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Table of Contents

No table of contents entries found.

Topic: Determining the root causes of poor ratings from patients and users in the Emergency Departments (EDs) of the University Teaching Hospital (UTH) and Leavy Mwanawasa Hospital (LMH) in Zambia.

HEALTH QUALITY MANAGEMENT

Introduction

The purpose of this study is to determine the root causes of poor ratings from patients and users in the Emergency Departments (EDs) of the University Teaching Hospital (UTH) and Leavy Mwanawasa Hospital (LMH) in Zambia. It has been evidenced that the EDs of UTH and LMH have continued having several long- standing problems regarding; overcrowding, extended length of stay, prolongs waiting time, excessive patient flow time, and patients who leave without being treated. The study wishes to discuss and propose suitable methodologies to fight these problems. This study will be guided by the following objectives:

- Identify the potential root causes of the long-standing problems in the ED at UTH and LMH.
- Analyze the findings by using a fishbone Diagram and Six sigma DMAIC measurement tool regarding overcrowding in the EDs of UTH and LMH

- Prepare a new process flowchart for the ED
- Discuss the importance of clinical governance implementation in the ED
- Definition of the long-standing problems of the UTH and LMH

Emergency Department (ED) overcrowding has continued to be one of the challenges at UHT and LMH. The outstanding problems such as overcrowding, extended length of stay, prolonged waiting time, excessive patient flow time, and patients who leave without being treated have adversely affected the quality of health service delivery in the EDs of UTH and LMH. The Quality Assurance must identify the potential root causes of the long – standing problems in the ED at UTH and LMH and integrate Sustainable and Quality Health Service Delivery (QHSD) into the concerned organizational health manager's leadership and improves the operational emergency healthcare outcomes of UTH and LMH.

It is important to note the outstanding problem of overcrowding remains a complex and dynamic issue regarding QHSD governance. More especially that UHT and LMH are providing emergency care to large communities. However, the major role of UHT and LMH is to provide emergency care to the users or patients regardless of their status in society.

Several factors usually cause ED overcrowding. Some of these factors are internal or external. Internal factors of the ED may incur due to lack of resources such as lack of infrastructure, materials, labor force, lack of advanced technology, and finances. It is also true that external factors can cause ED

overcrowding. For instance, patients fail to have accessibility of insurance cover, face political instability, and other socioeconomic factors. ED Overcrowding has also continued at UTH and LMH because they are only large hospitals with sophisticated advanced heath technology and other amenities. Hence, they are only referencing health headquarter particularly communities coming from remote rural areas factors (Rasouli, Estahani &Farajizadeh (2019).

The following are factors concerning ED overcrowding at UTH and LMH:

- Some patients are critically ill
- Sometimes due to age such being aging/old age and being a child that cannot speak
- Sex of a patient e.g. Male gender
- When dealing with alcoholic patients; due to alcoholism lifestyle
- Due to emergency patient care flow: doctors may delay discharging admitted patients due to severe condition of emergency regarding complicated diagnosis tests of various patients.
- Staff related causes, for instance, the wrong diagnosis by other doctors and fewer emergency care providers
- Shortages of materials; e.g. beds not available, delayed diagnosis results and the unwillingness of doctors to admit a patient from ED

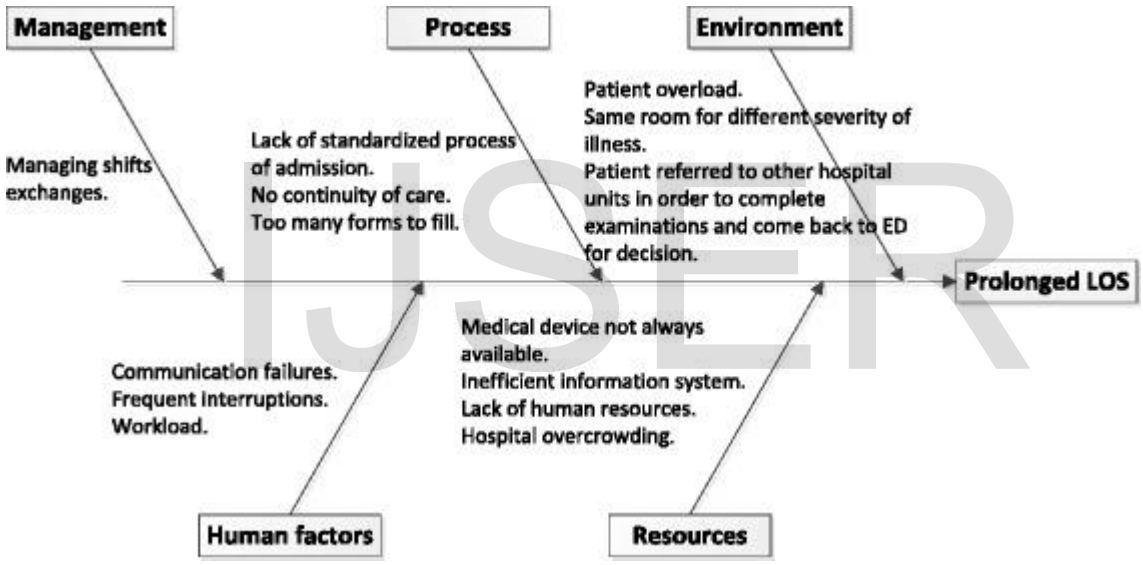
It has been observed that accidental injuries particularly in Lusaka have also increased Emergence Healthcare Services (EHS). Henceforth, emergency healthcare systems are not adequately developed to carter large populations at

UTH and LMH. Currently, on 31st May 2021 on the Mass Media of Zambia reported that 300 plus local doctors went on strike demanding good condition of service.

One of the demands was less number of doctors providing EHS at the shortest period of time. This strike has generated crowding and overcrowding at the ED which posed a reduction of QHSD. In this period of the COVID 19 pandemic, several people left without treatment and some prolonged waiting time. Crowding is the situation where the demand for EHS exceeds the available resources. Thus, overcrowding hurts the QHSD outcome. Nevertheless, due to large numbers of COVID 19 patients, UTH and LMH have continued experiencing high demand for treatment against fewer doctors. Despite the contribution of the Ministry of Health (MoH) ED crowding has continued affecting the patient's health in Zambia. Thus, a scientific approach is required to contextualize clinical governance implantation in the ED. Below are scientific approaches to analyze the cause and effects of Long Standing, overcrowding, and other related issues regarding ED challenges (Bashikini,2015):

As indicated in the flow chart figure 02. Length of stay (LOS) is one of the challenges regarding the ED long-staying problem at UTH and LMH. Through the input resources of UTH and LMH LOS is perceived as a measure of QHSD. As discussed earlier, LOS is caused by internal and external factors of the environment. Thus, the Quality Assurance officer may use Ishikawa causal diagram called Fishbone model as indicated in figure 01:

FIGURE 01: FISHBONE DIAGRAM FOR LONG STAYING AT UTH AND LMH

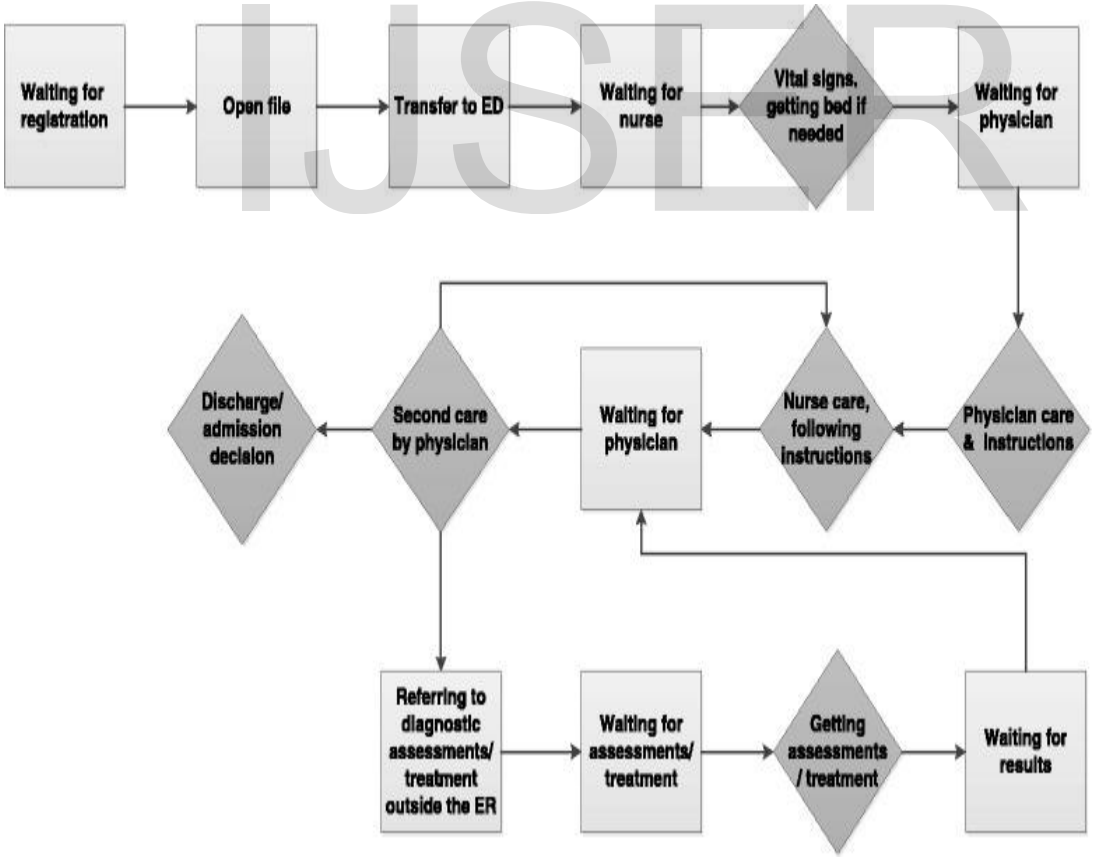


SOURCE: Bashikin, O. etal (2015). Organizational factors affecting length of stay in the emergency department: initial observational study. *Published online 2015 Oct 15. doi: 10.1186/s13584-015-0035-6 PMCID: PMC4606993:* Retrieved from https//www.ncbi.nlm.nih.gov/pmc/articles/PMC46069933#cr9

Based on observation and existing literature and inference the quality assurance officer categorically focused on the attribute and behavior of risk management plan, ED process, environmental of ED, Human resource factors. During the

brainstorming process the quality assurance wishes to propose and standardize the workflow of ED staff so as to enhance the effective line of communication and reduce workload caused by ED LOS at UTH and LMH as indicated in figure 02. The mapping workflow for the ED process was proposed to start with the data collected from UTH and LMH and analysis them, effectively from the registration point to discharge of patients or hospital admission in order to determine the various stages involved in the QHSD (Bashikin et al, 2015).

FIGURE 02: FLOW CHART OF PATIENT CARE IN ED CARE AT UTH AND LMH



SOURCE: Bashikin, O. etal (2015). Organizational factors affecting length of stay in the emergency department: initial observational study. *Published online 2015 Oct 15. doi: 10.1186/s13584-015-0035-6 PMCID: PMC4606993:* Retrieved from https//www.ncbi.nlm.nih.gov/pmc/articles/PMC46069933#cr9

KEY:

- Light Grey squares (Waiting Times for patients affected due to EDLOS)
- Dark Grey Diamonds (Illustrate steps that are vital to patients and to the process flow)

Chart flow model indicates waiting time takes place at different levels and steps within the process. As indicated in figure 01; some stages or steps are repeated if the patient is requested to undergo a diagnostics test, many times by doctors. Thus, LOS has several implications for patients' safety. Managing shift and handover may be stressful which may cause patients to wait for a long time in the ques.

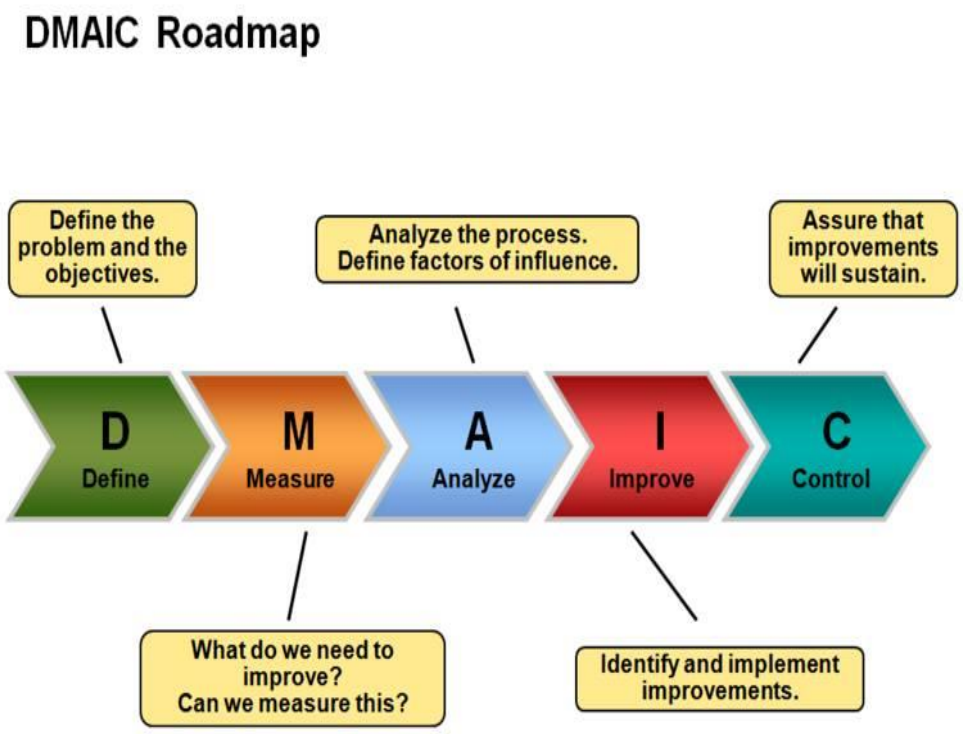
Delay may take place because other physicians are not familiar with the needs of certain patients. Therefore, distinguished and standardized mechanization must be improved during handovers. Doctors may delay giving accurate reports during handover due to the fact that they usually provide emergency care to a large population. Therefore, the quality assurance officer must ensure that; UHT and LMH provide leadership regarding managing shifts. Exchange, standardize the process of admission, continuity emergency care, simplify forms to fill, ensure that doctors are not overloaded, avoid using the same room for different severity of illness, reduce referring patients to other hospitals units in order to complete examination or seek advice for complicated treatment, enhance

effective training and line of communication to avoid communication failures and frequent interruptions of human factors, additionally, the quality assurance officer must ensure UTH and LMH has adequate resources such as medical devices for COVID 19 pandemic.

Six Sigma Model (DMAIC Model) for process quality improvement for ED OVERCROWDING:

Six sigma is the process that consists DMAIC Model for ED quality improvement and outstanding problems of ED Overcrowding and LOS at UTH and LMH. Below is the five steps for the DMAIC road map (Rastogi, 2018).

Figure 03: Understanding DMAIC



SOURCE: Image Source: http://businesscherub.com

Define: ED overcrowding is defined as a circumstances where emergency services demands exceeds the capability of physicians and nurses in providing quality emergency care within a sensible time. Understanding DMAIC:

Measure: According to first session of the twelfth national assembly appointed report dated Thursdays 6th October, 2016 observed that UTH statistically has a shortage of 3,000 doctors against 17,000.000 Zambian populations. Furthermore, overcrowding of HIV/AIDs patients stress few doctors existing. Statistics indicates that every eight (8) hours shift each and every five doctors usually attend to at least 500 patients. According to World Health Organization (WHO), the country has 1500 registered doctors.

Analyze: Doctors in Zambia are still working under hard conditions, therefore the Ministry of Health (MoH) must consider and employ prescribed acceptable standards regarding patient ratio against 1 physician to every 5,000 people, unlike the current situation where 1 doctor attend 12,000 patients.

Improve: Statistics indicates that UTH experiences overcrowding due to the increase of number of patients suffering from COVID 19 pandemic and HIV/AIDs. There, in order to improve quality health service, MoH must continue improving ED emergency care and retrain ED emergency staff into advance digital skills. UTH and LMH management must implement the action plan regarding ED emergency care by involving all stakeholders. In order to satisfy patients, relevant information should come from patients, to enhance patient centered principal.

Control: leadership and management of UTH and LMH must enhance monitoring plan in all health systems and health policies. Must continue implementing ED procedures, sustainable pillars of clinical governance and make correct decisions regarding solutions attached to ED overcrowding and LOS with effective quality management tools such as Ishikawa diagram and control charts as indicted in Figure 01.

As indicated in the fishbone diagram, quality assurance officers of UTH and LMH can improve and analysis the long- outstanding problem by integrate the statistical tool called Six Sigma metrics. Sigma (σ) is a statistical concept that represents how much variation there is in a process relative to customer specifications. Sigma Value is based on “defects per million opportunities” (DPMO). Six Sigma (6σ) is equivalent to 3.4 DPMO. The variation in the process is so small that the resulting products and services are 99.99966% defect free. Table 01 indicated that the amount of variation regarding Emergency care was too low satisfying patients at both EDs of the UTH and LMH. WHY USE SIX SIGMA METRICS: Focuses on defects, *Even one defect reflects a failure in your customer’s eye*. It establishes a common metric to make comparisons easier. It

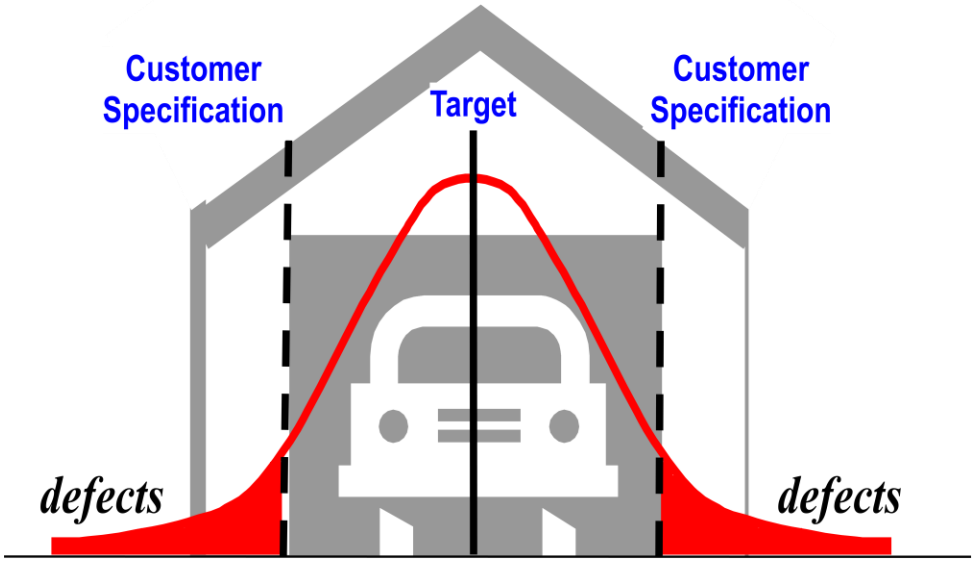
a more sensitive indicator than percentage or average-based metrics as indicated in table 01 recording ED overcrowding:

TABLE 01: Amount variation hypothetical scenario at ED overcrowding at UTH and LMH

Amount of Variation	Effect	Sigma Value
Too much	Hard to produce output within customer specifications	Low (0 – 2)
Moderate	Most output meets customer specifications	Middle (3 – 5)
Very little	Virtually all output meets customer specifications	High (6)

Source: Rastogi, A. (2018). Six Sigma process improvement methodology: Retrieved from https://www.greycampus.com/blog.quality-improvement-methodology#author_content

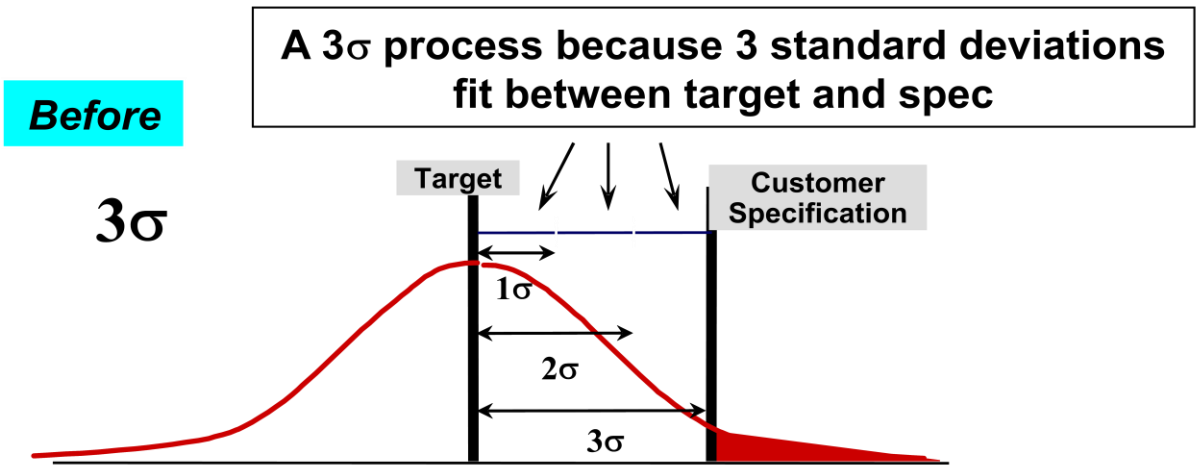
Figure 04: SIX SIGMA CONCETS- PATIENTS AT EDs: UTH AND LMH



Source: Rastogi, A. (2018). Six Sigma process improvement methodology: Retrieved from https://www.greycampus.com/blog.quality-improvement-methodology#author_content

Figure 04 indicates that Patient specification is within 0-2 sigma value, meaning it hard for ED staff producing satisfied patient due to internal and external factors mentioned in the fishbone diagram in figure 01.

Figure 05:



Source: Rastogi, A. (2018). Six Sigma process improvement methodology: Retrieved from https://www.greycampus.com/blog.quality-improvement-methodology#author_content

Figure 05 indicates that UTH and LMH are still below the 3.8 six sigma value, meaning the patient's expectation is not good because it is below 99%, and the customer the specification has deviated from the target 6 six sigma value.

According to Biyani, P (2018) clinical governance focuses on SQSD to enhance patient satisfaction. The following are seven pillars of clinical governance: clinical effectiveness, audit, risk management, education and training, patient and public involvement, information and IT, and staff management. "The corporate clinical governance focuses on the governing body of UTH/LMH, UTH/LMH manager's responsibility, UTH/LMH clinicians ED activities and ensures that ED staff share responsibility and accountability for the quality of ED care. Furthermore, ED should continuously improve ED activities, minimizing ED risks, and fostering on ED environment of excellence in care for consumers/patients and residents" (Australian Council on Healthcare Standards 2004).

MoH should also improve standards of working conditions of UTH/LMH health professionals. UTH/LMH management should learn from their experiences and enhance teamwork. The front-line ED staff should use information effectively and available data. They should put patients /clients/customers first and last. UHT/LMH management should introduce effective Career Program Development (CPD) through Education and Training. This principle is about developing a culture that encourages lifelong learning (the learning organization) and is an integral part of the job plan. Health organizations should commit, plan and act on 'investment in people' if they are truly interested in delivering effective ED and quality clinical care.

RECOMMENDATION AND CONCLUSION

In conclusion seven golden pillars of clinical governance must improve in both hospitals. UTH and LMH may need restructuring health reforms that should attract qualified doctors to avoid go-slow strikes and job dissatisfaction. Good is the process of making decisions and implementation. Thus, ED health policies in the health strategic plan may require adjustments and review to avoid unnecessary crowding.

RECOMMENDATIONS

Enhance ED effectiveness and research: UTH and LMH must develop and implement new standards and guidelines regarding new process flowcharts for the ED. Improve the infrastructure with modern scanning and health technology.

Intensify interval auditing at ED to identify shortcomings of ED Overcrowding LOS at UHT and LMH.

Enhance risk management plan in the ED, so that quality assurance officers can mitigates and minimize the risk of ED overcrowding and LOS to both patients and staff.

Let UHT and LMH turn into a learning organization through education and training. For instance, introduce effective Career of Program of Continual Learning (CPD) and motivate ED staff through knowledge sharing principal

Intensify patient-centered approach and public involvement in clinical governance issues. For instance, should get feedback regarding ED out-standing problems at UHT and LMH through questionnaires, interview, hospital Boards, suggestion Box and patient representatives, and their management should encourage patient forums discussing ED issues or matters concerning Overcrowdings and LOS.

Improve information and IT desk; obtain and search relevant data concerning the history of the patients concerned efficiently to avoid crowding. Ensure security of data and confidentiality.

Staff management must recruit more doctors and allocate them equitably in all strategic health centers to avoid unnecessary transfers of patients. For instance, the crowded patients at UTH and LMH are from remote places and provinces, because certain experts and health facilities are not available. Finally, but not forgetting the issues regarding human resource department roles concerning

recruitment and selecting suitable employ for ED health professionals that have a good attitude towards patients. MoH should also improve the condition of service for all doctors in Zambia.

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