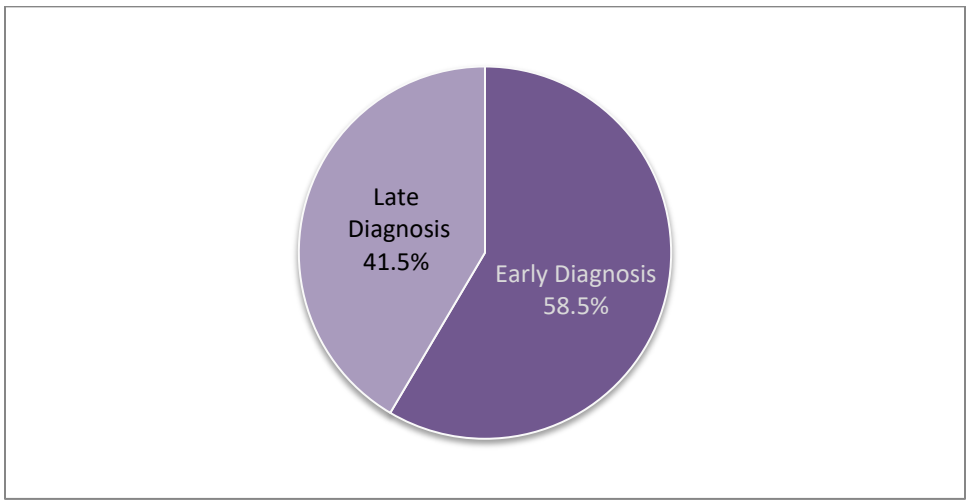

Figure 3: Proportion of Early HEI Diagnosis, West Shoa Zone, Ethiopia 2018.

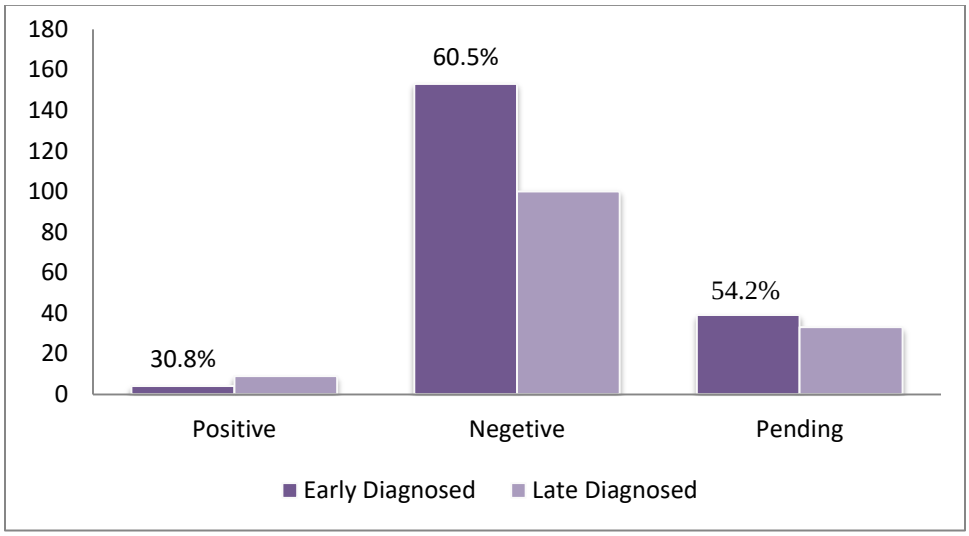

Figure 4: Proportion of Early HEI Diagnosis to test result, West Shoa Zone, Ethiopia 2018.

5.3. Mother related characteristics in relation to HIV exposed infants HIV diagnosis status

For all 342 HIV exposed infants recruited into the study 342 mother caregivers recruited. 18(72%) infants born from mothers whose ages were less than twenty were diagnosed early. HIV exposed infants born from Married mothers 148(63.5%), Muslim religion followers 30(76.9%), Educated above primary level 163(65.7%), Employed 42(75%) were diagnosed for HIV early. (Described on table 3)

Residence, Residence in the Catchment, Educational status, Occupation of the mother, Age of the mother, Number of living children, Time to hear mothers sero-status, HIV status disclosure, Delivery place, Mother supportive group linkage, Prenatal care(ANC) follow up were candidate variables for multivariable logistic regression.

Table 3: Mother related characteristics in relation to HIV exposed infants HIV diagnosis status West Shoa Zone, Ethiopia 2018.

Factors	Variables categories	Diagnosis status		Total (342)	Crude Odds Ratio (95% C.I)	P-Value
		Early	**Late**			
Residence	Rural	97(51%)	93(49%)	190(55.5%)	.496(.318-.773)	.002*
	Urban	103(67.7%)	49(32.2%)	152(44.4%)	1	
Resident in Catchment	Yes	181(63.7%)	103(30.1%)	284(83%)	3.6(1.9-6.5)	.000*
	No	19(29.3%)	39(67.2%)	58(17%)	1	
Educational status	No Formal Education	37(39.3%)	57(60.6%)	94(27.4%)	.338(.207-.552)	.000*
	Primary and above	163(65.7%)	85(34.3%)	248(72.5%)	1	
Occupation of the mother	Employed	42(75%)	14(25%)	56(16.4%)	2.430(1.271-4.647)	.007*
	Not employed	158(55.2%)	128(44.7%)	286(83.6%)	1	
Number of living Children	less than four	170(70.2%)	72(29.7%)	242(70.7%)	5.509(3.312-9.164)	.000*
	>=4	30(30%)	70(70%)	100(29.2%)	1	
Time to hear mothers sero status	Before and during pregnancy	194(63.1%)	113(36.8%)	307(89.7%)	8.3(3.3-20.6)	.000*
	At and after delivery	6(17.1%)	29(82.8%)	35(10.2%)	1	
HIV status	Disclosed	175(74.1%)	61(25.8%)	236(69%)	9.295(5.445-	.000*

disclosure					15.868)	
	Not disclosed	25(23.5%)	81(74.4%)	106(315)	1	
Mother	Yes	105(73.4%)	38(26.5%)	143(41.8%)	3.025(1.902-	.000*
Support					4.810)	
Group	No	95(47.7%)	104(52.2%)	199(58.1%)	1	
linkage						
Delivery	Health	194(65.5%)	102(34.4%)	296(86.5%)	12.7(5.2-30.9)	.000*
place	Institution					
	Home	6(13%)	40(87%)	46(13.4%)	1	
ANC	Yes	195	110	305(89.1%)	8.1(3.6-18)	.000*
follow-up	No	5	32	37(10.8%)	1	

* Statistically significant at p-value<=0.05

5.3 Infant related characteristics in relation to HIV exposed infants HIV diagnosis status

One hundred seventy five (71.1%) of infants enrolled in a month were diagnosed early while only 25 (26%) infants enrolled after a month were diagnosed early.

Infant enrollment age and Neverapine infant received were found to be significant predictors of HIV exposed infants HIV diagnosis status were candidate variables for multivariable logistic regression.

Table 4: Infant related characteristics in relation to HIV exposed infants HIV diagnosis status West Shoa Zone, Ethiopia 2018.

Factors	**Variables categories**	**Total (342)**	**Diagnosis status**		**COR (95% C.I)**
			Early	**Late**	
Infant sex	Male	172(50.3%)	97(56.3%)	75(43.6%)	.841(.547-1.294)
	Female	170(49.7%)	103(60.6%)	67(39.4%)	
Enrolment	In a month	246(72%)	175(71.1%)	71(28.8%)	7(4.1-11.9)*
Age	After a month	96(28%)	25(26%)	71(74%)	
Neverapine Receiving	Yes	279(81.8%)	190(68.1%)	89(31.8%)	11.3(5.5-23.2)*
	No	63(18.4%)	10(15.8%)	53(84.1%)	

5.4 Health facility related characteristics

5.4.1 Health facility characteristics related to HIV exposed infants HIV diagnosis status

In health care facilities those have at least one trained health care providers having direct involvement with the HIV exposed infant diagnosis service proportion of EID were 58.2%. One hundred sixty five (59.1%) HEIs were early diagnosed in the facility where mothers support group were present. Seventy percent of infants those enrolled in health facilities never encounter DBS kit stock-out problem were diagnosed early.

All Health facilities were in urban area and provide HEI diagnosis for 5 days per week. They provided 10.5 years in average HEI diagnosis (minimum 5 and maximum 18). Five out of nine have Job aids (guidelines, algorithm and poster). In average maximum DBS kits unavailability was 103 days and Neverapine drugs/syrup unavailability was 26 days.

Regarding DBS sample transport, almost all (88.8%) of the facilities uses postal service; from these facilities one doesn't have postal office in the town. Majority (66.6%) of facilities send DBS sample to Nekemte Regional Laboratory, the rest send to Adama and EPHI laboratories with average one month sending time.

Table 5 : Health facility related characteristics in relation to HIV exposed infants HIV diagnosis status West Shoa Zone, Ethiopia 2018.

Variables	Variables categories	Early Diagnosis	Late Diagnosis
Facility DBS kit stock out	Ever encounter DBS kit stock out	193(58.1%)	139(41.9%)
	Never encounter DBS kit stock out	7(70.0%)	3(30.0%)
Facility having MSG	Present	165(59.1%)	114(40.9%)
	Not present	35(55.6%)	28(44.4%)
Facility trained HCW	At least one trained HCW	166(58.2%)	119(41.8%)
	No trained HCW	34(59.6%)	23(40.4%)

5.4.2- Reasons mentioned by KII about early infant HIV diagnosis and related problems

DBS stock out, high work load, reagent shortage at regional laboratory, lack of information about EID, fear of stigma and discrimination, long distance from health care facility, religious reason were mentioned by key informant interviewees.

Most of participants knew availability of EID service for early diagnosis of children born to HIV infected mothers. Lack of adequate information about the time of diagnosis was identified by few mother respondents.

"*I don't know but, they took blood from my baby's leg when I brought him to take a syrup and they told me the sample will be sent to far town*" (Care giver from one of Hospitals)

"I brought my baby because the HCW told me the drug He used to take has to be changed to another drug; I had no idea about the infant diagnosis." (Caregiver from one of HCs)

Most of participants think that infants getting tested at six weeks of their birth except, few infants are not getting diagnosed early.

"*We tell all mothers to bring their babies at six month to take DBS sample starting from ANC visit, but few mothers couldn't show up*." (Mother supportive group member from one of HCs)

"*Some mothers do not bring their babies to health facilities; we don't only lose infants but, mothers from care too*" (HCW from one of HCs)

As reported by participants, there were mothers who did not bring their infants because of so many reasons; fear disclosing the status of their baby, long distance of mother's residence from health facility, religious reasons.

Some HCW reported that few mothers, fear disclosing the status of their babies, so other people might know as they are HIV infected when they go to HEI clinic after getting the service from immunization room.

"*Mothers do not come alone when they bring their child for immunization. If the person who came with them doesn't know their HIV status, they fear to bring the baby to HEI clinic for the test*" (HCW from one of HCs)

"*They come after six month and when we ask them, they told us their baby was sick or themselves. I know one mother that she was bed ridden and had no one to bring her baby to health facility*."(Mother supportive group member from one of HCs)

Long distance of mother's residence from health facility was also reported as one challenge for mothers to bring their children for HIV testing.

"*Some mothers do not bring their children to the health facility because of the long distance of their residence from the facility.*" (HCW from one of HCs)

Religious factor was mentioned by three health facility HCW and Mothers supportive group members (One Hospital, two HC) mothers sometimes believed their child is free from HIV(cured by God) and didn't brought to health care facility for the test.

"*I know one HEI brought from pediatrics ward after being treated there for few days, He came very sick and when we ask the mother she told us as someone prayed for her baby and told her He is free so, she believed not to bring him to the Hospital for DBS and other care*." (Mothers support group member from one of Hospitals)

The problems mentioned related to health facility service provision affecting HIV testing of infants were unavailability of DBS kit, lack of commitment, skill gap and high work load.

"*I have been bringing my child to the clinic and asking them to test my child for HIV, but they told me there is no one to take the sample and they took a sample after I came third times but, they haven't told me the result until now*." (Caregiver from one of HCs)

"*We don't have any DBS kit for one year. We reported to wereda and zonal biro but they haven't sent it yet. When mothers bring their babies for test, we told them they will be tested at 18 month by antibody test*."(HCW from one of HCs)

"*I am not trained but I will do my best to give them all service including EID as much as I can*." (HCW from one of HCs)

"*I work alone in ANC class, there is no one else trained on DBS sample taking other than Me. Pre natal follow up client flow is high in this Health Center and it is very difficult to serve HEI care additionally, it would be better if HEI clinic is in separate room*." (HCW from one of HC)

DBS sample brought by postal service, Reagent shortage and work load is mentioned as a factor for delaying the test result.

"EID diagnosis is when the sample is collected before six month of age and the status should be known as soon as possible. Sometimes it takes more than a month for the sample to reach at this laboratory through postal service while the health facility is less than 200km far from here and they transport the sample with nonmedical stuffs using public transport. Also one reagent is for 48 or 96 test so; we should sometimes wait until the sample reaches this number. The other reason is work load, it takes 12 hour to process and finish the test but there is only one professional assigned on the machine. But we never encountered machine failure problems." (Laboratory technologist at Regional laboratory)

5.5. Factors statistically associated with HIV exposed infants HIV diagnosis status

Variables having P-value < 0.25 in bivariate analyses; Resident, Resident in the catchment, Number of living Children, Educational status, Occupation of the mother, Age of the mother, Time to hear mothers serostatus, HIV status disclosure, delivery place, mother supportive group linkage, prenatal care follow up ANC, Neverapine infant Received were selected as candidate for multivariable logistic regression analyses.

In multivariable analyses, having 1-3 living Children, being disclose HIV status to others, linked to mother Support Group and Infant Neverapine Receiving were positively associated with EID status.

Early diagnosis was four times more likely among infants born from mothers with relatively low(1-3) number of live children than infants from mothers with high(>=4)number of children (AOR=4.69, 95% CI: 2.55-8.64). Similarly, being early diagnosed was six times more likely among infants born from mothers who disclosed their HIV sero-status when compared to infants born from mothers who doesn't disclosed their HIV sero-status (AOR=6.28, 95% CI: 3.42-11.57). Infants born from mothers who were linked to mothers support group were two times more likely to be early diagnosed when compared to infants from mothers who hadn't linked to mothers support group. (AOR=2.24, 95% CI: 1.25-4). Being early diagnosed was six times more likely among infants who received neverapine prophylaxis when compared to infants who didn't receive Neverapine prophylaxis (AOR=6.05, 95% CI: 2.48-14.73). (See table 6)

Table 6: Multivariate logistic regression analyses of factors associated with HEIs HIV diagnosis status West Shoa Zone, Ethiopia 2018.

Factors	Variables categories	Diagnosis status		Odds Ratio (95% C.I)	
		Early	**Late**	**COR**	**AOR**
Number of living Children	1-3	170(70.2%)	72(29.7%)	5.5(3.31-9.16)	4.69(2.55-8.64) **
	>=4	30(30%)	70(70%)	1	1
HIV status disclosure to Others	Disclosed	175(74.1%)	61(25.8%)	9.3(5.4-15.86)	6.28(3.42-11.57) **
	Not disclosed	25(23.5%)	81(74.4%)	1	1
Mother Support Group linkage	Yes	105(73.4%)	38(26.5%)	3.025(1.9-4.8)	2.24(1.25-4) *
	No	95(47.7%)	104(52.2%)	1	1
Infant Neverapine Receiving	Yes	190(68.1%)	89(31.8%)	11.3(5.5-23.2)	6.05(2.48-14.73) **
	No	10(15.8%)	53(84.1%)	1	1

**Statistically significant p<=0.01,* statistically significant p<=0.05, 1-Reference

CHAPTER SIX: DISCUSSION

In this study, about two third (58.5%) of HIV exposed infants were diagnosed early among all tested HIV exposed infants in health facilities of West Shoa Zone, Oromia regional state, Ethiopia. The study finding were consistent with what was reported, in neighbor country Kenya that only 56.7% of the infants were examined for HIV by dried blood spot at 6 weeks but, different from the case in Malawi (75.8%). Higher when compared to WHO report of Ethiopia (21%) and in Northwest Ethiopia (41.0%) HIV-exposed infants had early HIV DNA-PCR tests before or at 6 weeks of age. A UNICEF analysis of UNAIDS data suggests that without accelerated action, the 2020 super-fast-track targets for eliminating HIV transmission and for increasing HIV treatment will not be met unless very effort should be made to engage the HIV-exposed infant (HEI) into care by 6 weeks of age (16) (15)(3) (20)(13).

This result showed that EID of HIV infection in the study area were relatively high from previous most studies conducted in this country. Integration of EID in ANC services, decentralization of the services to primary health care, expanding of testing, referral laboratory and support from NGO partners (technical support & capacity building) may explain the high utilization of the service in West Shoa Zone, Oromia Region of Ethiopia. But, still unacceptably low since Ethiopia is one of the countries in achieving the 90-90-90 treatment targets which the first 90 target calls for 90% of those living with HIV to know their status. Also as all infants born to HIV-infected women should have DNA PCR at six weeks of age or at the first opportunity thereafter which is recommended by Ethiopian HEI care and treatment guideline. (13)(8).

The study identified significant predictors of HIV exposed infants HIV diagnosis status. As shown on table 5 from multivariate analyses, having 1-3 living Children, being disclose mother sero-status to others, linked to mother Support Group and Infant Neverapine Receiving were significant predictors which positively associated with EID status.

Being early diagnosed was four times more likely among infants born from mothers with relatively low(1-3) number of live children than infants from mothers with high(>=4)number of children. A cross sectional study done in Western Ethiopia showed that number of live children mother has (AOR= 3.37, 95% CI : 1.38-8.22) (21). When mothers has relatively high number of

babies; they need time to take care of other children and a burden of this is related to HEI clinic utilization for EID.

On the other hand, Odd of being early diagnosed was six times more likely among infants born from mothers who disclosed their HIV sero-status when compared to infants born from mothers who doesn't disclosed their HIV sero-status. Which is also three times more likely as showed in a study conducted Western Ethiopia(AOR=3.29, 95% CI : 1.05-10.29) (21). Respondents mentioned that fear of discrimination is one of the reasons that mothers doesn't bring their babies for early diagnosis. Absence of other person to bring the baby while mother is sick may because of the mother have disclosed her serostatus to anyone. Disclosing their status is good for mothers to bring their babies to visit HEI clinic and utilizing EID services.

Similarly, Infants born from mothers who were linked to mothers support group were two times more likely to be early diagnosed when compared to infants from mothers who hadn't linked to mothers support group. A study conducted in South Africa showed eight times more likely is mothers support group linkage for being early diagnosed (AOR=8.1, 95% CI :7.1- 9.2)(22). A cross sectional study done in Western Ethiopia also showed that mothers who are linked to mothers support group at the health facility ten times more likely to bring their children for early diagnosis (AOR=10.22, 95% CI :4.94 - 21.11) (21). Mothers support group let an HIV infected mother's get psychological support from mothers with the same sero status. When mothers are strong psychologically they bring their babies to be early diagnosed.

Chance of being early diagnosed was six times more likely among infants who received Neverapine prophylaxis when compared to infants who didn't receive Neverapine prophylaxis (AOR=6.05, 95% CI: 2.48-14.73).Which is consistent with a study done in Western Ethiopia showed Infants who received PMTCT intervention were more likely to be early diagnosed when compared to infants who doesn't received a prophylaxis (AOR=4.50, 95% CI : (2.06 – 9.82) (21). Starting Neverapine syrup early can explain early enrollment of an infant to the care due to the status of the mother was known early or there is strong screening by using more entry points.

STENGTH AND LIMITATION OF THE STUDY

STENGTH

The study conducted in multi health facilities; it reflects the diversity of practical management of EID of HIV infection in a diverse population living in West Shoa Zone. Also supplementation of the quantitative data with qualitative data.

LIMITATION

For KII mothers of late diagnosed infants couldn't be found for an interview in health facility in all study period. Since the study is facility based mothers couldn't be traced in their home.

Social desirability effect of HCW not to clearly explain the problem related counseling and health care provision.

Recall bias in key informant interview.

CHAPTER SEVEN: CONCLUSION AND RECOMMENDATIONS

7.1. CONCLUSION

This study revealed that, EID of HIV exposed infants in the study area is relatively high from previous most studies conducted in Ethiopia. But, still unacceptably low since Ethiopia is one of the countries in achieving the 90-90-90 treatment targets and to be provided per guideline of Ethiopia which recommends all infants born to HIV-infected women should have DNA PCR at six weeks of age.

Having children less than four, disclosing of mothers HIV sero-status, having linkage to mothers support group and Infants who received Neverapine prophylaxis were significant predictors of HIV exposed infants' early HIV diagnosis.

Additional reasons like DBS stock out, high work load, reagent shortage at regional laboratory, lack of information about EID, fear of stigma and discrimination, long distance from health care facility, religious reason were also mentioned.

Special attention is required for infants born to HIV-infected women who have four and above living children, doesn't disclose their HIV status and in improving mothers' supportive group linkage and insuring availability of the group; also starting Neverapine prophylaxis early in order to improve EID of an HEI.

7.2. RECOMMENDATIONS

MOH should revise care and treatment guideline of HEIs, in order to enroll HEIs at birth and test early on their first enrollment day by assessing its cost effectiveness.

MOH and partner Organizations should consider community based EID services to improve diagnosis status of HEI who are living long distance from health facility and decentralizing the EID service through health extension workers and health development armies. Participating religious leaders during program implementation will minimize religious reasons not to come early for test. A MOH and partner Organizations should give attention to strengthen the current health system to ensure uninterrupted supply chain of DBS kits, DNA- PCR reagents, Neverapine syrup and DBS transportation system should be reviewed that utilizing postal office should depend on the distance of health facility from regional laboratory.

Health care facilities should give more attention specially in considering the above factors related to EID. Also awareness creation with community and by participating religious leaders should be done. Providing DBS sample collection at other entry points including EPI room will reduce mothers fear disclosing the status of their baby, availing mother support group for additional psychosocial support may improve EID provision.

HCW and Mother supportive group workers should briefly explain while counseling caregivers on EID, the reason why they should bring their babies at six month is important. Giving attention to mothers who have high number of live children, improving uptake of neverapine prophylaxis, encouraging HIV infected mothers to disclose their HIV status to their partner or at least to one person, to increase mothers supportive group linkage and strengthening psychosocial support is important.

Researchers

Further research should be conducted in this area; especially longitudinal studies like prospective cohort to follow HEIs starting from pregnancy.

REFERENCE

1. *FMOH, Country / Regional Operational Plan (COP / ROP) Strategic Direction Summary,April 21,2017*
2. *EPHI,FMOH, HIV Related Estimates and Projections for Ethiopia – July 2014*
3. *WHO ,HIV REPORTING , Global update on health sector response to HIV,July 2014*
4. *WHO, GUIDELINES ON WHEN TO START ANTIRETROVIRAL THERAPY AND ON PRE-EXPOSURE PROPHYLAXIS FOR HIV, September 2015*
5. *UNAIDS Report THE GAP REPORT, HIVAIDS gap report,2014.*
6. *FMOH, HIV Prevention and controll Office, Guidelines for Paediatric HIV / AIDS Care and Treatment ,July 2007*
7. *Ethiopian Health and Nutrition Research institute , National Laboratory System Report,September,2010.*
8. *FDRE,MOH,National Guidelines for Comprehensive HIV Prevention, Care and Treatment, . 2014*
9. UNAIDS *Report, GLOBAL HIV STATICS Sheet F, REGIONAL HIV STATISTICS — June 2017;1–8.*
10. UNAIDS *Report THE GAP REPORT, HIVAIDS gap report,2014.*
11. *Federal HIV AIDS control office 2017-2021, HIV Epidemic Estimates 2017.*
12. *A.Mama,Z.Tilahun,S.Workneh,Assessment of effectiveness of prevention of mother to child transmission of human immunodeficiency virus in Asella Hospital,EUR J CLIN PHARM,2017,Vol 19(198-206)*
13. *UNICEF, Monitoring the Situation of Children and Women ,Nov 2017*
14. *J. CHANDRA ,D.YADAV Early Infant Diagnosis of HIV in Delhi Hospital India, INDIAN PEDIATRICS JOURNAL, APRIL 15,2015 VOL 52,293–295.*
15. *Dube Q, Dow A, Chirambo C, Lebov J, Tenthani L, Moore M. Implementing early infant diagnosis of HIV infection at the primary care level : experiences and challenges in Malawi, Bull World Health Org,Jan,2012;90:699–704.*
16. *Makau Gm,Okwara Fn,Oyore JP, Determinants of early infant diagnosis and treatment of HIV among exposed infants in informal settlements in Nairobi , Kenya. East and Central Africa Medical Journal,2015;2:74–79.*
17. *CDC Ethiopia ,Center for desease control in Ethiopia in Ethiopia. Aug,2013, www.cdc.gov/global health*

18. *Gamaliel Jg. Utilization of Early Infant Diagnosis of HIV Infection and Its Associated Factors In Coast Regiontanzania, Nov 2012*

19. *Molyneux CS, Berkley JA. Dynamics and Constraints of Early Infant Diagnosis of HIV Infection in Rural Kenya. AIDS Behav.2012;16(1):5–12.*

20. *Kebede B, Gebeyehu A, Jain S, Sun S, Haubrich R. Delay in Early Infant Diagnosis and High Loss to Follow-Up among Infant Born to HIV-Infected Women in Ethiopia. 2014;(December):402–12.*

21. *Getahun B., Tariku D., Lemessa D., Emiru A., Utilization of Early Infant Diagnosis of HIV Infection and Associated Factors in Western Ethiopia : Cross-sectional. STAR,2015;4(2):149–156.*

22. *Witness C, Maternal and health system factors influencing intention to obtain Early Infant Diagnosis at 6 weeks among HIV infected mothers, Pretoria, South Africa,saMRC, 2017*

23. *Woldesenbet A, Jackson D, Goga AE, Crowley S, Doherty T, et al. Missed Opportunities for Early Infant HIV Diagnosis : Results of A National Study in South Africa,OPEN, J Acquir Immune Defic Synd, March 2015;68(3):26-32*

ANNEX II: TOOLS

SECTION I: PARTICIPANT INFORMATION SHEET FOR CONSENT

Hello, My name is _____This is a request for you to participate in a study that intends to assess infant diagnosis and factors associated among HIV exposed infants in west shoa zone. This data that will be generated to provide HIV program managers in making strategic decisions regarding early infant diagnosis and linkage to chronic care. I will ask you questions related with HEI and early infant diagnosis. The interview may last about an hour.

There is no harm/disadvantage if you participate in this study except that it takes some of your time and there is no payment. All the data will be processed without name, but we will use a code number and a working position that links you to your data. Only authorized project personnel will have access to the data. The data will be stored by the confidentially. It will not be possible to identify you when the results are published.

Participation in this study is voluntary. You can choose not to answer any individual question or totally refuse to participate in the study. This will not have any consequences on you. However, I hope that you will participate fully in this survey since your views are very important.

Are you willing to continue with the interview? Yes_____ No_____

Thank you for your participation!

If you have questions concerning the study, you may contact

>>>Bontu Berhanu , investigator, 0911830011, bonyyaya@gmail.com

>>>Merga Kumela (Supervisor), 0983500708/0911894410

SECTION II: HEALTH FACILITY IDENTIFICATION

S.N	QUESTIONS AND FILTERS	CODING CATEGORY	SKIP
101	Region	Oromia ….....1	
102	Zone	West Showa….....1	
103	Woreda		
104	Name of Health Facility		
105	Health Facility Type	Hospital……..1 Health Center…….2	
106	Setting	Rural….....1 Urban….....2	
107	Year EID service started	_____ (EC)	
108	Is there any HCW trained on DBS sample collection in this health facility?	Yes…….……1 No…….……2	If No To 111
109	Total Number of HCW trained on DBS sample collection		
110	Number of HCWs performing DBS sample collection		
111	Number of days/ week HEI care service given		
112	Availability of Job aids i.e. guidelines, algorithm, posters	Yes…….……1 No…….……2	

113	These job aids in use	Yes…….……1 No…….……2	
114	Regular stock out of DBS kits (last four years)	Yes…….1 No…….…….……2	
115	Maximum length of time DBS kits stock out (last four years)	Less than one week ……..1 Less than one month ……...2 More than one month…….3 More than six month…….4 Other specify ……5	
116	Is there regular stock out of Neverapine drugs/syrup (last four years)	Yes…….……1 No…….……2	
117	Maximum length of time Neverapine drugs/syrup stock out	Less than one week……..1 Less than one month ……...2 More than one month……..3 More than six month…..……..4 Other specify …….….5	
118	Type/method of DBS sample transportation	Postal office ……1 In person …….2 In person with CD4…….3 Other specify ……..4	

119	Type/method of DBS result receiving	Postal office …….1 Telephone…….2 In person …….…….3 With CD4…….4 Other specify ……..…..5	Not 2 to 124
120	Telephone to receive DNA-PCR test result	Facility phone……..…1 HCW private phone……2 Both…….3 None……4	
121	Availability of DBS transportation system (postal office) in the town	Yes……..……1 No…….……2	
122	Average frequency of sample transportation	Twice in a month ...……1 Monthly……...2 Every 2 month…….3 Every 3 month…….4 Depending on need ……5 Others ……..…6	
123	Mother support group at facility	Yes……1 No…….……2	
124	Regional Laboratory where DBS is being sent for DNA PCR	EPHI Laboratory……..1	

		Nekemt Hosp …….……2 Two of three …..……..3 Adama Hospital……...4 Others ……..….5			
135	Aggregate (2014-2017) (01/06/2006-30/05/2010E.C)	Enrolled			
		Tested			
		Not Tested			
		Tested before TI			
		Incomplete Document/ Register			
		Register lost(No Document)			

SECTION III: HIV EXPOSED INFANT CHECK LIST

S.N	QUESTIONS AND FILTERS	CODING CATEGORY	SKIP
201	Code Number		
202	Infant Registration Number		
202	Facility Name	Ambo Hospital……..1 Bako Health center……2 Ejere Health center…….3 Gedo Hospital……..…4 Guder Health center……5 Gojo Health center……..6 Incini Health center…….7 Muger Health center……8 Shenen Health center……..9	
203	Setting of the kebele	Rural……1 Urban….…….2	
204	Resident in the facility Catchment	Yes…….…...…1 No…….……2	
205	The same Resident with mother	Yes…….…...…1 No…….……2	
206	Sex of the infant	Male……...1	

		Female……...2	
207	Birth date of infant	_____ (DD/MM/YYYY EC)	
208	Age at enrolment in completed weeks	_____Weeks	
209	Enrolment Day	At birth……1 Before 6 weeks…….2 At 6 weeks……3 After 6 weeks……4	
210	Relationship to the Care Giver	Mother……..…….…..1 Father ……..…….....2 Sister/Brother…….…….…….3 Other relative…..…….……..4 Non-relative……...5	
211	PMTCT intervention (Neverapine) infant received	At birth……..…1 For six weeks…….2 For more than six weeks…….3 Not received…….…..…….....4 Unknown…….5	
212	Date of Sample collection for HIV testing	_____(DD/MM/YYYY EC)	
213	Age of infant during sample collection in completed weeks	_____ weeks	

214	Status of diagnosis	Before or at 6 weeks……..1 After 6 weeks …….…..2	
215	Visit date sample taken	1st enrollment day …….1 2nd visit …….2 3rd visit……...3 After 4th visit……..4	
216	Test result returned	Yes……..1 No …….2 Pending……..3	If 2 or 3 to 222
217	Waiting time of result	_____(Days)	
218	Test result	Positive……..……...…..1 Negative…..…….....2 Indeterminate……..…….….3	If 2 or 3 to 222
219	Infant (positive) receiving ARV drug	Yes……...…….1 No…….2	
220	Appointment from Health care facility for receiving test result(next appointment after sample taken)	After a week…….……..1 After two week…….....2 After a month ……....3 Appointment not given……..4 Unknown/NA……...…5	

221	Infant come /brought back to hear the result (next visit after sample taken)	After a week……..……..1 After two week…….....2 After a month …….....3 Never came back……....4 Other(haven't come back for more than 2 months) ……5	

SECTION IV: HEI CARE GIVER/ MOTHER CHECK LIST

S.N	Questions and filters	Coding category	Skip
301	Residence setting	Rural……1 Urban……..2	
302	Residence in the facility catchment	Yes …….1 No……..2	
303	Age in completed years	_____Years	
304	Religion	Orthodox Christian.....1 Muslim.....2 Protestant.....3 Catholic.....4 Other …….....5	
305	Marital Status	Married……..…1 Living together…….….2	

		Divorced……..……...…3 Widowed…….……...4 Never married…….5 Other……..6 Unknown ……..7	
306	Educational status	No formal education……..…1 Primary…….……..…2 Secondary and above …….…..3 Unknown….…….……..…4	
307	Occupation	Employed……...…1 House wife……2 Farmer…….……..3 Daily laborer……4 Trader…….……..5 Student …….……..6 No job…….…..……7 House maid…….…….8 Other …….....9 Unknown …….....10	
308	Total number of living children (including this HEI)	One…….1 Two or three……2	

		Four and above ……..3	
309	Time to hear her sero-status (relating to this HEI)	Before pregnancy……..…….1 During pregnancy…..……2 During delivery…..…..……3 After delivery…….…….4	
310	HIV sero-status disclosure	Yes…….1 No…….…..…..2 Unknown…….3	If No to 312
311	To whom it is disclosed	Husband…….1 Mother……...2 Son/Daughter……3 Sister/brother……4 Other ……..…….5	
312	Chronic HIV care enrollment?	Yes …….1 No..……..2 Unknown …….……3	If 2 or 3 to 314
313	Adherence of mother to chronic care	Good……..…….……1 Fair ……..…….…….2 Poor…….…….…..……3 Unknown…….……4	
314	Referred for care and support to	Yes …….1	

	Mothers support group	No…….……..2 NA……..…..……...3 Unknown…….4	
315	Pre natal care follow up (at least one ANC visit)	Yes ……1 No……..2 Unknown……..…….3	
316	Place of delivery	Health facility……1 Home……2 Others…...……3 Unknown……..4	
317	Presence of PMTCT intervention	Yes …….1 No……...2 Unknown……..…3	If 2 or 3 319
318	Type of PMTCT intervention received	On ART before 28wk of GA…...1 On ART After 28w of GA.…….2 Received on delivery…….3 Received after delivery…….4 Other ……..……..5 Unknown…….…….6	
319	Completed	Yes…….…….1	

		No…….……..2	

SECTION IV: HEI MOTHER/CAREGIVER INTERVIEW GUIDE

SN	Background Questions:	Answer
1	Facility Name	
2	Age	_____Years
3	Gender	
4	Status of the HEI diagnosis	
5	Age at the HEI diagnosis	
6	After how much days does the HEI came back to receive DBS result?	
7	What is EID?	
8	What is the right time to test HEIs for the first time?	
9	Do you think HEIs are tested on the right time?	
10	What do you think about the reasons why HEI didn't get EID? ✓ Probe for Socio cultural factors ✓ Probe for maternal, Infant and Health facility related factors ✓ Probe for Additional information about MTCT, about time to HEI diagnosis, EID importance, discrimination if the status is known, support from HCW regarding HIV test ✓ Probe to be specific about counseling/explanation about time, procedures, advantages of early diagnosis, confidentiality, next treatment and care.	

SECTION V: SERVICE PROVIDERS INTERVIEW GUIDE

SN	Questions:	Answer	Remark
1	Facility Name		
2	Age	_____Years	
3	Gender		
4	Profession		
5	Service delivery point		
6	DBS training date		
7	Experience in this service	_____Years	
8	What is EID?		
9	What is the right time to test HEI for the first time?		
10	Do you think HEI are tested on the right time?		
11	What do you think about the reasons why HEI didn't get EID? ✓ Probe for Socio cultural factors ✓ Probe for maternal, Infant and Health facility related factors ✓ Probe for Additional information about MTCT, about time to HEI diagnosis, EID importance, discrimination if the status is known, support from HCW regarding HIV test ✓ Probe to be specific about counseling/explanation about time, procedures, advantages of early diagnosis, confidentiality, next treatment and care. ✓ Probe for the challenges for testing of HEI early in the facility? ✓ Probe: Care giver/mother factors, Health care worker (adequacy of trained human power, turnovers…) , Facility related (postal, telephone, distance, road….), Supplies , if any Other		

SECTION V: MOTHER SUPPORTING GROUP MEMBER INTERVIEW GUIDE

SN	Questions:	Answer	Remark
1	Facility Name		
2	Age	_____Years	
3	Gender		
4	Level of education		
5	Service delivery point		
6	Training on HEI care/related		
7	Experience in this service	_____Years	
8	What is EID?		
9	What is the right time to test HEI for the first time?		
10	Do you think HEI are tested on the right time?		
11	What do you think about the reasons why HEI didn't get EID? ✓ Probe for Socio cultural factors ✓ Probe for maternal, Infant and Health facility related factors ✓ Probe for Additional information about MTCT, about time to HEI diagnosis, EID importance, discrimination if the status is known, support from HCW regarding HIV test ✓ Probe to be specific about counseling/explanation about time, procedures, advantages of early diagnosis, confidentiality, next treatment and care. ✓ Probe for the challenges for testing of HEI early in the facility? ✓ Probe: Care giver/mother factors, Health care worker (adequacy of trained human power, turnovers…) , Facility related (postal, telephone, distance, road….), Supplies , if any Other		

SECTION VI: REGIONAL LABRATORY OBSERVATION CHECKLIST

SN	Background Questions:	Answer	Remark
1	Facility Name		
2	Date DNA/PCR test for HEI started		
3	Total number of health facilities sending DBS to this facility		
4	Is complete Registration available for study period?		
5	Is DNA/PCR machine was not functional in 2014- 2017 for more than a week?		
6	Is DNA/PCR reagents were not available on in 2014 -2017 for more than a week?		
7	What was an average date to return a result?		
8	What was a communication mechanism to return a result?		
9	Was there any challenge in providing DNA/PCR test in order to EID? Probe,		

THANK YOU FOR YOUR PARTICIPATION!!!

ANNEX III: TRANSLATED TOOLS

KUTAA I: GUCA GAAFANNOO WALIIGALTEE HIRMAANNA

Akkam Jirtu,Maqaan koo _____jedhama.kanin dhufe qorannoo mata dureen isaa “Early infant diagnosis and factors associated among HIV exposed infants in west shoa zone” jedhuuf odefannoo sassaabuufi. Odeefannoon kun qaamoota sagantaa HIV AIDs irratti hojjataniif haala sagantaan “EID” irrajiru beekudhaan karoora hojii gara fulduraa baasuuf isaan gargaara.Gaaffiwwan mataduree kana wajjiin wal qabatan sin gaafadha. Sa’aati tokko caalaa sin hin tursiisu.

Qorannoo kana irratti hirmaachuu keesaniin yeroo murtaa’e nu wajjiin turu keessan caalaa rakkoon isin irratti dhaqabu hin jiru. Odeefannoon kun Lakkofsa icitii fi iddoo ramaddi hojii malee maqaan odoo hin caqasamiin kan gabaafamu yoo ta’u, namoota qoranno kana gageessan ala odefannoo kun cufaa dha.

Hirmaannaan keessan guutummaan gutuutti fedhii irratti kan hundaa’e dha. Gaaffif deebii jidduudhan aaddaan kutunis ta’e gutummaan guututti hirmaachuu dhisuus mirga guutuu qabdu. Kana gochuu keessaninis rakkon tokkoyyu sin irratti hin dhaqabu. Haata’uyyuu malee odeefannoon isisnirraa argamu qorannoo kanaaf baay’ee barbachisaa waan ta’eef fedhii gutuudhaan akka hirmaattan abdiin qaba.

Qorannoo kana irratti hirmaachuudhaaf fedhii qabduu? Eyyee_____Lakki_____

Maqaa Odeefannoo Sassaabaa _____ Mallattoo_____Guyyaa_____

Hirmaannaa keesaniif Galatoomaa!

Qorannoo kana ilaalchisee gaaffii yoo qabaattan, namoota armaan gadiif bilbiluu dandeessuu

>>>Bontu Berhanu , Qorannoo Gageesituu, 0911830011, bonyyaya@gmail.com

>>>_____ (itti gaafatamaa Odefanno Sassaabaa) _____

KUTAA IV: GAAFANNOO HAADHOLII

Lakk	Gaaffii
1	Maqaa Mana yaalaa
2	Umrii Hadhaa
3	Haala qorannoo Daa'ima HIV saatilamaa
4	Umrii daa'imaa yeroo HIV qoratamu
5	Guyyaa meeqa booda daa'imni firii qorannoo baruu dhufe?
6	Daa'ima HIV saaxilame qorannoo dhiigaa yeeroodhaan gaggeessuu hoggaa jennuu maal jechuu keenya?
7	Yeroon siirrii Daa'ima HIV saaxilame qorannoo dhiigaa gaggeefamuu yoomi?
8	Daa'ima HIV saaxilamef qorannoo dhiigaa yeeroo isaa eeggate gaggeefamaa jira jettee yaaddaa?
9	Daa'ima HIV saaxilamef qorannoo dhiigaa yeeroo isaa eeggate gaggeefamaa jira yookiin hin jiru yoo jette sababni isaa maali jettee yaadda? Aadaa fi amantii waliin wal qabatee Haadholii, daa'imaa fi haala tajaajila fayyaa waliin wal qabatee. Haala odeefannoo (MTCT) waliin wal qabatee, yeroo itti daaimni deebi'ee dhufuu qabu, fayidaa fi yoo firiin daa'imaa beekame soda namootaa akkasumas deeggarsa garee haadholii irraa gama qorrannoo (EID) waliin wal qabatee jiru. Gorsa waa'ee yeroo, akkataa dhiigni itti fudhatamu fi faaayiidaa daa'ima yeroodhaan ilaalchisuu, iccitii qabachuu fi yaalii gara fulduraa ilaalchise.

KUTAA V: OGEESSA KENNAA TAJAAJILAA

Lakk	Gaaffii
1	Maqaa Mana yaalaa
2	Gender
3	Ogummaa
4	Kutaa kenninsa tajaajilaa
5	Muuxannoo kutaa tajaajilaa kana keessatti qabdu?
6	Daa'ima HIV saaxilamef qorannoo dhiigaa yeeroo isaa eeggate gaggeefamaa jira jettee yaaddaa?
7	Daa'ima HIV saaxilame qorannoo dhiigaa yeeroodhaan gaggeessuu hoggaa jennuu maal jechuu keenya?
8	Yeroon siirrii Daa'ima HIV saaxilame qorannoo dhiigaa gaggeefamuu yoomi?
9	Daa'ima HIV saaxilamef qorannoo dhiigaa yeeroo isaa eeggate gaggeefamaa jira jettee yaaddaa?
10	Daa'ima HIV saaxilamef qorannoo dhiigaa yeeroo isaa eeggate gaggeefamaa jira yookiin hin jiru yoo jette sababni isaa maali jettee yaadda? Aadaa fi amantii waliin wal qabatee, Haadholii, daa'imaa fi haala tajaajila fayyaa waliin wal qabatee. Haala odeefannoo (MTCT) waliin wal qabatee, yeroo itti daaimni deebi'ee dhufuu qabu, fayidaa fi yoo firiin daa'imaa beekame soda namootaa akkasumas deeggarsa garee haadholii irraa gama qorrannoo (EID) waliin wal qabatee jiru. Gorsa waa'ee yeroo, akkataa dhiigni itti fudhatamu fi faaayiidaa daa'ima yeroodhaan ilaalchisuu, iccitii qabachuu fi yaalii gara fulduraa ilaalchise. Rakkolee mana yaalaa sana kessa jiran,humna namaa ogeessa leenji'ee,jijjirraa,

	mana postaa,bilbila,fageenya,dhiheessii fi kkf.

KUTAA V: MISEENSOTA GAREE WAL GARGAARSA HAADHOOLIIN HAADHOLIIF

Lakk	Gaaffii
1	Maqaa Mana yaalaa
2	Umrii
3	Sadarkaa baruumsaa
4	Kutaa kenninsa tajaajilaa
5	Muuxannoo kutaa tajaajilaa kana keessatti qabdu?
6	Daa'ima HIV saaxilamef qorannoo dhiigaa yeeroo isaa eeggate gaggeefamaa jira jettee yaaddaa?
7	Daa'ima HIV saaxilame qorannoo dhiigaa yeeroodhaan gaggeessuu hoggaa jennuu maal jechuu keenya?
8	Yeroon siirrii Daa'ima HIV saaxilame qorannoo dhiigaa gaggeefamuu yoomi?
9	Daa'ima HIV saaxilamef qorannoo dhiigaa yeeroo isaa eeggate gaggeefamaa jira jettee yaaddaa?
10	Daa'ima HIV saaxilamef qorannoo dhiigaa yeeroo isaa eeggate gaggeefamaa jira yookiin hin jiru yoo jette sababni isaa maali jettee yaadda? Aadaa fi amantii waliin wal qabatee

	Haadholii, daa'imaa fi haala tajaajila fayyaa waliin wal qabatee. Haala odeefannoo (MTCT) waliin wal qabatee, yeroo itti daaimni deebi'ee dhufuu qabu, fayidaa fi yoo firiin daa'imaa beekame soda namootaa akkasumas deeggarsa garee haadholii irraa gama qorrannoo (EID) waliin wal qabatee jiru. Gorsa waa'ee yeroo, akkataa dhiigni itti fudhatamu fi faaayiidaa daa'ima yeroodhaan ilaalchisuu, iccitii qabachuu fi yaalii gara fulduraa ilaalchise. Rakkolee mana yaalaa sana kessa jiran,humna namaa ogeessa leenji'ee,jijjirraa, mana postaa,bilbila,fageenya,dhiheessii fi kkf.

KUTAA VI: GUCA DHAABATA LAABRAATORII DNA/PCR ITTI HOJJATAMU.

SN	Gaaffiilee	Deebii	Yaadannoo
1	Maqaa mana Yaalaa /Laboraatoriin itti argamu		
2	Guyyaa tajaajila kana itti jalqabame (DNA/PCR)		
3	Bayina dhaabata fayyaa tajaajilli kun (DBS) kenamaafii jiru.		
4	Galmeen seraan qabameeraa?		
6	Maashinii DNA/PCR 2014- 2017 jiddu torban tokko caalaa tajaajila dhaabee ture?		
7	Qoranoo DNA/PCR 2014- 2017 jiddu sababa riejantiitiin torban tokko caalaa tajaajila dhaabee ture?		

8	Guyyaan turtii firii qorannoo dhiigaa deebisuu giddugaleessaan hagam?		

GALATOOMAA!!

ክፍል 1፡ የተሳታፊ ፍቃደኝነት መጠየቂያ ቅጽ

ጤና ይስጥልኝ …….. እባላለሁ፡፡ በም/ሽዋ ጤና ተቋማት

ውስጥ የሚካሄድ (infant diagnosis and factors associated among HIV exposed infants) **የተባለ ጥናት ላይ ለመሳተፍ ፍቃደኝነትን እጠይቃለሁ፡፡ ይሄ መረጃ በ** HIV **ዙሪያ ላይ ለሚሰሩ አካላት እንደ ግብዓት ይጠቅማል፡፡የምጠይቅት ጥያቄ ለ** HIV **የተጋለጡ ጨቅላ ህፃናትን በተገቢው ጊዜ መመርመርን የሚመለከት ሲሆን ግዜዎን ከመውሰዱ ውጪ ምም ዓይነት ጉዳት አያደርስቦትም፡፡ ክፍያም የለውም፡፡ መረጃው ስም ሳይጠቅስ በሚስጥር ቁጥር ብቻ የሚሰራ ሲሆን ምስጢራዊነቱ የተጠበቀ ነው፡፡ ማንም እርሶ ይህን መረጃ እንደሰጡን ሊያውቅ አይችልም፡፡ ተሳትፎዎት በፍቃደኝነት ላይ የተመሰረተ ነው፡፡ ጥያቄ ላለመመለስ ሆነ ከነአካቴው ላለመሳተፍ መብት አሎት::**

በዚህ ምክንያት የሚደርስቦት ምንም ችግር አይኖርም፡፡ ከዚህ ባሻገር ግን መረጃው ለዚህ ጥናት በጣም አስፈላጊ ነው፡፡

ፍቃደኛ ኖት? አዎ …….. አይ ……

የተጠያቂ ስም …….. ፊርማ ……..

ለተሳትፎዎት እናመሰግናለን፡፡

ማንኛውንም ተጨማሪ ጥያቄ ሆነ ማብራሪያ ከፈለጉ

ቦንቱ ብሃኑ፣ ዋና አጥኚ 0911830011, bonyyaya@gmail.com

ክፍል 4: የእናቶች መጠይቅ

ተ.ቁ	ጠቅላላ መረጃ	መልስ
1	የተቋሙ ስም	
2	እድሜ	አመት
3	ዖታ	
4	የህፃኑ የምርመራ ጊዜ	
5	የህፃኑ እድሜ በምርመራ ጊዜ	
6	ከስንት ቀን በኃላ ህፃኑ ውጤቱን ሊሰማ መጣ?	
7	ለ HIV የተጋለጡ ህፃናጽ በጸገባ ጊዜ መመርመር ስንል ምን ማለታችን ነው?	
8	ትክክለኛው ጊዜ መኤ ነው?	
9	ለ HIV የተጋለጡ ህፃናት በተገቢው ጊዜ እየተመረመሩ ነው ብለው ያስባሉ?	
10	ምክንያቱ ምን ይመስሎታል? ✓ ከባህልና ማህረሰብ ጋር የተያያዙ ✓ ከእናቶች፣ ህፃናትና ጤና አገልግሎት መስጫ ተቋማት ጋር የተያያዙ ✓ ተጨማሪ ስለ HIV ከናት ወደ ልጅ መተላለፊያ መንገዶች፣ መመሪያ ጊዜ፣ አስፈላጊነት፣ መድሎና መገለል፣ ከእናቶች የሚገኝ ድጋፍ ✓ ስለሚሰጣቸው ምክር አገልግሎት ስለ ጊዜ ጥቅምና ሚስጢራዊነት ቀጣይ አገልግሎት	

ክፍል 5: ጤና አገልግሎት ሰጪ

ተ.ቁ	ጥያቄ	መልስ	
1	የጤና አገልግሎት መስጫ ስም		
2	እድሜ	አመት	
3	ፆታ		
4	ሙያ		
5	አገልግሎት መስጫ ክፍል		
6	DBS ስልጠና ጊዜ		
7	የስራ ልምድ		
8	ለHIV የተጋለጡ ጨቅላ ህፃናትን በተገቢው ጊዜ ምርመራ ማድረግ ስንል ምን ማለታችን ነው?		
9	ትክክለኛው ጊዜ መቼ ነው?		
10	ለ HIV የተጋለጡ ህፃናት በተገቢው ጊዜ እየተመረመሩ ነው ብለው ያስባሉ?		
11	ምክንያቱ ምን ይመስሎታል? ✓ ከባህልና ማህረሰብ ጋር የተያያዙ ✓ ከእናቶች፣ ህፃናትና ጤና አገልግሎት መስጫ ተቋማት ጋር የተያያዙ ✓ ተጨማሪ ስለ HIV ከናት ወደ ልጅ መተላለፊያ መንገዶች፣ መመሪያ ጊዜ፣ አስፈላጊነት፣ መድሎና መገለል፣ ከእናቶች የሚገኝ ድጋፍ ✓ ስለሚሰጣቸው ምክር አገልግሎት ስለ ጊዜ ጥቅምና ሚስጢራዊነት ቀጣይ አገልግሎት		

ክፍል 6: የእናቶች ለእናቶች ቡድን አባል የመጠየቂያ ቅጽ

ተ.ቁ	**ጥያቄ**	**መልስ**	
1	**የጤና አገልግሎት መስጫ ስም**		
2	**እድሜ**	**አመት**	
3	**ዖታ**		
4	**የትምህርት ደረጃ**		
5	**አገልግሎት መስጫ ክፍል**		
6	DBS **ስልጠና ጊዜ**		
7	**የስራ ልምድ**		
8	**ስልጠና ከለ** HIV **የተጋለጡ ህፃናት አገልግሎት ጋር የተያያዘ**		
9	**ትክክለኛው ጊዜ መቼ ነው?**		
10	**ለ** HIV **የተጋለጡ ህፃናት በተገቢው ጊዜ እየተመረመሩ ነው ብለው ያስባሉ?**		
11	**ምክንያቱ ምን ይመስሎታል?** ✓ **ከባህልና ማህረሰብ ጋር የተያያዙ** ✓ **ከእናቶች፣ ህፃናትና ጤና አገልግሎት መስጫ ተቋማት ጋር የተያያዙ** ✓ **ተጨማሪ ስለ** HIV **ከናት ወደ ልጅ መተላለፊያ መንገዶች፣ መመሪያ ጊዜ፣ አስፈላጊነት፣ መድሎና መገለል፣ ከእናቶች የሚገኝ ድጋፍ** **ስለሚሰጣቸው ምክር አገልግሎት ስለ ጊዜ ጥቅምና ሚስጢራዊነት ቀጣይ አገልግሎት**		

ክፍል 7: የላብራቶሪ ባለሙያ መጠየቂያ ቅጽ

ተ.ቁ	ጥያቄ	መልስ	
1	የተቋሙ ስም		
2	የጀመረበት ቀን		
3	የሚልኩ የተቋማት ቁጥር		
4	የመረጃ መመዝገቢያ መዝገብ እየተጠናቀቀ ተሞልቷል?		
5	ከ2006-2010 ውስጥ ማሽን ተበላሽቶ ነበር		
6	ሪኤጀንት አልቆ ነበር		
7	ውጤት ለመመለስ ምን ያህል ይቆያል?		
8	በምን መንገድ ነው መረጃ የምትለዋወጡት?		
9	ይህን አገልግሎት መስጠት ላይ ችግር ገጥሟችሁ ያውቃል?		

እናመሰግናለን !!

ANNEX 1: DECLARATION

DECLARATION

The undersigned agrees to accept responsibility for the scientific ethical and technical conduct of the research project and for provision of required progress reports as per terms and conditions of the Faculty of Public Health in effect at the time of grant is forwarded as the result of this application.

Name of the student: Bontu Berhanu Fana

Date._____ Signature _____

APPROVAL OF THE FIRST ADVISOR

Name of the first advisor: Dr Gurmesa Tura (PhD)

Date._____ Signature _____

APPROVAL OF THE SECOND ADVISOR

Name of the second advisor: Mrs Mahilet Berhanu (MPH/RH)

Date._____ Signature _____