Incomplete vaccination and associated factors among children aged 12-23 months in Yirgalem Town, South Ethiopia

By: -Michael Mesfin (BSc)

A Thesis Submitted to the School of Graduate Studies of Addis Ababa University in Partial Fulfillment of the Requirements for the Degree of Master in Public Health (MPH).

May, 2015

Addis Ababa, Ethiopia

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DECLARATION

I, the under signed, declared that this thesis is my original work, and has not been presented for a degree in any other university and that all source of material used for this thesis and all people and institution that gave support for this have been duly acknowledge.

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As members of the examining board of the final MPH open defense, we certify that we have read and evaluated the thesis prepared by Michael Mesfin entitled, "Incomplete vaccination and associated factors among children aged 12-23 month age in Yirgalem Town, south Ethiopia" and recommend that it is accepted as fulfilling the thesis required for the degree of **Master of Public Health.**

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Final approval and acceptance of the thesis is contingent upon the submission of the final copy of the thesis to the School of graduate Council(DGC) of the candidate"s Major School.

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Abstract

Background: Immunization is one of the most successful public health initiatives. Each year, vaccination averts an estimated 2-3 million deaths from diphtheria, tetanus, pertussis (whooping cough) and measles. In 2011, nearly 107 million infants (83%) worldwide received at least 3 doses of diphtheria, tetanus, pertussis (DTP) vaccine; however, approximately 22.4 million failed to receive 3 doses, leaving large numbers of children susceptible to vaccine-preventable diseases and death. EPI cluster survey conducted in Ethiopia on 2012 revealed; only 50% of children 12-23 months of age fully complete their vaccination

Objective: To assess incomplete vaccination and associated factors among children aged 12-23 months in Yirgalem Town, South Ethiopia

Methodology: Community based cross-sectional study was conducted in Yirgalem Town from February15- march 30, 2015. A total of 473 caregivers who have children of aged between 12-23 months were included in this study from all urban kebeles of Yirgalem town. Modified 2005 WHO EPI cluster sampling method was implemented. Interviewer administered structured questionnaire was used. Data were entered and analyzed using SPSS version 20 for Windows. Bivariate and multivariate analysis was done to test the association between independent and dependent variables using binary logistic regression model.

Result: From total of 473 children included in the study 96(20%) of them didn"t complete their vaccination according to schedule for routine immunization. DPT-HepB-Hib1- DPT-HepB-Hib3 dropout was 15%. More than half of respondents 289(61%) knew that the vaccination program should be finished at the age of nine months. The study revealed that children were less likely to incomplete vaccination if their primary caregivers knew the benefit of vaccinating child, the age to complete vaccination and advised about the importance of full vaccination. Mothers ANC attendance (AOR=5.3, 95% CI: 1.12, 25) and place of delivery during their last child (AOR=8, 95% CI: 1.92, 33) were significantly associated with vaccination incompletion among children aged 12-23 months.

Conclusion: There is low Vaccination coverage among children aged 12-23 months in Yirgalem town compared to national and global target. Caregiver"s educational level, knowledge on benefit of vaccinating child and age to complete immunization, ANC follow up and institutional delivery are significant associated with incomplete vaccination on this study. Yirgalem town health office and health facilities in town should work to Increase community awareness through Intensive health education activities about the benefit and need to complete the entire schedule of vaccination.

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ACRONYMS

ANC……..… Ante Natal Care

BCG ……Bacillus Calmette- Guirin

CI ……Confidence Interval

DPT……..… Diphtheria, Pertussis and Tetanus

DHS……..…….... Demographic and Health Survey

EPI ...…… ……..……Expanded Program on Vaccination

HEW…….……Health extension worker

MDG …… ……..Millennium Development Goal

NGO……Non-governmental organization

OPV …… ……Oral Polio Vaccine

OR ……..……..Odds Ratio

SNNPR……Southern nation ,nationalities and people‟s region

TT…….. Tetanus Toxoid

WHO…….. World Health Organization

1. INTRODUCTION

1.1 BACKGROUND

Globally Under-five mortality rates have dropped by 49% between 1990 and 2013. The average annual reduction has accelerated but overall progress is still short of meeting the global target of a two-thirds decrease in under-five mortality by 2015. New estimates in "Levels and Trends in Child Mortality 2014" show that in 2013, 6.3 million children under five died from mostly preventable causes. Eight of the 60 countries identified as „high mortality countries" have already reached or surpassed the MDG target (67% reduction). major improvements in child survival are in part due to affordable, evidence-based interventions against the leading infectious diseases, such as immunization, insecticide-treated mosquito nets, rehydration treatment for diarrhea, nutritional supplements and therapeutic foods(1).

In 1974, the World Health Organization (WHO) established the Expanded Programme on Immunization (EPI) to ensure all children had access to routinely recommended vaccines. Initially, those vaccines were limited to bacille Calmette-Guérin vaccine (BCG), diphtheria-tetanus-pertussis vaccine (DTP) and oral poliovirus. In 2011, an estimated 83% of infants worldwide were vaccinated with three doses of vaccines required to immunize them against diphtheria, tetanus and pertussisi (2). Immunization is one of the most successful public health initiatives. Each year, Immunization averts an estimated 2-3 million deaths from diphtheria, tetanus, pertussis (whooping cough) and measles (3).

The Expanded Program on Immunization started in Ethiopia in 1980 with the aim of reducing mortality and morbidity of children and mothers from vaccine preventable diseases (4). Immunization schedule for the ten EPI vaccines for children and tetanus vaccination for women of reproductive age in Ethiopia strictly follows the WHO recommendations for developing countries. Global goals and strategies related to specific disease control initiatives such as polio eradication, measles mortality reduction, and maternal and neonatal tetanus elimination have been adopted in the national vaccination policy(5). Immunization Service is given free of charge in the public sectors and NGOs operating in the field of health (4).

1.2 STATEMENT OF PROBLEM

Approximately 29% of deaths in children under five are vaccine preventable (3). In 2011 alone, 1.5 million children died from diseases preventable by currently recommended vaccines (6). It has been also recognized that vaccine preventable diseases are responsible for 16% of under five mortality in Ethiopia (7).

In 2011, nearly 107 million infants (83%) worldwide received at least 3 doses of DTP vaccine; however, approximately 22.4 million failed to receive 3 doses, leaving large numbers of children susceptible to vaccine-preventable diseases and death (8). Nearly 8.4 million received at least 1 DTP dose, but dropped out before completing the 3-dose series. (*9*).One out of five infants worldwide does not receive 3 life-saving doses of the diphtheria, tetanus and pertussis vaccine(3).

Dropout rate is used to measure program continuity and follow up. The dropout between the first and third doses of DPT-HepB-Hib, in particular is the best indicator as this vaccine is not typically given during campaigns. In routine EPI programs, drop-out rate higher than 10% usually indicate quality problem with the program and need to be addressed (12). To achieve maximal protection against vaccine-preventable diseases, a child should receive all vaccines within recommended intervals (10).One dose of OPV produces immunity to all three poliovirus serotypes in approximately 50% of recipients. Three doses of live-attenuated OPV produce protective antibody to all three poliovirus types in more than 95% of recipients (11).

EPI cluster survey conducted in Ethiopia on 2012 revealed; only 50% of children 12-23 months of age fully complete their vaccination. The total unadjusted dropout rate (card, verification and history) for DPT-HepB-Hib1-3 was 25.6% nationally on this study. According to this survey in SNNPR only 58.7% of children 12-23 months of age complete their vaccination fully and DPT-HepB-Hib1- DPT-HepB-Hib 3 dropout rate was 21.7% from all sources (12). Administrative reports of the past three years show Yiraglem town has high vaccination defaulters persistently. Hence, the aim of this study is to fill gaps seen in study topic that are not addressed by other similar researches.

1.3. SIGNIFICANCE OF THE STUDY

The information obtained from this study is expected to fill gaps seen in availability of study done on factors of vaccination incompletion which may vary among communities. The result of the study will also help to inform program mangers to consider the important contributing factors for incomplete vaccination while planning to improve vaccination program.

The study will contribute for effective utilization of resources by coming up with relevant, evidence-based recommendations for addressing issues related with vaccination incompletion rate. Findings from this study can guide program managers on how to reduce incomplete vaccination and consequently, reduce the incidence of vaccine preventable diseases in the study areas and probably other parts of the country with similar challenges.

2. LITERATURE REVIEW

2.1 INCOMPLETE VACCINATION

Nearly 8.4 million received at least 1 DTP dose, but dropped out before completing the 3-dose series. (*9*).One out of five infants worldwide does not receive 3 life-saving doses of the diphtheria, tetanus and pertussis vaccine(3). In 2011, nearly 107 million infants (83%) worldwide received at least 3 doses of DTP vaccine; however, approximately 22.4 million failed to receive 3 doses, leaving large numbers of children susceptible to vaccine-preventable diseases and death (8).

Ethiopia is implementing policies and strategies aligned with global targets to advance the achievement of MDG 4 in reducing child mortality by 2/3 by 2015. The national EPI schedule targets children under one year providing BCG, OPV, DPT-HepB-Hib (a switch from DPT in March 2007), measles, pneumococcal and rota vaccine. Women of childbearing age (15-49 years of age) are targeted with tetanus toxoid (TT) vaccine, with emphasis given to pregnant women during antenatal care service (13).

In Ethiopia, the immunization policy calls for BCG vaccine given at birth, three doses of DPT-HepB-Hib and PCV vaccine given at 6,10and 14 weeks of age, four doses of oral polio vaccine given approximately at 0, 6,10, and 14 weeks of age, two doses of Rota vaccine given at 6 and 10 weeks and measles vaccine given at 9 months of age. Vaccination service delivery strategies include fixed (static), outreach, and mobile sites at government and private health facilities (4)

According to DHS 2011, 66 percent of children had received the BCG vaccine, and 56 percent had received the measles vaccine. A relatively high percentage of children received the first DPT dose (64 percent). However, only 37 percent went on to receive the third dose of DPT, reflecting a dropout rate of 43 percent. More than eight children of every ten (82 percent) received the first dose of polio, but only about four in ten (44 percent) received the third dose, reflecting a dropout rate of 46 percent. Even though DPT and polio vaccines are often routinely administered at the same time, polio coverage is higher than DPT coverage. This is primarily due to the success of the national vaccination day campaigns, during which polio vaccines are administered (14).

According to 2012 EPI survey the weighted Ethiopian EPI coverage by antigen is BCG 79.6%; DPT-HepB-Hib1 80.0%; OPV1 90.1%; adjusted DPTHepB-Hib3 65.7%; OPV3 70.5%; and measles 68.2%. Coverage for all antigens tends to be higher in children of caregivers with higher educational attainment, higher wealth, children of first parity, and those residing in urban areas.The survey revealed high drop-out rates in the vaccination program. The total unadjusted drop-out rate (card, verification and history) for DPT-HepB-Hib1-3 was 25.6% nationally, ranging from 2.6% (Addis Ababa) to 63.8% (Somali)(10).

Immunization service provision has shown gradual increase since 2004 reaching 88% administrative coverage of penta 3 in 2013. for the last three years a decline in the national administrative coverage has been observed. The number of zones with over 10,000 unimmunized children increased by 42% from 2011 to 2012(15).

Service delivery as well as socio-economic determinants influence not only receiving an antigen, such as DPT-HepB-Hib, but also drop-out rates that reflect utilization of immunization services. These determinants play a role in regions with drop-out rates less than the WHO standard (<10%), as well as in those regions with drop-out above the „acceptable" threshold (>10%)(12). below here are some of determinants that are found out to affect incomplete vaccination on different studies.

2.2 MATERNAL SOCIO DEMOGRAPHIC FACTORS

Maternal socio demographic factors affect most of health issues related with the family. These factors include factors such as maternal age, religion, marital status and educational and employment status. Case control study done in Jamaica showed no significant difference in terms of age ($t = 1.07$, $p = 0.285$) between mothers of the non-defaulter (mean age was 28 ± 6.1), and mothers in defaulter group (29 ± 6.7)(16). but in other study done in Malaysia it was found out There were significant associations between defaulters of vaccination with mother"s age (OR 7.4, 95%CI: 1.1– 48.2)(17). The same study showed there were significant associations between defaulters of vaccination with family size (OR 4.1, 95%CI:1.2 -.14.6)(17).cross-sectional study done Mozambique revealed factors such as mothers' age, marital status and

schooling level showed no significant differences with respect to children with complete and incomplete vaccination status(18).

Cross-sectional study done in Ambo woreda showed children of mothers" who attended primary school were 2.12(95% CI: 1.4, 3.2) times more likely to be fully vaccinated as well as those of attended high school and above were 5.74(95% CI: 3.3, 9.9) times more likely to be fully vaccinated than those of illiterate. Similarly 2011 Demographic Health Survey findings showed Children whose mothers have secondary education are more likely to be fully immunized than those born to mothers with no education 57 and 20 percent, respectively (14). The survey also compare children of mothers other occupation with children of housewife, children of government employee were 5.5(95% CI: 2.5, 12) times more likely to complete vaccination and those of farmers were 0.3(95% CI: 0.24, 0.6) times less likely to be fully vaccinated (19).

EPI coverage of 2006 showed Children of low parity households in Ethiopia were also more likely to be vaccinated than those in high parity families (20). EPI survey conducted on 2012 showed similar finding were dropout rate was 18.2 % for those households who has 1 child only and 36.6 % for those households has more than six children (12).

Average monthly income of household is another variable that have an association with completion of vaccination. cross-sectional study conducted in Ambo woreda showed Households who have an average monthly income of greater than 1000 Ethiopian birr and between 500-1000 birr were 3.2(95% CI: 1.9, 5.3) and 2.5(95% CI: 1.5, 3.9) times more likely to fully vaccinate when compared who had less than average monthly income of 500 birr.(19). Study done in Wanago Southern Ethiopia in 2008 similarly identified monthly income as the only factor associated with defaulting from vaccination mothers or immediate caretakers who had monthly family of 44-88 USD were 81.1% less likely to have defaulter children than mothers or immediate caretakers who had monthly family income below < 22 USD, OR=0.430 [95% CI: 0.20, 0.94](21).

2.3KNOWLEDEGE AND ATTITUDE ON IMMUNIZATION

Knowledge of mothers or immediate caretakers about vaccination affects children vaccination status. Knowledge about vaccination contraindications was confounder for incomplete vaccination status of the children and found to be statistically non significant (p-value > 0.05) in study done Nigeria(22).Another cross-sectional study conducted in Ambo woreda showed

children of mothers who know correctly age at which the child should begin and finishes vaccination were 2.4(95% CI of 1.4, 5.2) and 3.3(95% CI of 1.8, 6) times more likely to be fully vaccinated than those of illiterates(19).

Knowledge of mothers or immediate caretakers about schedule of vaccines had significant association with child completion of vaccination ($\chi 2=11.06$, at p-value <0.001) on study done in wongo wored, south Ethiopia. the study showed Mother who knew the schedule correctly were 3 times more likely to vaccinate their children fully than mother who didn"t know vaccine schedule, OR=3 [95%CI: 1.4, 6.3].Mothers who had negative perception about vaccination were 6 times more likely to have defaulter children than mothers who had positive perception, OR=6.3(0.4,94)(21).

2.4 IMMUNIZATION SERVICE ACCESS AND QUALITY

Access and quality of different services given at health facilities determine the health seeking behaviors of the community. Cross-sectional study done in Sudan showed that walking time to the nearest place of vaccination strongly influenced the correct vaccination status of the child. Children of mothers who have better access to vaccine services (less than 30 minutes walking time to the nearest place of vaccination) were 3.4 times more likely to have had the correct vaccinations than were children of mothers who have to walk 30 minutes or longer (23).In contrary to this transportation need, physical accessibility, were confounders for incomplete vaccination status of the children and were found to be statistically non significant (p-value > 0.05) in one study in Nigeria(24).

Study done in Kenya showed on the opinion of respondents on the health immunization services offered in the area, 84.6% of mother/guardians who rated vaccination services offered within the area as very good are more likely to have children who have received full vaccination compared to those whose mothers/guardians rated vaccination services as good (72.8%), (OR=2.05; 95% CI: 1.17 - 3.59; p=0.011)(25).but in another study done Malaysia it was shown in Waiting time and bad service experienced were found not to be the reasons for defaulting vaccination as none of the respondents reported to experience it(17).

In study done in Mozambique it was shown there is no significant association between vaccination completion and accessibility in terms of distance (P = 0.69), need of transport (P = 0.11)(20).EPI survey conducted on 2012 indentified dropout rate was 21.3% for those children lives below 5Km from health facility and it was 31.6% for those that live more than 5km from health facility(10).A national survey of defaulters in Ethiopia showed that kebeles (districts) with Health Extension Workers (HEW) were more likely to have higher coverage. Also, kebeles where the vaccination sites were within 1 hour of walking distance had higher coverage than those with longer walking time (20).

2.5 MATERNAL HEALTH CARE UTILIZATION

There are different covariates of maternal and child health services utilization that affect defaulting. study done 2001 in rural Mozambique shows that home delivered children have a 2.27 times higher of not completing their vaccination program (18).ever attendance of Ante natal Care (ANC) was significantly associated with defaulting (χ**2=13.3, p-value<0.001**) in another study done in wongo wored, south Ethiopia. Children whose mother attended antenatal care were 1.8 times more likely to complete their vaccination schedule compared to their counterparts (OR = 1.84; 95% CI: 1.01-3.36)(21).There were six home deliveries in the non-defaulter group compared to only one in the defaulter group, but the different was not significant in Malaysia study(17).

The study conducted in wongo wored, south Ethiopia also showed significant association between Postnatal Care (PNC) utilization after the delivery of the index child and completion of child vaccination (**χ2 =5.81, p-value< 0.05**). Mothers who did not use PNC service after delivery of the index child were six times more likely to have defaulter children than mothers who used PNC services ,OR=5.538 [95%**CI: 1.27, 24.1**].(21).

2.6 REASONS FOR INCOMPLET VACCINATION

Different reasons are given by parents and caregivers for not vaccinating their children fully Specific reasons for not being able to vaccinate their child were identified in study done in Mozambique. These were: a) Reasons associated with health services delivery (n = 71, 38.3%), including long waiting time, no personnel at the health facility, no vaccines available on the day, no information about the day for vaccination and no vaccination given due to child sickness; b) Forgetting the day of vaccination (n = 33, 17.8%); c) Difficulties in accessing the health facility (n =29, 15.6%); d) Mother's sickness on the day of vaccination (n = 7, 3.7%); e) Migration (n = 4, 2.1%); f) Concomitant treatment by a traditional healer (n = 3, 1.6%); g)Other miscellaneous reasons (20.5%)(18)

In another study done in Nigeria in Benin City various reasons were adduced by the mothers for Incomplete vaccination of their children. These include long waiting time at the health facility (15.2%), lack of vaccine on the appointment day (3.5%), absence of personnel at the health facility (5.4%), child ill-health at the time of vaccination (3.6%), lack of information about the days for vaccination (2.5%), forgetting the days of vaccination(1.5%), long distance walking (17.5%), mother‟s illness on the day of vaccination (0.5%), social engagements (0.4%), lack of money (10.6%), schooling mothers (0.5%), parents objection, disagreement or concern about vaccination safety (38.8%) and other miscellaneous reasons (3.5%)(24).

From the reasons given on cross-sectional study done in ambo woreda for not completing vaccination majority of the respondents said the vaccination time is inconvenient (25.2%), 17.9% of them said they do not know whether to come back for subsequent doses, 17% of them gives other reasons plus no reasons, 14.8% defaulted because of vaccination is site is far away from them and the last given reason was lack of awareness about vaccination among 1.4% of the respondents (19)

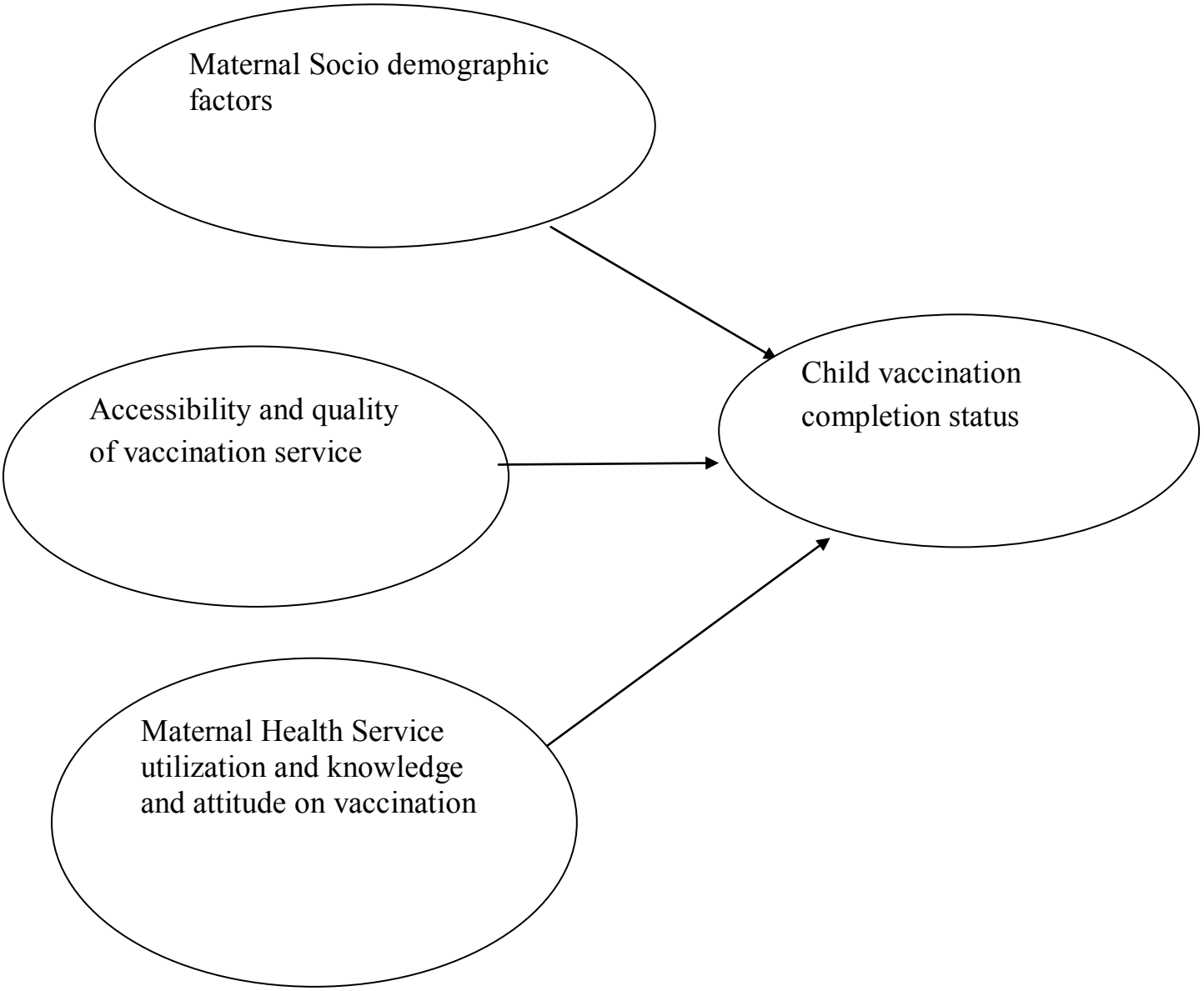

Figure 1: conceptual framework of factors associated with vaccination completion children Modified from Belachewu Etana study on assessment of vaccination status and associated factors in Ambo woreda (19).

3. OBJECTIVES

3.1. GENERAL OBJECTIVE

To assess incomplete vaccination and associated factors among children aged 12-23 months in Yirgalem Town, South Ethiopia

3.2. SPECIFIC OBJECTIVES

1. To determine the incomplete vaccination among children aged 12-23 months
2. To identify socio demographic factors associated with incomplete vaccination among children aged 12-23 months.
3. To assess the knowledge of the mother/caregivers on vaccination and its association with vaccination incompletion rate
4. To assess mothers/caregivers utilization of ANC, contraceptive and delivery place and their association with vaccination incompletion rate

4. METHODS AND MATERIALS

4.1. STUDY DESIGN

Community-based cross-sectional study design was conducted.

4.2. STUDY AREA AND PERIOD

The study was conducted at Yirgalem Town which Located 310 kilometers south of Addis Ababa and 40 kilometers south of Hawassa city in the Sidama Zone of the Southern Nations, Nationalities, and Peoples Region. According to 2007 Ethiopia national census the projected population size of town is 43,359 in 2014. There are 10,103 women of reproductive age group, 6,768 under five children and 1383 under one children in the town. Agriculture, mainly coffee cultivation, is the predominant means of livelihood for residents. The town has 6 urban kebeles. There are one Zonal hospital,1 health centers and 1 NGO clinic in the town. Vaccination service is being provided in health center, NGO clinic and hospital free of charge. Data for this study was collected from February15- march 30, 2014.

4.3 POPULATION

4.3.1. Source population

All Mothers/caretakers with children aged between 12-23 months in Yirgalem town.

4.3.2. Study population

Mothers/caretakers with children aged between 12-23 months (as per the reported dates of birth), within eligible household in selected cluster.

4.4. INCLUSION AND EXCLUSION CRITERIA

4.4.1. Inclusion criteria

Households that have living child of aged between 12-23 months and residing in the area were eligible. When there were two or more children the youngest child by age was selected. When households had twin children one of them was selected using lottery method.

4.4.2. Exclusion criteria

Households without children aged between 12-23 months not included.

4.5. SAMPLE SIZE DETERMINATION

The sample size was determined for first objective based on sample size calculation for single population.

$$n = \frac{(Z\alpha/_2)^2\, p\,(1-p)}{d2} * DE = 557$$

Where,

P =proportion of children who didn"t complete vaccination (41%) (21)

d= margin of error=0.05

Z $\alpha/_2$=confidence level required and Z$\alpha/_2$ at 95% CI = 1.96

n=minimum sample size

DE=design effect is taken as 1.5

Since the sample size was taken from relatively small population (N=2000)the required minimum sample size was obtained by making adjustment using population correction formula. The total of 478 children aged between 12-23 months was targeted for the study after addition of 10% non response rate.

Sample size was calculated for remaining objectives such as socio demographic factors associated with vaccination incompletion rate. The sample size for the first objective was the biggest one, so sample size of **478** was taken as a final sample size for this study.

4.6. SAMPLING PROCEDURES

Modified 2005 WHO EPI cluster sampling method was used. This method provides Guidance on conducting high quality cluster surveys for measuring levels and validity of immunization coverage and reasons for non-immunization.it also provides guidance for identifying a starting and subsequent households. Yirgalem Town has six urban kebeles only and all of them were included in the study. From each kebele 80 households were selected According to WHO EPI cluster sampling method the first household was selected by locating approximate geographic center in each kebele and one direction from the centre was choosen using random number table by identifying all possible directions. The next step was counting all households from the centre of the area to the edge of the area. Then randomly select a number between one and the number of households counted, and this was the first household to visit. The subsequent households were selected, according to the inclusion criteria, based on the principle of the next nearest household until sample size is reached. WHO EPI Cluster sampling method recommend this

option for identifying a starting household and subsequent households when it is not feasible to get list of all households of clusters to use it as sampling frame.

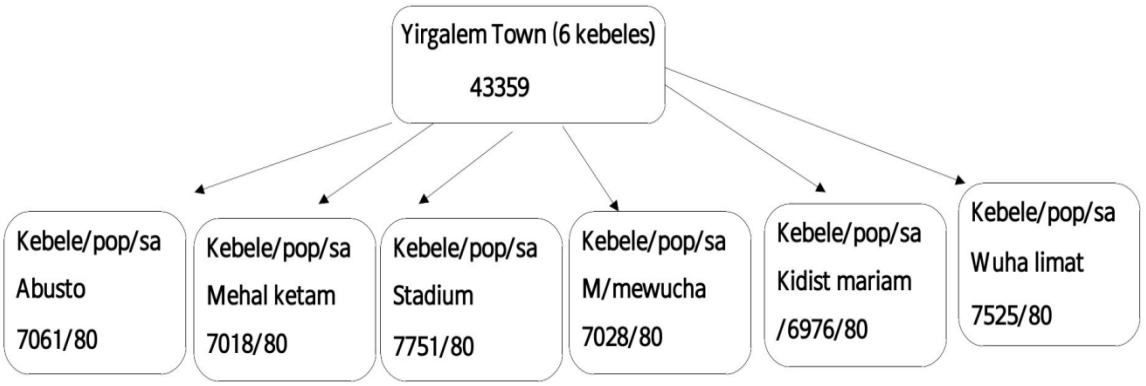

Figure 2:- Schematic presentation of Sampling procedure in Yirgalem Town, South Ethiopia, march,2015

4.7. DATA COLLECTION TOOLS AND PROCEDURES

The questionnaire was adapted and modified from Ethiopian EPI Survey of 2012,DHS and other previous studies questionnaires. It was translated into Amharic and translated back to English for consistency. Vaccination histories of children, information on socio-demographic characteristics, monthly income, sex of the child, ANC follow up, place of

delivery, accessibility and quality of vaccination service, family size, knowledge of mothers or immediate caretakers on vaccination and Reasons for defaulting were captured into the questionnaire.

The child's vaccination dates number of doses and dates of other visits to the health facility was extracted and collected from vaccination card and history. Information about mother‟s knowledge on vaccination and the program, and accessibility to the nearest health facility was obtained through verbal information. If vaccination card was unavailable for the child, the mothers/caretakers were asked for vaccination history. The number of doses the child took and how (the route of vaccine administered) was used to identify given antigen for the child. Respondents that were not available during the first visit was revisited within the day or during the interviewer‟s stay in the area.

The data collectors for the surveys were recruited among nurses working in Yirgalem town health facilities. They speak and write Amharic, Sidamagna and English. They received two days intensive training before data collection. Training was given by Amaharic on how to ask and fill the question, selection criteria of households and children, and how to approach the mothers/caretakers. Before the actual data collection days, the questionnaire was pre-tested for completeness and appropriateness to the local context on 5% households and was modified accordingly.

4.8. STUDY VARIABLES

4.8.1. DEPENDENT VARIABLE

- Vaccination Status of children aged between 12-23 months

4.8.2. INDEPENDENT VARIABLE

- Socio-demographic characteristics: age, sex, ,religion ,educational status, income level, marital status, Occupational status
- Knowledge and attitude of mothers/caretakers on vaccination and vaccination service
- Family size ,Family income and Number of child ever born
- Time of travel to reach the nearest health facility and quality of the service
- Place of delivery
- ANC follow up

4.9. OPERATIONAL DEFINITIONS

The following operational definitions were used:

Fully vaccinated- children are considered as fully vaccinated when they have received a vaccination against tuberculosis (BCG), three doses each of the DPT and polio vaccines and measles vaccination by the age of 12 months.

Partially vaccinated- children are considered as partially vaccinated when they miss at least one doses of the above mentioned vaccines on fully vaccinated definition.

Unvaccinated- children are considered as unvaccinated when they did not receive any dose of the above mentioned vaccines on fully vaccinated definition.

Vaccinated- children are considered as vaccinated when they who took at least one dose of the above mentioned vaccines on fully vaccinated definition.

Dropout rate-This is the rate difference between the first and the last dose or the rate difference between the initial vaccine and the last vaccine..

Health service utilization of mothers- utilization of ANC, contraceptive and delivery service by the mothers from government or private health institution.

4.10. DATA QUALITY CONTROL

Before data collection, the interview Questionnaire was translated from English to language Amharic and then back translation was done by other person to check for the consistency. the questionnaire was pre-tested before the actual data collection days on 5% households in one of the kebeles. Moreover, data collectors and supervisors was trained for two days. During data collection, supervisors were checking how the data collection process. At the end of each data collection day, the principal investigator and supervisors checked the completeness of filled questionnaires. Every questionnaire was checked before data entry by principal investigator.

4.11. DATA PROCESSING AND ANALYSIS

Data were coded and analyzed using SPSS version 20 for Windows. Summary statistics such as, percentages and graphical techniques were used. Then bivariate analysis was done to test the association between the independent and the outcome variables. All explanatory variables that were associated with the outcome variable in bivariate analyses were included into multivariate logistic regression, to determine factors that are significantly associated with vaccination incompletion rate. P-value of 0.05 was considered as a cut-off point for statistical significance.

4.12. ETHICAL CLEARANCE

Permission to carry out the research study was gained from Addis Ababa University School of Public Health Institutional and a letter of cooperation was taken from the school of public health to Yirgalem Town health office. verbal and written informed consent was taken from all the study participants. Information was given to all participants about the objective, the contents of the study, as well as their right to refuse and discontinue the data collection. Besides to this all the information collected from the study subjects was handled confidentially and data was used for the research purpose only.

4.13. DISSEMINATION PLAN

The results of the study will be disseminated to the responsible administrators: -Sidama zone health department and health office, school of public health at Addis Ababa University office. The thesis will also be submitted to the SNNPR Regional State Health Bureau. Findings will also be presented for different work-shops and seminars and will be published in a peer reviewed journal.

5. RESULT

5.1 Socio-Demographic Characteristics of study population

A total of 473 caregivers of children aged between 12-23 months were interviewed for the survey. The majority 356 (75%) were between the age of 20 and 34, 112 (24%) were 35 years and above and the remaining 5 (1%) were less than the age of 20 years with mean age of 29.8±5.9 (Table.1).

The immediate caregivers of the children were mothers (94.5%), fathers (1.9%) and other family members (3.6%). Concerning marital status, 84% of the caregivers were currently married followed by 6% single and the rest 10% were divorced or widowed. With regard to religion 280 (59%) were Protestant while 110 (24%) were orthodox Christians.

The majority 304 (64%) belong to the Sidama ethnic group. Among the interviewed caregivers 27% have primary education, 16% have secondary education, 18% were with higher education and the rest 39% were with no education.

By occupation 257 (54.3%) were housewives and 105 (22.2%) were government employees. With regard to the income of respondents, 134 (28%) were with monthly income less than 500 birr and 304 (64%) were with monthly income greater than 500 birr(Table.1).

Table 1: - Socio demographic characteristics of caregiver in Yirgalem Town, South Ethiopia, May, 2015

Age	Frequency	Percent
<20 years	5	1
between 20-34	356	75
35 and greater than 35	112	24
Education level		
No education	179	39
Primary	130	27
Secondary	78	16
Higher	86	18
Marital status		
Married	398	84
Single	25	5
Widowed	20	4
Divorced	30	6
Occupation		
House wife	257	55
Farmer	35	7
government employee	105	22
Merchant	32	7
daily laborer	30	6
OTHERS	16	3
Religion		
Orthodox	110	23
Muslim	42	9
Protestant	280	59
Catholic	19	4
Other Christians	21	5
Ethinicity		
Sidama	304	64
Wolyita	48	10
Kamibata	25	6
Oromo	16	3
Tigirea	14	3
Amahara	20	4
Others	46	10
MONTHLY INCOME	Frequency	Percent
<500 birr	134	28
>500 birr	304	64
Unknown	35	8

5.2 Family size and characteristics of the child

Among the respondents 76 (16%) have one child, 272 (57.5%) have 2 or 3 children, 106 (22.4%) have 4 or 5 children, 19 (4%) have greater than 6 children. child death was experienced by 8% of the caregivers.

The average family size of the study population was 5.15 ranging from 2 to 11, in which most families had less than 5 members (37%). The mean age of the children was 18 months (range 12–24) and 227 (48%) were of the female gender (Table 2).

Table 2: - Family size and characteristic of child, in Yirgalem Town, South Ethiopia, May, 2015

Sex of child	Frequency	Percent
Male	246	52
Female	227	48
Number family size		
≤4	176	37
≥5	297	63
Children from mother		
1	76	16.1
2 - 3	272	57.5
4 - 5	106	22.4
≥6	19	4
Child death		
Yes	38	8
No	434	92

5.3 Knowledge and Attitude on Immunization and Vaccine preventable diseases

Majority 423(89.4%)of caregivers had heard about the EPI as a specific program. caregivers major sources of information include health workers (n = 102, 22%), health extension workers (n = 85, 18%), community members (n = 74,16%) and Radio and TV (n = 121, 26%).Among these caregivers 250(53%) of them heard message related with vaccination completion. immunization was considered to be important to prevent disease by 236(50%) mothers while 124 mothers (26%) believe it help for child health.

Mothers were asked if they think vaccine may cause harm to child health and 88% of them replied it has no harm for child health. Most of the respondents (73%) know at least 2 vaccine preventable diseases while 7% stated that they don"t know any vaccine preventable diseases (Table 3).

Table 3: - Caregiver"s knowledge and attitude on Vaccination and vaccine preventable disease in Yirgalem Town, South Ethiopia, May, 2015

Heard or seen about Vaccination	Frequency	Percent
Yes	423	89.4
No	50	10.6
Source of information		
Community members	74	16
health workers at health facility	102	22
health extension workers	85	18
Radio	77	17
Tv	44	9
kebele administrator	38	8
Messages content		
Message related with completion	250	53
Message not related with completion	179	37
Benefit of vaccinating a child		
To prevent the disease	236	50
For specific disease	79	17
For child health	124	26
I don't know	34	7
Mention Vaccine preventable diseases		
≤2	343	73
3 and 4	72	15
≥ 5	25	5
I don't know	33	7
vaccination may cause health problem		
Yes	61	12.9
No	412	87.1

Knowledge of respondents assessed about age child should begin vaccination and 63% of them respond just after birth and 6 weeks after birth. Above half of respondents 289(61%) knew that the vaccination program should be finished at the age of nine months. among respondents 63.8% of them know four sessions are needed to fully complete child vaccination(Table4).

Table 4: - Caregiver‟s knowledge on Age to begin and complete vaccination and session needed in Yirgalem Town, South Ethiopia, May, 2015

Age to begin vaccination	Frequency	Percent
Just after birth	98	20.7
Four weeks after a birth	208	42.7
Six weeks after a birth	115	24.3
I don‟t know	36	7.6
Other	22	4.7
Sessions needed for full vaccination		
One	32	6.8
Two	35	7.4
Three	58	12.3
Four	302	63.8
Five	13	2.7
I don‟t know	33	7
Age to complete vaccination		
6 month	40	8.5
9 month	289	61
12 month	31	6.5
Others	113	24

5.4 MATERNAL HEALTH CARE UTILIZATION

To assess maternal health care service utilization their follow up on ANC, Place of delivery and contraceptive utilization were taken as indicators. Among mothers 395 (83%) of them have attended antenatal care at least once and 74.7% of them attended three and more times. Delivery Practice of mother during the last delivery prior to the survey showed 74.2% of them had facility delivery.

Of the total mothers, 4022 (85%) used any type of modern contraceptive method. Most of the mothers and immediate caretakers 354 (74.8%) took their children to health institution to seek

help for illnesses(Table 5).

Table 5: - Maternal health care utilization in Yirgalem town, Sidama Zone, May, 2015

Attended Antenatal care	Frequency	Percent
Yes	395	83
No	85	17
Frequency of ANC		
≤2	100	25.3
≥3	295	74.7
Place of delivery		
Health facility delivery	351	74.2
Home delivery	122	25.8
Place to seek help for child illnesses		
Health institution	354	74.8
Other places	119	25.2
Utilization of contraceptive ever		
Yes	402	85
No	71	15

5.5 ACCESS AND QUALITY OF IMMUNIZATION SERVICE

The survey showed that 380(80.3) lived nearby health facility that provide vaccination service. The walking time to the nearest health facility was 15-30 minutes for 239(50%) care takers and the same number of respondents replied they get vaccination service from health center .majority of the care takers walk to nearby health facility to get vaccination service while 19 percent of them use transportation means (Table 6).

Table 6: - Immunization Service Access in Yirgalem Town, South Ethiopia, May, 2015

Nearby health facility with vaccination	Frequency	Percent
Yes	380	80
No	93	20
Type of health Facility		
health center	239	50
Hospital	16	3
private clinic	128	27
Transportation to Health Facility		
Walk	382	81
By any transport	91	19
How long does it take to Health Facility		
Less than 15 minutes	193	41
15-30 minutes	239	50
30-1hour minute	41	9

To assess quality of immunization service provided in health facilities in town few questions where included in the questionnaire mainly related with clients of immunization service. Among clients 276(59%) of them get advice from health worker who provide them vaccination service and 38% of them were counseled about the importance of completion of child vaccination. respondents were asked about waiting line during service and 120(25%) of them answered there was long waiting line during their last visit for vaccination service and only 60.2% of them rated the satisfaction they get from vaccination service good. among the mothers who take their children for vaccination 25 of them claim they were refused of the service due to shortage of supplies (32%),not vaccination day (28%) and the child was sick(24%)(Table 7).

Table 7: - Vaccination service quality in Health facilities visited by caregivers in Yirgalem Town, South Ethiopia, May, 2015

Health worker advice	Frequency	Percent
Yes	281	59
No	197	41.6
Area of advice		
Advice related with completion	102	21
Advice not related with completion	179	38
Long waiting line		
Yes	120	25
No	353	75
Satisfaction of Vaccination service		
Good	287	60.2
Medium	152	32.5
Bad	29	6.2
Refused Vaccination service		
Yes	25	5
No	450	95
Reasons for refusal		
Child was sick	6	24
Shortage supplies for vaccination	8	32
Not vaccination day	7	28

5.6 Vaccination coverage

Vaccination coverage was defined as reported vaccination, evidenced by card, by

history from mother/caregiver.Information on child vaccination was obtained from 373children aged 12- 24 months, of whom 231 (48.8%) had vaccination cards. it was found that 367(77.8%, *95% CI: 73,83*) of children had competed the recommended vaccination by history and vaccination card . Whereas 94(20%),95%CI:15%,20%) and 12(2.5%) of the children were partially immunized and never vaccinated respectively. The vaccination coverage varied among series of vaccines. The BCG vaccination coverage was 87.5% and measles vaccination rate was 79% by history and vaccination card. Similarly DPT-HepB-Hib3 and polio three vaccination coverage was 81% and 82% respectively by history and vaccination card. The DPT-HepB-Hib1-measles measles dropout rate for children was 18 and DPT-HepB-Hib1- DPT-HepB-Hib3 dropout was 15.

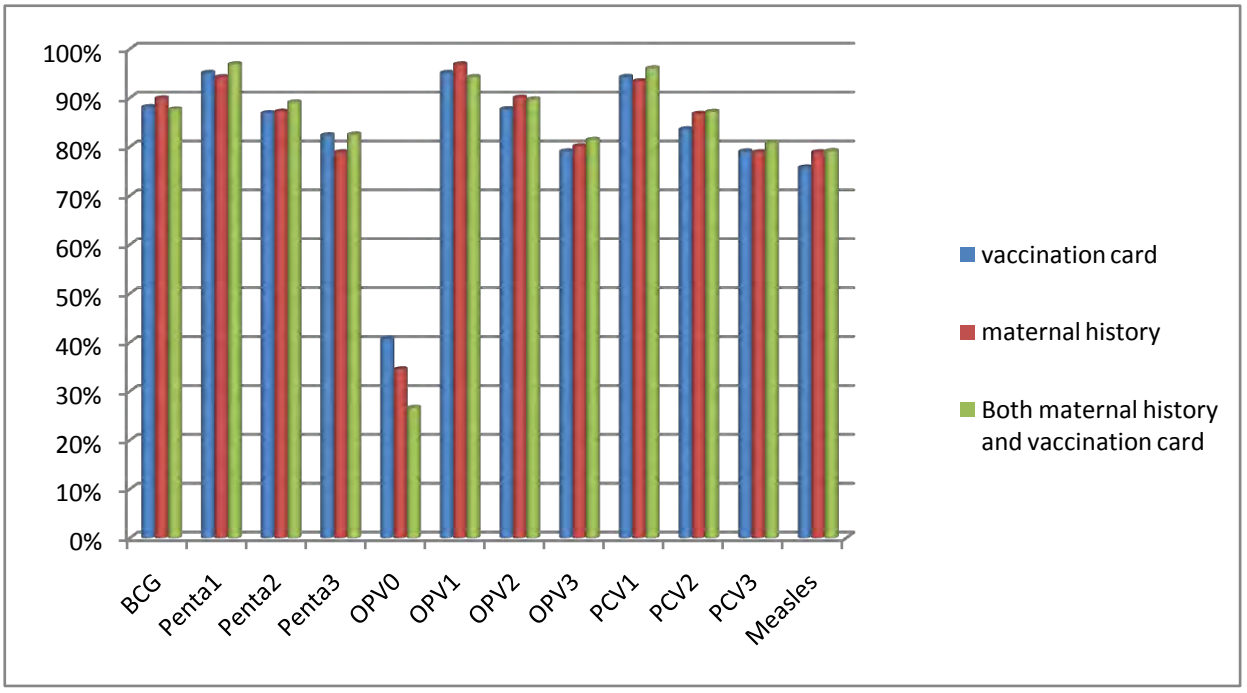

Figure 2: - Vaccination coverage among children aged 12-23 months by card plus history, Yirgalem Town, South Ethiopia, May, 2015

Coverage by card only was also calculated for those children who had vaccination.. From these children, 88% took BCG vaccines which is followed by measles (76%). DPT-HepB-Hib1 was also taken by 95% children, 82% took pentavalent3 vaccine.OPV3 vaccine was taken by 79% of children and DPT-HepB-Hib1- DPT-HepB-Hib3 dropout by card only was 13 %(Figure 2).

5.7 Reasons for Defaulting from Vaccination service

To determine reasons why care givers failed to complete their child vaccination, the

survey asked the specific reason. The findings of the survey showed that 18 % of caregivers reported that the reason for not completing child vaccination was not knowing whether to come back for second and third vaccination,18% Absenteeism of vaccinators or no vaccine,13% mother was sick/busy/traveled ,11% vaccination time not inconvenient,10% child was sick,6% fear of side effect and the remaining 15% of them give different other reasons.

There were 12 children who never vaccinated and different reasons were given by mothers and the reason given by more than half of for not vaccinating their children was lack of awareness on importance of vaccination and the remaining respondents answered fear of side effect and child was sick as a reason(Table 8).

Table 8:- Reasons given by caregivers for not completing children Vaccination, Yirgalem Town, South Ethiopia, May, 2015

Reasons for incompletion of vaccination	Frequency	Percent
Vaccination site is far-away	7	7.2
Vaccination time is inconvenient	11	11.4
Absenteeism of vaccinators or no vaccine/supplies	17	17.7
Lack of awareness on the importance of vaccination	5	5.2
Not knowing whether to come back for second and third vaccination	17	17.7
Fear of side effects	6	6.2
child was sick	10	9.6
mother was sick/busy/travel	12	12.5
Other	11	11.4

5.7 Factors associated with incompletion of vaccination

The study assessed factors affecting completion of child vaccination including socio

demographic characteristics of mothers, child characteristics, maternal health care utilization, vaccination service availability and quality, and knowledge and attitude of caregivers on vaccination and vaccine preventable. Vaccination status of children is measured according to national guideline for routine EPI schedule..

5.7.1 Socio-demographic characteristics of care takers

For further analysis, the dependent variable vaccination status was dichotomized into "No/Partial" and "Complete" vaccination. Odds of having incomplete vaccination was compared among potential factors

Caretaker"s educational status showed a significant association on bivariate analysis. From children of whom their caregivers attend higher education only 1.7% of them didn"t complete vaccination which is 81% (OR=0.19, 95% CI: 0.04, 0.8) less likely to incomplete vaccination than those children who have caregivers with no education. From 27.5% children of caregivers who attended primary school, 21.8% were fully vaccinated, whereas 5.7% were not fully vaccinated which is 51% (OR=0.49, 95% CI :1.1,5.9) less likely to incomplete vaccination than caregiver children with no education.

Regarding Caregivers occupation, from children of government employee 2.3 % of their children were not fully vaccinated which is 65%(OR=0.35, 95% CI: 0.17, 0.7) less likely to incomplete vaccination than those children of housewife caregivers. But being children from daily laborer, farmer and merchant caregiver have no significant difference with those of housewife caregiver during biviriate analysis. the study also showed child from orthodox caregiver is 66%(OR=0.34,95% CI: 0.1, 0.6) less likely to incomplete vaccination than protestant caregivers .But, marital status and age of primary caregiver did not show any significant association with the whether the child is vaccinated or not on bivariate analyses.

When we compare vaccination status children from family which has less than 500 birr monthly income and more than 500 birr monthly income those from former household are 1.94(95% CI:1.1,3.1) times more likely to incomplete vaccination than the later one(Table 9).

Table 9: - Vaccination status of children aged between 12-23 months by socio demographic characteristics of caregiver, Yirgalem Town, South Ethiopia, may, 2015

Age	Vaccination status		Odd Ratio
	Incomplete	Complete	Crude
<20 years	1(0.2%)	5(1.1%)	0.73(0.08,6.3)
20-34	76(16.1)%	278(58%)	1
≥35	29(6.1%)	84(17.8%)	1.26(0.7, 2)
Educational level			
Less than primary	62(13.1%)	117(24.7%)	1
Primary	27(5.7%)	103(21.8%)	0.49*(0.29,0.83)
Secondary	9(1.9%)	69(14.6%)	0.24*(0.11,0.5)
Higher	8(1.7)	78(16.5)	0.19*(0.08,0.4)
Marital status			
Married	93(19.7%)	305(64.5%)	1
Single	3(0.6%)	22(4.7%)	0.45(0.13,1.5)
Widowed	5(1.1%)	15(3.2%)	1.09(0.3,3)
Divorced	5(1.1)%	25(5.3)%	0.66(0.2,1.7)
Occupation			
House wife	64(13.5%)	193(40.8%)	1
Farmer	10(2.1%)	25(5.3%)	1.2(0.5,2.6)
Government employee	11(2.3%)	94(19.3%)	0.35*(0.17,0.7)
Merchant	11(4.4%)	21(2.3%)	1.58(0.7,3.4)
Daily laborer	7(1.5%)	23(4.9%)	0.9(0.37,2.2)
Religion			
Orthodox	12(2.5%)	98(20.7%)	0.34*(0.1,0.6)
Muslim	6(1.3%)	36(7.6%)	0.46(0.18,1.1)
Protestant	74(15.6%)	206(43.6%)	1
Catholic	7(1.5%)	12(2.5%)	1.62(0.6,4.2)
Other Christians	7(1.5%)	14(3%)	1.39(0.5,3.5)
Monthly income			
Income less than 500 birr	37(8.4%)	97(22.1%)	1.94*(1.1,3.1)
Income more than 500 birr	50(11.4%)	254(58%)	1

* Significant at 95% CI ,NI-not include

5.7.2 Family size and characteristics of the child

Family size, child ever born, child sex and experience of child death were another factors assessed in this study if they have an association with child completion of vaccination. Among these factors only number of children born by mother showed statistically significant association with the child vaccination incompletion. From children of mothers who have 4 or 5 children 7.4% of their children were not fully vaccinated which is 1.9(95% CI:1.17, 3.2) times more likely to incomplete their children vaccination than those who have 2 or 3 children(Table 10).

Table 10.Vaccination status of children aged between 12-23 months by Family size and

characteristic of child, in Yirgalem town, Sidama Zone, May, 2015

Children from Mother	Vaccination status		Odd Ratio	
	Incomplete	Complete	Adjusted	Crude
1	15(3.2%)	61(12.9%)	1.1(0.5,1.9)	1.3(0.33,56)
2 and 3	55(11.6%)	220(46.5%)	1	1
4 and 5	35(7.4%)	74(15.6)	1.9*(1.1,3.2)	0.87(0.18,4.7)
≥6	1(0.2%)	12(2.5)	1.1(0.3,3.4)	4(0.36,45)
Number of family size				
≤4	31(6.6)	145(30.7%)	0.63(0.39,1)	NI
≥ 5	75(15.9%)	222(46.9%)	1	
Child death				
Yes	8(1.7%)	30(6.4%%)	1.07(0.4,2.4)	NI
No	97(20.6%)	337(71.4%)	1	
Sex of child				
Male	44(9.3%)	202(42.7%)	1	NI
Female	62(13.1%)	165(34.9%)	0.9(0.4,2)	

* Significant at 95% CI ,NI-not include

5.7.3 Knowledge and Attitude on Vaccination and Vaccine preventable diseases

Knowledge and attitude of mothers about vaccination and vaccine preventable disease its association with completion of vaccination was also assessed in this study. Bivariate anysis showed hearing information about vaccination relate with child incompletion of vaccination. children of mothers who didn't hear about vaccination were 3.6 (95% CI:1.99, 6.47) times more likely to incomplete child vaccination than those heard. Mothers that think the benefit of vaccination is for child health were 2.3(95% CI:1.42, 3.8)times more likely to incomplete their children vaccination than those mentioned the benefit is to prevent disease.

Regarding the number of vaccine preventable disease, from 15.2% children of those mothers who know 3 and 4 vaccine preventable diseases 1.7% of their children were not fully vaccinated which is 62%(OR=0.38,95% CI:0.17,0.83) less likely to incomplete vaccination than those who know 2 and less vaccine preventable diseases(Table 11).

Table 11: - Vaccination status of children aged between 12-23 months by the knowledge and attitude of caregivers, Yirgalem Town, South Ethiopia, May, 2015

Heard or seen about Vaccination	Vaccination status		Odd Ratio
	Incomplete	Complete	Crude
Yes	81(17.1%)	338(71.5%)	1.56
No	25(5.3%)	29(6.1%)	1(0.8,2.9)
Messages content			
Message related with completion	43(10.2%)	207(48.9%)	1
Message not related with completion	39(9.2%)	134(31.7%)	1.430(0.8,2.3)
Benefit of vaccinating child			
To prevent the disease	45(9.5%)	191(40.4%)	1
For specific disease	7(1.5%)	72(15.2%)	0.4*(0.17,0.95)
For child health	44(9.3%)	80(16.9%)	2.3* (1.4,3.8)
I don't know	10(2.1%)	24(5.1%)	1.76(0.79,3.96)
Vaccine preventable diseases			
≤2	81(17.1%)	262(55.4%)	1
3 and 4	8(1.7%)	64(13.5%)	0.38* (0.17,0.83)
≥ 5	2(0.4%)	23(4.9%)	0.26(0.06,1.1)
I don't know	12(2.5%)	21(4.4%)	1.76(0.6,3)
Vaccination may cause health problem			
Yes	32(6.8%)	25(5.3%)	1.5(0.8,2.8)
No	74(15.6%)	342(72.3%)	1

* Significant at 95% CI ,NI-not include

Bivariate analysis was done after categorizing responses of respondents into correct and

incorrect answer on knowledge to begin and finish vaccination and session needed to complete vaccination. bivariate analysis, show that all of these factors are significantly associated with child incompletion of vaccination(Table 12).

Table 12: - Vaccination status of children aged between 12-23 months by the knowledge and attitude of caregivers, Yirgalem Town, South Ethiopia, and May, 2015

Age to begins vaccination	**Vaccination status**		**Odd Ratio**
	Incomplete	**Complete**	**Crude**
correct age to begin	43(9.1%)	256(54.1%)	1
incorrect age to begin	63(13.3%)	111(23.5%)	3.38* (2.1,5.5)
Sessions needed for full vaccination			
correct on session needed	45(9.5%)	258(54.5%)	1
incorrect on session needed	61(12.9%)	109(23%)	3.21* (2,5)
Age to complete child vaccination			
correct age to complete	33(7%)	256(54.1%)	1
incorrect age to complete	73(15.4%)	111(23.5%)	5.10* (3.1,8.1)

* Significant at 95% CI ,

5.7.3 ACCESS AND QUALITY OF VACCINATION SERVICE

The presence and accessibility of vaccination service was assessed by presence of nearby health facility and by average walking time to reach to the health facility. Its association with child vaccination incompletion was checked but, none of these factors show any significant association by bivariate analyses (Table 13).

Table 13: - Vaccination status of children aged between 12-23 months by access to vaccination service, Yirgalem Town, South Ethiopia, May, 2015

Availability of health facility with vaccination service	Vaccination status Incomplete	Complete	Odd Ratio Crude
Yes	83(17.5)	297(62.8%)	1
No	23(4.9%)	70(14.8%)	1.18(0.69,1.99)
Transportation to health facility			
Walk	82(17.3%)	300(63.4%)	1
By any transport	24(5.1%)	67(14.2%)	1.31(0.77,2.2)
How long does it take to Health Facility			
Less than 15 minutes	37(7.8%)	156(33%)	0.67(0.4,1)
15-30 minutes	62(13.1%)	177(37.4%)	1
30-1hour minute	7(1.5%)	34(7.2%)	0.58(0.2,1.3)

* Significant at 95% CI ,

Regarding quality of vaccination service some of the factors included in bivariate analyses showed significant association. Primary take cares who are advised about vaccination are 64% (OR=0.36,95% CI:0.16, 0.81) less likely to incomplete vaccination than those who are advised and those face long waiting line are 2.7 (95% CI:0.7, 10.7)times more likely to incomplete vaccination than those who didn't encounter long waiting line(Table 14).

Table 14: - Vaccination status of children aged between 12-23 months by quality of vaccination service, Yirgalem Town, South Ethiopia, May, 2015

Health worker advice	Vaccination status		Odd Ratio
	Incomplete	Complete	Crude
Yes	41(8.7%)	235(49.7%)	1
No	65(13.7%)	132(27.9%)	2.82*(1.8, 4.4)
Area of advice			
advice not related with completion	8(2.8%)	94(33.5%)	1
advice related with completion	34(12.1%)	145(51.6%)	0.36*(0.16,0.81)
Long waiting line			
Yes	44(9.3%)	76(16.1%)	2.7*(1.7,4.3)
No	62(13.1%)	291(61.5%)	1
satisfaction from vaccination service			
Good	59(12.6%)	228(48.7%)	1
Medium	37(7.9%)	115(24.6%)	1.2(0.7,1.9)
Bad	10(2.1%)	19(4.1%)	2(0.8,4.6)

5.7.3MATERNAL HEALTH CARE UTILIZATION

The associations of health care utilization by the mother with child vaccination completion were also seen using bivariate. Mothers who didn"t attend ANC are 5.1 (95% CI:3.8, 52) times more likely to incomplete vaccination than those who attend ANC and those who delivered their last child in home are 6(95% CI:3.8, 52) times more likely than those who delivered their babies in health facility. Other maternal health care utilization factors did not have significant association with incompletion of vaccination on bivariate analysis (Table 15).

Table 15: - Vaccination status of children aged between 12-23 months by ANC follow, delivery and contraceptive utilization, Yirgalem Town, South Ethiopia, May, 2015

Attended antenatal care	Vaccination status		Odd ratio
	Incomplete	Complete	Crude
Yes	66(14%)	328(69.3%)	1
No	40(8.5%)	39(8.2%)	5.10*(3,8.52)
Frequency of ANC			
≤2	21(5.3%)	79(20%)	1.47(0.28,2.6)
≥3	45(11.4%)	250(63.3%)	1
Delivery place			
Health facility delivery	47(9.9%)	304(64.3%)	1
Home delivery	59(12.5%)	63(13.3%)	6.06*(3.78,9.68)
Place to seek help for child illnesses			
Health institution	72(15.2%)	282(59.6%)	0.255
Other place	34(7.2%)	85(18%)	1.5(0.9,2.5)
Utilization of any modern method of contraceptive ever			
Yes	87(18.4%)	315(66.6%)	1
No	19(4%)	52(11%)	1.32(0.74,2.35)

Variables that showed significant differences between children with complete and incomplete vaccination status during multivariate analysis are depicted in Table 16. Variables that lost their statistical significance when included in the multivariate analysis were considered confounders for incomplete vaccination status of the children, and included: caregivers education (P = 0.69),occupation(0.84),monthly income(0.58),no of children(0.32),knowledge on age to begin immunization(0.21),knowledge on needed session(0.27)information on immunization(0.36) and presence of long waiting line (P = 0.28).

Table 16.Vaccination status of children aged between 12-23 months by selected variables on multivariate analysis Yirgalem Town, South Ethiopia, May, 2015

	Vaccination status		Odd Ratio	
	Incomplete	complete	Crude	Adjusted
Religion				
Orthodox	12(2.5%)	98(20.7%)	0.34*(0.1,0.6)	0.13* (0.02,0.67)
Muslim	6(1.3%)	36(7.6%)	0.46(0.18,1.1)	0.28(0.01,5.68)
Protestant	74(15.6%)	206(43.6%)	1	1
Catholic	7(1.5%)	12(2.5%)	1.62(0.6,4.2)	7.3(0.1,50)
Other Christians	7(1.5%)	14(3%)	1.25(0.5,3.5)	1.26(0.13,11)
Area of advice				
advice not related with completion	8(2.8%)	94(33.5%)	1	1
advice related with completion	34(12.1%)	145(51.6%)	0.36*(0.16,0.81)	0.1(0.01,0.52)
Benefit of vaccinating child				
To prevent the disease	45(9.5%)	191(40.4%)	1	1
For specific disease	7(1.5%)	72(15.2%)	0.4*(0.17,0.95)	0.01*(0.001,0.28)
For child health	44(9.3%)	80(16.9%)	2.3* (1.42,3.8)	1.16(0.25,5.3)
I don't know	10(2.1%)	24(5.1%)	1.76(0.79,3.96)	0.l6(0.005,5.86)
Age to complete vaccination				
correct age to complete	33(7%)	256(54.1%)	1	
incorrect age to complete	73(15.4%)	111(23.5%)	5.10(3.1,8.1)	6.8(1.9,24)
Attended antenatal care				
Yes	66(14%)	328(69.3%)	1	
No	40(8.5%)	39(8.2%)	5.10*(3,8.52)	5.3* (1.12,25.8)
Delivery place				
Health facility delivery	47(9.9%)	304(64.3%)	1	
Home delivery	59(12.5%)	63(13.3%)	6.06*(3.78,9.68)	8* (1.9,33.4)

6. Discussion

This study was conducted in urban community in Yirgalem town to assess the prevalence of vaccination incompletion and associated factors among children aged between 12-23 months old residing in all six urban kebeles of Yirgalem town found in Sidama Zone, SNNPR regional state of Ethiopia. From total children included in the study 20% of them didn"t complete their vaccination according to schedule for routine vaccination.

From the total interviewed households, 243(52.5%) them able to show the vaccination card which is higher than study done in Wongo woreda, South Ethiopia(21). significant proportion of children (20%) didn"t complete the recommended vaccination schedule which is consistent to other similar studies finding on the area(14,16).vaccination incompletion rate in this study was lower as compared to Ethiopia EPI cluster survey result of 2012 which was 50.1% and a study conducted in Wongo woreda South Ethiopia which was 42%. This can be explained by high incompletion rate of vaccination in different parts of the country that are included in the cluster survey that lowered the nation figure. Vaccination incompletion rate of this study was higher than the figure on 2013 administrative report of the town. This may be due to data quality issues which affect validity of administrative reports.

The DPT-HepB-Hib1 coverage, seen as an indicator of access to vaccination services while the DPT-HepB-Hib3 coverage, seen as an indicator of utilization. The DPT-HepB-Hib1 and DPT-HepB-Hib3 coverage is 97% and 82% consecutively by maternal history and vaccination card. Coverage of other vaccines such as PCV and OPV given at the same time with DPT-HepB-Hib was the same with slight difference. The measles coverage was 79% which was lower than other vaccines and similar finding with other similar studies on the area (19,20).

Dropout rate for DPT-HepB-Hib1- DPT-HepB-Hib3 on this study was 20%. This figure was higher compared to other study done in ambo woreda which was 16.9%.Ethiopia cluster survey of 2012 showed SNNPR region DPT-HepB-Hib1- DPT-HepB-Hib3 dropout rate from all source was 21.7% which was lower than the national figure and similar with figure from this study.

Measles vaccine was the most frequently defaulted routine vaccine in this study. Other studies including EPI cluster survey of 2012 have reported a similar finding. This finding may be explained by the relatively long time interval (35.5 weeks) in clinic appointment between the

third dose of penta1 (at 14 weeks) and when the child is due for measles vaccine at the age of nine months. This may have made mothers to forget vaccination clinic appointment dates.

Health workers were seen to be a potential source for disseminating information relating to the vaccination program in this community a comparable finding with that of the Nigeria study .This emphasized their position as role models in the community. Knowledge of respondents assessed about age child should begin vaccination and 63% of them respond correct answer. Above the half of respondents 289(61%) knew that the vaccination program should be finished at the age of nine months. This finding is consistence with the study in Mozambique and Ambo woreda,Oromia region(18,19).

In this study the dependent variable vaccination status was dichotomized into “incomplete” and “Complete” vaccination. An odd of having incomplete vaccination was compared among potential factors. bivariate and multivariate analysis was computed to identify associated factors with vaccination incompletion.

Regarding socio demographic characteristics of the respondents, the study showed religion of caregivers have significant association with child vaccination incompletion which is consistence with others studies finding on the area (26, 18). Some religious bodies are known to discourage their members from accepting vaccination (26, 27) Belonging to a religious denomination or expressing religious affiliation was found to be associated with vaccination incompletion in Nigeria study(28).in contrary study in Mozambique showed insignificant association of religion with vaccination incompletion. Differences in results obtained by different investigators who looked at the influence of religion on vaccination may be due to differences in socio-cultural antecedents and theological persuasions between populations involved in the studies.

Cross-sectional study done Mozambique revealed factors such as mothers' age and marital status showed no significant differences with respect to children with complete and incomplete vaccination status which was the same finding on this study. In contrary to this study finding study done by analyzing Ethiopia DHS data of 2005 revealed no association between care takers educational level and vaccination incompletion. Another study from Malaysia showed

maternal age is predictor of vaccination incompletion which is not consistence with this study finding.

There was no evidence to support that number of children from mother had any impact on child vaccination incompletion in our study area. EPI survey conducted on 2012 showed Children of low parity households in Ethiopia were also more likely to be complete than those in high parity families (12). Studies from jamaic showed that, family size is the important factor for child vaccination status but, in this study there is no significant difference in vaccination status of children among those who have large and small family size. It is well documented that larger family size is associated with dilution of resources and hence children are not availed of the necessary health care including access to vaccination services .this study showed no significant difference between both sexes on completion of Vaccination similar to Nigeria study. In some societies with cultural discrimination against female children, boys have a greater chance to be vaccinated (29).

Among maternal health care utilization factors ANC and maternal delivery place showed statistically significant association on multivariate analysis. Mothers who didn‟t attend ANC are more likely to incomplete vaccination than those who attend ANC. home delivered children have a 7 times higher risk of not completing their vaccination. This may be related with increased awareness and health seeking behavior of those mothers with these profiles that also contribute for their vaccination service utilization. This is consistence with study done in Mozambique and wongo woreda south Ethiopia. The study done in three east African countries including Ethiopia also showed similar finding on association of these factors with children vaccination incompletion (30). In contrary to our finding Study done in Malaysia found no association between child vaccination incompletion and place of delivery which was different from this study finding

As many studies had shown, our study identified that maternal knowledge regarding vaccination was important to vaccination status of the children (19,21). Knowledge regarding the benefit of vaccinating a child and the age to complete vaccination were significantly associated with child vaccination completion which is consistence with Wongo woreda South Ethiopia study. The Health Belief Model is a theory that attempts to explain health-seeking behavior by examining how people perceive disease severity, their likelihood of contracting that disease, the benefits of taking preventive action, and the costs of taking preventive. This theoretical framework is

useful in helping to explain these findings. In contrary to this study in Mozambique revealed understanding the important of vaccination has no significant association with child vaccination completion. Perception of mothers about vaccination was not related with vaccination completion in this study comparable finding with that of Wongo woreda study in south Ethiopia.

Regarding access and quality of vaccination service, Accessibility as a function of distance and need for using transport were not significantly associated with vaccination incompletion similar to study done in Nigeria(22).Ethiopia 2006 nation EPI survey had uncovered those with longer than one hour walk from an vaccination site had lower vaccination rates (20). There are fewer health facilities in rural settings than urban settings necessitating longer commutes for families during this survey period which is different from our situation where there are health facilities that provide vaccination service close to the community.

Various reasons were adduced by the mothers for incomplete vaccination of their children. These include Not knowing whether to come back for second and third vaccination (17%%), Absenteeism of vaccinators or no vaccine/supplies (17%), mother was sick/busy/travel (12%), Vaccination time is inconvenient(11%),child ill-health at the time of vaccination (10%), long distance walking (7%),fear of side effect (6%) Lack of awareness on the importance of vaccination (5%),and other miscellaneous reasons (12%).Most of reasons given by the care givers has similarity with the reasons provided by other caregivers on other similar studies(21,19)

7. Strengths and limitations of the study

7.1 Strength

- Only Children aged between 12-23 months were included in the study which shows recent vaccination program performance and reduce recall bias.
- The survey was community based so that particularly the socio-demographic and economic variables were more credible since the respondents for these variables were adult people.

7.2 Limitation of the study

- The study had some limitations which included recall bias where mother might forget the vaccination status of their children and misclassification.
- cultural factors were not studied during this analysis, a more in depth look at various practices of parenting might illuminate better ways of influencing behavior change
- Utilization of health professional data collectors (nurses) may create bias as they might direct the respondents during the interview.
- The study participants may create social desirable bias during the interview.
- Health system is not addressed holistically including health facilities related factors
- missed opportunities for vaccination and incorrect vaccinations were not included in the study
- Qualitative method was not included to answer and clarify some issues on the study
- Limitations associated with WHO cluster sampling technique such as selection bias, interviewer bias, impossible to calculate the probability of selection at household level

8. Conclusion

- There is low Vaccination coverage among children aged 12-23 months in Yirgalem town compared to national and global target.
- The study showed factors that are significantly associated with vaccination incompletion among children age 12-23 months were knowledge about benefit of vaccinating child and age to complete vaccination, Area of advice, ANC follow up and institutional delivery.
- Factors related with Vaccination Service access and quality such as time it take to reach nearby health facility, maternal perception of health institution service and waiting line during vaccination sessions showed no significant association
- Reasons for incompletion are mostly because of lack of information on subsequent doses and Absenteeism of vaccinators or no vaccine/supplies.

9. Recommendation

Based on the research findings, the following recommendations can be made.

- Yirgalem town health office and health facilities in town should work to Increase community awareness through Intensive health education activities about the benefit and need to complete the entire schedule of vaccination.
- The health office and health facilities in town should work on reasons provided by the caregivers for vaccination incompletion such as Strengthen vaccine stock management at health facilities in town to avoid shortage of vaccines that may lead to incomplete vaccination
- Ensure all health facilities providing vaccination in town educate mothers about the importance of childhood vaccination completion.
- Further analysis on the health seeking behavior of the parents and caregivers in this area can illuminate best methods of vaccination promotion.

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ANNEX II: QUESTIONNAIRES IN ENGLISH AND AMAHARIC VERSION

1. A Questionnaire for the Study of incomplete vaccinationand associated factors among children aged 12-23 months in Yirgalem Town ,SNNPR,2014/2015

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

Informed Consent Statement

My name is _____ .We are conducting a study on incomplete vaccinationand associated factors in Yirgalem Town with Addis Ababa University. We are interviewing randomly selected mothers and care takers that have children aged 12-23 months to assess determinant factors for vaccination incompletion. For this purpose certain questions which are thought to be important will be asked. You are kindly required to respond to these questions. We want to assure you that your answers will be strictly kept secret. We will also do not keep a record of your name or address. Participation in this survey is voluntary and you have the right to refuse participation at any time or not to respond to questions that you are not willing to answer. However, your honest answers to these questions will help us in identifying determinant factors of vaccination incompletion and improve vaccination service in the future. We would appreciate your help in responding to these questions, and the interview will not take more than 30 minutes. If you have any concern or question please contact me at 0913046652 tell phone number or michaelmesfin17@yahoo.com email address.

01: - Are you willing to participate in the study? Yes… No ----

02:- Selected Household having children age 12-23 months (Born between -&---)1= yes----2=no-

03-.study area:- zone---------- woreda/Town---------- kebele----------house number-----

04:-. Day / Month / Year of interview (EC):----------

PART ONE: - SOCIO - DEMOGRAPHIC ASSESSMENT			
Number	Questions	Responses	Code
101	Child date of birth	1=____ day____ month____ year 2=Don‟t know[if recorded on vaccination card, replace „don‟t know‟‟ response with date indicated on the card)	

102	Age of child in months (if less than 12 month)	_____months	
103	Sex of the child	1= male 2= female	
104	Family size	male_____female_____	
105	Number of children ever born by the mother		
106	Number of children alive		
107	Mother‟s marital status	1= single 2= married 3= separated 4= divorced 5= widowed	
108	who is the primary caretaker of the child?	1=Mother 2=Father 3=Other(SPECIFY)___	
109	.Is the primary care taker responding?(don‟t ask, just record…)	1= Yes 2=No	
110	What is the age of primary care taker?	1=-------years 99=No response 88=I don‟t know	
111.	What is educational status of caretaker?	1=illiterate 2=read and write 3= grade 1-8 4= grade 9-12 5=college/university	
112	What is the occupation of the primary caretaker?	1= House wife 2=farmer 3=government employee 4=merchant 5= daily laborer 7=others specify_____	
113	What is the religion of the primary caretaker?	1=Orthodox 2=Muslim 3=Protestant 4=Catholic 5=Non Religion 6=Other Christians .7=Other _____	
114	What is the Ethnicity of the primary caretaker?	1=Sidama 2=wolyita 3= kamibata 4= oromo 5= tigirea 6=Amahara	

		7=Others ---------- 99=No response 88=I don‟t know	
115	What is your monthly income (in birr)?	1= <100 birr 2= 100-200 birr 3= 201-300birr 4= 301-400 birr 5= 401-500 birr 6=>500 birr 99=No response 88=I don‟t know	

PART THREE: - QUESTIONS ON VACCINATION KNOWLEDGE			
Number	Questions	Responses	Code
301	Do you heard or seen about vaccination and vaccine preventable disease?	1=Yes 2= No	
302	If yes to above question, from where do you heard about the vaccination and vaccine preventable disease? ? (Multiple response possible)	1.Community members 2. health workers at health facility 3. health extension workers 4. radio 5. tv 6.news paper 7. kebele administrator paper 8.other government official 9. others (specify) _____99=No response 88=I don‟t know	

303	What messages have you heard about vaccinations? (Multiple response possible)	1= about campaigns (e.g. dates, target group) 2=. Importance of routine vaccination 4. where to get routine vaccination 3. Age to get routine vaccination 5. Return for the next doses of the routine vaccination 6. About new vaccines (pneumococcal/rotavirus vaccines) 7. Other, specify _____ 99=No response 88=I don‟t know	
304	Do you mention the benefit of vaccinating a child? ? (Multiple response possible)	1=to prevent the disease 2=for specific disease 3=for child health 4=other, specify _____ 99=No response 88=I don‟t know	
205	what vaccine preventable diseases do you know?	1. Measles 2. Diphtheria 3.. Polio 4. Tetanus 5. Pertusis 6.Hepatitis b 7. Homophiles influenza b 8.pneumonia 9.. diarrhea 10.Tuberculosis 99=No response 88=I don‟t know	
306	Do you tell me the age at which the child begins vaccination?	1= just after birth 2= four weeks after a birth 3=six weeks after a birth	

		4=other specify_____ 99=No response 88=I don‟t know	
307	How many vaccination sessions are needed for a child to be fully protected?	1=one 4= four 2= two 3= three 5=five 99=No response 88=I don‟t know	
308	At what age the child should complete vaccination? _____	_____	
309	Do you think vaccination may cause health problem to the child?	1= Yes 2=No 3= don‟t know	
310	Have you ever decided not to take your child to get a Vaccination?	1= Yes 2=No	

PART FOUR: - MATERNAL HEALTH CARE UTILIZATION			
Number	Questions	Responses	Code
401	Did the mother of the baby attended antenatal care during her last pregnancy?	1= Yes 2=No	
402	If yes, how many times did you/she attend? _____	_____	
403	Where did the mother deliver her last child?	1. HomE 2 Relative/Neighbor‟s home	

		3Health Post 4. Health Center/Hospital 5.Private or NGO Facility 6.Other specify_____	
404	Where do u take the child if he is sick?	1Health Post 2. Health Center/Hospital 3.Private or NGO Facility 4.religious or traditional places 5.self treatment at home 6.pharmacy 7.Other specify_____	
405	Did the mother of the child use any modern method of contraceptive ever?	1=yes 2=no	

PART FIVE: - ACCESS AND QUALITY OF VACCINATION SERVICE			
Number	Questions	Responses	Code
501	Is there any nearby health facility that provides vaccination service?	1=yes 2=no	
502	If yes to above question which health facility is near to you?	1= health center 2= hospital 3=health post 5=private clinic	
503	What means of transportation do you usually use to come to this facility?	1=Walk 2= By any transport	

504	if the above answer is by any transportation means does it incur you any cost	1=yes 2=no	
505	How long does it take you to reach nearby health facility in minutes?	1= Less than 15 minutes 2= 15-30 minutes 3=30-1hour minute 4= > 1 hour 99=No response 88=I don't know	
506	Did the health worker give u advice about vaccination?	1=yes 2=no	
507	34. if yes to above question what were the area of advice?	1. importance of routine vaccination 2. importance of complete vaccination 3. age to finish routine vaccination 4. return for the next doses of the routine vaccination 5. about new vaccines (pneumococcal/rotavirus vaccine) 6. other, specify _____ 99=No response 88=I don't know	
508	Was there long waiting line during last vaccination session?	1. Yes 2. No	
509	How do you rate the satisfaction you get vaccination service you get?	1=good 2=medium 3=bad 99=No response 88=I don't know	

510	Have you ever requested vaccination service for this child and been refused? _____	1. Yes 2. No Skip to next part	
511.	If so, why didn‟t they vaccinate the child?	1=The doctor or nurse said it couldn‟t be done because the child was sick 2= There were no vaccines, or there were no syringes or some other supply needed for vaccination 3= It was not a vaccination day 5=The person in charge of vaccination was not there 6.=. We didn‟t have the vaccination card with us 7=. The visit was not in the vaccination day 8=The hours and days for vaccination are limited 9=. Other Specify:	

PART SIX: - CHILD VACCINATION

Number	Questions	Responses	Code
601	Does your child take any vaccination?	1=Yes 2=No	

<table>
<tr><td><u>602</u></td><td>IF yes to above question Do you have a card where vaccinations are written down,if no go to question number 607?</td><td>1= Yes 2= No
.</td><td></td></tr>
<tr><td><u>603</u></td><td>41. Copy the vaccination data from the card (or from health facility register if the mother doesn't remember)</td><td colspan="2"><table>
<tr><th>Vaccine taken</th><th>Day</th><th>Month</th><th>Year</th></tr>
<tr><td>BCG</td><td></td><td></td><td></td></tr>
<tr><td>OPV0</td><td></td><td></td><td></td></tr>
<tr><td>OPV1</td><td></td><td></td><td></td></tr>
<tr><td>OPV2</td><td></td><td></td><td></td></tr>
<tr><td>OPV3</td><td></td><td></td><td></td></tr>
<tr><td>Pentavalent1</td><td></td><td></td><td></td></tr>
<tr><td>Pentavalent2</td><td></td><td></td><td></td></tr>
<tr><td>Pentavalent3</td><td></td><td></td><td></td></tr>
<tr><td>Measles</td><td></td><td></td><td></td></tr>
<tr><td>PCV 1</td><td></td><td></td><td></td></tr>
<tr><td>PCV 2</td><td></td><td></td><td></td></tr>
<tr><td>PCV3</td><td></td><td></td><td></td></tr>
<tr><td>Rota 1</td><td></td><td></td><td></td></tr>
<tr><td>Rota 2</td><td></td><td></td><td></td></tr>
</table></td><td></td></tr>
<tr><td><u>604</u></td><td>.Has a child had any vaccinations that are not recorded on this card? Including vaccinations given in a national vaccination day campaign?</td><td>1=Yes 2= No
99=No response
88=I don't know</td><td></td></tr>
<tr><td><u>605</u></td><td>If answer to above question is yes, what is the type of vaccines?</td><td>1= vaccine given to prevent the child from measles in mass campaign
2=vaccine given to prevent the child from</td><td></td></tr>
</table>

		polio in mass campaign 3= routine vaccine 4=others specify_____ 99=No response 88=I don't know	
606	What are the reasons for defaulting? If child is a defaulter) (Multiple response possible)	1= Vaccination site is far-away 2= Vaccination time is inconvenient 3= Absenteeism of vaccinators 4=Lack of awareness on the importance of vaccination 5= Not knowing vaccination time and site 6= Not knowing whether to come back for second and third vaccination 7= fear of side effects 8= lack of transportation 9=Others	
607	Please tell me if the child had any of the following vaccinations		
608	a. A BCG vaccination against tuberculosis, that is, an injection in the arm or shoulder that usually causes a scar	1=Yes____ 2=No_____ 99=No response 88=I don't know	
609	b. Polio vaccine, that is, drops in the mouth?	1=Yes_____ 2=No_____ 99=No response	

		88=I don't know	
609	.Was the first polio vaccine given in the first two weeks after birth or later?	1=Yes_____ 2=No_____ 99=No response 88=I don't know	
610.	How many times was the polio vaccine given	_____ 99=No response 88=I don't know	
611	A pentavalent vaccination, that is, an injection given in the right thigh ?	Yes_____ No_____ 99=No response 88=I don't know	
612	How many times Pentavalent vaccination is given?	_____99=No response 88=I don't know ____	
613	A PCV vaccination, that is, an injection given in the right thigh ?	Yes_____ No_____ 99=No response 88=I don't know	
614	How many times PCV vaccination is given?	_____ 99=No response 88=I don't know	
615	Was the rota vaccine given as a drop the same day the second round polio drop is given?	99=No response 88=I don't know	

616	How many times was the rota vaccine given	_____ 99=No response 88=I don't know	
617	A measles injection that is, a shot in the arm at the age of 9 months or older – to prevent him/her from getting measles?	1=Yes_____2= No_____ 99=No response 88=I don't know	

To be filled by the interviewer

Code of the questionnaire----------

Name of the interviewer----------

Signature of the interviewer----------

Date of the interview----------

To be filled by the supervisor

Name of the supervisor----------

Questionnaire Complete----------

Incomplete--------

Incorrect parts ---------- ---------- ----------

---------- ---------- ----------

Corrections to be made---------- ---------- -------

<u>አዲስ አበባ ዩኒቨርስቲ የጤና ሳይንስ ኮሌጅ የህብረተሰብ ጤና ትምህርት ክፍል</u>

የክትባት መጠነ ማቋረጥና ተያያዥነት ያላቸው ጉዳዮች ለማጥናት የተዘጋጀ መጠይቅ
የካቲት,2007 ዓ.ም

<u>የስምምነት ቅጽ</u>

ስሜ----------ይባለል፡፡የአዲስ አበባ ዩኒቨርስቲ እያካሄደ ባለው ሰይንሳዊ ጥናት ውስጥ የጥናት ቡድን አባል በመሆን በመስራት ላይ እገኛለው፡፡ክትባት ጀምሮ የማቋረጥ መጠንና ተያያዥነት ያላቸው ምክንያቶች ላይ በይርጋዐለም ከተማ ጥናት እያካሄድን ነው፡፡በዚህ ጥናት ላይ የሚሳተፉት በአጋጣሚ የተመረጡ እድሜቸው ከ 12-23 ወራት የሚሆኑ ህጻናት እናቶች ወይም አሳዳጊዎች ሲሆኑ ለዚህ ዓላማ ሲባል የተዘጋጁትን ጥቂት ጥያቄዎች በመመለስ እርሶዎ እንዲተባበሩን እንጠይቃልን፡፡የሚሰጡት መልስ በሚስጥረነት የሚያዝ ሲሆን ስም ሆነ አድራሻ አድራሻ ተመዝግቦ አይያዝም፡፡በጥናቱ ያለመሳተፍ መብትዎ የተጠበቀ ሲሆን እንደዚሁም በማንኛውም ጊዜ አለመሳተፍና መልስ ሊሰጡባቸው የማያፈልጉ ጥያቄዎች ካሉ አለመመለስ ይችላሉ፡፡ሆኖም የሚሰጡት እውነተኛ መልስ በክትባት መቆረጥ ዙሪያ ያሉ ዋና ዋና እንቅፋቶችን ለማወቅና የክትባት አገልግሎትን የበለጠ ለማሻሻል ትልቅ ጠቀሜታ እንዳለው ላረጋግጥለዎት እወዳለሁ፡፡በመጨረሻም ለሚሰጡት መልስ በቅድሚያ እያመሰገነኩ በአጠቃላይ መጠየቁ ከ 30 ደቂቃ በላይ እንደማይወስድ እገልጸሎታለሁ፡፡ለማንኛውም አስተያየትና ጥያቄ በስልክ ቁጥር 0913046652 ወይም በኢሜል michaelmesfin17@yahoo.com ማግኘት ይችላሉ፡፡

1=የመጠይቅ ቁጥር----------

2=በዚህ ጥናት ላይ ለመሳተፍ ፍቃደኛ ኖዎት 1=አዎ--------- 2=አይደለሁም

3=የተመረጠው መኖሪያ ቤት ውስጥ እድሜቸው ከ 12-23 ወራት የሚሆኑ ህጻናት(ከ------ እስከ-----የተወለዱ) 1=አሉ----------2= የሉም---

4=የክለስተር ቁጥር----------

5=የተሳታፊ መኖሪያ ቦታ 1= ዞን----------2=ወረዳ/ከተማ----------3=ቀበሌ--------4=የቤት ቁጥር

6=መጠይቁ የተሞላበት ቀን----------

ክፍል አንድ ፡-የማህበራዊና የስነ ህዝብ መጠይቅ			
ተ.ቁ	**ጥያቄ**	**መልስ**	**ኮድ**
<u>101</u>	**ህፃኑ የተወለድበት ቀን**	**1=_____ ቀን_____ ወር _____ ዓ.ም**	

		99=አለወቅም(የክትባት ካረድ ላይ የተመዘገበ ቀን ካለ አለውቅም የሚለውን ምለሽ ከርዱ ላይ ባለው ቀን የተኩት)	
102	የህፃኑ እድሜ በወራት (ከ12 ወራት በታች ለሆኑ ህጻናት)	_____ወራት_	
103	የህፃኑ ጾታ	1= ወንድ 2= ሴት	
104	የቤተሰቦም ብዛት ስንት ነው	1=ወንድ_____2=ሴት_____	
105	በእናትየው የተወለዱ ህጻናት ብዛት		
106	በሕይወት ያሉ ህጻናት ቁጥር		
107	የእናትየው የጋብቻ ሁኔታ	1= ያገባች 2= ያላገባች 3= የሞተባት 4=የተፋታች	
108	የህፃኑ ዋና አሳዳጊ/ተንከባካቢ ማነው?	1=እናቱ 2=አባቱ 3= ሌላ_____	
109	መጠይቁን የሚመለሰው ዋና አሳዳጊ/ተንከባካቢ ነው?አይጠይቁ ይመዝገቡ.	1= አዎ 2=አይደለም	
110	የዋና አሳዳጊ/ተንከባካቢ እድሜ ስንት ነው?	1=-------አመት 99= አለውቅም 88 መልስ የለም	
111.	የዋና አሳዳጊ/ተንከባካቢ የትምህርት ደረጃ	1=ያልተመሩ 2=ማናበብና መጻፍ የማይችሉ 3= ከ 1-8ኛ ክፍል 4= ከ9-12 ክፍል 5=ኮሌጅና ዩኒቨረስቲ	
112	የዋና አሳዳጊ/ተንከባካቢ ዋናው ስራው ምንድነው?	1=የቤት እመቤት 2=አርሶ አደር 3=የመንግስት ሰራተኛ 4=ነጋዴ 5= የቀን ሰራተኛ 7=ሌላ _____	

113	የየትኛው ሃይማኖት ተከተይ ነዎት?	1=ኦረቶዶክስ 2=ሙስሊም 3=ፕሮቴስታነት4=ካቶሊክ 5=ሀይማኖት ቢስ6=ሌላ ክርስቲያን 7=ሌላ _____	
114	የየተኛዉ በሄረሰብ አባል ነዎት?	1=ሲዳማ 2=ወላይታ 3= ከምባታ 4= አሮሞ 5=ትግሬ 6=አማራ 7=ሌላ ---------- 99= አለውቅም 88 መልስ የለም	
115	አማካኝ የወር ገቢዎ ስንት ነው(በብር)	1= <100 birr 2= 100-200 birr 3= 201-300birr 4= 301-400 birr 5= 401-500 birr 6=>500 birr 99= አለውቅም 88 መልስ የለም	
ክፍል ሶስት: - በክትባት አገልግሎት ላይ እውቀት			
ተ.ቁ	ጥያቄ	መልስ	ኮድ
301	ስለ ክትባትና በክትባት ልንከላከላቸው ስለ ምንችላቸው በሽታዎች ስምተው ወይም አይተው ያውቃሉ?	1= አዎ 2=አለውቅም	
302	ለ301 ጥያቄ መልሶ አዎ ከሆነ ከየት ነው የሰሙት? (ከአንድ ባለይ መለስ ይቻላል)	1.ከህብረተሰቡ 2.ከጤና ባለሞያ 3.ከጤና ኤክስቴንሽን ባለሞያዎች 4. ሬዲዮ 5.ቲቪ 6.ጋዜጣ 7. ከቀበሌ አስታደደር 8.ከመንግስት ሃላፊ	

		9. ሌላ _____88. መልስ የለም 99 አለውቅም	
303	ምን አይነት መልእክት ነው የስሙት?(ከአንድ ባለይ መለስ ይቻላል)	1= ስለ ዘመቻ(ቀን፣የተከታቢው አይነት) 2= የክትባት ጠቀሜታ 3. ከየት የክትባት አግልግሎት እንደሚያገኙ 4. ማስከተቢያ እድሜ 5. ስንት ጊዜ ክትባት እንደሚወሰድ 6.ሰለ አዳዲስ ክትባቶች 7. ሌላ _____ 88. መልስ የለም 99 አለውቅም	
304	የክትበትን ጠቀሜታ መግለጽ ይችላሉ? (ከአንድ ባለይ መለስ ይቻላል)	1=በሽታን ለመከላከል 2=አንድ የተለያ በሽታን ለመከላከል 3=ለህፃኑ ጤንነት 4=ሌላ _____ 88=መልስ የለም 99 አለውቅም	
205	በክትባት ልንከላከላቸው ክምንችላቸው በሽታዎች የትኞቹን የውቃሉ ? (ከአንድ ባለይ መለስ ይቻላል)	1=ኩፍኝ 2= ጆሮ ደግፍ 3=የልጅነት ልምሻ 4= መንጋጋ ቆልፍ 5= ትክትክ 6=ሄፓታይተስ ቢ 7. ሄሞፊለስ ኢንፉሌንዛ 8.ኒሞኒያ 9.. ተቅማጥ 10.የተቢ በሽታ 88=መልስ የለም _____ 99 አለውቅም	
306	ክትባት መቼ እንደሚጀመር ያውቃሉ?	1=ልክ ከተወለደ በኃላ	

		2= ከ አራት ሳምንት በኃላ 3=ከስድስት ሳምነት በኃላ 4= ሌላ---------- 88=መልስ የለም _____ 99 አለውቅም	
307	ህጻኑ ክትባት ወስዶ ለመጨረስ ስንት ጊዜ ይወሰድበታል?	1=አንድ 4= አራት 2= ሁለት 3= ሶስት 5=አምስት 6= ስድስት 88=መልስ የለም _____ 99 አለውቅም	
308	ህጻኑ ክትባት ወስዶ የሚጨረስው መቼ ነው?	_____ 88=መልስ የለም _____ 99 አለውቅም	
309	ክትባት በህፃኑ ላይ የጤንነት ችግር ያስከትላል ብለው ያስባሉ?	1= አዎ 2=አያስከትልም 88=መልስ የለም _____ 99 አለውቅም	
ክፍል አራት: - የእናቶች የጤና አገልግሎት አጠቃቀም መጠይቅ			
ተ.ቁ	ጥያቄ	መልስ	ኮድ
401	የህፃኑ እናት የመጨረሻ እርግዘናዋ ወቅት የቅድመ ወሊድ ክትትል አድረጋለሽ ;?	1= አዎ 2= አላደርገሽም	
402	ካደረገች ስንት ጊዜ ተከታትላለች?	_____	
403	የህፃኑ እናት የመጨረሻ ልጇዋን የት ነው የወለደችው	1=ቤት 2=የጎሮቤት ቤት 3=ጤና ኬላ 4=ጤና ጣቢያ/ሆስፒታል5=የግል ወይም የ NGO ክሊኒክ 6=ሌላ _____	
404	ህፃኑ ሲታመም የት ነው የምተወስዱት?	1 =ጤና ኬል 2=ጤና ጣቢያ/ሆስፒታል 3=የግል ወይም	

		የ NGO ክሊኒክ 4=የሀይማኖት ተቋምና ባህላዊ ህክም 5=የቤት ውስጥ ህክምና 6.ፋረማስ 7.ሌላ _____	
405	የህፃኑ እናት የዘመናዊ የቤተሰብ ምጣኔ አገልግሎት ተጠቅማ ታቀለች	1=አዎ 2=ተጠቅማ አተውቅም	
ክፍል አምስት: - የክትባት አገልግሎት ተደራሽነትና ጥራት የሚደስስ መጠይቅ			
ተ.ቁ	ጥያቄ	መልስ	ኮድ
501	በቅረበት የሚገኝ የክትባት አገልግሎት የሚሰጥ ጤና ተቋም አለ?	1=አለ 2=የለም	
502	ለ501ጥያቄ መልሱ አለ ከሆን ምን አይነት ተቋም ነው?	1= ጤና ጣቢያ 2= ሆስፒታል 3=ጤና ኬላ 5=የግል ወይም የ ክሊኒክ	
503	የጤና ተቋሙ ለመድረስ ምን አይነት የማንጓጓ መንገድ ነው የምትጠቀሙት?	1=በአግር ጉዞ 2= በመጓጓዣ ዘዴ	
504	ለ503 ጥያቄ መልሱ በመጓጓዣ ዘዴ ከሆን ለመጠቀም ወጪ የስወጣል	1=አዎ 2=አያሰጣም	
505	የጤና ተቋሙ ለመድረስ ምን ያህል ጊዜ ይወስዳል በደቂቃ?	1= ከ 15 ደቂቃ በታች 2= ከ15-30 ደቂቃ 3=ከ30-1አንድ ሰአት 4= > 1 ከ አንድ ሰአት በላይ	

		88=መልስ የለም 99 አለውቅም.	
506	የጤና ተቋሙ ባለሞያ ስል ክትባት ምክር ሰቶታል?	1=አዎ 2=አልሰጠም	
507	ለ506 ጥያቄ መልሱ አዎ ከሆን በምን አከባቢ ላይ የጠነጠነ ምክር ነበር	1=የክትባት ጠቀሜታ 2=ክትባትን ሙሉ በሙሉ የማጠናቀቅ ጠቀሜታ 3=ክትባትን ሙሉ በሙሉ በየትኛው እድሜ እንደሚጨረስ 4=የሚቀለው ቀጠሮ መቼ 5=ስለ አዳዲስ ክትባቶች 6= ሌላ _____ 88=መልስ የለም _____ 99 አለውቅም.	
508	መጨረሻ ክትባት አገልግሎት ለማግኘት በሄዱበት ወቅት ረጅም ሰለፍ ነበር?	1. አዎ 2. አለነበረም	
509	የአገኙትን አገልግሎት እርካታ እንዴት ይገልጹታል ?	1=ጥሩ 2=መካከለኛ 3=መጥፎ 88=መልስ የለም _____ 99 አለውቅም.	

510	ለህፃኑ የክትባት አገልግሎት ጠይቀው ተከልክለው የውቃሉ?	1. አዎ 2. አለውቅም ወደ ጠያቂ ቁጥር 512 ይለፉ	
511.	ለ510 ጥያቄ መልሱ አዎ ከሆን ምክንያቱ ምን ነበር?	1=ህፃኑ ስለ ታመመ ባለሞያዎቹ ከልክለው 2= የክትባት ግባአት እጥረት ስለ ነበር 3= የከትባት መሰጫ ቀን አለነበረም 4=ክትባት የሚሰጠው ሰው አለነበረም 5=የከትባት መሰጫ ውስን ስለሆንና ሰአት ስላለፍ 6=. ሌላ	
ክፍል ስድስት: - የህፃኑ የክትባት ሁኔታ			
ተ.ቁ	ጥያቄ	መልስ	ኮድ
601	ህፃኑ ክትባት ወስዶ ያውቃል?	1=አዎ 2=አለወሰደም	
602	ለላይኛው ጥያቄ መልሱ አዎ ከሆን የክትባት ካርደ አለዎት?ከሌል ወደ ጥያቄ 607 እለፍ	1= አዎ 2= የለም .	
603	ከካረዱ ላይ በሰንጠረዥ ውስጥ ያሉ መረጃዎችን ገለብጡት? (እናትየው ለህጻኑ ክትባቶች መቼ	የከትባት / ቀን / ወረ / ዓመት	

	እንደተሰጡ ካለስታወሰች ከጤና ተቋም መዝገብ ላይ የተገኘ መረጃም ይሞላል)	አይነት			ምህረት
		BCG			
		OPV0			
		OPV1			
		OPV2			
		OPV3			
		Pentavalent 1			
		Pentavalent 2			
		Pentavalent 3			
		Measles			
		PCV 1			
		PCV 2			
		PCV3			
		Rota 1			
		Rota 2			
604	ካረዱ ላይ ከተመዘገቡ ክትባቶች ውጪ ለህፃኑ የተሰጠ ክትባት አል/በዘመቻ የተሰጡ ክትባቶችን ጨምሮ?	1=አዎ 2= የለም 88=መልስ የለም _____ 99 አለውቅም.			
605	ለላይኛው ጥያቄ መልሱ አዎ ከሆን ምን አይነት ክትባት ነው?	1= በዘመቻ መልክ ለኩፍኝ የተሰጠ ክትባት 2=በዘመች መልክ ፖ`ሊዮን ክትባት 3= በመደበኛ ክትባት ፕሮግራም ተሰጠ 4=ሌላy_____ 88=መልስ የለም _____			

		99 አለውቅም.	
606	ክትባት ሳይጨርሱ ለመቋረጦ ምክንያቶች ምን ምን ናቸው ?(ከ አንድ ባለይ መለስ ይቻላል)	1= የክትባት መስጫው ቦታ ሩቅ ነው 2= =የክትባት መስጫ ሳአት አይመችም 3= ከታቢው የለም 4=የክትባት ሙሉ በሙሉ ወስዶ መጨርስ የለው ጥቅም ላይ ያለው ግንዛቤ አናሳ መሆን 5= =የአገልግሎቱ መስጫ ሳዓትና ቦታ አለማወቅ 6= ተመልሶ ለሁለተኛና ለሶስተኛ ጊዜ ማስከተብ እንዳለብን አለማወቅ ነው 7=የጎንዮሽ ችግሮችን ፈራቻ ነው 8 የትራነስፖረት እጥረት ነው 9= ሌላ)_____ 88=መልስ የለም _____ 99 አለውቅም.	
607	ከዚህ በታች የተዘረዘሩትን ህፃኑ ከወሰደ ይንገሩን		
608	የ BCG ክትባት የቲቢ በሽታን ለመከለከል በቀኝ እጅ ትከሻ ላይ በመርፌ የተሰጠ ብዙን ጊዜ ጠባሳ የሚያስከትል	1=አዎ____ 2=አልተሰጠም_____ 88=መልስ የለም _____ 99 አለውቅም.	
609	የPolio ክትባት በአፍ ጠብታ የሚሰጥ?	1=አዎ_____	

		2=አልተሰጠም_____ 88=መልስ የለም _____ 99 አለውቅም.	
610	Polio ክትባት ከተወለደ የመጀመሪያ ሁለት ሳምንት ወስጥ ነው የተሰጠው?	1=አዎ_____ 2=አይደለም_____ 88=መልስ የለም _____ 99 አለውቅም.	
611.	የPolio ክትባት ስንት ጊዜ ነው የተሰጠው	_____ 88=መልስ የለም _____ 99 አለውቅም.	
612	የጸረ ስድስት ክትባት በ ግራ እግር በመረፊ የተሰጠ	1አዎ_____ 2አልተሰጠም_____ 88=መልስ የለም _____ 99 አለውቅም.	
613	የጸረ ስድስት ክትባት ስንት ጊዜ ነው የተሰጠው?	_____88=መልስ የለም _____ 99 አለውቅም._____ _	
614	የ PCV ክትባት በ ቀኝ እግር በመረፊ የተሰጠ	1=አዎ_____ 2=አልተሰጠም_____ 88=መልስ የለም _____ 99 አለውቅም.	
615	የPCV ክትባት ስንት ጊዜ ነው የተሰጠው?	_____	
616	የ Rota ክትባት በአፍ የሚሰጥ ጠብታ ፖሊዮ የወሰደበት ቀን የተሰጠ	1=አዎ_____ 2=አልተሰጠም_____	

		88=መልስ የለም _____ 99 አለውቅም.	
617	የ Rota ክትባት ስንት ጊዜ ነው የተሰጠው;	_____ 88=መልስ የለም _____ 99 አለውቅም.	
618	የኩፍኝ ክትባት በግራ እጅ ትከሻ ላይ በመርፌ የተሰጠ	አዎ_____ 2አልተሰጠ88=መልስ የለም _____ 99 አለውቅም.ም_____	

የመረጃ ሰብሰቢው የሚሞላ

በተቆጣጣሪ የሚሞላ

የመረጃ ሰብሰቢው ስም----------

የክልስተር ኮድ----------

ፊርማ----------

ቀን----------

የተቆጣጠሪ ስም----------

የመጠይቁ ሁኔታ የተሟላ----------

ያልተሟላ----------

ያልተሟላ ከሆን የተወሰደ እርምጃ----------