EVALUATION OF INTER HOSPITAL TRANSFER OF PATIENTS BY AMBULANCES TO MUHIMBILI NATIONAL HOSPITAL IN ACCORDANCE TO ACCEPTABLE INTERNATIONAL STANDARD GUIDELINES

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By

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A Dissertation submitted in (Partial) Fulfillment of Requirement for the Degree of Master of Medicine (Anaesthesiology) of

Muhimbili University of Health and Allied Sciences
October, 2017

CERTIFICATION

The undersigned certifies that, they have read and hereby recommend for acceptance by Muhimbili University of Health and Allied Sciences a dissertation entitled: ***"Evaluation of Inter-hospital transfer of patients by ambulances to Muhimbili National Hospital in accordance to acceptable International Standard Guidelines",*** in (partial) fulfillment of requirement for degree of Master of medicine (Anaesthesiology) of Muhimbili University of Health and Allied Sciences

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Dr. Edwin R. Lugazia

(Supervisor)

_____

Date

DECLARATION AND COPYRIGHT

I, **Faraji Hassan Lydenge** declare that this **dissertation** is my own original work and that it has not been presented and will not be presented to any other University for a similar or any other degree award.

Signature: ……..…… **Date:** …….…….....

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DEDICATIONS

I would like to dedicate the results of this study to my lovely wife Hanifa Mbithe and my children Mudathir, Nabeel and Swaabir. Thank you!

ABSTRACT

Background

Inter-hospital patient transfer is increasing due to centralization of certain procedures and interventions, centralization of certain expertise and lack of beds at the referring hospitals. Taking this into consideration. The detailed locally acceptable standard guidelines needs to be established so as to decrease the morbidity and mortality at the referring hospitals**,** during transfer and arrival at the referred hospital**.** And the implementation of standard guidelines will also improve the outcome of patients referred due to the fact that little has been done regarding establishment of Inter-hospital patient transfer standard guidelines in Tanzania. Guidelines from the Association of Anesthetists of Great Britain and Ireland(AAGBI) format will be used in this study as a questionnaire to evaluate the transfer practices at Muhimbili National Hospital so as to guide in future improvement in patients transfer. A retrospective pilot study has shown that in a day around 100 patients are seen at the Muhimbili Emergency Department and this accounts to approximately 3000 patients a month. There is an average of 20 ambulance referrals per day.

Objective

To evaluate the Inter hospital transfer of patients by ambulances to Muhimbili National Hospital, Dar-es-Salaam ,in accordance to acceptable International Standard Guidelines.

Methodology

A convenience sampling method was conducted among patients referred to Muhimbili National Hospital through Emergency Medicine Department via ambulance. For the purpose of this study, the time between 4pm to 10pm was designated for data collection. Patients transfer personnel was informed about the study and was reassured on confidentiality of their participation after having agreed to join. Transfer personnel were recruited after having agreed there participation and an informed consent were given to them for signing. This study had focused on evaluating the Inter-hospital transfer of patients from pre-transfer decision and communication ,equipment and drugs availability checking, proper documentation, continuous monitoring in transit management and resuscitation, handover and the transport personnel

skills using the acceptable standard guidelines. The data was analyzed using Statistical Package for Social Scientists (SPSS) from IBM SPSS Statistics Version 20 computer program. Data was presented as proportions for categorical variables. Univariate analysis was used for characteristics of research participants which were expressed as categorical and continuous variables. The chi-square testing was used to test for association between independent variables and dependent variable. If the p-value was found to be less than 0.05 then the association was deemed significant.

Results

A total of 284 transfer personnel were recruited in this study. There were 128(45.2%) males and 156(54.9%) were females...Most referrals were coming from Amana, Mwananyamala and Temeke hospitals which are within Dar-es-Salaam and the least referrals were from Lindi, Ifakara, Zanzibar, Mbeya and Mtwara regions. The study showed that Senior consultants were involved in transfer decision making by 52% and most transfers 76.5%(on average between stable and unstable patients transferred) were facilitated by nurses. The study also found some poor communication, documentation during transfer processes. Unavailability of well trained personnel involved in transfer and lack of important equipments and drugs during transfer processes were also documented.

Conclusion and Recommendation

Inter-hospital patient transfer is a very important link in patient care continuity from referring to receiving health facilities. There are many gaps that needs to be fulfilled to ensure that the Inter-hospital transfer process is well attained in terms of safety transfer. Proper care during the transfer process and ensuring good outcome during the whole transfer processes; For this matter standard operating procedures for Inter-hospital patient transfer needs to be established.

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LIST OF ABBREVIATIONS

AAGBI	Association on Anesthetists of Great Britain and Ireland
AAP	American Academy of Pediatrician
ACLS	Adult Cardiac Life Support
ALS	Adult Life Support
BLS	Basic Life Support
COBRA	Consolidated Omnibus Budget Reconciliation Act
CT	Computer Tomography
DSM	Dar-Es-Salaam
ECG	Electrocardiography
EMTALA	Emergency Medical Treatment and Advice Labor Act
I/E	Inspiratory and Expiratory ratio
IHT	Inter-hospital Patient Transfer
MNH	Muhimbili National Hospital
MRI	Magnetic Resonance Imaging
MUHAS	Muhimbili University of Health and Allied Sciences
NHS	National Health Services
OBRA	Omnibus Budget Reconciliation Act
PEEP	Positive End Expiratory Pressure
U.S.A	United States of America
UK	United Kingdom

DEFINITION OF KEY TERMS

Transfer Personnel

A person who is involved in escorting the patient from one hospital to the other. He/she is responsible for in-transit management of patients, monitoring and resuscitation and also handover of patients.

Critically ill patient

In this Universe, there is no acceptable definition of the term "critically ill". For the purpose of providing guidelines conducted by the Intensive Care Society, 2011; critically ill is defined as the requirement of a level of care greater than that normally provided on a standard hospital ward.

Inter-hospital transfer (IHT) of patients

Also called secondary transfer, is defined as the transfer of patients from one hospital to another in search of further management and care .

Transfer time

Time taken from patient transferring hospital to the time the patient reaches the referred hospital.

Referral decision time.

Time with which the referral decision was made.

Clinical transfer

A transfer where by a patient is in need of further management at the referred hospital

Non-Clinical transfer

A transfer to a referred hospital in need of a certain investigation and back to the hospital after completion of that particular investigation. e.g patient transfer for Esophageal gastroduodenoscopy.

CHAPTER ONE

1.0 INTRODUCTION

Inter-hospital transfer in other words secondary transfer is defined as the transfer of the patients through air or ground ambulance from one hospital to another hospital. The teams dealing with patients transport varies widely in association with their composition ,training and experience. Generally transferred patients are accompanied by nurses and respiratory therapist(1).

In 1997, United Kingdom was estimated to have 11,000 critically ill patients transferred to another hospitals. Scottish audit of Inter-hospital transfer of critically ill patients revealed to have transferred 2396 acutely ill patients in a data that was taken between November 2007-March 2008.Data collection to predict the number of transfers was difficult to collect due to the differences in population density, local National Health System(NHS) Organisation and infrastructure problem(2)(3).

The transferred patients are sometimes critically ill with serious injuries and life threatening diseases that are associated with exhausted or reduced physiological reserves. For these reasons this kinds of transfer needs a highly skilled and trained practitioners so as to minimize the additional risks during transportation. In literatures the incidences of adverse events or patient harm ranges from 6 to 71%. Most commonly reported were circulatory and respiratory complications followed by equipment related complications(4)(5).

Before transferring a patient, an accurate examination and optimization of the patient should be done. An appropriate transport plan, availability of well trained staff with necessary equipments and effective liaison between transporting, referring and receiving staff at senior level is required. Principally, the stage of care given during patient transport must aim at least equal that at the point of referral(4).

Five important questions to be asked before patient transfer includes; Who is to accompany the patient? a well checked working and suitable equipment availability, knowledge regarding

the specific problems to be predicted along the way, overall transport plan and an adequate documentation of the transfer process. Hence these will pose to a safe transfer of patients together with a better communication between referring and referred hospital, and the employment of strict adherence to checklist and published guidelines(5).

Categories of adult Inter-hospital transfers includes; Category I=Transfer for upgrade of case requiring specialist support or investigation e.g burns, liver, neurosurgery and cardiothoracic. Category II=Transfer for upgrade of care for a particular organ support that is locally unavailable e.g Renal Transplant Therapy. Category III=Transfer where by patients are moved nearer to their homes. Category IV=Transfers due to unavailability of critical care bed at the original hospital. Dangers of transferring critically ill patients includes Adverse physiological responses, a hostile and unfamiliar environment ,limited resources ,equipment problems and the failure to continuation of care(6).

In the USA(United States of America), there is a federal and state laws regarding Inter-hospital transfer of patients with which all practitioners should be aware of. EMTALA (emergency medical treatment and active labor act) laws and regulations (updated at intervals from 1986 COBRA Law and 1990 OBRA amendments) has defined in detail the legal responsibilities of the receiving and transferring facilities and practitioners.

The American college of emergency physicians published a book receiving the legal responsibilities of referring ones as well as ramifications of non-compliance with the COBRA/EMTALA regulations, and it's an important resource of any facility involved in the transferring of patients. In general, financial motivated transfers are illegal and put both referring institutions and individual practitioners at a risk of serious penalties(7).

In pre-transfer decision and communication; It is strongly advised that those policies are established within each institution regarding the content documentation and communication between personnel involved in the transfer. Current regulations and good medical practices requires an informed consent before Inter-hospital transfer. This can be given by a competent patient, guardian or legally authorized representative of an incompetent patient. This consent

process includes; Discussion regarding benefit/risk of transfer. Documentation of the discussions on the medical record before transfer, The consent should be signed, however if circumstances do not allow (e.g in life threatening emergencies) then the indications for transfer and the reasons of not obtaining consent are documented in the medical record. An order of transfer is always written by the referring physician. An attending physician at the referring facility is the one making transfer decisions. A complete resuscitation and stabilization of the patient may be possible only at the receiving hospital. Ways to follow during arranging for referral includes; A contact between referring and referral physician is mandatory where by the receiving physician should accept the admission. The mode of transport to be used is considered by the referring and receiving hospital; This mode is based on medical requirements of the patient before referral and Need of minimizing out-of-hospital transfer time. If means of transport is a helicopter; Air transportation is more preferred to be organized by the receiving referral centre. There are some patients information's need to be provided such as patients age and average weight, patients medical condition and suspected major injuries, patients conscious level and status of the airway, recent documented vital signs, ongoing treatment. If means of transport indicated is an ambulance then, the referring and receiving hospital will contact an ambulance service that can provide the level of care required. If patient needs a critical level of care, or care from Adult Life Support(ALS) provider, the hospital or commercial ambulance service should provide for a supplementary provider capable of providing the required care. The information required by the receiving centre will include; Name of physician transferring the patient. Hospital name referring the patient. Patients location within the hospital and a call back number. Required patients information includes; Patients name, weight and age. Interpreter requirement if needed. How have the injury occurred? Type and severity of the injury and treatment done. Hard copy of patients medical reports have to be sent with patient; This includes, progress details, nursing details, treatment and fluid records, copies of X-rays and laboratory results. Details of patients address, phone number, and emergency contact information(7)(8).

Adequate Equipments and Medicines for each patient transport should be taken into account. Monitors are needed to be well fitted and secured before transfer. Transfer personnel should

be sure of availability of necessary medications; including hypnotics, analgesics ,muscle relaxants and inotropes. Machines should not be weighing heavy, and need be durable and robust.

Standard portable monitors should be capable of displaying clear illuminating ECG (Electrocardiography), SPO2, Non-Invasive Blood Pressure, End-tidal Carbon dioxide and Temperature. Audible and visible alarms are necessary in view of extraneous noise levels. Portable Ventilators should be able to supply PEEP(Positive end expiratory pressure),Fraction of inspired oxygen, I/E (Inspiratory and Expiratory) ratio, Respiratory rate and Tidal Volume(8).

Transport Personnel, Individuals who are specially trained are responsible to perform Inter-hospital transfer(IHT) of patients. Incase of situations that specialized team is not available then the referring hospital need to develop a plan comprising of four critical elements including; A multi-disciplinary team of physicians, respiratory therapist, nurses, hospital administration and emergency medical service to plan the transfer. The team will then conduct an assessment of the facility by focusing on patient demography, transfer volume, transfer patterns and available resources (This will include the health personnel, equipment availability, emergency medical service and communication). A written standardized transfer plan is documented and implemented according to the available data.

At least medical staff, usually a doctor and a nurse with some training and experience in managing the airway and acutely ill patients are required. Training requirements of health personnel and the quality of transport monitoring and equipments have seen as two important areas that have evolved enormously over the last two decades. The transfer individuals should be able to provide advanced airway management, intravenous Fluid therapy, treatment and interpretation of dysarrythmias, have knowledge on Basic Life Support and Advanced Cardiac Life Support. If it happens that a transfer physician is absent then the command physician will communicate with the transfer team to establish a mechanism of transfer(1)(7)(8).

Documentation and handover; Documentation regarding patient condition, reasons for referral, names of consultants referring and receiving the patients, status of patient prior to transfer and details of vital signs ,events and therapy that was given before, during and after transport should be put in (3).

1.1 Literature Review

A study by Hickey and Savage has reported that there is less information regarding the availability of Inter-hospital transfer policies in six of eight medical centres in USA(United States of America). The study has also reported poor documentation, this included the partially filled and missing patient records at referring and referred institutions. This also included poor verbal communication between facilities.

Audit conducted by Deane et al in an Australian hospital observed that out of 47 transport personnel only 15 of them were appropriately qualified to transport patients. A study by Crandon et al, performed in Jamaica reported that 89% of transfers didn't have accompanying doctor due to unavailability of well qualified medical staff and 94% of transfers were prepared by Junior medical staff. A study by Antwi et al ,with a survey in United Kingdom mental health patient transfers reported to have used appropriate transfer personnel .Improper patient handover and poor communication can lead to errors in care with which one report commented that 11% of preventable adverse outcomes are as a result of poor communication(9).

Wrong and Levy (2005) had accessed 22 patients who required transfer from rural and peripheral metropolitan areas and found that; among other factors; inadequate transport processes and delays in transport directly contributed to adverse patient outcomes, although there are a number of papers examining inter-hospital transfer; investigations of the handover aspects are limited (a structured evidence-based literature review regarding the effectiveness of improvement interventions in clinical handover.

125 reports contributed by four organizations documented 272 incidents with which 91% of them were preventable. 37% of incidences were due to equipments, 26% from patient care, 11% transport operations, 9% due to inter-personal communications, 9% planning and preparations, 7% from retrieval staff and 2% from tasking. 26% of the incidents occurred during patient transportation to receiving facility. Main contributing factors to the above incidents included system based 54%, human based42%, equipment malfunction,7.2% or missing 5.5%, failure to check,5.8%.The factors that reduced the above incidents included; good crew/skilled team work 42%, checking equipment 17%, patient monitors and good inter-hospital communication accounted for 4%(10).

A study by A Stevenson et al showed 122 patients were taken for analysing documentation, equipment availability ,monitoring, accompanying personnel at the referring hospital; Out of it, poor documentation at the referring hospitals were reported, records for pulse rate were 13.1%(16/122), Blood pressure records were 9.8%(12/122), Respiratory rate(RR) 9.8%(12/122), 93.4% of the transfer were made by Junior doctors(114/122), while consultants request were made by only 3.3%(4/122) of the transfer. 99.2% of the ambulances were equipped with Oxygen supply .Physicians accompanied 11.5%(14/122) of the patients while nurses had accompanied 68.9%(84/122) and 12% of the transfers had no transport ventilators(11).

A study survey conducted in 1990 with the AAP(American academy of pediatrician) recommendation including the physicians with higher level of training(approximately 3 years of residency) reported that this recommendations were met by only 28% of hospitals with a pediatric critical care transport team .All teams had a nurse with pediatric experience with a varying degree of experience; and 50% of teams included a respiratory therapist(1).

A study by Colleja P et al reported communication breakdown between healthcare providers as a main issue towards survival and improving patient outcomes and one of reasons to communication problems was due to pressures of multiple injuries and multiple health care providers involved, organizational issues, health care providers individual performance, team culture and resources availability. Another study by Hains IM reported in our of the studies

that more than half of its transfer processes(n=6) revealed inappropriate communication and poor documentation including incompleteness and missing patient records(9,12).

In a study done by Gidji Vos et al,2003 reported that during specialist patient transport from pediatric intensive care found that the percentage of equipments used in transport were as 41/137(29.9%)Laryngoscopes, 26/137(19.0%) suction catheter, Iv fluids at 30/137(21.9%), sedation medications 61/137(44.5%) and 78/137(56.9%) for circulation medications(13).

A study done by Verma V et al in India,2013 reported suboptimal level of documentation including only 57.7% of transfer time was recorded. Also among 49 patients who were transferred by the ambulance only 30/49(61.22%) had IV access in place,22/49(44.89%) had suction, No patients GCS were recorded throughout the transfer(14).

A study by A Gray et al reported that 90% of all secondary(Inter-hospital) transfer have been carried out using referring hospitals equipments and a standard ambulance, where as most of its medical and nursing staff are not well trained and experienced to undertake the transfer process(15).

A study by P W Barry et al reported that during the transfer of critically ill patients 82% of the transfers had no vital signs documentation, IV access was lost in 4 transfers, suction apparatus failed to operate in 2 transfers, oxygen supply was not working in 1 transfer.84% of the transfers had a doctors escort while 16% had a nurse escort(16).

In Tanzanian perspective, little has been done regarding local regional studies on inter-hospital transfer and of currently there are no literatures regarding local inter-hospital patient transfer available.

1.2 Research Question

1. Does the referral processes regarding Inter hospital transfer of patients to Muhimbili National Hospital through Emergency Medical Department fulfill the Standard transfer guidelines ?
2. Are the available referrals meet the acceptable international standard transfer guidelines?

1.3 Statement of the Problem

Transfer of patients increases the chances of morbidity and mortality if proper measures are not taken from the referring hospitals to MNH.

The contributing factors may result from inappropriate communication between two hospitals, equipment errors or unavailability, lack of knowledge from the transfer personnel and improper documentation during the transfer period.

MNH records shows that it receives patients from all over the country for further management and care; hence the hospital encounters several problems with the referred patients due to ongoing challenges like the lack of communication and improper documentation during transfer of patients from the referring hospitals.

For this matter this study is intended to identify insufficiencies so as to assist in future development of appropriate local standard guidelines for the inter-hospital transport of patients to MNH and to enhance safety of patients referred to this national teaching hospital. This is due to unavailability of appropriate local standard guidelines that are locally used in patient transfer.

1.4 Rationale

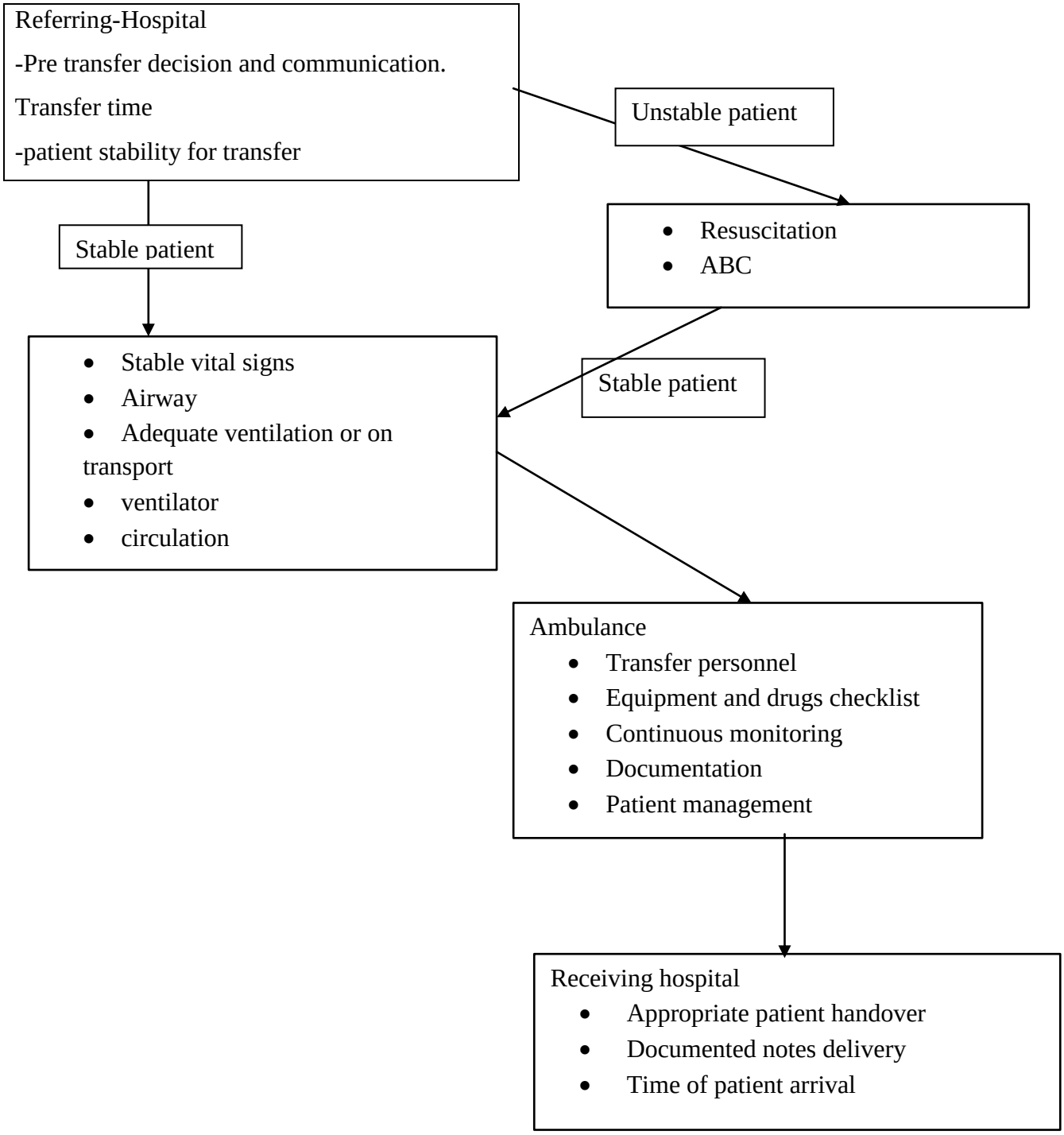
Inter-hospital patient transfer is unavoidable due to the fact that patients are transferred so as to have better care at the referred hospital due to availability of centralized surgical and therapeutic procedures, skilled personnel and specialized investigations.

Little has been done regarding the evaluation of inter-hospital transfer of patients referred to MNH.

For that reason this study will give us an overview of inter-hospital transfer practices and direct us on areas of improvement using the established standard guidelines.

Also this study will be part of fulfillment of my Master of Medicine in Anaesthesiology programme.

1.5 Diagram of Conceptual Framework



1.5.1 Explanation of conceptual framework

There are standard guidelines that are used for Inter-hospital patient transfer, these includes pre-transfer decision and communication where by referring hospital should prepare the patients appropriately for safe transfer and to communicate to patients receiving hospital. The ambulance should have an equipment checklist and important resuscitative drugs. A skilful personnel with training regarding patient transfer is needed. Also a proper documentation, handover and monitoring should be done through the transfer process until received at the referred hospital. Such guidelines if followed will improve the safety of patient transfer and will reduce unnecessary errors and complications before, during and at the receiving hospital.

1.6 Study Objectives

1.6.1 Broad Objective

To assess the Inter-hospital transfer of patients by ambulances to MNH in accordance to acceptable International Standard Guidelines.

1.6.2 Specific Objectives

1. To determine the approach to pre-transfer decision and communication between referring and referred hospital.

2. To cross-check the availability of necessary equipment and medicines within ambulance transferring the patients.

3. To assess patterns and adequacy of documentation for Inter hospital patient transfer.

4. To assess the management received and appropriateness of the transfer personnel during Inter hospital patient transfer.

CHAPTER TWO

2.0 METHODOLOGY

2.1 Study Design

This was a hospital based descriptive cross sectional study.

2.2 Study Setting

The study was set at the Muhimbili National Hospital which is located geographically in Dar-Es-Salaam, Tanzania. It is the largest and main referral hospital of the country with a total bed capacity of 1400 beds. This hospital receives patients from both Municipal Hospitals as well as other regional hospitals. Its daily outpatients is ranging to about 1200 patients. Emergency Medicine Department is the main department of Muhimbili National Hospital that primarily receives the patients who are most of the times seriously ill cases that needs an immediate medical attention, it's a 24hour service available at the hospital. This is a main place where by this study was conducted. Muhimbili National Hospital is also a teaching and training Hospital in collaboration with Muhimbili University of Health and Allied Sciences.

2.3 Study Duration

This study was conducted for a period of three(3) months from December 2016 to February 2017.

2.4 Study Population

This included transfer personnel within the ambulance transferring patients from referring hospitals to Muhimbili National Hospital through Emergency Medicine Department.

2.5 Sample Size

$$n = \frac{z^2 p(1-p)}{\varepsilon^2} \quad \text{or} \quad n = \frac{z^2 p(100-p)}{\varepsilon^2}$$

P = 18.0%, which was the prevalence of the documented vital signs(16).

Z = 1.96 (assuming 95% confidence interval)

ε = 5%(maximum error allowed).

n=226.8

Hence the desired sample size was 227 parturients.

2.6 Sampling Technique

A convenience sampling technique was used. For the purpose of this study, the time between 4pm and 10pm was designated for data collection. All transfer personnel who had consented foe the study and who arrived by means of ambulance were taken.

2.6.1 Inclusion criteria

- All transfer personnel involved in patient transfer to Muhimbili Emergency Medicine Department by Ambulance as a mode of transport.
- All consented transfer personnel were included in the study.

2.6.2 Exclusion criteria

- Arrivals by means of self transport.
- Arrivals by means of public transport.

2.7 Data Collection

All transfer personnel meeting the inclusion criteria were enrolled in the study. So the transfer personnel were informed about the study before their participation. An informed consent was issued to those who agreed to participate so as to sign them. A questionnaire with standardized transfer format from the guidelines of the Association of Anesthesiologists of Great Britain and Ireland(AAGBI) was provided to the participants for filling.

The research assistants were also recruited and got involved in assisting filling of the questionnaire forms prepared in this research. They were given tasks to assist so as to fulfill this questionnaire for a better data collection.

2.8 Data analysis plan

Data was collected, cleaned and entered in a computer system and analyzed using Statistical Package for Social Scientists (SPSS) from IBM SPSS Statistics Version 20 computer program. Data was presented as proportions for categorical variables. Univariate analysis was used for characteristics of research participants which were expressed as categorical and continuous variables. The chi-square testing was used to test for association between independent variables and dependent variable. In case of continuous variables, a Student t-test was used. If the p-value was found to be <0.05 then the association was deemed significant.

2.9 Ethical Considerations

The clearance of ethical issues was sought from Muhimbili University of Health and Allied Sciences ethical review board .A go ahead of the study was sought from the Acting Director of Muhimbili National Hospital. After completing informing the participants regarding the study, a written informed consent was signed by those participants in the study. The study principal Investigator shared zero cost to the participants and no bill was paid for their participation in the study. The information shared by the participants was held confidential for this study.

CHAPTER THREE

3.0 RESULTS

3.1 Demographic results

Age range of patients transferred within the ambulance were between 1 to 82 years old.

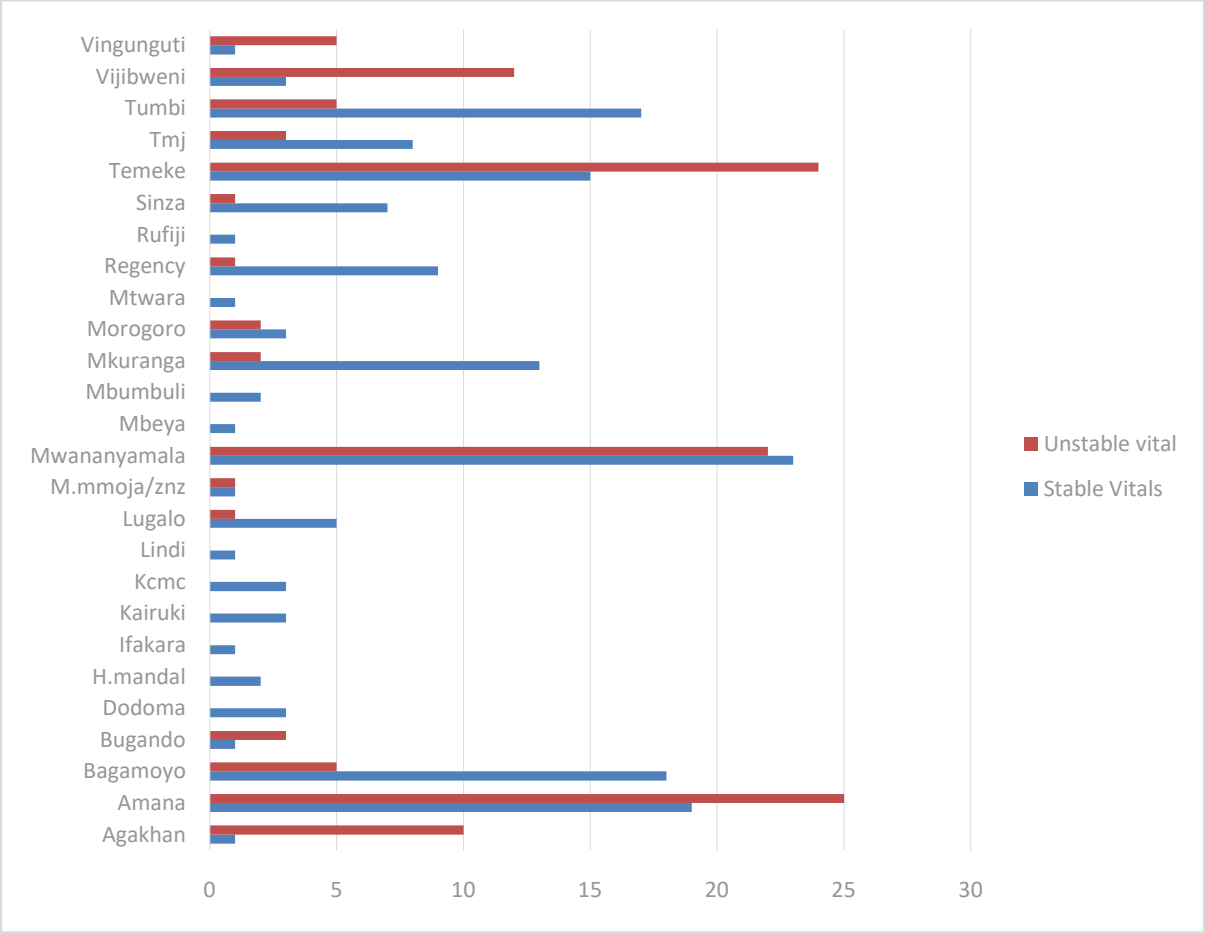


Figure 1: The distribution of hospitals transferring patients by ambulances.

The figure 1 above revealed that among Dar es Salaam regional hospitals, Amana, Mwananyamala and Temeke had the most referrals whilst Sinza, Mnazi mmoja, Regency and Lugalo had the least.

1) **The approach to pre-transfer decision and communication between referring and referred hospitals.**

Table 1 below showed pre transfer decision involving pre transfer diagnosis, date of transfer decision, time of transfer decision, reason for transfer, case notes, laboratory results and radiology results which were available at only 87.7%, 96.5%, 57.7%, 85.2%, 94.0%, 24.6% and 29.9% respectively, with significance $P<0.001$. Presence of name of receiving personnel and qualification of receiving personnel were documented at only 4.6% and 0.7% respectively, with a significance $P<0.001$

Table 1: The pre-transfer decision from referring hospitals.

	Total	Available	Not Available	P- value
Pre Transfer Diagnosis	284 (100%)	249 (87.7%)	35 (12.3%)	<0.001
	Total	**available**	**Available**	**P- value**
Presence of qualification of receiving personal	284 (100%)	2(0.7%)	282(99.3%)	<0.001
	Total	**Available**	**Not Available**	**P- value**
Date of Transfer Decision	284 (100%)	274(96.5%)	10(3.5%)	<0.001
	Total	**Available**	**Not Available**	**P- value**
Time of Transfer Decision	284 (100%)	164(57.7%)	100(42.3%)	<0.001
	Total	**Available**	**Not Available**	**P- value**
Reason for Transfer	284 (100%)	242(85.2%)	42(14.8%)	<0.001
	Total	**available**	**Not available**	**P- value**
Resuscitation and Stabilization Received	284 (100%)	126(44.4%)	158(55.6%)	<0.001
	Total	**available**	**Not available**	**P- value**
IV Access in Place and patency	284 (100%)	218(76.8%)	66(23.2%)	<0.001
	Total	**Available**	**Not Available**	**P- value**
Case Notes	284 (100%)	266(94.0%)	18(6.1%)	<0.001
	Total	**Available**	**Not Available**	**P- value**
Laboratory results attached	284 (100%)	70(24.6%)	214(75.4%)	<0.001
	Total	**Available**	**Not Available**	**P- value**
Radiology results Available	284 (100%)	85(29.9%)	199(70.1%)	<0.001
Pre- Transfer Basic Vital Signs	**Total**	**Available**	**Not Available**	**P value**
HR	284	214 (75%)	70 (25%)	<0.001
Spo2	284	197 (69.4%)	87 (30.6%)	<0.001
RR	284	206 (72.5%)	78 (27%)	<0.001
NIBP	284	201 (70.8%)	83 (29.2%)	<0.001
TEMP	284	127 (44.7%)	157 (55.3%)	0.01
RBG	284	59 (20.8%)	225 (79.2%)	<0.001

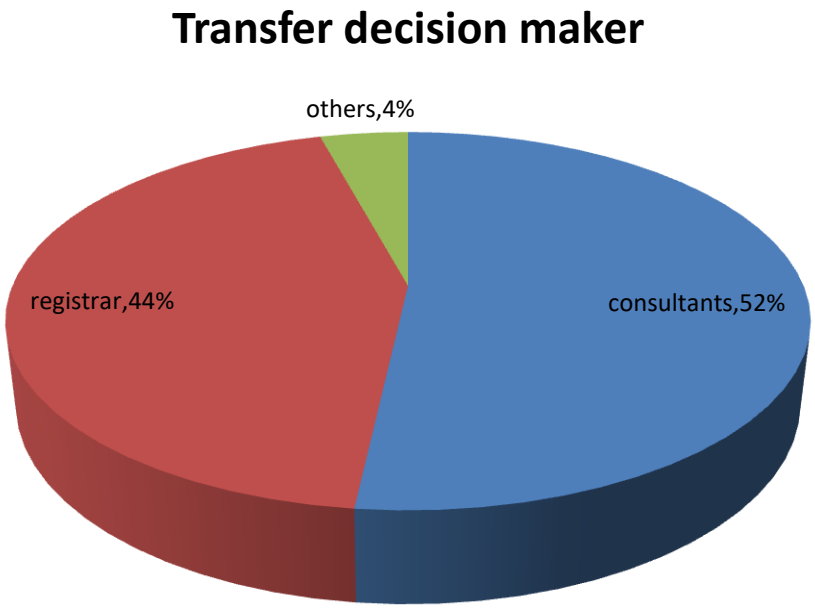


Figure 2: Figure displays the percentage of transfer decision maker among the health personnel groups.

The figure above showed that Senior consultants were predominant at 52% followed by registrars(44%) and others including interns at 4% respectively.

Table 2 below showed that only 112/284(39.6%) referrals were communicated and it was statistically significant with p<0.001.

Table 2: The pre transfer communication between referring facility and MNH.

	Total	Yes	No	P- value
Pre transfer Communication done	284 (100%)	112(39.6%)	172(60.4%)	<0.001

Table 3 showed that reason of transfer communicated to relative at only 131/284(46.1%), with a significance, p<0.001.

Table 3: **Communication on transfer reason(s) to relatives regarding patient transfer.**

	Total	Yes	No	P- value
Reason of transfer communicated to Relatives	284 (100%)	131(46.1%)	153(53.9%)	<0.001

2. **The availability of necessary equipment and medicines within ambulances transferring the patients.**

Table 4 below showed that airway equipments were available at only <9%, face mask 45.4%, endotracheal tube 7.0%, laryngoscope blade 6.7%, yankauer sucker 6.7% and endotracheal suction catheter 14.5% respectively, with a significance p<0.001.

Table 4: The airway equipment availability within ambulances transferring patients.

Equipment	Total	Available	Not Available	P- Value
Oropharyngeal Airway	284 (100%)	14(4.9%)	270(95.1%)	<0.001
Nasopharyngeal Airway	284 (100%)	10(3.5%)	274(96.5%)	<0.001
Face Mask	284 (100%)	129(45.4%)	155(54.6%)	<0.001
Endotracheal tube	284 (100%)	20(7.0%)	264(93.0%)	<0.001
Laryngoscope, blade	284 (100%)	19(6.7%)	265(93.3%)	<0.001
Yankauer sucker	284(100%)	19(6.7%)	165(93.3%)	<0.001
Endotracheal suction catheter	284(100%)	42(14.8%)	242(85.2%)	<0.001

Table 5 below showed functional status of equipments available where by suction device, defibrillator, ABG machine and self inflating bag were 100.0% functioning but transport ventilators and oxygen source were functioning at only 24% and 82.2% respectively. with a significance, p<0.001.

Table 5: **Functional status of equipments available within ambulances transferring patients.**

	Total	Functioning	Not functioning	P- Value
Transport Ventilator	25(100%)	6(24%)	19(76%)	<0.001
Suction device	31(100.0%)	31(100.0%)	0(0.0%)	<0.001
Self Inflating bag	53(100.0%)	53(100.0%)	0(0.0%)	<0.001
ABG Machine	3(100%)	2(66.7%)	1(33.3%)	<0.001
Defibrillator	2(100.0%)	2(100%)	0(0.0%)	<0.001

Table 6 below showed that IV Fluids were present at 78.9% were as, cannulae, Pressure bag and CVC lines were present at only, 17.3%, 0.7%, and 0.7% respectively with statistical significance <0.001.

Table 6: Other Equipments within ambulance transferring patients.

	Total	Yes	No	P-Value
IV fluids	284(100%)	224(78.9%)	60(21.1%)	<0.001
Pressure Bag	284(100%)	2(0.7%)	282(99.3%)	<0.001
Cannulae	284(100%)	49(17.3%)	235(82.7%)	<0.001
CVC lines	284(100%)	2(0.7%)	282(99.3%)	<0.001

Table 7 shows that the availability of necessary drugs for transport was low whereby only about 13.1% had sedatives and intubating drugs, 51% had resuscitative and vasopressor drugs and 61.3% had analgesics and this was statistically significant P <0.001

Table 7: **Availability of medication within Ambulance for transferring patients.**

	Total	**Availability**	**Not Available**	**P- Value**
Sedative and intubating drugs				
Ketamine Inj.	284(100%)	5(1.8%)	279(98.2%)	<0.001
Midazolam Inj.	284(100%)	16(5.6%)	268(94.4%)	<0.001
Suxamethonium Inj.	284(100%)	1(0.4%)	283(99.6%)	<0.001
Atracurium Inj.	284(100%)	15(5.3%)	269(94.7%)	<0.001
Vassopressors and resuscitative drugs				
Adrenaline Inj.	284(100%)	93(32.7%)	191(67.3%)	<0.001
Atropine Inj.	284(100%)	37(13.0%)	247(87.0%)	<0.001
Dopamine Inj.	284(100%)	14(4.9%)	270(95.1%)	<0.001
Dobutamine Inj.	284(100%)	1(0.4%)	283(99.6%)	<0..001
Analgesics				
Morphine Inj.	284(100%)	2(0.7%)	282(99.3%)	<0.001
Pethidine Inj.	284(100%)	44(15.5%)	240(84.5%)	<0.001
Diclofenac Inj.	284(100%)	128(45.1%)	156(54.9%)	0.02

3. Patterns and adequacy of documentation for Inter hospital patient transfer.

Table 8 below shows that there is partial documentation of vital signs, whereby most documented vitals were before transferring the patient with P<0.001

Table 8: Vital sign availability before, during transfer and on arrival.

	Total	Available	Not available	
HR before transfer	284 (100%)	214 (75.4%)	70 (24.6%)	<0.001
RR before transfer	284 (100%)	206 (72.5%)	78 (27.3%)	<0.001
BP before transfer	284 (100%)	201 (70.8%)	83 (29.4%)	<0.001
SPO_2 before transfer	284 (100%)	197 (69.4%)	87 (30.6%)	<0.001
GCS/AVPN before transfer	284 (100%)	168 (59.2%)	116 (40.8%)	<0.001
HR during transfer	284 (100%)	22 (7.7%)	262 (92.3%)	<0.001
RR during transfer	284 (100%)	22 (7.7%)	262 (92.3%)	**<0.001**
BP during transfer	284 (100%)	21 (7.4%)	263 (92.3%)	<0.001
SPO2 during transfer	284 (100%)	22 (7.7%)	262 (92.3%)	<0.001
GCS/AVPN during transfer	284 (100%)	20 (7.0%)	264 (93.0%)	<0.001
HR during arrival	284 (100%)	107 (37.7%)	117 (62.3%)	<0.001
RR during arrival	284 (100%)	107 (37.7%)	177 (62.3%)	<0.001
SPO_2 during arrival	284 (100%)	105 (37%)	179 (63.0%)	<0.001
GCS/AVPN during arrival	284 (100%)	78 (27.5%)	206 (72.5%)	<0.001
BP during arrival	284 (100%)	97 (34.2%)	187 (65.8%)	<0.001

4. The management received and appropriateness of the transfer personnel during Inter-hospital patient transfer.

Table 9 below shows that there was no complete management and monitoring while transferring patient whereby only 25% had received management during transfer and 9.9% were monitored with statistical significance P<0.001

Table 9: The management and monitoring status between referring and referred hospitals.

	Total	Yes	No	P value
Management during transfer	284 (100%)	71 (25.0%)	213 (75.0%)	<0.001
Monitoring done during transfer	284 (100%)	28 (9.9%)	256 (90.1%)	<0.001

Table 10 below shows that non of the transfer used standard operating procedures but there was formal handling over of patients at 99.6%.with a statistical signifance, p<0.001.

Table 10: Availability of standard operating procedure (SOP'S) or guidelines for patient transfer between referring and referred health personnel.

	Total	Available	Not available	P value
SOP'S	284 (100%)	0 (0.0%)	284(100.0%)	<0.001
Formal handover	284(100%)	283(99,6%)	1(0.4%)	<0.001

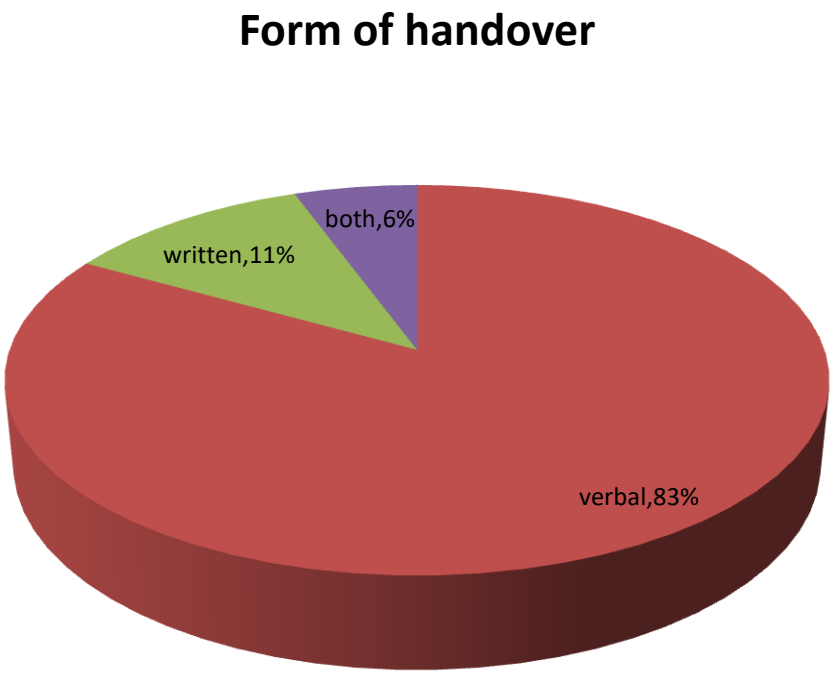


Figure 3: Distribution of form of handover between referring and referred health teams.

The figure above showed that the form of handover were mostly verbal(83%) followed by written(11%) and both written and verbal(6%) respectively.

Table 11 below shows that among the patient accompanying personnel ,nurses were mostly involved for both stable(82.8%) and unstable(70.2%) vital patients ,doctors accompanied only 24% of the unstable patients.

Table 11: The distribution of accompanying personnel's qualification during Inter-hospital patient transfer.

Health personnel	Total	Stable vitals	Unstable vitals	P value
Doctor	44(15.5%)	23(14.1%)	21(17.4%)	0.12
Nurse	220(77.5%)	135(82.8%)	85(70.2%)	
Doctor and Nurse	12(4.2%)	4(2.5%)	8(6.6%)	
Others(paramedics)	8(2.8%)	1(0.6%)	7(5.8%)	
Total	284(1000%)	163(100.0%)	121(100.0%)	

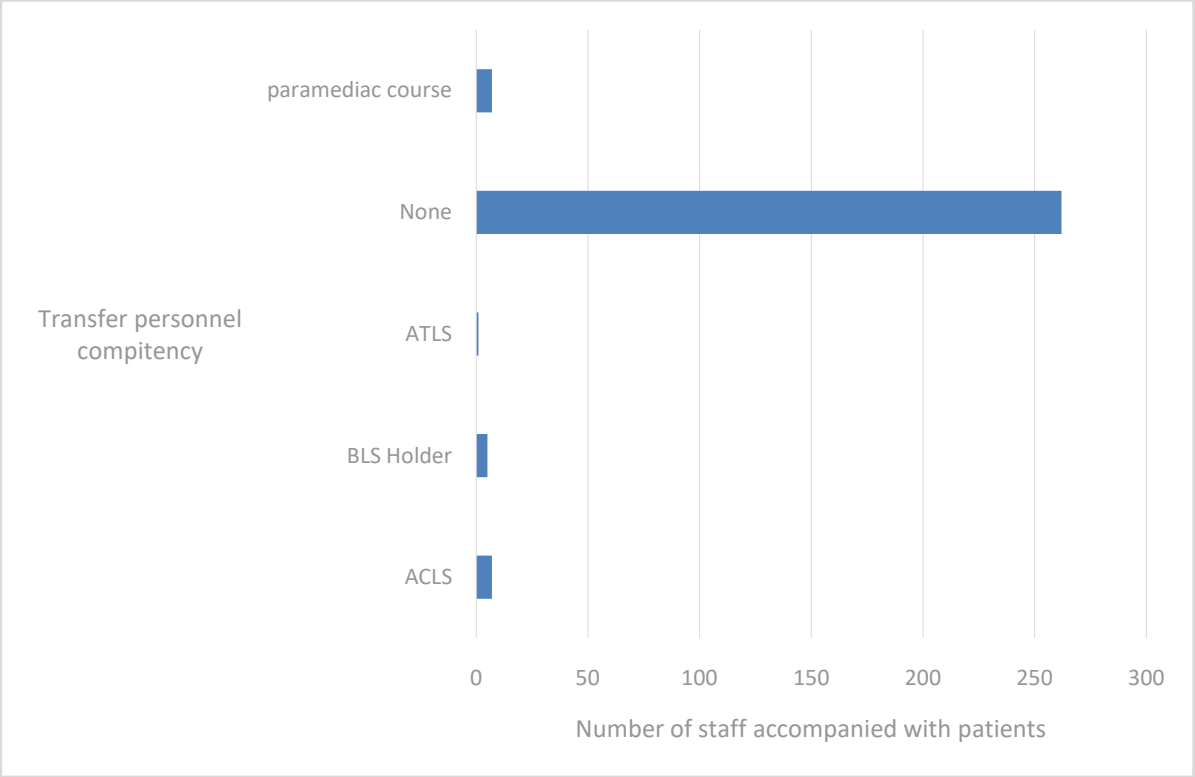


Figure 4: The distribution of transfer personnel competency.

The results on figure above shows that most of the transfer personnel were not well trained for inter hospital patient transfer.

CHAPTER FOUR

4.0 DISCUSSION

This study aimed at evaluating Inter-hospital transfer of patients to Muhimbili National Hospital in accordance to acceptable International Standard Guidelines. A total of 284 participants were involved in this study, where by 45.2% were males and 54.9% were female transfers. Most referrals were coming from Amana, Mwananyamala and Temeke hospitals which are within Dar-es-Salaam and the least referrals were from Lindi, Ifakara, Zanzibar, Mbeya and Mtwara regions.

This study showed that there are many areas of improvement regarding Inter-hospital transfer of patients, these included a systemic approach in the process of transfer decision making, improvement in Inter-facility communications, proper documentation, equipping ambulances with all important drugs and equipments needed during patient transfer, the need of a well trained and skilled transfer personnel and keeping of records and monitoring of patients till arrival to the referred hospital.

This study found that in the approach to pre transfer decision and communication senior consultants were involved in transfer decision making by 52% and 76.5% (on average between stable and unstable patients transferred) of the transfers were escorted by Nurses. A study by Grandon et al, performed in Jamaica reported that 94% of the transfers decisions were prepared by Junior Medical staff and 89% of the transfers had been done without accompanying doctors (9). This huge difference in transfer decision making personnel could be due to lack of senior medical staff to be involved in transfer decision making, the study done in Jamaica might have been done in a remote area with fewer numbers of senior medical staffs. Accompanying personnel were mostly not doctors in both studies and this could be due to shortage of medical staff at the transferring hospitals .

Also most of the transfers in this study were not communicated between referring and referred hospital. A study by (Hains IM et al.2011) reported that many of its reports regarding communication pinpointed(highlighted) absence or delay of communication while organizing

Inter-facility patient transfer(9). A study by (Colleja P et al 2011) suggested factors related to poor communication ,which included the involvement of multiple health care team members in transfer process, organizational issues, health care providers individual performance, team culture and resources availability(12). In this study other factors attributed to poor communication included the ignorance from health transfer team and loss of communication records from the referred hospital.

In cross checking the availability of necessary equipment and medicines necessary for inter-hospital transfer of patients, this study had revealed the there had been a presence of inadequate transport equipment and drugs from one hospital to another. There are other two studies found to have similar results including one study by (Vos GD1 et al.2003) which reports to have 41/137(29.9%) laryngoscopes, suction catheter 26/137(19.0%), as compared to 19/284(6.7%) laryngoscopes, suction catheter 31/284(10.9%) that was reported in this study(13). And another study by (A Stevenson et al.2005) reported only 88% of the transfers had ventilators compared to this study that reported to have only 8.8% ventilators available(11). The differences in percentage showed to have more inadequacy of transfer equipments in this study as compared to other studies above and this could be due to the advancement achieved in places were those studies were conducted. Having inadequate transfer equipment and drugs could be due to having no regulatory bodies overseeing the availability of such equipments in the area this study is being conducted and also due to lack of knowledge to use some of the equipments as well as ignorance in many of Institutions referring patients. This study also reported to have 13.1% of Intubating drugs and 45.7% of resuscitative drugs. A study by (Vos GDI et al.2013 reported to have 44.5% of Intubating drugs and 46.0% of Resuscitative drugs(13). Similarities in resuscitative drugs could be due to understanding the importance of drugs availability incase of cardiac arrest. And the difference in intubating drugs could be due to unavailability or not purchased drugs from the referring hospitals in this study.

In this study the assessment of pattern and adequacy of documentation during Inter-hospital transfer had revealed that there had been many gaps from referring to referred hospitals. This included partially filled or completely left unfilled documents. A study by (A Stevenson et al.2005) reported to have poor documentation of vital signs(11). Another done in India by (Vermal V et al.2013) revealed that the level of documentation in transfer of injured patients was suboptimal(14) .This included only 13.71% of transfers had transfer time recorded as compared to 57.7% of time for transfer recorded in this report. The difference in time recorded for transfer could have been due to differences in awareness by the transfer personnel involved in these studies. Also both studies had less documentation in measuring of vital signs during transfer of patients. Another study by P W Barry et al.1994 also reported poor documentation of vital signs during patient transfer(16). Having no existing guidelines could have an impact on having improper documentation due to the gaps available.

In assessing management received and appropriateness of transfer personnel the study revealed missed information regarding patient management and almost absence of adequate training in the staff participating in the process of patient transfer. A study by A Gray et al reported to have no appropriately trained medical and nursing staff for patient transfer(15). In developing countries such conditions might be due to financial reasons towards attaining the training courses, decreased awareness regarding importance of training in inter-hospital transfer and ignoring the issue of training without forgetting the absence of guidelines for transfer personnel to have a mandate of going for training. A study by A Stevenson et at.2005 reported that most transfers have been undertaken by nurses followed by physician(11).This is similar to this study and the similarity may be due to attitude of some health institutions seeing the transfer can be well coordinated by a nurse and also in developing countries there is fewer number of physicians hence they opt to remain within the hospital and sending nurses to do the transfer of the patient. Another reason could be fear of the physician in case of mismanagement that could be overseen at the referred hospital while he reaches there with the patient and this might give him discomfort during the patient handover at the referred hospital.

Due to poor documentation and poor measuring of vital signs throughout the transfer process this study had shown to have poor management the patients had received throughout the transfer process..Other 2 studies that supported this included that of P W Barry et al.1994 and Vermal V et al.2013.This could be due to lack of knowledge from the transfer personnel leading to poor management or ignorance(14,16).

4.1 Study Limitations and Mitigations

There was a risk of having missed informations due to the fact that the transfer process passes through many hands and getting a collective information was difficult as is no clear guidelines have being followed during the transferring processes.

CHAPTER FIVE

5.1 Conclusion

Inter-hospital patient transfer is a very important link in patient care continuity from referring to receiving health facilities.

It had been observed in this study that Inter-hospital patient transfer to Muhimbili National Hospital does not conform to proper acceptable standard operating procedures or guidelines from referring to referred hospitals. The patient transfer teams involved in the study admitted to have no guiding transfer protocol and as such the observed practice differed among teams

There was poor adherence to inter facility communication, patient stabilization and resuscitation, resuscitative drugs and necessary equipments, patient handover and documentation during patient transfer.

5.2 Recommendation

There are many gaps that needs to be fulfilled to ensure that the Inter-hospital transfer process is well attained in terms of safety transfer, proper care during the transfer process and ensuring good outcome during the whole transfer processes; For this matter standard operating procedures for Inter-hospital patient transfer needs to be established as it was pointed out in many areas in this study.

Further studies on Inter-hospital patient transfers would yield a better understanding on the need of having a well implemented and acceptable standard operating procedures and guidelines for Inter-hospital patient transfers in Tanzania.

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APPENDICES

Appendix I: Questionnaire

EVALUATION OF INTER-HOSPITAL TRANSFER OF PATIENTS TO MUHIMBILI NATIONAL HOSPITAL, DAR-ES-SALAAM IN ACCORDANCE TO ACCEPTABLE INTERNATIONAL STANDARD GUIDELINES, 2016.

PART A:PRE-TRANSFER COORDINATION.

A: Patient information

Serial No:_____

Patient Name/Initials_____

Age _____

Gender:

Male ☐

Female ☐

B: Pre transfer patient information

5.referring hospital's name:

6.receiving hospital's name:

7.Pre-transfer diagnosis

available

not available ☐

8.Transfer decision maker.

Senior doctor/Consultant

Registrar ☐

Other; specify

9.Presence of Name, contact , and qualification of receiving personnel

Name ☐

Contact ☐

Qualification ☐

10.Date and time of transfer decision

Date_____

Time_____

11. Reason for transfer

Clinical ☐

Non-clinical ☐

12.Resuscitation and stabilization received.

Yes ☐

No ☐

13.IV Access in place and patency.

Yes ☐

No ☐

14.Pre-transfer basic vital signs

HR…….beats/min SPO_2……% RR…….breaths/min NIBP……..mmHg

Temp….C RBG……mol/l.

15.Pre-transfer documents availability.

	Available	Not available
Case notes		
Laboratory results attached?		
Radiology results attached?		

PART B:COMMUNICATION

16.Communication done with receiving facility

Yes ☐

No ☐

17.Mode of communication used

Verbal ☐

Telephone calls ☐

Mobile ☐

18.People involved in communication regarding transfer

Patient receiving team ☐

Relatives ☐

Patient (if alert and oriented) ☐

19.Reason for transfer communicated to relatives/patient?

Yes ☐

No ☐

PART C: EQUIPMENT AND MEDICINES WITHIN THE AMBULANCE

20.**Equipment**:

AIRWAY EQUIPMENT	Availability	Functional status
Oro-pharyngeal airway		
Naso-pharyngeal airway		
Facemask		
Self inflating bag		
Endotracheal tubes		
Bougie		
Laryngoscope+blades+batteries		
Ties.tapes to secure endotracheal tubes		
Suction device		
Yankauer suction catheter		
Endotracheal suction catheter		
Capnography		
ABG machine		

BREATHING EQUIPMENT	Availability	Functional status
Ventilator		
Oxygen source		
Spare batteries for ventilators		

CIRCULATION EQUIPMENT	Availability	Functional status
IV Fluids		
Pressure bags		
Syringe drivers and spare battery		
Cannulae		
Invasive monitoring equipment		
Defibrillator		
CVC lines		

OTHERS	Availability	Functional status
Portable monitor(HR,SPO2,NIBP,RR)		
Blankets		
Thermometer		
Urinary catheter and bag		
Pen Torch		
Blood glucose monitor		

21.**MEDICINES**.

MEDICINES	AVAILABLE	NOT AVAILABLE
Ketamine inj		
Midazolam inj		
Suxamethonium inj		
Atracurium inj		
Adrenaline inj		
Atropine inj		
Dopamine inj		
Dobutamine inj		
Amiodarone inj		
Morphine inj		
Pethidine inj		
Diclofenac inj		

22.Other available equipment _____

23.Other available medicines_____

24.Stretcher available?

Yes ☐

No ☐

25.Sufficient O2 availability for the transfer?

Yes ☐

No ☐

PART D: MANAGEMENT PATTERNS

26.Management done during patient transfer:

Yes ☐

No ☐

27.Monitoring done during transfer?

Yes ☐

No

28.Specify monitoring durations_____

29.Treatment given during transfer

Yes ☐

No

30.Vital signs during arrival at receiving hospital

Heart Rate(beats/min)	
Respiratory Rate(breaths/min)	
Percentage of Oxygen saturation	
ECG Rhythm	
Temperature(C)	
Non-invasive blood pressure(mmHg)	

31.Patient condition during arrival.

Stable vitals ☐

Unstable vital

32.Level of consciousness (GCS/AVPU)……

PART E: ACCOMPANYING PERSONNEL

33. Accompanying personnel's Qualification:

Doctor

Nurse

Doctor and Nurse

I Other ,specify_____

34.Transfer personnel competency:

BLS Holder Since when_____

ACLS Holder Since when_____

Other training done_____

35.Availability of Standard operating procedures guiding his/her transfer:

Yes

No

36.High visibility clothing worn?

Yes

No

PART F: DOCUMENTATION

37. Pre-transfer documentation in proper order?

Fully documented

Partially documented

Not documented

38.Basic vital signs documented

	HR	RR	BP	SPO2	GCS/AVPU
Before transfer					
During transfer					
At arrival					

39.Therapy/Treatment given well documented?(drug ,dosage ,route)

Yes

No

40.Adverse events and treatment given well documented(if applicable)

Adverse events	Treatment given
Hypoxia	
Shock	
Hypotension	
Hemorrhage	
Others…….	

41.Estimated transfer time documented (hours)_____

42.Reason(s) for delay arrival if any_____

PART G: HANDOVER

43.Formal handover between transport team and receiving medical and nursing staff done

Yes ☐

No

44.If done specify the form of handover:

Verbal ☐

Written

Both verbal and written

45.Signatures of handover team and of receiving team at the end of handover?

Both documented ☐

Not documented

Only one signature documented

Appendix II: Consent Form - English Version

CONSENT TO PARTICIPATE IN THE STUDY,

STUDY TITLE: Evaluation of Inter-hospital transfer of patients to Muhimbili National Hospital in accordance to acceptable standard guidelines.

Introduction

Greetings, I am Dr Faraji Hassan Lydenge, a second year resident doctor in the Department of Anaesthesiology at MUHAS. I am conducting a study with the above title as part of my study programme. Please ask questions if there is anything about this study you do not understand.

I am requesting for your participation.

Aim of the study

To evaluate Inter-hospital transfer of patients to Muhimbili National hospital in accordance to acceptable International Standard Guidelines.

How to participate

Participants who will be ready to participate in this study will sign this consent form to approve their willingness.

Confidentiality

Information obtained from the participant will be confidential and will be used to help improve the patient transfer system in our country.

Costs

You will not be required to pay anything for your participation.

Voluntary participation and rights to withdrawal

Your participation is voluntary and you have the right to withdraw from participating in our study at any time. Whatever your decision made will be respected.

Risks

There is no risk in participating in this study.

Benefits

Benefits of this study will be after its results are being completed and these results will aid in ensuring a more safe transfer of our patients

I will be grateful with your participation ,regards.

Contact Persons

The Principal Investigator, Dr Faraji Hassan Lydenge, Tel 0714211000 is a key contact person with regard to any queries about this study. If you have any questions/concerns about your rights as a participant you may contact Professor Said Abood, the Chairman of the university senate research and publications, MUHAS P.O.BOX 65001, Dar-es-salaam. Tel 2150302-6.

I will be grateful if you would agree to participate in this study.

I _____

Have understood the above information and my questions have been answered by the investigator to my satisfaction. I willingly agree to take part in this research.

Name of the participant: _____

Signature of the participant: _____Date _____

Signature of Investigator _____ Date: _____

Appendix III: Consent Form - Swahili Version

FOMU YA MAKUBALIANO YA KUSHIRIKI KATIKA UTAFITI.

TAFITI HUSIKA: Kufahamu taratibu zinazotumika kuhamisha wagonjwa toka hospitali nyingine kuelekea hospitali ya taifa ya Muhimbili kwa kutumia utaratibu wa kimataifa uliokubalika.

Utangulizi:

Habari! Mimi Dk.Faraji Hassan Lydenge, ni Daktari mwanafunzi wa mwaka wa pili wa shahada ya uzamili ya nusu kaputi katika chuo kikuu cha Sayansi cha Tiba cha Muhimbili katika shahada ya Uzamili katika Chuo Kikuu Cha Sayansi za Tiba cha Muhimbili.Nafanya utafiti kama unavyojieleza hapo juu kama moja ya masomo yangu.Naomba uwe huru kuuliza lolote endapo hutaelewa chochote kuhusu tafiti hii.

Ninaomba ushirikiano wako.

Nia ya Utafiti

Dhumuni ni kufahamu taratibu zinazotumika kuhamisha wagonjwa toka hospitali nyingine kuelekea hospitali ya taifa ya Muhimbili kwa kutumia utaratibu wa kimataifa uliokubalika.

Jinsi ya Kushiriki

Aliyekuwa tayari kushiriki katika tafiti hii ataweka sahihi yake ili kuthibitisha ushiriki wake kwenye fomu yake.

Usiri

Taarifa za matokeo hazitatangazwa kwa mtu yoyote na taarifa hizi zitatumika kusaidia kuongeza ufanisi katika mfumo wa kuhamisha wagonjwa nchini.

Gharama: Hutatakiwa kulipa gharama yoyote kwa kushiriki kwako.

Utayari wakushiriki au kujitoa

Kushiriki kwako ni hiyari na waweza kujitoa muda wowote wa utafiti huu na pia uamuzi wako huo utaheshimiwa.

Hatari

Hatutarajii hatari kutokana na utafiti huu.

Faida

Faida ya tafiti hii itakuwepo mara baada ya kumaliza tafiti na kupata matokeo ambayo yatasaidia kuhakikisha wagonjwa wanasafirishwa kihali ya usalama zaidi.

Nitakushukuru kwa kushiriki wako utafiti huu.Shukran za dhati.

Kwa mawasiliano

Iwapo utakuwa na swali au ufafanuzi wowote kuhusu utafiti huu wasiliana na mtafiti mkuu, Dkt Faraji Hassan Lydenge. Hata hivyo endapo utakuwa na maswali kuhusu haki yako kama mshiriki unaweza pia kuwasiliana na Prof. Said Abood, Mwenyekiti wa Baraza la Utafiti na Uchapishaji wa chuo kikuu cha sayansi ya Tiba Muhimbili S.L.P 65001, Dar-es-salaam.Simu namba 2150302-6.

Mimi……nimeelezwa/nimesoma yaliyomo katika fomu hii na nimeelewa maana yake. Nakubali kushiriki katika utafiti huu.

Sahihi……..(Mshiriki) Tarehe……..

Sahihi…….. (Mtafiti) Tarehe……..

Appendix IV: Transfer / Referral – Aga Khan Hospital

The Aga Khan Hospital, Dar es Salaam

Ocean Road, P.O. Box 2289, Dar es Salaam, Tanzania
Telephone : 2115151/2/3, Fax: 2115904/2115156, Email: agakhan@akhst.org

FIRST NAME:_____
MIDDLE NAME:_____
SURNAME:_____
MR No.:_____
SEX:_____ AGE:_____
DEPT.:_____ WARD:_____

TRANSFER / REFERRAL SUMMARY

Date of Transfer/Referral: _____

Trasferred/Referred to: _____

This patient was admitted/seen in our hospital, at _____ department and is transferred/referred for _____ speciality/services.

Presenting Complaint(s): _____

Clinical Presentation, History and Examination: _____

Main Reason for Transfer/Referral: _____

Diagnosis at Transfer: _____

Investigations and Reports: ☐ Attached (if applicable) _____

Other Pre-existing/special condition: _____

Vital Signs at the time of transfer:	Time	Temp.	Pulse	BP	RR	O_2Sat	GCS	Pain Score

Management done at AKHD: _____

Condition/Status at Transfer/Referral: ☐ Stable ☐ Unstable

Mode of Transport: ☐ Personal ☐ Public ☐ Ambulance

Incase of Transfer (only), patient accompanied by:

☐ Nurse ☐ Doctor ☐ Paramedic in ambulance

Name of Doctor: _____ Designation: _____ Signature: _____

MONITORING DURING TRANSPORTATION IN-CASE OF TRANSFER (to be checked at every 15 mins)

Time	Pulse	BP	O_2Sat	GCS	Medication Administration	Other Interventions

Condition of Patient at the time of handover: _____

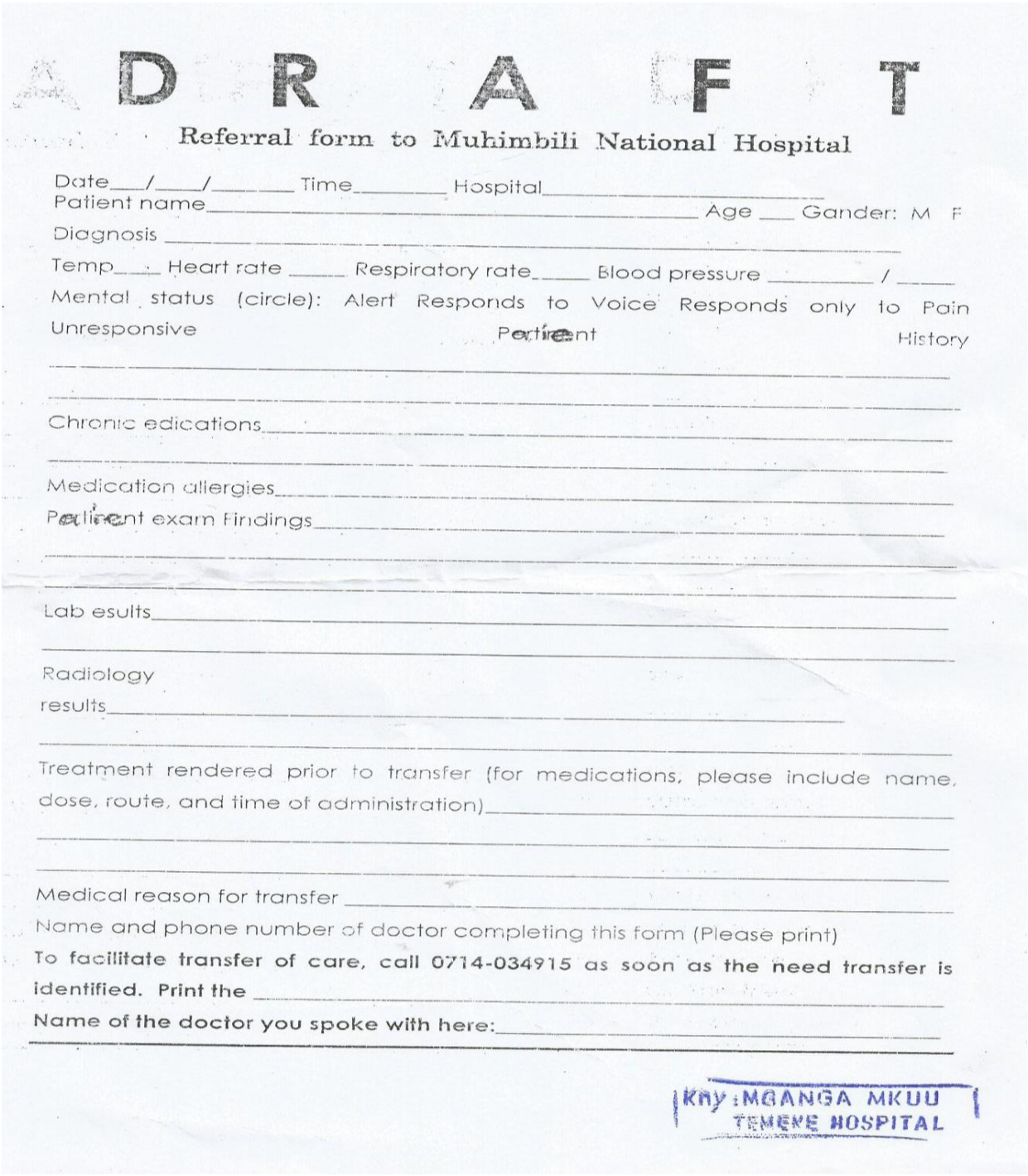
Handed over by: _____ Signature: _____

Handed over to: _____

Note: This form will be filled in duplicate. Original remains with receiving facility, copy is returned to patients file at Aga Khan Hospital, Dar es Salaam (AKHD).

Form No.: AKHD / MS / 018	Date: July 2013	Revision No.: 02

Appendix V: Referral – Muhimbili National Hospital



D R A F T

Referral form to Muhimbili National Hospital

Date___/___/_____ Time_____ Hospital_____

Patient name_____ Age ___ Gander: M F

Diagnosis _____

Temp___ Heart rate _____ Respiratory rate_____ Blood pressure _____ / _____

Mental status (circle): Alert Responds to Voice Responds only to Pain Unresponsive

Pertinent History

_____

_____

Chronic edications_____

_____

Medication allergies_____

Pertinent exam Findings_____

_____

_____

Lab esults_____

_____

Radiology results_____

_____

Treatment rendered prior to transfer (for medications, please include name, dose, route, and time of administration)_____

_____

_____

Medical reason for transfer _____

Name and phone number of doctor completing this form (Please print)

To facilitate transfer of care, call 0714-034915 as soon as the need transfer is identified. Print the _____

Name of the doctor you spoke with here:_____

KNY: MGANGA MKUU
TEMEKE HOSPITAL

Appendix VI: AAGBI Safety Guideline (from Goldhill D, Gemmell L, et al. Inter-hospital transfer, AAGBI Safety Guideline. February 2009).

Appendix VII: Ethical Clearance

MUHIMBILI UNIVERSITY OF HEALTH AND ALLIED SCIENCES
OFFICE OF THE DIRECTOR OF POSTGRADUATE STUDIES

P.O. Box 65001
DAR ES SALAAM
TANZANIA
Web: www.muhas.ac.tz

Tel G/Line: +255-22-2150302/6 Ext. 1015
Direct Line: +255-22-2151378
Telefax: +255-22-2150465
E-mail: dpgs@muhas.ac.tz

Ref. No. MU/ PGS/SAEC/Vol. XVI/

4th August, 2016

Dr. Faraji Hassan Lydenge
MMed. Anaesthesiology
MUHAS.

RE: APPROVAL OF ETHICAL CLEARANCE FOR A STUDY TITLED: "EVALUATION OF INTER HOSPITAL TRANSFER OF PATIENTS TO MUHIMBILI NATIONAL HOSPITAL IN ACCORDANCE TO ACCEPTABLE INTERNATIONAL STANDARD GUIDELINES."

Reference is made to the above heading.

I am pleased to inform you that, the Chairman has, on behalf of the Senate, approved ethical clearance for the above-mentioned study. Hence you may proceed with the planned study.

The ethical clearance is valid for one year only, from 3rd August, 2016 to 2nd August, 2017. In case you do not complete data analysis and dissertation report writing by 2nd August, 2017, you will have to apply for renewal of ethical clearance prior to the expiry date.

Prof. Andrea B. Pembe
DIRECTOR OF POSTGRADUATE STUDIES

cc: Director of Research and Publications
cc: Dean, School of Medicine

Appendix VIII: Permission letter to collect data at MNH

MUHIMBILI NATIONAL HOSPITAL

Cables: "MUHIMBILI"
Telephones: +255-22-2151367-9
FAX: +255-22-2150534
Web: www.mnh.or.tz

Postal Address:
P.O. Box 65000
DAR ES SALAAM
`Tanzania

15/09/2016

In reply please quote:

MNH/TRC/ Research/2016/0123
Dr. Faraji Hassan Lydenge

RE: PERMISSION TO COLLECT DATA AT MNH: 2016/0123

Name of student	Dr. Faraji Hassan Lydenge
Title	" Evaluation of interhospital transfer of patients to Muhimbili National Hospital accordance to acceptable international standard guidelines"
Institution	MUHAS
Supervisor	Dr. Edwini Lugazia
Period	15th Sept, 2016—15th March, 2017

You have been permitted to correct data in respect to the undertaking of the above mentioned study.

Please ensure that you abide to the ethical principles or research and other conditional of your approval.

Sincerely,

DR. Faraja Chiwanga
Ag: Head, Teaching, Research and Consultancy Coordination Unit

HEAD, TEACHING RESEARCH & CONSULTANCY UNIT
MUHIMBILI NATIONAL HOSPITAL
P. O. BOX 65000
DAR ES SALAAM

Cc:- Head of department
Anaesthesiology