# REVIEW OF PERIPARTUM REFERRALS TO THE LABOUR WARD, MUHIMBILI NATIONAL HOSPITAL, DAR ES SALAAM, TANZANIA

**BY**

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A dissertation submitted in partial fulfilment of the requirements for the degree of Master of Medicine in Obstetrics and Gynaecology of the Muhimbili University of Health and Allied Sciences.

Muhimbili University of Health and Allied Sciences.

.April, 2007

## CERTIFICATION

The undersigned certifies that he has read and hereby recommend for acceptance by the Muhimbili University of Health and Allied Sciences a dissertation entitled: **Review of peripartum referrals to the labour ward, Muhimbili National Hospital, Dar es salaam, Tanzania,** in partial fulfilment of the requirements for the degree of Master of Medicine in Obstetrics and Gynaecology of Muhimbili University of Health and Allied Sciences.

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## DEDICATION

To

My late Mother Catherine, My Father Attilio whose fatherly love I will live to remember, My brothers Romanus and Benjamin, My sisters Auda, Ritha, Salome, Dorothy, and Lilian, whose prayers will ever hold me.

My Best friend Andrew William, who came when my wings were broken and helped me fly again.

## ABSTRACT

**Background**: Timely emergency obstetric care is the quickest and most cost effective way to reduce maternal deaths. In order to achieve this quality of care, health facilities should have a well functioning referral system.

Local experience at MNH has shown that far too often women suffering complications of labour and delivery arrive at this referral facility after a considerable delay, only to die from lack of appropriate and timely obstetric care.

**Objective**: This study was done to review peripartum referrals to the labour ward Muhimbili National Hospital.

**Methodology**

Study setting: Labor ward and Semi intensive care room of MNH

Study design: A descriptive cross-sectional study.

Study population: All women admitted in labour ward and obstetric semi intensive care ward for delivery.

Sample size: 1285 admitted women.

Study duration: Two months.

**Results**

Institutional referrals were 29.4% and 56.2% were non institutional referrals from home with no risk factors on their antenatal cards. Of the institutional referrals 45.5% were from lower health facilities. Nearly 70% of the admitted patients bypassed district

hospitals. The commonest diagnoses for institutional referrals were CPD/obstructed /prolonged labour and Hypertensive disorders which comprised of 30.3% and 18.2% respectively. At the referring centre the diagnosis was missed in 21.7% and 13.5% of the institutional referrals could have been avoided. In institutional referrals delay started even before decision to refer had been made. The mean time duration from decision to refer and admission at MNH (tertiary level) was 3hrs with maximum of 10 hrs. The reasons for delay in transferring patients were: lack of fuel while the ambulance was there (34.0%), and lack of nurses to escort the patients (25.2%) in district hospitals. In lower facilities the main reason was lack of ambulance. Among the institutionally referred patients 29.6% traveled by private/hired transport.

Study showed that; postpartum maternal complications occurred more in the institutionally referred women. During the study period there were 14 maternal deaths at labour ward and obstetric semi intensive care ward, 12 of them (85.7%) were among the institutionally referred women. The proportion of low APGAR score babies and perinatal deaths were also high among the institutionally referred women.

**Conclusion**

There was high referral rate to MNH whereby a lot of patients by passed district hospitals. The commonest institutional referral diagnoses required surgical interventions. There was delay of patients with failure to diagnose some of conditions needing referral leading to high maternal/fetal complications and death among institutionally referred women.

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## ABBREVIATIONS

ANC……..Antenatal Care

ABD……..Assisted Breech Delivery

APH……...Antepartum Haemorrhage

C-Section……Caesarean Section

CCF……Congestive Cardiac Failure

CPD……Cephalopelvic Disproportion

CVA……Cerebral Vascular Accident

DIC…… Disseminated Intravascular Coagulopathy

ENND……...Early Neonatal Death

IUFD……Intrauterine Fetal Death

MUCHS……Muhimbili University College of Health Sciences

MNH……..Muhimbili National Hospital

LCVE……Low Cavity Vacuum Extraction

LSCS……..Lower Segment Caesarean section

PIH……Pregnancy Induced Hypertension

PPH……Postpartum Hemorrhage

PROM……Premature Rupture of Membranes

SBM……Still Birth Macerated

SBF…… Still Birth Fresh

STAH……..Sub Total Abdominal Hysterectomy

SVD……Spontaneous Vaginal Delivery

UNICEF……..United Nation Children's Fund

UNFPA……...United Nation Population Fund

WHO……World Health Organization

# 1.0 Introduction and Literature Review

## 1.1 Introduction

Twenty years after the launch of the initiative for safe motherhood in 1987, maternal mortality has hardly decreased in low income countries, where 99% of maternal deaths occur. [1] More than half of the 578,000 maternal deaths worldwide in 2005 occurred in Africa. The management of maternal complications requires hospital units that can provide complete, basic and comprehensive obstetric care. The availability, accessibility and quality of care in these structures are the main factors that need to be modified to reduce the high levels of maternal mortality in these countries. [2] Indeed, these countries have too few complete, emergency obstetrics facilities and the cost of decentralizing such services largely exceeds the available finances. In these conditions, improving the process of referral of complicated cases or cases at high risk of complication to the rare referral structures remains the only alternative. The referral process however, has not been evaluated in detail in most of these countries. [3]

Referral is a link in the organization of many district health systems in Africa. In theory health centers and district hospitals should complement each other; whoever can be treated adequately at health centre level will be treated there, and the referral system will ensure that all others are referred to the district hospital in a timely fashion. The criteria for referral are supposed to be purely medical, and objective, in the interest of the patient.

In many low income countries referral system is still weak and studies on maternal health in particular readily blame inadequate referral systems for increased maternal mortality .[4]

Maternal mortality ratio (MMR) in Tanzania is reported to be between 529 and 1500 per 100,000 live births [5]. The main causes of maternal mortality are haemorrhage, abortion, hypertensive disorders, obstructed labour, anaemia and sepsis. Most maternal deaths occur as unpredictable obstetric complications, thus a strategy to achieve a substantial decline of maternal mortality must prioritise improvement in medical treatment of obstetric complications.

It is widely accepted that substantial reduction in maternal mortality and severe morbidity is impossible to achieve without an effective referral system for complicated cases. Early detection and referral to higher levels of care might also substantially reduce the complications of childbirth, that have been found to contribute up to one third of neonatal deaths in some countries [6, 7]. The World Health organization (WHO), UNICEF and others have now put considerable work into defining the emergency obstetric care (EOC) skills at health centers. The pre requisites for a well functioning referral system include; an adequately resourced referral centre, communication and feedback system, reliable transport, agreed sets of specific protocols for identification of complications, qualified staffs and proper records system.

There should also be mechanisms to ensure that patients do not bypass levels of the referral system e.g. good patient information and structured fee and exemption system .[8] The general goal of such referral system is that patients are dealt with in the right place, with effective treatment provided at the minimum of cost [9, 10] however; there are real challenges in monitoring the effectiveness of such referral system once put in place. A critical element in a maternity care system such as that in Dar es Salaam is the efficient referral of women with complications arising in labour to the facility level with required EOC functions.

Intrapartum referral rate is one indicator that can be used in the monitoring of this activity, but interpretation of this rate has to be specific to local context. In rural setting where distances are greater, transportation could be problematic; one would expect the percentage of women referred to the next level to be lower than in urban area. In urban areas factors such as skills would be one of the causes of delay in referring patients and in-depth analysis of case notes would be useful.

A well functioning referral system is that with no over utilization and under – utilization of different service levels. Under utilization may have serious life threatening consequences for the mother and her fetus, if appropriate care is not accessed when complications arises. Over-utilization has received less attention because it is often assumed not to be a significant problem in underserved regions.[11] However in urban context such as Dar es Salaam over utilization is important because of the cost

implications and it may be detrimental to quality of care of the referral center which may become over – burdened.

In an ideal world there would be no false negatives and no false positives among those referred. False negative referrals are not registered and may die in the village without anybody noticing the fact that maybe the patient did consult a health centre previously. False positives on the other hand are difficult to define: what is a legitimate reason for referral for the patient or for the health personnel, who referred the patient, does not necessarily correspond with the doctor's opinion at receiving referral center. Hence false negative referral cases are difficult to grasp through routine data or rational guidelines.

In the 1990s the district approach became the backbone of health policy in many African countries. A network of health centres would offer proximity care of relatively low technology, while district hospitals would provide a backup for patients referred by the health centre[12].

Evidence for effective complementarities between the two levels is scarce. [13] On the other hand there is ample, evidence of the failure of referral systems to live up to expectations. Studies on maternal health in particular readily blame inadequate referral systems for the failure of districts to reduce maternal mortality. [14, 15, 16]

Emergency Obstetric Care

Ensuring access to emergency obstetric care is especially important in reducing maternal deaths. Basic emergency obstetric care at the health center level should include at least: Parenteral antibiotics, parenteral oxytocic drugs, parenteral sedatives for eclampsia, and manual removal of placenta, manual removal of retained products/curettage, and assisted vaginal delivery. Comprehensive emergency obstetric care services at the district hospital level (first referral level) should include the above, plus: Surgery, anesthesia and blood transfusion. [7]

Referral system in Dar as salaam.

In Dar as Salaam obstetric care is performed in all four levels of health care i.e. dispensaries, health centers, district hospitals, and MNH as consultant (second referral) hospital. Review of data on background of health care in Dar es salaam revealed that, there are 21 hospitals (excluding MNH) and 15 health centers, Out of these, 3 hospitals and 4 health centers are owned by the government, and only 3 health centers provide maternity services. The 3 hospitals function as district hospitals in 3 municipalities (Amana, Temeke, Mwananyamala).These hospitals receive referred patients from their respective district health centers and other health facilities, in that way they function as the first referral hospital. These district hospitals refer complicated cases to MNH (second referral hospital). MNH also receives patients from nearby coast region. [17]

According to monthly ward return and the data base from MNH a significant number of mothers admitted in labor ward are women without any risk factors and they are coming

directly from home e.g. in 2005, fifty percent of all deliveries at MNH were mothers who had been admitted to the labor ward without any antenatal risk factors. This number of women who by pass the district hospitals could have been managed in these district hospitals.

The impact of this referral system to the MNH labor ward performance has not been worked out. Data shows that many women are referred directly from health centers and dispensaries, and those who are referred from district hospitals reach MNH in critical conditions and some die soon after admission due to delay in reaching MNH for specialists care.

In the year 2005, two thousand patients admitted in labour ward were referrals from peripheral health facilities, among these 40 patients died due to complications, accounting for 69% of all deaths that occurred in labour ward and semi intensive care ward (Data base). If these patients with obstetric complications could be referred earlier the maternal mortality at MNH could be reduced remarkably.

The malfunctioning of referral is usually analyzed in terms of either the need for standardized guidelines and criteria for referral [18, 19] distance and transport, [9] or financial barriers. [20, 21] Fewer studies concentrate on the socio-cultural barriers. A different constraint is that of the relational factors involved: the nurse-patient-family interaction at the moment of the decision to refer a patient.[20]

There is no doubt that many patients who would benefit from a referral are either not referred or do not comply timely. Patients who get to the hospital often arrive after considerable delays.

**1.2 Review of Literature:**

A well-functioning referral system is essential to two of the key interventions for reducing maternal mortality: skilled attendance at delivery and emergency obstetrical services for pregnancy complications. [22, 23]

Reduction of maternal and perinatal mortality depends to a great extent on improved accessibility to quality obstetric services such as surgery and blood transfusion that can only be provided in hospital settings, but also on technically simple medical interventions for sepsis and haemorrhage.

It is estimated that around 15% of pregnant women develop potentially life threatening complications during delivery and need some kind of medical assistance, without access to a major surgical intervention some 1% - 3% of parturient women will die. [24] It has been also documented that most women with high risk pregnancy give birth without complications and that most complications occur among low risk women. Most maternal complications can be neither predicted nor prevented, This necessitates the presence of well functioning referral system to higher level of care whenever the complication arise during delivery. [25]

Sri – lanka offers an example of significant reduction of MMR within a short period of time. At the time of World War II, MMR was more than 1500 per 100,000 live births. Parallel to an implementation of a nation wide system of health facilities where obstetric

complications could be referred early, the MMR decreased to 239 within ten years and to 30 today. China, Cuba and Malaysia give similar evidence of the effectiveness of health care interventions where a system of referral of obstetric complications is crucial.[22]

One would like to know whether one is referring too many or too few people. Monitoring referral rates – the proportion of patients at the lower health facilities referred to higher level hospital is complicated by the fact that there is no such thing as a 'good' and universally valid referral rate. One should expect a wide variation between and within countries as the frequency of referral depends on many factors such as poverty, population densities, the density of the network of health facilities, the availability of transport and organization of emergency transport, as well as on the performance and facilities of the health system. Even in rich countries, referral rates vary widely. They are often determined in an urban environment. In an African context optimal referral rates ranging between 5 and 8% have been recommended. These figures are merely based on field observations most often in urban areas. [10]

A study on patients' referral system was conducted in public hospitals in Honduras and Japan and it was found that, the average referral rate by the level of health facility was 15.8% at tertiary hospital, 6.8% at second referral hospitals, and 0.8% at health centers. The referral rate was observed to be higher when institutional managers emphasized the importance of the referral.

The main problems identified were: low referral rate at all levels of institution, evident bypass phenomenon at intermediate hospitals, and inadequate health information system for patient referral.[26]

In urban areas many false positive referrals are often observed: pressured by patients, nurses at the first contact level doctors readily refer patients to overcrowded hospitals – the latter having to deal with typical first line health problems as well as sophisticated surgical problems. The health centre therefore does not act as a gatekeeper as it should. [9]

A study done in Pakistan at an urban setting, on the effectiveness of patient referral revealed that, seventy-five percent of the patients attending the first-level referral facilities (district hospitals) and 44% of the patients attending higher-level facilities (consultant hospitals) had a problem of a primary nature that could well have been managed at the lower health facilities (Health centers and Dispensaries). [27] The opposite happens in rural areas: referrals are too few and come too late. Patients, even those who attend a health centre fail to reach largely underused hospitals. This represents a nagging problem for managers: issues as diverse as provider behaviour, cultural barriers, financial constraints and criteria for referral need to be addressed. Distance and transport problems are often critical. [27]

In Ejisu District Ghana, a hospital based study was done to determine the outcome and the effectiveness of the referral system on recipient institutions and it was found that, the

3 most important complications referred were maternal hemorrhage (29%), high-risk pregnancy (24%) and delayed second stage (21%). In the same study, focus-group discussions held in selected communities revealed the following factors as inhibiting the utilization of health services: prohibitive hospital fees, illegal fees and bribes, irregular transport and uncooperative drivers, poor and unmotorable roads, lack of drugs and essential supplies and, and negative staff attitudes. [21]

In Kivu ,Congo, the percentage of institutional referrals was found to be 43%, with 57% being self-referral. The self referrals women included, uncomplicated, non-referred cases that monopolize a considerable amount of time that the few qualified personnel could have more usefully dedicated to the neediest cases. [3]

In Ghana another study of women referred to Korle Bu Teaching Hospital during labour and delivery revealed that out of 396 women referred, 86% were referred from polyclinics (equivalent to district hospitals in our setting) and 24 (6.1%) from private hospitals The commonest indications were failure to progress (21.5%) and hypertensive disease (15.7%). A total of 35 (8.8%) women were referred with third-stage or immediate postpartum complications. Referrals constituted 17.6% of hospital deliveries. Significant deficiencies identified in the referral mechanisms were; of the referred patients 72.7% traveled by public or private means of transport and 54.2% were not accompanied by any staff during transfer. Only 16.7% of those expected to have

partographs came with one and 55.6% of women with complications of vaginal bleeding did not have intravenous infusions in situ. [19]

In Rufiji district, Tanzania poor performance of the referral system caused an unacceptably high maternal mortality, in spite of good access to well functioning institutions. It was found that successful obstetric referrals were only 46%; Four maternal deaths occurred due to transport failures 33.9% delivered on the way to district hospital, and the remaining opted for home delivery due to lack of transport to the district hospital. [5]

Patients who make a timely decision to seek care can still experience delay, because the accessibility of health services can be a problem in the low income countries. In rural areas, a woman with an obstetric emergency may find the closet facility equipped only for basic treatments and education, and she may have no way to reach a regional center where resources exist.

Finally, arriving at the facility may not lead to the immediate commencement of treatment. Lack of qualified staff, essential drugs and supplies, coupled with administrative delays and clinical mismanagement, become documentable contributors to maternal deaths. [14]

In a study on operational factors affecting maternal mortality in Tanzania suboptimal care was identified in 77% of cases reaching health centres, inadequate treatment was identified in 61% of cases in district hospitals, and 12% of cases in tertiary referral centers. Erroneous decisions made at the district level and the lack of equipment at referral centers were the main reasons for inadequate care. [28]

Waiting to be seen by a doctor or specialist, unavailability of an obstetrician or anesthetic coverage, operating rooms being unready, electricity failure unavailability of drugs and blood were causes of delay in West Africa, delay was also greater when a patient was admitted at night and shorter during the weekend, when facilities were less crowded. [29, 30, 31]

A study done at MNH by Nabahan in 2002 showed that there is delay in initiating treatment after patient had been admitted. The mean time interval from admission to the time the patients was seen by a doctor was 2hours 45minutes with periods as long as 17hours. Mean time from decision making and starting of operative procedure was 3hours and 30minutes. Blood transfusion was not available to 34% of the patients who needed blood transfusion and those who got the blood had to wait for 2hour before getting blood. [32]

All these studies demonstrate the importance of clinical based audit to enhance quality of care regarding referrals of patients with obstetric complications.

## 2.0 Problem Statement

The effectiveness of referral process in reducing maternal morbidity and mortality has not been evaluated in Muhimbili National hospital and Dar es salaam at large.

There are number of women with peripartum obstetric complications referred to MNH who arrive in critical conditions, some arrive late and die soon after admission, the reasons for delay have not been elucidated yet. The contribution of these referred patients to the obstetric care performance of MNH is still a question to be answered.

Other patients have been found to be referred directly from health centers and by pass district hospitals.

Personal observation in the MNH labour ward and obstetric semi intensive care ward has shown that, there is a big number of unnecessary referrals from lower health facilities, and this is leading to overcrowding of patients, with poor obstetric outcome. If the reason for unnecessary referrals could identify and worked on, it might improve the obstetric performance of MNH to reach the standard required for the tertiary hospital.

No specific study has been done recently to asses the patients who are referred with peripartum obstetric complications to MNH labor ward and their outcome. Studies on emergency obstetric care which have been done at MNH recommended further studies to be performed on referred patients with peripartum obstetric complications admitted to MNH. [17, 32]

## 3.0 Rationale

In many low income countries referral system perform well below expectations. [4] Studies in other countries have shown that, part of the failure to adequately refer the patients who need referral has to do with deficits in technical and organizational competence of the referring facility. In Tanzania the situation is not known and also the impact and contribution of this index referral system to the obstetric care of receiving hospital (secondary referral facility) is not known.

This study is aimed at investigating the patients referred with obstetric complications admitted to MNH labour ward during delivery, in terms of source (are they coming from 1st referral level?), indications, constraints in reaching MNH on time, maternal and fetal outcome so as to assess the adequacy of various aspects of the referral mechanisms. This will explore the interface between the first and second level of obstetric care, also will provide information for the district and lower referral health providers (the government at large) on improving maternity care especially during childbirth

## 4.0 Objectives

### 4.1 Main Objective.

To perform a review on peripartum referred patients admitted to MNH labour ward

### 4.2 Specific Objectives

1. To document the diagnosis of institutionally referred patients admitted in the labour ward.
2. To compare diagnosis of institutional referrals and the actual diagnosis at MNH.
3. To establish the time duration, between decision of institutional referral and admission at MNH labour ward.
4. To determine the reasons for delay of institutionally referred patients (if any) in peripheral health facilities.
5. To determine the obstetric outcome among referred patients

## 5 .0 Methodology

### 5.1Study design

Descriptive cross sectional study.

### 5.2 Study setting

The study was done at Muhimbili National Hospital (MNH). This is the largest Consultant and University teaching hospital in the country. It is a tertiary referral hospital.

It is located in Dar-es-Salaam region with a population of about 3million (2002). The region is organized into three municipal councils namely Ilala, Kinondoni, and Temeke. Each municipality has a district hospital (Amana, Mwananyamala and Temeke), situated 5km, 7km and 10km from MNH respectively. These hospitals provide emergency obstetric care services, on a 24-hour basis; each has one or two obstetricians. Most obstetric cases with complications referred to MNH take about 1hr on transit during transferring of patients. Some patients are referred from the nearby coast region. Although MNH is meant to be tertiary referral hospital experience has shown that there are number of patients being admitted direct from home others directly from lower health facilities (Dispensaries and Health centres).

Maternity services are provided in the maternity building that consists of seven wards. Four wards, each with a capacity of approximately 38 beds, serve for antenatal and postnatal women.

One ward for women in labour, and one for immediate postnatal women. There is an obstetric semi intensive care ward where seriously sick women such as eclampsia and severe pre eclampsia are admitted. There is one special ward for sick neonates such as prematurity and low score born at MNH or referred from other health facilities.

During the period of study there was an extensive infrastructure rehabilitation work going on at MNH. Obstetric services have been temporarily transferred to another block with similar architecture to the maternity block. This audit did not include patients with obstetric complications referred to antenatal clinic or those with obstetric complication admitted in Antenatal and Post natal wards.

All Patients report at the reception, those who are referred from other hospitals report at the reception with the escorting nurse. A case file is issued and they are escorted to the labour ward admission room. At labour ward admission room, the admitting nurse records client's particulars, do initial abdominal examination, and attaches a partograph on the file note then sends her to the labour ward.

On admission, the Intern/Resident on call does a full initial evaluation of patients. This enables him/her decide whether the patient is in labour or not and if she has any emergency obstetric complication(s) that requires admission. Those not in labour are transferred to the antenatal ward.

For those in labour, findings are recorded in a partograph, which is used as a tool in monitoring the progress of labour.

During working days, the team of doctors on duty will do the ward round as a team. They will see every patient and discuss her management and make decisions as appropriate. . After the ward round usually the resident(s) and intern(s) on duty take over the management of patients. Residents and senior doctors are the ones who do proper diagnosis and decisions for caesarean and other mode delivery. The specialist on call can be called any time if a resident faces difficulty in management of the patients. He/she is also required to do evening ward round at the labour ward.

**5.3 Study population**

All women admitted in labour ward and obstetric semi intensive care ward for delivery.

**5.4 Inclusion criteria**

All non institutional referred patients and institutional referred women who were admitted in labour ward and obstetric semi intensive care ward.

**5.5 Study sample size**

The sample size was calculated using EPI- Info 6 statcalc programme. With the formula:-

$$N=\frac{Z^2P(1-P)}{D^2}$$

N=Expected minimum sample size

Z= The standard value which correspond to 1.96 at a 95% confidence interval.

P=Estimated prevalence of institutional referred patients in labour ward and obstetric intensive care ward MNH = 19 %

D=Maximum likely error i.e. degree of accuracy taken to 5%

Thus $\frac{(1.96)^2 \times 0.19 \times (1-0.19)}{(0.05)^2}$

$N = \frac{3.8416 \times 0.1539}{0.0025}$

N = 236.4889

Thus, the minimum sample ≈236 of referred women.

19%= 236

100%= 1242

1242 admitted women in labour ward and semi intensive care ward during the study period were required as a study population

**5.6 Study duration**

Two months; from 15th September to 15th November

**5.7 Data collection**

Structured questionnaires 1285 were used for data collection. The interview was conducted by the research assistants.

The principal researcher was counter-checking each questionnaire filled on the same day. Any missing information was filled by interviewing the patient enrolled that day, in case of a severely ill patient information was obtained from case notes and escorting nurse. Five research assistants were allocated to cover 24hrs in labour ward and obstetric semi intensive care ward.

### 5.8 Pilot study

A pilot study of one week was done prior to data collection, so as to test the questionnaire and prepare tables for analysis, and enrollment of patients.

### 5.9Training of research assistants

A two days training of the research assistants was conducted by the principal researcher. Five experienced nurse midwives were trained on the following: the purpose of the study, counseling of patients and informed consent, interpretation of partograph, how to ask questions and to fill the questionnaires, and how to follow-up the patients

### 5.10 Maternal data

All women admitted in labour ward and obstetric semi intensive care ward during the study period were recruited at the admission room by research assistants; after getting an explanation about the study, purpose and its importance, consent to participate was obtained from the patient. Time of arrival at MNH, data regarding the socio-demographic characteristics; age, parity, level of education, marital status, and

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occupation, was recorded. Complications in past and index pregnancy were recorded and place where she attended antenatal clinic. The facility from which the woman was referred, and the diagnosis of referral was also noted. From the referral notes the following were recorded: the time the woman reported at the referring facility, the time when decision to refer was made, and time when she left for MNH.

Time spent at peripheral hospital, and reasons for delay at periphery were determined. The women were interviewed about the means of transport by which they came to the hospital and whether they were accompanied by any staff from the referring facility. Other information was collected from antenatal card.

The woman's general condition on arrival was also noted. Good general condition described women who were not perceived to be in a life-threatening condition, fair condition described those where there was no immediate threat to life but intervention was necessary to prevent them falling into that state, and poor condition referred to those in whom there was an immediate threat to life and urgent measures needed to remove that threat,

### 5.11 Maternal complications

Immediate postpartum maternal complications that were looked at were: Maternal infection, Injury to the genital tract (3rd degree tear), Ruptured uterus, Acute renal failure, CCF, DIC, Shock, Pulmonary edema, Primary PPH, CVA.

Mode of deliveries were also recorded as; SVD, ABD, LCVE, LSCS, or destructive delivery. In some of the multiple pregnancies where mother had complicated delivery of one twin and other uncomplicated, the complicated one was taken in the analysis e.g. SVD/ABD, ABD was taken as mode of delivery.

### 5.12 Fetal outcome

Fetal outcome was evaluated using the APGAR score at fifth minute after birth. Score was recorded using standard score chart. A score of 7-10 at $5^{th}$ minute was considered as good score. Score of 6 or less at $5^{th}$ minute was considered as low score. The baby's birth weight was recorded in grams. Fetal deaths were recorded whether it was a SBF, SBM, or ENND. A follow-up was done for 2days both to the mother and the baby for those admitted in the ward due to complications.

### 5.13 Data analysis

Each questionnaire was assigned with an Identification number. Then data was coded and entered into the computer using EPI Info version 6 programme. Data cleaning and Analysis was performed in SPSS for window version 10 using proportions and frequency tables. Tables of relevant variables were then constructed.

## 6.0 Definition of terms

### 6.1 Institutionally referred patients.

Patients referred by health personnel to MNH labour ward from peripheral health facilities.

### 6.2 Non Institutional referrals.

Patients admitted in labour ward from home and they have been attending antenatal clinic at peripheral health facilities and others that did not attend antenatal clinic.

## 7.0 Assumptions.

This study was reviewing the way peripheral hospitals refer patients to MNH with the assumption that, there is by passing of 1st referral level, wrong diagnoses and delay in referring patients to MNH ending poor maternal and fetal outcome..

There is no standard time limit beyond which one says delay has occurred but in this study, I assumed that :-

- Patients with obstetric complications should be diagnonised early and spend not more than 2hrs to get to the referral centre after decision to refer has been made. This time interval was chosen because the lowest estimated average interval from onset to death for major obstetric complications, in the absence of medical intervention is 2hrs, as it has been estimated that; average interval from onset to death for major obstetric complications, in the absence of medical intervention

are; two hours for post partum haemorrhage, one day for ruptured uterus, two days for eclampsia, three days for obstructed labour and 6days for Infection[33].

**8:0 Limitations of the study**

- Inadequate record keeping, Failure of recording time of events at peripheral health facilities.
- Inadequate documentation of events in labour ward of peripheral health facilities.
- Inadequate documentation of events in ANC records.
- Recall bias.
- In those cases information were sought from the patient and the nurse who escorted the patient.

## 9.0 Ethical Clearance and Considerations

### 9.1 Ethical Clearance

Ethical clearance was sought from the Research and Publication committee of MUCHS. Permission to do the study was obtained from the Executive Director MNH before embarking on the study.

### 9.2 Ethical Considerations

The aim of the study was explained to the patient and allowed to ask questions before being recruited into the study.

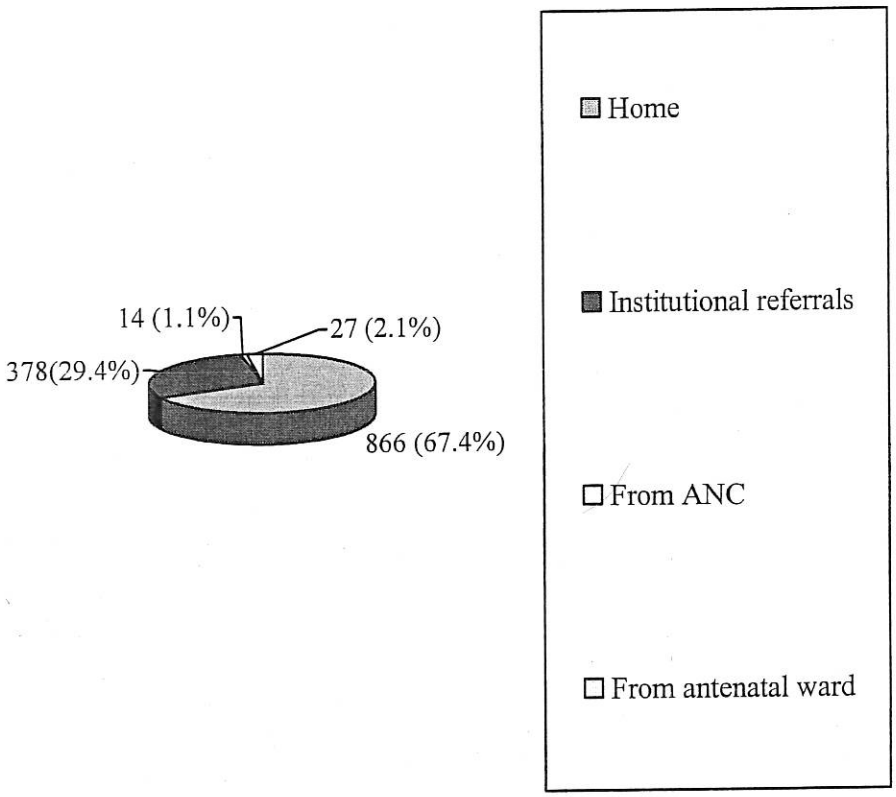
Verbal consent was obtained.

In cases where life threatening situations were encountered the team on call was alerted. For those patients who had severe pain or severely sick interview was done after management. The study did not interfere in any way with hospital protocol in management of patients.

## 10.0 Results

Total number of patients admitted in the labour ward during the study period was 1285. Of these 378(29.4%) were institutional referrals from peripheral health facilities and 14(1.1%) and 27(2.1%) were admitted from MNH Antenatal clinic and antenatal wards respectively. The remaining 866 (67.4 %) were admitted from home and of these 139 were high risk patients who attended antenatal clinic at MNH.

**Figure1: Source of admission of the study population**




Among the institutionally referred patients 206 (54.5%) were from district hospitals and 172 (45.5%) were from lower health facilities (dispensaries, health centres, and other hospitals).

**Table 1: Place where ANC attended by the study population**

| | Home n % | Institutional Referrals n % | From ANC n % | From Antenatal Ward n % | Total n % |
|---|---|---|---|---|---|
| **Place of ANC** | | | | | |
| Not attended | 5 (0.6) | 22 (5.8) | | | 27 (2.1) |
| MNH | 139 (16.1) | 29 (7.7) | 6 (42.9) | 8 (29.6) | 182 (14.2) |
| Peripheral | 722(83.4) | 327 (86.5) | 8 (57.1) | 19 (70.4) | 1076 (83.7) |
| Total | 866 (100.0) | 378 (100.0) | 14 (100.0) | 27 (100.0) | 1285 (100.0) |

Of the patient who came from home 139 were high risk patients who attended Antenatal clinic at MNH, and 722 attended clinics at peripheral health facilities and 5 patients who came from home did not attend ANC. A total of 727 were non institutional referrals with no risk factors in their antenatal cards.

**Table 2: Socio- demographic characteristics of the referred patients**

| Variable | Non institutional referrals n = 727 (%) | Institutional referrals n= 378 (%) | Total n=1105 (%) |
|---|---|---|---|
| **Age of the patient** | | | |
| <16 | 10 (1.4) | 9 (2.4) | 19 (1.7) |
| 16 - 25 | 342 (47.1) | 197 (52.2) | 539 (48.8) |
| 26- 35 | 324 (44.5) | 151 (40.0) | 475 (43.0) |
| 36- 45 | 51 (7.0) | 21 (5.6) | 72 (6.5) |
| **Marital status** | | | |
| Single | 115 (15.8) | 63 (16.7) | 178(16.1) |
| Married/cohabiting | 598 (82.3) | 309 (81.7) | 907 (82.1) |
| Divorced | 14 (1.9) | 6 (1.6 ) | 20(1.8) |
| **Gravidity** | | | |
| 1 | 264 (36.3) | 150 (39.7) | 414 (37.5) |
| 11 -1V | 390 (53.6) | 195 (51.6) | 585 (52.9) |
| ≥ V | 73 (10.1) | 33 (8.7) | 106 (9.6) |
| **Level of education** | | | |
| No education | 25 (3.5) | 35 (9.3) | 60 (5.4 ) |
| Primary education | 558 (76.7) | 282 (74.6) | 840 (76.0) |
| Sec. Education | 117 (16.0) | 59 (15.6) | 176 (16.0) |
| Post secondary | 27 (3.7) | 2 (0.5 ) | 39(2.6) |
| **Occupation** | | | |
| Student | 15 (2.0) | 6 (1.6) | 21 (2.0) |
| Petty trader/business woman | 110 (15.2) | 65 (17.2) | 175 (15.8) |
| Employed | 79(10.8) | 32 (8.5) | 111 (10.0 ) |
| Unemployed/peasant | 523 (72.0) | 275 (72.7) | 798 (72.2) |
| **Residence** | | | |
| Kinondoni | 365 (50.2) | 118 (31.2) | 483 (43.7) |
| Ilala | 140 (19.3) | 107 (28.3) | 247 (22.4) |
| Temeke | 220 (30.2) | 132 (34.9) | 352 (31.9) |
| Others | 2 (0.3) | 21 (5.6) | 23 (2.0) |

The socio-demographic characteristics the patients were similar except that majority of the patients received at MNH came from Kinondoni district, this could be explained by the fact that this district has large population compared to the other two districts.

**Table 3: Institutional referral diagnoses**

| Referral diagnosis | n=378 | (%) |
|---|---|---|
| CPD/Obstructed/prolonged Labour* | 140 | 30.3 |
| Hypertensive disoders*ᵠ | 84 | 18.2 |
| Previous Scar* | 63 | 13.6 |
| Premature Labour/PROM | 41 | 8.9 |
| APH¢ | 40 | 8.7 |
| Fetal Distress | 26 | 5.6 |
| Anaemia*ж | 24 | 5.2 |
| Multiple pregnancy*† | 16 | 3.5 |
| Malpresentation | 13 | 2.8 |
| Others§ | 25 | 5.3 |

* Patients had more than one indication.

ж Anaemia included; mild, moderate and severe anaemia.

¢ APH included; Abruptio placenta and Placenta praevia.

ᵠ Hypertensive disorder included; PIH, severe PIH, and Eclampsia.

† Multiple pregnancies included: Twins and Triplets pregnancies.

§ Others included; Hydrocephalus, Grand Multipara, IUFD, Ovarian Cyst with Pregnancy, Polyhydramnios, Ruptured Uterus and Severe Malaria in Labour

The commonest diagnoses were CPD/obstructed labour/prolonged labour and Hypertensive disorders which comprised of 30.3% and 18.2% respectively.

**Table 4: Comparison between Referral diagnosis and actual diagnosis at MNH among the institutionally referred patients**

| Diagnoses | Referral diagnosis | Actual diagnosis at MNH | Percentage of patients with correct diagnosis |
|---|---|---|---|
| | n | n | % |
| Anaemia† | 14 | 7 | 50.0 |
| APH† | 31 | 25 | 80.6 |
| BOH | 6 | 6 | 100.0 |
| Cardiac Disease | 3 | 3 | 100.0 |
| Cervical Dystocia | 1 | 1 | 100.0 |
| Cord Prolapse | 1 | 1 | 100.0 |
| CPD | 29 | 18 | 69.2 |
| Failed Induction | 4 | 4 | 100.0 |
| Fetal Distress | 16 | 8 | 50.0 |
| Grand Multipara | 4 | 4 | 100.0 |
| Hydrocephalus | 1 | 1 | 100.0 |
| Hypertensive disoders*† | 66 | 64 | 97.0 |
| IUFD | 2 | 1 | 50.0 |
| Malpresentation | 11 | 8 | 72.7 |
| Multiple pregnancy*† | 13 | 13 | 100.0 |
| Obstructed/prolonged Labour | 75 | 44 | 58.7 |
| Ovarian Cyst With Pregnancy | 1 | 1 | 100.0 |
| Polyhydramnios | 3 | 2 | 66.7 |
| Premature Labour | 14 | 11 | 78.6 |
| Previous Scar* | 63 | 63 | 100.0 |
| PROM | 17 | 8 | 47.0 |
| Ruptured Uterus* | 2 | 2 | 100.0 |
| Severe Malaria In Labour | 1 | 1 | 100.0 |
| **Total** | **378** | **296** | **78.3** |

About 21.7% of the institutionally referred patients were referred with incorrect diagnoses; where by 13.5% were found to have no complication and had normal spontaneous vaginal delivery and 8.2% had other complications which were missed at the periphery.

Four patients referred with prolonged labour and one with placenta praevia had ruptured uterus which were missed at periphery.

Six patients referred with diagnosis of anemia actually they had abruption placenta.

**Table 5: Duration from decision to refer and admission at MNH, reasons for delay and Transport used among institutionally referred patients**

| Duration in hours | District hospitals n= 206 % | Health centers n= 75 % | Dispensaries n= 57 % | Other hospitals n= 40 % | Total n= 378 % |
|---|---|---|---|---|---|
| Up to 2hrs | 69 (33.5) | 31 (41.3) | 21 (36.8) | 8 (20.0 ) | 129 (34.1) |
| > 2hrs | 137 (66.5) | 44 (58.7) | 36 (63.2) | 32 (80.0) | 249 (65.9) |
| **Reason for delay** | | | | | |
| No ambulance | 15 (7.3) | 24 (32.0) | 20 (35.1) | 14 (35.0) | 73 (19.3) |
| No fuel | 70 (34.0) | 11 (14.7) | 8 (14.0) | 12 (30.0) | 101 (26.7) |
| No nurse to Escort the patient | 52 (25.2) | 9 (12.0) | 8 (14.0) | 6 (15.0) | 75 (19.8) |
| **Transport used** | | | | | |
| Ambulance | 189 (91.7) | 35 (46.7) | 23 (40.4) | 19 (47.5) | 266 (70.4) |
| Private/hired car | 17 (8.3) | 40 (53.3) | 34 (59.6) | 21 (52.5) | 112 (29.6) |
| Total | 206 (100.0) | 75 (100.0) | 57 (100.0) | 40 (100.0) | 378(100.0) |

The mean time duration from decision to refer and admission at MNH was 3hrs. Majority of patients in all health facilities reached MNH within 2- 4hours.

Of the referred patients 129 (34.1%) had no delay. For those patients from district hospital the main reason of delay was lack of fuel (34.0%) and shortage of staffs (No nurse to escort the patient) 25.2%. In healthy centers, dispensaries, and other hospitals patients delayed because of lack of ambulance with 32.9%, 35.1%, and 35.0% respectively. Most of the patients from district hospital were transferred by ambulance while patients from healthy centers, dispensaries and other hospitals used private /hired cars.

**Table 6: Mode of delivery of the referred patients,**

| Mode of delivery | Non institutional referrals n % | Institutional Referrals n % | Total n % |
|---|---|---|---|
| SVD | 565 (77.7) | 182 (48.1) | 747 (67.5) |
| LSCS | 127 (17.5) | 170 (45.0) | 297 (26.9) |
| ABD | 31(4.3) | 14 (3.7) | 45 (4.1) |
| LCVE | 1 (0.1) | 4 (1.1) | 5 (0.5) |
| Laparatomy due to ruptured uterus | 3 (0.4) | 8 (2.1) | 11 (1.0) |
| Total | 727 (100.0) | 378 (100.0) | 1105(100.0) |

The proportion of Caesarian section, LCVE, and Laparatomy due to ruptured uterus were high among institutionally referred patients than non institutional referreals.

There were 29 multiple deliveries 28 were twin deliveries and one was triplets.

**Table 7: Immediate maternal complications among referred patients**

| Type of complication | Non institutional referrals n % | Institutional Referrals n % | Total n % |
|---|---|---|---|
| No complication | 674 (92.7) | 265 (70.1) | 939 (85.0) |
| Maternal infection | 10 (1.4) | 27 (7.1) | 37 (3.3) |
| Injury to the genital tract (3th degree tear, etc) | 14 (1.9) | 12 (3.2) | 26 (2.4) |
| Ruptured uterus * | 3 (0.4) | 8 (2.1) | 11 (1.0) |
| Acute renal failure | 1 (0.1) | 7 (1.9) | 8 (0.7) |
| CCF | 1 (0.1) | 5 (1.3) | 6 (0.6) |
| DIC | 2 (0.3) | 8 (2.1) | 10 (0.9) |
| Shock | 4 (0.6) | 11 (2.9) | 15 (1.4) |
| Primary PPH | 15 (2.0) | 26 (6.9) | 41 (3.7) |
| CVA | | 5 (1.3) | 5 (0.5) |
| Vulva haematoma | 1 (0.1) | 4 (1.1) | 5 (0.5) |
| Total | 727(100.0) | 378 (100.0) | 1105 (100.0) |

All maternal complications were high in institutionally referred patients compared to self referral, although some of the complications were strictly not due to delay. There was [illegible] institutional referrals

**Table 8: Condition of the mother after delivery among the study population**

| **Condition of the mother after delivery** | Non referrals n % | Institutional Referrals n % | Total n % |
|---|---|---|---|
| Dead | 2 (14.3) | 12 (85.7) | 14(100.0) |
| Alive | 905 (71.2) | 366 (28.8) | 1271 (100.0) |
| Total | 907 (70.6) | 378 (29.4) | 1285 (100.0) |

There were 14 maternal deaths during the study period, among these 12 (85.7%) occurred in institutional referrals. Ruptured uterus and cerebral vascular accident were the leading causes of deaths, which contributed more than half of maternal deaths.

**Table 9: Fetal outcome among referred patients**

| Variables | Non institutional referrals | Institutional Referrals | Total |
|---|---|---|---|
| | n % | n % | n % |
| **Birth weight in grams** | | | |
| 1000- 1499 | 10 (1.4) | 32 (8.2) | 42 (3.7) |
| 1500- 2499 | 121 (16.2) | 66 (16.9) | 187 (16.5) |
| 2500- 3500 | 578 (77.8) | 253 (64.9) | 831 (73.3) |
| > 3500 | 34(4.6) | 39 (10.0) | 73 (6.5) |
| **Apgar score** | | | |
| 0- 3 | 38 (5.1) | 113 (29.0) | 151 (13.3) |
| 4 - 6 | 57 (7.7) | 39 (10.0) | 96 (8.5) |
| 7- 10 | 648 (87.2) | 238 (61.0) | 886 (78.2) |
| **Fetal condition** | | | |
| Alive not admitted | 579 (77.9) | 118 (30.3) | 697 (61.5) |
| Admitted for care | 102 (13.7) | 122 (31.3) | 224 (19.8) |
| Admitted sick | 40 (5.4) | 82 (21.0) | 122 (10.8) |
| FSB | 20 (2.7) | 46 (11.8) | 66 (5.8) |
| MSB | 2 (0.3) | 16 (4.1) | 18 (1.6) |
| ENND | 0 (0.0) | 6 (1.5) | 6 (0.5) |
| Total | 743 (100.0) | 390 (100.0) | 1133 (100.0) |

Most babies delivered weighed 2500- 3500 grams. Low scored babies were observed more on institutionally referred patients than Non institutional referrals. Most of the low score babies weighed ≥ 2500grams. Neonatal admission was significantly high among babies from institutionally referred patients. Perinatal deaths were also high among institutionally referred patients compared to non institutional referrals

## 11.0 DISCUSSION

The referral system in our country has not been evaluated. Experience at MNH (tertiary hospital) show that there a large number of patients who are coming direct from home bypassing lower health facilities and those who are referred with obstetric complications arrive at MNH after a considerable delay. As a result of this MNH caters for a big number of patients who would have otherwise been managed at peripheral hospitals, and for those with serious complications delay may lead to severe morbidity.

In this study the referral system was found be weak; the percentage of institutionally referred patients to MNH was 29.4%, higher than the optimal rate recommended in an urban African context of 5 and 8%. [10] Of the institutional referred patients nearly half of them come direct from lower healthy facilities (dispensaries health centers and other hospitals). This together with those who came as self referrals made a total of 899(70%) of the women who by passed the district hospitals. The reason for the bypass is beyond this study, however dissatisfaction with the quality of services offered at district hospitals, prior nasty experiences with treatment offered before, and overcrowding of patients in district hospitals may play a role.

The above situation has also been observed in many African countries. [3, 19] As a result of this situation, MNH has to cater for a big number of patients beyond its capacity. There is a need to improve services and increase number of health care providers in district hospitals so as to off load some of the burden from referral hospitals.

CPD/Prolonged/obstructed labour being the commonest diagnosis for referral in this study is consistent with what has been reported from other developing countries and the West African sub-region. [19, 21] The 30.3% of institutional referral reported due to this indication in this series is however lower than the 48.2%-52.6% reported in other studies. This indication could hardly be seen as a reason for referral if the district hospitals have a well functioning comprehensive emergency obstetric care services.

The second commonest diagnosis in this study, hypertensive disorders in pregnancy again could hardly occurs as indication for referral if early recognition and management of hypertensive disorders during the antenatal period with early referral to hospital before the onset of labour.

Analysis of the diagnoses for referral observed in this study showed important gaps in the health care provision at peripheral health facilities. Most of the indications are those which required surgical intervention such CPD/prolonged/obstructed labour, previous scar, fetal distress, and malpresentation. It is to be noted that these surgical procedures are required to be performed in first referral level (district) hospitals with comprehensive obstetric services. This raises the question to operative capability of the health personnel in the district hospitals. In this study for example, anemia and APH formed another big portion of institutional referral due to lack of blood for transfusion in peripheral health facilities, yet again Blood transfusion services should be available at the district hospitals.

It appears, therefore, that the district hospitals are not providing the comprehensive emergency obstetric care services as they should, this lead to overcrowding at the MNH. For a hospital to be recognized as district hospitals, it has to provide comprehensive emergency obstetric services for 24hrs and should be able to handle cases such as obstructed labor, mild hypertensive disorders, antepartum haemorrhage and cord prolapse as recommended by the WHO, [7, 9] in this study a lot of patients with those complications were seen to be referred to MNH.

The Diagnoses for referral were the same with actual diagnoses made at MNH in 78.3%of the cases; however some of the referrals were unnecessary. In the study 13.5% of institutionally referred patients were found to have no complications when evaluated at MNH and had normal uneventfully spontaneous vertex delivery.

In the study, 8.2% of the institutionally referred patients the diagnosis were missed at peripheral health facilities, of these four; patients who were referred with diagnosis of prolonged labour and one with diagnosis of placenta praevia actually had ruptured uterus . Six patients referred with diagnosis of anemia actually had abruption placenta. Poor diagnostic acumen in health care providers of the peripheral health facilities is evident here. This could make patients bypassing lower health facilities in future due to lack of trust on treatment they receive.

Other studies identified misdiagnosis contributing to similar proportions of referrals. [19, 30, 31] There is a need of ensuring that health personnel in these facilities are knowlegible enough to minimize diagnostic errors, this could be through continuing health education or even curriculum review.

The study also showed that the in institutionally referred patients delay started even before decision to refer had been made. It was revealed that many of the patients could not be assessed by the doctor in time due to overcrowding or doctor being occupied somewhere else in the health facility. In some cases the identification of complication was delayed due to lack of knowledge by the health attendant on the symptoms and signs of those complications. In other cases the complication was identified and management was planned but failed to be administered because of inadequate facilities such as the operating theater being occupied, failure of electricity, inadequate number of c-section kits, breakdown of water supply in theater, unavailability of drugs, unavailability of blood in blood bank and other supplies such as, Gloves, IV fluids, cannular, and giving sets.

During the study delay was also observed after decision to refer had already been made. The mean time duration from decision to refer and admission at MNH (tertiary level) was 3hrs with maximum of 10 hrs; note that the mean transit time to MNH is 1hr. More than half of the institutional referred patients (51.3%) spent 3- 4hrs after decision to refer had been made.

In this category the reason for delay in transferring patients from district hospital to MNH were: lack of fuel while the ambulance is there (34.0%), and No nurse to escort the patients (25.2%). Sometime decisions were made earlier but because there was only one ambulance in the hospital the driver had to wait for possible referrals in other departments and transfer them all together to economize fuel. In some cases patients had to contribute money for fuel. In health centers, dispensaries and other hospitals the main reason was lack of ambulance 32. 0%, 35.1%, and 35.0% respectively which necessitated patients to use privately hired transport and being transferred without escorting nurse. It is unacceptable that women with complications such as obstructed labour, hypertension, and antepartum haemorrhage, are transferred without any accompanying staff. Health centers providing maternity services including deliveries should all be equipped with ambulances.

In general for a woman to be referred it implies that there is a factor or factors that pose a threat to her life and/or to her fetus. It is therefore important that she travel in safe and comfortable conditions with continuous care by qualified personnel. In this study more than 29.6% of the women referred traveled in vehicles other than ambulances. Similar trends have been observed in other African countries; [3, 19] although a much higher percentage has been reported in Ghana.[19] There are needs for further evaluation and action.

The proportion of patients who were delivered by caesarian section was high among institutionally referred patients (45.0%). The percentage of vacuum extraction and laparatomy due to ruptured uterus were also high, this reflects high referral rate of obstetric complications that require surgical intervention. This might be explained by the extra congestion of patients and shortage of health personnel in those facilities. The fact that the rate caesarian section is 17.5% in self referred patient; by passing the district hospitals was beneficial as it minimized the delay to patients who had complications started at home.

As a result of delay the proportion of maternal complications were high in institutional referred patients compared to self referral. There was almost 3 times higher risk of developing maternal complication in institutionally referred patients. The most common complications were maternal infections (7.1%) and primary post partum haemorrhage (6.9%). All patients who developed cerebral vascular accident were institutionally referred patients. The same as in other studies done in Africa were they found primary post partum haemorrhage and infections are the most common complications in delayed patients. [3, 5, 28, 29, 34]

During the study period 14 maternal deaths occurred in labour ward and eclampsia room, among these 12 (85.7%) were institutionally referred patients. This made the case fatality rate of 3% which very high than that recommended by WHO of less than 1%. [7, 9, 10, 33] Ruptured uterus due to obstructed labour and delayed previous caesarian section,

together with cerebral vascular accident due to eclampsia were the leading causes of deaths; which contributed more than half of maternal deaths. This is the same as in many other sub Saharan countries were most maternal mortality occur. [5, 10, 33] This could reflect weakness in our referral system in reducing the maternal morbidity and mortality.

It was found in the study that, a high proportion of low score babies were from institutionally referred patients (29.0%) compared to self referred patients (5.1%). most of these low score babies weighed 2500gm and more. Early intervention could have saved babies from birth asphyxia. Perinatal death were also high among institutionally referred women than self referral, 17.4% babies were dead, making a perinatal mortality of 44.6%, higher than were found in other studies. [3, 6]

## 12.0 CONCLUSION

The proportion of institutionally referred patients to MNH was high 29.4%. The commonest diagnoses were CPD/obstructed labour/prolonged labour and Hypertensive disorders which required surgical interventions supposed to be done at district hospitals. In the study 78.3% of the institutional referred patients had the same diagnoses as those made at MNH and 21.7% of patients were referred with wrong diagnoses. Some of referrals could probably have been avoided 13.5%.

The mean time of transferring patients was 3hrs with maximum of 10hrs in all health facilities. There was delay in referring and transferring patients to MNH after decision to refer has been made by the attending doctor at peripheral health facilities. Reasons for the delay were lack of ambulance, fuel and shortage of staffs to escort the patents.

Maternal mortality was high among institutionally referred patients accounting for 85.7% of all deaths occurring in labour ward and obstetric intensive care ward during the study period.

Low scored babies, neonatal admissions and perinatal deaths were also high among institutionally referred patients compared to non institutional referrals

## 13.0 RECOMMENDATIONS

District hospitals and lower health facilities should be provided with necessary resources and supplies for emergency obstetric interventions. The government should invest in the district hospitals and lower health facilities, particularly in their human resources. As the increase in Dar es Salaam population appears to overtaken the health facilities available; there is a need to increase the number of health facilities providing maternity care to reduce the overload in present facilities.

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