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Quality assessment of routine expanded programme of immunization (EPI) for children under five in Debre Markos town, East Gojjam, Amhara regional state, North West Ethiopia, 2014

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Acronyms and abbreviations

AAU	Addis Ababa University
BCG	Bacillus Calmette Guerin
DPT	Diphtheria Pertusis Tetanus
EDHS	Ethiopian Demography and health survey
EPI	Expanded Program on Immunization
FIC	Fully Immunization Coverage
HBV	Hepatitis B Virus
HC	Health center
HF	Health facility
HI	Health institution
MDG	Millennium Development Goal
NGO	Non-governmental organization
NID	National Immunization Days
OPV	Oral polio vaccine
RHB	Regional Health Bureau
SNNR	South Nation, Nationalities and People Region
SPSS	Statistical package for social science
UNICEF	United Nation International Children's Fund
USAID	United Nation Agency of International Development
WHO	World health organization

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Abstract

Introduction

Expanded program on immunization (EPI) was launched in Ethiopia in 1980 to achieve universal child immunization by 1990. Children of under-one year of age and women of reproductive age group (15-49 years age) are the targets for the EPI vaccines. In spite of the improvement in immunization coverage over the past many years, achieving this goal becomes difficult to the present time. Therefore quality assessment is important to determine whether the primary health care Service is provided according to the established norms. Although the immunization coverage has increased, the quality of the immunization programme is still questionable.

Objective

The main aim of this study was to assess the structural, process and outcome quality dimensions of Routine EPI program in terms of client satisfaction in under five children.

Methodology

This study was descriptive cross-sectional health facility based survey using quantitative method. Data collection for this evaluative research was conducted from March 10/2014-April 11/2014 at five public health facilities found in Debre Markos town. To determine the sample size; 95% confidence interval, 5% margin of error (E) and non-response rate equal to 5% has been used. Using the formula the total sample size calculated for the exit interview was 392 respondents. The study has been conducted on four health centers and one hospital of the town that deliver EPI service. The data collection has been carried out from March 10/2014-April 11/2014.

Result

In this study two health centers reported as there was no adequate BCG vaccine, almost all facilities reported as there was inadequate financial allocation and 60% of facilities reported as there was deficit in means of transportation and mean score for parents who were told about possible side effects and importance of immunization were (20.2%) and (44.39) respectively.

Positive findings obtained in this study were for the case of telling the appointment for the next visit (mean score 98%), availability of cold chain monitoring chart, monitoring temperature twice/day including weekend and maintaining normal storage temperature (100%), human power aspect 100% of the EPI coordinators of facilities had above one year working experience, mean score of clients who got all vaccines they were supposed to take that day was 95.5% and 100% availability of functional refrigerators. The mean scores of structure, process and clients' satisfaction (outcome) were found to be 81.98%, 81.26% and 93.42% respectively.

Conclusion

Overall, the quality of the service was found to be under category three of EVM parameter, but still there existed some areas which needed more attention, such as staffs' in-service training, transportation and financial allocation to run the service properly and addressing proper EPI education and counseling to mothers. The health workers and program coordinators failed to keep up their standards in these works.

Chapter 1 Introduction

1.1 Background

Around 29,000 children under the age of five die each day worldwide mainly due to vaccine preventable diseases. Most of the deaths occur in developing countries especially in Africa. These diseases kill about **470,000** children of Ethiopia per year and an Ethiopian child has 30 times probability of death by his or her fifth birthday than a child found in Western Europe (1).

Expanded program on immunization (EPI) was launched in Ethiopia in 1980 to achieve universal child immunization by 1990. The Ethiopian immunization policy was updated in 2007. Children of under-one year of age and women of reproductive age group (15-49 years age) are the targets for the EPI vaccines (BCG, Measles, DPT-HepB-Hib (penta-valent vaccine), OPV and TT vaccine in Ethiopia respectively) and currently another two vaccines; PCV as well as Rotarix has been added. The multi dose open vial policy (MDVP) and the exclusive use of only AD syringes for delivering all immunization injections was adopted in 2002 (2).

According to a national EPI survey of 2006, a 10 percentage increment in coverage of DPT3 was found compared to 2001 survey. Similarly the 2005 EDHS indicated the percentage of children age 12-23 months fully vaccinated increased by 43 percent from 14 percent in 2000 to 20 percent in 2005 although the percentage who had receive none of the six basic vaccinations increased from 17 percent in 2000 to 24 percent in 2005 (3-5).

As the 2011 EDHS showed only 24 percent of children age 12-23 months were fully vaccinated at the time of the survey. While this represents a 19 percent increase from the level reported in the 2005 EDHS, the percentage of children who are fully vaccinated remains far below the goal of 66 percent coverage set in the HSDP IV (MOH, 2010) (6).

As for coverage for specific vaccines, 66 percent of children had received the BCG vaccine, and 56 percent had received the measles vaccine. A relatively high percentage of children received the first DPT dose (64 percent). However, only 37 percent went on to receive the third dose of DPT, reflecting a dropout rate of 43 percent (4, 6).

More than eight children of every ten (82 percent) received the first dose of polio, but only about four in ten (44 percent) received the third dose, reflecting a dropout rate of 46 percent. Even though DPT and polio vaccines are often routinely administered at the same time, polio coverage is higher than DPT coverage. This is primarily due to the success of the national immunization day campaigns, during which polio vaccine was administered. However, great variation was observed between the regions. For example, for some regions DPT3 coverage in 2006 was below 30 percentages but for many regions it was below 80% (5, 7).

1.2 Statement of the problem

According to EDHS 2011, some regions like Tigray, Harari, Addis Ababa, and Dire Dawa, achieved all basic vaccination coverage of children 12-23 month old 58.9%, 34.1%, 78.7% and 56.8% respectively whereas Amhara had 26.3%, in the same year. Even in the same region Amhara, when we compare children who receive OPV1 and OPV3 specifically are 68.6% and 47.0% respectively, in which the figure showed large dropout rate (6).

A study conducted by federal democratic republic of Ethiopia with a topic of “effective vaccine management assessment” showed that mean score of vaccine storage, stock management, distribution, vaccine management, and maintenance at health facility level was 69%, 53%, 84%, 80% and 67% respectively. On this study the legend used was mean score 80% and above, 65%-80% and below 65% were categorized as keep it up, intervention with time, and needs more intervention respectively (7).

Therefore stagnant and sometimes lower performance of the program from the previous years in the administration health system calls a special area for study to have insight for contributing factors by evaluating quality of the immunization. Quality assessment is important to determine whether the primary health care Service is provided according to the established norms. Although the immunization coverage has increased, the quality of the immunization programme is still questionable (9).

Many literatures worldwide conducted previously on EPI focused on the “structure and process” component of process evaluation. According to my understanding the above two things have direct relationship with client satisfaction. So to address the gap, this study intended to incorporate client satisfaction as a third component.

So, this study was conducted to assess the structural, process and outcome (in terms of client satisfaction) quality dimensions of Routine EPI program (EPI).

1.3 Significance of the study

To help responsible bodies to identify the strength and weakness that might either foster or hamper the progress towards the required goals. Similarly identification of the problems of the program can point where the actual place of intervention should be and help to take corrective action for improving the quality.

Therefore, this evaluative research was conducted;

- To address the problems with the program by assessing EPI including the newly introduced to EPI, Rota vaccine in advance quality components.
- It helps nursing profession in that service provider health workers will upgrade their practice and work based on up to date and standard EPI guidelines.
- It will also provide future direction for the program managers as well as policy makers in launching advanced working tools.

Chapter 2 Literature Review

2.1 Global and national situations

After the global launching of EPI in 1974, an estimated 20 million under-five children deaths were enabled to be prevented by the program in the past 2 decades. Immunization coverage also increased globally from less than 5 percent in 1974 to almost 80 percent in 2004(7).

A research done on Quality Assessment of Immunization Programme for Children under five in Davangere Taluk of South India in 2012 found that identification of needed vaccine by the junior health workers (JHW) was poor as determined by lot quality assurance sampling (LQAS) technique. Vaccination status of children and vaccine recommendation for sick children was poor. Care of vaccine was good except for contamination during loading. Vaccination technique practiced by female JHW of Davangere taluk was poor. EPI education given to mother had failed in many places by LQAS. Maintenance of cold chain and supply of vaccine was good. Knowledge about immunization process among service providers was 100% about all vaccine (10).

As federal ministry of health reported in 2013 on Effective Vaccine Management assessment (EVM), at health facility level, effectiveness of storage and transportation of vaccines, infrastructures needed to run EPI program and temperature monitoring were assessed. The mean scores nationally were reported as 82%, 76% and 69% respectively (7).

It has been suggested that in order to reach the desired immunization coverage, the service should be accessible and should be supplemented with the out-reach sites and with a special immunization day campaigns to reach the hard-to-reach beneficiaries. However, such innovative supplemental strategies along with static immunization service delivery may only be feasible if the required resources such as trained staff, cold chain equipment, vaccines, and safe injection supplies are available in a sustained manner (14).

Moreover, in addition to resource availability, the service should be delivered in accordance with the recommended national guideline in order to maximize the quality of the services. The later includes among others, ensuring the potency of vaccines, appropriate use of the injection safety procedure, introducing vaccines in the recommended age, avoiding or managing missed opportunity, creating enabling vaccination environment such as reduced waiting time, initiation of good client-provider interaction are some of the factors that can positively affect the program success. All these need a well established internal system of monitoring and periodic implementation and evaluation in order to identify implementation gaps for the improvement of program operations (14).

Contrary to this the 2002 national inventory in Ethiopia carried out by FMOH in collaboration with the World Health Organization came up with the findings of only 66% had functional cold chain equipment. Similar indication of the existing problem with resources was pointed by another study conducted in Oromia zone of Amhara region where one-third of the facilities hadn't refrigerator for vaccines storage (15, 16)

A number of factors affect health service utilization. Among this organizational and institutional structure of society, individual preferences and taste that depend on societal and cultural factors can be mentioned. For example, a study done on pastoralist in Ethiopia reported mobility pattern of living and long distance from health facilities were obtained impeding factors for modern health care utilization (14,15).

But the study carried out in Wonago of Southern Ethiopia reported in spite of high access to immunization services, 42% of children were found uncompleted the recommended immunization schedule. The most important socio-behavioral factors reported to affect defaulting were perceived health institution support, monthly family income, postponing child immunization schedule, and knowledge of the mothers/caretakers about the benefit of immunization. Besides these, maternal education was also found as a principal factor in determining immunization status of the child according to the study in Cameron (20, 21).

Another study conducted in Dire Dawa administrative town in 2010 justified that structural quality was found to be at better position (out of the maximum 31, mean score=19.7) and clients

satisfaction was also higher (95%). But low quality was found regarding the process of care (mean score was 22.8 out of maximum 45) (18).

2.2 Definition of Quality of Health

Assessment of quality depends on a conceptual and operationalized definition of what is intended to imply in that particular study. It is almost anything anyone wishes to be, a reflection of value judgment of individual or a society at particular time in the system. The criteria for evaluating care of patient or client can vary among different researchers and the type of service selected. Generally it has structure, process and outcome dimensions.

The presence of many possible dimensions and criteria for evaluation of quality will have a profound influence on the methods and approaches one employs for assessment of medical care (21). But the structure-process-outcome approach is used extensively in health services researches in evaluating quality (22). This study also used this method as it is shown in the following frame.

2.6 Conceptual frame work

2.6.1 Conceptual model

The following conceptual framework has been developed based on the above review of literature, showing the Donabedian's quality of health assessment model for this analysis. The framework consists of one dependent variable, which is clients' satisfaction. The independent variables are categorized into two groups: structure quality and process quality. These two groups of independent variables are expected to have a direct effect in clients' satisfaction tested in this study.

Figure 2.6.1 Conceptual frame work of EPI quality adopted from Donbedian’s quality of health assessment model (25).



Chapter 3 Objectives

3.1 General Objective

To assess the structural, process and outcome quality dimensions of Routine EPI program under five in Debre Markos town.

3.2 Specific Objectives

1. To assess the process qualities of the EPI program in under five in public health facilities of Debre Markos town.
2. To assess the structure quality of EPI program in under five in public health facilities of Debre Markos town.
3. To assess clients satisfaction level in the given service of EPI program in under five in public health facilities of Debre Markos town; and

Chapter 4 Methods

4.1 Study area

The study has been conducted in Debre Markos town which is 300km north of west of Addis Ababa. Woina Dega characterizes regional climate and trade is the main livelihood for the urban dwellers whereas the rural population are agrarian. One hospital and 4 health centers constitute the public health sector of the town.

4.2 Study Design

Descriptive cross-sectional health facility based survey using quantitative method has been used.

4.3 Study Population

Mothers or care givers that came to public health facilities for immunizing their children in the town.

Inclusion Criteria: Health facilities that are providing immunization services in the town

Exclusion Criteria: All private health facilities had been excluded; mothers whose child or children were severely ill and who was not willing to participate had also been excluded.

4.4 Sample size Determination

In order to ensure representativeness of the facilities, proportion and place where health facilities reside besides the livelihood of the population to be served had been put into consideration.

For the exit interview the sample size was calculated using single population proportion formula. In Debre Markos 86.5% of mothers go to health facilities for first immunization visit of their children (OPVI = 86.5% however, among these only 41.2% of them did finish the whole vaccine doses. This implies 45.3% of population doesn't finish the whole course of immunization for their children as reported by EDHS 2011.

To assess problems with care they receive and their satisfaction, at 95% confidence interval, and a 5% margin of error (E) using the formula and also upon assuming the expected

Non – response rate equal to 5%, the total sample size calculated for the exit interview was as follows:

$$n = \frac{(z^{2a/2 * p(1-p)})}{E^2}$$

$$n = 373.4 + 18.67$$

$$n = \mathbf{392}$$

Where: n- is the minimum sample size required

p-is an estimate of the proportion under 2 year's children that didn't finish the whole vaccine doses of OPV. In this study we consider P= 45.3%

E- Margin of error for sampling

Z- The standard normal value at (100%– α) confidence level.

4.5 Sampling procedures

The numbers of health facilities to be included in the study were five; four health centers and one hospital which are found in the town. So the study had included all public health facilities of the town. These are Wuseta, Gozamin, Hidasie and Debre Marks health centers of the town which provide EPI service average of 80, 100, 90 and 110 children every month respectively. The only hospital in the town, Debre Markos Hospital, provides EPI service an average of 280 children every month. Since the number of mothers or care givers who was interviewed at the time of exit was 392 and data collection took 20 days, data has been collected from the four health centers and one hospital.

Proportionate allocation

Based on proportionate to size allocation this 392 sample size has been distributed in to 4 health centers and one hospital.

$$n_i = (n/N)N_i$$

Where n_i = Sample size of the i^{th} health center or hospital

N_i = the population size the i^{th} health center or hospital

$n = n_1 + n_2 + n_3 + n_4 + n_5$ is the total sample size

$N = N_1 + N_2 + N_3 + N_4 + N_5$ is the total population size of the health center or hospital

Therefore the proportionate allocation was

Total population (N) = 660 and sample size (n) = 392

Wuseta HC = $80 * 392 / 660 = 48$

Gozamin HC = $100 * 392 / 660 = 60$

Hidasie HC = $90 * 392 / 660 = 54$

Debre Merkos HC = $110 * 392 / 660 = 65$

Debre Markos Hospital = $280 * 392 / 660 = 166$

According to proportionate allocation, the number of mothers or care givers of under 5 children that had been selected for sampling in respective health centers and hospital was: Wuseta HC=48, Gozamin HC=60, Hidasie HC=54, Debre Markos HC=65 and Debre Markos Hospital=166.

4.6 Data collocation procedures

The data collection was carried out from March 10/2014-April 1/2014. The questionnaire was adopted from FMOH entitled by EVM and other previous literatures done directly on the topic and related topics. It consisted of four separated parts. It consist structured observation check list, process observation check list, clients' interview and self administered questionnaire (7, 18).

Structured observation checklists had been used for collection of data on the variables 'structural' and some part of 'process' aspects of immunization qualities. Observation for the 'process' of care clients had been received in immunization room using the list, and simultaneously clients exit interviews had been conducted for assessing satisfaction using structured questionnaire. Appropriate records were reviewed and self administered questionnaires targeted to EPI coordinators will be conducted.

Data collectors employed for exit interviews, observation of the structure and observation of the process of care were those who could speak Amharic language and with profession of nursing, midwifery or health officer who worked other than Debre Markos town. They had minimum 2 years of experience in their profession. Data collection was done using the above health professionals to interview mothers after explaining the purpose of the study well and telling as the confidentiality of the study will be kept secret. Supervisors were given the duties of checking for completeness and facilitating the field work. The investigator was coordinating the daily activities of data collectors and supervisors.

4.7 Data Quality Assurance

To ensure quality of the data, properly designed data collection instrument had been used by adopting the FMOH and other researchers' tools. Two days training was carried out for data collectors and supervisor. Then pre-testing had been carried out for one day and the necessary adjustment was done on the tools.

Exit interviews were conducted by questionnaire that had been translated to local language, Amharic. Data collectors employed for exit interviews were those who could speak Amharic

language and with profession of nursing, midwifery or health officer. Observation of the process of care clients received during immunization was done using the above health professionals who were working other than Debre Markos town and had minimum 2 years of experience.

For the whole period of data collection, supervision and checking had been done by supervisors and principal investigator. For missing values, irregularities, inconsistencies, unlikely values and suspicious regularities, corrective measure had been taken timely.

4.8 Operational Definitions

Structure Quality: indicates the setting in which immunization service delivered such as adequacy of room size (all equipments arranged properly with enough space for movement), adequacy of room light, availability of waiting area, functional refrigerator, vaccine carrier, cold box/ice box, AD-Syringe, safety box, registration book, reporting formats, child card, Vaccines, guidelines, in-service trained staffs etc.

Physical infrastructure: the availability of water, toilet, telephone, waiting area, room space allowing free movement, allowing entry of adequate light, allowing fresh circulation of air (out of 7)

Equipments and supplies: the availability of functional refrigerator, vaccine carrier, ice box, auto-disable syringe with needle, safety box (Out of 5).

Vaccines: availability of BCG, DPT-HBV-Hib, OPV, measles, PCV and Rotarix (out of 6)

Guidelines: availability of immunization written protocols of vaccine schedules, administration techniques, contraindication, management & report of adverse events, vaccines storage and handling (out of 5).

Recording & reporting formats: availability of immunization recording book, reporting formats, individual children immunization follow-up card (3 points)

Human Power: three and above years of experience working in immunization (2 points)

Any of working staff received in-services training on EPI (2 points)

Finance: adequacy of finance allocated for running immunization works (1 point)

Transport: availability of means of transport for immunization purposes (2 Points)

Maximum 30 Points

Process evaluation: focuses on, process of evaluating that may use quantitative or qualitative measures to assess inputs, activities and outputs as well as to examine how the intervention is organized.

Quality: a service provided which consider and integrate the context of societal values and scientific principles.

Process Quality: refers to the process service provision comprised of technical and interpersonal elements such as screening for illness, general immunization information told, asking prior adverse events, possible side effects & benefits told, appointing next visit, politeness, concern showing, easy for understanding, knowing target population, updating denominators, auditing immunization, coverage, supervision received etc.

Screening the child for clinical encounter: conducting or observing the presences of illnesses (1 points)

Education provided about immunization: general information told about importance of immunization, vaccine preventable diseases, and recommended schedules, the need to vaccinate at recommended ages, importance of bringing child's card while coming for immunization, possible side effects and benefits for the day's vaccines before administering the vaccine (2 points for each)

Questioning prior adverse events: provider asking for the severe allergic reactions within 3 days following most recent vaccine dose before administering the day's vaccine (1 Point)

Appointments for next visit telling: appointment for the next date visit being told (3 Points).

Politeness: Showing concern and Communication skill i.e. easy to understand & allowed me to ask questions (2 points)

Vaccine storage and handling: the presence of temperature monitoring chart, monitoring twice a day including weekends, optimum storage temperature (2-8⁰C)

(2 Points for each)

Management

Knowing target population (<2 years), updating denominator for each antigens, auditing for immunization coverage levels, actions taken to deal with identified problems, working together with local partners, supervisory visit conducted for the past 6 months, accuracy of reports (2 points for each)

Maximum 32 points

Based on Ethiopian ministry of health effective vaccine management assessment legend structure and process quality will be graded as: 80% and above - Close to EVM Expectation and above, keep it up (Priority 3), 65% to 80%- Intervention with time (Priority 2) and Below 65%- Need more quick interventions (Priority 1) (26).

Outcome: represents the effects of immunization care or service providers to clients.

Client satisfaction: percentage of mothers or guardians satisfying with providers' ways of greetings, concern showed, information given in immunization room, clinical care of screening, weighting and advice given, provider's technical skill, waiting area, waiting time.

Routine immunization: immunization service provided in the health facilities (static immunization) and for the community residing above 5Km (out-reaches).

Cold chain: A system of people and equipment, which ensures that the vaccine reaches to children kept at the correct temperature (the presence of temperature monitoring chart, monitoring twice a day including weekends and optimum storage temperature 2-8⁰C at health facility level) and correct position in the vaccine refrigerator (BCG, OPV and measles on the top, Pentavalent, TT, PCV and Rota vaccine at middle and diluents at the bottom of the shelf).

Missed opportunity: when an eligible child visited the selected health facility and does not receive any or all of the vaccine for which he/she is eligible.

Full immunization: surviving infants who received all does of infant antigen.

Indicator: Signal that reveals progress towards objectives; means of measuring what actually happens against what has been planned in terms of quantity, quality and timelines.

Potential health service coverage: The population covered in percentage based on the existing health center and health stations in the catchments area.

4.9 Data Analysis procedures

Epi info and SPSS version 16 computer software had been used for data entry and analysis respectively. For the purpose of measuring the associations between structure, process and outcome and to judge their quality, an adopted weighted scores from collogues questionnaire which had been given for the variables of structure and process by regional EPI experts was used.

4.10 Study variables

Independent Variables: structure quality, process quality

Dependent Variables: Clients' satisfaction

4.11 Ethical Consideration

Letter of ethical clearance from Addis Ababa University, research review board had been sent to Debre Markos Health Bureau. Full explanation about the purpose of the study was made to the persons in charge of health institution, immunization program and interviewees. The respondents were informed of their right to refuse or agree to participate in the study, or discontinue their participation whenever they need. Privacy had been maintained during data collection, and confidentiality of the data had been ensured.

4.12 Dissemination of the result

The study had been conducted for the partial fulfillment for the requirement of degree of Masters in Child Health Nursing in Addis Ababa University, school of Nursing and Midwifery. The study finding will be given to Ethiopia MOH, Debre Markos Hospital and Health centers for their timely intervention activities based on findings

5 Result

Characteristics of the facilities, providers and mothers or guardians

One hospital and 4 health centers that make a total of 5 facilities were included in the survey. There were a total of 14 immunization service providers with a professional qualification of nurse. The majority of providers 85.7% were diploma nurses, while the rest 14.3% were first degree holder nurses who were working in hospital.

A total of 392 mothers or guardians were interviewed to assess their level of satisfaction up on leaving the immunization session. Among these; the required information were obtained from 380 respondents while the rest 12 (3.06%) questionnaires found invalid as clients stopped in the middle of interview as well as while filling in case of self administered before giving important information.

The data consists of 161 out of 165 respondents from Debre Markos hospital, 63 out of 65 respondents from Debre Markos HC, 58 out of 60 respondents from Gozamin HC, 53 out of 54 respondents from Hidasie HC and 45 out of 48 respondents from Wuseta HC.

The mean age of clients was 27.3 years with $SD \pm 5.8$ and most of the clients 94.2% were found between the age of 20 and 40 years. Married clients 361 (95%) comprise the largest marital status share where as the remaining small proportion of 5% in the rest marital categories. Housewife is an occupational status for 38.7% of clients followed by governmental employee 37.37%.

Regarding educational level of care takers more than one third (34.17%) had not attended any formal education followed by clients' educated 7-12 grades was 32.6 % (Table 1).

Table 1: Characteristics of health facilities, providers and clients, Debre Markos town, 2014.

Characteristics		Health facility frequencies (N=380)					Total N (%)
		DM Hospital N (%)	DM HC N (%)	Gozamin HC N (%)	Hidasie HC N (%)	Wuseta HC N (%)	
Provider qualification	BSc nurse	2	0	0	0	0	2
	Diploma nurse	3	3	2	2	1	12
Socio-demographic characteristics of mothers or care givers							
Age	<20 years	3 (1.86)	0	4(6.89)	3 (5.66)	2 (4.44)	12 (3.16)
	20-40 years	153 (95)	61(96.8)	53(91.4)	50(94.3)	41 (91.1)	358(94.2)
	>40 years	5(3.1)	2 (3.17)	1 (1.7)	0	2 (4.44)	10 (2.63)
Marital status	Married	152 (94.4)	58 (92)	57(98.3)	50(94.3)	44 (97.8)	361 (95)
	Never married	2 (1.24)	1 (1.6)	0	1 (1.89)	0	4 (1.05)
	divorced	4 (2.48)	2 (3.17)	0	2 (3.77)	1 (2.22)	9 (2.37)
	Widowed	3 (1.86)	2 (3.17)	1 (1.72)	0	0	6 (1.58)
Educational level	Illiterate	14 (8.7)	16(25.4)	31(53.4)	19(35.8)	22(48.9)	102(26.8)
	Read and write	19 (11.8)	3 (4.76)	5 (8.62)	1 (1.89)	0	28 (7.37)
	1-6 grade	37(22.98)	6 (9.52)	2 (3.44)	9(16.98)	5 (11.1)	59 (15.5)
	7-12 grade	63 (39.1)	21(3.33)	14(24.14)	15(28.3)	11 (24.4)	124(32.6)
	>12 grade	28 (17.4)	17(26.98)	6 (10.34)	9(16.98)	7 (15.56)	67 (17.6)
Occupation	Government	69(42.86)	21(33.33)	17(29.31)	19(35.84)	16(35.6)	142(37.4)
	Private enterprise	8 (4.97)	3 (4.76)	0	5 (9.43)	3 (6.66)	19 (5)
	Merchant	29(18.01)	12(19.05)	8 (13.79)	9 (16.98)	5 (11.11)	63 (16.58)
	House wife	52(32.3)	26(41.27)	30(51.72)	18(33.96)	21(46.6)	147 (38.7)
	Others	3 (1.86)	1(1.58)	3 (5.17)	2 (3.77)	0	9 (2.37)

5.1 Structural quality

Physical infrastructure: All health facilities included in the study had no problems with water access, toilet and telephone availabilities. But DMHC, Hidasie HC, and Wuseta HC had no sufficient room size and arrangement to allow staffs and clients move freely. Adequate light and optimal ventilation were problems of DMH and DMHC.

Equipment and supplies: All facilities included in the study had functional refrigerator, vaccine carrier, ice box, and safety box except Wuseta HC had deficiency of Auto-Disposable Syringe (ADS). Regarding availability of vaccines DMHC reported as there were deficiencies of Rotarix and BCG where as Wuseta HC reported that as there was deficiency of only Rotarix vaccine. But the rest of health facilities had reported as there was no deficiency of all vaccines. All health facilities had recording and reporting formats as well as guidelines.

Regarding human power; only Wuseta HC had no professional who had taken in-service training on EPI within the past 3 years. Both Wuseta HC and Hidasie HC had no professional who had 3 and above years of experience on EPI service but the rest had.

Finance and transport: All of the health facilities reported as there was no adequate finance allocated for per Diem and out-reach supervisory activities. And except DMH, the rest health facilities had no adequate transportation, so some times they used to walk long journey to perform different out-reach supervisory activities (Table 2).

Table 2: Description of structural quality attributes availability and adequacy for health facilities level in Debre Markos town, 2014.

Characteristics		Health facilities frequencies				
		DMH	DMHC	Gozamin HC	Hidasie HC	Wuseta HC
Physical infrastructure	Water access	1	1	1	1	1
	Toilet access	1	1	1	1	1
	Telephone	1	1	1	1	1
	Waiting area	1	0	0	1	0
	Adequate light	0	0	1	1	1
	Optimal ventilation	0	0	1	0	1
	Adequate room size	1	0	1	0	0
Equipment and supplies	Functional refrigerator	1	1	1	1	1
	Vaccine carrier	1	1	1	1	1
	Ice box	1	1	1	1	1
	Auto-disposable syringe	1	1	1	1	0
	Safety box	1	1	1	1	1
Vaccines	Score out of 6	6	4	6	6	5
Guidelines	Score out of 5	5	5	5	5	5
Recording and reporting format	Score out of 3	3	3	3	3	3
Human power	In-service trained	1	1	1	1	0
	3 and above years of experience	1	1	1	0	0
Financial adequacy	Score out of 1	0	0	0	0	0
Transport	Score out of 1	1	1	0	0	0
Score out of 30 (100%)		27 (90%)	23 (76.7%)	27(90%)	25 (83.3%)	22 (73.3%)

Key: 1=yes, 0=No

5.2 Process quality

Observation was done on a total of 392 clients while different technical care was being performed. Among mothers or guardians who got the service, 98% of them were told about the correct date of their next appointment with the highest Gozamin HC achieves 100% and the least is Wuseta HC delivers the information for 95.6% of clients. When we see the average

performance of health facilities, DMHC was the highest in delivering information for average 55.9% clients; whereas Wuseta HC was the least with an achievement of average of 39.6% clients.

From the total caretakers, 55.71% were not informed about the importance of immunization; while 77.1% didn't get information about benefits of the day's vaccine and about 79.85% of mothers or guardians were not informed about possible side effects of or adverse events of the vaccines. Children who visit DMHC have twice more likely of being informed about diseases vaccines prevent than Wuseta HC visitors. Their significant difference can be proved as [95% CI=-3.25(-0.45,-0.11) p<0.05] (Table 3).

Table 3: Description of information told to clients about immunization in Debre Markos town, 2014.

Type of information	Health facilities frequencies (1 or 0)					
	DMH	DMHC	Gozamin HC N=58	Hidasie HC N=53	Wuseta HC N=45	Total
	N (%) N=161	N =63 N (%)	N (%)	N (%)	N (%)	N=380 N (%)
Importance of immunization	59 (35.76)	43 (66.2)	30 (50)	24 (44.4)	18 (37.5)	174 (44.39)
Diseases vaccine prevent	45 (27.3)	33(50.8)	19 (31.7)	21 (38.9)	11 (22.9)	129 (32.9)
Recommended schedule	83 (50.3)	45 (71.4)	38 (65.5)	34 (64.1)	26 (57.8)	226 (59.4)
Need to vaccinate at recommended age	45 (27.27)	35 (55.5)	23 (39.6)	22 (41.5)	14 (31.1)	139 (35.46)
Possible side effects	28 (16.97)	21(33.3)	13 (22.4)	9 (16.9)	8 (17.8)	79 (20.15)
Benefits of the day's vaccine	41 (24.8)	11 (16.9)	17 (28.3)	14 (25.9)	7 (14.6)	90 (22.96)
Next visit appointment	162 (98.2)	63 (96.9)	60 (100)	53 (98.1)	46 (95.8)	384 (97.96)

None of the health facilities were observed to ask adverse events related immunization before administering the vaccines. DMHC and Gozamin HC didn't up-date their denominators for

individual antigens. As EPI coordinator of Wuseta HC reported that, they always take corrective actions to deal if any problem is identified by coordinating mothers or guardians in 1:5 organizations. Regarding administration of all vaccines needed that, DMH (98.1%), DMHC (95.2%), Hidasie HC (96.2%), Wuseta HC (93.3%) and Gozamin HC (94.8%) of clients got all vaccines needed that day. The mean score was 95.5% (Table 4).

Table 4: Description of other technical care immunization clients received, management and vaccine storage condition of HF, Debre Markos town, 2014.

Characteristics	Health facilities frequencies (2 or 0)				
	DMH	DMHC	Gozamin HC	Hidasie HC	Wuseta HC
Screened children	2	2	2	2	2
Prior adverse events asked	0	0	0	0	0
Politeness recognized	2	2	0	2	2
Concern shown	2	2	0	2	2
Easy to be understood	2	2	2	2	2
Audit immunization coverage	0	2	2	2	2
Target population and catchment area known	0	2	2	2	2
Areas of DPT1<80% identified	2	2	2	2	2
Up-date denominators	2	0	0	2	2
Cold chain monitoring chart availed	2	2	2	2	2
Took all of the vaccine for which the child is eligible	2	2	2	2	2
Monitored twice/day throughout week	2	2	2	2	2
Normal storage temp. maintained	2	2	2	2	2
Actions taken to deal with identified problems	0	0	0	0	2
Supervision received for the past 6 months	2	2	2	2	2
Work with local partners	2	2	2	2	2
Score out of 32 (100%)	24 (75)	26(81.25)	22(68.75)	28 (87.5)	30 (93.8)

Key: 2=Fulfilled, 0=Not fulfilled

5.3 Client Satisfaction

Five levels of satisfaction i.e. very satisfactory, satisfactory, neutral, unsatisfactory and very unsatisfactory were used for the assessment to be rated by the clients upon leaving the immunization room.

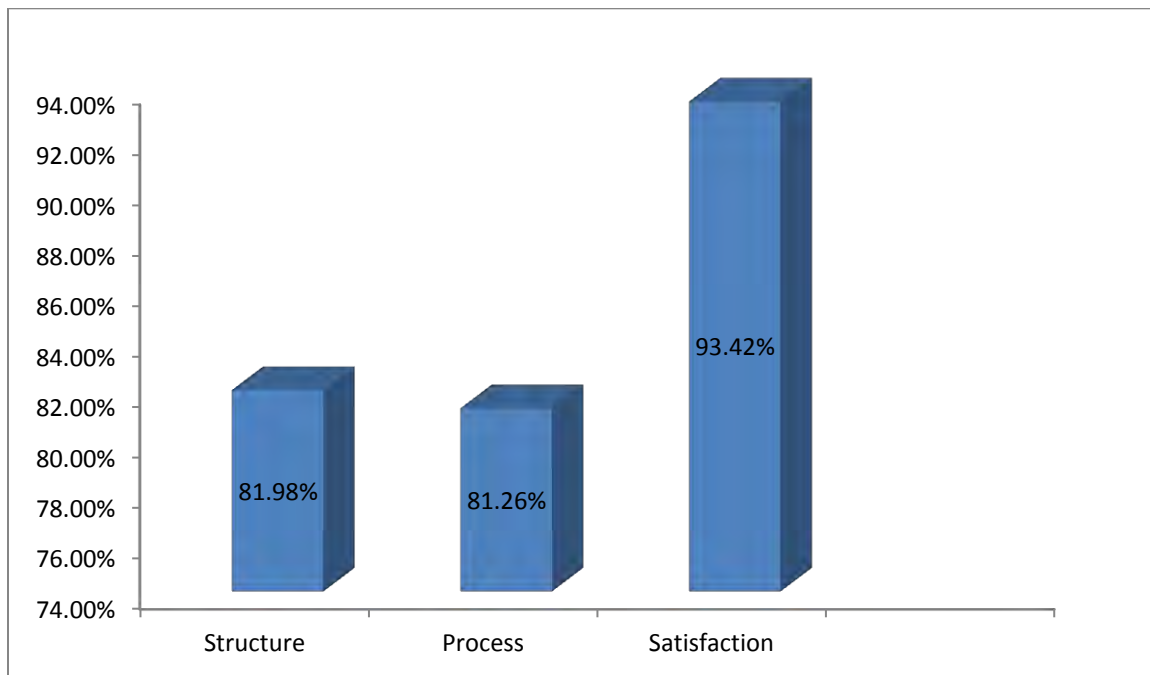
Among the total of 380 clients rated their satisfaction with the total service they had obtained, 137 (36.05%) of them responded it was very satisfactory, and 206 (57.37%) of them satisfactory. These make the proportion of clients totally satisfied to reach 355 (93.4%). The highest proportion of level satisfaction was found in Hidasie HC being 98% where as the least DMH with 91.1%. From the chi-square test, the socio-demographic characteristics of clients were not found to be associated with satisfaction (Table 5).

Table 5: level of satisfaction of clients in health facilities of Debre Markos Town, 2014

Level of satisfaction	Health facility (N=380)					
	DMH N (%)	DMHC N (%)	Gozamin HC N (%)	Hidasie HC N (%)	Wuseta HC N (%)	Total N (%)
v. satisfactory	49(30.4)	25(39.7)	21(36.2)	24(45.3)	18(40)	137(36.05)
Satisfactory	101(62.7)	33(52.3)	33(56.9)	28(52.7)	23(51.1)	218(57.37)
Neutral	6(3.7)	3(4.7)	1(1.7)	0	4(8.9)	14(3.7)
Unsatisfactory	5(3.1)	2(3.2)	3(5.17)	1(1.9)	0	22(2.3)
v. unsatisfactory	0	0	0	0	0	0

The mean structural quality was obtained to be 81.98% with (SD= \pm 8.1) and the highest was 90%. For the case of process quality an average rate of 81.26% was obtained (SD= \pm 9.7). And a mean client satisfaction rate of 93.42% (SD= \pm 5.7) was obtained (Figure 5.1).

Figure 5.1 Percent of mean scores for structure quality, process quality and satisfaction level of health facilities of Debre Markos Town, 2014



6 Discussion

Growing demand in health care, increasing cost, evidence of variation in clinical practice and shortage of resources are putting emphasis on many countries to look for measuring and improving quality of health care. On the other hand, the structural and process qualities on behalf of the supplier-side that affect client satisfaction will have a major impact on health service utilization without ignoring external confounding factors (25).

In this study, from the resources that were assessed for the program, the availability of vaccines, two health centers reported as there was no adequate BCG vaccine. But it is better than findings of another study done in Benishangul-Gumuz, North west Ethiopia where they had frequent stock out of vaccines especially BCG for a period of 2-3 months. Other than these, a study done in Dire Dawa City administration showed as there was 100% availability of vaccines (18, 25).

When we look at the condition of refrigerators and the logistics of other supplies, the availability of 100% functional refrigerators was similar to a study done in Davangere Taluk of South India but better compared to studies done in Dire Dawa city where unavailability of functional refrigerators was in 9% of health facilities and Metekale (42.9%). In addition to this, although one HC reported as there was inadequate Auto-disposable syringe, the 100% existence of vaccine carriers, icepacks and safety box similar to the findings in Oromia Zone of Amhara region and Dire Dawa city administration can be assumed further opportunity for the program to be in good position (10, 18, 12, 36).

The same as to the case for vaccines and other supplies mentioned above there was no shortage of recording and reporting formats. At all facilities immunization registration book and individual follow-up card were available compared to another region of the country, Metekale zone with gaps observed to be 21.4% of facilities (36).

Similarly the absence of problem with basic amenities like water, working toilet and telephone in most of health facilities can be assumed as synergetic factors for the betterment of the program. But insufficient waiting area and inadequate room size were observed to be problems of most health facilities.

FMOH had developed an EPI guideline and distributed to region in 2004. Unlike the findings of studies done in Mozambique and Dire Dawa where there was no health facility in the region with available EPI guidelines, in this study there was no health facility under the study area with similar problem regardless of Rota vaccine's unclear guideline. In another study done in Metekale zone of Ethiopia, the problem had been observed in 21.4% facilities (13, 18, 36).

As it was mentioned earlier in the program strategy, out-reach method of service delivery has been designed as an important way to reach every district complementary to static immunization at the facility. Thus for out-reach strategy to achieve its goal the availability of resources is indispensable. Among the required resources for its activity finance and transport can be found (11, 19).

In contrast with a finding of study done in Dire Dawa city administration 82% of facilities reported as there was adequate financial allocation, in this study almost all facilities reported as there was inadequate allocation and 60% of facilities reported as there was deficit in means of transportation but the deficit in Amhara region of Oromia zone 55% and Dire Dawa 28% was still better compared to this finding. This problem is heavier and may hamper the progress of the (12, 18).

Concerning human power aspect 100% of the EPI coordinators of facilities had above one year working experience is better compared to findings in Dire Dawa only 45% had. But regarding in-service trained staffs found in 80% of facilities was better compared to what it was found in Addis Ababa 27%, Dire Dawa 43%. In-service training can be pointed out as a threat for the program success which can be supported from a study done in Pennsylvania where 73% higher coverage was obtained for facilities holding in-service training than facilities with 66% coverage not doing it (18, 40, 41).

Generally, from the summary of the weighed scores for structural quality components in the region, total mean structural ratio (0.82) was obtained which is better than studies done in Dire Dawa where a ratio of 0.64 and Kenya 0.68 had been obtained (18, 30).

Quality of health care can be measured either from scores given by groups of experts or using standards. The later method is more reliable than use of experts' judgment (19). For this study to assess some part of process qualities the countries standard for immunization service delivery has been used. Among these standards, child that comes for vaccination should be looked for valid contraindication. Sever illness that will not allow the child to go home and HIV/AIDS infections for BCG are among these contraindications (21, 27).

Literatures reveal besides the above that parental and health care providers' factors such as knowledge of immunization schedules, importance of immunization, diseases vaccine prevent, need to vaccinate at recommended age, possible side effects, benefits of the day's vaccine and next visit appointment contribute immunization compliance (34).

Knowing about the benefits and the possible side effects of immunization is assumed to help parents to develop positive attitude towards immunization and to be committed to come for the next visits besides preventing complications. But in this study the mean score for parents who were told about possible side effects and importance of immunization were (20.2%) and (44.39) which is far lower compared to a study done in Davangere Taluk of south India with 75% and 68.75% respectively. No matter how better it was than other studies done in Dire Dawa (4%, and 5% respectively), it shows still the extent of missed opportunity for educating visitors. The problem has been pointed out by a report in Bhopal of India where three children died due to OPV administration (10, 18, 41).

Very positive finding obtained in this study was for the case of telling the appointment for the next visit (mean score 98%). Though it was not as 100% effective as findings of studies done in Dire Dawa and Davangere Taluk of south India, it points good performance compared to the study of Oromia zone of Amhara region (24.9%) (10, 12, 18).

Concerning vaccine storage and handling; availability of cold chain monitoring chart, monitoring temperature twice/day including weekend and maintaining normal storage temperature were parameters that had been assessed during survey. In this study all facilities were performing in line with Ethiopian ministry of health effective vaccine management assessment guideline (EVM). This should also be taken as a strength compared to findings of other studies done in

Nianssa province, Mozambique where 77.8% of facilities had either high or low temperature and in Dire Dawa; 9% of facilities had abnormal storage temperature, 46% facilities didn't observe twice a day and throughout a week. A study done at the same area in Davangere Taluk of South India reported temperature recorded regularly on local schedule was (68.75%) (10, 13, 18, 20).

Regarding vaccination of all vaccines needed that day, in this study the mean score of clients who got all vaccines they were supposed to take was 95.5%. Rotarix was the first vaccine to be missed. The main reason of health professionals proposed was lack of universality of the guideline regarding this vaccine. This finding is still far better compared to a study done in Davangere Taluk of South India where only 68.25% of clients took all vaccines they were supposed to take that day (10).

All facilities had obtained supervisory visit from higher level within the past six months before survey. This is another positive finding of this study compared to other findings of Dire Dawa (72%), Mozambique (30%) and again in Addis Ababa (30%) of health facilities had not received yet (13, 18, 40).

Efforts that only stand confined within health institution may not guarantee to scale up service delivery. Different stake holders in the community should be involved starting from planning to the end (38). Such that partnership is an important tool to expand an immunization service and reach segment of population that becomes difficult to reach with existing capacity of public facilities. A study in Dire Dawa showed more than half (55%) of facilities did not work with their local partners. But in this study all facilities are implementing the national EPI comprehensive multi-year plan properly by working jointly with their local partners (18, 42).

With all deficiencies existing in the structure and process of care, clients' satisfaction rate of 93.4% is very high though lower than studies like West Gojjam (98%), America (96%), and Dire Dawa (95%). But another study in Oromia zone (93%) showed almost the same figure (12, 18, 27, 28).

Based on Ethiopian effective vaccine management assessment legend structure, process and outcome of immunization program are graded as **80% and above** - Close to EVM Expectation and above, keep it up (Priority 3); **65% to 80%**- Intervention with time (Priority 2); and **Below 65%- Need** more quick interventions (Priority 1) (26). Generally based on the results of this study, mean scores of both independent and dependent variables were found to be under category of priority 3 of EVM parameter (20).

7 Strength and Limitation of the study

7.1 Strengths

- Tried to find the actual data by using direct observation check list
- Data collectors were professional working other than study area to minimize information bias
- Tried to assess clients satisfaction in addition to structural and process service qualities

7.2 Limitations

- The absence of standards for some structural and process quality components to rate their adequacy
- The unavailability of many quality of care researches on immunization
- Health personnel's Ethical consideration has been violated in the concealed part of observation and possibility of information bias in case of open observation checklists

8 Conclusion and recommendations

8.1 Conclusion

Overall, the quality of the service was found to be under priority three of EVM parameter, but still there existed some areas which need more attention, such as staffs' in-service training, addressing proper EPI education and counseling to mothers, transportation and financial allocation to run the service properly. The health workers and program coordinators failed to keep up their standards in these works.

8.2 Recommendations

- Federal ministry of health (FMOH) should distribute universally applicable vaccination guideline towards Rotarix vaccine
- Zonal Health Bureau should facilitate adequate transportation and financial allocation
- Zonal and woreda EPI program coordinators should arrange continuous training on EPI
- Debre Markos health workers should develop their knowledge to address adequate EPI education and counseling for mothers or guardians
- Debre Markos health workers should also have strong efforts towards compliance of the standard of care for immunization

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Annexes

Annex I. Participant information sheet

Addis Ababa University, College of Health sciences, school of Allied Health Sciences and Department of Nursing and Midwifery

My name is _____ I am working as data collector in this research titled by Quality assessment of Routine Expanded program of Immunization services in under 5 children Debre Markos town.

According to EDHS 2011 reports, low full immunization coverage has been observed in Debre Markos Health facilities. It can be assumed many factors may contribute for this incidence.

The purpose of this study is to conduct research for partial fulfillment of masters of Child health nursing at AAU, College of Health Science, School of Allied Health Science and Department of Nursing and Midwifery for assessing the quality of immunization service in Debre Markos town. The interview will take a maximum of 40 minutes.

Data collected from this facility will help responsible parties to identify the weakness and strength of the program to take corrective action in places where there are problems and simultaneously to put effort of strengthening better where there are positive achievements. There will not be any type of risk that may come on you or others up on providing information in this study. All information of you give will be kept strictly confidential and your name will never be used in connection with any of the information you tell us. Your participation is voluntary and you are not obliged to answer any questions you don't want to respond.

Contact information:

1. Principal investigator: Alebachew Demelash (Cell phone: 0912603373)
2. Advisor: Assistant Professor Berhane G/Kidan (BSN, RN, MSN)
3. IRB Contact Address: Tel: 0115538734 E-mail: aaumfirb@yahoo.com

Annex II: Checklist for observation of Structure and part of process qualities of EPI in Debre Markos Town, 2014.

1. HF's Name _____ Type of HF: Hospital/ Health Center

2. Date ____/____/____

S. No.	Question	1= 'Yes' 0= 'No'
Structural Quality Components of HF –observation		
1	Does the facility have water	
2	Is there working toilet in the facility?	
3	Does the immunization room have adequate size for free movement?	
4	Is the room allows entry of adequate light?	
5	Does the room allow circulation of fresh air?	
6	Is there waiting area for immunization clients?	
7	Is there sterile syringe (Ad-syringe) in immunization room?	
8	Is there safety box in immunization room?	
9	Is there vaccine carrier for the facility?	
10	Is there cold box or ice box for the facility?	
11	Is there immunization recording book at service delivery room?	
12	Does the facility have reporting formats (Blank)?	
13	Is there child immunization card in the room (Blank)	
14	Does the facility have waiting area for clients?	
15	Does the facility have functional refrigerator for storage of vaccines?	
16	Does the facility have following vaccines:	
	BCG	
	Pentavalent	
	OPV	
	Measles?	

	PCV	
	Rotarix	
17	Does the facility have telephone?	
18	Is there guideline for EPI that deals with Vaccine schedule? Administration technique? Contraindication? Management of adverse events? Vaccine storage and handling?	
Recording component of HFs		
19	Are vaccines tally sheet available in the room?	
20	Do they use it for these days?	
21	Are registers used for recording individual information about child immunization?	
22	Are individual immunization card records available in the room? (Observe blank cards availability in the room/easily accessible area)	
23	Does the provider use this card while delivering the service or updated?	
Vaccine Storage and Handing		
24	Are vaccine receipts recorded in a vaccine ledger book? (Check records in ledger against available stock. (Review date received, issued, balance, expiry & batch no.)	
25	Is the cold chain temperature monitoring chart Available?	
26	Monitored twice daily including weekends?	
27	Is the normal storage temperature (2-8 degree centigrade) calibrated?	
Archiving component of HF		
28	Can copies of all previous reports from this HF be found in the HF?	
29	Is there one location where the previous immunization reporting & recording forms stored?	

30	Are the immunization registers available for HF?	
31	Is the latest feedback on data from higher level easily available? (The HF receives feedback for the last visit).	
Demographic information component of the HFs		
32	Does the HF Know its catchments area population?	
33	Does it know its target population (<5 years)? How many? _____	
34	Are the denominators used in the current year are different from the denominators of previous year?	
Full Immunization Coverage in 2005 E.C		
35	Number of FIC children _____	
Evidence of using data for action component of HI level		
36	Does the facility audit f or their immunization coverage levels?	
37	Are areas of low access (DPT1<80%) identified?	
38	Is there evidence of action taken to deal with it?	
39	Have reason for drop-out rate (>10%) been identified?	
40	Is there plan of action to deal with it?	

Annex III: Observation checklist for the process of care delivered in immunization room of Debre Markos Town, 2014.

1. Name of HF: _____ Type of Health Facility: Hospital/ Health center
2. Date _____

		Questions	
1	Does the provider screen the child for nay of clinical condition	Yes	No
2	Does the provider deliver information about:	Yes	No
	A. General importance of immunization		
	B.	Yes	No
	C. Diseases preventable by vaccines?		
	The need to vaccinate at recommended ages?	Yes	No
	Recommended schedules for immunization?	Yes	No
	Importance of bringing child card?	Yes	No.
3	Does the provider ask about prior adverse events related to immunization before administering vaccines?	Yes	No
4	Has the provider told the benefits of today immunization before administering the vaccine?	Yes	No
5	Has she/he told the possible side effects?	Yes	No
6	Has all vaccine doses in which the child is eligible been administered?	Yes	No
7	Has the appointment for next visit told?	Yes	No

Annex IV: Self-administered Questionnaire for immunization Coordinator at Health Facility of Debre Markos Town, 2014.

Name of Health Facility _____ Type of HF: Hospital /Health center

Date ____/____/____

1. Sex of respondent M F
2. Age _____
3. What is your profession _____
4. What is your position at the facility _____
5. How much years of experience do you have working on immunization ____
6. Does your facility have money allocated for running EPI?
 Yes No
7. If yes, is it sufficient for running the program throughout the year?
 Yes No
8. How many staffs working on immunization in your facility? _____
9. Would you list their profession and their corresponding numbers too? ____
10. Do these staffs adequate to carry out EPI activities for the facility?
 Yes No.
11. Does your facility have staffs who have taken in-service training on EPI within the past 3 years?
 Yes No
12. If yes for Q.11, how many and are they always available in the facility?
 Yes No
13. Does the facility provide all types of antigen?
 Yes No
14. Is there sufficient stock of vaccines?
 Yes No
15. If answer for Q. 14 no, what type of antigen is in shortage?
 Measles Pentavalent OPV

BCG

PCV

Rotarix

16. Does the facility have sufficient stock of syringes with needles?

Yes

No

17. Does your facility have out-reached sites for immunization?

Yes

No

18. If yes is the answer for Q.17, do you think are they sufficient to reach every segment of the community under the catchments?

Yes

No

19. Who is the responsible professional for delivery of outreach? _____

20. Is there sufficient stock of safety boxes?

Yes

No

21. What type of problems can you mention:

▪ Shortage of vaccines?

Yes

No

▪ Shortage of equipments vaccine carrier, refrigerator...)

Yes

No

▪ Transport?

Yes

No

▪ Money?

Yes

No

▪ Management issues?

Yes

No

▪ Other (Specify) _____

22. Does the facility have transport for EPI?

- Yes
 - No
23. Is there a system for reviewing management/administrative issues?
- Yes
 - No
24. Is there a system to obtain client opinion on EPI service?
- Yes
 - No
25. Do you have a routine program on quality monitoring of immunization service?
- Yes
 - No
26. Have you received a supervisory visit on EPI for the past 6 months?
- Yes
 - No
27. Number of providers who receive in –service training for the past 3 years -----
28. Are the following resources for EPI adequate:
- Human power
- Yes
 - No
- Equipments like refrigerator, vaccine carrier and cold box
- Yes
 - No
29. Do you see the population census to know the target population for routine EPI at each level in this region reliable?
- Yes
 - No
30. Do you think your facility is properly addressing the issue of IEC on immunization?
- Yes
 - No

31. List points you think the strengths of EPI performance in your health facility

.....

32. Do you think the program is running on the right track to achieve its target in your HI?

Yes

No

33. Would you think the following problems impede achievements of EPI in your facility:

▪ Staffs commitment

Yes

No

▪ Community awareness

Yes

No

▪ Other socio-economic factors

Yes

No

▪ Your facility performance on IEC

Yes

No

Other (Specify) _____

34. What should be done to alleviate the problems with immunization or to run the performance in accordance with sated target? _____

Annex V: Exit Interview Questionnaire for mothers or caretakers Debre Markos Town, 2014.

(This is a guide for interviewer and you must ask for participant consent using the information sheet before proceeding to main body of questions)

Date of interview ____ / ____ / _____

HF Name _____ .Type of HF: Hospital/ Health center

Instruction: Make mark (x) in the box for the client response and also fill blank spaces with the answers given.

Socio-demographic Characteristics of Mothers/Caretakers

1. Age of mother/care taker in years _____
2. Marital Status of the Mother/care taker
 - Married
 - Single/never married
 - Divorced
 - Windowed
3. What is the age of child in year? _____
4. What is your education level?
 - Illiterate
 - Attended literacy education
 - From Grade 1-6
 - From Grade 7-12
 - 12+
5. What is your occupation?
 - Government Employee
 - Private enterprise employee
 - Merchant
 - House Wife
 - Other (Specify) _____

CLIENT SATISFACTION

6. How do you rate your satisfaction with the way the immunization service providers deliver?
 - Very Satisfactory

- Satisfactory
- Neutral
- Unsatisfactory
- Very Unsatisfactory

7. If the answer to question 6 is 1 & 2, what characters of health worker satisfied you?

- Way of greetings
- Concern for your problem
- Information given
- Other (Specify) _____

8. If the answer to question 6 is 4 & 5, why not?

- The health worker is rude
- The health worker is in hurry
- Had shown no concern of my problem
- Didn't give any advice/information
- Other (Specify) _____

9. How do you also rate your satisfaction with other immunization service?

- Very satisfactory
- Satisfaction
- Neutral
- Unsatisfactory
- Very Unsatisfactory

10. If the answer to question 9 is 1 & 2, which services satisfied you?

(You can choose more than one answer_

- Availability of Chair/bench for sitting
- Waiting time was not long
- Technical skill of worker

- The cleanness of the worker
- Weighing the child and advice on growth and development of the child
- Screened the child for illness Vaccine preventable disease have decreased

11. If the answer to question 9 is 4 & 5, which service dissatisfied you? (You can choose more than one answer)

- Child was not weighed and screened
- Waiting time was long
- Absence of chair/bench for sitting
- Technical skill of service provider
- Child developed abscess
- Other (Specify) _____

12. Did the health worker discuss about immunization with you?

- Yes
- No

13. If 'yes' to question 12, what did he/she discuss about immunization?

- What immunization is?
- Types of disease preventable by immunization
- When, how and where vaccines are given
- Advice on side effect and contraindication of immunization
- Other (Specify) _____

14. If 'yes' to question 12, when was the information given?

- During health education session
- During vaccination session
- Other (specify) _____

15. If the answer to question 14 is "during immunization session", how satisfactory was the session?

- Very satisfactory
- Unsatisfactory
- Satisfactory

- Others (specify)

16. If the answer to question 15 is “satisfactory or very satisfactory”, what makes it so?

- Allowed me to ask question
- The provider was easy to understand
- The provider was not in a hurry
- Other (specify) _____

17. Apart from health institution, is there any vaccination center or outreach near your village?

- Yes
- No
- I Don't know

18. If ‘yes’ to question 17, why did you come here?

- Opening hours are convenient here
- Better quality service
- To get treatment
- Prefer provider here
- Other (specify) _____

19. Have you ever been returned home without getting vaccination during your appointment?

- Yes
- No

20. If ‘yes’ to question 19, what was the reason for not getting vaccination?

- Vaccine not available
- Vaccinators were absent
- Don't know
- Other (specify) _____

21. What is the average waiting time to get the service?

- Less than one hour
- Greater than two hours
- One to two hour hours

- Don't know
22. Do you have immunization card of the child with you?
- Yes
 - No
23. If 'yes' to question 22 did the child receive all the vaccines for which he/she is eligible for today? (Look at the card)
- Yes
 - No
24. If 'No' to question 22, do you know any reason why your child did not receive the immunization?
- Was not told to vaccinate her child
 - Child was severely ill and health worker refused to vaccinate the child
 - Mother refused to get her child vaccinated because her child was ill
 - Vaccine was not available
 - Others (specify) _____

Annex VI. Amharic Version of participant Information Sheet

አዲስ አበባ ዩኒቨርሲቲ የነርቲቫን ልማት አዋጅ ነርስ የት/ት ክፍል

ለጥናት ተሳታፊ የሚቀርብ መረጃ፡-ለህፃን እናት /ተንከባካቢ/ መጠይቅ

ሁላም እንደምን አደሩ ወይም ዋሉ፤ ለዚህ ጥናት የሚገኝ ሰብሳቢ ነኝ፡፡

የጥናቱ ርዕስ፡ - ደ/ሚቆስ አስተዳደር የሚሰጠውን የክትባት አገልግሎት ጥራት ጥናት ነው፡፡

የመንደርደሪያ ኃሳብ፡ - የፌዴራል ጠፍ ጥበቃ ሚ/ር በሚወጣው ዓመታዊ የጠፍ ሪፖርት መሠረት የደብረ ሚቆስ የሚሰጡ ክትባት ሽፋን መጠን አነስተኛ መሆኑን ያመለክታል፡፡ ይህም በአገልግሎቱ የጥራት ችግር የሚመጣ መሆኑን ለመጠየቅ ይቻላል፡፡

የጥናቱ ዓላማ - ጥናቱ ከአ.አ.ዩ. የነርቲቫን ልማት ነርስ ት/ቤት ለመከተርስ ዲግሪ ማግኘት በመከፈል በደብረ ሚቆስ ከተማ ያለውን የክትባት አሠጣጥ ጥራት ለማጥናት ነው፡፡ ጥናቱ የአገልግሎቱን ተጠቃሚ የሆኑ ወላጆችን የሚመለከት ሲሆን ቁጥሩ በአጠቃላይ 392 የሆኑ ወላጆች በከተማው ከመጣኙ ጠፍ ተቋማት በተደለደለው ከታ መሠረት የተፈለገው መጠን እስኪጠገን ድረስ ይካተታል፡፡ በዚህም መሠረት የርስዎን እድሜ ያህን እና ተያያዥ መረጃዎች በአገልግሎቱ ላይ የእርካታ ወይም የኢ-እርካታ መጠንና ለነዚህም ምንጮቹ ምን እንደሆኑ መረጃ ይሰጠዎታል፡፡ መጠይቁ ከ40 ደቂቃ በላይ አይፈጅም፡፡

የጥናቱ ጥቅም - ከዚህ ጥናት የሚገኘው መረጃ በአገልግሎቱ ላይ ያለውን የጥራት ችግር እና ጠንካራ ጎን በመለየት ለመጠበቅና አካላት የሚሻሻል እርምጃ እንዲወስዱ ያግዛል፡፡ በዚህ ጥናት በመሳተፍ ለእርስዎ የገንዘብ ወይም የቁሳቁስ ስጦታ አይኖርም፡፡

አደጋ ወይም ስጋት፡ - በዚህ ጥናት በመሳተፍ ምክንያት እርስዎም ሆኑ ሌሎች ለአደጋ የሚጋልጥ ሁኔታ አይኖርም፡፡

የሚገኘው መከላከያ ማጠቃለያ፡ - የሚሰጠው መረጃ በሙሉ በጥንቃቄ በመከተርነት ይሰጣል፡፡ ስሞም በዚህ መረጃ መመዘገቢያ ላይና ከሚገኘው ጋር በሚያደግ የሚጠቀስ ይሆናል፡፡

በጥናቱ የመሳተፍ እና ያለመሳተፍ መብት፡ - በዚህ ጥናት ላይ የመሳተፍም ይሁን አስፈላጊ ሆኖ ሲያገኙት የሚቋረጥ መብትዎ የተጠበቀ ነው፡፡

የስምምነት ቅጽ

ከላይ የተጠቀሰውን መረጃ የተረዳሁና በዚህ ጥናት ስላተፍ የጥናቱን ዓላማ ጥቅም፤ የሚገኘውን መከላከያ ማጠቃለያና በጥናቱ የመሳተፍና ያለመሳተፍ መብቴን በሚገባ በመገንዘብ መሆኑን አረጋግጣለሁ፡፡

የጥናቱ ተሳታፊ ፊርማ -----ቀን -----

የሚገኝ ሰብሳቢ ፊርማ -----ቀን -----

አድራሻ፤

1. የጥናቱ አድራጊ ስም፡ አለባቸው ደመላሽ
ጥባይል ቁጥር፡-0912 60 33 73, ኢ-ሜል፡ getalexo5@gmail.com
2. የአማካሪ ስም - ረዳት ፕሮፌሰር ብርሀኔ ገ/ኪዳን (BSN, RN, MSN)፡ አ.አ.ዩ.
የነርቲቫን ልማት አዋጅ ነርስ ት/ቤት
3. IRB አድራሻ፡ 0115538734/0913273829 ፡ ኢ-ሜል፡ aaumfirb@yahoo.com

የህፃናት እና እናቶች ወይም ተንከባካቢዎች አስከትበው ሲጠቡ የሚጠየቁት ጥያቄዎች

መጠይቁ የተደረገበት ቀን: ----- የጠፍ ድርጅቱ ስም: -----
 መሠሪያ: መጠይቁ የሚደረግለት ደንበኛ በሚሞላበት መሰረት ሳጠኑ ወስጥ የ 'X' ምልክት ያደርጉ እንዲሁም ባዶ በታወገ ይሙሉ፡፡

I. የእናቶች ወይም ተንከባካቢዎች መግለጫዎች

1. የእናት/ተንከባካቢ እድሜ/በአመት -----
2. የጋብቻ ሁኔታ
 - ያገባ /ች/
 - ያላገባ/ች
 - አግብቶ የፈታ /ች/ታ
 - ሚቱ /ባሏ/ የሞተበት/ባት/
3. የልጅዎ እድሜ ስንት ነው /በአመት -----
4. የት/ት ደረጃ
 - ያልተማረ
 - የመሰረተ ት/ት የተማረ
 - ከ1ኛ-6ኛ ክፍል
 - ከ7ኛ-12ኛ
 - ከ12ኛ በላይ
5. ሥራዎ ምንድን ነው?
 - የመንግስት ሠራተኛ
 - የግል አንተርፕራይዝ ሠራተኛ
 - ነጋዴ
 - የቤት እመኔት
 - ሌላ ካለ ይገለጹ -----

II. የደንበኛ እርካታ መዝገቦች

6. የክትባት አገልግሎት ከሚሰጠው ባለሙያ አኳያ በአገልግሎቱ ያገኙትን ርካታ እንዴት ይገልጹታል
 - በጣም ረክቻለሁ
 - ረክቻለሁ
 - ምንም አይልም
 - አያረካም
 - ምንም አይስደስትም
7. ለጥያቄ 6 መልስ 1 ወይም 2 ከሆነ የባለሙያው የትኛው ባህሪ ነው ያስደስተዎት?
 - ሰላምታው
 - ለችግርዎ የሰጠው ትኩረት
 - የሰጠዎት መረጃ
 - ሌላ ካለ ይገለጹ --
8. ለጥያቄ 6 መልስ 4 ወይም 5 ከሆነ ለምን?
 - ባለሙያዎ ክፉ ስለሆነ
 - ባለሙያው ችኩል ነው
 - ለእኔ ችግር ደንታ የለውም
 - ምንም አይነት ምክር/መረጃ አይሰጥም
 - ሌላ ካለ ይገለጹ -----

9. ከባለሙያው ወጭ ባለው የክትባት አገልግሎት ላይ የሚኖር ርካታ ምን ይመስላል?

- በሞያ ረክቻለሁ
- ረክታለሁ
- ምንም አይደለም
- አያረካም
- ምንም አያረካም

10. ለጥያቄ 9 መልስዎ 1 ወይም 2 ከሆነ የትኛው አገልግሎት ነው ያረካዎት? ከአንድ በላይ መሟረጥ ይችላሉ፡፡

- መቀመጫው
- ለረጅም ጊዜ ስለሚቆይበት
- የሰራተኛው ሙያዊ ብቃት
- የባለሙያው ንፅህና
- ህፃኑን ከመከላከል በኋላ ስለህፃኑ አካላዊና አዕምሮአዊ እድገት ምክር ስለሚሰጠው
- ለህፃኑ ሌሎች በሽታዎች ምርመራ ስለሚረግጥ
- በክትባት የምንከላከላቸው በሽታዎች ስለቀነሱ

11. ለጥያቄ 9 መልስዎ 4 ወይም 5 ከሆነ ያረካዎት የትኛው አገልግሎት ነው? ከአንድ በላይ መሟረጥ ይችላሉ፡፡

- ለረጅም ጊዜ ስለሚቆይበት
- ልጄ ከብድቱ አይመክንም ምርመራ አይደረግለትም
- በቂ መቀመጫ የለም
- ሰራተኛው ሙያዊ ብቃት የለውም
- ህፃኑ ማጫ የተወጋበት ላይ ስለሚቆይ
- ሌላ ካለ ይግለጹ -----

12. ባለሙያዎ ስለክትባት ከእርስዎ ጋር ለመመዘን እድል ይሰጥዎታል?

- አዎ
- የለም

13. ለጥያቄ 12 መልስ "አዎ" ከሆነ በክትባት ላይ የምትወያዩት ምንድን ነው?

- ክትባት ማለት ምን ማለት ነው?
- ለክትባት ስለምንከላከላቸው በሽታዎች
- ክትባት መቼ፣ እንዴትና የት እንደሚሰጥ
- ስለክትባት ግንዛቤ ጉዳትና ክትባትን ስለሚጠላኩ ጉዳዮች
- ስለሚቀጥለው ቀጠሮ
- ሌላ ካለ ይግለጹ -----

14. ለጥያቄ 12 መልስዎ "አዎ" ከሆነ ሚጃዎን የሚያገኙ መቼ ነው?

- የጠፍ ት/ት በሚጠጥበት ወቅት
- ክትባት እየሰጠ ባለበት ወቅት
- ሌላ ካለ ይግለጹ -----

15. ለጥያቄ 12 መልስዎ “ክትባት እየተሰጠ ባለበት ወቅት” ከሆነ ቆይታዎ ምን ያክል አስደሳች ነው?
 በጣም አስደሳች
 አያስደስትም
 አስደሳች
 ሌላ ካለ ይግለጹ
16. ለጥያቄ 15 መልስዎ “አስደሳች ወይም በጣም አስደሳች” ከሆነ ምኑ ነው እንዲህ እንዲሆን ያደረገው?
 ጥያቄ ለመጠየቅ እድል ስለሚሰጠኝ
 ባለሙያው የሚገኘውን ነገር ለመገንዘብ ቀላል ስለሆነ
 ባለሙያው በተረጋጋ መንፈስ ስለሚያስተናግድ
 ሌላ ካለ ይግለጹ -----
17. ከዚህ ጠፍ ተቋም ውጭ በአካባቢዎ ክትባት የሚከፈሉት ቦታ አለ?
 አዎ
 የለም
 አላውቅም
18. ለጥያቄ 17 መልስዎ “አዎ” ከሆነ ወደዚህ ጠፍ ተቋም ለምን መጡ?
 የሚከፈሉት ሰዓት እዚህ ጥሩ ስለሆነ
 እዚህ ጥሩ አገልግሎት ስለሚሰጡ
 ህክምና ለማግኘት
 ባለሙያዎች እዚህ የተሻሉ ስለሆነ
 ሌላ ካለ ይግለጹ -----
19. በቀጠሮ ቀን መጥተው ክትባት ሳያገኙ ወደቤትዎ ተመልሰው ያወቃሉ?
 አዎ
 ተመልሼ አላውቅም
20. ለጥያቄ 19 መልስዎ “አዎ” ከሆነ ለምን?
 ክትባት ስላልነበረ /ሚሰጠኝ/
 ባለሙያዎች ስላልሉ
 ባላውቅሁት ምክንያት
 ሌላ ካለ ይግለጹ -----
21. አገልግሎቱን ለማግኘት አሜሪካ ለምን ያክል ጊዜ ይጠበቃሉ?
 ከአንድ ሰዓት ያነሰ ጊዜ
 ከአንድ እስከ ሁለት ሰዓት
 ከሁለት ሰዓት በላይ
 ሌላ ካለ ይግለጹ -----
22. የህፃኑን የክትባት ካርድ አሁን ይዘወቃል?
 አዎ
 የለም

23. ለጥያቄ 22 መልስ "አዎ" ከሆነ ዛሬ መወሰድ ያለበትን ክትባት በሙሉ ወስዷል /ካርዱን ይመልከቱ/

- አዎ
- ያልወሰደው አለ

24. ለጥያቄ 22 መልሱ "ያልወሰደው አለ" ከሆነ የቀረውን ክትባት ልጅዎ ለምን እንዳልወሰደ ያውቃሉ?

- ምን እንዳልተከተበ እና ለምን እንዳልተከተበ አልተነገረኝም
- በጣም ስለታመመ መከተብ የለበትም ብለወኝ ነው
- ክትባቱ ስለሌለ ነው
- እናቱ/ተንከባካቢው ልጁ ስለታመመ እንዲከተብ ስላልተስማሙ ነው
- ሌላ ካለ ይገለፅ -----