

**Addis Ababa University**  
**School of Graduate study**

**Epidemiological Assessment of Determinants and Causes of under five Child Mortality in Jimma town: *Is HIV/AIDS influencing the pattern of child mortality?***

**BY**

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## **Declaration**

I the undersigned, declare that this thesis is my original work has never been presented in this or any other university, and that all resources and materials used in herein, have been duly acknowledge.

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Place: Addis Ababa, Ethiopia

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This thesis has been submitted for examination with my approval as a University advisor.

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## Table of content

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Acknowledgement	i
Table of contents	ii
List of Tables	iii
Abstract	iv
1. Statement of the problem	1
2. Literature review	3
2.1 Global situation	3
2.2 Ethiopian Situation	3
2.3 Determinant of under five mortality	4
2. Determination of causes of death	7
<b>3. Objective</b>	9
<b>4. Methods</b>	10
4.1 study area period	10
4.2 study design	10
4.3 study population	10
4.4 sampling	10
4.5 data collection	11
4.6 data analysis	13
4.7 ethical Consideration	15
<b>5. Results</b>	16
<b>6. Discussion</b>	27
<b>7. Conclusion</b>	33
<b>8. Recommendation</b>	34
Annex 1 References	35
Annex 2. Contextual frame work	40
Annex 3. Study design	41
Annex 4. questionnaire (Amharic version)	42
Annex 5. Questionnaire (English version)	52
Annex 6 data collectors guide	62
Annex 7 Duties and responsibilities (data collector and supervisors)	64
annex 8 diagnostic algorithms	66
annex 9. Verbal Autopsy synthax	68

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## List of Tables

Title	Page
Table 1. survival status of children by sociodemographic characteristics, Jimma town, South western Ethiopia, October-November 2004	18
Table 2. child survival and proximate determinants of child death in Jimma town, South western Ethiopia. Oct-November 2004	19
Table 3. Child survival and behavioral determinants in Jimma Town, South West Ethiopia. Oct-November 2004	20
Table 4. Stepwise logistic regression of factors associated with child survival, Jimma town, Southwest Ethiopia October-november 2004	24
Table 5. Proportionate mortality Ratio of causes of death of under five children ,Jimma Town ,South Western Ethiopia. October- November 2004	26

## **Abstract**

**Background** .About 11 million children younger than 5 years still die every year even after a substantial decline in child mortality had occurred. The findings that are available so far show that about two third of child deaths could be prevented by interventions that are available today and feasible for implementation in low income countries .The identification of determinants of child mortality is a crucial step in planning and implementation of interventions .

**Objective:** To assess the determinants and causes of child mortality

**Methods.** The study utilized a case control study design, Cases and controls were identified by population based survey. The study was conducted in Jimma Town from October to November 2004 .The variables included were socioeconomic, behavioral, nutritional, environmental and disease history. The data was collected using structured questionnaire which include standardized verbal autopsy tool.

**Results:** Muslim religion(OR=3.41,95%CI(1.37,8.46)) Dawro(OR=6.51,95%CI(2.13,19.88)) and Yem (OR=4.25,95%CI(1.09,116.48)), never breast fed, (OR=13.74,95%CI(3.34,56.42)) not vaccinated children(OR=.26,95%CI(0.10,0.67)) and (OR=3.34,95%CI(1. 27,8.76)) children with mother's having more than five children are significantly associated with child death . Pneumonia, Malaria and gastroenteritis were leading causes of death. Malnutrition (38%)and HIV/AIDS(2.8%) had contributed to a significant proportion deaths.

**Conclusion and recommendations:** immunization, parity and breast feeding were found to be protective from childhood deaths. Despite the limitations of Verbal autopsy, the determination of causes of death using verbal autopsy is of greater importance and value to public health. Strengthening the child survival initiatives namely universal child immunization, family planning and breast feeding are strongly recommended.

## *1. Statement of the Problem*

Substantial reductions in child mortality occurred in low-income and middle-income countries in the late 20<sup>th</sup> century, but more than 10 million children younger than 5 years still die every year (1). Rates of decline in worldwide child mortality peaked in about 1980. In 1990–2001, the number of child deaths fell by 1.1% every year, compared with 2.5% per year. During 1960–90. Although this deceleration might be expected to occur in areas that had already achieved low rates of mortality, slowing has also occurred in high-rate regions. Sub-Saharan Africa had the highest child mortality in 1970–74(1).

Child mortality varies among world regions, and these differences are large and increasing. In 1990, there were 180 deaths per 1000 live births in sub-Saharan Africa and only 9 per 1000 in industrialized countries—a 20-fold difference. In 2000, this gap had increased to 29-fold with mortality rates of 175 and 6 per 1000 children in sub-Saharan Africa and industrialized countries, respectively.

The Ethiopian situation is also similar with that of the Sub Saharan Africa which is characterized by high child mortality rate; it also ranks 6<sup>th</sup> in the world by total number of deaths of under five children. Almost one in every ten babies born in Ethiopia doesn't survive to celebrate the first birthday. Under five mortality in Ethiopia is also high (166 per 1000 live births) with one in every children dying before the fifth birthday. Data from the Ethiopian Demographic Health Survey show that mortality has declined in Ethiopia over the past 15 years and that this decline is more pronounced over the last 10 years .There is a declining trend infant and child mortality rate consistently over the past 15 years(2).

In 2002, as part of the millennium development goals for health, nations pledged to ensure a two-thirds reduction in child mortality by 2015, from the base year of 1990(1).

Because there is substantial variation in death rates within these regions, planning for health interventions are planned at a national level. The incomplete and unreliable nature of data in many countries can make this task difficult, so assessment of the needs and possible interventions for more homogeneous groups of countries is also worthwhile.

In Ethiopia there were limited studies on issues related to child mortality. In addition to this, the studies were conducted a decade back and current public health challenges were not comprehensively addressed i.e. HIV/AIDS.

Understanding the epidemiological profile of child death and the capabilities of health systems in dealing with childhood health problems is essential before appropriate public health interventions can be developed and implemented. Development of these interventions also requires an understanding of the determinants of child mortality

These determinants include, at the most distant level, socioeconomic factors, such as income, social status, and education, which work through an intermediate level of environmental and behavioral risk factors. These risk factors, in turn, lead to the proximal causes of death (nearer in time to the terminal event), such as under nutrition, infectious diseases, and injury (1).

Thus the purpose of this study is to identify determinants child mortality that would help in planning and implementing interventions to reduce child mortality.

## **2.Literature Review**

### **2.1 Global Situation**

The estimate for global child deaths in 2000 is 10.8 million. About 41% of child deaths occur in sub-Saharan Africa and another 34% in south Asia. In fact, half of worldwide deaths in children younger than five years occur in only six countries and 90% in 42 (1).

The estimate for distribution of under five mortality based on data from 42 countries with 90% of all deaths was put as follows : 33% to neonatal causes (29–36%) 22% of deaths attributed to diarrhoea 21% to pneumonia, 9% to malaria, 1% to measles , 3% to AIDS, , 9% to other causes, and fewer than 1% to unknown causes.(1)

The findings that are available so far show that about two-third of child deaths could be prevented by interventions that are available today and feasible for implementation in low income countries at a high levels of population coverage .In real situation ,Child survival interventions are not reaching the children who need them most(3).

Child survival programmes should use effective, efficient, and equitable delivery strategies to reach those most in need. New efforts need to build on existing programmes and systems. Among these efforts , planning of sound child health programmes requires data at the sub national level to assess the situation ,selection of effective interventions to be implemented at the level of community and health facilities should be based on the local epidemiological profile and other locally-defined key criteria(4).

### **2.2 Ethiopian Situation**

Data from the Ethiopian DHS show that mortality has declined in Ethiopia over the past 15 years and that this decline is more pronounced over the last 10 years. Infant mortality rate in urban areas

was 97 compared to 115 per thousand in rural areas. According to the Ministry of health IMR, CMR and under five mortality rate were 96.7, 84.5 and 140 respectively (5).

The early period after delivery is a neonatal period, which is first 28 days of life. The period between birth and first year of birth is the infancy period. And the rest comprise childhood period. Of the 10.8 million deaths worldwide of children younger than 5 years ,3.9 million occur in the first 28 days of life (1).The proportion of deaths that occur in this age varies systematically according to the overall rate of mortality(1).A hospital based follow up study estimated a neonatal mortality of 71/1000 live birth in Addis Ababa, which was more than 60%of the then estimate of infant mortality rate( 6).

### **2.3Determinants of under five Mortality**

The conceptual framework for study of determinants of child survival includes proximate and distal (socioeconomic) determinants. The development of a proximate determinant approach to the study of child survival is based on several premises (7) which are :reduction in child survival in any society is due to the operation of social , economic ,biological and environmental forces. Socioeconomic determinants must operate through more basic proximate determinants that in turn influences the risk disease and the outcome of disease process and growth faltering and ultimately mortality in children are the cumulative consequences of multiple disease processes (including the biosocial interactions(7).(see Appendix 2)

**2.3.1 Socio economic determinants:** The survival prospects of poor children are not as good as those of their better of peers .By contrast to children who are better off families, poor children are more exposed to risks for disease; they are also most likely to have lower resistance to infectious disease because they are under nourished (8).Studies found that income was risk factor for neonatal & infant death (6, 9, 10).Income measurement are rarely reliable measures of poverty in low

income countries. Furthermore this measure also excludes other elements of deprivation such as housing, clothing, education and health care. The socioeconomic status of household can be estimated using a method of Unsatisfied Basic Needs Assessment(9). This index is based on different dimensions: housing quality, dependency ratio, availability of water supply and latrine(9).

Surveys indicate that the way in which maternal education influences child mortality is fairly complex and has three different facets. First, the observed relationship could partly be due to certain independent factors associated with education, such as different fertility behaviour and higher economic and social status, which reduce mortality risk. Secondly, education itself can have an independent influence on child mortality by promoting better child-care practices. Finally, certain extraneous factors may either enhance or suppress the overall strength of the relationship between child health and maternal education. (11)

Maternal education was found to be significantly associated in reduced child mortality (11, 12, 13) illiterate fathers were also related to excess in under five mortality (14)

There were higher risk of child mortality in households where husbands were involved in the decision making compared to households where the child's mother was the main decision maker.(15) Lulu and his colleagues showed that parental factors seemed to affect the infants more than they did the children. (14)

### **2.3.2 Proximate determinants:**

**2.3.2.1 Reproductive factors:** Studies identified short birth interval, high birth order and young or older age at maternity as hazards of death of infants and children. Some studies revealed that history of still birth, parity and history of abortion were not found to be associated with mortality among infants' reproductive factors. (13, 16, 17)

The adverse effect of short birth interval is greatest in the neonatal period and the first six months after birth (10).

**2.3.2.2 Environmental factors:** Unhygienic and unsafe environments place children at higher risk of death. They contribute to about 1.5 million child deaths and around 88% of deaths from diarrhea (1). Type of roof, floor of household latrine facility and soap use were significantly associated with infant mortality (16) lack of window was also significant predictor among household environment in Under five mortality (14).

**2.3.2.3 Nutritional factors:** Infants aged 0–5 months who are not breastfed have seven-fold and five-fold increased risks of death from diarrhoea and pneumonia, respectively. (1) Breast feeding and complementary feeding were significant predictors of child mortality (18). Breast feeding protects infants from infection through elimination of exposure to food and water borne pathogens and mature breast milk contains several compounds which increase immunity (19). Delayed introduction of complementary feeding on under five mortality seems to be as strong as that of non breast feeding (17).

**2.3.2.4 Health service factors:** In real situation, Child survival interventions are not reaching the children who need them most. The inequities between poor and well to do are accompanied by reduction in access to preventive and curative service (7). Measles vaccine was received by two-thirds of children younger than 5 years, and all other interventions had coverage of less than 60%. Among sub-Saharan African countries with endemic malaria, results of surveys showed that a median of less than 2% of children slept under an insecticide-treated net(3). While infant mortality rate is strongly associated with socio economic factors early neonatal mortality depends more on qualities of health care service(20).

## **2.4 Determination of causes of death**

Measurement of causes of death is needed for several purposes (i)to establish the relative public health importance of the different causes of death (ii)to evaluate trends over time especially as a method of evaluating the probable impact of the intervention programs(iii)to investigate the circumstance surrounding the deaths of children from specific causes and to devise effective actions to decrease mortality (21).

In countries with poor data on mortality , vital registration are weak and the proportion of people who died while under medical care is low .In such situations ascertainment of causes of deaths from data obtained from relatives or associates of the deceased through retrospective questioning in surveys or in demographic surveillance systems seems an attractive options. The technique is known as verbal autopsy and has been used to assess causes of childhood deaths in several settings (22, 23).

An underlying assumption of the verbal autopsy method is that each cause of death investigated has a set of observable features that can be recalled during a verbal autopsy interview(21). Furthermore, it is assumed that the features of one cause of death can be distinguished from those of any other cause of death (24).

The identification of unique and common syndromes is the first step in the development of a VA. The question then arises as to the population's ability to recognize and accurately report all symptom components and retain the information overtime (25).

One of the issues in development of verbal autopsy is mortality classification. Two approaches can be adopted to develop and derive the diagnosis for VA. Their difference lies in whether the verbal autopsy tool is predetermined by mortality classification or not (23). The questionnaire of VA different formats which have their own limitations and advantages. The qualifications of interviewers could be from laypersons to medically trained persons. The selection of interviewers

depends on the resources available and the format to be used. Mothers are the best respondent for childhood deaths (23).

Many verbal autopsy studies allow only one cause for each death - usually the underlying cause of death. On the other hand, it commonly happens that the death of a child is the result of more than one cause (24). Ignoring multiple cause of death could lead to misleading results (23).

A diagnostic algorithm consists of standard criteria based on the duration, severity, and sequence of signs and symptoms used to reach diagnosis. Diagnosis derived according to diagnostic algorithms is likely to have better repeatability compared to diagnosis derived without algorithms (23)

One way to establish how well a set of verbal autopsy questions and algorithms identify a particular cause of death is to do a validation study (24). The reported validity of verbal autopsy for childhood illnesses vary considerably between studies and sensitivity and specificity varied significantly between different cause of deaths and different settings and tools. (22, 23, 26)

In order to assess the validity of diagnosis derived from a Verbal autopsy it is necessary to compare them with a reference diagnosis. Ideally the reference diagnosis should be accurate and reliable and the death studied should be representative of the distribution of causes of death in the community (23).

The options that could be considered are clinical necropsy, diagnosis of death in the community hospital diagnosis. The realistic option would be to use a hospital diagnosis. It may introduce selection biases due to selective accesses, differential treatment success and socioeconomic characteristics of those who use hospitals (23, 25). The standard of hospital diagnosis depends on several factors such as training and experience, local diagnostic preferences and availability of diagnostic facilities which minimized its importance (22, 23, 25).

### **3. Objectives**

#### **3.1 General objective**

Assess the major determinants and causes of under five child mortality

#### **3.2 Specific objectives**

- 1) Identify determinants of under five child mortality
- 2) Determine causes of death in under five children .
- 3) Describe the death attributed to HIV/AIDS

## **4. Methods and materials**

### **4.1 Study area and period**

The study area is Jimma town .It is located 335 kms away from Addis Ababa. The projected population of Jimma town in 2004 is about 120000(27).The town has 3 Kefetegna and 21 kebeles.The majority of the population is Oromo by ethnicity. The study was conducted from October 8,2004 to November 8, 2004

**4.2 Study design:** Case control study design was used to assess the determinants of child mortality.

### **4.3 Study population**

#### ***Source population***

The source of the population is all under five children in Jimma town

#### **Study population**

- **case:** all identified deaths among under five children in the last 1year prior to data collection of this study
- **Control:** controls were live under five children of the same age (+/-2 months) with the case at the time of death and controls at the time of the survey.

### • **4.4 Sampling**

#### **4.4.1 Sample size**

$$n = \frac{(Z_{\alpha/2} \sqrt{(1+1/r) P(1-P)} + Z_{\beta} \sqrt{P_1(1-P_1) + P_2((1-P_2)/r)})^2}{(P_1 - P_2)^2}$$

The sample size was calculated by plugging in the assumption into *STATCALC* program of EPI 6.04 Software. The minimum number of cases and controls required to achieve a significant level

of 95% and power of 80% in order to get **OR** at least 2.1 was 84 and 252 respectively .Three controls were taken for each case.

#### **4.4.2 Sampling procedures**

Baseline survey was conducted in all kebeles for total enumeration of under five children and identified deaths. For identified cases controls were selected from the next household in ascending order using house number. If two or more eligible controls are found in the same household the one closest to the deceased age at the time of survey was selected

#### **4.5 Data collection**

Data was collected using a structured questionnaire which was collected by trained interviewers. The questionnaire had five parts, the first part includes list of under five children by the time of data collection and live births in one year time from the data collection. The second part consists a structured questionnaire, with sections and subsections including socio economic and proximal determinants of under five mortality. The third part includes morbidity pattern questions for controls. The fourth part is a tool for identification of causes of neonatal mortality. The final part is a questionnaire for identification of death among children and infants in post neonatal period. The fourth and fifth parts are modified from WHO standard questionnaire to be applicable in the local context and feasible way (24). The second part is constructed by the investigators. The questionnaire was initially prepared in English, and translated to Amharic, and it was checked for its consistency by back translation to English by three different individuals who were health professionals. The instrument was pilot tested to identify and detect any misunderstanding by the interviewees and misconception by the data collectors on mothers who had lost their children in the period prior to 1996 in the same area and they were not included in the study. Some modifications were done on the instrument based on the findings. The Amharic version of the questionnaire on substitution of breast feeding and initiation of supplementary feeding had been modified after the

pilot test. The survey covered all households, and when a death of under five children is identified, interview of the mother was conducted. Three controls were identified for each case and interview had taken place with the mothers or guardians of the children.

The data collection had 2 phases; the first one was identification of cases for which 25 data collectors were recruited. The criteria's were: completed 12 grade and previous experience of data collection. The interviews were made by visiting the households

Ten data collectors were selected from the town in the second phase, the selection criteria's were previous experience, 12 grade completed, and females'. The data collectors were trained using the manual (annex 6) developed for training. The training was conducted for one week.

Three supervisors were recruited based on their experience in research. They were responsible to revisit 5% of the population in the study, and review the completed questionnaire at the day it was gathered. In the process of data collection daily, the supervisors were given feedback and correction to the data collectors before they deployed to the field.

The main outcome variable was mortality. Independent (explanatory) variables were: sociodemographic variable (age of the child, sex, religion, ethnicity, and age of father, age of mother, educational status of father and mother and income)

And proximate determinants of child survival which include reproductive health factors (age at first pregnancy, age at birth of the child, birth order, birth interval, antenatal care attendance, delivery attendance and family planning), environmental factors (presence of latrine, water source, and construction materials of the house hold), nutritional factors (breastfeeding pattern and practice) child factors (immunization, birth weight) and causes of death of the child.

#### 4.6 Data Analysis

The data were edited then entered on to a computer .For cleaning and analysis EPI info 6.04 and SPSS version 11 software were used. Frequencies and cross tabulations were done to check consistency and identify missing values. For identified missing values the questionnaires were revised and correction was made if a problem was in entering the datum. Most missing values were found in variables inquiring exact figures, dates. Other missing values which were relevant to the analysis were recoded with categories labeled as “do not know (DK)”.Relevant variables were recoded based on the previous studies. The mortality rates (neonatal mortality rate, infant mortality rate and under five mortality rate) were estimated by taking total under one children (*live birth*) as a denominator.

*Neonatal Mortality rate*=death in the first 28 days /total live births in the specified period \*1000

*Infant mortality rate*=death in the first one year /total live births in specific period \*1000

*Child mortality rate*=death of children age 1-4 years /total number of children in specified period and area \*1000 (28, 29).

Sum of score and composite scales were constructed to represent a single construct or item as follows:

**Wealth score** was a composite scale used to assess the economic status of the family. This index is believed to include elements of deprivation and income which could give reliable information about the level of poverty (9). Items included were income, presence of radio and television, and presence of latrine and water source. Income with >200 birr ,presence of latrine radio and television, and pipe water as a source of water were labeled as 1 and other categories were labeled as 0. The sum was computed and those who scored more than the median value( based on the normal curve) were classified as having satisfied basic needs and others as with unsatisfied basic needs.

Eight **knowledge** items were used to assess the *knowledge* of care takers. Correct answers were labeled as 1, and wrong answers were labeled as 0.The sum was computed and those who scored more than the median were classified as having good knowledge. Eighteen items were used to assess *perception*

.They were grouped into four parts according to health belief model. The constructs of the model were: perceived susceptibility, perceived severity, perceived benefits and perceived barriers. Mean score for each construct was computed, and then the result was dichotomized into positive and negative response.

Child health practice was assessed using four items, inquiring what they were practicing at the time of illness of their children. Among these items those with score greater than the median value were categorized as having good practice.

The data were summarized by using proportion, means and others. Bivariate analysis was done to determine association between independent variables and outcome variables. Odds ratios are calculated to determine the strength of association. 95% Confidence interval was used to estimate the level of significance. Multiple logistic regression was used to control the effect of confounding variables. A multivariate analysis was done based on the conceptual framework. The first model was constructed using the probable socioeconomic determinants. The second multivariate analysis included probable proximate determinants variables which had “*p*” value less than 0.1 in the bivariate analysis.. In the last multivariate analysis results of exploratory multivariate analysis, in which variables with a significant level of significance from bivariate analysis were included in stepwise logistic regression procedure. The effects of each variable in the model were adjusted for all other variables. The variables included were: ethnicity, religion, floor of the household, parity, ever breast fed and vaccination status. The cause of death was detected using expert algorithm (30). The expert algorithms were constructed to incorporate major categories of diseases that are prevalent in the country. The causes of death were determined by using algorithms from other studies The algorithm to identify HIV/AIDS cases were constructed using WHO clinical case definition for pediatric AIDS(31). The analysis tried to assess the contribution of HIV/AIDS and malnutrition to under five deaths. Multiple causes of death were entertained.

#### **4.7 Ethical considerations**

The ethical clearance was obtained from the Faculty of Medicine. Informed consent was obtained from each participant after informing them about their right to withdrawal in the process and refuse for participation. They have been informed about the confidentiality of the information they provided. The interview was conducted after the mourning period of 40 day for all cases. Those children found ill during the survey, their care takers were advised to take them to the nearby health facility. The result will be communicated to relevant bodies. They are ministry of health, Oromia regional health bureau, Jimma zone health desk and others in order to ensure the results are used in improving child survival.

## **5. RESULT**

The total number of under five children from the census was 6711. Males account for 52 % of the total population and females 48%. Total number deaths were 74. Neonatal mortality rate was estimated to be 12/1000 live births while infant mortality rate was 37/1000 live births. The child mortality rate was 6 /1000 children in the age group.

The total number of cases and controls were 74 and 222 respectively. Among the total population of the study males constitute about 172 (58.1%) females the rest 124 (41.9%). Most of the respondents to the interview were mothers (92.9%). and the rest were fathers.

The biggest dominant group was Oromo 146(49%) by ethnicity and orthodox Christian by religion 135(45.6%) Most families do not possess Television (74.3%), and more than two third of the population possess radio.

The median age of children, fathers, and mothers currently or at the time of death were 12 months 33 years and 25 years respectively. The minimum monthly income was 15 Birr and maximum registered amount of income was 2620 Birr for the family. The median monthly income was 200 birr.

Reduced mortality was observed among female compared to male groups But the association was not significant ( $OR=0.77$  (0.48, 1.75) at 95%CI with crude analysis,  $OR=0.92$ (0.48, 1.73) at 95%CI with adjusted analysis)

Children of Muslims by religion, Amhara, Dawro and Yem by ethnicity had higher mortality, even after adjustment for confounding variables. (Table 1) There was association between wealth index and mortality (table 1).

Excess in mortality was observed among children with fathers' age 15-29 years when compared with groups 30-49 the relationship was significant. (See table 1). The mean maternal age was 25.74(STD=7.247), the difference of maternal age between the two groups was not statistically

significant 25.54(alive) and 26.38(dead)) (F=1393, P=0.239).Majority of mothers193 (66.1%) were found in the age group of 20-29 years.

Maternal age and paternal education were not significantly related to child survival. A reduction in death was observed in children of mothers with secondary or above level of education . But the association was not found to be significant with (*OR*=0.775 95% *CI* (0.34, 1.76)) and (*OR*=1.07, 95%*CI* (0.46, 2.49)) respectively.

Higher level of wealth score as measured by wealth index has shown an significant reduction in child mortality (see table 1).

**Table 1. Survival status of children by socio-demographic characteristics, Jimma town, Southwest Ethiopia, October –November 2004**

<b>variable</b>	<b>category</b>	<b>case</b>	<b>controls</b>	<b>Crude OR (95% CI)</b>	<b>Adjusted OR(95% CI)</b>
<i>sex</i>	male	46	124	1.00	1.00
	female	28	98	0.77(0.45, 1.32)	0.85(0.47, 1.56)
<i>Religion</i>	Orthodox	30	106	1.0	1.00
	Protestant	8	25	1.13(0.46, 2.76)	1.07(0.39,2.89)
	Muslim	36	91	1.40(0.79, 2.45)	3.41(1.37,8.46)*
<i>Ethnicity</i>	Oromos	33	113	1.0	1.00
	Amhara	13	36	1.24(0.59, 2.60)	3.45(1.27,9.33)*
	Others	3	22	0.72(0.23, 2.27)	1.89(0.48,7.29)
	Gurage	7	12	0.47(0.13, 1.65)	0.61(0.16,2.33)
	Dawro	14	20	2.39(1.09, 5.26)	6.51(2.13,19.88)*
<i>Wealth index</i>	Yem	4	19	1.99(0.73, 5.48)	4.25(1.09,16.48)*
	Poor	63	164	1.0	1.00
	Satisfied basic needs	11	58	0.54 (0.31,0.93)*	0.69(0.36,1.32)
<i>level of education (father)</i>	illiterate	2	11	1.0	1.00
	primary edu	25	47	1.92(0.64,5.77)	2.92(0.82,10.37)
	Second and Teritary	40	121	0.99(0.35,2.85)	1.94(0.54,6.92)
<i>age category father</i>	15-29	24	53	1.0	1.00
	30-49	44	153	0.63(0.35, 1.14)	0.46(0.22,0.95)
	50AND ABOVE	6	16	0.83(0.29, 2.38)	0.57(0.12,2.60)
<i>age category mother</i>	15-19	6	20	1.00	1.00
	20-29	45	148	1.01(0.38, 2.68)	1.31(0.44,3.90)
	30 and +	20	50	1.53(0.54, 4.33)	2.20(0.63,7.78)
<i>level of education (mother)</i>	illiterate	10	27	1.0	1.00
	primary	29	73	1.07(0.46,2.49)	1.06(0.40,2.78)
	secondary and Teritary	33	115	.775(0.34,1.76)	0.98(0.36,2.67)

**Table 2: Child survival and proximate determinants of child death Jimma town, South Western Ethiopia, October –November 2004**

variable	category	case	controls	Crude OR (95% CI)	Adjusted OR(95% CI)
<i>Wall of the house</i>	cement	68	186	1.00	
	Others *	6	36	0.46(0.18,1.13)	
<i>Floor</i>	Cement	14	67	1.00	
	Earth	56	139	1.93(1.002,3.71)	1.81(085, 3.831)
	Wood	1	1	0.74(0.15,3.63)	7.49(0.40,131.21)
	Others	2	13	2.39(0.20,28.24)	0.99(0.16,6.00)
<i>Ever breast fed</i>	Yes	59	219	1.00	1.00
	No	15	3	18.56(5.2,66.23)	13.74(3.34,56.42)*
<i>vaccination status</i>	yes	53	206	0.14(0.07,0.318)	0.26(0.10, 0.65)
	no	21	12	1.00	
<i>age at birth of this child</i>	<19years	10)	50	1.00	
	20-24 years	26	78	1.84(0.87, 3.86)	
	25-34 years	32	84	3.12(0. 85 , 11.55)	
<i>parity</i>	1	22	80	1.00	1.00
	2-4	39	125	1.14(0.63, 2.05)	1.39(0.69,2.76)
	5 and above	12	16	2.73(1.13, 6.60)	3.06(1. 11,8.43)
<i>birth order</i>	1	25	81	1.00	
	2-4	37	123	0.98(0.55, 1.74)	
	5 and above	10	16	2.03(0.82, 5.02)	
<i>birth interval with next child</i>	1-18 months	5	1	1.00	
	>18months	3	13	0.05(0.004,0.56)	
<i>birth interval preceding child</i>	1-18 months	8	9	1.00	
	>18months	41	116	0.39(0.14, 1.09)	
<i>family planning</i>	yes	40	146	1.00	1.00
	no	34	75	1.65(0.97,2.82)	1.38(0.74,2.59)
<i>place of delivery</i>	health facility	32	122	0.63(0.38, 1.06)	0.43(0.06,2. 92)
	non health facility	42	100	1.00	1.00
<i>attendant of the delivery</i>	health professional	34	124	1.00	1.00
	Non health professional	40	98	1.49(0.88,2.53)	0.41(0.07,2. 98)

\*p<0.05, \*\* p<0.005

‡ All variables are adjusted for wealth score , type of wall, type of floor, birth weight (estimate), by breast feeding, vaccination status, parity, , family planning use, place of delivery and delivery attendant.

**Table 3: Child survival and behavioral determinants in Jimma town, South Western Ethiopia, October –November 2004**

<b>variable</b>	<b>category</b>	<b>case</b>	<b>controls</b>	<b>Crude OR (95% CI)</b>	<b>Adjusted OR(95% CI)</b>
<b>knowledge</b>	satisfactory	44	143	0.81(0.47,1.39)	
	unsatisfactory	30	79	1.00	
<b>Health practice rating</b>	Satisfactory	54	171	0.81(0.44, 1.46)	
	Unsatisfactory	20	51	1.00	
<b>perceived susceptibility</b>	Positive	56	171	0.81(0.39, 1.67)	
	Negative	18	51	1.00	
<b>perceived severity</b>	Positive	60	190	0.77(0.36,1.44)	
	Negative	14	32	1.00	
<b>perceived benefits</b>	Positive	62	192	0.93(0.50,1.71)	
	Negative	12	30	1.00	
<b>Perceived barriers</b>	Positive	41	145	0.66(0.39,1.13)	
	Negative	33	77	1.00	

Excess in mortality was observed in children who reside in household with a floor made earth than in a household floor made of cement. This was statistically significant. (OR=1.93, 95%CI (1.002, 3.71). (See table2). Breast milk was substituted for 80(27%) of children at different age. Among these children 73.8% stop feeding breast milk before or at age of 6 months. The median age of initiation of supplementary feeding was 4.0 months. The mean age of supplementation started was significantly different between alive and dead children. (4.83 vs. 4.20, F=5.22, p=0.023).

Children who never breast fed had higher risk of dying than those who were fed in their life time. This was found to be significant even after adjustment made. (table 2)

Care takers disclose that 263(88.9%) children were vaccinated at least once. When asked to present vaccination card only 64.3% were able to provide it. Excess in mortality was observed among children who had never been immunized ,which was statistically significant in both the crude and adjusted analysis(table2)

Majority of them had visited health facilities for Antenatal care (81%)at least once. Increased mortality among those parents who have never used Family planning service was seen but the difference was not statistically significant (OR=1. 65 95%CI (0.97, 2.28)) the effect of birth order on child survival was assessed, and the least mortality was observed among those with birth order of 2-4. The association was not significant (see table 2)

Children who had elder or younger brother or sister were taken in the analysis, 22 for next sibling and 174 for previous child respectively. Those who do not qualify for the analysis were excluded. The duration of birth interval was categorized into two those births occurring between 1-18 months and above. Highest rate of death was observed in groups with short birth interval in both groups (the index child's birth interval with younger brother /sister or elder brother or sister). The

difference was statistically significant in case of birth interval duration with younger sibling.  
(OR=0.05 95%CI (0.004, 0.56))

The odd of death for mothers of children with parity of 5 or more was 2.73 times higher than parity of one. (OR=2.73 95%CI (1.13, 6.60))\_but the effect was also quite significant after adjustment (see table 2).

. A reduction in mortality was observed among those with satisfactory knowledge, but it was not statistically significant. (OR=0.81.95%CI (0.47, 1.39))

Lesser rate of mortality was observed among those positive and satisfactory perception and practices. The associations were not statistically significant. (Not presented)

### **Stepwise logistic regression**

From variables entered to the logistic regression model wealth index, ever breast fed immunization status and parity were found to be predictors for child survival. Those children with vaccination were with less likelihood of death than those with out vaccination (0.26 95%CI (0.11,-0.61)). Children with mothers of para 5 or above were with a greater risk of dying than children with Para I. (3.34, 95%CI (1.27, 8.76)). With regard to breast-feeding practice, children never breast-fed were with greater likelihood of death than breast-fed. (OR=13.21, 95%CI (3.28, 53.16))(See table 4.)

**Table 4. Stepwise logistic regression of factors associated with child survival, October – November 2004**

<i>Variable labels</i>	<b>Previous adjusted Odds Ratio(95% of Confidence interval)</b>	<b>Current Model adjusted Odds Ratio (95% of Confidence interval)</b>
Parity 1	1.00	1.00
<b>2-4</b>	1.39(0.69,2.76)	1.36(0.70,2.65)
<b>5 and above</b>	3.06(1.11,8.43)	3.34(1.27,8.76)
Ever vaccinated (reference= not vaccinated)	1.00	1.00
<b>Vaccinated (at least once )</b>	0.26(0.11,0.66)	0.26(0.11,0.61)
Ever breast fed (reference=yes)	1.00	1.00
<b>No</b>	13.74(3.34,56.42)	13.21(3.28,53.16)
Wealth index	1.00	1.00
(references=unsatisfied basic need)	0.68(0.35,1.32)	0.54(0.29, 0.99)
<b>Satisfied basic need</b>		

*Current model* adjusted variables are adjusted for ethnicity, religion, fathers age, floor of the house hold, parity ever breast fed vaccination status and wealth index

### **Probable causes of death /underlying causes of death**

Among the total number of deaths identified, 12(16.21%) were neonates, 28(37.8%) in post neonatal period during infancy.

Pneumonia contributes to the largest mortality in the study population 22 (29.7%), followed by acute diarrhea and malaria contributing (23%) of deaths each. Malnutrition was found to be contributing for 28(37.8%) of all deaths. (See table 4). HIV/AIDS was found to be contributing for 2(2.8%) of deaths .Using the pediatric case definition. (See table5)

Table 5. **Proportionate mortality ratio of cause's deaths of under five children, Jimma town, South Western Ethiopia October –November 2004**

Diagnosis	Number	%**	Remark
Malaria	17	23	
Meningitis	5	6.7	
Pneumonia	22	29.7	
Acute Diarrhoea	17	23	
Persistent diarrhoea	2	2.7	
Dysentery	2	2.7	
Congenital malformation	2	2.7	
Malnutrition	28	37.8	
Measles	5	6.7	
Neonatal tetanus	1	1.35	
HIV/AIDS	2	2.8	<u>Best case scenario</u>
HIV/AIDS	15	<b>20.2</b>	<u>**worst case scenario</u>
Total			

\*\*\* The sum may exceed the total number of deaths (the tool used is assumed to identify probable and other underlying causes of deaths)

\*\* Percentage calculated from total deaths

## **6. Discussion**

Case control studies are generally less expensive and quicker to conduct and may take into account larger possible of risk factors. The disadvantages of case control studies are that the information of the risk factor is collected after the event; recall bias is also expected to be introduced as the duration of the event is a little bit longer.

As any epidemiological study the validity of this study may be compromised by selection bias, misclassification bias, and biases from omission of confounding variables.

With regard to selection bias, detailed considerations were given to this bias and standards and procedures were set from the outset. The definition for cases and controls were strictly adhered during the data collection. In addition to this as the study identified cases from census conducted from all households in the town which minimizes selection bias. Some cases could be missed because of failure of maternal recall especially of those who died in early neonatal period.

Misclassification of outcome variable wouldn't be a significant problem since the outcome of interest is a clear cut, which does not introduce confusion. Age misclassification could be a problem in this study which is demonstrated by age heaping. To minimize this problem exact date of birth was used whenever it was available. In addition to this age in the neonatal period was recorded in days and for others in months. Care was also taken to obtain valid information on exposure status.

The power of the study was affected since the minimum expected number of cases were not found. This could result in lower the chance of detecting the difference between different groups. To maximize the power, the number of controls was increased to three for each case.

The recent DHS report showed that from the total under five deaths 29% were in the neonatal group, post neonatal mortality also contributed to 29% the rest were in the children in the age group

of 1-4 years. The proportion of neonatal death in this study was lesser by 13% than the DHS report (2). This could be due to differences in the availability of health services especially emergency obstetric care in the study area which is known to have a significant impact in reduction of perinatal deaths.

Older children were with less likelihood of deaths, this finding is supported by others (32) which found out that as child mortality changes the age pattern of mortality changes. Typically as an infant mortality declines the proportion of mortality that will occur in the first month increases. Similarly as less than five mortality declines the proportion of such deaths occurring before age 1 year increases (32).

Increased risk of death was observed among Muslims, Amhara, Dawro and Yem groups. Possible explanations for these could be child care practices related to the culture and religious rituals. Qualitative study would help to explore factors contributing to the differences.

Unsatisfied basic need assessment a composite scale to assess the overall socioeconomic status of the study subjects. This composite scale was used for the following reasons: (I) Income measurements are rarely reliable measures of poverty in low income countries. (ii) Furthermore this measure also excludes other elements of deprivation such as housing, clothing, education and health care (9). This index is based on different dimensions: housing quality, dependency ratio, availability of water supply and latrine (9). The wealth score which is a modification of the unsatisfied basic need assessment in the local context was found to be a significant predictor of child survival.

Contrary to studies elsewhere (11, 12, 13) maternal education was not significantly associated to child mortality. In some studies the effect of education was significant among families with poor socioeconomic status (33). Taking it into consideration the analysis by stratification with wealth index did not show any significant difference. This could be due to similarities in the level of

education attained between the two groups. Among environmental factors, a floor made of earth was significantly related to an excess in mortality when compared with cement floor. Its effect was lost as adjusted by other factors. The effect of source of water couldn't be established because of the homogeneous nature of the study groups.

Breast feeding was found to be a strong predictor of under five survival in this study. The effect of breast feeding is through its protection of infants from enteric infections by elimination of exposure to food and water borne pathogens and mature breast milk contains several compounds which increase immunity (19).

Higher level of protection by breast feeding was found among less educated women. Infants who were not breast fed had highest risk of dying during the first 2 months of life (34). Mean age at weaning among cases was at earlier age than that of controls. Earlier weaning was also related to excess in child mortality in other studies (1, 18).

Low birth weight is also a significant predictor of child survival; this has also been shown in other studies Low birth could be as a result of preterm labor, or IUGR. An increased in low birth weight also results from increased in preterm deliveries, change in obstetrics practices, and increased multiple gestations (35).

Among preventive health service attended vaccination status of children was strong predictor of child survival. The risk of mortality was 18 fold times among those not vaccinated when compared with those who had vaccination. The protective effect vaccine was discussed in many literatures (36, 37). The national coverage of immunization differs by antigen. The BCG coverage has reached 70%, while the rate of fully immunized children is 36 % (5). The utilization of immunization service indirectly indicates care takers' behavior of using preventing health services.

Having more than five children was with a greater risk of having dead babies; the significance was kept even after adjusted for potential confounding variables. Others were reproductive factors were not found to be significantly related to child survival.

Higher parity, short birth interval and low birth weight are known to be interrelated. The growth and development of young children are affected by their mothers past nutritional histories, and their well being during pregnancy. Birth weight is affected by maternal nutrition and health. High parity and short birth interval are known to deplete maternal nutrition and influencing the child survival through birth weight (38, 39).

The contribution of knowledge, perception and practice were not found to be significantly associated to child survival though satisfactory and positive responses had shown reduction in level of mortality.

Perception was assessed using the following constructs: perceived severity, perceived susceptibility, perceived benefits and barriers which are constructs in Health belief model (40). Healthy practices are assumed to be determined or affected by these factors. We assumed here the health practice as process variable to the outcome variable. Past experience is a treat to interpretation of this finding, since mother's perception could be significantly influenced by past experiences, especially among cases. Assessment of perception of mothers prior to the death was difficult task. The perception of threat is combined with the perception of behavior to yield likelihood of action in health belief model (40). Survival of the child was taken as a proxy indicator of action taken towards healthy behavior due to methodological reasons which could be an other limitation in the analysis.

Pneumonia contributes to the largest mortality in the study population followed by acute diarrhea and malaria contributing of deaths each which is similar to national report (5).The sensitivity and specificity of verbal autopsy diagnosis for malaria, acute respiratory infection and meningitides is

low. Since these diseases share similar symptoms (22). Utilization of these results has to consider the aforementioned limitations.

Measles, neonatal tetanus, malnutrition and accidents were detected by verbal autopsy with sensitivities and specificities of greater than 75 % (22). Malnutrition was found to be contributing for 37.8% of all deaths which is lesser than the world estimate (38). The contribution could be underestimated due to lack of ability of the tool to pick mild moderate level of malnutrition. An estimation or identification of mild and moderate malnutrition using verbal autopsy is important since these groups are implicated in many more child deaths than previously recognized (38).

Hospital based data in developing countries suggest that 55-75 % of perinatal deaths are associated with prematurity and low birth weight (41). Because of the majority deaths occur at home, birth weight measures are seldom available. Estimates of Gestational age are particularly problematic in societies where often women do not know the dates of their last menstrual period. Birth trauma or asphyxia due to complications of delivery / poor obstetrical care are thought to be major problems. But little information is available outside of hospital deliveries (41). The interpretation of this study has to take into account the reality discussed above.

HIV/AIDS was found to be contributing for 2(2.8%) of deaths using WHO pediatric HIV/AIDS definition. In other studies the ability to distinguish deaths associated with maternal HIV infection from non infection death using verbal autopsy was poor due to different reasons which are: uninfected infants born to HIV/AIDS seropositive mothers may have died from causes unrelated to HIV/AIDS, signs and symptoms of HIV/AIDS related disease among infants in developing countries are relatively non specific and many of the manifestations of pediatric HIV infections overlap with the presentations of common childhood conditions (31). The estimated contribution of HIV to under five mortality in Ethiopia was 8.1% in other studies, which used the data from sentinel surveillance as a starting point. It also includes other parameters: which are rate of mother

to child transmission, and survival time of infected children (39). This estimate could have been higher if the urban estimate for adult prevalence was taken into account. The difference between these two estimates could be due to limited ability of verbal autopsy to identify HIV related death in addition to this the identification of death among neonates is not possible using tools available (42).

In conducting Verbal autopsy different considerations and factors should be taken into account. These are mortality classifications, categorization of deaths, design of the verbal autopsy questionnaire, derivation of diagnosis, and whether multiple causes of death. This study used open approach in classification of death, broader category, and check list without filter. The respondents were care takers which are recommended by many studies. The interviewers used were lay persons trained intensively to conduct the study which is known to increase the repeatability of the diagnosis when compared to medically trained people (23). Recall period advisable was for 12 months since the event is relatively more common from adult deaths. On the other hand others argue that mothers are intimately involved in the care of sick child and so they may report the symptoms preceding death of a child more accurately than a relative caring for an adult (23, 25).

With regard to validation of the tool, the option which was feasible was hospital based reference which has many limitations. Besides this, the utilization of Verbal autopsy in our set up is to estimate major causes of death.

## **7. Conclusion**

1. differences of mortality by age group was observed
2. immunized children were less likely to die as compared to unimmunized children
3. Children born to mother with lesser parity were less likely to die as compared to with parity of 5 or more.
4. Breast fed children were less likely to as compared to those never breast fed.
5. The estimated contribution of HIV/AIDS using verbal autopsy tool is significant.
6. the leading cause of death was similar to that of other developing countries
7. even though verbal autopsy is always subjected to error it can provide data of value to public health
8. Excess in mortality was observed in some ethnic and religious groups.

## **8. Recommendations**

1. Strengthen preventive services
  - a. Expanded Program of immunization
  - b. Family planning
  - c. Breast feeding
  - d. Prevention of Mother to child transmission
2. More researches should be done to validate verbal autopsy diagnosis especially for chronic conditions like HIV/AIDS, Tuberculosis and Malnutrition
3. Further exploration of child care practice by qualitative study is recommended

## ANNEX 1

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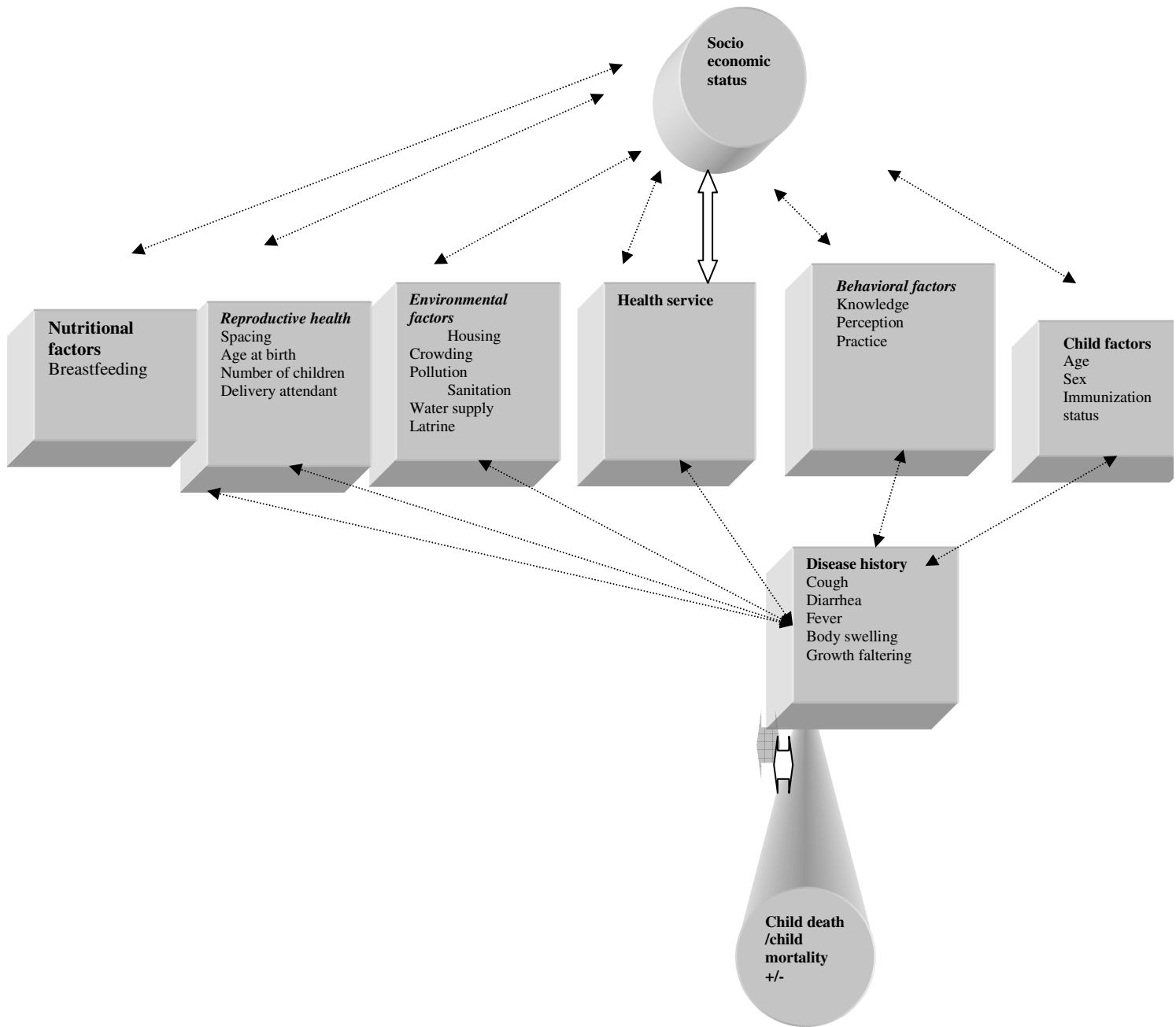
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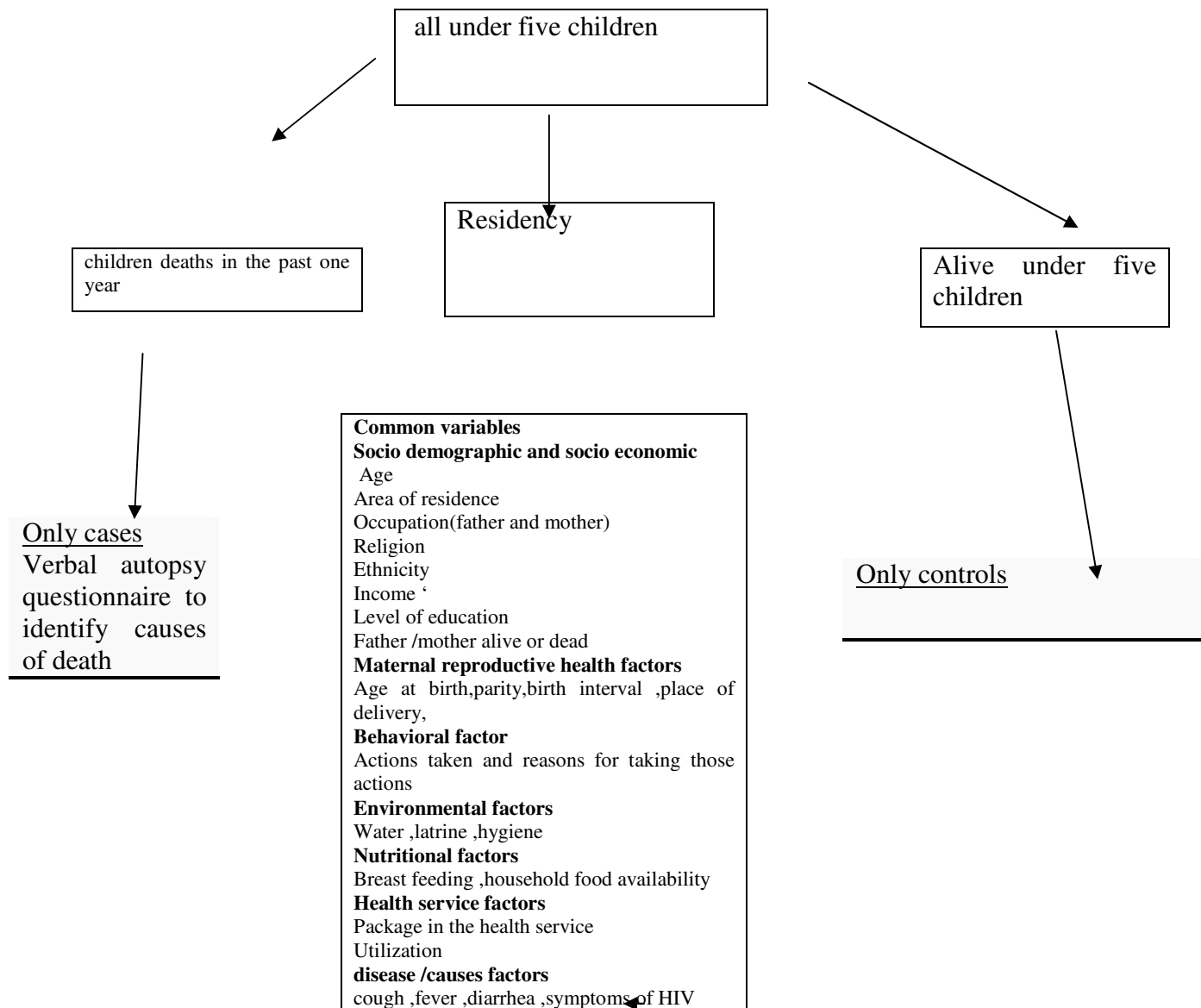
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## Appendix 2 Conceptual framework



## Appendix 3 Study design



**Appendix 4**

**አዲስ አበባ ዩኒቨርሲቲ  
የህክምና ፋኩልቲ  
የህብረተሰብ ጤና ትምህርት ክፍል**

**ከፍተኛ \_\_\_\_\_ ቀበሌ \_\_\_\_\_**

ቅድመ መረጃ ቅጽ  
ፎርም ቁጥር \_\_\_\_\_  
የመረጃ ሰብሳቢ ስም \_\_\_\_\_  
የተቆጣጣሪ ስም \_\_\_\_\_  
መረጃ የተሰበሰበበት ቀን dd/mm/yr \_\_\_\_\_

ባሁኑወቅት እድሜያቸው ከ5 ዓመት በታች ካለ ይመዘገባሉ  
ባለፈው አንድ አመት እድሜው ከአምስት አመት በታች ሆኖ የሞተ ካለ ይመዘገባሉ  
ካለፈው አመት ጥቅምት 1:1996 ጀምሮ የተወለደ ካለ ጠይቅ  
በተጠቀሰው ጊዜ እድሜው ከአምስት አመት በታች ሆኖ የሞተ ካለ ይመዘገባሉ

ተቁ	1.የቤት ቁጥር	2.የቤተሰብ ሀላፊ ስም	3.የልጅ ስም	4.ጾታ 1.ወንድ 2.ሴት	5.እድሜ	6.በህይወት አለን 1.አዎን 2. የለም	7.የሞተበት ቀን dd/mm/yr	8.እርጉዝ ሴት አለ ወይ 1.አዎን 2.አይደለም	9.መልሱ 1 ከሆነ ስም ይጻፍ	፻.ምን ያህል ግዘ (በወራት ይገለጽ)	11.የእርግዝና ክትትል ነበር ወይ 1.አዎን 2.አይደለም
1											
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አዲስ አበባ ዩኒቨርሲቲ  
የህክምና ፋኩልቲ  
የህብረተሰብ ጤና ትምህርት ክፍል

የመረጃ ሰብሳቢ ስምና ፊርማ \_\_\_\_\_  
የተቆጣጣሪ ስምና ፊርማ \_\_\_\_\_

**መረጃ መሰብሰቢያ ቅጽ**

ይህ ጥናት የህጻናት ሞት መስንኤ ለማወቅና መፍትሄ ለመፈለግ የታለመ ነው ስለዚህ በጥናቱ ላይ በመሳተፍ እንዲተባበሩ በአክብሮት እንጠይቃለን ስለትብብሩ አስቀድመን እናመሰግናለን

ለመሳተፍ ፈቃደኛ ነዎት?

አዎን \_\_\_\_\_ አይደለም \_\_\_\_\_

**ምዕራፍ አንድ**

**ክፍል 1: የመረጃ መለያ**

1.1 ክፍተኛ <input type="text"/>	1.4 ተራ ቁጥር <input type="text"/>
1.2 ቀበሌ <input type="text"/>	1.5 የልጅ ስም _____
1.3 የቤት ቁጥር <input type="text"/>	1.6 ልጅ በህይወት 1.አለ <input type="checkbox"/> 2.የለም <input type="checkbox"/> መልሱ 1 ከሆነ ምዕራፍ 2 2 ከሆነ ምዕራፍ 3 ወይም 4
1.7 ጾታ 1.ወንድ <input type="checkbox"/> 2.ሴት <input type="checkbox"/>	

**የማህበራዊ እና የሶሻል መጠይቆች**

<b>ክፍል 2 - የአሳዳጊ መጠይቅ</b>	<b>ክፍል 3</b>
2.1 የአሳዳጊ ስም _____	-3.1 ልጅ የተወለደበት ቀን: ቀን/ ወር/ ዓም ____/____/____ <input type="text"/>
	3.2 ልጅ በህይወት ከሌለ የሞተበት ቀን <input type="text"/>
	የልጅ እድሜ <input type="text"/>
2.2 ከልጅ ጋራ ያላቸው ግንኙነት 1. አባት 2. እናት 3. የወንድ አያት 4. የሴት አያት 5. ሌላ (ይጠቀስ)	3.2 ብሔር/ረሰብ 1. አሮሞ 2. አማራ 3. ትግሬ 4. ጉራጌ 5. ሌላ(ይጠቀስ)
	3.3 ሃይማኖቶች 1. አርቶዶክስ 2. ፕሮቴስታንት 3. ሙስሊም 4. ሌላ (ይጠቀስ) _____
	3.4 ወርሃዊ ገቢ _____

ክፍል 4 - የወላጆች ሁኔታ	
4.1 የአባት ሁኔታ	4.2 የእናት ሁኔታ
4.1.1 በሕይወት አሉን? 1. በሕይወት አሉ <input type="checkbox"/> 2. አርፎዋል /በሕይወት የሉም/ 3. አይታወቅም	4.2.1 በሕይወት አሉን? 1. በሕይወት አሉ <input type="checkbox"/> 2. አርፎዋል /በሕይወት የሉም/ 3. አይታወቅም
4.1.2 ዕድሜ <input type="text"/> <input type="text"/>	4.2.2 ዕድሜ <input type="text"/> <input type="text"/>
4.1.3 የጋብቻ ሁኔታ <input type="checkbox"/> 1. ያገባ 2. ያላገባ 3. የተፋቱ 4. ሚስቱ የሞተችበት 5. ሌላ ካለ ይገለጹ	4.2.3 የጋብቻ ሁኔታ <input type="checkbox"/> 1. ያገባች 2. ያላገባች 3. የተፋቱ 4. ባሏ የሞተባት 5. ሌላ ካለ ይገለጹ
የትምህርት ደረጃ <input type="text"/> <input type="text"/>	4.2.4 የትምህርት ደረጃ <input type="text"/> <input type="text"/>
4.1.5 ሥራ _____	4.2.5 የሥራ _____

ክፍል 5 - የሥነ ተዋልዶ መረጃን በተመለከተ	
5.1 የእናትየዋ እድሜ በመጀመሪያ የእርግዝና ወቅት <input type="text"/> <input type="text"/>	5.9 የቤተሰብ ምጣኔ አገልግሎት ተጠቅመው ያውቃሉ? 1 አዎን 2 አይደለም <input type="checkbox"/> 3 አለውቅም
	5.10 በተጠቀሰው ሕፃን እርግዝና ጊዜ ክትትል አድርገው ያውቃሉን? 1 አዎን <input type="checkbox"/> መልስ 2 ከሆነ ወደ 5.12 ይሄዱ 2 አይደለም <input type="checkbox"/> 3 አለውቅም
5.2 ይህ ልጅ ሲወለድ የእናትየዋ እድሜ <input type="text"/> <input type="text"/>	5.11 ለምን ያህል ጊዜ? <input type="text"/> <input type="text"/>
5.3 የተወለዱ ልጆች ብዛት (በውርጃ የተወለዱትን አይጨምርም) <input type="text"/> <input type="text"/>	5.12 ልጅን የት ወለዱት? 1 በቤት ውስጥ <input type="checkbox"/> 2 በጤና ተቋም 3 ሌላ (ይጠቀስ)
ከ7 ወር በፊት የተወለደ ብዛት(ውርጃ) <input type="text"/> <input type="text"/>	5.13 ማን ነው ያዋለደዎት? 1 ሐኪም <input type="checkbox"/> 2 ነርስ 3 የሰለጠኑ የልምድአዋላጅ 4 ከሥራው ጋር ግንኙነት የሌለውሰው 5 ሌላ (ይጠቀስ) _____
5.5 በቤተሰብ በተመረጠው ልጅና በታላቁ መሀከል ያለው ጊዜ (በወራት ይገለጹ) <input type="text"/> <input type="text"/>	አስተያየት
አሁን በተመረጠው ልጅና በታላቁ መሀከል ያለው ጊዜ (በወራት ይገለጹ) <input type="text"/> <input type="text"/>	
a. ስንተኛው ልጅ ነው? <input type="text"/> <input type="text"/>	
5.8 በቤተሰብ ውስጥ ሞት ነበርን (የልጆች ከ5 ዓመት በታች) 1. አዎን <input type="checkbox"/> 2. አይደለም 3. አላውቅም	

6. አካባቢ ሁኔታ መጠይቆች

6.1 የቤት ውስጥ ሁኔታ	6.2 የዕዳት ሁኔታ
6.1.1. የጣሪያ ሁኔታ 1. በሳር የተከደነ <input type="checkbox"/> 2. በቆርቆሮ 3. በሸክላ ወይም በድንጋይ የተሰራ 4. ሌላ ካለ ይጠቀስ	6.2. የመጠጥ ውሀ ክየት ታገኛላችሁ/ 1. የተጠበቀና የተከለለ ምንጭ <input type="checkbox"/> 2. የተጠበቀና የተከለለ ወንዝ 3. ምንጥ 4. ወንዝ 5. ቧንቧ6. ሌላ ካለ ይጠቀስ _____
6.1.2. የግድግዳ ሁኔታ <input type="checkbox"/> 1 በጭቃ የተሰራ 2. በሲሚንቶ የተሰራ 3. በቆርቆሮ 4. ሌላ ካለ ይጠቀስ	
6.1.3. የወለሉ ሁኔታ 1. በሲሚንቶ የተሰራ <input type="checkbox"/> 2. በአፈር የተሰራ 3. በጣውላ 4. ሌላ ካለ ይጠቀስ	6.2.3 የሽንት ቤት አለን? 1. አዎን <input type="checkbox"/> 2. አይደለም 3. አላውቅም
6.1.4 በቤት ውስጥ ያሉ ክፍሎች ብዛት <input type="checkbox"/> <input type="checkbox"/>	6.2.4 ልጆች ከመመገብም በፊት እጅዎን ይታጠባሉን? 1. አዎን <input type="checkbox"/> 2. አይደለም 3. አላውቅም
6.1.5 በቤት ውስጥ ያሉ መስኮቶች ብዛት <input type="checkbox"/> <input type="checkbox"/>	6.2.5 እጅዎን ሲታጠቡ ሁልጊዜ ላሙና ይጠቀማሉን? 1. አዎን <input type="checkbox"/> 2. አይደለም 3. አላውቅም
6.1.6 ቤቱ ብርሃናማ ነውወይ? 1. ጥሩ <input type="checkbox"/> 2. ደህና 3 ገቅተኛ	6.1.8 በቤት ውስጥየተለየ የማብሰያ ክፍል አለው ? 1 አዎን <input type="checkbox"/> 2 አይደለም 3 አላውቅም
6.1.7 የቤተሰቡ ብዛት ( በቤት ውስጥ የሚኖሩ የቤተሰቡ አባላት በቁጥር) <input type="checkbox"/> <input type="checkbox"/>	6.1.9 ምን ዓይነት የማብሰያ ዕቃ ይጠቀማሉ? 1. ኩብት <input type="checkbox"/> 2. ነጭ ጋዝ ምድጃ 3. ቡታ ጋዝ ምድጃ 4. ኤሌክትሪክ ምድጃ 5. ከሰል 6. ሌላ ካለ ይጠቀስ _____

<b>ክፍል 7</b> የሥነ ምግብ ሁኔታ	<b>ክፍል 8</b> የልጅ ሁኔታ	
7. ይህንን ልጅ ጡት አጥብተውት ያውቃሉን? 1 አዎን <input type="checkbox"/> 2 አይደለም 3 አላውቅም	8.1 ልጅ ሲወለድ ምን ያክል ነበር? 1. በጣም ትንሽ <input type="checkbox"/> 2. ትንሽ 3. መካከለኛ 4. ትልቅ	
7.2. በአሁኑ ሰዓት እያጠቡት ነውን? 1 አዎን <input type="checkbox"/> 2 አይደለም 3 አላውቅም <b>ልጅ በህይወት ካለ ወደ 7.4</b>	8.2 ልጅ ተከትቦ ያውቃል? 1. አዎን <input type="checkbox"/> 2. አይደለም 3. አላውቅም	
7.3 በጥንት ሲለይ እያጠቡት ነበርን? 1 አዎን <input type="checkbox"/> 2 አይደለም 3 አላውቅም	8.3 የክትባቱ ካርድ አለን? 1. አዎን <input type="checkbox"/> 2. አይደለም	
7.4 አድሚው ከ4-6 ካለፈ በተጠቀሰው ጊዜ ከእናት ወተት ሌላ ምግብ አግኝቶአልን? 1. አዎን <input type="checkbox"/> 2. አይደለም 3. አላውቅም	8.4 ካርዱ ካለ እነዚህ ካሉ አረጋግጥ BCG,DPT1,DPT2,DPT3,OPV1,OPV2,OPV3 &measles	የተከተቡትን ክትባታ አክብላቸው ሌላ ካለ ይጠቀስ _____

7.5 የእናት ጡት ወተትን ተክተው ያውቃሉ ? 1. አዎን <input type="checkbox"/> 2. አይደለም 3. አላውቅም መልስ 2 ከሆነ ወደ 7.7 ይሂዱ	8.5 ካርዱ ከለለ ? 8.5.1 የBCG ጠባሳ ካለ አረጋግጥ 1. አዎን <input type="checkbox"/> 2. አይደለም 3. አላውቅም
7.6 መቼ ጀመሩለት(በወራት ይቀመጥ) <input type="checkbox"/>	
7.7 ልጅዎትን በጡጦ መግበው ያውቃሉ? 1. አዎን <input type="checkbox"/> 2. አይደለም 3. አላውቅም	8.5.2 ልጁ/ልጅቷ ታፋ ላይ ክትባት አግኝቶ/ታ ያወቃል/ታውቃለች? 1. አዎን 2. አይደለም 3. አላውቅም <input type="checkbox"/>
7.8 ልጅዎ በምሽት የማየት ችግር አለብዎት? 1. አዎን 2. አይደለም 3. አላውቅም <input type="checkbox"/>	8.5.3 ምን ያህል ጊዜ? <input type="checkbox"/>
	8.5.4 በአፋ ላይ ጠብታ አግኝቷል? 1. አዎን <input type="checkbox"/> 2. አይደለም 3. አላውቅም
7.9 ልጅዎ በቀን የማየት ችግር አለበት ወይ? 1. አዎን <input type="checkbox"/> 2. አይደለም 3. አላውቅም	8.5.5 ምን ያህል ? <input type="checkbox"/>
7.10 ልጅዎ በቀንም በሌሊትም የማየት ችግር አለበት ወይ? 1. አዎን <input type="checkbox"/> 2. አይደለም 3. አላውቅም	8.5.6 መቼ ተጀመረ ? -
<b>አስተያየት</b>	8.5.7 ልጅዎ በ9 ወፍ ክትባት ተሠጥቶት ያውቃል ? 1. አዎን <input type="checkbox"/> 2. አይደለም 3. አላውቅም

<b>9.1 ገደብ ክፍል 1/ተግባር</b>	
9.1. ለልጁ ተጨማሪ ምግብ እና ፈሳሽ በሕመም ጊዜ የሰጠዎል ? 1. አዎን 2. አይደለም 3. አላውቅም <input type="checkbox"/>	
9.1.2 ልጅዎ በተቅማጥ ሲጠቃ የሕፃናትን መደብረት እሰጠዎለሁ 1. አዎን 2. አይደለም 3. አላውቅም <input type="checkbox"/>	
9.1.3 ሕፃን/ልጁን በሕመም ጊዜ ወደ ጤና ተቋም አወስደዎለሁ? 1. አዎን 2. አይደለም 3. አላውቅም <input type="checkbox"/>	
9.1.4 ለልጁ ከወባ መከላከያ አጎበር እጠቀማለሁ 1. አዎን 2. አይደለም 3. አላውቅም <input type="checkbox"/>	

<b>ገደብ ክፍል 9.2</b>	
መመሪያ ፤ አምስት ደረጃዎች ለመለኪያነት ተቀምጠዎል 1. በጣም አመሰግናለሁ 2. እስማማለሁ 3. አስተያየት አልሰጥም 4. አቃወማለሁ 5. በጣም አቃወማለሁ	9.3 ገደብ ክፍል 3 (እውቀት)
9.2.1 perceived susceptibility	9.3.1 የሰንባ ህመም ሕክምና በጤና ተቋማት ይሰጣል 1. አዎን <input type="checkbox"/> 2. አይደለም <input type="checkbox"/> 3. አላውቅም
9.2.1.1 ልጅ በቀላሉ ተቅማጥ ሊይዘው ይችላል <input type="checkbox"/>	
9.2.1.2 ልጅ በቀላሉ የሰንባና ላይኛው መተንፈሻ ሊጠቃ ይችላል <input type="checkbox"/>	9.3.2 የእናት ጡት ወተት በመስጠት የተቅማጥ በሽታን መከላከል የቻላል (ከ4 — 6 ወር) 1. አዎን <input type="checkbox"/> 2. አይደለም 3. አላውቅም
9.2.1.3 ልጆች በቀላሉ በወባ በሽታ ሊጠቁና <input type="checkbox"/>	
9.2.1.4 ሊንዱ ይችላሉ <input type="checkbox"/>	

9.2.1.4. ልጆች በምግብ እጥረት በበሽታ በቀላሉ ሊጠቁ ይችላሉ በተይም የእናት ወተት ያላገኙ <input type="checkbox"/>	9.3.3 የተቅማጥ በሽታ እጅን በሳሙና በመታጠብ መከላከል ይቻላል 1. አዎን <input type="checkbox"/> 2. አይደለም 3. አላውቅም
9.2.2 perceived severity 9.2.2. ተቅማጥ በቀላሉ ሕፃናትን ይገላል <input type="checkbox"/>	
9.2.2.2 የሳንባ በሽታዎች ሕፃናትን ለሞት ይዳርጋል <input type="checkbox"/>	9.3.4 የፀሐይ ብርሃን የአጥንት ቅርፅ በላሽት 1. አዎን. 2. አይደለም 3. አላውቅም <input type="checkbox"/>
9.2.2.3 ወባ ገዳይ በሽታ ነው <input type="checkbox"/>	
9.2.2.4 የምግብ እጥረት በሽታ ዋና ሕፃናት ገዳይ በሽታ ነው <input type="checkbox"/>	9.3.5 ሕፃኑ ተቅማጥ በያዘው ጊዜ ፈሻሽና ምግብን አለመስጠት ይመረጣል 1. አዎን <input type="checkbox"/> 2. አይደለም 3. አላውቅም
9.2.3 perceived benefits (ORS ) የሕፃናት አድን ጎጥረ ነገር ሕፃናትን ከሞት ያድናል <input type="checkbox"/>	
9.2.3.2 ተጨማሪ ፈላሽና ምግብ በሕመም ጊዜ ሕፃናትን ይታደጋል <input type="checkbox"/>	9.3.6 አጎበር የወባን በሽታ መተላለፍ የቀንሳል 1. አዎን 2. አይደለም <input type="checkbox"/> 3. አላውቅም
9.2.3.3 ለፀሐይ ብርሃን መጋለጥ ሕፃናትን ከአጥንት መዳከምና መበላሸት ይከላከላል <input type="checkbox"/>	
9.2.3.4 የወባ መከላከያ አጎበር ሕፃናትን ከወባ የከላከላል <input type="checkbox"/>	9.3.7 አናት በኤች. አይ. ቪ. ከተጠቃች ከሕፃን ወደ ልጅ መተላለፍ የማይቀር ነው 1. አዎን <input type="checkbox"/> 2. አይደለም 3. አላውቅም
9.2.3.5 በጊዜ መታከምና መከተብ ሕፃናትን አላሰፈላጊ ከሆኑ ችግሮች ያድናል <input type="checkbox"/>	
9.2.4 perceived barriers 9.2.4.1 ORS ውድ ነው <input type="checkbox"/>	9.3.8 ኩፍኝ እና የልዩነት ልመሻ በክትባት መከላከል የቻላል 1. አዎን 2. አይደለም <input type="checkbox"/> 3. አላውቅም
9.2.4.2 ORS ጎጥረ ነገር በመድኃኒት መደፍሮች አይገኝም <input type="checkbox"/>	
9.2.4.3 የጤና ተቋም በጣም ይርቃል <input type="checkbox"/>	አስተያየት _____
9.2.4.4 የጤና ተቋም ባለሙያዎች ይቆጣሉ አያቀርቡም <input type="checkbox"/>	
9.2.4.5 የምድሐኒቱ ሳይድ እፊክት ችግር ያስፈራል <input type="checkbox"/>	
9.2.4.6 የመጓጓዣ ዋጋ በጣም ውድ ነው <input type="checkbox"/>	

**ምዕራፍ 2**

**ይህ ክፍል ተግባራዊ የሚሆነው በህይወት ላሉ የጥናቱ ተካፋይ ጎጂናት ነው።**

አደገኛና ለሕይወት አስጊ ሕመም የሚባለው ከዚህ ቀጥሎ ከሌሎች ምልክቶች አንዱን ሲያሟላ ነው።

- ለአካባቢ ሁኔታ በጣም ግድ የለሽ ሲሆን
- እራሱን ማወቅ ሲሳነው
- መብላት መጠታት ሲሳነው
- ትንፋሽ ሲያጥረው
- ያልተለምዶ አካላዊ እንቅስቃሴ ሲኖረው
- ሰውነቱን ማንቀሳቀስ ወይም ማዘዝ ሲያቅተ

ተራ ቁጥር	ጥያቄዎች	
10.1.	ልጅቷ/ኛ በአለፈው አንድ ዓመት አስጊ ሕመም ነበረው (እድሜው ከ1 አመት በታች ከሆነ ከተወለደ ጊዜ ጀምሮ )	1. አዎን 2. አይደለም 3. አላውቅም
10.2.	ከነበረው/ከነበራት ወደ ጤና ጣቢያ ተወስዳ/ደ ነበር	1. አዎን 2. አይደለም 3. አላውቅም
10.3.	ለተራ ቁጥር 2 መልስዎ አይደለም ከሆነ ምክንያቱን ይጥቀሱ።	1. በባህላዊ ሕክምና 2. በብት ውስጥ ህክምና ለመውሰድ ሞክረዋል 3. የተራ ንስጋ ችግር 4. የህመሙን አደገኛነት ግምት ውስጥ አለማስገባት 5. በዘመናዊ ሕክምናው ላይ እምነት አለመኖሩ 6. ሌላ ካለ ይጠቀስ) _____
	ተራ ቁጥር 4. 5. አና 6 ወደ ጤና ተቋም የሄዱትን ይመልከታል	1. አዎን 2. አይደለም 3. አላውቅም
10.4.	ከሐኪሙ/ጤና ባለሙያው ጋር ለመገናኘት ካርድ የማውጣት ችግር ነበር ወይ?	1. አዎን 2. አይደለም 3. አላውቅም
10.5.	መድኃኒት በአካባቢው ለማግኘት ስቸግር ነበር ወይ?	1. አዎን 2. አይደለም 3. አላውቅም
10.6.	ከሥራ ሰዓት ውጪ የድንገተኛ አገልግሎት ነበር ወይ?	1. አዎን 2. አይደለም 3. አላውቅም
10.7.	እሜሪካ ስልጠናው የሕክምና አገልግሎት ነበር ወይ?	1. አዎን 2. አይደለም 3. አላውቅም

**ምዕራፍ 3ክ30 ቀን በታች እድሜ ላላቸው በሞት የተለዩ**

ምልክ የአናት	
1	አናት የሞት እንዴት ነች? 1 - 2 - 3 - 9
2	አናት የሞት የደም ግፊት በሽታ አላቸው ወይ? 1-አዎ 2-አይደለም 3.አላውቅም
3	አናት የሞት ከመውለድ በፊት ያልተለመደ እንቅስቃሴ ታይቶባቸው ነበር ወይ? 1-አዎ 2-አይደለም 3.አላውቅም

4	እናት የሞት ከሚከተሉት በሽታዎች አንዱ ነበረባቸው ወይ? 1. ስኳር 2. የልብ በሽታ 3. ቲቢ 4. ኤፒለፕሲ	1 2 3 4 5 9
5	አስቸጋሪ አወላለድ ነበራቸው?	1-አዎ 2-አይደለም 3.አላውቅም
6	በወሊድ ጊዜ እናት የሞት ትኩላት ነበረባቸው ወይ?	1-አዎ 2-አይደለም 3.አላውቅም

በወሊድ ጊዜ የተከሰቱ		
7	ልጅ 1. ነጠላ 2. መንታ ነበር ወይ?	1- 2- 9-D 1-አዎ 2-አይደለም 3.አላውቅም
8	ሲወለድ/ስትወለድ መሣሪያ ተጠቅመው ነበር ወይ?	D 1-አዎ 2-አይደለም 3.አላውቅም
9	በኤፔራሲዮን C/S ነበር የተወለደው?	1-አዎ 2-አይደለም 3.አላውቅም
10	መጀመሪያ እግር/አግሯ ነው የወጣው?	1-አዎ 2-አይደለም 3.አላውቅም
11	እናት የሞት ደም በጣም ፈፀት ነበር ወይ?	1-አዎ 2-አይደለም 3.አላውቅም
12	ምጡ ረጅም ነበር ወይ?	1-አዎ 2-አይደለም 3.አላውቅም
13	ልጅ ያለጊዜው ነበር ወይ የ ተወለደው/ የተወለደችው?	1-አዎ 2-አይደለም 3.አላውቅም
14-F	ምን ያህል ወር ወይም ሳምንታት?	ወር ሳምንት
15	እናት የሞት ከመውለድ በፊት ውሃ መሰል ፈሳሽ ፈፀት ነበር ወይ?	1-አዎ 2-አይደለም 3.አላውቅም
16F	ምን ያህል ጊዜ ከመውለዱ በፊት?	1ከአንድ ቀን ያነሰ 2አንድ ቀን/በላይ
17	ልጅ በናቱ ሆድ ውስጥ መንቀሳቀስ አቁሞ ነበር ወይ?	1-አዎ 2-አይደለም 3.አላውቅም
18-F	ለተራ ቁ 15 መልሱ አይደለም ከሆነ ከተወለደ በኋላ ተንፍሶ ነበር ወይ?	1-አዎ 2-አይደለም 3.አላውቅም
19-H	ለተራ ቁ 15 መልሱ አይደለም ከሆነ ሕጻኑ ሲወለድ ሞቶ ነበር ወይ?	1-አዎ 2-አይደለም 3.አላውቅም
20	ልጅ ከመውለዱ በፊት አንግዶ ለጅ መጥቶ ነበር ወይ?	1-አዎ 2-አይደለም 3.አላውቅም

የሚከተሉትን ጥያቄዎች ልጅ/ልጅቷ በሕይወት ከተወለደ/ች		
21	ልጅ ከተወለደ ወዲያውኑ አልቅሶ ነበር ወይ?	1-አዎ 2-አይደለም 3.አላውቅም
22	ልጅ ሲወለድ መጥባት አስቸግሮት ነበር ወይ?	1-አዎ 2-አይደለም 3.አላውቅም
23-F	የጥያቄው መልስ አዎ ከሆነ ችግሩ 1) የናት የው 2) የልጅ	1-አዎ 2-አይደለም

		3.አላውቅምD
24	ልጁ ከተወለደ በኋላ ተመዝኖ ነበር ወይ?	1-አዎ 2-አይደለም 3.አላውቅም
25F	ተራ ቁጥር 19 መልሱ አዎን ከሆነ ምን ያህል ነበር?	K gs
26	ልጁ በተወለደ ጊዜ?	1. በጣም ትንሽ 2.ትንሽ 3.መካከለኛ 4. ትልቅ
27	ልጁ/ልጅቷ? የተፈጥሮ ችግር ነበረበት/ባት?	1-አዎ 2-አይደለም 3.አላውቅም
28	የዓይነት/ኗ ቀለም ወደ ቢጫነት ተቀይሮ ነበር?	1-አዎ 2-አይደለም 3.አላውቅም
29-F	አዎን ከሆነ ከተወለደ ከምን ያህል ጊዜ በኋላ?	Days_____
30	የሕፃን/ኗ እትብት ቀልቶ ነበር ወይ?	1-አዎን 2-አይደለም 3.አላውቅም
31	ልጁ/ቷ ትኩሳት ነበረው/ራት?	ቀናት_____
32	ልጁ/ቷ ያልተለመደ እንቅስቃሴ ነበረው/ራት?	ቀናት_____
33	ልጁ/ቷ ራሱን/ሷን ስቶ/ስታ ነበር?	ቀናት_____
34	ልጁ/ቷ ያስለው/ላት ነበር/ራት?	ቀናት_____
35	ልጁ/ቷ የመተንፈስ ችግር ነበረው/ራት??	ቀናት_____
36	መተንፈስ አቁሞ/ማ ነበር?	ቀናት_____
37	አተነፋፈሱ/ፈሷ ፈጣን ነበር ወይ?	ቀናት_____
38	አተነፋፈሱ/ፈሷ ድምጽ ያሰማ ነበር ወይ?	ቀናት_____
39	በደረቱ/ቷና በሆዱ/ደግሞ መካከል ሲተነፍሱ/ሱትተነፍሱ ይሰረጉድ ነበር ወይ?	ቀናት_____
40	ሕፃን/ኗ ያ/ታስታውክ ነበር?	ቀናት_____
41	ሕፃን/ኗ ያስቀምጠው/ጣት ነበር?	ቀናት_____
42	ሕፃን/ኗ በሕመሙ/ሟ ጊዜ ጡት መጥባት አስቸግሮት/ሯት ነበር?	ቀናት_____
43	በጭንቅላቱ/ቷ ላይ በፊት ለፊት አብጠት ነበረው/ራት ወይ?	ቀናት_____

**ምዕራፍ 4የሞት መንስኤ መጠይቅ ከ31 ቀን እስከ 59 ወር**

ምልክት	ወራት	ቀን
1 ልጁ/ደልጁ/ታ ሲወለድ/ስትወለድ በጣም ትንሽ ነበር/ረጅም ወይ?	1-አዎን 2-አይደለም 3.አላውቅም	
2 ልጁ ያለጊዜው ነው የተወለደው	1-አዎን 2-አይደለም 3.አላውቅምD	
3-አዎን ከሆነ ምን ያህል ወራት/ሳምንታት?	m _____w	
4 ሕፃኑ/ጅ ጡት ይጠባ/ትጠባ ነበር??	1-አዎን 2-አይደለም 3.አላውቅም	
5-አዎን ከሆነ መጥባት ያቆመው/ችው ልክ ከመሞቱ/ታ በፊት ነው ወይ?	1-አዎን 2-አይደለም 3.አላውቅም	
6 ሕፃኑ/ጅ ትኩሳት ነበረው/ራት?		
7-ትኩሳቱ	1-የማያቆም 2-ዕየሂደ የሚመላለስ 2- 9-D	
8-ልጁ/ታ ያልተለመደ እንቅስቃሴ ነበረው/ራት?		
9 ልጁ/ታ ሳል ነበረው/ራት?		
10 ተከታታይ ሳል በአለፈው ዓመት ነበረው?		
11 ለምን ያህል ጊዜ?		
12 ልጁ/ታ የሙተንፈስ ችግር ነበረው/ራት?		
13 አተነፋፈሱ/ራሷ ፈጣን ነበር ወይ?		
14 አተነፋፈሱ/ራሷ ድምፃማ ነበር ወይ?		
15 በደረቱ/ቷና በሆዱ/ጅ መካከል ሲተነፍስ/ስትተነፍስ ይሰረጉድ ነበር ወይ?		
16 አስታውኳት ነበር		
17 ትውክቱ ደም ነበረው ወይ?		
18 ሆዱ ላይ ዕብጠት ነበረው?		
19 የሆድ መወጠር ነበር/መነፋት ነበር/አብጠት		
20 የሆድ እብጠት በድንገት ነው የጀመረው (S) በጊዜ ሂደት (G)?	1-S 2-G 9-D	
21 ልጁ/ታ ተቅማጥ ነበረው/ራት ወይ?		
22 ልጁ/ታ ባለፈው ዓመት ተከታታይ (ለብዙ ጊዜ) ተቅማጥ ነበረው/ራት ወይ?		
23 ለምን ያህል ጊዜ?		
24 ተቅማጡ ደም ነበረው?		
25 ልጁ/ታ ሆድ ቁርጠት ነበረው/ራት??		
26 የሰውነት መቀነስ ታይቷል?		
27 ልጁ/ታ ሰውነት ላይ መቆሳሰል ነበር?		
28 ልጁ/ታ የፀጉር ቀለም መቀየር ነበረው/ራት?		
29 ልጁ/ጅታ የአፍ መቁሰል ነበረው/ራት?		
30 በልጁ/ታ ሰውነት ላይ መገርግት ታይቶ ነበር?		

ምልክት	ወራት	ቀን
31 በ ልጁ/ታ ላይ የአፍ ቁስለት ነበረው/ራት?		
32 በልጁ/ታ ላይ የፊት ዕብጠት ነበረው/ራት?		
33 ልጁ/ጅታ እግር ማበጥ ነበረው/ራት?		
34 የልጁ/ታ የዓይን ቀለም ወደ ቢጫነት ተቀይሮ ነበር ወይ?		
35 የልጁ/ጅታ የቁርጭምጭሚት አካባቢ ዕብጠት ነበር?		
36 የልጁ/ጅታ መገጣጠሚያ አካባቢ ዕብጠት ነበር?		
37 የልጁ/ጅታ ሰውነት ላይ ሽፍታ ነበር?		
38 ልጁ/ጅታ ኩፍኝ በሽታ ነበረው/ራት ወይ?		
39 ልጁ/ጅታ ሌላ የቆዳ በሽታ ነበረው/ራት?		
40 ልጁ/ጅታ ከተለመደው ውጪ አንቅልፍ ያጠቃው/ቃት ነበር?		
41 ልጁ/ጅታ ራሱን/ሷን ስቶ/ታ ነበር?		
42 ልጁ/ጅታ የእግር ፓራሊስስ ነበረው/ራት?		
43 ልጁ/ጅታ የአካል መገተር ነበረው/ራት?		
44 ልጁ/ጅታ የአንገት ሕመምና መገተር ነበረው/ራት?		
45 ልጁ/ጅታ ያልተለመደ የሰውነት እንቅስቃሴ (የሚጥል በሽታ) ነበረው/ራት?		
46 ልጁ/ጅታ የራስ ምታት ነበረው/ራት?		
47 ልጁ/ጅታ የጭንቅላት እብጠት ነበረው/ራት?		
48 ልጁ/ጅታ ሽንት መሸናጎት አቅቶት/ታት ነበር?		
49 በልጁ/ጅታ ሽንት ውስጥ ደም ነበረው?		
50 በልጁ/ጅታ ብብት ውስጥ ዕብጠት ነበር?		
51 በልጁ/ጅታ ብሽሽት አካባቢ ዕብጠት ነበር?		
52 ልጁ/ጅታ ውሻ ነክሶት/ሷት ነበር?		
53 ልጁ/ጅታ በሌላ አንስሳት ወይም ነፍሳት ተነክሶ/ሳ ነበር?		
53 አዎን ከሆነ መልሱ በምን ዓይነት እንስሳ ወይም ነፍሳት (ስሙ ይጠቀስ)		
54 ልጁ/ጅታ የመኪና አደጋ አጋጥሞት/ሟት ነበር?		
55 ልጁ/ጅታ ሌላ ዓይነት አደጋ አጋጥሞት/ሟት ነበር?		
56 አደጋው የተፈጸመው ታስቦበት ነበር?		

57.የሞት መንስኤ ምክንያት (በአሳዳጊዎቹ	
58 ልጁ የሞተበት ቦታ	1.ቤት 2.ሆስፒታል 3.ጤና ጣቢያ 4.ሌላ ከሆነ ይጠቀስ <input type="checkbox"/>

ምእራፍ 5 የጤና አገልግሎት ሐኪታ በሀመምግዜ በሞት ለተለዩት ክፍል የተዘጋጀ

ተራ ቁጥር	ጥያቄዎች	
44.1.	<p>ልጅቷ/ጄ ከመሞቱበፊት ሕመም ነበረው                      1. አዎን 2. አይደለም 3. <input type="checkbox"/> ቅም</p>	
44.2.	<p>ከነበረው/ከነበራት ወደ ጤና ጣቢያ ተወስዳ/ዶ ነበር                      1. አዎን 2. አይደለም 3. አላወቅም <input type="checkbox"/>  <b>**መልሱ 1 ከሆነ 44.4</b>  <b>***2 ከሆነ ወደ 44.3 ይሂዱ</b></p>	
***44.3.	<p>ለተራ ቁጥር 2 መልስዎ አይደለም ከሆነ ምክንያቱን ይጥቀሱ። <input type="checkbox"/></p> <ol style="list-style-type: none"> <li>1. በባህላዊ ሕክምና</li> <li>2. በብት ውስጥ ህክምና ለመውሰድ ሞክረዋል</li> <li>3. የተራ-ንስጋርት ችግር</li> <li>4. የሀመሙን አደገኛነት ግምት ውስጥ አለማስገባት</li> <li>5. በዘመናዊ ሕክምናው ላይ እምነት አለመኖሩ</li> <li>6. ሌላ ካለ ይጠቀስ) _____</li> </ol>	
	<p>ተራ ቁጥር 4. 5. እና 6 ወደ ጤና ተቋም የሄዱትን ይመለከታል</p>	
**44.4	<p>ከሐኪሙ/ጤና ባለሙያው ጋር ለመገናኘት ካርድ የማውጣት ችግር ነበር ወይ?                      1. አዎን 2. አይደለም 3. አላወቅም <input type="checkbox"/></p>	
44.5.	<p>መድኃኒት በአካባቢው ለማግኘት ስቸግር ነበር ወይ?</p>	<p>1. አዎን 2. አይደለም 3. አልጠቅም <input type="checkbox"/></p>
44.6	<p>ከሥራ ሰዓት ውጪ የድንገተኛ አገልግሎት ነበር ወይ?</p>	<p>1. አዎን 2. አይደለም 3. አላወቅም <input type="checkbox"/></p>
44.7	<p>እሚያስፈልገው የሕክምና አገልግሎት ነበር ወይ?</p>	<p>1. አዎን 2. አይደለም 3. አላወቅም <input type="checkbox"/></p>

Appendix 5  
**Addis Ababa university**  
**Faculty of Medicine**  
**Department of Community Health**

higher \_\_\_\_\_ kebele \_\_\_\_\_

Baseline survey format  
 Format number \_\_\_\_\_  
 Name of data collector \_\_\_\_\_  
 Name of supervisor \_\_\_\_\_  
 Date of data collection \_\_\_\_\_

- Children with age below 5 years should be registered
- Those children in the last one year who died below age of 5 years should be registered
- Ask for children born in the last one year (tikemt 1:1996 eth calendar)
- In the aforementioned year register those who died at age below 5 years

Age should be registered in months

s.no	1.house number	2name head of household	3child name	4.sex 1.male 2.female	5.age %	6is s/he alive? 1.yes 2. no	7date of death dd/mm/yr	8any pregnant women 1.yes 2.no	9 if response is 1wrte name	10. Duration of pregnancy	11any follow up 1.yes 2.no
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											

## Part I

This study is intended to identify the determinants and causes of under five mortality .We kindly request your participation in this study. You are having the right of not responding to questions and interrupt during data collection .We would like to thank for your support.

### Section 1: Background information on child and household IDENTIFICATION FORM

1.1 HIGHER <input type="text"/>	1.4 SERIAL NUMBER
1.2 KEBELE <input type="text"/>	1.5 NAME OF THE CHILD _____
1.3 HOUSE NUMBER <input type="text"/>	1.6 IS THE CHILD ALIVE 1.ALIVE <input type="checkbox"/> 2.DEAD <input type="checkbox"/>
1.7SEX 1MALE <input type="checkbox"/> 2.FEMALE <input type="checkbox"/>	

Section 2. Information about care taker	Section 3 Socio demographic	
2.1 Name of care taker _____	3.1 Date of birth of child: _/_/____ dd mm yy	3.5 Religion 1.Orthodox 2. Protestant 3. Muslim 4. Others specify(-----)
	3.2 Date of death (if not alive) _/_/____ dd mm yy	3.6 income _____
2.2 Relationship to the child 1. father 2. mother 3. grand father 4. grand mother 5. other (specify)_____	3.3 age of child _____ (write in months ) if neonatal death in days (specify )	Is there a TV? 1. YES 2.NO
	3.4 ethnicity 1.oromo 2. Amhara 3. Tigre 4. Gurage 5.others (specify)	3.8 IS THERE A RADIO? 1. YES 2. NO

<b>Section 4. Parental factors</b>			
<b>4.1 paternal factors</b>		<b>4.2 maternal factors</b>	
4.1.1 status	1.alive 2.dead 9.not known	4.1.1 status	1.alive 2.dead 9.not known
4.1.2 age	_____	4.1.2 age	_____
4.1..3 marital status	1. married 2. single 3. divorced 4. widowed 5. others(specifiy	4.1..3 marital status	6. married 7. single 8. divorced 9. widowed 10. others(specifiy
4.1.4 level of education	_____	4.1.4 level of education	_____
4.1.5 occupation	_____	4.1.5 occupation	_____

<b>Section 5 Reproductive factor</b>	
5.1 age at first pregnancy _____	5.9 Ever use of Family planning methods? 1.yes 2.no 9.dont know
	5.10 Have you ever attended ANC clinic? 1.yes 2.no 9.dont kknow
5.2 age at birth this child _____	5.11 how many times? _____
5.3 parity _____	5.12 Where did you deliver this child? 1. At home 2. Health institution 3. Others(specify
5,4 Abortion _____	5.13 Who attended it? 1. physician 2. nurse 3. Trained birth attendant 4. Lay person 5. Other (specify
5.5 birth interval between the selected child and the preceding child _____	
5.6 birth interval between the selected child and next child _____	
5.7 birth order _____	
5.8 any death in the household (of a child) 1.yes 2.no 9.dont kknow	

<b>Section6 Environmental factors</b>			
<b>6.1Housing</b>		<b>Sanitation.6.2</b>	
6.1.1. Type of roof	1.thatched 2.corrugated iron 3.Made of brick 4.others specify	6.2.1Source of water	1.spring (protected) 2..river (zoned and protected)3.spring 4.river 5.tap 6.others (specify )
6.1.2. Type of wall	1.1mud 2.cement 3.Iron 4.others(specify)	6.2.2 Amount of water consumption	_____ -
6.1.3. Type of floor _____		6.2.3 Is there a latrine facility	1.yes 2.no 3.not known
6.1.4. Number of rooms in the household_	_____	6.2.4Do you wash hands before feeding your child?	1. Yes 2.no 9.dont know
6.1.5.Number of windows in the household	_____	6.2.5 Do you use soap when washing your hands?	1. Yes 2.no 9.dont know
6.1.6. Family size	_____		
6.1.7Do you cook in the household?	1. Yes 2.no 9.dont know		
6.1.8 What kind of cooking material do you use ?			

Section 7 Nutritional factors		Section 8 Child factor	
7.1 Have you ever breast fed your index child?	1. Yes 2.no 9.dont know.	8.3 What was the size of the child at birth?	1.very small 2.smaller than usual 3.average 4. large
7.2. Are you currently breast feeding your child? (If the child is alive	1. Yes 2.no 9.dont know.	8.4 was s/he immunized ?	Yes 2.no 9.dont know
7.3 if the child is dead were you feeding the child just before he died?)	1. Yes 2.no 9.dont know.	8.3 is the card available ?	Yes 2.no 9.dont know
7.4. If your child is >4-6 months, was s/ he exclusively fed?	1. Yes 2.no 9.dont know.	8.4 check for BCG,DPT1,DPT2,DPT3,OPV1,OPV2,OPV3 &measles	Circle on antigen received
7.5 Have you ever substituted breast milk?	1. Yes 2.no 9.dont know.	<b>8.5 If no card available ?</b> 8.5.1 Look for BCG scar /	Yes 2.no
7.6 age breast milk substituted		8.5.2 Was s/he ever vaccinated on the thigh or buttock ?	Yes 2.no 9.dont know
7.7 have you ever given complimentary foods?	1. Yes 2.no 9.dont know.	8.5.2.1How many such vaccines?	_____
7.8 age additional food started		8.5.3 Did your child receive drops in the mouth?	Yes 2.no 9.dont know
7.9. any bottle feeding ?	1. Yes 2.no 9.dont know.	8.5.3.1 When was it started ?	_____
7.10 Problem of vision during night time	1. Yes 2.no 9.dont know.	8.5.3.2 How many times was it given?	_____
7.11 Problem of vision during day time	1. Yes 2.no 9.dont know.		
7.11 Problem of vision during day and night time 1. Yes 2.no 9.dont know.		1. Yes 2.no 9.dont know.	Yes 2.no 9.dont know

Section 9 Behavioral factors	
<b>9.1 sub section I (PRACTICE )</b>	
9.1.1 Give additional food and fluid when child gets ill.	1. Yes 2.no 9.dont know
9.1.2 Give ORS to a child when having diarrhoea	1. Yes 2.no 9.dont know
9.1.3 Do you take your child to health facility during illness ?	1. Yes 2.no 9.dont know
9.1.4 do you use ITN to your child for prevention of malaria?	1. Yes 2.no 9.dont know

= .

Section 9 contin...			
9.2 sub section 2(perception likert score will be used 1.strongly agree ,2agree 3. no comment 4.disagree 5.strongly disagree)		93 subsection 3 (knowledge )	
<b>9.2.1perceived susceptibility</b>		9.3.1treatment is available for pneumonia at health institution	1. Yes 2.no 9.dont know
9.2.1.1child gets easily diarrhoea	1__2__3__4__5__		
9.2.1.2child gets easily ARI if not immunized	1__2__3__4__5__	9.3.2Diarrhoal disease can be prevented by exclusive breast feeding.	1. Yes 2.no 9.dont know
9.2.1.3child can get and easily be affected by malaria if not protected and treated	1__2__3__4__5__		
9.2.1.4child get malnourished if not breast fed	1__2__3__4__5__	9.3.3diarrhoea in children can be prevented by washing hands using soup	1. Yes 2.no 9.dont know
<b>9.2.2 perceived severity</b>			
<b>9.2.2.1diarrhoea kills children</b> a.	1__2__3__4__5__	9.3.4sunshine exposure prevents deformity of the bones	1. Yes 2.no 9.dont know
9.2.2.2ARI kills children	1__2__3__4__5__		
9.2.2.3Malaria is a killer disease	1__2__3__4__5__	9.3.5When a child is having diarrhoea it is better to limit fluid to minimize loss	1. Yes 2.no 9.dont know
9.2.2.4Malnutrition is major factor contributed children deaths	1__2__3__4__5__		
<b>9.2.3perceived benefits</b>	1__2__3__4__5__	9.3.6ITN prevents malaria transmission	1. Yes 2.no 9.dont know
9.2.3.1 ORS saves lives			
9.2.3.2Additional food and fluid benefits a child with diarrhoea	1__2__3__4__5__	9.3.1Maternal to child transmission of HIV is inevitable.	1. Yes 2.no 9.dont know
9.2.3.3Sunshine exposure protects a child from getting bone deformity	1__2__3__4__5__		
9.2.3.4ITN prevents children from getting malaria	1__2__3__4__5__	9.3.7Measles and polio can be prevented by immunization	1. Yes 2.no 9.dont know
9.2.3.5Earlytreatmentpreventscomplication and deaths due to malaria pneumonia ,and others'immunization prevents vaccine preventable deaths among children	1__2__3__4__5__		
<b>9.2.4perceived barriers</b>	1__2__3__4__5__		
9.2.4.1ORS is expensive			
9.2.4.2ORS is not available at drug vendor ,pharmacy and clinic	1__2__3__4__5__		
9.2.4.3Health service too far	1__2__3__4__5__		
9.2.4.4Health provider judgemental ,not friendly	1__2__3__4__5__		
9.2.4.5Side effect of drugs	1__2__3__4__5__		
9.2.4.6Transport to costly	1__2__3__4__5__		

**PART II**

This part is applicable only for controls

- Lethargic
- Lost consciousness
- Unable to drink or eat

**Serious morbidity: defined as any single condition fulfilling the following criteria.**

- Shortness of breath
- Abnormal body movement
- Limitation of movement

	questions	
1.	Did your child have serious morbidity in the last one year?	1. Yes 2.no 9.dont know
2.	If yes, was s/he taken to health facility?	1. Yes 2.no 9.dont know
3.	If no to question2, what were the reasons for it?	1.sought help from traditional healers 2.tried to treat child at home 3.transport not available 4.lack of recognition of transport 5.lack of confidence on medical care 6.other (specify)_____
	<b>Questions 4,5,and 6 are for those who went to health facilities</b>	
4.	Was there a problem in getting appointment?	1. Yes 2.no 9.dont know
5.	was treatment available locally /	1. Yes 2.no 9.dont know
6	.was there emergency care after consultation hours /	1. Yes 2.no 9.dont know
7	.was there needed medical care?	

**Part III verbal autopsy form for neonate 1111**

11 Symptoms mothers		
1	How is the mother now? (1-healthy; 2-sick; 3-dead; 9-don't know)	1 - 2 - 3 - 9
2	Did the mother have blood pressure?	1-Y 2-N 9-D
3	Did the mother have fits before giving birth?	1-Y 2-N 9-D
4	Did the mother have any of the following diseases: 1-diabetes, 2-heart diseases, 3-TB, 4-epilepsy? 5-No, 9-don't know.	1 2 3 4 5 9
5	Was it a difficult birth?	1-Y 2-N 9-D
6	Did the mother have a febrile illness at the time of delivery?	1-Y 2-N 9-D

EVENTS DURING BIRTH OF A CHILD		
7	Was the child a single birth (1) or twin (2)?	1- 2- 9-D
8	Was it a forceps or vacuum delivery?	1-Y 2-N 9-D
9	Was it a caesarian delivery?	1-Y 2-N 9-D
10	Child delivered feet first?	1-Y 2-N 9-D
11	Excessive bleeding	1-Y 2-N 9-D
12	Was it a prolonged labour?	1-Y 2-N 9-D
13	Was the child premature?	1-Y 2-N 9-D
14F	How many months or weeks?	m  w
15	Did water break before labor?	1-Y 2-N 9-D
16F	How much before labor did the water break?	1.less than one day 2. one day or more
17	Did the baby stop 'playing' in the womb before labour?	1-Y 2-N 9-D
18	If no, did the baby breathe at all after delivery?	1-Y 2-N 9-D
19	If no, was the baby dead when s/he was born?	1-Y 2-N 9-D
20	Did the umbilical cord come before the baby was born?	1-Y 2-N 9-D

ASK THESE QUESTIONS IF THE CHILD WAS BORN ALIVE		
21	Did the child cry immediately after birth?	1-Y 2-N 9-D
22	Was the child unable to breast-feed?	1-Y 2-N 9-D
23	If yes, was the problem with the child (1) or the mother (2)?	1- 2- 9-D

24	Was the child weighed after being born?	1-Y 2-N 9-D
25	If yes, how much did the child weigh?	_____ Kgs
26	At the time of birth was the newborn?	1.very small 2.smaller than usual 3.average 4. large
27	Did the child have any malformation at birth?	1-Y 2-N 9-D
28	Did the eye colour change to yellow (jaundice)?	1-Y 2-N 9-D
29	If yes, how many days after being born?	Days _____
30	Was the umbilical cord of the child RED colour?	1-Y 2-N 9-D
31	Did the child have fever?	Days _____
32	Did the child have convulsions?	Days _____
33	Did the child become unconscious?	Days _____
34	Was the child coughing?	Days _____
35	Did the child have difficult in breathing?	Days _____
36	Ever stop breathing?	Days _____
37	Did s/he have fast breathing?	Days _____
38	Did s/he have noisy breathing?	Days _____
39	Did s/he have indrawing of the chest while breathing?	Days _____
40	Did the child vomit?	Days _____
41	Did the child have diarrhoea?	Days _____
42	Was the child unable to breast-feed when s/he was ill?	Days _____
43	Was there a bulge in the child's fontanel?	Days _____
44	Stiffness of the body ?	Days _____

**Part iV Verbal autopsy form: 31**  
**days upto 59 months**

Symptoms		Months	Days
1	Was the child too small at birth?	1-Y 2-N 9-D	
2	Was the child born premature?	1-Y 2-N 9-D	
3-F	If yes, how many weeks or months?	m  w	
4	Was the child breast-feeding?	1-Y 2-N 9-D	
5-F	If yes, did the child stop just before death?	1-Y 2-N 9-D	
6	Did s/he have fever?		
7-F	Was the fever continuous (1) or on and off (2)?	1- 2- 9-D	
8-F	Did s/he have convulsions?		
9	Did s/he have a cough?		
10	Repeated cough in last one year	1.yes 2. noi 3.DK	
11	How frequent?		
12	Did s/he have breathing difficulties?		
13	Did s/he have fast breathing?		
14	Did s/he have noisy breathing?		
15	Did s/he have indrawing of chest while breathing?		
16	Did S/he vomit?		
17-F	Did S/he vomit blood?		
18	Did she have a mass in the abdomen?		
19	Did s/he have abdominal distension?		
20-F	Did the distension start suddenly within few days (S) or gradually as the weeks went by (G)?	1-S 2-G 9-D	
21	Did s/he have diarrhoea?		
22	Repeated diarrhoea in the last one year?	1.yes 2. noi 3.DK	
23	How frequent?		
24	Did s/he have bloody diarrhoea?		
25	Did s/he have abdominal pain?		
26	Did s/he have weight loss?		
27	Did s/he have flake of patches?		
28	Did s/he have hair changes in color??		
29	Did s/he have mouth sores?		
30	Did s/he look pale?		
31	Did she have puffiness of the face?		
32	Did s/he have swollen legs		
33	Did the eye colour change to yellow (jaundice)?		
34	Did she have ankle swelling?		
35	Did s/he have swelling of joints?		

Symptoms		Months	Days
36	Did she have skin rash?		
37	Did s/he have measles?		
38	Did s/he have any other skin disease?		
39	Was s/he unusually sleepy?		
40	Did s/he have loss of consciousness?		
41	Did s/he have paralysis of both legs?		
42	Did s/he develop stiffness of the whole body?		
43	Did s/he have neck pain?		
44	Did s/he have fits?		
45	Did s/he have headache?		
46	Did s/he have bulging fontanelle?		
47	Was s/he unable to pass urine?		
48	Did s/he pass blood in urine?		
49	Did s/he have swelling in the armpits?		
50	Did s/he have swelling over the groin?		
51	Did a dog bite him/her?		
52	Was s/he bitten by another animal or insect?		
53	If yes, what type of animal/insect? (mention the name)		
54	Was s/he injured in a road accident?		
55	Did s/he suffer any other accidental injuries?		
56	Was s/he injured intentionally by someone?		

Serial no	questions	
44.1	Was the child taken to health facility in the last illness?	1. Yes 2.no 9.dont know
44.2.	If yes to question no 1.where /	1.hospital 2. health center 3.health station 4.private clinic 5.others _____
44.3.	If no to question 1, what were the reasons for it?	1.sought help from traditional healers 2.tried to treat child at home 3.transport not available 4.lack of recognition of transport 5.lack of confidence on medical care 6.other (specify) _____

<b>Questions 4,5,and 6 are for those who went to health facilities</b>		
44.4	Was there a problem in getting appointment?	1. Yes 2.no 9.dont know
44.5.	was treatment available locally /	1. Yes 2.no 9.dont know
44.6	.was there emergency care after consultation hours /	1. Yes 2.no 9.dont know
44.7	.was there needed medical care?	1. Yes 2.no 9.dont know

57.Cause of death mothers percepation	
58. place of death	1.home 2.hospital 3. health center 4.other specify

**ANNEX 6(DATA COLLECTORS GUIDE)**

**ለመረጃ ሰብሳቢዎች የተዘገጀ መመሪያ**

**1. አጠቃላይ የመረጃ መሰበሰቢያው መመሪያ**

1. ወደ ተመደብክበት አካባቢ ስትደርስ እራስህን ከአካባቢው ባለስልጣናት፣ ከጤና ባለሙያዎች እና ከህብረተሰቡ መሪዎች ጋር አስተዋውቅ። ስለ ጥናቱ አላማ፣ አካሄድ እና ጠቀሜታ ግለጽ። ከአዲስ አበባ ዩኒቨርሲቲ እና ከአካባቢው መንግስት የተሰጠህን የትብብር ደብዳቤ ለአካባቢው የጤና እና የቀበሌ ባለስልጣናት አቅርብ።
2. የቤት ቁጥር መስጠት ሊኖርብህ ይችላል።
3. ከሁሉም ቤቶች በተመረጠው አካባቢ መረጃውን ሰብስብ
4. በእየአንዳንዱ ቤት ስትደርስ ለሰዎች በአክብሮት ሰላምታ አቅርብ። እራስ ከየት እንደመጣህ አስተዋውቅ። ፈቃደኝነታቸውን የሚጠይቀውን ቅጽ ለተጠያቂዎቹ አንብብላቸው። ማንበብ የሚችሉ ከሆኑ እንዲያነቡት ስጣቸው። በጥናቱ ላይ ለመሳተፍ ከተስማሙ በቅጹ ላይ እንዲፈርሙ አድርግ።
5. መረጃው የሚሰበሰበው ቤቶቹ ወይም የሞቱት ወይም ለተነጻጻሪነት የተመረጡት ሰዎች ሲስማሙ ብቻ ነው። በመጀመሪያ የቤት መረጃውን እና በሞት የተለዩትን የሚለየውን ቅጽ ሙሉ። የቤቱ ሀላፊ ለመሳተፍ ካልተስማሙ አመስግነህ ወደ ሚቀጥለው ቤት ሂድ። አመቺ ሆኖ ባገኘህው ጊዜ ሁሉ ለምን ለመሳተፍ ፈቃደኛ አንዳልሆኑ ጠይቅ።
6. በሞት የተለዩ ወይም ተነጻጻሪነት ባለበት ቤት ትክክለኛ በሆነው ፎርም ተጠቀም።
7. ከሰዎቹ ጋር ስትነጋገር ገደኛዊ በሆነ አቀራረብ ይሁን፣ ምን ያህል አስቸጋሪ ጊዜ አንዳሳለፉ በአእምሮህ አስብ። ትእግስተኛ ሁን ፣ እራሳቸውን እንዲገልጹ ጊዜ ስጣቸው።
8. ፍርድ መስጠትን አስወግድ። ጥያቄዎችን ስትጠይቅ እራስህን በክስተቶቹ ውስጥ አትክተት። ጥያቄዎችን ስትጠይቅ ቃል በቃል ከቅጹ ላይ እያነበብክ መሆን አለበት። ተጠያቂዎቹ የተወሰኑ መልሶችን እንዲመልሱ መምራት በፍጹም አትሞክር። ይህ የጥናቱን ተሰማሚነት ያሳድገዋል። የተሳታፊዎቹን መልስ በቀጥታ በቅጹ ላይ አስፍር። ፣ የራስህን ትርጉም መስጠት አቁም። መልሶቹ ግልጽ ካልሆኑ ጥያቄውን ደግመህ

አንብብላቸው።ጥርጣሬ ካለ የተቆጣጣሪህን እርዳታ ጠይቅ። የቤት እና የበስተኛ መለያ እንዲሁም እያንዳንዱ ቅጽ ሙሉ ለመሙሉ አን ዲሁም በትክክል መሞላቱን አረጋግጥ

9. ለትብብራቸው ማመስገንን አትርሳ።

## II. የጥናቱ ቀጾች አጠቃቀም መመሪያ

### 1. እድሜያቸው ከአምስት አመት በታች ያሉ ልጆችን ዝርዝርና የሞቱ ልጆች መለያ ቀጽ

1. በመጀመሪያ አጠቃላይ የሆኑትን መረጃዎች ሙሉ።ምሳሌ ፤የጥናቱ አካባቢ፣ ተጠያቂዎች፣የመረጃ ሰብሳቢው ስም፣ቀን ወዘተ....)
2. ለእየአንዳንዱ የጥናቱ ተሳታፊ ባለ አራት ዲጂት የቤት ቁጥር ሙሉ።መነሻውም 0001 በየአንዳንዱ ቀበሌ/ይሆናል።
3. እያንዳንዱን እድሜው ከአምስት አመት በታች የሆኑት በስም፣በእድሜ ዘርዝር፣ እድሜ በሞላ ወራት ይገለጻ።እድሜያቸው ከአንድ ወር በታች ለሆኑት 1 ይሞላል።
4. እድሜንና ቀኖችን ለማስታወስ የአካባቢውን አቆጣጠር ተጠቀም።ዋና ዋና በአላትን ፡ፖለቲካዊ ክስተቶችን ተጠቀም።
5. በመጨረሻም ፎረም(ህመምተኞችን መጠየቂያ) ለሁሉም መሞላቱን አረጋግጥ።

### 2. የመረጃ መሰብሰቢያ ቅጽ

1. በመጀመሪያ አጠቃላይ የሆኑትን መረጃዎች ሙሉ።ምሳሌ ፤የጥናቱ አካባቢ፣ ተጠያቂዎች፣የመረጃ ሰብሳቢው ስም፣ቀን ወዘተ....)
2. ለእየአንዳንዱ የጥናቱ ተሳታፊ ከፍተኛ ቀበሌ የቤት ቁጥር ሙሉ።እያንዳንዱ 8 ዲጂት ይኖረዋል።ሁለት ተሳተፊዎች ተመሳሳይ ቁጥር ሊኖራቸው ከቶም ሊሆን አይችልም።
3. እድሜንና ቀኖችን ለማስታወስ የአካባቢውን አቆጣጠር ተጠቀም።ዋና ዋና በአላትን ፡ፖለቲካዊ ክስተቶችን ተጠቀም።ዘርዝር።እድሜ በሞላ አመት ይወሰዳል።
4. በመልሶቹ ላይ በግልጽ ጻፍባቸው።መልሱ ሌላ ይጠቀስ ከሆነ 99 ይሞላ መልስ ሌላ ይጠቀስ በሚለው ስር በትክክል መልሱ መጻፍ ይኖርበታል።  
5.የትምህርት ደረጃ -በዩኒቨርሲቲ ወይም በኮሌጅ የነበራቸው ቆይታ ከ2ኛ ደረጃ ከጨረሱት ክፍል ጋር ይደመራል። ምሳሌ 4 አመት የኮሌጅ ትምህርት ከ12ኛ ክፍል በሁለት 16 ይሆናል

ANNEX 7

Duties and responsibilities (data collector and supervisors)

የመረጃ ሰብሳቢዎች ስራዎችና ሓላፊነት

መረጃ ሰብሳቢዎች መረጃ ከሚሰበሰቡት አካባቢ ይመረጣሉ። መረጃ ሰብሳቢዎች በሚከተለው መስፈርት መሰረት ይመረጣሉ።

- ሁለተኛ ደረጃ ትምህርት ያጠናቀቀ
- በታማኝነቱና በታታሪነቱ የሚታወቅ
- በአልባሌ ጸባይ በህብረተሰቡ የማይታወቅ
- ቅድሚያ ለሚከተሉት ይሰጣል:
  - የተመረጠውን አካባቢ በደንብ የሚያውቁ(ከጥናቱ አካባቢ የመጡ
  - በህብረተሰብ አቀፍ መረጃ ስብሰባ ተሳትፈው የሚያውቁ(ልምድ ያላቸው
  - በጤና እና በተዛማጅ እንቅስቃሴዎች ተሳትፎ ያላቸው(ልምድ) (ምሳሌ: የጤና ክለቦች, የቀይ መስቀል ተሳትፎ).

መረጃ ሰብሳቢዎች የሚከተሉትን ሀላፊነቶችን መወጣት ይጠበቅባቸዋል

1. መጠይቅ ማካሄድ
  - የቤት መረጃን፣ ተመራጭ የሆኑትን መለየት እንዲሁም ለያንድንዱ መጠይቁን መሙላት.
2. ለተቆጣጣሪዎች በየቀኑ የተሞሉትን መረጃዎች ማሰረክብ
3. በየቀኑ ስለተፈጠሩት ችግሮችና መፍትሄዎች መረጃ መስጠት
4. እርማት ማካሄድ ወደ መኖሪያ ቤት ተመልሶ መሄድን ይጨምራል (በተቆጣጣሪው ክታዘዘ/ከተጠየቀ).

## የመስክ ተቆጣጣሪዎች ስራዎችና ሐላፊነት

የመስክ ተቆጣጣሪዎች መረጃ ከሚሰበሰቡበት አካባቢ ይመረጣሉ። የመስክ ተቆጣጣሪዎች በሚከተለው መስፈርት መሰረት ይመረጣሉ።

:

- ሀኪም፣ ጤና መኮንን
- የመስክ መረጃ ስብሰባ ላይ ልምድ ያለው
- ከቅርብ አለቃው የድጋፍ ደብዳቤ ማምጣት የሚችል

ተቆጣጣሪው የሚከተሉትን ሀላፊነቶችን መወጣት ይጠበቅበቸዋል

1. ለጥናቱ የሚመረጠውን ቦታ ከአስተባባሪው ፣ ከአካባቢው ባለስልጣኞች እና ከጤና ባለሙያዎች ጋር በመሆን መምረጥ
2. በመረጃ ስብሰባዎች ስልጠናና በፕረ ቴስት
3. ከ መረጃ ስብሰባዎች ጋር በጥምረትና በጋራ መስራት
4. ለመረጃ ስብሰባዎች ፕሮግራም ማውጣት እና ሥራዎችን ማስተባበር.
5. መረጃ ስብሰባው የተመደበበት ቤት መሄዱን ማረጋገጥ
6. እያንዳንዱ የመረጃ ቀጽ በትክክልና ሙሉ ለሙሉ መሞላቱን ማረጋገጥ፤ በመጨረሻም ካረጋገጡ በሁዋላ መፈረም
7. በቅጾቹ ላይ አስፈላጊ ሆኖ ሲገኝ ማብራሪያ መስጠት
8. ለጠናቱ አስተባባሪዎች ስለተገኙት ህመምተኞችና ስሞቱት በየቀኑ ማሳወቅ

**ANNEX 8  
VERBAL AUTOPSY  
PROBABLE CAUSE OF DEATH**

**Pneumonia**

Either cough or difficult breathing, AND EITHER fast breathing or chest indrawing

**ACUTE DIARRHOEA**

Frequent liquid, watery or loose stools or local term for diarrhea for less than 14 days, and no blood in the stools

**DYSENTRY**

Frequent liquid, watery or loose stools or local term for diarrhea for less than 14 days, and blood in the stools

**Persistent diarrhea**

Frequent liquid, watery or loose stools or local term for diarrhea for 14 or more days, and no blood in the stools

**MEASLES**

At least four months old, and fever and rash for 3 or more days, and measles diagnosis by care takers

**MALNUTRITION**

Post neonate who was change in color of skin or had swollen legs or feet or lost weight those who fulfilled this criteria ,were labeled as having malnutrition as underlying cause of death.

**Meningitis**

Neonate with fever, and bulging fontanelle, and either convulsions or unresponsive/unconscious  
Post neonate with fever, and either stiff neck or bulging fontanelle, and either convulsions, unconscious

**Bacteremia/ septicemia(skipped for a time being)\_**

**Neonate** in whom the waters broke more than one day before labor or had redness or drainage of the umbilical cord stump or had a skin rash with bumps containing pus, and fever, and no other cause of death and no verbal autopsy pneumonia or meningitis diagnosis). **Post neonate** with fever, and one or more of the following signs: unconscious, stopped being able to grasp, stopped being able to respond to a voice, or stopped being able to follow movements with eyes, and no other cause of death

**Malaria**

Post neonate with fever, and no stiff neck, and no bulging fontanelle, and no measles, and either convulsions, unconscious,

**INJURY**

Death due to an injury sustained after birth

**Birth trauma**

Neonate who died of a birth injury

## Birth asphyxia

Neonate who was not able to breathe after birth, and had no fever and had one or more of the following signs: convulsions/spasms or not able to suckle in a normal way after birth or not able to cry after birth

## Low birth weight

Neonate whose pregnancy ended early or who was very small at premature birth

\*\*\* 2 cases low birth weight

## Congenital malformation

Neonate who was malformed at birth (Neonate: Yes to n11.27 =yes ).

## Neonatal tetanus

Neonate who was able to suckle and cry normally at birth, and stopped suckling or crying at more than 2 days of age, and had either spasms or convulsions The diagnosis of neonatal tetanus should not be made in the presence of birth asphyxia or birth trauma.

## HIV/AIDS ALGORITHMS (worst case scenario)

Weight loss, chronic cough, prolonged fever, generalized skin rash, Generalized enlargement of lymph nodes.

## HIV /AIDS using who clinical algorithm

**major signs** Weight loss, chronic diarrhoea, chronic fever

**Minor signs** generalized lymphadenopathy, oropharyngeal candidiasis, repeated common infection, chronic cough, generalized dermatitis, or confirmed maternal HIV infection.

*Probable cause of death assigned if two or more major signs were accompanied with 2 or more minor signs*

## Annex 9

### Verbal autopsy Syntax

**\*\*\*\*\*PNEUMONIA FINAL FOR NEONATAL GROUP  
\*\*\*\*FINAL ALGORITHM FOR PNEUMONIA**

**\*\*\*\*\*PNEUMONIA FOR NEONATAL PERIOD**

**COUNT**

**nPneumon = nfastbre nchestin (1) .**

**END IF .**

**EXECUTE .**

**DO IF (nfastbre >0 OR nchestin > 0) .**

**COUNT**

**nPneumon = nfastbre nchestin (1) .**

**END IF .**

**EXECUTE .**

**IF (npneumon > 0 AND nurti > 0) NFINALPN = npneumon + nurti .**

**EXECUTE .**

**\*\*\* PNEUMONIA FOR POSTNEONATAL PERIOD**

**DO IF (cough >0 OR difbrea >0) .**

**COUNT**

**URTI = cough difbrea (1) .**

**END IF .**

**EXECUTE .**

**DO IF (cheindra >0 OR fastbrea >0) .**

**COUNT**

**PNUMON = fastbrea cheindra (1) .**

**END IF .**

**EXECUTE .**

**IF (pnumon > 0 AND urti > 0) FINALPNU = pnumon + urti .**

**EXECUTE .**

**\*\*\*\*\*ACUTE DIARRHOEA**

**COMMENT Frequent liquid, watery or loose stools or local term for diarrhea for less than 14 days,**

**COMMENT and no blood in the stools**

**COMMENT (Neonate: Yes to ndiarrho no case found in neonatal period )**

**COMMENT Postneonate:**

**DO IF (diardayc=1 and bloodydi=0) .**  
**COUNT**  
    **acudiarr = diardayc (1) .**  
**END IF .**  
**EXECUTE .**

**\*\*\*\*DYSENTRY**

**COMMENT** Frequent liquid, watery or loose stools or local term for diarrhea for less than 14 days,  
**COMMENT** and blood in the stools Postneonate: Yes to either n1221dia, and yes to n1224blo).

**\*\*\*\*\*Persistent diarrhea**

**COMMENT** Frequent liquid, watery or loose stools or local term for diarrhea for 14 or more days,  
**COMMENT** and no blood in the stools  
**COMMENT** for POST NEONATAL period persdiar=1 , and dysentery=.00  
**COMMENT** (no case of diarrhoea among neonates)

**RECODE**

**n1221dia**  
    **(0=0) (1 thru 14=2) (15 thru Highest=1) INTO persdiar .**  
**EXECUTE .**

**DO IF (persdiar=1 and dysentery=.00) .**  
**COUNT**  
    **persista = persdiar (1) .**  
**END IF .**  
**EXECUTE .**

**\*\*\*\*MEASLES(lets go to others)**

**At least four months old, and fever and rash for 3 or more days, and measles diagnosis by care takers**

**\*\*\*\*\*MALNUTRITION**

**COMMENT** Postneonate who was change in color of skin or had swollen legs or feet or lost weight  
**\*\*\*those who fulfilled this criteria ,were labelled as having malnutrition as underlying cause of death.**

**COMPUTE malnut = haircol + leison + legswell + facialsw + weiloss .**  
**EXECUTE .**

**COMMENT Meningitis**

**COMMENT (Postneonate: Yes to Q 9.18 or Q 9.19 or Q 9.20).**

**COMMENT Neonate with fever, and bulging fontanelle, and either convulsions or unresponsive/unconscious**

**COMMENT (Neonate: Yes to Q 8.15, and Yes to Q 8.12, and Yes to either Q 8.10 or 8.11).**

**COMMENT : CONVULSION AND UNRESPONSIVENESS = GLASCOW  
COMA\*\*\*\*\* GCS**

**\*\*\*\* NO NEONATAL DEATH DUE TO MENINGITES**

**COUNT**

**GCM = nlosscon nseizure (1) .**

**VARIABLE LABELS GCM 'COMAOR SEIZURE' .**

**EXECUTE .**

**\*\*\*\*\*recoded some variables related to meningites since there had been some problems**

**RECODE**

**n1239sle n1240los n1242sti n1244unu n1246swe**

**(0=0) (1 thru Highest=1) INTO slepy losscon stiffneb seizure**

**fontswel .**

**EXECUTE .**

**COMMENT Postneonate with fever, and either stiff neck or bulging fontanelle, and either convulsions,**

**COMMENT unconscious, ,**

**COMMENT ( losscons or abnmovem)and fever and (swehead or neckstif )**

**COUNT**

**changeme = slepy losscon seizure (1) .**

**VARIABLE LABELS changeme 'change in mental status' .**

**EXECUTE .**

**COUNT**

**meningsi = stiffneb fontswel (1) .**

**VARIABLE LABELS meningsi 'meningeal signs' .**

**EXECUTE .**

**IF (fever > 0 AND changeme > 0 AND meningsi > 0) MENINGIT = fever +  
changeme  
+ meningsi .  
VARIABLE LABELS MENINGIT 'MENINGITES CASES' .  
EXECUTE .**

**\*\*\*\*\* Malaria**

**COMMENT Postneonate with fever, and no stiff neck, and no bulging fontanelle,  
and no measles,  
COMMENT and either convulsions, unconscious, stopped being able to grasp,  
COMMENT or difficult breathing**

**COUNT**

**malarsev = losscon slepy difbrea  
urinedif (1) .  
VARIABLE LABELS malarsev 'severity signs of malaria ' .  
EXECUTE .**

**IF (meningsi=0 AND measles = 0 AND rash=0 AND fever > 0 and  
malarsev > 0) MALARIDX = fever + malarsev .  
EXECUTE .**

**\*\*\*\*\*INJURY**

**COMMENT Death due to an injury sustained after birth (Neonate or Postneonate:  
Yes to Q 6.1, and not**

**COMMENT Birth injury to Q 6.1.1, and Yes to Q 6.1.2).**

**\*\*\*\*\* Birth trauma**

**COMMENT Neonate who died of a birth injury (Neonate: Yes to Q 6.1 and Birth  
injury to Q 6.1.1 and Yes to Q 6.1.2).**

**\*\*\*\*\*Birth asphyxia**

**COMMENT Neonate who was not able to breathe after birth, and had no fever**

**COMMENT and had one or more of the following signs: convulsions/spasms or  
not able to suckle in a normal way**

**COMMENT after birth or not able to cry after birth**

**COMMENT No case of asphyxia**

**\*\*Low birth weight**

**COMMENT Neonate whose pregnancy ended early or who was very small at premature birth**

**\*\*\* 2 cases low birth weight**

**\*\*\*Congenital malformation**

**COMMENT Neonate who was malformed at birth (Neonate: Yes to n11.27 =yes ).**

**\*\*\*\*\* 2cases were found**

**\*\*\*\*\*Neonatal tetanus**

**COMMENT Neonate who was able to suckle and cry normally at birth,**

**COMMENT and stopped suckling or crying at more than 2 days of age, and had either spasms or convulsions**

**COMMENT The diagnosis of neonatal tetanus should not be made in the presence of birth asphyxia**

**COMMENT or birth trauma..**

**IF (breasdif > 0 or crybirth > 0 or tetanus1 > 0 or nseizure > 0 or**

**breastdi > 0) tetanus2 = tetanus1 + crybirth + breasdif + breastdi +nseizure**

**EXECUTE .**

**\*\*\*\*\*1 case was found**

**\*\*\*\*\*HIV/AIDS ALGORITHMS**

**WEIGHT LOSS ,CHRONIC COUGH , PROLONGED FEVER , GENERALIZED SKIN RASH,**

**GENERALIZED ENLARGEMENT OF LYMPH NODES.**

**COMPUTE HIVAIDS = postcoug + postfeve + axilarys + inguinal + mouthulc + leison .**

**EXECUTE .**

**COMPUTE Neohiv = neofever + neocough + matersta .**

**EXECUTE .**

**COMMENT best case scenario**

**COMMENT HIV/AIDS algorithm using WHO clinical def for paediatric AIDS**

**COMMENT major signs Weight loss, chronic diarrhoea,chronic fever**

**COMMENT minor signs generalized lymphadenopathy, oropharengeal candidiasis, repeated common**

**COMMENT infection,chronic cough ,generalized dermatitis, or confirmed maternal Hiv infection.**

**COUNT**

**majorcri = postfeve weiloss (1) .**

**VARIABLE LABELS majorcri 'major criteria for HIV' .**  
**EXECUTE .**

**COUNT**

**MINORCRI = postcough axillary inguinal mouthulc rash (1) .**  
**VARIABLE LABELS MINORCRI 'MINOR CRITERIA FOR HIV' .**  
**EXECUTE .**

**RECODE**

**majorcri minorcri**  
**(2 thru Highest=1) (0 thru 1=0) INTO Majhivcr minorhiv .**  
**EXECUTE .**

**COMMENT the algorithm used for dx of hiv for neonates was using fever ,cough  
and maternal status**