ADDIS ABABA UNIVERSITY

SCHOOL OF GRADUATE STUDIES

Assessment of Antiretroviral Therapy Monitoring Laboratory Services Quality in Governmental Hospitals at Addis Ababa, Ethiopia.

By: Tedla Mindaye (BSc)

Advisor:

Bineyam Taye (BSc, MPH)

A thesis submitted to the School of Graduate Studies, Addis Ababa University in partial fulfillment of the requirements for the Degree of Masters in Clinical Laboratory Sciences (Clinical Laboratory Management)

June, 2011

Addis Ababa, Ethiopia

ADDIS ABABA UNIVERSITY

SCHOOL OF GRADUATE STUDIES

Assessment of Antiretroviral Therapy Monitoring Laboratory Services Quality in Governmental Hospitals at Addis Ababa, Ethiopia

By

Tedla Mindaye (BSc)

School of Medical Laboratory Sciences, College of Health Sciences, Addis Ababa University

Approved by the Examining Board

_____	_____
Chairman, Dep. Graduate Committee	Signature
_____	_____
Advisor	Signature
_____	_____
Examiner	Signature

Acknowledgment

First of all I would like to thank the almighty God who gave me the courage and power to finish this paper. My gratitude also goes to my advisor Mr. Binyam Taye who has spent his precious time in advising and correcting on my draft proposal and paper. I would like to thank my family and friends for their support and to raise my morale throughout this work.

I would like to extend my thanks to School of Medical Laboratory Sciences, College of Health Sciences, Addis Ababa University for its financial support to conduct this research paper.

It would have been worthless to write this page without mentioning Dr. Aster Tsegaye for reviewing my draft proposal and all my best friends who have been on my side during the whole process of conducting this research paper particularly Eshetu Lemma, Eyob Abera and Jigssa Girma.

I would like to thank Fatuma Hassen for guiding me in entry and analysis of the data.

My very great gratitude also goes to Tinbit Amare for her unlimited and encouraging moral and material support throughout the course years and the research work.

My special thanks also go to providers working in ART clinics and laboratories of public hospitals of Addis Ababa; and clients who participated in this study.

Table of contents

List of Tables

Title of the table **Page No**

List of figures

Title of the figure **Page No**

List of Abbreviations

AAU	Addis Ababa University
AIDS	Acquired Immunodeficiency Syndrome
AOR	Adjusted Odds Ratio
ART	Antiretroviral Therapy
ARV	Antiretroviral
BPR	Business Process Reengineering
CI	Confidence Interval
CSA	Central Statistical Authority
EHNRI	Ethiopian Health and Nutrition Research Institute
EQA	External Quality Assessment
FHAPCO	Federal HIV/AIDS Prevention and Control Office
HAART	Highly Active Antiretroviral Therapy
HIV	Human Immunodeficiency Syndrome
MDG	Millennium Development Goal
MOH	Ministry of Health
OI	Opportunistic Infections
OR	Odds Ratio
PLWHA	People Living With HIV/AIDS
PMTCT	Prevention of Mother to Child Transmission
SOP	Standard Operating procedure

Abstract

Background: - Despite the fact that Ethiopia is accelerating its ART program, little is known about the quality of ART monitoring laboratory services in health facilities.

Objective: - To assess the quality of ART monitoring laboratory services in public hospitals of Addis Ababa with emphasis on client satisfaction, providers' views, functional & structural status of the ART monitoring laboratory service.

Methods: **-** Hospital based, descriptive cross sectional study was conducted from October to November 2010. In this study both quantitative and qualitative design forms were used. A total of 422 clients were considered for exit interview about their satisfaction towards ART monitoring laboratory services using structured questionnaire. To assess the structural and functional aspects of ART monitoring laboratories, observation checklist was used. In-depth interview of providers were conducted to assess their views on quality of ART monitoring laboratory services. Data were coded and entered using EPI info 2002 (Centers for Disease Control and Prevention Atlanta, GA) and analyzed using SPSS version 15 software (SPSS INC, Chicago, IL, USA). Satisfaction score was calculated by giving a value of one for very satisfied. A value of two was assigned for response of satisfied; three for neutral response. Values of four and five were given for dissatisfied and very dissatisfied responses respectively. The mean, median and mode scores for the overall satisfaction were calculated. Median of the summary score of satisfaction was used to classify as satisfied and none satisfied since the distribution of summary scores was skewed. Bivariate and multivariate logistic regression models were also used to examine the effect of selected variables on patients' satisfaction with ART monitoring laboratory services by using Odds Ratio (OR) with a 95% Confidence Interval (CI). P-Value less than 0.05 were taken as statistically significant. Variables that were found with a statistically significant association ($p<0.05$) at univariate logistic analysis were entered and analyzed by multiple logistic regression analysis.

Results: - A total response rate of 406 (96.2%) from 422 sample size was obtained. Among those 255(62.8%) were females. The overall satisfaction rate was 47.5%. The major determinants for none satisfaction were lack of space in blood drawing room to put client personal thing (AOR= 3.377, 95% CI 1.511-7.550, P=0.00), lack of information regarding bruises following blood drawing (AOR= 2.029; CI 1.162-3.542, P=0.01),waiting time to get

laboratory results (AOR= 4.096; CI 1.769-9.485, P=0.00), needle stick while attempting to draw blood (AOR=7.769, 95% CI 1.280-47.166, P=0.02), waiting time to get blood drawing service (AOR= 7.643, 95% CI 2.627-22.236, P=0.00). None of the hospital laboratory had guideline for disposal of damaged or expired laboratory reagents. Equipment maintenance was one of the major problems found in almost all public hospital of the city providing ART services during in-depth interview of providers.

Conclusion:-The overall satisfaction level of clients with ART monitoring laboratory services was 47.5%. Accessibility and availability of latrines, ability of phlebotomist to answer questions raised by clients and comfort of chairs in blood drawing room were considered the most significant factors for low satisfaction levels. Equipment maintenance was a major challenge in rendering ART monitoring laboratory services in public hospitals.

1. Introduction

The Human Immunodeficiency Virus (HIV)/Acquired Immunodeficiency Syndrome (AIDS) pandemic is a major public health problem globally. According to the UNAIDS report, an estimated 33.4 million people were living with HIV/AIDS. In 2008, an estimated 2.7 million new HIV infections and 2 million deaths due to AIDS-related illnesses occurred worldwide (1).

Sub-Saharan Africa remains the region most heavily affected by HIV. In 2008, an estimated 1.9 million people living in sub-Saharan Africa became newly infected with HIV, bringing the total number of people living with HIV to 22.4 million (1). The region accounted for 67% of HIV infections worldwide, 68% of new HIV infections among adults and 91% of new HIV infections among children in 2008. Sub-Saharan Africa also accounted for 72% of the world's AIDS-related deaths in the same year (1).

Ethiopia is one of the hardest hit sub-Saharan African countries by the HIV pandemic. According to estimate of single point prevalence the national prevalence of HIV infection is 2.1(1.7 for male and 2.6 for female) with an urban prevalence of 7.7 and 0.9 in rural areas. These rates indicate that the total number of HIV positive population in 2007 was near to one million, amongst which more than 258,000 were in need of Anti Retroviral Treatment (2).

Initially Ethiopia promptly responded to the HIV epidemic, though the measure taken was focused on prevention, with little attention on treatment. However with the introduction of ART in resource-limited settings in the early 2000, Ethiopia introduced a fee-based ART in 2003 in selected health facilities following the issuance of the National ARV's supply and use policy. The Ethiopian free ART scheme was launched in 2005 through an ART Road-map 2004-2006 with the motto "Accelerating Access to HIV/AIDS

Treatment in Ethiopia" (3). The period for the road map came to an end with a 67.2% achievement of uptake by individuals starting treatment of the targeted 100,000 by the end of December 2006. In order to achieve universal access to HIV/AIDS services nationwide and thereby reach the MDG goal, the country is undergoing a rapid expansion through decentralization of HIV/AIDS services to more sites with the involvement of various stake holders. These HIV/AIDS services include HIV counseling and testing, PMTCT, HIV/AIDS care, support and treatment and infection prevention (3, 4). As an integral part of the continuum of HIV care provision of free ART to health centers and to private hospitals became a necessity and is being carried out as part of phase II of roll out of ART program (3).

According to the federal ministry of health/HIV/AIDS prevention and control office (FMOH/HAPCO) monthly HIV Care and ART update of February 2010 data, 246,347 ever started ART and 179, 183 patients are currently on ART (5).

As the delivery of ART is largely dependent on diagnosing HIV infection and staging HIV/AIDS disease, there is a need to strengthen the laboratory services. A quality laboratory service is important to the medical personnel, making the diagnosis and staging the disease, as well as to the intended patients. Poor laboratory services may have a serious implication to the patients (6).

Specimen collection is one of the areas laboratory medicine involves in direct patient contact. Excessive delays, poor communication, bruising, discomfort, and other negative phlebotomy experiences may adversely influence a patient perception of care. Measuring patient satisfaction with phlebotomy service can thus be an important indicator for quality improvement tool for the ART monitoring laboratories (7).

The needs of the patients should be taken into consideration in the design and implementation of laboratory services. Disregard for patients' feedback may cause persistent disruption of testing because a patient has to return several times for the results and treatment. Thus monitoring patient satisfaction is an important and useful quality improvement indicator and is required by clinical laboratories (8).

2. Literature review

The institute of medicine defined quality of health care as the degree to which health services for individuals and populations increases the likelihood of desired health outcomes and is consistent with professional knowledge (9). According to this definition good quality means providing patients with appropriate services in a technically competent manner, with good communication, shared decision making and with cultural sensitivity. However, quality assessment is a systematic identification of what level of quality the system is currently providing. It includes collecting and analyzing of data that provides information about level of adherence to established guidelines and standards, problems encountered that limits adherence and opportunities for quality improvement through audit, supervisory assessment, self assessment or other methods (10). In health care services, quality means offering a range of services that are safe, effective, and satisfy clients' needs and wants (11).

Quality in this study is defined in terms of the availability of standardized resources (staffs, infrastructures, laboratory equipments, reagents, supplies, etc); continued provision of appropriate services which lead to desirable health outcome, addressing the need of clients and satisfaction of service providers. It has a meaning of the way individual clients are treated in ART monitoring laboratories.

Quality in terms of provider perspective:- Historically, for the health care providers, quality has meant clinical quality of care offering technical competence, effective, safe care that contributes to an individual's wellbeing. For their part, program managers recognize that support services for example logistics and record keeping- also are important to quality of service delivery (12).

Quality in terms of clients' perspective: - Addressing clients' concern is as essential to good quality of care as technical competence. For clients, quality depends largely on their interaction with providers, attributes such as waiting time, privacy, and ease of access to care are important (13).

There is consensus that people consider at least three dimensions of quality to be important: the appropriateness of care (i.e., patients should receive a procedure when it benefits them and not get it if it does not), the excellence of care (when something is done to patients, it should be done in a manner that maximizes the benefit-to-risk ratio), and the humaneness of care (including being consistent with societal norms). Operationally, quality of care is a multidimensional concept that can be assessed by measures of the structure, process and outcome of care. The basic concept is that more effective and more appropriate processes between provider and patient will improve health outcomes. Better facilities, equipment, staffing, and training affect outcomes indirectly by improving processes. Evaluation of each of the three parameters allows assessment of the quality of care. Important dimensions of clinical quality include efficacy, appropriateness, accessibility, acceptability, effectiveness, efficiency and continuity. Both technical care and management of the interpersonal relationship must be considered. The goal of quality assurance is to improve the outcomes of patients. Ultimately, improving the quality of care can benefit not only individuals, but can improve the health and productivity of communities (13).

There is growing evidence that quality of care measured in terms of structure and processes of care can have an impact on patient satisfaction and survival. Treatment options for HIV infection have expanded rapidly since the introduction of new highly active antiretroviral medications in late 1995

and early 1996. Use of these medications has led to increased survival. This new potential increases the importance of efforts to assess and improve quality of care (13).

Quality of care is not a luxury that only the resource- rich industrial nations can afford. Even where limited resource constrains a program, managers have opportunities to make choice that can advance their programs toward greater attainment of quality of care objective. The focus of attention on health service in developing world has generally been directed toward improving coverage rather than quality of service. Lately, awareness of this problem has increased, and experts have pointed out the need to let developing countries gain from the progress made in the field of quality assurance (14-16).

The Donabedian model, the group of three which has become a framework for assessment of quality emphasizes on the relationships among the structure, process and outcome of health care (17). Most quality improvement measures used to focus on assessing the structure or processes of care, but recent studies have shown a considerable stakeholder interest in assessing the outcomes, or “end results,” of health care services (13).

As the goal of quality assurance is to improve the outcomes of patients, this should be accomplished in part by attaining a better understanding of which aspects of structure and process affect outcomes. These measures are interrelated and poorly demarcated and will be convincing when structure and process measures are associated with outcomes of care and vice-versa. The measurement method used depends on how quality is defined and what is feasible given the prevailing circumstances. The basic concept is that more effective and more appropriate processes between provider and clients will

improve health outcomes. Better facilities, equipment, staffing, and training affect outcomes indirectly by improving processes. Quality of care is a multi dimensional construct and so indicators that could capture this nature are necessary (See Fig. 1. Adapted Conceptual Framework for the study of ART monitoring laboratory Services).

There are several studies focusing on quality of health care. Eventhough these reports try to use different approaches they are bound by the principle mentioned above – the Donabedian framework. Here in Ethiopia most of the studies are conducted from the clients perspective through assessment of client satisfaction and interestingly are performed in different settings and on different program area (18 – 20).

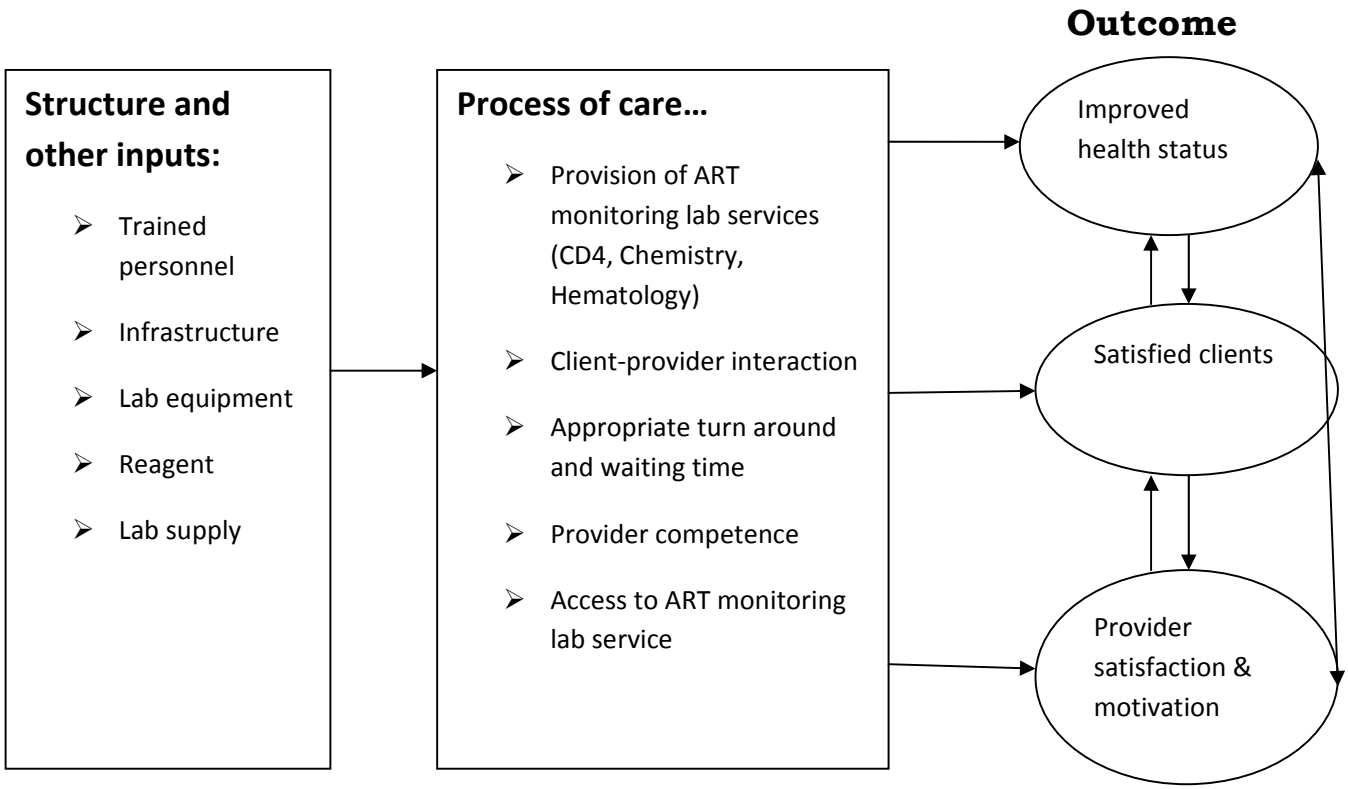

Fig 1. Adopted Conceptual Framework for the study of ART monitoring laboratory services.

Client satisfaction

Satisfaction can be defined as the extent of an individual's experience compared with his or her expectations (21). Patients' satisfaction is related to the extent to which general health care needs and condition-specific needs are met. Evaluating to what extent patients are satisfied with health services is clinically relevant, as satisfied patients are more likely to comply with treatment (22), take an active role in their own care (17), continue using medical care services and stay within a health provider (where there are some choices) and maintain with a specific system (23).

One of the quality indicators is client satisfaction. Client satisfaction with treatment processes may both influence, and be influenced by, treatment outcomes. Clients who are not satisfied with a service may have worse outcomes than others because they miss more appointments, live against advice or fail to follow through on treatment plans. On the other hand, clients who do not do well after treatment may have less than favorable attitudes towards a treatment service, even if it was of high quality by other criteria. In practice, these mutual influences may be difficult to disentangle. It is worth keeping in mind that satisfaction with the treatment processes, treatment compliance, and positive treatment outcomes are inter- related. Ratings of different dimensions of satisfaction have been highly correlated in some studies, and scores on these dimensions have been added to yield overall satisfaction ratings. However, responses to specific items are of interest to service providers who want to find out how a particular aspect of the service could be improved (24).

A cross-sectional survey was conducted in 24 randomly selected health facilities with laboratories that are conducting HIV related testing to assess patient's satisfaction with the laboratory services, in Mainland Tanzania in 2007. The result showed that the percentage of dissatisfaction with both

public and private laboratory services, ranged from 4.3% to 34.8%, with most of variables being more than 15% (25). Patients who sought private laboratory services were less dissatisfied with the cleanness and the privacy than those sought in public laboratory service for the same services of cleanness and privacy. Patients with higher education were more likely to be dissatisfied with privacy and waiting time in both private and public facilities. Patients with secondary education were more likely to be dissatisfied with the waiting time and result notification than those with lower education (25).

A study done in rural Bangladish to assess the degree of client satisfaction and quality of health care provided, found that the most powerful indicator of client satisfaction is provider behavior especially respect and politeness (26). For patients these aspects are more important than technical competence of the provider. Furthermore, a reduction in waiting time was more important than prolongation of quite short consultation period, 75% being satisfied (26).

A cross sectional descriptive study was conducted to assess the quality standards of health facilities providing antiretroviral treatment in Dares Salaam from May to July in 2005.The study findings indicated that there were inadequate trained personnel, laboratory equipments and antiretroviral drugs, and isonazid was underutilized. (27).

A cross sectional survey was conducted in Tigray region to assess the level of client satisfaction in outpatient departments of zonal hospitals in 2006 and the overall satisfaction level in outpatient department was 43.6%. Satisfaction was rated highest with courtesy and respect at 93.8% (28). Lack of drugs and supplies in hospitals' pharmacies were the major dissatisfaction factor (64.9%). Nearly half of the clients (46.7%) were not satisfied with the information provided about the services and their

problems. Above 44% of the clients were dissatisfied about the waiting time to get the services (28).

A study in Jimma hospital showed 57.1% level of satisfaction with outpatient health services. The most frequently faced problems affecting utilization of services leading to dissatisfaction were, failure to obtain prescribed medications from the hospital pharmacy, long waiting time preceding consultation and difficulty to locate different section easily (29). A similar study on outpatient performance of a teaching hospital in Gondar town showed 22.0% satisfaction rate (30). Another study on satisfaction on outpatient services in hospitals of the Amhara region showed that long waiting hours during registration, visiting of Doctors after registration, laboratory procedures and re-visiting of the Doctor for evaluation with laboratory results and obtaining drugs from the hospitals' pharmacies were associated with dissatisfaction (31).

A study conducted in 2008 to assess the quality of adult antiretroviral treatment services in public hospitals in Addis Ababa showed that all ordered laboratory tests and all prescribed drugs were not available for 21.8% and 14.4% of clients respectively. The overall dissatisfaction rate was 44.4%. The major determinants for nonsatisfaction were availability of OI drugs, care and support functions, waiting and consultation time. (32).

A health institution based crossectional study was undertaken from August 27 to September 10, 2007 on 286 people living with HIV/AIDS following antiretroviral treatment at Jimma university hospital, Southwest Ethiopia. One hundred eighty six (65%) stated that the laboratory service was poor, while 151 (52.8%) indicated that pharmacy service was excellent with mean satisfaction score of 4.52 (33).

A study conducted in 2007 to assess the quality of ART service in Addis Ababa with special focus on clients' satisfaction and adherence showed 54.2% of the clients were found to be satisfied with services of ART (34). In this study, lack of information about services at reception area, lack of cleanness and comfort at waiting areas, examination rooms and compound, waiting time and discomfort in the queue process were leading causes of dissatisfaction (34).

A cross-sectional descriptive study was conducted in 2008 to determine HIV/AIDS patient's level of satisfaction and their expectations with pharmacy service at specialist ART unit's in the government hospitals of Addis Ababa, Ethiopia. This investigation clearly revealed that 82.5% of HIV/AIDS patients indicated long waiting time was a major reason for their dissatisfaction with pharmacy service. Majority of patients indicated few other issues are also responsible for their dissatisfaction with pharmacy service such as lack of description about antiretroviral therapy drugs (45%), staffs impoliteness (22.%), and shortage of drugs (4.%). About 93.33% of the respondents prefer to get their pharmacy service within a shorter time, 18.02% wanted comfort waiting hall, 14.32% expecting staffs politeness, 5.18% insisted sufficient number of ART units, 8.88% indicated adequate supply of ART drugs and 21.48% satisfied with cleanliness. In addition, 20.98% of the patients called for personal interaction with their pharmacist and 4.44% asked for information on ART's side effects (35).

3. Rationale of the Study

Despite the fact that Ethiopia is accelerating its ART program, little is known about the quality of ART monitoring laboratory services in health facilities. The country's plan to respond to the HIV/AIDS emergency cannot be achieved without adequate focus on improving quality of care. As the delivery of ART is largely dependent on diagnosing HIV infection and staging HIV/AIDS disease, there is a need to assure provision of quality laboratory services (6, 34).

Comprehensive quality of the ART laboratory monitoring services is a challenging process; need multiple sources of supports from clients, providers, managers, and other stakeholders. To have the knowledge about concerns, needs and preferences of clients and views of providers about the services transacted create an opportunity for managers/policy makers to take corrective measures early. However, adequate studies on the quality of ART monitoring laboratory services in our country have not been conducted.

It is obvious that there are many gaps in providers' perceptions of the quality of ART monitoring laboratory services and the challenges experienced by providers in the delivery of services, the impact of quality of care on ART outcomes, and the perspectives of PLWHA on ART monitoring laboratory services. To fill this gap and in view of the national ART scale up program, an assessment of the existing quality of ART monitoring laboratory services in health facilities is needed. This study focused on quality of ART monitoring laboratory service in public hospitals, therefore can serve as a significant contribution to answer this question.

According to recent study conducted in Jimma to assess the quality of ART services, over 65% of patient stated the laboratory services were poor (33). In

another study conducted in Addis Ababa to assess the quality of ART service in public hospitals over 20% of all ordered laboratory tests were not available (32).

In order to have clear view of these shortcoming, knowledge of gaps on the availability of essential amenities; patients' preferences and perceptions; and ART monitoring laboratory service providers' views and challenges about ART monitoring laboratory services need to be solicited.

Thus, this study is intended to assess the quality of ART monitoring laboratory services with special focus on client satisfaction, factors associated with their satisfaction and ART monitoring laboratory service providers' views and challenges.

4. Objectives of the study

4.1. General objective

- To assess the quality of Antiretroviral Therapy Monitoring laboratory services in public hospitals in Addis Ababa

4.2. Specific objectives

- To determine the level of client satisfaction with ART monitoring laboratory services provided in public hospitals in Addis Ababa
- To identify factors that affect ART monitoring laboratory services quality in the public hospitals in Addis Ababa.
- To describe the functional and structural status of ART monitoring laboratory services in public hospitals of Addis Ababa
- To examine the views of ART monitoring laboratory service providers about the quality of services provided in ART sites of public hospitals of Addis Ababa

5. Methodology

5.1. Study design:

Hospital based, descriptive cross sectional study was conducted between October and November 2010. In this study both quantitative and qualitative design forms were used. Clients were considered for exit interview about their satisfaction towards ART monitoring laboratory services using structured questionnaire. To assess the structural and functional aspects of ART monitoring laboratories, an observation checklist was used. In-depth interview of providers was conducted for their views on ART monitoring laboratory services

5.2. Study area:

The study was conducted in Addis Ababa which is the capital city of Ethiopia. Addis Ababa has a population size of 2,738,248 million with annual growth rate of 2.1 (36). The city is divided into ten sub-cities and 99 kebeles (Lowest level administrative unit in the city).

The city has 45 hospitals. Ten are public hospitals, of which, 5 are under Addis Ababa Regional Health Bureau (AARHB) and 5 are specialized referral ones. Three are uniformed forces (military); 4 are NGO's and the rest 28 are private hospitals.

Currently, there are a total of 59 sites in the city which provide ART services (4). Of these, 9 are in the public hospitals; 19 are in private facilities; 4 in uniformed forces hospitals, 3 are in NGOs' and the rest in the health centers. This study focused on nine public hospitals which have been providing antiretroviral treatment services for the PLWHA of the city and surrounding areas. The hospitals were Tikur Anbessa specialized teaching

hospital, St. Peters TB specialized hospital, ALERT, St. Paul, Zewditu Memorial, Yekatit 12, Minilik II, Ras Desta Damtew, and Ghandi memorial hospitals.

5.3. Source population:

- The source populations were all adult (>18 years of age) people living with HIV/AIDS (PLWHA) who are receiving antiretroviral therapy service from Governmental hospitals in Addis Ababa for exit interview about their satisfaction.

- All public ART monitoring laboratories in the city of Addis Ababa were source population for the assessment of functional and structural status of the ART monitoring laboratory services.

- All ART monitoring laboratory service providers of public hospitals in the city of Addis Ababa were the source population for the assessment of providers' perspectives about ART monitoring laboratory services.

5.4. Study population:

- For the exit interview to assess clients satisfaction: All adult PLWHA (>18 years of age) who visited ART clinics in public hospitals of Addis Ababa during the study period.

- For the assessment of structural and functional status of the ART monitoring laboratory services: All ART monitoring laboratories of public hospitals in the city during the study period.

- For the in-depth interview: All full time medical laboratory service providers who were working in ART monitoring laboratories of public hospitals of the city of Addis Ababa during the study period

5.6. Inclusion and Exclusion Criteria:

All adult PLWHA receiving ART were selected for the study by systematic random sampling and had to be on ART for at least three months. Adults who have been on treatment at least for three months were selected because it was believed that they are able to give adequate information on the service. In addition, respondents had to be willing and well enough to have an interview for a length of 45 minutes -1hour in order to participate in this study. Clients less than 18 years and those who were on ARV treatment for less than 3 months were excluded from this study.

5.7. Sample size:

The required sample size is determined by using single population formula considering the following assumptions:

- Proportion of 50% (considering client satisfaction with ART monitoring laboratory service; 50 % was taken due to absence of reliable previous study that show quality of ART monitoring laboratory service)
- Level of significance = 0.05
- Marginal of error (d) = 5%
- Non-response rate= 10%

The formula for calculating the sample size (n) was:

$$n = \frac{(Za/2)^2 \, P \times (1-P)}{d2}$$

Where:

- n= sample size
- Z(a/2) = Z-score at 95% confidence interval = 1.96
- P= positive prevalence (assuming that 50 % of the PLWHA are satisfied with service)
- 1-P=Q= negative prevalence/proportion
- d= marginal error=0.05 (5%)
- There fore n becomes:

  $n = (1.96)^2 \times 0.5 \times 0.5/(0.05)^2$

  n=384

With the above assumptions, the sample size was calculated and the over all sample size was
found to be= 384 + 38 (10 % non-response rate) = 422 (PLWHA on ART)

5.8. Sampling procedures

All the nine ART clinics in public hospitals of Addis Ababa city were included. Sample size was allocated proportionately for each hospital according to clients load. To select study subjects within each hospital systematic random sampling was used. The client load of ART clinics in each hospital was used by reviewing the monthly HIV care and ART update as of February, 2010 by FHAPCO/MOH. Therefore, 90 clients from ALERT; 47 from Black lion; 4 from Gandi; 32 from Minilk II; 18 from Ras Desta; 57 from St paul; 32 from St. Peter; 39 from Yekatit 12; 103 from Zewditu memorial hospitals were assumed for exit interview (see annex I).

All ART monitoring laboratories were observed for structural and functional aspects of the services.

Full time ART monitoring laboratory service providers were selected and interviewed with non random sampling method based on the purpose and the need of issues being raised (Purposive sampling method).

5.9. Data collection method

Structured questionnaire were used for the exit interview. The questionnaire was developed by reviewing relevant literatures. The contents of questionnaire include socio demographic characteristics of clients, satisfaction indicators of ART monitoring laboratory services.

A number of questions that could address the objective of this study was gathered and adapted. In order to improve the developed questionnaire valuable comments were received from different sources. The first draft questionnaire was an English version and then translated to Amharic Language. This helps data collectors to communicate easily with respondents. The questionnaire was pre-tested to ensure that the questionnaire was clear for respondents. Then correction has done accordingly.

Checklist was used for observation of ART monitoring Laboratories. Semi structured guidelines were used for in-depth interview of ART monitoring laboratory service providers.

5.10. Study Variables

Outcome variables

- Clients' satisfaction on ART monitoring laboratory services.
- ART monitoring laboratory service providers' perspectives towards the ART laboratory services

Explanatory variables

Socio-demographic characteristics of the clients (address, age, gender, marital status, religion, occupation, education and income).
Provider and client interaction, waiting time, availability of requested laboratory tests, needlestick attempt, information provision about bruise, availability of place in blood drawing room, privacy, confidentiality

5.11. Data Processing and Analysis

Data were coded and entered using EPI info 2002 (Centre for Disease Control and Prevention Atlanta, GA) and analyzed using SPSS version 15 software (SPSS INC, Chicago, IL, USA). Descriptive statistics were computed for most of the variables. To assess the satisfaction level of ART monitoring laboratory service from clients' perspectives, twelve satisfaction indicators of the service were selected. Clients were interviewed for their satisfactions on each indicator using five responses categories ranging from very satisfied to very dissatisfied. Response of very satisfied was given a value of one. A value of two was assigned for response of satisfied; three for neutral response. Values of four and five were given for responses of dissatisfied and very dissatisfied responses respectively. The mean, median and mode scores for the overall satisfaction were calculated. Median of the summary score of satisfaction was used to classify as satisfied and none satisfied since the distribution of summary scores was skewed. Bivariate and multivariate logistic regression

models were also used to examine the effect of selected variables on patients' satisfaction with ART monitoring laboratory services using Odds Ratio (OR) with a 95% Confidence Interval (CI). P-Value less than 0.05 were taken as statistically significant. Variables that were found with a statistically significant association ($p<0.05$) at univariate logistic analysis were entered and analyzed by multiple logistic regression analysis. For qualitative study the principal investigator conducted the in depth interview using a simple checklist of topics/questions. The discussion of the participants was manually written by principal investigator and note taker. Transcription, translation and descriptive summary of the points raised during in depth interview was made by the principal investigator.

5.12. Data quality assurance

The questionnaire was pre-tested before the actual data collection. Training was given for data collectors, supervisors and questionnaire was prepared by local language. Data collectors were instructed to check the completeness of each questionnaire at the end of each interview. Supervisors were rechecking completeness of the questionnaire immediately after interview at the spot. The principal investigator was also checked during submission.

5.13. Operational definition

Quality: doing the right thing in the right way at the right time for the right patients.

Quality assessment: the systematic collection and analysis of information to determine quality of services/care.

Structure: the conditions under which care is provided e.g. premises, equipment, staff etc.

Process: the activities that constitute the patient-provider interaction including diagnosis, treatment and prevention activities etc.

Outcome: changes at individual or population levels that can be attributed to health care whether desirable or undesirable e.g. satisfaction.

Satisfaction: is purely the suggestion of the clients about the rendered care and services. In this study median of overall satisfaction score (25) was a cut off point for satisfied and non satisfied status of clients

Client-provider interaction: personal dimensions for service, principally the received emotional (affection) contents of exchanges between providers and clients. These may include treating patients with dignity or respect and greeting.

5.14. Ethical considerations

Before the research work, ethical clearance was obtained from the Institutional Review Board (IRB) of School of Medicine, Addis Abba University. A formal letter of cooperation was requested from Addis Ababa City Administration Health Bureau and the federal hospitals involved.

To maintain confidentiality, counselors or physicians treating PLWHA requested clients' consent to participate in the study before they meet data collectors for interview. Then those participants willing to participate meet the data collectors face to face for interview. Response of respondents was

anonymous and data collectors inform respondents that they have full right to discontinue or refuse to participate in the study at any time. A letter of agreement was attached to the questionnaire to obtain the written consent of each individual.

6. Results

6.1. Findings from Quantitative Study

A total of 406 clients of the antiretroviral clinics in nine public hospitals of Addis Ababa were involved in the study. The overall response rate was 406(96.2%); of these 103(25.4%), 90(22.2%), 55(13.5%) and 44(10.8%) were from Zewditu, ALERT, St Paul and Tikur Anbessa hospital respectively. Above one quarter of the clients (28.1%) were interviewed from the rest five hospitals.

6.1.1. Socio Demographic Characteristics

Out of the 406 respondents 255(62.8%) were females and about half of the respondents fell in the age range between 28-37 years of age with a mean age of 37 years and range between 18-76 years. One hundred and forty one (34.7%) of the clients did have monthly income between 500-1000. Two hundred and eight (51.2%) had attended at least secondary school education. Just above one third of them 140 (34.5%) were employee of private sectors. (Table 1 shows socio demographic distribution of the respondents)

Table 1: Socio demographic characteristics of patients of Antiretroviral Treatment service in the public hospitals, in Addis Ababa, December, 2010 (n=406)

Variable	Number	Percentage (%)
Sex		
Male	151	37.2%
Female	255	62.8%
Total	406	100.0%
Age		
18-27	46	11.3%
28-37	204	50.2%
38-47	96	23.6%
48-57	44	10.8%
58 & above	16	3.9%
Total	406	100.0%
Marital status		
Single	110	27.1%
Married	151	37.2%
Divorced	63	15.5%
Widowed	82	20.2%
Total	406	100.0%
Religion		
Orthodox	312	76.8%
Muslim	38	9.4%
protestant	54	13.3%
Others	1	0.2%
no answer	1	0.2%
Total	406	100.0%
Educational status		
Illiterate	36	8.9%
Read and write	42	10.3%
Primary school(1-8)	73	18.0%
Secondary school completed	208	51.2%
College	47	11.6%
Total	406	100.0%
Occupation		
Student	10	2.5%
Government employee	68	16.7%
Private employee	140	34.5%
Daily laborer	46	11.3%
Merchant	24	5.9%
Housewife	45	11.1%
Unemployed	73	18.0%
Total	406	100.0%
Income class		
Less than 150	98	24.1%
150-499	71	17.5%
500-1000	141	34.7%
over 1000	49	12.1%
Non response	47	11.6%
Total	406	100.0%

6.1.2. Time spent to get ART monitoring services and availability of requested laboratory tests

Two hundred and sixty eight (66%) waited less than 30 minutes to get blood drawing services. Whereas 39 (9.6%) waited more than two hours. Regarding waiting time to get ART monitoring laboratory result majority of the clients (74.4%) waited for more than two hours. Two hundred sixty (64%) clients said that all laboratory requests ordered for them were available in the hospital. (Table 2 shows time spent to get ART monitoring services and availability of requested lab tests).

Table 2: Time spent to get ART monitoring lab services and availability of requested lab tests in public hospitals of Addis Ababa, December,2010(n=406)

Variable	No of clients	%
Waiting time to get blood drawing service		
<30 minutes	268	66.0
30 min-1hr	46	11.3
1-2 hr	53	13.1
>2hr	39	9.6
Total	406	100.0
Waiting time to get lab result		
<1hr	74	18.2
1-2 hr	30	7.4
>2 hrs	302	74.4
Total	406	100.0
Availability of requested lab tests		
Yes all	260	64.0
Yes some only	146	36.0
Total	406	100.0

6.1.3. Information provision and availability of place in blood drawing room

Two hundred six clients (50.7%) clients did not get information on how to lessen the size of a possible bruise due to blood drawings. Majority of the clients 332(81.8%) claimed that there is no place to put personal things (jacket, bag etc) in blood drawing room (Table 3 shows information provision availability of place in blood drawing rooms).

Table 3: Information provision and availability of place in blood drawing room in public hospitals of Addis Ababa, December, 2010(n=406)

Variable	No of clients	%
Information provision about bruise		
Yes	200	49.3
No	206	50.7
Total	406	100.0
Availability of place in blood drawing room to put things		
Yes	74	18.2
No	332	81.8
Total	406	100.0

6.1.4. Level of Satisfaction of Clients with ART monitoring laboratory Service:

The median score for overall satisfaction was found to be 25. One hundred and ninety three (47.5%) of the clients scored below the median level of satisfaction score for ART monitoring laboratory services given in the public hospitals of Addis Ababa. The rest 213(52.5%) clients scored 25 and above the median level and none satisfied with ART monitoring laboratory services. When very satisfied and satisfied are merged as satisfied about 86% of the clients were found satisfied with providers' courtesy/respect and cleanliness of blood drawing area. In addition clients were also satisfied with measures taken by health care providers to keep confidentiality and completeness of information when and how client receive laboratory result (86.9% and 80.1% respectively). However; many of the clients were not satisfied with latrine cleanness and comfort (68.0%), accessibility and availability of latrines (64.3%), ability of the person drawing blood to answer questions (31.3%) and comfort of chairs in blood drawing room (28.1%) (Table -4 shows satisfaction rating of different variables on five point scale).

Table 4: Level of satisfaction of clients of ART clinic in the public hospitals of Addis Ababa, December, 2010 (n=406)

	Level of Satisfaction				
Variable	**V. Sat No. (%)**	**Sat. No. (%)**	**Neut. No. (%)**	**Dissat. No. (%)**	**V.Dissat. No. (%)**
Privacy during blood drawing	134(33.0)	151(37.2)	77(19.0)	40(9.9)	4(1)
Cleanliness of blood drawing area	155(38.2)	193(47.5)	38(9.4)	17(4.2)	3(0.7)
Respect and courtesy	157(38.7)	193(47.5)	32(7.9)	21(5.2)	3(0.7)
Ability of Person drawing blood to put client at ease	131(32)	193(47.5)	58(14.3)	15(3.7)	3(0.7)
Comfort of chairs	116(28.6)	157(38.7)	88(21.7)	41(10.1)	4(1.0)
Completeness of information on how and when to receive lab result	127(31.3)	198(48.8)	51(12.6)	27(6.7)	3(0.7)
Ability of the person drawing blood to answer question	91(22.4)	188(46.3)	11.2(27.6)	14(3.4)	1(0.2)
Latrine accessibility and availability	56(13.8)	89(21.9)	127(31.3)	112(27.6)	22(5.4)
Latrine cleanness and comfort	44(10.8)	86(21.2)	137(33.7)	113(27.80)	26(6.4)
Cleanness and comfort of waiting area	130 (32.00)	160(39.4)	73(18)	40(9.9)	3(0.7)
Confidentiality measure	184(45.3)	169(41.6)	46(11.3)	5(1.2)	2(0.5)
General service satisfaction	166(40.9)	173(42.6	45(11.10	17(4.2)	5(1.2)

V.sat = very satisfied; Sat = satisfied; Neut. = neutral; dissat. = dissatisfied; V.dissat= Very dissatisfied; No. = Number of clients

6.1.5. Factors affecting the level of clients' Satisfaction

In univarate analysis, overall satisfaction of clients toward ART monitoring laboratory services showed statistically significant association with waiting time to get blood drawing service, availability of place in blood drawing room to put client personal things, provision of information regarding bruise due to blood drawing, number of needle stick attempted to draw blood, availability of ordered laboratory tests, waiting time to get laboratory result and occupational status (daily laborer) with ($p<0.05$). However, our data did not show a significant association between overall satisfaction and age group and educational level of the clients.

When adjusted odds ratios were calculated among these variables, significant associations were found between the overall satisfaction of the clients with their waiting time to get blood drawing service, availability of place in blood drawing room to put client personal things, provision of information regarding bruise due to blood drawing, number of needle stick attempted to draw blood and waiting time to get laboratory result with $p<0.05$.

Moreover Clients, who waited less than 30 minutes to get blood drawing services, were 7 times more likely to be satisfied than those who waited more than 2 hours (AOR= 7.64; CI 2.62-22.23).

Clients who got only one needle stick attempt to draw blood were 8 times more satisfied than those with three or more repeated needle stick attempts to draw blood (AOR=7.76; CI 1.28-47.16).

Those clients who waited less than one hour to get laboratory results were four times more likely to be satisfied than those who waited more than two hours (AOR= 4.09; CI 1.76-9.48).

Clients who got information about bruise due to blood drawing were 2 times more satisfied than those who did not got the information (AOR= 2.02; CI 1.16-3.54).

Those clients who got separate place in blood drawing room to put jacket, bag etc were 3 times more likely to be satisfied than those who did not got (AOR= 3.37 CI 1.51-7.55). (Table 5 shows determinants of satisfaction).

Table 5: Determinants of satisfaction of clients on ART monitoring laboratory services in public hospitals in Addis Ababa, December 2010 (n=406)

Variables	Dependent Variable		Crude odds ratio (95% CI)	P.value	Adjusted OR (95% CI)	P. value.
	Sat.(fre.)	Not sat.(fre.)				
Gender						
Male	73	78	1		1	
Female	116	139	0.89(0.59-01.33)	0.57	0.67(0.33-1.33)	0.25
Age Group						
18-27	24	23	1		1	
28-37	84	119	0.67(0.35-1.27)	0.22	0.58(0.23-1.44)	0.24
38-47	47	50	0.90(0.44-1.80)	0.76	0.99(0.35-2.79)	0.98
48-57	24	20	1.150(0.504-2.622)	0.74	0.917(0.259-3.25)	0.89
58 & above	10	5	1.917(0.568-6.468)	0.29	1.22(0.225-6.68)	0.81
Educational status						
Illiterate	20	16	1		1	
Read and write	22	20	0.88(0.36-2.15)	0.77	0.67(0.189-2.40)	0.54
Primary school(1-8)	36	37	0.77(0.34-1.73)	0.54	0.71(0.22-2.25)	0.56
Secondary school completed	94	114	0.66(0. .32-1.34)	0.25	0.89(0.29-02.71)	0.84
Collage	17	30	0. .45(0.18-1.10)	0.08	0.55(0.13-02.28)	0.41
Religion						
Orthodox	149	163	1		1	
Muslim	18	20	0.98(0.50-1.93)	0.96	1.26(0.48-3.26)	0.63
protestant	21	33	0.69(0.38-1.25)	0.22	0.66(0.29-1.50)	0.32
Marital status						
Single	51	59	1		1	
Married	69	82	0.97(0.59-1.59)	0.91	0.91(0.44.-1.86)	0.79
Divorced	27	36	0.86(0.46-1.61)	0.65	0.892(0.350-2.273)	0.80
Widowed	42	40	1.21(0.68-2.15)	0.50	1.32(0.54-3,25)	0.53
Occupation						
Unemployed	33	56	1		1	
Student	4	6	1.13(0.29-4.30)	0.85	1.74(0.16-18.01)	0.64
Government employee	24	41	0.99(0.51- 1.92)	0.98	1.63(0.52-5.07)	0.39
Private employee	62	68	1.697(0.97-2.94)	0.06	2.20(0.85-5.71)	0.10
daily laborer	29	15	3.281(1.53-6.99)*	0.00	1.81(0.59- 5.49)	0.29
Merchant	9	14	1.09(0.42-2.79)	0.85	2.35(0.62-8.79)	0.20
Housewife	25	20	2.12(1.02-4.39)*	0.04	1.87(0.60-5.83)	0.28
Income class						
Less than 150	46	52	1		1	
150-499	39	32	1.37(0.74-2.54)	0.30	0.99(0.44-2.25)	0.99
500-1000	67	74	1.024(0.611-1.715)	0.93	1.272(0.59-2.72)	0.53
over 1000	15	34	0.49(0.24-1.03)	0.06	0.73(0.23-2.27)	0.58
Availability of place in blood drawing room to put things						
No	133	198	1		1	
Yes	56	18	4.63(2.60-8.22)*	0.00	3.37(1.51-7.55)*	0.00

Table 5: Continues

Information provision about bruise						
No	76	130	1		1	
Yes	113	87	2.222(1.49-3.30)*	0.00	2.029(1.16-3.54)*	0.01
Availability of lab tests						
Yes some only	54	92	1		1	
Yes all	135	125	1.840(1.21-2.78)*	0.00	1.571(0.86-2.85)	0.13
Waiting time to get blood drawing service						
>2 hours	6	33	1		1	
<30 minutes	164	104	8.67(3.51-21.41)*	0.00	7.64 (2.62-22.23)*	0.00
½-1 hour	16	30	2.93(1.01-8.47)*	0.04	3.13(0.88-11.15)	0.07
1-2 hours	3	50	0.33(0.77-1.41)	0.13	0.230(0.46-1.161)	0.07
No of Needle stick						
Three venipuncture	2	14	1		1	
Two venipuncture	35	41	5.97(1.27-28.11)*	0.02	6.35(0.97-41.21)	0.05
One venipuncture	152	162	6.56(1.46-29.37)*	0.01	7.76(1.28-47.16)*	0.02
Waiting time to get lab result						
>2 hours	122	180	1		1	
<1 hour	55	19	4.27(2.41-7.55)*	0.00	4.09(1.76-9.48)*	0.00
1-2 hours	12	18	0.98(0.45-2.11)	0.96	1.57(0.57-4.28)	0.36

Note: fre. means frequency; Reference categories are indicated by 1; Significant Associations are indicated by * and Adjustment was done for the socio demographic variables and with waiting time to get blood drawing service, availability of requested lab tests, information provision about bruise, waiting time to get lab result, availability of space in blood drawing room to put things, number of needle stick attempted to draw blood.

6.2. Result for facility assessment:

Out of the nine hospitals four were central specialized/referral (Tikur Anbessa specialized referral hospital, ALERT hospital, Zewditu memorial hospital, St. Peters TB specialized hospital and St. Paul hospital) and the remaining five were regional hospitals. The structural, functionality and resources of antiretroviral therapy monitoring laboratory services of these sites were assessed using observation checklists. Out of the nine hospitals, seven performed all ART monitoring laboratory tests; the rest two did not provide all ART monitoring laboratory tests due to CD4 and chemistry machine failure at the time of data collection of this study.

All ART clinics patients' waiting area and laboratory blood drawing room were assessed for the cleanness; seven of the hospitals had clean patients' waiting areas. Five of them had clean blood drawing area.

All of the hospitals had clear signs for laboratory units and areas of laboratory services. They posted room numbers, specific service given in the room.

All the public hospitals in this study had trained fulltime staff to provide ART monitoring laboratory services. Laboratory personnel were easily identifiable to clients in most laboratories. In six of them laboratory personnel wear gowns and name tags.

Regarding quality assurance manual, SOPs and other materials that aid laboratory service providers in their day to day activities; six hospitals had SOP for ART monitoring laboratory tests. None of the hospital laboratory had quality assurance manual. All of the hospital except one had the required supplies to perform ART monitoring laboratory services.

None of the hospital laboratories had guideline for disposal of damaged or expired laboratory reagents. All hospital laboratories did not retain or store samples for further analysis. ART monitoring hospital laboratories

experienced power interruptions. Eventhough the capacity of the generators found in health institutions was variable and small in some of them, eight hospital laboratories alleviate the problem using generator. Only three hospitals laboratory had a working fire extinguisher. All hospitals had separate sinks for washing laboratory ware, staining and washing hands.

All hospital laboratories were using incinerators for solid waste disposal and in four hospital laboratories liquid waste coming out of the laboratory is released to the sewerage system without any pretreatment with chemicals or other sterilization techniques. Alcohol (at a concentration of 70%) and sodium hypochlorite (ready made by factories) for disinfection purposes were used in the study facilities. Four hospital laboratories had shortage of personal protective protection equipment including gloves and only three hospital laboratories strictly following safety manual adopted from World Health Organization.

6.3. Findings of Qualitative parts:

To strengthen the findings of the client satisfaction on the ART monitoring laboratory services, In-depth interviews with laboratory personnel were conducted.

Nine full-time ART monitoring laboratory service providers (7 Medical Laboratory Technologists and 2 Medical Laboratory Technicians) were included in the interview about their perspectives on the quality of ART monitoring laboratory services given in their respective hospitals. They had two to six years experience of work on ART monitoring laboratories. Age of respondents ranged from 28 years up to 46 years. A number of relevant trainings were given to all of these ART monitoring laboratory service providers working in the hospital laboratory; like Basic training on CD4, chemistry, hematology, laboratory quality system, laboratory management.

Standards and guidelines

Most providers reported that they follow standard operating procedures developed by their own laboratories to carry out ART monitoring laboratory tests. However, national or international guidelines and standards were not available in their respective laboratories. One of ART monitoring laboratory service provider told, *"We do not know where and how to get laboratory standards and guidelines related to ART monitoring laboratory tests."*

ART monitoring laboratory Equipment and Reagent

All of the providers said that ART laboratory have minimum required equipment like CD4 machine, Clinical chemistry analyzer, Hematology analyzer, computer, furniture, chairs, tables, drawers and lockable cupboards. Most of the laboratory equipments are available for use whenever the need arises. However, the major laboratory equipment like CD4 machine,

Clinical chemistry and Hematology analyzer are not adequate in number to render the required laboratory service for clients in timely manner. When the equipment are worn out or broken, it takes long time to be repaired or replaced. In addition, maintenance issues are one of the obstacles to sustain laboratory services in the hospital. One of the providers told about this fact, *''laboratory equipments failure happens frequently as a result laboratory service were interrupted and our client were dissatisfied and sometimes there were conflicts between laboratory service provider and clients.''*

Most laboratory service providers said that shortage of reagents and supplies occurred occasionally which may cause services interruption. These affect the quality of service and clients' satisfaction. One of the providers said, *"In my laboratory shortage of micropipette tip supplies occurred and we are unable to provide the service till the issues settled.''*

Comfort and Cleanness of the Facility:

Generally providers claimed that latrine services are below standards. It has bad odor, breeding sites for flies, and small number of seats for the users. One of the providers said, *"The latrine in our hospital is very busy, unsightly, and with bad odor. It is in the state of not inviting to use it. The hospital management is always been informed about the situation; but no root solution given."*

Turn Around Time

The providers anonymously agreed that there is no written turnaround time for ART monitoring laboratory tests. One of the providers told, *"even if we do not have written turnaround time, we collect sample in the morning, processing and testing conducted in the afternoon. Test result delivered to ART clinic in the morning. Due to the complexity of the testing process and high work load test result available within 24 hours to respective clinician who provide care and treatment to the client.''*

Factors affecting ART monitoring laboratory service and client satisfaction:

Generally, laboratory service providers noted that clients are satisfied with the services they are getting from ART laboratories. However, there are some factors affecting the satisfaction of clients. The major problems that contribute to the dissatisfaction of the clients are delay in returning laboratory result due to absence of back up machine. Clients are also dissatisfied with long waiting time to get ART monitoring laboratory services.

One of the providers said, *" failure to maintain CD4 machine due to lack of spare parts interrupt the service for two months.''*

Providers Satisfaction and Motivation:

Generally, providers of ART clinics are satisfied with the work they are doing and when they see improved health and quality of life of their patients. But, motivational aspects and incentives to these providers are not addressed. One provider told, *"Eventhough I am happy with the work, working atmosphere and outcome of our services; our salary are not adequate and not satisfying. We are working with potentially infectious material like blood capable of transmitting infection; to compensate this we do not have clinical*

allowance and vaccination for hepatitis. We do not have additional payment. Most of us are not motivated due to lack of incentives, even recognition scheme like certificate of appreciation to our work not in place".

7. Discussion

This study has revealed that overall client satisfaction level with the ART monitoring laboratory services were 47.5 % which is lower than the study conducted in Addis Ababa 55.6 % and 54.2% respectively (32,34), However, our finding were comparable with finding in Tigray zonal hospitals with client satisfaction level of 43.6% (28). Other studies conducted in Jimma and Mozambique hospitals reported 57.1% and 55% of users of out patient departments were satisfied respectively(29,38).On the other hand this finding is higher than the reports by other researchers that showed 22%, 37%, 37.2% and 40% in Gondar, Mekelle regional referral hospital, Singapore hospitals respectively. (30,39,40, 41). The underlying justifications for higher clients' satisfaction with ART services than outpatient services in other areas include multiple factors. ART services in Ethiopia are focus of attentions for government and many donors. Different interventions of monitoring, reporting including policies and implementation guidelines are functional for ART services. Many Donors are investing on the program large amount of resources and give technical supports. In addition, Clients are entitled to receive ART services for free. Clients are also benefiting from improved quality of life, decreased morbidities from treatment. They may not have any other alternatives to get these expensive services due to economic constraints.

Generally, clients in this study were satisfied for most of satisfaction indicators such as respect and courtesy (86.2%), confidentiality (86.9%) and privacy (70.2%). These are equivalent with findings of some studies done in Addis Ababa to assess satisfaction of clients with ART and VCT services and outpatient services in Tigray zonal hospitals (28, 32, 34, 37).

However, one may argue that high achievements for such satisfaction indicators can be due to introduction of social desirability biases by clients.

Clients might not be ready to tell their dissatisfaction status freely since the interviews were carried out within the hospitals. Again, it should be remembered that, unless special precautions are taken, clients may be reluctant to reveal their opinions for fear of alienating their attendants (17).

Non satisfaction rate among clients for latrine service in this study was found higher than that of outpatient services in Tigray's zonal hospitals, where latrine access and latrine cleanness were 54.8% and 63.7% respectively (28). Detailed reasons for this low latrine service satisfaction were found during in-depth interview of providers. It has been said that latrines had bad odors and breeding site for flies, unsightly. The latrines had large users load. Efforts to clean them and to construct new were not successful.

In this study, the proportion of clients who waited to get the laboratory service more than one hour was about 81.8%, which is slightly lower than the finding of study conducted in Jimma hospital where 91.3% waited for more than one hour to get laboratory service. (33). The suggested reasons for this difference could be due to better attention by the concerned officials and efforts made to make changes in the service delivery by implementing business process engineering (BPR).

Majority of the clients 332 (81.8%) claimed that there is no place to put personal things (jacket, bag etc) in blood drawing room. These clients are less satisfied than those who got place to put personal things. This may be attributed due to small size blood drawing laboratory room.

Clients who did not get information about bruise due to blood drawing were less satisfied than those who got the information. Bruising after venipuncture is undesirable. It is important to ensure minimum discomfort

to the patient and that he or she is not left with an unsightly bruise which may take a long time to resolve completely. Even if bruising is short lived it may affect the patient's perception of the service he or she receives. By providing information on how to lessen bruise size, patient satisfaction can be increased. In a study conducted in a small British district general hospital, the incidence of bruising was reduced from 45% to 25% after phlebotomist training to ensure haemostasis had been attained before leaving the patient (42).

All of the hospitals have adequate medical equipments, supplies and reagents required for ART laboratory services as per the guideline for ART service implementations in Ethiopia (43). However, providers in their in-depth interviews witnessed that heavy workload, ART laboratory equipment failure, shortage of spare parts, poor maintenance system and relative shortage of staffs as compared to workload continued to be barriers for ART monitoring laboratory services in the city.

On top of these facts, motivational aspects of providers were not addressed. There were no incentives or recognitions schemes implied in the hospital laboratories. It is well understood that change and improvements are unthinkable without providers' motivations. This could have been done with simple interventions like oral or written feedback, certificates, letter of recognitions. Providers are also motivated by materials or money, personal and professional developments, through challenges or positive achievements (44).

Equipment maintenance was one of the major problems found in almost all public hospital of the city providing ART services during in-depth interview of providers. In most of the laboratories, equipment maintenance take longer time due to lack of spare parts, lack of advance planning for post-warranty service, inadequate capacity at the central and facility levels to address

instrument breakdowns in a timely manner. This is consistent with finding of study done to assess the status of HIV screening laboratories in Ethiopia which identified equipment maintenance as a major problem in supervised laboratories (45).

According to the national laboratory equipment maintenance management guideline, Human resource at central maintenance unit of Ethiopian Health and nutrition Research Institute (EHNRI) as follows: Two technicians who have better training on CD4 machine (FacsCount) and can handle curative maintenance; Four technicians have better training on Hematology machine (CellDyn1800)and can handle curative maintenance; The capacity on Chemistry machine (Humanstar80) is relatively better than other equipment and about five people work on the curative maintenance of the machine; For BT 2000/Saba/Autolab/Sysmex KX-21 and Vega System, there is no capacity to handle those Equipment (46). It is difficult to handle ART equipment failure within this limited number of skilled maintenance technicians at the central level. Furthermore, inadequate capacity of equipment maintenance at facility level further aggravates the problem.

Strengths and limitations of the study

Strength

- This study tried to assess many aspects of quality; it dealt with structures and amenities of the services. Views and satisfactions of clients; ART monitoring laboratory service provider perspectives on the services.
- The study covered all of the public hospitals in city of Addis Ababa; to make them representative of the findings.
- Different methodologies for specific purposes in this study were applied. Both quantitative and qualitative methods were used

Limitation

- Results mostly depend on the responses of clients and providers. Clients of ART might give biased information since interview was conducted in the hospitals
- This study covered only those clients who came to hospitals during the data collection period. It doesn't include those who didn't come to hospitals that may underestimate findings.
- Observation was limited to see availabilities of equipments, SOP, reagent, laboratory supply and cleanness of the facilities. Observations were not possible for actual service delivery, provider–client interactions, competences of providers.

8. Conclusion and Recommendations

Conclusions:

Based on the findings of this descriptive cross sectional study, the following conclusions can be drawn.

- The overall satisfaction rate was 47.5%. This may affect negatively to attain the objectives of ART.
- The major factors for low satisfaction were accessibility and availability of latrines, ability of phlebotomist to answer questions raised by clients and comfort of chairs in blood drawing room.
- None of the hospital laboratory had guideline for disposal of damaged or expired laboratory reagents.
- Equipment maintenance was a major challenge in rendering ART monitoring laboratory services in public hospitals.
- High workload, relative staff shortage and lack of motivational schemes was challenges for ART monitoring laboratories.

Recommendations:

- Facilities need to identify the preferences of the clients through different methods including suggestions boxes, involving clients during meetings and decisions. Considering their capacity and preferences of the users; facilities must increase their responsiveness.
- Capacity strengthening supports for ART monitoring laboratories should be continued to improve services of latrine, decreasing turnaround time, and laboratory blood drawing services.
- Laboratory managers at each facility should take responsibility to ensure instruments in the laboratory are maintained properly.
- To address the maintenance needs, effective preventive and curative laboratory equipment maintenance to ART specific equipments (chemistry, hematology, CD4, etc.) should be conducted regularly.
- In order to reduce the number of instrument breakdown Service contracts (after sale maintenance contract) should be in place for all ART laboratory automated analyzers
- Regional Laboratory Maintenance Workshops should be established, staffed, trained, and certified in order to alleviate shortage of service engineer and maintenance technician
- Facilities, the RHB and MOH should design schemes to recruit, retain staffs. There should be viable mechanisms to address the motivations of providers.
- Orientation and proper feedback should be given to providers so that they would give critical information about the procedures and processes of care for better understanding of clients and improved outcome of the services.

References

1. UNAIDS. AIDS Epidemic update. UNAIDS; Geneva, Switzerland; 2009.
2. FMOH/FHAPCO. Single point HIV prevalence Estimate. Federal HIV/AIDS Prevention and Control Office Federal Ministry of Health; Addis Ababa, Ethiopia; June 2007. P. 1-45.
3. FMoH-FHAPCO Accelerated Access to HIV/AIDS Prevention, Care and Treatment in Ethiopia: Addis Ababa, Ethiopia; Road Map 2007-2008/10, Version 6, 2007.
4. FMOH-FHAPCO. AIDS in Ethiopia. Addis Ababa, Ethiopia; 6th edition; 2006.
5. FMOH/FHAPCO. Monthly HIV care and ART updates. Addis Ababa, Ethiopia February 2010.
6. Mfinanga SG , Kahwa A, Kimaro G, Kilale A, Kivuyo S, Senkoro M, et al. Dissatisfaction with laboratory service in conducting HIV related testing among public and private medical personnel in Tanzania. BMC Health Res Bull 2007; 9: 110-114.
7. Shahangian S, Snyder SR. Laboratory Medicine Quality Indicators: A Review of the Literature. Am J Clin Pathol 2009; 131:418-431.
8. Gadallah M, Zaki B, Rady M, Anwer W, Sallam I. Patient satisfaction with primary health care services in two districts in Lower and Upper Egypt. Comparative Study. East Mediterr Health J 2003;9 :422-430.
9. Pencheon D, Guest C, Meizer D, Muir Gray JA. Oxford handbook of public health practice. London: Oxford University Press, 2001.
10. Quality Assurance project. Cost and Quality in Health care: reference manual. Center for Human services, Bethesada, USA; 2001
11. Blumenthal D. Quality of care what it is? New Eng J Med 1996; 335 (12): 891-893

12. World Health Organization (WHO). Quality and Accreditation of health care services. A global review by ISQ; Geneva, Switzerland; 2003.
13. Wu A, Gifford A, Asch S. Quality of care indicators for HIV/AIDS; A discussion paper for the foundation for accountability: 1998. Available at http://www.policyarchive.org/handle/10207/bitstreams/95532.pdf(accessed November 15, 2010).
14. Anrudh KJ. Managing quality of care in population programs. Kumarian Press Inc. 1992.
15. Eldar R. Standards for hospital of less developed countries. Int J Health Care Qual Assur 1989; 2:4-6
16. The transitional government of Ethiopia. The national population Policy of Ethiopia. Office of the Prime Minster. Addis Ababa; June 1993.
17. Donabedian A: The quality of care. How can it be assessed? JAMA 1988; 260:1743-1748.
18. Afework S, Hailemariam D, Demeke B., Assessment of quality of services in private clinics in Addis Ababa, Ethiop Med J 2003;41:267-278
19. Abdosh B. The quality of hospital services in Eastern Ethiopia: Patient's perspective. Ethiop.J.Health Dev. 2006;20:199-200.
20. Bekele A, Taye G, Mekonnen Y, Girma W, Degefu A, Mekonnen A, Dejene A. Levels of outpatient satisfaction at selected health facilities in six regions of Ethiopia. Ethiop J Health Dev 2008;22:42-48.
21. Pascoe GC: Patient satisfaction in primary health care: a literature review and analysis. Eval Prog Plan 1983; 6:185-210.

22. Guldvog B: Can patient satisfaction improve health among patients with angina pectoris? Int J Qual of Health Care 1999; 11: 233-240.
23. Marquis MS, Davies AR and Ware Jr JE.: Patient satisfaction and change in medical care provider: a longitudinal study. Medical Care 1983;21:821-829.
24. World Health Organization (WHO). Client satisfaction evaluations: work book 6; Geneva, Switzerland; 2000.
25. Mfinanga SG, Kahwa A, Kimaro G, Kilale A, Kivuyo S, Senkoro M, et al. Patient's dissatisfaction with the public and private laboratory services in conducting HIV related testing in Tanzania. BMC Health Services Research 2008; 8: 121-125.
26. Aldana JM, Piechulek H, Al-Sabir A Client satisfaction and quality of health care in rural Bangladish, WHO bulletin 2001;79:512-17.
27. Mapunjo S, Urassa DP. Quality standards in provision of facility based HIV care and treatment: A case study from Dares Salaam region. Tanzania. East African J of Public Health 2007; 4: 12-18.
28. Adane G. Assessment of client satisfaction in out patient department of zonal hospital of Tigray, Ethiopia. [MPH thesis]. Addis Ababa University; 2006.
29. Olijera L, Gebresilasses S. Satisfaction with outpatient health services at Jimma hospital, South West Ethiopia. Ethiop. J. Health Dev 2001; 15: 179 – 184.
30. Dagnew M, Zakus D. Community perception on OPD performance of a teaching hospital in Gondar town, Ethiopia, Ethiop Med J 1997**;** 35**:**153-160**.**
31. Mitike G, Mekonnen A, Osman M, Satisfaction on out patient services in hospitals of the Amhara region. Ethiop Med J 2002; 40:387 – 395.

32. Dejene D. Assessment of Quality of Antiretroviral Treatment services in public hospitals of Addis Ababa [MPH thesis]. Addis Ababa University; 2008.
33. Getenet H, Hailemlak A, Tegegn A. Clients' satisfaction with Antiretroviral Therapy services at Jimma University Specialized Hospital. Ethiop J Health Sci 2008; 18: 17-24.
34. Abraha A. Assesment of quality of antiretroviral therapy in governmental hospitals of Addis Ababa: with special focus on client satisfaction, perceived quality of life and adherence. [MPH thesis]. Addis Ababa University; 2007.
35. Krunamoorthi K., Rajalakshmi M., Makesh Babus A., Yohannes A. HIV/AIDS patient's satisfactory and their expectations with pharmacy service at specialist antiretroviral therapy (ART) units. Eur Rev Med Pharmacol Sci 2009; 13: 331-339.
36. Central Statistical Agency of Ethiopia (CSA). Summary and statistical report of the 2007 population and housing census. Addis Ababa; December 2008.
37. Abraham D. Assessment of quality of VCT services in Addis Ababa, Ethiopia [MPH thesis]. Addis Ababa University; 2006
38. Newman D, Gloyd S, Nyangez MJ, Machoro F. Satisfaction with outpatient health care services in Manica province, Mozambique. Health Policy and Planning. 1998, 13: 174 – 180
39. Hagos B. Health service delivery and customers' satisfaction at Mekelle referral hospital, July 2004, unpublished.
40. Batchelor C., David J., Read M. and Bloor M. Patient satisfaction studies, Methodologies, Management and Consumer evaluation. Int J Health Care Qual Assur 1994: 7:22-30.

41. Cheng PL., Tang N. A study of patients' expectations and satisfaction in Singapore hospitals, Int J Health Care Qual Assur 2000; 13: 290-299.
42. Godwin PG, Cuthbert AC, Choyce A. Reducing bruising after venepuncture. Qual Health Care 1992; 1:239-240.
43. MOH/FHAPCO. Guidelines for implementation of the antiretroviral therapy program in Ethiopia. Addis Ababa, Ethiopia: July 2007.
44. Bossenemeyer D, Edgar Nocochea E. Standards Based Management and recognition of health service delivery:A practical approach for improving the performance of health care delivery, a field guide. Baltimore, Maryland: Browns' Warf: 2005.
45. Tegbaru B, Meless H, Tamene W, Gezahegn N, Ahmedin Z, Birhanu H, et al. The status of HIV screening laboratories in Ethiopia: achievements, problems encountered and possible solutions. Ethiop. J. Health Dev 2002; 16: 209 – 215.
46. Ethiopian Health and Nutrition Research Institute (EHNRI). National laboratory equipment maintenance management guideline (draft). Addis Ababa, Ethiopia: September, 2010 (Unpublished).

Annexes:

Annex I: Sampling frame

All the nine public hospitals of Addis Ababa ART clients load will be considered (number of PLWHA in each hospital as of February, 2010)

ALERT Hosp. 4945	Blacklion Hosp. 2619	Gandi Hosp. 238	Minilik II Hosp. 1758	Ras Desta Hosp. 1008	St Paul Hosp. 3170	St. Peter Hosp. 1769	Yekatit 12 Hosp. 2146	Zewditu Hosp. 5685

Proportional sampling of clients for exit interview to the hospitals done

ALERT=90						Zewditu=103
Black lion=47	Ghandi=4	Minilik II=32	Ras Desta=18	St Paul=57	St Peter=32	Yekatit 12=39

Using Systematic random sampling method, a total of 422 clients planned to be interviewed

Annex II: English Version Questionnaire

INFORMATION SHEET

ADDIS ABABA UNIVERSITY

SCHOOL OF MEDICAL LABORATORY SCIENCES

Questionnaire for data collection on the assessment of the level of clients' satisfaction with ART monitoring laboratory services in the city of Addis Ababa

Identification: Type of facility_____ Name of facility_____

Institution code_____

Address: Kifle Ketema_____ Kebele_____ Telephone_____

Hello, how are you? My name is…… I am currently a student of Addis Ababa University, School of Medical laboratory Sciences going to conduct a survey. I would like to interview you few questions about antiretroviral monitoring laboratory service provision in this hospital. The objectives of the study are to assess the level of client satisfaction with ART monitoring laboratory services in the hospital and identify factors that affect satisfaction of clients in Addis Ababa hospitals, which will be important to improve health laboratory service delivery of the hospitals. Your cooperation and willingness for interview will be very helpful in identifying the problems related to the issue. Your name will not be written in the form and I assure you all the information you give will be kept strictly confidential. Your participation is voluntary and you are not obliged to answer any questions that you do not want to answer. If you are not comfortable with the interview, please feel free to stop any time you like. Do I have your permission to continue?

If yes, continue to the next page for the interview

If no, continue to the next patient

For any information you can contact:

Mr. Bineyam Taye E-mail: bineymt@yahoo.com Tel: +251 911604241

Institutional Review Board (IRB): E-mail: aaumfirb@yahoo.com Tel: 011-553-87-34 Fax +251-1-1-513099

CONSENT FORM

I have read the information sheet above and clearly understood the purpose and anticipated benefit of the research. I hereby need to assure with my signature below that I, without any coercion or forceful act by the research team, have decided to voluntarily participate in the study to contribute my part in the effort being made for the betterment of ART monitoring laboratory service.

Unique ART ID No. _____

Signature _____

Date_____

Interviewer's name_____
Signature_____

Date of interview_____Time started_____ Time finished_____

Supervisor's Name_____ Signature_____

I thank you for your cooperation

Sociodemographic characteristics of the clients

No	Questions	Response classification	Code
101	Sex of the respondents	Male = 1 Female = 2	
102	Age in years	Age in completed years___ Do not Know = 99 No response = 909	
103	What is your marital status?	Single = 1 Marries = 2 Divorced = 3 Widowed = 4 Other specify = 5 No response = 909	
104	What is your ethnicity?	Oromo = 1 Amhara =2 Tigray = 3 Gurage =4 Other specify……	
105	To which religion are you belonging?	Orthodox = 1 Muslim = 2 Protestant =3 Other specify……	

106	Where is your place of residence?	Addis Ababa = 1 Outside Addis Ababa = 2	
107	What is your last level of education?	Illiterate = 1 Read and write = 2 Grade 1-6 = 3 Grade 7-12 College = 5 No response = 909	
108	What is your current occupation ?	Student = 1 Government employee = 2 Private enterprise employee = 3 Daily laborer = 5 Merchant = 6 Housewife = 7 No job =8 Other specify…….	
109	How much income you earn monthly?	…… Ethiopian Birr Do not Know = 99 No response = 909	

1. ART monitoring laboratory services and client satisfaction

No	Questions	Response classification	Codes
201	How long do you wait to get the blood drawing service ?	< 30 minutes = 1 ½-1 hour = 2 1-2 hours = 3 >2 hours = 4	
202	How satisfied are you with measures taken to assure privacy during blood drawing?	Very satisfied = 1 Satisfied = 2 Neutral = 3 Dissatisfied = 4 Very dissatisfied =5	
203	How much are you satisfied with the cleanliness of the blood drawing area?	Very satisfied = 1 Satisfied = 2 Neutral = 3 Dissatisfied = 4 Very dissatisfied =5	
204	How satisfied are you with the courtesy/respect of the personnel drawing blood?	Very satisfied = 1 Satisfied = 2 Neutral = 3 Dissatisfied = 4 Very dissatisfied =5	

205	How satisfied are you with person drawing blood to put you at ease?	Very satisfied = 1 Satisfied = 2 Neutral = 3 Dissatisfied = 4 Very dissatisfied =5	
206	How satisfied are you with the comfort of chairs?	Very satisfied = 1 Satisfied = 2 Neutral = 3 Dissatisfied = 4 Very dissatisfied =5	
207	How satisfied are you with completeness of information when and how you receive laboratory result?	Very satisfied = 1 Satisfied = 2 Neutral = 3 Dissatisfied = 4 Very dissatisfied =5	
208	Is there a place in blood drawing room to put client personal things (jacket, bag etc)?	Yes = 1 No=2	
209	Do you get information on how to lessen the size of a possible bruise due to blood drawing?	Yes = 1 No=2	

210	How satisfied are you with the ability of the person drawing blood to answer questions?	Very satisfied = 1 Satisfied = 2 Neutral = 3 Dissatisfied = 4 Very dissatisfied =5	
211	How much needlestick attempted to draw blood?	One venipuncture = 1 Two venipuncture =2 Three or more venipuncture = 3	
212	Does any lab requests ordered for you available in this hospital?	Yes all = 1 Yes some only = 2	
213	How long do you wait to get lab result?	<1 hour = 1 1-2 hours = 2 >2 hours = 3	
214	How satisfied are you with the access to toilet?	Very satisfied = 1 Satisfied = 2 Neutral = 3 Dissatisfied = 4 Very dissatisfied =5	

215	How satisfied are you with cleanness of the toilet ?	Very satisfied = 1 Satisfied = 2 Neutral = 3 Dissatisfied = 4 Very dissatisfied =5	
216	How do you evaluate the over all cleanness, comfort of waiting areas ?	Very satisfied = 1 Satisfied = 2 Neutral = 3 Dissatisfied = 4 Very dissatisfied =5	
217	How satisfied are you with measures taken to assure the confidentiality about your health problem ?	Very satisfied = 1 Satisfied = 2 Neutral = 3 Dissatisfied = 4 Very dissatisfied =5	
218	How do you rate the overall satisfaction of the medical laboratory service given in this facility ?	Very satisfied = 1 Satisfied = 2 Neutral = 3 Dissatisfied = 4 Very dissatisfied =5	

Annex III: Observation checklist

No	Question	Yes	No	Remarks
301	Are the receptions and waiting areas for ART facility clean ?			
302	Is there is an adequate number of chairs for the number of patients present at waiting area?			
303	Is the blood drawing area clean ?			
304	Is there is an adequate number of chairs for the number of patients present at waiting area?			
305	Does this facility provide all ART monitoring laboratory services (CD_4, Chemistry, hematology) ?			
306	Does the facility have the minimum staff to provide the ART monitoring laboratory service? (At least 2 lab. Personnel) ?			
307	Does this facility have SOPs for ART monitoring laboratory tests ?			
308	Are written standard operating procedures for ART laboratory equipment available and accessible?			
309	Does the facility have the minimum staff to provide ART monitoring laboratory services ?			
310	Does this facility have clear sign for lab units, area of lab services ?			
311	Are the facility staffs easily identifiable to patients ?			
312	Does the laboratory have the necessary equipments and supplies to perform the minimum recommended laboratory test for ART monitoring ?			

313	Are there written quality assurance policies and procedures available in this laboratory ?			
314	Does the laboratory participate in EQA program ?			
315	Does the Laboratory area is maintained in good condition (e.g., clean, all trash removed, shelves are sturdy, etc). ?			
316	Does the Laboratory have sufficient space to adequately store existing supplies?			
317	Does the Laboratory has a consistent power supply and/or a generator with a guaranteed supply of petrol ?			
318	Does the Laboratory has separate sinks for washing laboratory ware and staining, and for washing hands after being exposed to infected materials ?			
319	Does the Laboratory has drainage from laboratory sinks that are closed and that lead to either a septic tank or deep pit?			
320	Does the Laboratory has a functioning incinerator or other nationally acceptable waste management (e.g., a protected pit) to correctly dispose of all hazardous waste (e.g., needles, toxic materials) ?			
321	Does the Laboratory has a working fire extinguisher ?			
322	Is the Laboratory well ventilated ?			
323	Are written guidelines on safety precautions available in this laboratory ?			
324	Are there written guidelines for disposal or destruction of damaged and /or expired			

	products ?			
325	Are patient samples stored separately from reagents and blood products in the laboratory refrigerators and freezers?			
323	Is the work area clean, free of leakage & spills and are disinfection procedures conducted and documented?			
324	Is standard safety equipment available and in use in the laboratory? (Hand-washing station, Eyewash station/bottle(s), Spill kit(s), First aid kit(s) ?			

Annex IV: Guideline for in depth interview

Guideline for in depth interview of ART monitoring Laboratory service providers

401. Standards and guidelines

How the laboratory personnel in this facility work? Are there SOPs and/or guidelines for ordering, receiving and storage of lab supplies; testing procedures; specimen management(collection, labeling, handling, disposal etc..); safety and waste management; record management (test orders, result reporting, filling etc?); equipment use ,repair, maintenance , calibration ?

402. ART monitoring laboratory reagents

Are reagents for ART monitoring laboratory services are always available in the facilities

403. ART monitoring laboratory equipment

Do you have equipment management program (preventive maintenance, procedure for trouble shooting)

404. Health facility comfort and cleanness

Can you explain the cleanness and comfort of: waiting area, toilet, blood drawing area and laboratory?

405. Turn around time

Do you have written turn around time for ART monitoring laboratory tests?

406. Problems related to the laboratory service

What are the major problems that you think contribute to the dissatisfaction of clients?

407. Clients satisfaction, behavior

How do you accommodate client's dissatisfaction?

408. ART monitoring laboratory service providers' challenges and motivations

What do you think should be done to improve the ART monitoring lab service quality in this hospital?

Annex V: Amharic version questionnaire

ADDIS ABABA UNIVERSITY

SCHOOL OF MEDICAL LABORATORY SCHIENCES

INFORMATION SHEET

ይህ መጠይቅ በአዲስ አበባ ከተማ በመንግስት ጤና ድርጅቶች ውስጥ በሚሰጡ የፀረ-ኤች አይ.ቪ/ኤ.ድስ ህክምና መቆጣጠሪያ የላብራቶሪ አገልግሎት ዙሪያ የታካሚዎች እርካታን ደረጃ ለማጥናት የተዘጋጀ ነው፡፡

መለያ መረጃ፤ የሆስፒታሉ አይነት _____
የሆስፒታሉ ስም _____
አድራሻ፤ ክፍለ ከተማ _____ ቀበሌ _____
የሆስፒታሉ ኮድ _____
የሆስፒታሉ ስልክ ቁጥር_____

የቃል ስምምነት፤

እንደምን ነዎት? የኔ ስም _____ ይባላል፡፡ እኔ በአዲስ አበባ ዩኒቨርስቲ ህክምና ላብራቶሪ ት/ቤት በጸረ ኤች አይ ቪ/ኤድስ ህክምና መቆጣጠሪያ የላብራቶሪ አገልግሎት ዙሪያ ለሚደረገው ጥናት መረጃ ሰብሳቢ ስሆን፤ አሁን በዚህ አጋጣሚ እርስዎ በሆስፒታሉ ስለሚሰጠው ጸረ ኤች አይ ቪ/ኤድስ ህክምና መቆጣጠሪያ የላብራቶሪ አገልግሎት ጥቂት ጥያቄዎች ለመጠየቅ እወዳለሁ፡፡ የዚህ ጥናት አላማ በዚህ ሆስፒታል በሚሰጠው የጸረ ኤች አይ ቪ/ኤድስ ህክምና መቆጣጠሪያ የላብራቶሪ አገልግሎት ተጠቃሚዎች እርካታ ደረጃ፤ የእርካታውን ደረጃ የሚወስኑ ወሳኝ ጉዳዮች ለይቶ ለማወቅ ሲጠቅም፤ ይህም ሆስፒታሉ ለተጠቃሚው የሚሰጠውን አገልግሎት የበለጠ ለማሻሻል ይጠቅማል፡፡ በዚህ ቃለ መጠይቅ የእርስዎ በፈቃደኝነት መሳተፍ እና ትብብር በዚህ ህክምና ዙሪያ ያሉትን ችግሮች ለማወቅ ከፍተኛ የሆነ ጠቀሜታ አለው፡፡ የእርሶ ስም በዚህ መጠይቅ ላይ አይጠቀስም፡፡ በተጨማሪም የሚሰጡት መረጃ ከተባለለት ጉዳይ ውጪ እንደማይውል እና ሚስጥራዊነቱ የተጠበቀ እደሚሆን አረጋግጣለሁኝ፡፡ በዚህ ጥናት ላይ መሳተፍ በእርሶ ፍቃደኝነት ላይ የተመሰረተ እና መመለስ የማይፈልጉትን ማንኛውም ጥያቄ አለመመለስ ይችላሉ፡፡ በቃለ-መጠይቁ ምኞት ካልተሰማዎት በማንኛውም ጊዜ መጠይቁን ማቋረጥ ይችላሉ፡፡

ወደ መጠይቁ መቀጠል እንድንችል ፈቃደኛ ነዎት?

አዎ ከሆነ - ወደ ሚቀጥለው ገጽ ይሂዱ፤ አይሆንም ከሆነ ...ወደ ሚቀጥለው በሽተኛ ይሂዱ

CONSENT FORM

ከላይ የተጻፈውን የመረጃ ቅፅ አንብቤ የጥናቱን አላማና ጥቅም በግልፅ ተረድቻለሁ፡፡ በዚህም መሰረት ያለ ጥናት ቡድኑ አባላት ተፅእኖ በሙሉ ፈቃደኝነት በዚሁ ጥናት በመሳተፍ ለፀረ ኤች አይ ቪ/ኤድስ ህክምና መቆጣጠሪያ የላብራቶሪ አገልግሎት መሻሻል በሚደረገው ጥረት ውስጥ የሚጠበቅብኝን አስተዋፅኦ ለማበርከት መወሰኔን በፊርማዬ አረጋግጣለሁ፡፡

የታካሚው መለያ ቁጥር _____ ፊርማ _____

ቀን_____

የመረጃ ሰብሳቢ ሥም _____ ፊርማ _____

መረጃ የተሰበሰበበት ቀን_____የተጀመረበት ሠዓት _____ ያለቀበት ሰዓት _____

የተቆጣጣሪ ሥም _____ ፊርማ _____

ቀን_____

1. Socio demographic characteristics of the clients

ተ.ቁ	ጥያቄ	ምላሽ	ኮድ
101	የመጠይቁ መላሽ ጾታ ምንድን ነው?	ወንድ= 1 ሴት= 2	
102	ዕድሜዎ ከላፈው ልደት ጀምሮ ስንት ነው?	---------- ዓመት አላውቅም=99 ምላሽ የለም=909	
103	የጋብቻዎ ሁኔታ ምን ይመስላል ?	ያላገባ/ች =1 ባለትዳር እና አሁን በትዳር ላይ=2 የተፋታ/ች=3 የትዳር ጓደኛ የሞተበት/ባት=4 ሌላ ሁኔታ =5 ምላሽ የለም =909	
104	ብሔር ?	ኦሮሞ =1 አማራ = 2 ትግራይ = 3 ጉራጌ =4 ሌላ ብሔር ይግለጹ ----------	
105	የየትኛው ሐይማኖት ተከታይ ነዎት ?	ኦርቶዶክስ=1 እስልምና=2 ኘሮቴስታንት=3 ምላሽ የለም=909 ሌላ ሐይማኖት ይግለጹ----------	

106	የመኖሪያ አድራሻዎ የት ነው ?	አዲስ አበባ = 1 ከአዲስ አበባ ውጪ =2	
107	የትምህርት ደረጃዎ ሁኔታ ምን ይመስላል ?	ያልተማረ/ች =1 ማንበብና መጻፍ እችላለሁ=2 ከ1-6 ክፍል =3 ከ7-12 ክፍል/10+2 =4 ኮሌጅ የተማረ/ች = 5 መልስ የለም = 909	
108	በአሁኑ ጊዜ የሚሠሩት ስራ ምን ዐይነት ነው?	ተማሪ =1 የመንግሥት ሰራተኛ=2 የግል ድርጅት ሰራተኛ=3 የቀን ሰራተኛ=4 ነጋዴ = 5 የቤት እመቤት = 6 ሥራ አጥ = 7 ሌላ አይነት ሥራ ይገለጽ ---------	
109	የወር ገቢዎ ምን ያህል ነው ?	---------- ብር አይታወቅም = 99 ምላሽ የለም =909	

2. ART monitoring laboratory services and client satisfaction

ተ.ቁ	ጥያቄ	ምላሽ	ኮድ
201	የደም ናሙና ለመስጠት ምን ያህል ጊዜ ቆዩ?	< 30 ደቂቃ =1 ½ - 1 ሰዓት=2 1-2 ሰዓት =3 >2 ሰዓት =4	
202	በዚህ ሆስፒታል የደም ናሙና በሚሰጡበት ወቅት ቦታና ጊዜ ለእርስዎ ብቻ ለመስጠት በተደረገው ጥረት ምን ያህል እርካታ ተሰምቶታል (ለብቻ የተዘጋጀ የደም ናሙና መስጫ ክፍል፣ መጋረጃ፣ መከለያ እስክሪን ወይም ሌላ...)	በጣም እርካታ አግኝቻለሁ =1 እርካታ አግኝቻለሁ= 2 ምን አልተሰማኝም = 3 አረካሁም፣ ተበሳጭቻለሁ = 4 በጣም አረካሁም፣ ተበሳጭቻለሁ = 5	
203	በደም ናሙና መስጫው ስፍራ ንጽህና ምን ያህል አርካታ ተሰምቶታል?	በጣም እርካታ አግኝቻለሁ =1 እርካታ አግኝቻለሁ= 2 ምን አልተሰማኝም = 3 አረካሁም፣ ተበሳጭቻለሁ = 4 በጣም አረካሁም፣ ተበሳጭቻለሁ = 5	
204	በዚህ ሆስፒታል ውስጥ የደም ናሙና ከቀዳሎዎት ባለሙያ የተደረገ የጨዋነትና ክብር አቀባበል የተሰማዎት እርካታ ምን ያህል ነው?	በጣም እርካታ አግኝቻለሁ =1 እርካታ አግኝቻለሁ= 2 ምን አልተሰማኝም = 3 አረካሁም፣ ተበሳጭቻለሁ = 4 በጣም አረካሁም፣ ተበሳጭቻለሁ = 5	

205	የደም ናሙና በሚሰጡበት ወቅት ባለሙያው እንዲረጋጉ በሚያደርገው ጥረት ምን ያህል ረክተዋል?	በጣም እርካታ አግኝቻለሁ =1 እርካታ አግኝቻለሁ= 2 ምን አልተሰማኝም = 3 አረካሁም፣ ተበሳጭቻለሁ = 4 በጣም አረካሁም፣ ተበሳጭቻለሁ = 5	
206	በደም ናሙናው መሰብሰቢያ አካባቢ ባለው ወንበር ምቾት ምን ያህል ረክተዋል?	በጣም እርካታ አግኝቻለሁ =1 እርካታ አግኝቻለሁ= 2 ምን አልተሰማኝም = 3 አረካሁም፣ ተበሳጭቻለሁ = 4 በጣም አረካሁም፣ ተበሳጭቻለሁ = 5	
207	የላብራቶሪ ውጤት መቼና እንዴት መቀበል እንደሚገባዎት በተሰጠዎት መረጃ ምን ያህል ረክተዋል?	በጣም እርካታ አግኝቻለሁ =1 እርካታ አግኝቻለሁ= 2 ምን አልተሰማኝም = 3 አረካሁም፣ ተበሳጭቻለሁ = 4 በጣም አረካሁም፣ ተበሳጭቻለሁ = 5	
208	በደም ናሙና መሰብሰቢያ ክፍል ውስጥ የግል መገልገያ ዕቃዎች ማስቀመጫ ቦታ አለ (ጃኬት፣ ቦርሳ፣ወዘተ...)	አዎ =1 የለም = 2 ===	
209	ደም በሚቀዳበት ሰዓት በእጅዎ አካባቢ ሊያጋጥም የሚችለው ብልዘት መጠኑ እንዳይጨምር መረጃ አግኝተዋል?	አዎ =1 አይደለም = 2	

210	የደም ናሙና የቀዳልዎ ባለሙያ የእርስዎን ጥያቄ ለመመለስ ባለው ችሎታ ምን ያህል ረክተዋል?	በጣም እርካታ አግኝቻለሁ =1 እርካታ አግኝቻለሁ= 2 ምን አልተሰማኝም = 3 አረካሁም፣ ተበሳጭቻለሁ = 4 በጣም አረካሁም፣ ተበሳጭቻለሁ = 5	
211	የደም ናሙና ሲወሰድልዎ በመርፌ ስንት ጊዜ ተወጉ?	አንድ ጊዜ ተወግቻለሁ=1 ሁለት ጊዜ ተወግቻለሁ= 2 ሦስት ጊዜ ተወግቻለሁ=3 አራት ጊዜና ከዚያ በላይ ተወግቻለሁ = 4	
212	የታዘዘልዎት የላብራቶሪ ምርመራ በዚህ ሆስፒታል ውስጥ ይገኛል ወይ?	አዎ ሁሉም =1 አዎ የተወሰኑት = 2 ምንም = 3	
213	የላብራቶሪ ውጤት ለማግኘት ምን ያህል ጊዜ ቆዩ?	ከ 1 ሰዓት በታች =1 ከ1 -2 ሰዓት = 2 ከ2 ሰዓት በላይ = 3	
214	የሽንት ቤት አቅርቦትና አገልግሎት በዚህ ሆስፒታል ውስጥ ምን ያህል እርካታ አስገኝቶሎታል?	በጣም እርካታ አግኝቻለሁ =1 እርካታ አግኝቻለሁ= 2 ምን አልተሰማኝም = 3 አረካሁም፣ ተበሳጭቻለሁ = 4 በጣም አረካሁም፣ ተበሳጭቻለሁ = 5	

215	በሽንት ቤቱ ንጽህና ምን ያህል እርካታ ተሰምቶዎታል?	በጣም እርካታ አግኝቻለሁ =1 እርካታ አግኝቻለሁ= 2 ምን አልተሰማኝም = 3 አረካሁም፣ ተበሳጭቻለሁ = 4 በጣም አረካሁም፣ ተበሳጭቻለሁ = 5	
216	በአጠቃላይ በሆስፒታሉ ተራ መጠበቂያ ንጽህና ምቾት ምን አይነት ስሜት አለዎት?	በጣም እርካታ አግኝቻለሁ =1 እርካታ አግኝቻለሁ= 2 ምን አልተሰማኝም = 3 አረካሁም፣ ተበሳጭቻለሁ = 4 በጣም አረካሁም፣ ተበሳጭቻለሁ = 5	
217	በዚህ ሆስፒታል ውስጥ በምርመራ ግዜ ሚስጥርዎን ለመጠበቅ በተደረገው ጥረት ምን ያህል እርካታ ይሰማዎታል?	በጣም እርካታ አግኝቻለሁ =1 እርካታ አግኝቻለሁ= 2 ምን አልተሰማኝም = 3 አረካሁም፣ ተበሳጭቻለሁ = 4 በጣም አረካሁም፣ ተበሳጭቻለሁ = 5	
218	በአጠቃላይ በዚህ ሆስፒታል ስለተደረገልዎት የህክምና ላብራቶሪ አገልግሎት የሚሰማዎት እርካታ ደረጃ ምን ያህል ነው?	በጣም እርካታ አግኝቻለሁ =1 እርካታ አግኝቻለሁ= 2 ምን አልተሰማኝም = 3 አረካሁም፣ ተበሳጭቻለሁ = 4 በጣም አረካሁም፣ ተበሳጭቻለሁ = 5	

ስለ ትብብርዎ ከፍተኛ ምስጋና በአዲስ አበባ ዮኒቨርስቲ ስም አቀርባለሁ ::

Annex VI: Declaration

I the undersigned, declare that this is my original work and has not been presented for a degree in this or any other university and all sources of materials used for this thesis have been acknowledged.

Name: Tedla Mindaye

Signature _____

Place _____

Date of submission _____

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

Name _____

Signature _____

Place _____

Date of submission _____