SCHOOL OF PUBLIC HEALTH ADDIS ABABA UNIVERSITY

Pre-post Intervention Study on Overcrowding and Waiting time at Outpatient Department in Amanuel Mental Specialized Hospital, Addis Ababa, Ethiopia

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ABBREVIATIONS

AAU	Addis Ababa University
AMSH	Amanuel Mental Specialized Hospital
BPR	Business Process Re-engineering
CEO	Chief Executive Officer
ED	Emergency Department
E.C	Ethiopian Calendar
ETB	Ethiopian Birr
EHRIG	Ethiopian Hospital Reform Implementation Guideline
FMOH	Federal Ministry of Health
HSDP-IV	Health Sector Development Program IV
KPI	Key Performance Indicators
NHI	National Heart Institute
OPD	Outpatient Department
SMT	Senior Management Team
SPH	School of Public Health
SPSS	Statistical Package for Social Science
QI	Quality Improvement
PI	Primary Investigator

OPERATIONAL DEFINITION:

- **Outpatient overcrowding**: It is defined as a situation in which proportion of patient seen during morning session exceeds the proportion of patient seen in the afternoon causing long waiting time (more than two hours) to get outpatient services, unable to provide quality of services, exposed clients and staff to physical incidents and impediment of movement over the Outpatient Department corridors for clients in outpatient area.
- **Outpatient department**: is the place where regular patients were seen in follow up services except emergency department.
- **Staff**: Hospital employees which includes health professionals and runners who are involved in providing outpatient services.
- **Care takers**: Individuals that includes patient‟s family members, relatives, or persons delegated to decide on anything related to treatment on behalf of the patient.
- **Waiting time**: The time spent by clients until completing outpatient services in the hospital.

TABLE OF CONTENTS:

1. ABSTRACT:

Overcrowding is one of the major problems that impede quality of services at Amanuel Mental Specialized Hospital, especially at outpatient department. Overcrowding at outpatient department deters easy movement of both staff and patient which hinders appropriate use of available space in the hospital. Outpatient overcrowding influences quality and efficiency of service provision.

The objective of this intervention research was to assess impediments of overcrowding to improve patient flow and ease service provision at outpatient department in Amanuel Mental Specialized Hospital by end of October 30, 2013.

An intervention study comparing the status of overcrowding before and after the appropriate procedures to ease free movement and quality service was placed in the Outpatient Department of Amanuel Mental Health Specialized Hospital.

All possible factors that cause overcrowding at outpatient department in Amanuel Mental Specialized Hospital were explored at the baseline (at pretest). These factors would be related to the characteristics of patients, care takers, providers and the physical and logistics setup in the department. Appropriate interventions were developed by the principal investigator in collaboration with the hospital leadership. Ultimately changes brought about by the proposed intervention was measured and documented.

From a total of 250 health care professionals, 41 health care providers were serving in regular outpatient department of Amanuel Mental Specialized Hospital. All health care providers who are working at OPD are selected by purposive sampling method. A total of 8,791 clients visit Amanuel mental specialized hospital per month. Three hundred eight four clients were selected by simple random sampling technique for survey.

Pre-intervention- Intervention–Post-Intervention study was conducted. In each phase, analysis was performed using SPSS software version 20 and Excel spreadsheet. Two sample proportion test (pre and post) statistical tests was used to test factors contributing to overcrowding for clients, staff and two mean comparison test (T-test) was used for waiting time study.

This project work was done from December 2012 to August 2013. The total cost required to conduct and implement the project was 12,240 Ethiopian Birr. After the implementation of appropriate interventions, overcrowding in most outpatient department units was significantly reduced, quality of services was enhanced, and there was low waiting time to get outpatient services.

After implementing selected strategies (Appropriate appointment system and recruiting adequate staff) the proportion of outpatient load among treatment session was significantly reduced from 76.82% at morning session to 57.49% and increased

from 23.18% at afternoon to 42.51% with p=0.0001 which is significant proportion difference between the two tests. And similarly the overall time taken to complete all the services were 112 minutes (SD±58) in pre- and post intervention the result was 54.53 minutes (SD±9.86) with p=0.0001 which is significant mean difference between the two test means.

2. ORGANIZATIONAL DESCRIPTIONS:

Amanuel Mental Specialized hospital, in Ethiopia, is one of the oldest and the only mental health hospital established in 1930 E.C.by Italians. It is located in Western part of Addis Ababa in Addis Ketema Sub-city Kebele 08. There are 250 health professionals and 344 supportive staffs currently working in the hospital (1).

The hospital has 259 beds for inpatient and outpatient services. An average of 400 out-patients clients gets the medical and counseling service every day. The bed occupancy rate is 91.2% while the average length of stay was 33.4 days and average waiting time to get the service is 79.2 minutes (2, 3).

The hospital envisaged to increasing efficiency and effectiveness of its services to be the center of excellence for mental health care. It is also aiming at providing maternal and child health/MCH/ services. Different levels of trainings and skills on mental health are given for health professionals. To expand and scale up mental health services, training in Masters and B.Sc programs in Psychiatry was started in collaboration with Gondar, Jimma, Haromaya and Mekele Universities since 2001. The hospital has been providing technical support for different programs (1). Moreover, the hospital is engaged in conducting research and training on research methods and provides other community services in the area of mental health.

The common mental and neurological disorders seen in the hospital included Schizophrenia, Epilepsy, Depression, Acute Psychotic Disorder and Mania among others. The key programs of the hospital is providing quality mental health (treatment) service, research and training, integrate mental health service and support mental health activities through supportive supervision at facility level in different regions in the country. Since 2001 the hospital managed to integrate the clinical service through renovation and expansion of facilities, decentralization of mental health care while excelling the service (1).

The mission of the hospital is to reduce morbidity, mortality and mental disability through provision of quality, curative and rehabilitative health service as well as capacity building through training and research(1). The vision of the hospital is to be one of the best centers for comprehensive health care, mental health research and training institute in Eastern Africa by 2015. The core values are; giving priority to community collaboration, commitment, change, trust, professional efficiency (1)

3. BACKGROUND

3.1. Introduction to Health Facility

Overcrowding in outpatient department could be the major problems in public hospitals. This problem was more common in specialized hospitals like Amanuel Mental Specialized Hospital. The problem may causes wastage of client‟s time, diseases transmission, accidents on patients, discomfort to patients and staff, affects quality of services etc. Therefore, in order to improve the situation, and enhance hospital operations, it was important to conduct thorough investigation of problems and implementing appropriate strategies.

Quality improvement (QI) has been shown to be effective in improving hospital care in high-income countries, but evidence of its use in low-and middle-income countries has been limited to date. The impact of a QI intervention to reduce patient waiting time and overcrowding for cardiac catheterization-the subset of procedures associated with the most severe bottlenecks in patient flow at the National Heart Institute in Cairo-was investigated (8). Simple observation and repeated complaints from clients and staffs dictates the assessment of overcrowding and devising appropriate interventions to alleviate such problem in the outpatient department of Amanuel Mental Specialized Hospital.

3.2. Statement of the problem

Overcrowding in outpatient department is a problem to patients, care takers and staffs. Customer officers in Amanuel hospital filed complaints from some of the care takers. This problem was also raised by the staff. It was one of the agendas (issues) presented for discussion in the senior management team meeting.

Overcrowding at outpatient department deters easy movement of both staff and patients, creates lack of enough space to move freely and discomfort to both staffs and patients in Amanuel Mental Specialized Hospital. Outpatient overcrowding leads to inefficiency of both employees and professionals.

Overcrowding in the outpatient department was the major problem in Amanuel Mental Specialized Hospital. This problem resulted in wastage of client‟s time, diseases transmission, accidents by patients, discomfort to patients and staffs, affects quality of services etc. Movement from one office to another by staffs and clients have been hampered which cause discomfort to them. Moreover, overcrowding in outpatient

department could expose patients and families passing through the corridors to communicable diseases. It affects patients, clients and staffs safety resulting in physical harm by patients. As a result patients, clients and staffs satisfaction on outpatient department service could be reduced; ultimately, it impedes delivery of quality health services.

4. OBJECTIVES:

4.1. General Objective

The objective of the pre-post study is to assess the status of overcrowding and improve patient flow and ease of service provision at the outpatient department in Amanuel Mental Specialized Hospital by end of October 30, 2013.

4.2. Specific Objectives

- To assess the extent of overcrowding at the outpatient department of Amanuel Mental Specialized Hospital
- To reduce the proportion of outpatient clients getting curative service in the morning session from 76.82% to 55%.
- To improve patient load by distributing among five working days in a balanced manner.
- To reduce average total waiting time from 112 minutes to 60 minutes by the end of October 2013.
- To identify problems contributing to overcrowding at outpatient units and solve them.

5. ROOT CAUSE ANALYSIS:

It is worthwhile to explore all causes of problems of high public health significance before starting to think about a solution. The true causes of the problem will be explored by using appropriate techniques. Objectives shall be set to help reach the final goal. A root cause analysis will help identify the factors that cause the problem. Like peeling away the layers of an onion, finding the root causes require careful analysis of multiple layers. Several management tools can help researchers find the root causes of the problem, including; Fishbone Diagram, Flow Charting, Histogram etc. (4). The appropriate tool for the problem under caption is Fishbone diagram which will be briefly described below.

5.1. Fishbone Diagram:

A fishbone diagram helps to identify multiple causes of a single problem. The diagram takes its name from its shape, which resembles the skeleton of a fish. As shown in the diagram below (Figure 1), the problem statement is placed at the „head" of the fish. Causes of this problem are grouped into four categories.

People -What are staff behaviors or characteristics contributing to overcrowding in the Outpatient Department of Amanuel hospital?

Process/policy - What procedures or policies contribute to overcrowding in the hospital?

Equipments/supplies– Is there any equipment including supplies, which contribute to overcrowding?

Environment- Does the immediate environment (building or compound) or the broader environment (the community, nation) contribute to overcrowding? Fishbone diagram is useful for a number of reasons: allows for open discussion, ideas are generated quickly, group understanding develops, alternative approaches emerges (4). Therefore, in order to use the above advantages, the root causes for overcrowding in outpatient department is investigated using fishbone diagram. The fishbone diagram uses four different perspectives the details of which will be accounted subsequently.

5.2.Four Perspectives

- **People**

The Business Process Re-engineering (BPR) of the hospital was designed in such a way that each case team is staffed by at least one runner (outpatient assistant). However, vacant positions for four runners were not filled with the required staffs at the organization under caption. As the result, available runners are overburdened with more tasks on each day which made managing and facilitating outpatient/clients difficult. Similarly, ten professional staffs left the hospital in the last six months of the year. These resulted in increased workload to currently working staff at outpatient department (OPD).

There was also communication and coordination gap among case team coordinators and runners. There was no limit in the number of patients to be seen in the OPD at one point in time. As a result a lot of patients and families, care takers have to come to OPD area at one point in time. The other problem was because of different reasons; patients are coming to hospital out of appointment date. About 5-8 patients come out of appointment date per day in each case team which will add unnecessary patient load to each case team in a single day.

- **Environment**

Many outpatient customers come to OPD mostly during the mornings, but the space and hospital setup was not capable to accommodate them. The OPD corridor is narrow (about 1 meter) to put chairs in both directions (right and left) to move freely through the corridor. For this reason, many patients and their families have no sits. Furthermore, Amanuel Mental Specialized Hospital is referral hospitals with several referral cases getting specialty services every day. Due to this more patients and clients prefer to get treatment in this hospital. This resulted in high work load compared to the current hospital capacity. There was also high staff turnover, due to various reasons many supportive and professional staffs have been leaving the hospital for a better pay.

- **Supply**

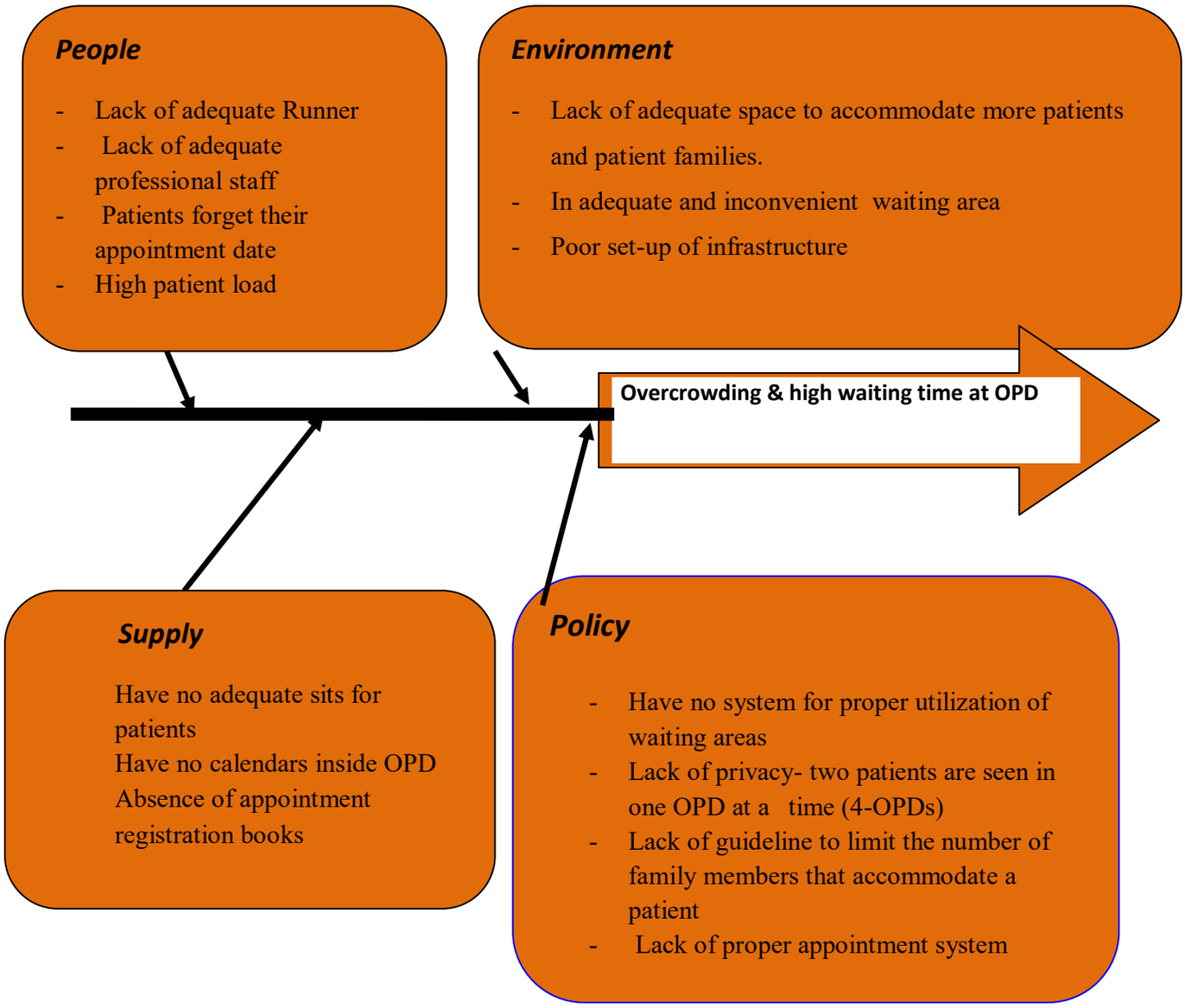
The hospital has no adequate sits in the waiting areas. This problem was common especially in the medical registration waiting area (temporary waiting area until they get their registration identity cards). The two waiting areas were old and are not convenient which expose clients to rain and sun. Most chairs were broken for which maintenance and painting is required.

Besides, calendars were not provided to providers in OPD clinics to fairly distribute the schedules of re-visits of clients. They have also problems of fixing the next appointment date for follow up which leads to making mistakes. There was no appointment registration book in all case teams.

- **Policy**

Two patients were seen in one OPD clinic room at the same time which compromises the privacy of patients. Moreover, movement within rooms is difficult since patients were usually accompanied with family members. There was no guiding rule and regulation that limits the number of patients and families presented to OPD clinic room at a time. Due to this, every client and families were waiting for services in the outpatient department rooms. This has led to overcrowding and service dissatisfaction. Some clients who have come for outpatient services forgot their appointment dates. Change of appointment dates for that particular day was made by case team runners. But most of the time, runners were not aware about the severity of cases to give priority and patient load that was seen at that specific day. This problem has led to more patient traffics at OPD unit. The other problem was lack of proper appointment system. The appointment was not given on the base of treatment session (morning and afternoon); patients were not registered in the appointment registration book. Moreover, the appointment schedule was not given through distribution of patient loads by regular working days.

Figure1. **Fishbone Diagram:**



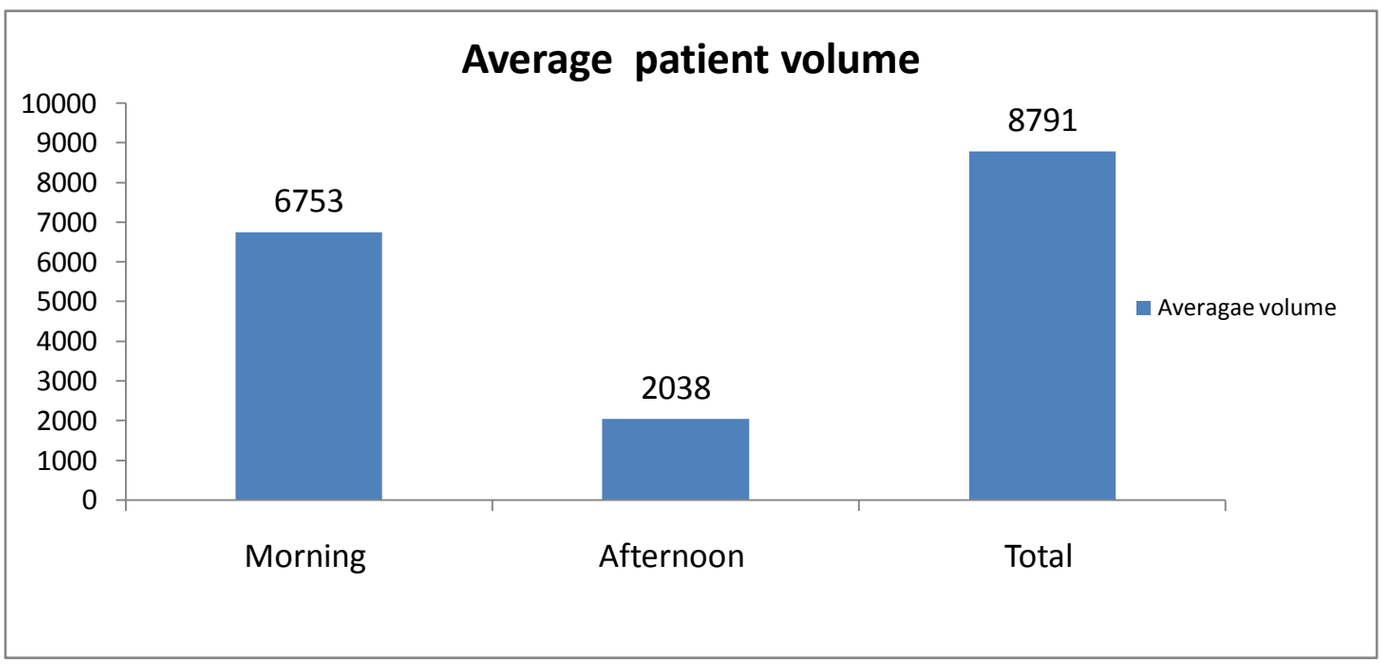
In addition to this, the root causes of the problem was determined through conducting detailed discussions with senior management team members, case team leaders and coordinators on problems and factors contributing to the problem of overcrowding. All senior management team (SMT) members actively participated in identifying the potential causes for the problem. Furthermore, relevant information was collected and pertinent data from hospital quality assurance officers were obtained. Hospital waiting time baseline data were collected. Thorough observations of the outpatient department units were performed for about a month.

The overcrowding level at the outpatient department was determined through continuous observation, data like average patient volume by treatment sessions (morning and afternoon)

and average waiting time survey was conducted. This observation was done in collaboration with customer service officers and supportive supervisions teams which are selected from SMT. Waiting time survey has been performed quarterly in the hospital.

Moreover, the main root causes for overcrowding were high patient load (more than 400 patients seen per day) compared to hospital capacity, lack of proper appointment system (appointments were not registered; appointments were not given on the bases of treatment session, patient load distribution were not made among working days in balanced manner). The figure-2 below demonstrates that majority of outpatients were not seen in a proportional manner by treatment sessions (morning and afternoon time) and among days. These mean 6,753 (76.82%) of patients were seen in the morning sessions while only 2,038 (23.18%) of them were diagnosed in the afternoons from February to April 2013. This in fact leads to improper use of resources like human, material, space, time and unnecessary job burden to health professionals during morning session. When the numbers of patients are escalating it would have been impossible to manage outpatients in the future. Therefore, some functional system should be designed to reduce the disproportional allocation of patients within treatment session and among days of week.

Fig.2.Proportion of outpatients treated in the morning and afternoon sessions from February-April 2013.



6. LITERATURE REVIEW:

The study conducted in Britain showed that overcrowding in emergency departments is a worldwide problem (5). Literature review was undertaken to scientifically explore which interventions improve patient flow in emergency departments. Overcrowding in emergency departments (EDs) is an increasing global problem. In the United States, an Institute of Medicine committee has characterized ED overcrowding as a national crisis (5). Emergency department overcrowding also compromises patient safety and timeliness (time to appropriate treatment) threatens patient privacy and confidentiality, and often leads to frustration among ED staff (5).

Previous research in Australia has also shown that hospital overcrowding is actually inefficient. It is associated with increased length of stay. The number of adverse events has also been shown to increase worsening access-block. It is incumbent to government and administrators to prevent overcrowding by improving management of healthcare system and where necessary, providing increasing resources. Changes to workforce, working hours, aged care and funding as well as fewer hospital beds and increasing demand for seemingly limitless new treatment and procedures have all contributed to access-bock (6).

The research conducted in St. Jude Children's Research Hospital in Memphis showed that many existing hospital buildings are inadequate to meet needs caused by a tremendous shift from inpatient to outpatient care (7). Expensive diagnostic and treatment facilities must still be shared by inpatients and outpatients, which in many cases makes renovations to existing facilities on site more appealing than new free-standing facilities; however, care must be taken in the planning and design to make sure that existing hospital operations can be maintained throughout this work. St. Jude Children's Research Hospital in Memphis, an internationally acclaimed institution devoted to the research and treatment of catastrophic illnesses in children has experienced a large growth in its outpatients' care due mainly to changes in treatment modalities and the development of more effective cures. The result has been an extreme overcrowding and unpleasant experiences for patient and family due to awkward patient flow and work processes attempting to respond to the inadequate facility conditions. This paper will not only review the planning issues, but will discuss the renovation which will require several phases in order to minimize disruption to the ongoing activities (7).

A study conducted in Chia-Yi local hospital in Taiwan showed that overwork and overcrowding in some periods was an important issue for the out-patient department (9). The hospital administrators wanted to manage the patient flow effectively. A study which focused on the utilization of doctors and staff in the out-patient department, the time spent in the hospital by an out-patient, and the length of stay in the out-patient explained how a computer simulation model was developed to study changes in the appointment system, staffing policies and service units would affect the observed bottleneck. The results showed that the waiting time was greatly reduced and the workload of the doctor was also reduced to a reasonable rate in the overwork and overcrowding periods (9).

A pre-post intervention study was conducted in the National Heart Institute (NHI) located in the Imbaba neighborhood of Cairo, Egypt to examine the impact of a new scheduling system on patient waiting time and over crowdedness for cardiac catheterization(8). This design was similar to approaches used in other settings to improve catheterization laboratory patient flow. A defined number of patients were scheduled according to each time slot, accounting for; the number of available beds in the patient care unit, the number of available catheterization laboratory procedure rooms, the average duration of each procedure type, the expected length of stay after each procedure type, and the availability of hospital staff. Patient scheduling includes; patient scheduling system, scheduling template and time stamp (8). The following four measures of patient waiting times were computed on the basis of the time stamps collected at the various stations: registration-to-admission time (difference between time stamps recorded when the patients first arrived at the hospital registration department and when the patients were admitted to the inpatient care ward unit) ; admission-to-pre-procedure time (from the time patients were admitted to the inpatient care ward unit to the time patients were brought to the waiting room outside the catheterization laboratory); pre procedure-to-procedure time (from the time patients arrived at the waiting room to the time the procedure began); total waiting time (from registration to the time at which the procedure began). The intervention was associated with significant reduction in waiting time and patient crowdedness. With little financial investment strategies, the patient scheduling and appointment systems, significantly, reduced waiting time and crowdedness in resource-limited settings (8).

Another study done in National Taiwan University Hospital revealed that high waiting time in emergency department is the cause for overcrowding. The objective of this study was to quantity the extent of emergency department (ED) overcrowding in Taiwan and to identify

possible solutions. The ED log was reviewed for all patients who presented to the National Taiwan University Hospital's ED from January 16, 1996 through February 15, 1996. Charts from patients held longer than 72 hours were reviewed. Among 5,810 patients, 213 (3.6%) were held in the ED for more than 72 hours (7.1 patients per day). In 149 (70.0%) of them, admission was indicated but delayed (42 because more than one subspecialty were involved, 57 because of unavailability of bed, and 50 because of the disparity in admission priority between the emergency physicians and house staffs). Eighteen (8.4%) patients did not meet admission criteria (13 could have been treated in outpatient clinics, 3 needed placements in nursing homes, 2 because of personal problems). The others (22%) recovered while waiting. Significant overcrowding exists in EDs in Taiwan. Four solutions are proposed: These were creation of a holding unit; flexible ward assignment; pre-established rules for admission priority-setting; and active interfacility transfer. Only through these efforts can EDs in Taiwan guarantee an optimal level of care in the face of a growing patient demand (10).

The research conducted in Canada by the Canadian Association of Emergency Physician (CAEP) and the National Emergency Nurses Affiliation (NENA) stated that Emergency department (ED) overcrowding is a national problem and has become a chronic state in many departments. Overcrowding can be defined as "a situation in which demand for service exceeds the ability to provide care within a reasonable time, causing physicians and nurses to be unable to provide quality care."While the winter epidemic of respiratory illness results in increased public attention, ED overcrowding reflects complex, systemic problems within the health care system, not just a temporary volume spike during a pandemic influenza season. (11). Some of the factors responsible for the problems of overcrowding include lack of bed for admitted patients; lack of access to primary care, specialist physician and nurse practitioners; shortage of nursing and physician staff; increase complexity and acuity of patients presenting to ED; large volumes of patients with non urgent problems who could be assessed and treated in another setting and lack of alternative advanced diagnostic testing and facilities. A study also shows a number of effects have resulted from ED overcrowding. These are inadequate patient care; prolonged delays in treatment of pains and suffering; long waiting times and patient dissatisfaction; ambulance diversion; decrease nursing /physician satisfaction and negative effect on teaching and research (11).

A study in Scarborough (Ontario) General Hospital also shows that overcrowding in emergency departments presents serious problems to both patients and hospital staff. The problem was becoming potentially dangerous until a hospital committee instituted a series of changes that dramatically improved the situation. A geriatrician was appointed to assess and

care for the increasing number of elderly and chronic care patients. The beds in various services were reallocated, and more beds were given to the medical service. Surgeons agreed to perform more surgery on an outpatient basis, and the short-stay and ambulatory procedures units were expanded to handle more procedures. In addition, the implementation of a Physician-Managed Admission System (PMAS) ensured the appropriate admission of patients. The entire system is monitored, and the committee meets regularly to deal with any problems. At our hospital we faced this problem for several years. However, the recently implemented series of changes seem to have eliminated the overcrowding (12).

Overcrowding is a well-documented and well-publicized daily occurrence in many hospital emergency departments. When acute care beds become filled patients often stay in the emergency department until beds become available. The resulting overcrowding puts excessive strain on the nursing and medical staff as well as on the physical facilities (12).

Another study conducted in Canada revealed that a report commissioned by the Canadian Agency for Drugs and Technologies in Health (CADTH) in 2006 on Emergency overcrowding outlined key measures of ED overcrowding (Rowe et al 2006a).These were: input, throughput and outputs. In a survey of Canadian ED directors, 62% reported overcrowding as a major problem over the previous year and this was more prevalent in cities of >150,000 people, large-volume centers and University or University affiliated hospitals.(13). According to the study, the cause of ED overcrowding as lack of admitting beds; lack of acute care beds; ED length of stay for admission; increased complexity of acuity and occupancy rate of ED stretchers. One of the major findings of CADTH report was that infrequent collection of comprehensive data regarding ED encounters at provincial and national level. The identified solution for the problem were introduction of ED Information System (EDIS) database that time stamp and capture a number of key work process in real time (13). Even though, the setting was different from this study, the problem of Amanuel Mental Specialized Hospital was overcrowding at OPD and long waiting time to get outpatient services. This situation would be improved through implementing feasible strategies as an intervention in the OPD.

7. PROJECT DESIGN/METHODOLOGY:

7.1. Project Setting:

Amanuel Mental Hospital is the only mental specialized hospital in Ethiopia. It has been serving more than 80 million people since its foundation in 1930 by Italians. It is located in Western part of Addis Ababa in Addis Ketema Sub-city Kebele 08 near St. Emanuel Church. It is currently staffed by about 250 health professionals and 344 supportive staffs. An average of 400 patients has been treated per day in the outpatient department of the hospital. There are 13 outpatient units and on average, 31 patients are seen in each OPD unit per day. And also currently it has a total of 11 different wards having 259 beds for inpatient clients.

7.2. Sample Population:

Clients, care takers and staffs involved in mental health care provision in the outpatient department of Amanuel Mental Health Specialized Hospital during pre and post intervention period are considered to be the study population for this project.

7.3. Sampling Procedure:

A total of .250 healthcare professional staffs were serving in the regular outpatient department of Amanuel Mental Specialized Hospital and 8,791 clients visited Amanuel Mental Specialized Hospital per month. A total of 41 staff who has been working in OPD was selected by purposive sampling method and 384 clients were selected by simple random sampling method. In case when clients are not willing to participate as study participants because of their disease condition, care takers were asked to participate in the study. The researcher could not get any data and/or published articles done in Ethiopia regarding outpatient overcrowding. Studies done elsewhere might not be done in a similar context, either. However, they showed a variety of factors contributed to the problem of overcrowding at OPD, some of which were difficult to measure in our context. Thus, the assumption was that the level of overcrowding was 50%. By using the formula to calculate sample size for single population proportion and making the following specific assumptions 95% confidence interval and 5% margin of error (d), the sample size was calculated as follows:

$$n = \frac{(Z\alpha/2)^2\, p(1-p)}{d^2}$$ where

n= the required sample size

p= proportion of overcrowded area at OPD in hospital (to have the maximum sample 0.5 is used)

d = margin of error =5%

$$n = \frac{(Z\alpha/2)^2\, p(1-p)}{d^2}$$

n = (1.96)2 (0.5) (1-0.5)/ (0.05)2

n= (3.8416) (0.25)/0.0025

n=384

Adding a 10% for non-respondent rate

n= (384+10%) therefore, the final sample size of this study was 423 study subjects.

7.4. Study design:

A pre-post intervention study comparing the status of overcrowding before and after a feasible intervention to ease free movement and enhance quality service was instituted in the Outpatient Department of Amanuel Mental Health Specialized Hospital. All possible factors that contributed to overcrowding in Amanuel hospital were assessed prior to the conduct of the study. Then, interventions to alleviate main problems of overcrowding were placed. Outpatient service improving committee was organized to implement and monitor activities proposed to reduce overcrowding and improve the outpatient department services.

The above mentioned causes were investigated using semi structured self designed questioner and available data from different records. This study was conducted in two phases, (pre and post) and appropriate strategy as intervention was done in between two studies. The results were compared to show the changes after intervention.

After the implementation of activities, outputs were measured using pre-set indicators and they are compared with the pre intervention baseline findings. The overall project success was evaluated to know whether the project improved the situation of overcrowding and reduced waiting time at OPD.

7.5. Data collection procedure:

Data from healthcare professionals were collected by using semi-structured and self administered questionnaire. The client- related questionnaire was first designed in English and then translated into the local language, which is Amharic, to interview clients or care takers. The questionnaire was back translated to English by experts to ensure consistencies in translation. Four psychiatry nurses were recruited to collect the data from clients or caretakers. One supervisor was assigned to check data consistency and completeness. All personnel were recruited from Amanuel specialized mental hospital for both pre and post study. Supportive supervisions were done by principal investigator. Questionnaires were developed by including pertinent information such as human resource; outpatient management system; waiting area management issues; outpatient load in OPD; supplies that would facilitate outpatient services and communication among nurses and runners etc. Additionally, checklists were developed to collect relevant information from different departments in the hospital.

7.6. Indicators

Indicators are tools to measure the occurrence of specific events/issues happening in the hospital setting. Key performance indicators were a core set of indicators that provide all the information needed to ensure that hospitals provide effective, efficient and quality services. Different indicators were used to measure overcrowding and factors related to it. Among nationally used indicators were; outpatient waiting time at each service point. Number of new and repeat outpatient attendees at public facilities, meaning total number patients who received treatment in a particular public health facility within a month; proportion of outpatient patient visits by treatment sessions (morning and afternoon). Average waiting time was taken as major indicator to assess overcrowding in outpatient department. Among these measures, patient volumes, proportion of patient load by treatment session, average outpatient waiting time were used as an outcome indicator for this study. These indicators were used as key signs to determine overcrowding at outpatient department and applied in both pre and post interventions in the study.

7.7. Data quality Assurance

The questionnaire was pre-tested to ensure consistency of the questionnaire and one day training was given for data collectors and supervisors. Data was reviewed daily by the supervisor and the principal investigator for completeness, accuracy, and clarity carefully. Any error, ambiguity or incompleteness encountered was addressed on the following day before starting next day activities.

7.8. Data Analysis procedure:

The main outcome variables of this study were outpatient overcrowding and waiting time. The independent variables were factors that potentially contribute to overcrowding at outpatient department, and socio-demographic data. The independent variables mainly include issues highlighted in the root cause analysis under four perspectives such as people, supplies, policies and environment.

Baseline situation assessment was conducted to measure the magnitude of overcrowding and to identify factors contributed to its occurrence prior to the intervention. Then appropriate strategies were implemented as an intervention. A thorough observation and ongoing analysis were conducted for about 3 months. The same data were collected at the post intervention period. Analyses of data from the two studies (pre and post) were performed using SPSS software version 20 and Excel spreadsheet. Two sample proportion test (pre and post) statistical tests was used to test factors contributing to overcrowding for clients, staff and two mean comparison test (T-test) was used for waiting time study.

7.9. Ethical consideration:

Ethical clearance was obtained from Research Ethics Committee of School of Public Health in Addis Ababa University. Furthermore, written consent was secured from Amanuel Mental Specialized Hospital. Each study subject was informed by data collectors about the objective of the study to obtain their verbal consent before starting any interview and administrating questionnaires. It emphasis to ensure confidentiality and respect the rights of the respondents to refuse answering few or all of the questions were created and name of study participants were not recorded. They were also told that all of the information collected from the study participants was used for hospital improvement purpose only.

8. INTERVENTION

8.1. Strategy/ intervention chosen

After problem identification activities have been approved, root causes of the problems were identified and grouped into four different perspectives which include people, policy, environment, and supplies. All root causes were investigated in detail by collecting relevant data and discussing with case team leaders, coordinators and concerned staff members of the hospital. To determine the true root causes, information and data have been collected.

The main root cause for overcrowding in the outpatient department was lack of appropriate appointment system, as identified by the pre-intervention study. These include unbalanced outpatient load by treatment sessions (morning and afternoon), unbalanced distribution of out patient load among working days and high patient volume in general. Patients are then proportionally distributed in morning and afternoon and in each working day.

After main contributing factors for the outpatient overcrowding were clearly identified, specific activities to fix these problems and, working modalities were developed. These activities include improving appointment system, renovation of existing waiting areas, improving outpatient flow management, and recruitment of adequate staffs such as runners (patient assistant). Among these activities establishing appointment systems and recruiting additional runners were selected as the main ones which are feasible to accomplish within the project period. Selections of activities were made using evaluation criteria, such as feasibility, cost, time and impact on the problem. Table 1 below reveals how each criterion was used to reach at the activities that shall be put in place in Amanuel hospital as interventions in the project period. Each criterion was measured in a likert scale (from 1 to 5). Activities with the highest scores were considered as interventions to reduce overcrowding and enhance the quality of service in the outpatient department of the hospital. Improvement of appointment system scored the top followed by recruiting adequate staff.

Table 1: Lists of alternative strategic options and selection criteria:

Each criteria has maximum score of =5 , minimum score=1, total score is calculate out of 20 points

S/N	Alternative strategies	Major activities	Feasibility	Cost	Time	Impact	Total	Rank
1	**Improving appointment system**	Preparation and distribution of modified calendar for patient appointment Discussion with OPD staff Printing calendar Providing appointment book (Agenda) to case teams providing orientation training on appointment system preparing protocol on appointment system	**5**	**4**	**5**	**5**	**19**	**1**
2	**Renovation of existing waiting areas**	Construction Obtaining additional chairs	**2**	**2**	**3**	**5**	**12**	**4**
3	**Improving patient flow management**	Limiting family members to OPD Installing microphone calling system Assigning security guard at OPD entrance	**2**	**4**	**4**	**3**	**13**	**3**
4	**Recruitment of adequate runners**	Conducting recruitment process Assigning runner to each case teams	**5**	**3**	**4**	**4**	**16**	**2**

8.2.Implementation accomplishments:

First the Outpatient improving committee was established and champions were selected from quality and customer service officer to initiate and foster the change to all OPD.

After the required activities for alleviating problems were identified, the result of pre intervention data were presented to senior management team, case team leaders, coordinators and staffs for discussions and debriefing in two sessions. All relevant comments and suggestions were collected from the session. It was used as an input for the project improvement and some modifications of intervention.

In order to apply the selected activity (appointment system) relevant stockholders (clinical nurses in this case) for project implementation were identified in the hospital. Furthermore, all the required logistics such as appointment registration books, pens and calendars were also identified. All these items with their required amount were procured and made ready for use.

Orientations training for clinical nurses who have been working on clerical activities at OPD we give for a day. The training was focused on why appointment was important, how appointment should be given and recording the appointment. Then these strategies have been applying for three consecutive months (May to July 2013).

Furthermore, to support the chosen activity, outpatient appointment system protocol was developed. The protocol includes the objective of the planned activity, how appointment was given and for what type of patients should it be given. This document was communicated to most staff that have been working in OPD and posted in the 14 rooms of the OPD units.

In order to minimize the number of patients that have forgotten the specific appointment schedule and time, adhering to specific appointment date and time should be the responsibility of clients in general and was included in “customer rights and responsibility document”. This document was laminated and posted on notice board for outpatient clients. Pre intervention data results (proportion of patient load by treatment session, average patient load per month, and unequal distribution of patient load among five working days) were also posted on each of the 14 rooms in the Out Patient Department.

In addition, through discussion with the hospital Human Resource Department, four vacancies of runners positions in the hospital were filled through recruiting additional patient assistant (runners) and assigned to the respective case teams. So that patients flows

were managed and assisted better by a particular Runner. Similarly, to avoid delay in the medical registration process, three additional Medical registration staffs (clerks) were assigned.

Moreover, five more long chairs were procured for the waiting area for clients; two waiting areas were made available with adequate sits and used efficiently; moreover to make the patient chronological order was not attentive and alert Microphone patient calling system was established in all waiting areas; Security guards are assigned in the Out Patient Department gates to limit unauthorized entry to OPD and enhance the safety and security of the hospital community. This made the patient flow management very smooth.

8.3 Monitoring and Evaluation of the project:

In order to monitor the implantation of the intervention, three monthly supportive supervisions were done using checklists by the principal investigator in collaboration with concerned staffs (Quality officers and Customer service officer). The progress of the project was communicated with the management of the hospital and feedbacks were used to reduce the level of overcrowding and enhance the quality of service.

The monitoring and evaluation considered all activities that should need to be performed while implementing project. The assessment report showed that half of the case team members wrote dates and signatures on appointment card and most of the case team members (9 out of 13) put their signatures and date clearly in Amharic, the local language. Most of the case teams‟ patients (11 out of 13) were adhered to the appointment schedule and in most case teams (9 out of 13) were appointment were given on the basis of treatment sessions (morning and afternoon). According to the supervision, the result showed that in most of case teams (10 out of 13) were provided information clearly what is in the appointment card and in most case teams (11 out of 13) were not done the appointments through distribution of patient load among days in a balanced manner.

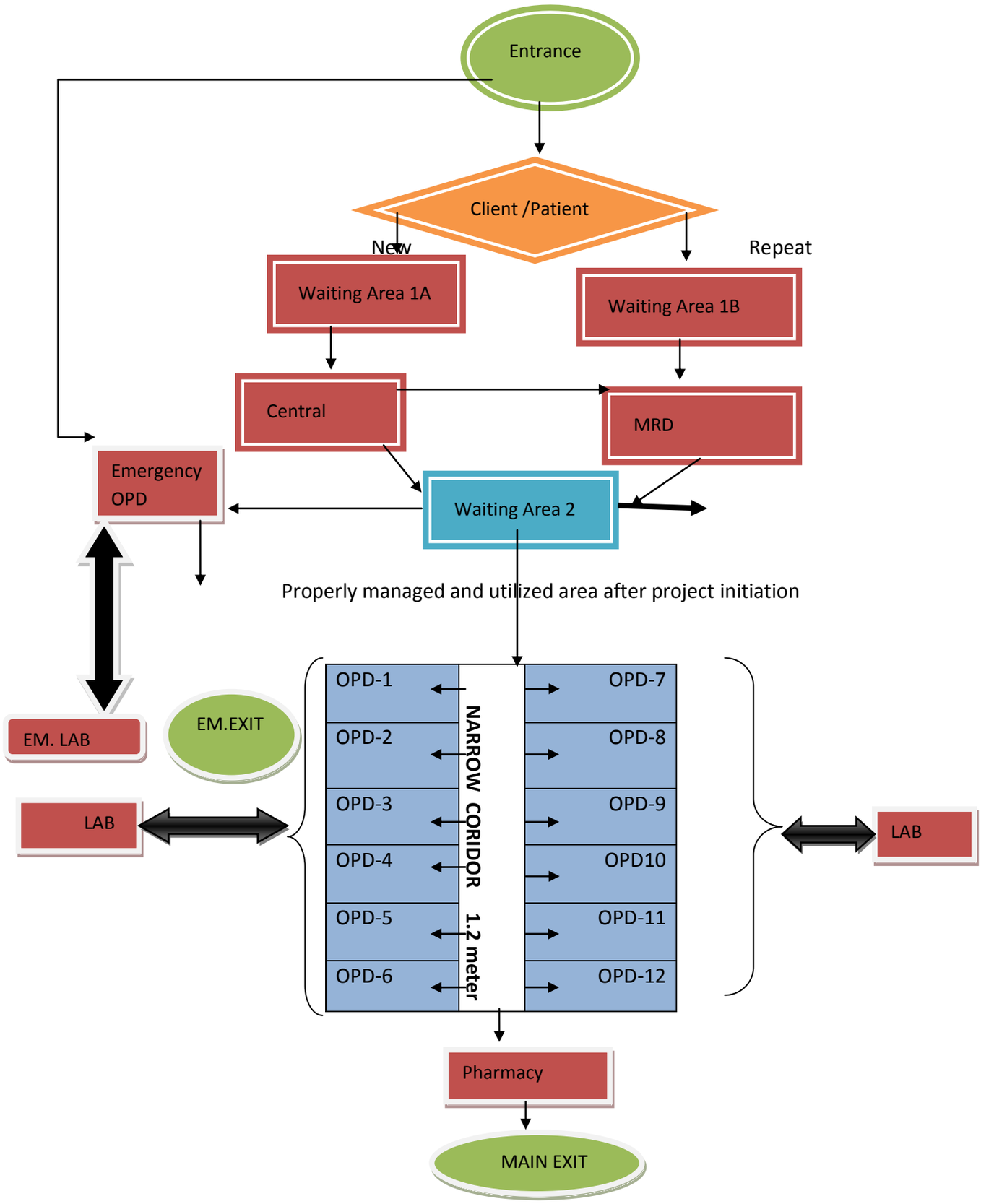
The hospital outpatient waiting areas were designed in such a way that it has three waiting areas. The first area is found near to medical registration department for follow up clients and the second one is located near to triage room for new patients and the third one is found at the gate of OPD but not properly managed and used before the study. After implementation main and supportive strategies, such as labeling of waiting areas, arranging patients in chorological sequential way based on first come-first served. The third waiting area has been used for selected clients to enter into OPD units. The other supportive strategy

introduced was calling patients using microphone system to enter patients to OPD room. The patients waiting for outpatient service were called and sit in the third area were called by using in microphone.

Proper utilization of waiting areas and implantation of supportive strategies (microphone calling system) would reduce almost all patients coming to OPD units without their sequential order.

Fig-3 shows that patient flow, waiting areas its layout. The designs and arrangement of OPD units were not convenient for good customer services. The corridor was too narrow to move through for patients, families and staff who are working at OPD. All waiting areas were not properly managed and utilized to their potential capacity (waiting area-2A labeled in the figure 4) In addition to the above, before the intervention of strategies, screening of patients in their sequential order were not performed well. Patient family numbers who were accompanying a patient were not limited at OPD level there is no proper control, management and coordination of activities. At the result, all customers, patients and families enter into OPD areas at a time causing crowding.

Fig.3: The following figure shows patient flow, waiting areas and OPD lay out.



9. RESULT

9.1. Socio-demographic characteristics of the respondents (staff)

Among 250 health professionals working in hospital, 41 health professionals who are working in outpatient department are selected for the study. The response rate was 100% of the total of 41 participants, of which 20 (48.78%) males and 21 (51.22%) females comprise the total. The median age of the study participants were found to be 27 years. Twenty six (65%) of the respondents are Amharas by ethnicity and 31 (75.61%) were Orthodox Christian in religion (table1). Among the total respondents, majority 29 (74.36%) were case team members in their position. Twenty nine (70.73%) were single and 21 (52.50%) attained first degree in their educational level. The mean salary was 2069.6 Birr with the (±829). The average work experiences of participants was 7.7 (SD ±8. 8) years. The median value of patients who were come out appointment date was 8, since the data is not normally distributed. According to the respondents say, about 8 patients were come out of appointment dates for follow up visit. The mean total patients seen in a single OPD per day were 42 with (SD± 19.61). The results were illustrated in Table-2

Table2: Socio-demographic characteristics of employees who have been working at OPD in Amanuel Mental Specialized Hospital, Addis Ababa, Ethiopia, April 2013 (N=41)

Variable		Number/frequency	Percent (%)
Sex:	Male	20	48.78
	Female	21	51.22
Marital Status:			
	Single	29	70.73
	Married	11	26.83
	Divorced	1	2.44
Ethnicity			
	Amhara	27	67.00
	Oromo	7	17.50
	Tigre	2	5.00
	Gurage	3	7.50
	Other	2	5.00
Religion:			
	Orthodox Christian	31	75.61
	Muslim	3	7.32
	Protestant	7	17.07
Hospital position:			
	Case team leader	2	5.13
	Case team coordinator	7	17.95
	Case team member	29	74.36
	Other	1	2.56

Education:		
Second degree/Msc	2	5.00
First degree	21	52.50
Advanced diploma	8	20.00
Diploma	9	22.50

9.2. Socio-demographic characteristics of the respondents (clients)

Clients that have been visited in the study period were interviewed to know the view on outpatient crowding. A total of 372 clients were included in the study. From a total of 372 respondents, 204(54.8%) were males and 166 (44.6%) were females and the median age of the respondents were 30 years. With regards to their religion, majority of the respondents 204 (54.8%) were Orthodox Christians, 88(23.7%) were Muslims, 70(18.8%) were Protestant in religion. Regarding ethnicity, 139(37.4%) were Amharas, 125(33.6%) were Oromos, 67(18.0%) were Gurages. On the other hand, majority 193 (51.9%) of respondents were single while 142(38.2%) of the respondents were married. Regarding level of education, from a total of 372 study participants, 83(22.3%) completed 12 grade, 65(17.5%) attained primary school and 53 (14.2%) completed secondary school. The table here below describes the detail socio demographic characteristics of the client. [Table-3]

Table 3: Socio-demographic characteristics of outpatients visited at OPD in Amanuel Mental Specialized Hospital, Addis Ababa, Ethiopia, April 2013 (N=372)

Variable		Frequency	Percent (%)
Sex:	Male	204	54.8
	Female	166	44.6
Religion:	Orthodox Christian	204	54.8
	Muslim	88	23.7
	Catholic	8	2.2
	Protestants	70	18.8
Ethnicity:	Amhara	139	37.4
	Oromo	125	33.6
	Tigire	16	4.3
	Gurage	67	18.0
	Others	21	5.6
Marital Status:	Single	193	51.9
	Married	142	38.2
	Separated	16	4.3
	Widowed	12	3.2
	Others:	2	0.5
Educational Status			
	1st degree and above	36	9.7
	Diploma	52	14.0
	Certificate	29	7.8
	12-complete	83	22.3
	2nd ry grade complete	53	14.2
	Primary school complete	65	17.4
	Read and write	45	12.1

9.3. Data on average outpatient volume by treatment session:

Based on the result found from the survey of health professional that have been working at OPD, one year data were reviewed to assess patient load and actual outpatient distribution balance between two treatment sessions (morning and afternoon). Accordingly, 76.82% outpatients got medical services in the morning sessions and the rest (23.18%) patients were served in the afternoon session. Regarding to the distribution of patient load among months in the year, it was almost uniform but the highest (10,625) patient volume was recorded in September. However, patient loads were relatively low 5,992 and 7, 458 in the months of October and April 2012 respectively (Table: 4).

Table-4: Patient volume by treatment sessions from month of July 2012- May 2013.

Treatment session	Months from Jul.2012-May 2013												
	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	April	May	Average	%
Morning	6096	7284	8287	4674	6694	7225	6901	6963	7400	5817	6942	6753	76.82%
Afternoon	1925	2214	2338	1318	2000	2282	2179	2080	2337	1641	2109	2038.4545	23.18%
Total	8021	9498	10625	5992	8694	9507	9080	9043	9737	7458	9051	8791.4545	100%

Data source: Medical record Department Registration Book

9.4. Trends of patient volume in outpatient department of Amanuel mental specialized hospital

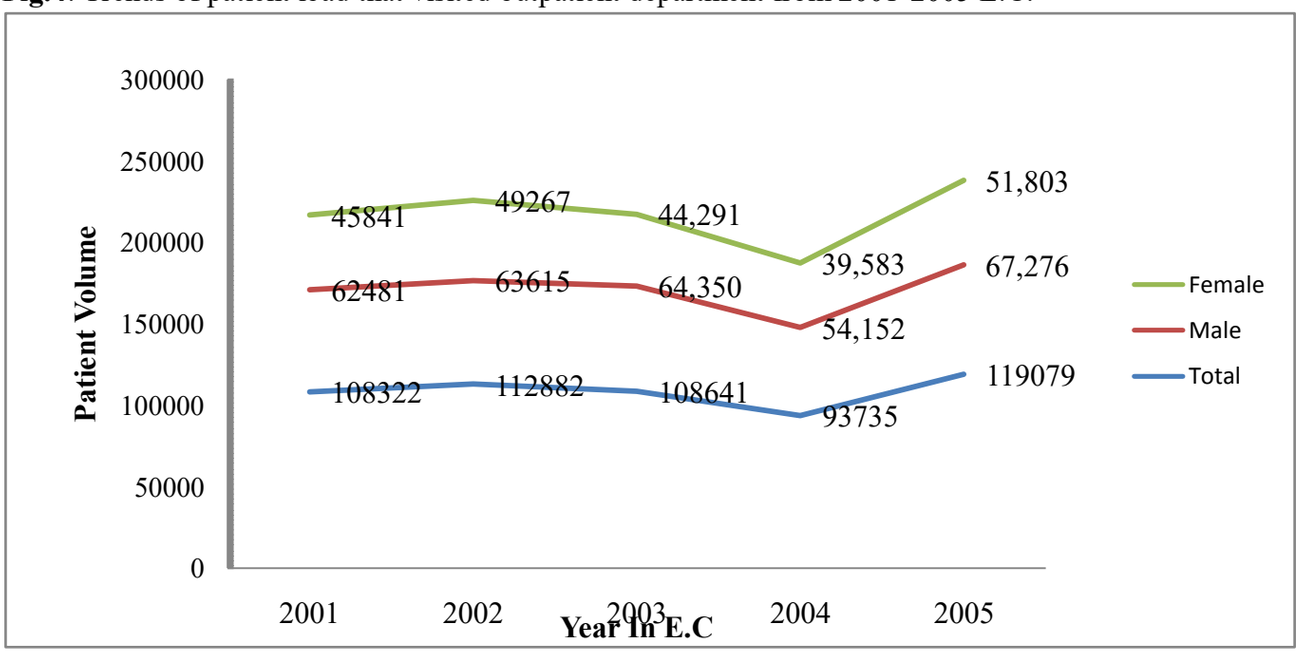
In addition to patient distribution, overall patient load were collected to know trends. Five years (2001 to 2005 E.C) data were investigated from HMIS registry book. The result showed that outpatient volumes have been increasing from time to time. (Table-5)

Table-5: Evidences supported by data to show overall patient load for the last five years (2001-2005 E.C).

Year in E.C		**Sex**		
	Total	Male	Female	**Remark**
2001	**108322**	62481	45841	
2002	**112882**	63615	49267	
2003	**108641**	64,350	44,291	
2004	**93735**	54,152	39,583	
2005	**119079**	67,276	51,803	
Overall total	**542659**	**311,874**	**230,785**	
Average per year	**108,531.80**	**62,375**	**46,157**	Total/3 years
Average per month	**9,044.32**	**5,197.90**	**3,846.42**	Average per year/12
Average per day	**411.105303**	**236.2681818**	**174.8371212**	Average per month/22 days

Data source: HMIS Registry Book

Fig.4: Trends of patient load that visited outpatient department from 2001-2005 E.C.



9.5. Waiting time:

Outpatient waiting time survey was conducted to know the average waiting time. The tool was developed locally to show time required at specific process point. These includes, the time spent at the reception, which means the time required from entry to the gate to get into the medical record registration department, time taken to get medical registration which means the time required to register and search medical records; time spent by runners to send medical record to OPD, time taken for investigation by physician and time taken for dispensing medication in pharmacy departments. These processes contain patient arrival to the facility until completion of all outpatient services. Data was collected from 364 (224 male and 140 female) that were randomly selected outpatients during data collection time. The analysis was done using SPSS software version 20. Based on analysis, for each service point Mean time, SD and total waiting time were calculated separately. The result showed the mean time from entry to the facility to getting to medical record department took 13 minutes (SD ± 17); mean time taken from medical department to process medical record was 31 minutes with SD ±26; the mean time to send MR to OPD clinic took 28 minutes with SD ±33; the mean time spent to conduct investigation by physician was 20 minutes with SD ± 22; the mean time spent to dispense medications was 20 minutes with the SD ±4 and time Average waiting time spent from MRD to treatment consultation with clinical were 58(SD ± 40); the overall total mean time spent to complete the outpatient services was 112 minutes with SD± 58. The following table below depicts the detail descriptions waiting time survey. Table-6 shows detail description of the result.

Table-6: Average waiting time (in minutes) at different service areas in OPD.

S/N	Variable Description	Mean in minutes	S.D
1	Time from patient arrival to facility up to MRD	13 minutes	(±17)
2	Time taken to get medical record	31 minutes	(±26)
3	Time taken to send MR to OPD clinics	28 minutes	(±33)
4	Time taken for patient investigation by physician	20 minutes	(±22)
5	Time taken for dispensing medication by pharmacy	20 minutes	(±14)
6	Average time from MRD to treatment consultation with clinical staff	58 minutes	(±40)
7	Total time to complete services	112 minutes	(±58)

9.6. Factors contributing for overcrowding at outpatient department

The main problem of the study was outpatient over overcrowding was determined through investigation of the proportion of unbalanced outpatient distribution by treatment sessions (76.82% at morning time and 23.18 at afternoon). The other determinant factor for overcrowding was long waiting time to get outpatient services. On average, it required 112 minutes to complete the services.

The study subjects were asked to evaluate the adequacy of healthcare professionals working in OPD. Among the total of 41 respondents, 25 (60.98 %) agreed on inadequacy and 36 (87.80%) agreed on the fact that there is overcrowding at OPD. Thirty three (80.49%) of respondents agreed that it was difficult to move freely through the corridor in outpatient department and from the total respondents, 25 (60.98%) responded that there were no coordination problem among case team members.

From the study group, 27(65.85%) agreed that appointment for patients were given using calendar. From a total of respondents, 24 (58.54%) agreed on availability of calendars at OPD and 34 (82.93%) agreed that there was shortage of chairs to sit outpatient clients. From the study participants 34(82.93%) of respondents agreed on shortage of waiting spaces at the OPD patients waiting area and 32 (78.05%) agreed that outpatient waiting space were not properly managed. From all respondents, 28 (68.29%) agreed that more than three family caretakers come with a single patient on average and 33 (80.49%) respondents perceived that there were patient flow management at OPD. From selected participants, 26 (65%) knew that two patients were seen in one OPD at a time and 27(67.50%) believed that runners (patient assistants) were appointing patients who missed appointment date. From total respondents 33 (80.49%) agreed that there were high patient load at OPD and 39 (95.12%) were aware of overcrowding which were more common during morning session.

Among all respondents 39 (95.12%) answered that outpatient overcrowding is more common on Monday and Friday and 39 (95.12%) of OPD workers responded that they were overloaded everyday next to public holidays. From study participants 30 (73.17%) responded that clients were satisfied by OPD services and 31 (77.50%) of respondents agreed that they were not comfortable in working in OPD unit. Out of 37 respondents 23 (62.1%) believed that healthcare workers had good communication with a runner in their case team and 35 (97.22%) of respondents were willing to participate in the improvement process of overcrowding at OPD.

Table-7: Staff response on Contributing factors to overcrowding at OPD and its percent in Amanuel Mental Specialized Hospital, Addis Ababa, Ethiopia, April 2013 (N=41)

Variable	Response	Number/frequency	Percent (%)
Adequacy of professional staff			
	Disagreed	16	39.02
	Agreed	25	60.98
Presence of Overcrowding			
	Disagreed	5	12.20
	Agreed	36	87.80
Difficult to move freely at OPD			
	Disagreed	8	19.51
	Agreed	33	80.49
Coordination problem			
	Disagreed	25	60.98
	Agreed	16	39.02
Calendar utilization			
	Disagreed	27	65.85
.	Agreed	14	34.15
Availability of calendar			
	Disagreed	24	58.54
	Agreed	17	41.46
Adequacy of chairs			
	Disagreed	7	17.07
	Agreed	34	82.93

Adequacy of waiting spaces		
Disagreed	7	17.07
Agreed	34	82.93
Waiting area utilization		
Disagreed	9	21.95
Agreed	32	78.05
More than three caregivers come per patient		
Disagreed	13	31.71
Agreed	28	68.29
Patient flow mgt. problem		
Disagreed	8	19.51
Agreed	33	80.49
Two patients seen at a time		
Disagreed	14	35.00
Agreed	26	65.00
Runners give appointment		
Disagreed	13	32.50
Agreed	27	67.50
High patient load		
Disagreed	8	19.51
Agreed	33	80.49
Overcrowding at morning		
Disagreed	2	4.88
Agreed	39	95.12

Overcrowding at Monday & Friday			
	Disagreed	2	4.88
	Agreed	39	95.12
High Workload at next to holiday			
	Disagreed	2	4.88
	Agreed	39	95.12
Patients satisfied by services			
	Disagreed	11	26.83
	Agreed	30	73.17
Workers Comfort at OPD			
	Disagreed	31	77.50
	Agreed	9	22.50
Willing for Improvement	(Yes)	35	97.22
	(No)	1	2.78
Communication with runner			
	Very good	10	27.03
	Good	23	62.16
	Poor	4	10.81

9.7. Factors contributing for overcrowding at outpatient department in the view of clients

The perception of clients regarding outpatient crowdedness has been assessed. The tool was almost similar to that of health professional staff that has been working at OPD. But in order to balance their views, clients were involved in the study. Factors contributing for overcrowding in the outpatient department were pin-pointed. Accordingly, 283(75.8%) reported that there was a shortage of waiting space at OPD and 257(69.1%) of respondents agreed that there were lack of adequate chairs for customers. On the other hand, 235(63.2%) agreed that the OPD setup was not comfortable for them while, 325 (87.4.3%) respondents agreed that they did not adhere to their appointment schedules and only 314(84.4%) respondents were not satisfied by the OPD services. Besides, 330(88.7%) felt that they were not well served and 335 (90.1%) respondents were not felt that they have been served in chorological order. From all participants, 282(75.8%) were identified overcrowding problem at OPD. The following table showed the detailed result of client perception on overcrowding at OPD.

Table-8: Clients response on contributing factors to overcrowding at OPD and its percent in Amanuel Mental Specialized Hospital, Addis Ababa, Ethiopia, April 2013 (N=372)

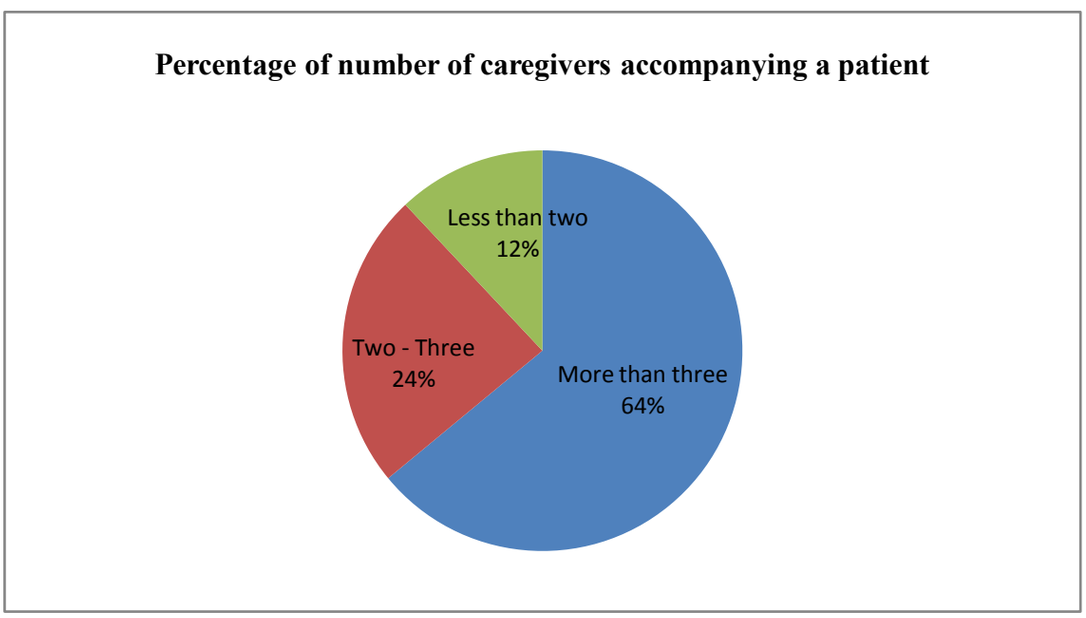
Variable	Response	Frequency	Percent (%)
Shortage of waiting spaces	Agreed	282	75.8
	Disagreed	78	21.2
Shortage of sits	Agreed	257	69.1
	Disagreed	102	27.4
Discomfort at OPD	Agreed	325	63.2
	Disagreed	121	32.5
Adherence to appointment	Agreed	42	11.3
	Disagreed	325	87.4
Satisfactory OPD Service	Agreed	52	14.0
	Disagreed	314	84.4

Become well served at OPD	Agreed	38	10.2
	Disagreed	330	88.7
Proper customer service at OPD			
	Agreed	33	8.9
	Disagreed	33	90.1
Presence of over crowdedness at OPD			
	Agreed	282	75.8
	Disagreed	79	21.

9.8. Number of patient attendants visited outpatient department:

In order to assess the number of patient attendants (families) that accompanied with a single patient, we solicited information on the number of care takers joining patients to get the service in the study hospital. A question was included in the questionnaires. Majority of the respondents 26 (64 %) agreed that more than 3 patient attendants came with a single patient while 10 (24.4%) of them reported that 2-3 family members accompany with the patient and 5 (12.25) of study participants responded less than two attendants accompanied a patient for outpatient visit. The detailed results showed in figure below (Fig: 5)

Fig.5: Number of patient attendants per patient visited the outpatient department before survey



However, to know the real situation, additional data was collected by counting actual patient attendants /families/ using designed forms. The data was collected for both new and follow up patients. From total of 381 patients, the majority 202 (53%) of patients came with two attendants while 65 (17.1%) patients came with only one family member. Meanwhile, 58 (15.2%) patients visited the outpatient department alone and 39 (10.2%) outpatients were accompanied by three relatives. Among the study group, only 16 (4.5%) patients were served by more than 3 families. The results of the survey portrayed in the following [Table: 9 below]

Table: 9: Number of patients that accompany a single patient during OPD visit

Number of Patient attendant	Frequency	Percent
> 3	17	4.6%
3	39	10.2%
2	202	53%
1	65	17.1%
0	58	15.3%
Total	381	100

9.9. Comparisons of pre and post test result for OPD staffs regarding factors contributed to overcrowding at OPD after implementation of the interventions

The assessment was beginning with the identification of problems of overcrowding at OPD and causes that would contribute for the problem. Accordingly, from 41 participants, 25(60.98%) responded that staff are adequate at the baseline and 24(61.45%) in the post study using two-sample proportion test p=0.0001 which is significant difference between the two tests. All most 36 (87.98%) of the staff that were working in OPD identified as presence of overcrowding at pre intervention and 1(2.44%) in post intervention with p=0.001 which is significant difference between the two tests. This is due to implementation of appropriate strategy (appointment system) and patients were managed with adequate Runners (Patient assistant) and limited numbers patients came in one shift and waiting space was managed, sites were shared for morning and afternoon patients.

Regarding to space, 33(80.49%) of respondents felt in difficulty to move freely through the corridors in pre- intervention and 1(2.44%) with p=0.0001 which is significant proportion

difference between the two tests. This is due to proper management of patient flow and spaces. In relation to coordination among case teams, 16(39.02%) were faced problem in pre intervention and no problem after post intervention. This is because of frequent discussions were made with case team members on the importance of the strategy implementation.

About calendar utilization, 14(34.15%) of them were not used for appointing patients before intervention, and all 41(100%) employee were used for outpatient appointment after intervention with p=0.0001 which shows significant difference between two tests. This is due to availing calendars at all OPD rooms and initiation of employees to use while appointing the patients.

In relation to availability of wall or table calendars 24(58.54%) of OPD staff identified as calendars were not available in pre -intervention and all 41(100%) of the staffs responded that the calendar is available in all OPD after intervention with P=0.0001 that is significant difference between two proportion tests. The reasons were calendars that contain specific working days were posted in all OPD units and availed for use.

Regarding to adequacy of chairs 34(82.93%) of staff were identified as chairs in waiting area were not adequate and reduced by 4(10.0%) after intervention with p=0001is significant proportion difference between the two tests. This is due to procurement of five additional chairs and making it for use. About adequacy of waiting space, 34(78.05%) were responded as waiting spaces were not adequate at pre intervention and dropped to 3(7.32%) with p=0001 which is significant difference between the two tests after having implementation of the strategies. This is due to the fact that improved utilization of the waiting areas that found OPD areas. These areas were labeled and used accordingly for the intended purpose. About the patient flow management, 33(80.44%) of the respondents were identified as no proper management of patient flow and improved after intervention by 1(2.50%) with p=0001 which is significant proportion difference between the two tests. This is due to proper utilization of resource, including human resource by assigning adequate runners, medical record clerks and guards at the gate of OPD. In addition to these, microphone patient calling system was established in the OPD to alert to their names and arrange them in chronological orders.

Before intervention, 39(95.12%) were agreed that overcrowding were more common during morning session but after interventions, it dropped to 1(2.44%) in post intervention with p=0001 which is significant proportion difference between the two tests. This result is due

to implementation of proper appointment system and distribution of patients to working days in a balanced way.

Regarding to privacy, two patients patient were visiting in a single OPD, before intervention of the system, 26(65.0%) were agreed that two patients were seen in a single OPD at a time (in 4 OPD) and in post study, it reduced to 1(2.50%) with p=0.0001 which is significant difference between the two tests. These were, due to number of patients seen at OPD were limited in treatment session.

Regarding provision of appointment schedule, 27(67.50%) of respondents agreed that Runners /Patient assistant/ were changing appointment date for defaulter cases in pre in intervention and it dropped to 1(2.50%) at post intervention with p=0.0001 which is significant proportion difference between the two tests. this change is due to proper orientation of runners and OPD staff about their responsibilities and importance of outpatient scheduling system.

In relation to patient load, 33(80.49%) of respondents were identified as high patient load at OPD in pre intervention and 30(73.17%) in post intervention with p=0.4321 which mean there is no significant difference between the two tests. similarly, 39(95.12%) of respondent agreed that there is high work load in days next to holidays at pre intervention and it was reduced to 3(7.32%) at post study with p=0.0001 which is significant difference between the two tests. This is due to utilization calendar while appointing outpatients and implementation of proper scheduling system.

Concerning to comfort of OPD for workers, only 9(22.50%) of respondents were agreed that OPD working areas were comfortable in pre intervention and 40(97.56%) at post intervention with p=0.0001 which is significant difference between the two test. This is due to improvement of patient flow at OPD and reduction of suffocation at OPD using existing waiting area. [Table 10]

Table 10: **Comparison of summary results of staff's responses on factors contributing to overcrowding in pre- and post interventions at OPD from April to July 2013**

S/N	Description of Variables	Pre-Intervention (%)		Post-Intervention (%)		P-Value
		YES	NO	YES	NO	
1	Adequacy of staff	25 (60.98%)	16 (39.02%)	24 (61.45%)	15 (38.46%)	0.955
2	Presence of overcrowding at OPD	36 (87.80%)	5 (12.20%)	1 (2.44%)	40 (97.56%)	0.0001
3	Difficult to move freely through OPD corridor	33 (80.49%)	8 (19.51%)	0 (0%)	30 (100%)	0.0001
4	Coordination problem within case teams	16 (39.02%)	25 (60.98%)	0 (0%)	41 (100%)	0.0001
5	Calendar utilization to appoint patients in case teams	14 (34.15%)	27 (65.58%)	0 (0%)	41 (100%)	0.0001
6	Availability of calendars in OPD	17 (41.46%)	24 (58.54%)	0 (0%)	41 (100%)	0.0001
7	Adequacy of chairs in waiting areas	34 (82.93%)	7 (17.07%)	4 (10%)	36 (90%)	0.0001
8	Adequacy of waiting spaces	34 (78.05%)	7 (17.07%)	3 (7.32%)	38 (92.6%)	.0.0001
9	Waiting area utilization and management	32 (78.05%)	9 (21.95%)	2 (4.88%)	39 (95.12%)	0.0001
10	More than 3 care givers come per patients at a time	28 (68.29%)	13 (31.71%)	8 (19.51%)	33 (80.49%)	0.0001
11	Patient flow management at OPD	33 (80.49%)	8 (19.51%)	1 (2.50%)	39 (97.50%)	0.0001
12	2 patients seen in a single room at a time	26 (65.0%)	14 (35.00%)	1 (2.70%)	36 (97.30%)	0.0001
13	Runners give appointment for defaulters	27 (67.50%)	13 (32.50%)	1 (2.50%)	39 (97.50%)	0.0001
14	High patient load in OPD	33 (80.49%)	8 (19.51%)	30 (73.17%)	11 (26.83%)	0.4321
15	Overcrowding is more common in morning time	39 (95.12%)	2 (4.88%)	1 (2.44%)	40 (97.56%)	0.0001
16	Overcrowding in	39 (95.12%)	2 (4.88%)	1 (2.44%)	40	0.0001

	Monday and Friday				(97.56%)	
17	High workload days next to holiday	39 (95.12%)	2 (4.88%)	3 (7.32%)	38 (92.68%)	0.0001
18	Patients are satisfied by OPD services	30 (73.15%)	11 (26.83%)	39 (95.12%)	2 (4.88%)	0.0001
19	Workers comfort at OPD	9 (22.50%)	31 (77.50%)	40 (97.56%)	9 (2.44%)	0.0001

Table-11: Rate of case teams communication with Runners

S/N	Description	Pre- intervention (N=41)	Post-intervention (N=41)	P-value
1	Very good	10(27.03%)	13(32.5%)	0.5880
2	Good	23(62.16%)	26(65.0%)	0.7778
3	Poor a	4(10.81%)	1(2.5%)	0.1311
Total		37(100%)	40(100%)	

9.10. Comparisons of pre and post test result for clients regarding factors contributing to overcrowding after implementation of the interventions

The views of clients who have visited the outpatient department were also assessed to know how the services were comfortable for them and to use their feedbacks as an input. The issues include in the study were similar with that of staff. Accordingly, 372 clients who have visited the OPD were participated in the study. Based on the study, 282(75.8%) respondents identified presence of overcrowding in outpatient department in pre intervention and it reduced to 97(26.1%) in post intervention with p=0.0001 which mean there is significant difference between the two tests. Regarding availability of waiting space and sites, from total study participants, 282(75.8%) of respondents were agreed that shortage of waiting spaces in OPD area in pre test study and it dropped to 81(21.8%) in after intervention of strategies with p=0.0001 which mean there is significant difference between the two tests. And 257(69.1%) of respondents agreed that shortage of sits in OPD areas in pre intervention period and it dropped to 130(49.9%) in post intervention with p=0.0001 which mean there is significant difference between the two tests. And also 325(63.2%) of patients visited OPD were felt discomfort during pre intervention and reduced to 157(42.2%) with p=0.0001

which mean there is significant difference between the two tests. These results were due to availing of adequate sites and proper management of patient flow at OPD level.

About Adherence to appointment schedules, 42(11.3%) of respondents were not adhered to their specific appointment schedules and dates before intervention and increased to 312 (83.87%) at post intervention with p=0.0001 which shows significant difference between the two tests. Regarding patient satisfaction, 52(14.0%) of respondents were satisfied by OPD services before commencing of intervention and raised to 296(79.6%) after intervention with p=0.0001 which mean there is significant difference between the two tests. And only 38(10.2) of respondents were felt that they become properly served in pre study and 301(80.90%) at post intervention with p=0.0001 which mean there is significant difference between the two tests. This is due to application selected strategies. [Table-12]

Table-12: Comparison of summary result of client's response on factors contributing to overcrowding in pre- and post interventions at OPD in Amanuel mental specialized hospital from April to July 2013

S/N	Description of Variables	Pre-Intervention (%) N=372		Post-Intervention (%) N=372		P-Value
		YES	NO	YES	NO	
1	**Shortage of waiting spaces**	282(75.8%)	78(21.2%)	81(21.8%)	291(78.2%)	0.0001
2	**Shortage of sits**	257(69.1%)	102(27.4%)	130(43.9%)	242(65.05)	0.0001
3	**Discomfort at OPD**	325(63.2%)	121(32.5%)	157(42.2%)	215(57.79%)	0.0001
4	**Adherence to appointment schedule**	42(11.3%)	325(87.4%)	312(83.87%)	60(16.1%)	0.0001
5	**Satisfactory OPD Service**	52(14.0%)	312(84.4%)	296(79.6%)	76(20.4%)	0.0001
6	**Become well served at OPD**	38(10.2%)	330(88.7%)	301(80.9%)	71(19.1%)	0.0001
7	**Proper customer service at OPD**	33(8.4%)	335(90.1%)	278(73.6%)	98(26.3%)	0.0001
8	**Presence of overcrowding at OPD**	282(75.8%)	79(21.2%)	97(26.1%)	275(73.9%)	0.0001

9.11. Comparisons of pre and post test result regarding distribution of patient load by treatment session after implementation of the interventions

The distribution of patient volume that was visited the OPD were investigated by using collecting data from other records. Based on the survey, before implementation of the strategies, the distribution and patient load in morning time were 76.82% and 23.18% in afternoon session. But after intervention, the proportion of patients at morning and afternoon were 57.49% at morning and 42.51% at afternoon session with p=0.0001 which is significant difference between the two test. These are due to implementation of appropriate strategies (proper appointment systems) includes fairly distribution of patient load between treatment sessions (morning and afternoon) and distribution of patients among working days in a balanced manner. Eventually this also minimized wastage of human resources at OPD, in medical record department and pharmacy units and assures proper utilization of waiting spaces and other resources like chairs etc. [Table-13]

Table 13: Comparison of summary result for proportion of outpatient visits by treatment session (morning and afternoon) during pre-and post intervention period (April to July 2013).

S/N	Treatment Session	Number	Pre-intervention in %	Number	Post- intervention in %	P-Value
1	Morning	6,753	76.82%	4,914	57.49%	0.0001
2	Afternoon	2,038	23.18%	3,633	42.51%	0.0001
	Total	8,791	100.0%	8547	100.0%	

9.12. Comparisons of pre and post test result for waiting time study after implementation of the interventions

Overcrowding at OPD would have directly or indirectly related with high waiting time. For these reasons, average waiting time at each service point would be measured. Accordingly, time taken in reception were 13 minutes (SD±17) at pre intervention and in post study result were 4.62 minutes(SD± 2.30) using two –sample means test (t test) the p=0.0001 which is significant difference b/n the two tests, time taken at medical registration were 31minutes (SD±26) at pre intervention and in post test, the result were 16.75 minutes(SD±5.45) with p=0.0001 which is significant means difference b/n the two test; time taken to send medical records to OPD were 28(SD ±33) at pre intervention and in post test the value were 6.66 minutes (SD±2.17) with p=0.0001 which is significant mean difference b/n the two tests and; time taken to investigate patients by physician was 20 minutes (SD±22) at pre intervention and at post intervention the result was 16.82 minutes (SD±5.19) with p=0.0072 which is significant mean difference b/n the two tests; time taken for dispensing medication at pharmacy were 20 minutes(SD±14) at pre intervention and in post test the result were 9.66 minutes (SD±5.86) with p=0.0001 which significant mean difference b/n the two test; time taken to get clinical consultation by clinical staff was 58 minutes (SD±40) in pre intervention and in post test the result showed 23.40 minutes (SD±6.26) with p=0.0001 which is significant mean difference b/n the two test

The overall time taken to complete all the services were 112 minutes (SD±58) in pre-intervention and in post test the result was 54.53 minutes (SD±9.86) with p=0.0001 which is significant mean difference b/n the test means. The reduction of time at each service point was due to proper human resource allocation, discussion concerns with relevant staff, orientation training and implementation of interventions (outpatient scheduling system). [Table-14]

Table 14: **Summary results of mean waiting time in minutes with SD at Pre-and post intervention in each service point from April to July 2013**

S/N	Variable description	Number	Pre-intervention (Mean)	SD±	Number	Post-intervention (Mean)	SD	P-Value
1	Time taken from patient arrival to the facility up to MRD	364	13	±17	367	4.62	2.30	0.0001
2	Time taken to get medical records	364	31	±26	367	16.75	5.45	0.0001
3	Time taken to send MR to OPD clinics	364	28	±33	367	6.66	2.17	0.0001
4	Time taken for patient investigation by physician	364	20	±22	367	16.82	5.19	0.0072
5	Time taken for dispensing medications by pharmacy unit	364	20	±14	367	9.66	5.86	
6	Average time from MRD to treatment consultation with clinical staff	364	58	±40	367	23.40	6.26	0.0001
7	Total time taken to complete the services	364	112	±58	367	54.53	9.86	0.0001

9.13. Dissemination of result:

The result of this study will be disseminated to relevant bodies such as Addis Ababa University School of Public Health, and Federal Ministry of Health (FMOH), Amanuel Mental Health Specialized Hospital (AMSH) for intervention and all other similar hospitals that faced the same problem. And also the findings of this study will be made ready for possible publication in a reputable journal.

10. DISCUSSION:

It is essential that operations researches undertaken in hospitals to improve the quality of health services given to the public. One of the tools that used to tackle problem is the Capstone project work. This specific project has been focusing on the outpatient overcrowding and waiting time spent for outpatient services.

Overcrowding at the outpatient Department was the major problem in Amanuel Mental Specialized Hospital. This problem could result in wastage of client"s time, diseases transmission, accidents by patients, and discomfort to patients and staffs, affects quality of services etc. Because of narrow corridors (about1.2 meter width), movement from one office to another by staffs and clients have been hampered which cause discomfort to them. Moreover, overcrowding in outpatient department could expose patients and families passing through the corridors to communicable diseases. It affects patients, clients and staffs safety resulting in physical harm by patients. As a result patients, clients and staffs satisfaction on outpatient department service could be reduced; ultimately, it impedes delivery of quality health services to the public.

Overcrowding at the outpatient department deters easy movement of both staff and patients, creates lack of enough space to move freely and creates discomfort to both staffs and patients in Amanuel Mental Specialized Hospital. Outpatient overcrowding leads to inefficiency of both employees and professionals.

Even though addressing problems based on scientific methodology is an important thing, the hospital and FMOH have been doing strategically in integrating mental health services have started to all health facilities across the regions and patient referral systems have been initiated among regions where mental health services are available. Integration of mental health services and strong referral networks will limit the number of patients that do not

need specialized services in the hospital. Subsequently, it reduce unnecessary burden to staff, enhance efficient and effective use of existing resources. This ultimately will decrease patient load in the future. Construction general hospital and mental health institute has been undertaking at around Kotebe area. The building design has considered every requirement for mental health facilities. This will solve the space and infrastructure related problems. [15]

This scientific problem solving study attempted to assess root causes and intervened strategies to reduce waiting time and overcrowding at outpatient department in Amanuel mental specialized hospital.

In this study the Causes of overcrowding at OPD were lack of adequate waiting space, inefficient utilization of waiting areas, long waiting time, unbalanced patient distribution between treatment sessions (23.18% at morning and 76.82%), and absence of adequate supplies like calendars and lack of adequate patient assistants/ runners (28.57%) of left the hospital. However, study conducted in United States in institute of medicine committee on emergency department showed that it affects patient safety and (timeliness to appropriate treatments) threat patient privacy and often leads to frustration among ED staff. These causes of the problem could be more or less similar despite the research settings; infrastructure and types of interventions implemented were different. [5]

In this study, the result revealed that presence of over crowdedness of outpatients identified as 36 (87.98%) and common during morning session. And it was 39(95.12%) common during morning session before commencing interventions compared to study conducted in Cardiac Catheterization at a Cardiovascular Hospital in Egypt was 25%. It is three times more common than the previous study result conducted in Egypt. This could be the due to implementation of appropriate strategy (appointment system) and patients were managed with adequate Runners (Patient assistant) and limited numbers patients came in one shift and waiting space was managed, sites were shared for morning and afternoon patients and better utilization of information technologies and awareness of the people.

Regarding waiting time, research done in National Heart Institute in Cairo, Egypt in lined with the current study, the intervention (Scheduling system) was associated with significant reduction in waiting time and crowdedness. In this study, waiting time was reduced from 112 minutes (SD$\pm$58) to 54.53 minutes (SD$\pm$9.86) with significant mean difference (p>005). [8].

This study in lined with research done in Australia concerning overcrowding, waiting spaces management was significantly reduced overcrowding (p< 005). This study findings was similar with study done in United States of America in outpatient pediatric oncology renovating existing space have significantly reduce overcrowding. [7]

Study conducted at emergency department in National Taiwan University Hospital was similar with this study showed that high waiting time causes for overcrowding. [10].

This study was similar with survey conducted in Canadian Emergency Department, showed that overcrowding was more prevalent in cities of greater than 150,000 people, large-volume centers and University or University affiliated hospitals (13). This problem is common in outpatient department in Amanuel Specialized Mental Hospital because it serves for more than 3,500,000 populations. [14] And it is the only specialized mental hospital in the country.

10.1. Strength, Challenges and limitations to conduct and implement the project:

Even though there were a lot of challenges that affects quality of the project, there were also strengths which support this study. These were having strong commitments of hospital CEO, SMT and other officials to implement the project work during study period. The other strength of the study was conducting pre -post interventional study for the first time in Amanuel Specialized Mental Hospital. Potential challenges; bottle necks, and possible solutions applied at every stage were anticipated while initiating pre – post interventional study in hospital setting.

The other strength side of this study was locally designed tools were developed and used to measure the extent of the problem (OPD overcrowding and waiting time). And also aggregated data from different sources were collected and used to assess the problem was considered as the strong side of this study.

The main limitations of the study were during data collection severely disturbed and new patients were excluded because of unreliability of information. Moreover, there were limited related literatures to make comparison of findings with this study. In addition to mentioned limitations, data regarding number of patients seen at OPD and medical record department was not the same. It was difficult to eliminate the possibility of Hawthorne-effect when case teams act differently when they are being supervised while evaluating the implementation of intervention. The other limitation is that the tools used to measure the problem was not scientifically standardized and validated.

10.2. Conclusions and Recommendations:

Generally, without balancing the distribution of patient seen in the health facility through proper scheduling system, it would be difficult to manage the patient flow overtime.

From this study, it is concluded that from the monthly average total of 8,791 outpatients, 6753 (76.82%) of patients visited the outpatient department in morning session (8:00AM to 12:00 AM) at baseline. Due to this reason, patient crowding have been resulted during this time. This had eventually made significant influences on resources such as waiting space, equipment like sit, chairs, rooms etc and human resources. Ultimately it increased waiting time to get outpatient services. With little resources and implementing appropriate strategies (proper appointment system and recruiting additional staff), waiting time at each service section have significantly reduced and the proportion of patient seen at OPD were reduced from 76.82% to 57.49% with p=0.0001 which is significant proportion difference between the two tests during morning time at post study.

And similarly, long waiting time at OPD contributes to patient crowdedness significantly reduced after establishment of proper appointment system and recruiting additional staff, ($p<0.005$) with significant mean difference between two mean tests in post study. Finally, the study was conducted in a single specialized hospital; the results may differ in other settings.

Based on this study, It is recommend that the hospital should select a champions from each OPD and give due attention in monitoring implementation of intervention to ensure the sustainability of the applied strategies. The distribution of patients among days and treatment sessions in a balanced manner needs continuous monitoring and follow up system. The hospital also should strictly follow the performance of interventions through supportive supervision and other mechanisms considered to be appropriate. Periodically, the hospital is also expected to evaluate the employed strategies and if any modification is required in the future. The hospital should implement in: (1) providing an appointment schedule on Monday and Friday for only 20% of all outpatients until the proportional balance among working days reach and (2) avoid providing appointments to new outpatients on Monday and Friday (any day which have high patient load) until the balanced distribution is reached.

The hospital in collaboration with other stakeholders should develop and design a standardized and validated tool to measure overcrowding at outpatient department. The hospital should provide support and facilities to conduct such types of problem solving researches in the hospital.

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12. ANNEXES:

Federal Ministry of Health, Amanuel Mental Specialized Hospital Questionnaires for clients and staffs serving at OPD

12.1 Information Sheet

Introduction

Overcrowding in outpatient department could be the major problems in public hospitals. This problem is more common in specialty hospitals like Amanuel Mental Specialized Hospital. The problem may causes wastage of client"s time, diseases transmission, accidents by patients, discomfort to patients and staff, affects quality of services etc. Therefore, in order to improve the situation, and enhance hospital operations, it is important to conduct thorough investigation of problems and implementing appropriate intervention**.**

Purpose of the Research Project

The aim of the study is to assess and intervene causes and the problem of overcrowding at outpatient department in Amanuel Mental Specialized Hospital, FMOH, Ethiopia.

Benefits, Risk and / Discomfort

There is no risk or direct benefit on participating in this research project. Participating in this research project, you may not be affected in anyways except little waste of your time (a maximum of 20 minutes).However, your participation is definitely important to identify factors that causes overcrowding at outpatient department and to design appropriate strategy to increase patient and staff satisfaction.

Incentives/Payments

By participating in this research you will not be provided with any incentives or payment to take part in this project.

Confidentiality

The information collected from you will be kept confidential and stored in a file, without your name by assigning a code number to it. And hence no report of the study ever identifies you.

Person to contact

If you have any question, you can contact using the following contact addresses and you may ask at any time you want.

- Investigator name: Tamiru Yalew
- Telephone: 251-9-11-05-90-31
- Email: tamiru99_tt@yahoo.com

12.2. Consent Form:

Hello! My name is Tamiru Yalew, MHA student at AAU and one of the members of outpatient service improvement team. The purpose of this questionnaire is to gather information on factors that cause overcrowding and to fix the problems.

I identified you as a study participant hoping that you would be willing to help me by providing with some information. I have some questions which I would like to ask you, if you have time and are willing. The questionnaire includes socio-demographic characteristics in part –I and factors that are related to overcrowding in part-II. The information you provide will be kept confidential. I will not include any identifiers such as your name and exact address. Only honest answers would contribute to the improvement of hospital operation and OPD services in hospital. Your role in the success of the research is very important and I appreciate your contribution to this research.

- Are you willing to participate in this study?
  A. Yes ☐ No ☐
- If, yes please continue filling the questionnaire

12. 3. General questions to assess problems of overcrowding at outpatient department. (For health care providers serving at OPD)

- Code Number :_____
- Name of Case team: _____

Instructions: Please,

1. **Choose and circle appropriate category or check the boxes, that satisfies your choice and**
2. **Write your answer in words clearly and shortly for questions that needs your opinion**

Part-I: Questions related to Socio–demographic variables

1. Age _____
2. Sex
   A. Male ☐ B. Female ☐
3. Marital statuss
   A. Single ☐ B. Married ☐ C. Divorced ☐ D. Widowed ☐ E. Separated ☐
4. Ethnicity
   ☐ ☐ ☐ ☐

A. Amhara B. Oromo C. Tigre D. Gurage Other, specify _____

5. Religion

A. Orthodox Christian ☐ B. Muslim ☐

C. Protestant ☐ D. Catholic ☐

E. Other, specify _____

6. Professional category

A. Specialist/ psychiatrist ☐

B. Msc psychiatry profession/ Psychiatry officer ☐

C. Health Officer ☐

D. Psychiatry nurse/Clinical nurse ☐

E. Psychologist/Sociologist ☐

F. Runner/ Assistant ☐

G. Other, specify _____

7. Hospital Position

A. Director ☐

B. Case team leader ☐

C. Case team coordinator ☐

D. Case team member ☐

E. Other, specify_____

8. Level of education

A. Third degree /PhD ☐

B. Second degree/Msc ☐

C. First degree ☐

D. Advance diploma ☐

E. Diploma ☐

F. Certificate ☐

9. Work experience (in full years): _____

10. Salary per month (in Ethiopian Birr _____

11. On average, how many patients come out of appointment date per day in your case team

_____

12. On average how many patients have seen in your OPD per day

_____

Part II- Questions related to factors of overcrowding at outpatient department

Write your answer shortly and clearly for the following questions

S/N	Questions	Possible Responses			
		Strongly Agreed	**Agreed**	**Disagreed**	**Strongly Disagreed**
1	Currently, professional staff working in your case team are adequate	☐	☐	☐	☐
1.1	If your answer is "disagreed or strongly disagreed", in what kinds of profession do you need more? Please specify the profession →				
2	There is overcrowding at regular outpatient department	☐	☐	☐	☐
3	It is difficult to move freely through the corridor in outpatient department	☐	☐	☐	☐
4	There is coordination problem within case team members	☐	☐	☐	☐
5	Patients are not given appointment using calendar	☐	☐	☐	☐
6	there is no wall or table calendar in your OPD	☐	☐	☐	☐
7	There is no adequate chairs to sit clients at OPD	☐	☐	☐	☐
8	There is no adequate waiting space at OPD	☐	☐	☐	☐
9	Currently, OPD waiting spaces are not managed properly	☐	☐	☐	☐
10	On average, at least more than two caregivers would come with a single patient for OPD services	☐	☐	☐	☐
11	There is patient flow management problem in OPD services	☐	☐	☐	☐
12	Two patients are seen at a time in one room in your case team	☐	☐	☐	☐
13	Before a month, Runners were providing appointment for patients who come out of appointment date	☐	☐	☐	☐
14	Currently there is high patient load compared to number of staff in your OPD	☐	☐	☐	☐
15	Overcrowding is more common during morning time	☐	☐	☐	☐
16	Overcrowding is more common at OPD on Monday and Friday	☐	☐	☐	☐
17	Work load is more common in every days next to holiday at OPD	☐	☐	☐	☐
18	Patients and families are satisfied in OPD services	☐	☐	☐	☐
19	It is comfortable in working in OPD unit	☐	☐	☐	☐

20. Mostly, what are the main reasons for not to come on their appointment date (more than one choices are possible)

A. Lack of transport service ☐ C. Lack of family support ☐

B. Lack of money ☐ D. Appointment error ☐

E. Forgetting the appointment date ☐ F. Medication related complications ☐

G. Shortage of medications ☐ H. Others,

specify,_____

21. How do you rate your communication with Runners?

A. Very good ☐ B. Good ☐ C. Poor ☐

22. If your answer is "poor" what would you think are the main reasons for poor communication?

_____

_____

_____

_____

23. What would you recommend to improve the problem?

_____

_____

_____

_____

24. What do think the major reasons for overcrowding at OPD?

25. What practical interventions do you recommend to reduce overcrowding at OPD?

_____

_____

_____

26. Are you willing to participate in improving process of overcrowding at OPD?

A. Yes ☐ B. ☐

27. If your answer is „"No"", would you write your suggestions please?

_____

12.4. General questions to assess problems of overcrowding at outpatient department (for patients or patient families)

- Code: _____

Instructions: Please,

1. **Choose and circle appropriate category or check the boxes, that satisfies your choice and**
2. **Write your answer in words clearly and shortly for questions that needs your opinion**

Part-I: Questions related to Socio–demographic factors

1. Age _____
2. Sex A. Male ☐ B. Female ☐
3. Residential Address: Region_____ City _____
4. Ethnicity
   B. Amhara ☐ B. Oromo ☐ C. Tigre ☐ D. Gurage ☐ Other, specify _____
5. Marital status
   B. Single ☐ B. Married ☐ C. Divorced ☐ D. Widowed ☐ E. Separated ☐
6. Religion
   B. Orthodox Christian ☐ B. Muslim ☐
   C. Protestant ☐ D. Catholic ☐
   E. Other, specify _____
7. Level of education
   H. Degree and above ☐
   I. Diploma ☐
   J. Certificate ☐
   K. Secondary school complete ☐
   L. Primary school complete ☐
   M. Able to read and write ☐
   N. Uneducated ☐
   O. Other, specify _____

8. Have you ever come to this hospital before?

A. Yes ☐ B. No ☐

9. Did you came to this hospital for your own treatment

A. Yes ☐ B. No ☐

10. If your answer is "No", your relationship to a patient.

A. Father ☐ B. Mother ☐

B. C. Brother ☐ D. Sister ☐ E. Son ☐

Other specify _____

Part II. Quesions related to overcrowding at outpatient departmet

1. **Check the box that you agree from the given categories.**

S/N	Questions	Possible Responses			
		Strongly Agreed	Agreed	Disagreed	Strongly Agreed
1	There is no adequate waiting area in OPD	☐	☐	☐	☐
2	There is no adequate chairs in OPD	☐	☐	☐	☐
3	The OPD area is not comfortable to patient s and their caregivers	☐	☐	☐	☐
4	Previously, I didn't followed strictly my appointment date	☐	☐	☐	☐
5	I received satisfactory outpatient services at OPD	☐	☐	☐	☐
6	In today's follow up, Runners (patient attendants) served me well	☐	☐	☐	☐
7	I am served in a chronological order manner (first come first served)	☐	☐	☐	☐
8	There is overcrowding in outpatient department	☐	☐	☐	☐

Part-III. Questions related to overcrowding at outpatient deprtment

Instructions:

1. Choose and circle the letter or check the boxes for the following questions.

2. Write your answers in words shortl and clearly for question that require your opinion.

9. In order to help a patient, how many of family members came with a patient

_____

10. Do you think that outpatient department area is comfortable for patients and caregivers?

A. Yes ☐ B. No

11. If your "No" is what would you think the reason for disconfort

_____

_____

_____

12. Have you ever come for follow up service out of your appointment date?

A. Yes ☐ B. No ☐

13. I your answer is "Yes" what was your main reasons for not come on appointment date? (more than one alternative choices are possible)

A. Lack of transport service ☐ B. Lack of family support ☐

C. Lack of money for treatment ☐ D. Appointment error ☐

B. Forgetting appointment date ☐ F. Medication related complication ☐

G. Shortage of medication ☐ H. Others, specify _____

14. On average, how much time did you spent in order to get the outpatient services?

_____

15. Do you think that there is overcrowding at outpatient department?

A. Yes ☐ B. No ☐

16. If your aswer is "Yes", what would you think the reasons for overcrowding?

_____

_____

_____

17. What practical interventions do you recommend to reduce overcrowding at OPD?

_____

_____

_____

18. Please, if you have any comment on outpatient department services

12.5. Information sheet and consent form-Amharic version for clients

□መረጃ ቅ□

መ□ቢ□

አላስፈላጊ የሕሙማን መጨናነቅ ችግር በተመላላሽ ሕክምና ክፍል በሕዝብ ጤና አገልግሎት መስጫ ተቋም ሊከሰት ከሚችሉ ችግሮች ውስጥ አንዱ ነው፡፡ የዚህ ዓይነቱ ችግር እንደ አማኑኤል የአእምሮ ስፔሻይዝድ ሪፈራል ሆስፒታል ባሉ የጤና ተቋም ሊከሰት ይችላል፡፡

ይህ ሊያስከትል የሚችለው ችግሮች የሕሙማንን ጊዜ ማባከን፣ በሽታ ከአንዱ ወደ ሌላው ሰው በቀቀላሉ መተላለፍ፣ በአእምሮ ሕሙማን የመመታት አደጋ፣በቀላሉ ለመዘዋወር መቸገር፣ የሕሙማንና የሠራተኛና ምቾት መቀነስ ፣የአገልግሎት ጥራት መቀነስ እና የመሳሰሉት ናቸው፡፡

በመሆኑም ከላይ የተዘረዘሩትን ችግሮች በዘላቂነት ለመቀነስና ለመፍታት የተሟላ ጥናት በማድረግ በጥናቱም ውጤት መሠረት አስፈላጊ የሆነ እስትራጂ በመንደፍና በመተግበር ችግሩን መቅረፍ አስፈልጓል፡፡

የምርምር ፕሮጀክቱ ዋና ዓላማ

የዚህ ጥናት ዋና ዓላማ ተመላላሽ ሕክምና ክፍል የሚስተናገዱ ታካሚና ቤተሰባቸው ስለ ተመላላሽ ሕክምና ክፍል መጨናነቅ ያላቸውን አመለካከ ለማውቅና ለችግሩ ዘላቂ የመፍትሔ ሀሳቦችን ለመተግበር ነው፡፡ በተጨማሪም ሆስፒታሉን ጤና አገልግሎትን አሰጣጥን ለማሻሻልና የደንበኞችን እርካታ ለመጨመር ነው፡፡

የምርምር ቡድኑ ለዚህ ጥናት አንድ ዋና ተመራማሪ፣ ሁለት የሰለጠኑ የመረጃ ሰብስባቢዎች እና አንድ ተቆጣጣሪዎችን ያካተተ ነው፡፡

በአማኑኤል አእምሮ እስፔሻላይዝድ ሆስፒታል ለተመላላሽ ሕክምና አገልግሎት ለማግኘት ወደ ሆስፒታሉ በመጡ ተገልጋዬች ስለ ተመላላሽ ሕክምና ክፍል መጨናነቅ በተመለከተ የችግሩ መንስኤዎችን ለመለየትና አስፈላጊ መፍትሔዎችን መተግር በሚለው የምርምር ፕሮጀክት ላ□ ተታሳፊ ለሚሆኑ ተመላላሽ ታካሚዎችና ቤተሰቦች የተዘጋጀ የመረጃና የስምምነት ውል ቅ□፡፡

የምርምር/ የጥናት ርዕስ

በአማኑኤል አእምሮ እስፔሻላይዝድ ሆስፒታል የተመላላሽ ሕክምና ክፍሎች መጨናነቅ በተመለከተ የችግሩን መንስኤዎች መለየት እና አስፈላጊ መፍትሔዎችን መተ□በር

የዋና ተመራማሪው ስም፡ አቶ ታምሩ ያለው

□□ርፀቱ ስም፡ □አማኑኤል አዕምሮ ስፔሻላይዝድ ሆስፒታል

ወጪወን የሚሸፍነው አካል፡ የአማኑኤል አዕምሮ ስፔሻላይዝድ ሆስፒታል

ይህ የመረጃና የስምምነት ውል ቅጽ የተዘጋጀው □እርሰ- ተሳታ□ □እንዲሆኑ ስለተጋበዙበት በምርምር ቡድኑ የሚካሄደውን ጥናት በተመለከተ የእርሰዎን ፈቃደኝነት ለማወቅ ነው፡፡

አተገባበር

ይህ ጥናት ሆስፒታሉ የሚሰጠውን የተመላላሽ ሕክምና አገልግሎት ለማግኘት የመጣውን ሕመማን እና አስታማሚ ቤተሰብን በዋነኝነት የሚያካትት ሲሆን በጥናቱ ተሳፊታዎች የሚመረጡት አገልግሎቱን አግኝተው ሲጨርሱ በመሆኑና በጥናቱ ላይ ይተባበሩናል በለን ስለምናምን ነው። እርሰ- በ□ህ ጥናት ለመሳተፍ ፈቃደኛ የሚሆኑ ከሆነ ተሳታፊ በመሆነዎ በጣም ደስተኞች ስንሆን □እርሰዎ የጥናቱን ዓላማ በግልጽ እንዲረዱና ስምምነትዎን እንዲገልፁልን እንፈልጋለን። በዚህ መሠረትም በመረጃ ሰብሳቢዎች የሚሰጠዎትን መጠይቅ በመሙላት እንዲተባበሩ በአክብሮት □እንጠይቃለን።

ሊደርስ የሚችል ጉዳት

በዚህ ጥናት ተሳታፊ በመሆነዎ ምክንያት የሚደርስ ምንም ዓይነት ጉዳት የለም። መጠይቁን ለመሙላት ቢበዛ 20 ደቂቃ ይወስድበዎታል። በሆስፒታሉ የተመላላሽ ክሕምና ክፍሎች መጨናነቅን ለማውቅና ዘላቂ የመፍትሔ ሀሳቦችን ለመተግበር፣ በተጨማሪም የሆስፒታሉን የጤና አገልግሎት አሰጣጥን ለማሻሻልና የደንበኞችን እርካታ ለመጨመር፣ እንዲሁም በዚህ ዙሪያ ወደፊት የሚደረጉ ጥናቶችን ለመደገፍ ትልቅ አስተዋፆ ስለሚያደርግ ጊዜዎትን ሰጥቶዉ መጠይቁን መሙላተዎ ተገቢና አስፈላጊ ነው።

ጥቅማጥቅም

በዚህ ጥናት ተሳታፊ በመሆነዎ ምንም ዓይነት ማበረታቻ ወይም ክፍያ አይሰጠዎትም።

ሚስጢራዊነት

ለዚህ የጥናት ፕሮጀክት የሚሰበሰበዉ መረጃ የግል ጉዳዮትን ያካተተ በመሆኑ ማን ምን መልስ እንደሰጠ/ች ሚስጢር □እንዲሆን ጥንቃቄ ተደርገሮበታል። ለ□ህም ሲባል በመ□□ቁ ላ□ ስምም ሆነ የመታወቂያ ቁጥር መፃፍ አይፈለግም።

በጥናቱ ያለመሳተፍ ወይም የማቋረጥ መብት

በዚህ ጥናት ያለመሳተፍ መብትዎ ሙሉ በሙሉ የተጠበቀ ነው።

ማ□ኘት የሚችሏቸው ሰዎች

□ከለ□ መረጃ ለማ□ኘት የሚፈልጉ ከሆነ በሚከተሉት አድራሻዎች ማግኘት ይችላሉ። ማንኛዉም ጥያቄ ቢኖረዎት ከዚህ በታች የተጠቀሱትን ግለሰቦች ማግኘትና በማንኛ□ም □□ መ□□ቅ ይችላሉ።

የዋና ተመራማሪው ስም፡ አቶ ታምሩ ያለው

ስልክ ቁጥር፡ 251-9-11-05-90-31

ኢሜል :tamiru99_tt@yahoo.com

የጥናቱ ቦታ፡ አማኑኤል የአእምሮ ስፔሻላይዝድ ሆስፒታል

የስምምነት ቅጽ

እንደምን አደራችሁ/ዋላችሁ እኔ ---------- □እባለለሁ፡፡ እዚህ የመጣሁት፣ታምሩ ያለው □አዲስ አበባ ዩኒቨርሲቲ የሕብረተሰብ ጤና ትምህርት ክፍል በሆስፒታል አስተዳደር የማስተርስ ድግሪ የመጨረሻ ዓመት ተማሪ የሆኑትን በመወከል የመመረቂ ፁሑፍ ለማዘጋጀት ጭምር ነው፡፡

የጥናቱ ዓላማ፡- ስለ ተመላላሽ ክሕምና ክፍሎች መጨናነቅ የሚያስከትለውን ችግር ለማውቅና ለችግሩም ዘላቂ የመፍትሔ ሀሳቦችን ለመተግበር ነው:: የጥናቱ ውጤትም በሆስፒታሉ ብሎም በሀ□ሪቱ ለሚገኙ የጤና ተቋማት ለማስፈፈት የሚጠቅም□እና በአጠቃላይ የተመላላሽ ሕክምና አገልግሎትን ለማሻሻል የጐላ ሚና ይኖረዋል፡፡ ስለዚህ የእርሰዎ ትክክለኛና ግልጽ ምላሽ የጥናቱን ዓላማ ለማሳካት የላቀ ድርሻ አለው፡፡ እርሰ- በተቋሙ የተመላላሽ ሕክምና ደንበኞችን ወክለው የተመረጡት በሆስፒበታሉ የሚሰጠውን አገልገሎት ሲጨርሱ ሲሆን በ20 ደቂቃ የሚሞሉት መጠይቅ የግል ጉዳዎትን ያካተተ በመሆኑ ማን ምን መልስ እንደሰጠ/ች ሚስጢር □እንዲሆን ጥንቃቄ ተደርገርቦበታል፡፡ለዚህም ሲባል በመጠይቁ ላይ ስምም ሆነ የመታ□ቂ□ ቁጥር መፃፍ አይፈለግም፡፡ በዚህ ጥናት ላይ በመሳተፈዎ ምንም የሚሰጠዎት ጥቅማጥቅም ወይም ገንዘብ አይኖርም፡፡ በጥናቱ መሳተፍና ለሁሉም መጠይቆች መልስ መስጠት ለውጤቱ መስመር እጅግ አስፈላጊ ነው፡፡

መጠይቁን ለመሙላት ፈቃደኛ ነዎት

ሀ. አዎ ☐

ለ. አይደለሁም ☐

□ቃ□ኛ ከሆኑ ወደሚቀጥለው ገጽ በመሄድ መልስ እንዲሰጡ እ□□ቃለሁ፡፡

እናመሰግናለን!!

□መረጽ ሰብሳቢ□ መለ□ ቁ□ር /ኮ□/----------

የአማርኛ መ□□ቅ /Amharic Version Questionniar/

በመጠይቁ ላይ ስምም ሆነ የመታወቂያ ቁጥር መፃፍ አይፈለግም፡፡ ስለዚህ ምንም እንኳን የምትሞሉት መጠይቅ የግል ጉዳዎትን ያካተተ ቢመሆንም ማን ምን መልስ እንደሰጠ/ች ሚስጢር ነው፡፡ በጥናቱ መሳተፍና ለሁሉም መጠይቆች መልስ መስጠት ለውጤቱ መስመር እጅግ አስፈላጊ ነው፡፡

I. <u>ክፍል አንድ፣</u> እባክዎን ከዚህ በታች የተጠየቁትን ይመልሱ
/<u>አጠቃላይ መረጃ</u>/

1. ዕድሜ/ በዓመት/ ☐

2. ☐ታ☐
ሀ. **ወንድ** ☐ ለ. **ሴት** ☐

3. የመኖሪያ አድራሻ /ክልል_____ከተማ_____

4. ሃይማኖት
ሀ. **ኦርቶዶክስ ክርስቲያን** ☐
ለ. **እስልምና** ☐
ሐ. **ካቶሊክ** ☐
መ. **ፕሮቴስታንት** ☐
ሠ. **ሌላ/ ☐☐ለ☐_____**

5. ብሄር
ሀ. **አማራ** ☐
ለ. **ኦሮሞ** ☐
ሐ. **ትግሬ** ☐
መ. **☐ሪ☐** ☐
ሠ. **ሌላ/ ☐☐ለ☐/_____**

6. የጋብቻ ሁኔታ☐
ሀ. **አላገባሁም** ☐
☐
ለ. **ባለትዳር**
ሐ. **☐ተ☐ታ☐** ☐
መ. **ባለቤቴ በሞት ተለይቷል** ☐
ሌላ /☐☐ለ☐/_____

7. የትምህርት ደረጃ

ሀ. **☐መ☐መሪ☐ ☐☐ሪና ከዚያ በላይ** ☐
ለ. **☐☐ሎማ** ☐

ሐ. ሰርተፊኬት ☐

መ.12ኛ ያጠናቀቀ ☐

ሠ. 2ተኛ ደረጃ ያጠናቀቀ ☐

ረ. 1ኛ ደረጃ ያጠናቀቀ ☐

ሸ. ማንበብና መፃፍ የሚችል ☐

ቀ. ሌላ /□□ለ□/_____

8. ከዚህ ቀደም ሆስፒታሉ አገልግሎት ፈልገው መጥተው ያውቃሉ

ሀ. አዎ ☐ ለ. አላውቅም ☐

9. ወደ እዚህ ሆስፒታል የመጡት ለራሰዎት ሕክምና ጉዳይ ነው

ሀ. አዎ ☐ ለ. አይደለም ☐

10.መልስዎ አይደለም ከሆነ የሕመሙሱ የዝምድና ሁኔታን ይግለፁ

ሀ. አባት ☐ ለ. እህት ☐

ሐ. እናት ☐ መ. ልጅ ☐

ሠ. ወንድም ☐ ረ. ሌላ ይግለፁ_____

II. ክፍል ሁለት፣ስለ ተመላላሽ ሕክምና አገልግሎት ክፍል አላስፈላጊ መጨናነቅን በተመለከ የተዘጋጁ ጥያቄዎች

❖ ከቀረቡት ምርጫዎች መካከል የሚስማሙበትን ይምረጡ

ተ.ቁ	ጥያቄዎች	ለጥያቄዎች መልስ ሊሆኑ የሚችሉ ምርጫዎች			
		በጣም እስማማለሁ	እስማማለሁ	አልስማማም	በጣም አልስማማም
1	በተመላላሽ ሕክምና ክፍል በቂ የሆነ የሕመ.ማን ማረፊያ ቦታ የለም።።	☐	☐	☐	☐
2	በተመላላሽ ሕክምና ክፍል በቂ የሆነ መቀመጫ ወንበር የለም	☐	☐	☐	☐
3	የተመላላሽ ሕክምና አገልግሎት መስጫ ቦታ ለሕመ.ማኑ ሆነ ለታካሚ ቤተሰብ ምቹ አይደለም።።	☐	☐	☐	☐
4	ከዚህ ቀደም በነበረው የተመላላሽ ሕክምና ለማግኘት ከቀጠሮ ውጪ መጥተው ያውቃሉ	☐	☐	☐	☐
5	በተመላላሽ ሕክምና ክፍል የሚሰጠው አገልግሎት ደስተኛ ነዎት/እረክትዋል/።።	☐	☐	☐	☐
6	በተመላላሽ ክፍል ሕክምና የሚሰሩ ሠራተኞች በአግባቡ አስተናግደዎታል።።	☐	☐	☐	☐
7	በዚህ ሆስፒታል የተገለገልኩ በወረፋ ቅደም ተከተል መሠረት ነው።።	☐	☐	☐	☐

III. <u>ክፍል ሶስት</u>፣ስለ ተመላላሽ ሕክምና አገልግሎት ክፍል መጨናነቅን በተመለከ የተዘጋጀ ጥያቄዎች

- ከዚህ በታች ለቀረቡት የምርጫ ጥያቄዎች መልስ ይሆናሉ የሚሉትን ፊደል በምልክት በማድረግ ይምረጡ፣
- እባከዎን የእርሰዎን አስተያየት ለሚፈልጉ ጥያቄዎች በተመለከተ መልሱን በአጭሩ እና ግልጽ በሆነ መንገድ ይፃፉ

8. ሕመምተኛውን ለመርዳት ስንት በመሆን ወደ ተቋሙ መጡ

_____

9. የተመላላሽ ሕክምና አገልግሎት መስጫ ቦታ ለሕመሙማኑ ሆነ ለታካሚ ቤተሰብ ምቹ ነው ብለው ያምናሉ

ሀ. አዎ ☐ ለ. አይደለም ☐

10. የሰጡት መልስ ፡ አይደለም ከሆነ ምቹ ያልሆነበትን ምክንያት በዝርዝር ይግለፁ

_____

_____

_____

11.ከዚህ ቀደም በነበረው የተመላላሽ ሕክምና ለማግኘት ያለቀጠሮ መጥተው ያውቃሉ

ሀ. አዎ ☐ ለ. አይደለም ☐

12.የመረጡት መልስ ፡አዎ ከሆነ በቀጠሮ ቀን ያልመጡበት ምክንያቶችን ይግለፁልን (ከአንድ በላይ ምርጫ መምረጥ ይቻላል)

ሀ. የራንስፖርት አገልግሎት እጥረት ☐ ለ. የሚያስታምም ቤተሰብ አለመኖር ☐

ሐ. የመታከሚያ ገንዘብ እጥረት ☐ መ. የቀጠሮ አሰጣጥ ስህተት ☐

ሠ. የቀጠሮ ቀን በመርሳት ☐ ረ. በሽታው እንደገና ስላገረሸበት ☐

ሰ. መድሐኒቱ ስላለቀ ☐ ሸ. ሌላ
ይግለፁ_____

13.የተመላላሽ ሕክምና አገልግሎት ለማግኘት ምን ያህል ሰዓት ወስዶቦታል

_____

በተመላላሽ ሕክምና አገልግሎት ክፍል አላስፈላጊ ትርምስና መጨናነቅ አለ ብለው ያምናሉ

ሀ. አዎ ☐ ለ. አይደለም ☐

14.መልሰዎ፡ አዎ፡ ከሆነ ምከንያቱ ምን ሊሆን ይችላል ብለው ይገምታሉ ይግለፁ

_____

_____

_____

15.ይህን የተመላላሽ ሕክምና ክፍል አላስፈላጊ ትርምስና መጨናነቅ በምን መልክ መቀነስ ይቻላላል በለው ያምናሉ ፡ መፍትሔ የሚሏቸውን ቢገልበፁልን

16.በተመላላሽ ሕክምና አሰጣጥ በተመለከተ ተጨማሪ አስተያየት ካለዎት ይግለፁል

12.6. Check lists

Checklist-1

Waiting area utilization (management) at OPD

Waiting Area code _____

S/N	Date	Day-1	Number of Patients sited in waiting area (On average)		Remark
		Morning	Male		
			Female		
		Sub-Total-1			
		Afternoon	Male		
			Female		
		Sub-Total-2			
		Grand total			

Checklist-2

OPDs that serves two or more patients at a time

S/N	Name of Case team	OPD Number	More than two patients seen at the same time		Remark
			YES	No	
1					
2					
3					
4					
5					

Checklist-3

Distribution of runners among case teams

S/N	**Name of Case team**	**Is runner assigned**	**Yes**	**No**	**Remark**
1					
2					

Checklist-4

Average number of patients seen per month, days and OPD

S/N	Total	Numerator	Denominator		Amount	Remark
1				Per Month		
2				Per Day		
3				Per OPD		

Checklist-5

Average numbers of patients who didn‟t come on the appointment date

Total number of OPDs	**Total number of Runner assigned**	**Total number of Runner required**	**Difference**	**Remark**

12.7. Outpatient waiting time data collection form

Name of Pt. _____ Code_____

Medical Record No._____ Case team_____ Sex: M ☐ F ☐
Age_____

Instruction: Please fill the ***start*** and ***ending time*** in the required field as specified below.

S/N	Description of major service point	Time in minutes		Filled by
		start time	Ending time	
1	**Patient arrival time in the facility**			**Receptionists**
2	**Registration taken time**			**MR Clerks**
3	**Card taken by runner to OPD clinic**			**Runners**
4	**Time taken by physician**			**OPD staff**
5	**Time taken in pharmacy**			**Pharmacy- staff**

- **N.B**: You can use ***mobile phone*** or ***hand watches*** to record **time.**
- **Possibly,** use of **local time** calendar system **preferable.**

12.8. Checklist-6 for monitoring and evaluation of the project

Check lists for supportive supervision

Project Name: Outpatient appointment system

Sub-project: Proper utilization of registration book (Agenda) in OPD

Case Team: _____ Date: _____

S/N	Item Description	Yes (✓)	NO (✓)	Remark
1	Date and signature are present on appointment card			
2	Signature and date on appointment card is eligible (clear) and written in local language (Amharic)			
3	Patient visits are according to the schedule given			
	Appointment Registration Book (Agenda) is properly used.			
4	The patients are appointed on the basis of treatment session (morning and afternoon)			
5	The patients are informed clearly what is on appointment card			
6	Appointment is done by distributing patients load among days in a balanced manner.			

General Comments:

_____

_____

_____

List of supervisor's name: **Signature:**

(1) _____ _____

(2) _____ _____

(3) _____ _____

12.9. Checklist7 sample calendar for intervention.

Sample calendar with Amharic version used for preparation of patient appointment registration book

መስከረም 2006 Sept-Oct. 2013

ሰኞ/ Mon.	ማክሰኞ/Tues	ረቡዕ/ wed	ሐሙስ /Thru	አርብ/ Friday
		(1)11 ዘመን መለወጫ	2/12	3/13
6/16	7/17	8/18	9/19	10/20
13/23	14/24	15/25	16/26	(17)27 መስቀል
20/30	21/1	22/2	23/3	24/4
27/7	28/8	29/9	30/10	

12.10. Selected National holidays and weekend in 2013/14 for intervention

Months	Days										
መስከረም/ September	1	4	5	11	12	17	18	19	25	26	
ጥቅምት/ October	2	3	9	10	16	17	23	24	30		
ህዳር/ November	1	7	8	14	15	21	22	28	29		
ታህሳስ/ December	5	6	12	13	19	20	26	27	29		
ጥር/ January	3	4	6	10	11	17	18	24	25		
የካቲት/ February	1	2	8	9	15	16	22	23	29	30	
መጋቢት/march	6	7	13	14	20	21	27	28			
ሚያዝያ/ April	4	5	10	11	12	18	19	23	25	26	27
ግንቦት/ May	2	3	9	10	16	17	20	23	24	30	
ሰኔ/ June	1	7	8	14	15	21	22	28	28		
ሃምሌ/ July	5	6	12	13	19	20	21	26	27		
ነሐሴ gust	3	4	10	11	17	18	24	25			
ጳጉሜ/ September	1	2									

Attention please:

Providing appointment schedules to patients in stated days above may incur additional cost to patients and increase unnecessary job burden to staff. Therefore, case teams are strongly advised NOT to use the days specified in particular months for patient appointment.

12.11. Protocol for outpatient appointment system

Proportion of outpatient load by treatment sessions regular working days:

Session	Current state	Plan (Objectives)	Strategy	Ultimate goal
Morning	76.82%	55% ↓	▪ Appointment system: ✓ Proportional allocation of patients to morning and afternoon session ✓ Proportional distribution of patient load among working days	Reduce overcrowding at OPD
Afternoon	23.18%	45% ↑		
Total	100%	100%		

Patients that are allowed to breach the specific appointment date due to at least with one or more of the following reasons and conditions.

1. Patients who have acute drug side-effect
2. Sickness (worsening of the symptoms)
3. Relapse
4. Patients from remote area (other than Addis Ababa city)
5. Understandable social problems
6. Patients who have adequate reasons with strong justifications

Important notice: Be sure that

1. Date and signature should be presented on appointment card.
2. Signature and date on appointment card should be clearly written in local language (Amharic).
3. A strong advice should be given to patients to adhere their appointment schedule
4. Be sure that Appointment Registration Book (Agenda) is properly used for the intended purpose only.
5. The patients should be appointed on the basis of treatment session (morning and afternoon) by a given proportion above.
6. Inform the patients clearly what is on appointment card
7. Appointment should be done by distributing patients load among 5 working days in a balanced manner.

Strong advice should be given to those patients who defaults the appointment schedule