Doctors’ experiences of referring and admitting patients to the intensive care unit: a qualitative study of doctors’ practices at two tertiary hospitals in Malawi

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ABSTRACT

Objective To explore doctors’ experiences of referring and admitting patients to the intensive care unit (ICU) at two tertiary hospitals in Malawi.

Design This was a qualitative study that used face-to-face interviews. The interviews were audiorecorded and transcribed verbatim into English. The data were analysed manually through conventional content analysis.

Setting Two public tertiary hospitals in the central and southern regions of Malawi. Interviews were conducted from January to June 2021.

Participants Sixteen doctors who were involved in the referral and admission of patients to the ICU.

Results Four themes were identified, namely, lack of clear admission criteria, ICU admission requires a complex chain of consultations, shortage of ICU resources, and lack of an ethical and legal framework for discontinuing treatment of critically ill patients who were too sick to benefit from ICU.

Conclusion Despite the increasing burden of illness, the two hospitals lack clear processes for referring and admitting patients to the ICU. Given the limited bed space in ICUs, hospitals in low-income countries, including Malawi, need to improve or develop admission criteria, severity scoring systems, ongoing professional development activities, and legislation for discontinuing intensive care treatments and end-of-life care.

STRENGTHS AND LIMITATIONS OF THIS STUDY

⇒ We recruited doctors from different departments in two public hospitals in Malawi to aid credibility of the findings.
⇒ The preliminary findings were presented to health professionals including doctors at the two hospitals through an online grand round platform.
⇒ Since the study was conducted in two public hospitals, the findings may not be transferable to other contexts or reflect the experiences of doctors in private hospitals.
⇒ Other healthcare professionals, such as anaestheti-
cological officers who are trained at Diploma level but play a significant role in admitting patients to the intensive care unit, may have had different experiences.

INTRODUCTION

The burden of critical illness is significant in low-income countries, given the high prevalence of both communicable and non-communicable diseases (NCDs). In sub-Saharan Africa, NCDs are expected to overtake communicable, maternal, neonatal and nutritional diseases by 2030. The increasing burden of NCDs over the past few decades has been attributed to unhealthy diets, decreased physical activity, hypertension, obesity, dyslipidaemia and air pollution. Countries in sub-Saharan Africa also have a high burden of HIV which increases the risk of opportunistic infections and NCDs such as cardiovascular diseases, diabetes and cancer as a side effect of HIV infection or treatment. These diseases, which are a pathway to critical illness, increase the demand for critical care in the low-income countries including Malawi.

Despite the increasing burden of illness, many low-income countries have limited resources to care for critically ill patients. There is limited infrastructure to provide critical care, limited supply of drugs, medical equipment, electricity power failure and lack of prehospital emergency medical systems. Without prehospital care, critically ill patients have a higher risk of dying or their condition worsening before reaching the hospital. Physicians and nurses with critical care training are also in short supply in low-income countries. Some studies have identified that there are as few as one intensive care unit (ICU) bed per million population which is a major challenge in delivering...
critical care in low-income countries. For example, in Malawi, there are 25 general ICU beds and 1 paediatric ICU with 6 beds to serve a population of 18 million people. In contrast, in high-income countries where healthcare spending is high (e.g., USA and Germany), there are approximately 20–32 ICU beds/100 000 population.

The referral and admission of patients to ICUs in high-income countries, such as the USA and in Europe, is often based on predictive scores of the severity of illness and early detection of critical illness. These scores include Acute Physiology and Chronic Health Evaluation (APACHE II and III), Simplified Acute Physiology Score and Multiple Organ Dysfunction Score among others. The APACHE II score, for example, reflects a combination of scores on age and physiological parameters such as vital signs, arterial blood gases, laboratory results from blood specimens and the Glasgow Coma Scale among others. However, evidence from the UK and South Africa suggests that although these scores are used, other contextual factors also affect decisions for ICU referral and admission, and this is probably the case everywhere.

The ICU model that is supported by expensive equipment, high-quality laboratory support and highly trained staff in high-income countries may not apply to low-income countries where there are not enough human and material resources. Nonetheless, the high burden of critical illness and demand for ICU beds in low-income countries demands evidence-based, ethical and transparent decision-making tools for selecting which patients are admitted to ICU. Currently, few studies have described the referral and admission of patients to ICU in low-income countries such as Tanzania and Ethiopia. A study by Engdahl Mtango et al. on doctors’ experiences and perceptions of ICU referral in Tanzania reported difficulties in identifying patients in wards. Engdahl Mtango et al. attributed these difficulties to a lack of critical care knowledge, communication barriers, lack of guidelines for admission, diverging ideas about ICU indications and contraindications, lack of bed space in ICUs and fear of repercussions. Similarly, the study by DeFaye et al. reported that the lack of guidelines for ICU admission led to premature deaths, acute life-threatening events, disagreements and frustration among physicians in Ethiopia. This study explored doctors’ experiences of referring and admitting patients to the ICU at two tertiary hospitals in Malawi.

METHODS
Study design
This was a qualitative descriptive study. This naturalistic approach is appropriate for understanding experiences of a phenomenon. The procedures for patient referral and admission to ICUs in Malawi are unknown; therefore, a qualitative exploratory design is more appropriate than quantitative deductive approach. The ontological and epistemological assumptions that reality is subjective and co-constructed through the inseparable interaction between the knower and known are relevant in this study.

Study setting
The study was conducted at two of the five public tertiary hospitals, which provide specialised care in Malawi. These two hospitals are the largest referral hospitals, with the busiest ICUs in the country. For the purpose of this report, the hospitals are referred to as hospital A and B. Hospital A has 700 beds and has a general ICU with 5 functional beds. Hospital B has an official capacity of 1350 beds, a general ICU with 4 beds and a paediatric ICU, with 6 beds. Usually, the number of patients admitted to the two hospitals exceeds capacity. The general ICUs admit critically ill patients with medical, trauma, surgical and obstetric conditions. All the ICUs offer a one-to-one nurse-to-patient ratio, continuous non-invasive vital sign monitoring, mechanical ventilation with a titratable fraction of inhaled oxygen and intravenous medication infusions.

Participants
Interviews were conducted from January to June 2021. Eight participants were purposively selected at each hospital. A sample size of 16 was deemed adequate to explore doctors’ experiences of patient referral and admission to the ICU. The participants, as identified by the researchers, included doctors in the ICUs and general wards who were recently involved in admitting and referring patients to the ICU. To identify the doctors, the researchers purposively selected four patient cases in a 3-week period who had been admitted to the ICU; the referring doctors of these patients were then interviewed. The researchers aimed for maximal variation by selecting doctors from various departments and with different levels of experience. Maximal variation sampling is a type of purposive sampling that focuses on selecting participants who would provide different perspectives on the phenomenon under study. The demographic profile of the participants is presented in table 1.

Data collection
Prospective participants were approached by the researchers. The doctors who indicated their willingness to participate were given the details of the study and signed informed consent forms. The interviews were conducted in English in a private setting in the hospital at a convenient time and place. The participants were requested to use a pseudonym of their choice during the interview. The interviews were guided by a semistructured interview guide (online supplemental appendix 1). The interview guide was a modified version of a guide used in a study conducted in neighbouring Tanzania. Additional probing questions were asked during the interviews based on the participants’ responses. The interview guide assessed which factors may affect patient selection and prioritisation for intensive care. Each interview started
with a discussion on actual situations focusing on cases referred or admitted to the ICU. The interviews were audiotaped and transcribed verbatim.

**Data analysis**

The data were analysed manually by RG using conventional content analysis as described by Hsieh and Shannon. The analysis involved repeated reading of the transcripts, deriving and labelling codes, sorting codes into categories, sorting subcategories into fewer categories, defining each category, and identifying relationships between categories. The identified codes, subthemes and themes were discussed by the research team.

**Study rigour**

Rigour was achieved by ensuring trustworthiness as described by Bradshaw et al and Korstjens and Moser. These measures include credibility, transferability, dependability and confirmability. Credibility was achieved through space triangulation by collecting data from two hospitals and person triangulation by recruiting doctors from different departments. Credibility was also ensured by involving all members of the research team in the analysis and interpretation of findings. The preliminary findings were presented to health professionals at the two hospitals through an online grand round platform. This provided an opportunity for the doctors and other health professionals at the two hospitals to provide feedback on the findings. The researchers ensured transferability by providing a rich description of the study setting, participants and data collection methods. Dependability and confirmability were achieved by establishing an audit trail describing the study’s procedures and processes.

**Patient and public involvement**

None.

**RESULTS**

The identified themes included a lack of clear admission criteria, ICU admission requiring a complex chain of consultations, shortage of ICU resources, and lack of an ethical and legal framework for discontinuing treatment to critically ill patients who are too sick to benefit from ICU.

**Lack of clear admission criteria**

Participants from both hospitals reported a lack of understanding around criteria for referring and admitting patients to the ICU. Some participants had heard about the existence of such criteria, but they had never seen them documented anywhere.

\[\text{I have heard that it exists but I have not seen it (laughs) (Participant 7).}\]

One participant noted that patients who require intensive care are those with organ failure and require support, we admit patients who need respiratory support, cardiovascular support, neurological support, renal support, and post-operative patients mainly those that have undergone major operations (Participant 13).

Some participants observed that patients who did not qualify for ICU admission had been admitted to the unit. They had seen patients being admitted to the ICU because of their status in society, race or relationship with staff.

\[\text{maybe, I have heard rumours (laughs)... thinking back you know, knowing how African culture thing is, where, who you are determines where you get to (Participant 4).}\]

\[\text{So, he was pushed into the ICU, simply because he was an (...) nothing else (Participant 2).}\]

Participants in both hospitals had not seen any documented criteria for ICU admission. The lack of official criteria resulted in the referral and admission process often being a chain of ad hoc, non-transparent decisions and consultations.

**ICU admission requires a complex chain of consultations**

Participants reported that successful referral and admission of patients to the unit often involved a chain of consultations. The consultations start at department level, where doctors, colleagues and seniors discuss the need for the patient’s referral to the ICU. Once decided, the family members of the patient are informed, so you know there is this chain of consultations that has occurred and then we are doing the plan, eventually of course we inform the family.
The decision to refer the patient is then communicated to the anaesthetist on duty. In Malawi, anaesthetists are in charge of ICUs and decide whether patients should be admitted to the ICU. The participants reported different methods of communication including sending consultation forms and making phone calls to reach out to the ICU team. Participants from both hospitals reported instances when the referring doctor had to physically go to the unit for a face-to-face discussion to convince the anaesthetist. One specialist doctor from the paediatric department reported that,

“I just walk in there, you know, and see whoever I see and say hey, who is in charge here (…) when you have conversation over the phone, you can’t feel the emotions (…) there is not that body language (…) I personally prefer face to face conversation (Participant 4).”

Following discussions, the anaesthetist is usually invited to review the patient in the ward before the patient is transferred to the ICU, when we have a patient that requires ICU admission, first of all you review the patient yourself and we call the anaesthetist or the doctor that is on duty and the ICU department so that they can also come and review the patient (Participant 6).

“I need to discuss with the team in anaesthesia that is really managing the patients in ICU, one; availability for bed space and two, even though I think the patient needs ICU, I need their verification as well if the patient is going to benefit from ICU (Participant 7).”

One participant reported that objective decisions were not always made. If the referring doctor had a poor relationship with the anaesthetist, the patient was not likely to be given space in the ICU, but you know it’s not easy because the same anaesthesia team is the one that you interact with in theatres. So you’ve got issues in theatre (…) you meet the same person in ICU, or maybe you argued 2 to 3 days ago it cannot go well (Participant 8).

Shortage of ICU resources
Participants complained about the shortage of ICU resources which either delayed treatment or limited access to the ICU. Specifically, participants cited limited bed space, shortage of staff and lack of equipment for paediatric patients. Doctors struggled to admit their patients as explained by the following participants from both hospitals,

“We have 5 beds I don’t think that’s enough (…) so, I think an obstacle is the size of the ICU (Participant 1).”

“We have one ICU, and that ICU has got only four beds (Participant 10).”

Due to limited bed space, the ICU team resorted to rationing. One participant from the Surgical Department described a situation when four beds in a five bedded ICU were occupied by neurosurgical patients. The ICU team would then hesitate to offer the last bed to a patient from the neurosurgical department,

“There have been times where the ICU is not necessarily full but one bed left but maybe all the other beds are full of neurosurgery patients (…) and there has been a reluctance, hesitancy on the part of the ICU team to take the last, to give the last bed to other neurosurgical patients (Participant 5).”

Some participants from one hospital felt that the ICU team favoured the surgical department. Participants were unhappy that surgical patients were more likely to get admitted to the ICU because they stayed too long and denied other patients access to intensive care,

“I feel they are more connected to the surgical department, maybe because they are working together, day in day out but then with the medical it’s like they are on their own but we are supposed to work as one team (Participant 6).”

Head injury patients I don’t like (laughs). For some reason I feel like they stay longer in the ICU. (…) If it was my right I wouldn’t get head injury patients. (…) I’d keep them rather in the HDU but not in the ICU (Participant 5).”

Similarly, doctors from the paediatric department at the same hospital reported that children were not prioritised compared with other patients, children are forgotten, people tend to forget about children, people put children on the lower side (Participant 4). Participants from the same paediatric department observed that the general ICU did not have equipment for children. Children are treated as adults as explained by one participant, so we actually don’t have, at least to my knowledge adequate equipment for children. Children are not tiny adults (Participant 1).

At the hospital with a paediatric ICU, the situation was a little different. A participant wondered why the general ICU admitted paediatric patients, I have noticed that they do admit children from the neurosurgical side, despite the fact that we have a six-bed paediatric ICU. That to me doesn’t make sense because to be honest I mean if you have a six-bed paediatric ICU dedicated to children, then we are giving up one bed for a child, where we could have had an adult instead (Participant 12).

Participants complained about staff shortages, especially anaesthetists and nurses. For example, participants complained that they struggled to connect with the anaesthetist, especially if the ICU anaesthetist also served other departments, the only challenge would be maybe there is not enough anaesthetists. Maybe you do find someone like you make a phone call, you find someone that they are with a patient in theatre, you can’t get that one so they will refer you to someone else. Maybe that someone else, is the only anaesthetist in ICU with 4 patients (Participant 3).

Lack of ethical and legal framework for discontinuing treatment
Participants observed that there was no legislation on discontinuing treatment of patients with brain death or patients who were too sick to benefit from ICU, People say no, it’s not ethical and this has not been admitted in Malawi so
you can’t disconnect the patient, so you end up leaving the patient who is completely dead even your conscience, telling you that this patient is no more, but you just leave the patient, because it’s not ethical and then it has not yet been approved (Participant 10).

**DISCUSSION**

We explored doctors’ experiences of referring and admitting patients to the ICU at two referral hospitals in a low-income country. Doctors reported that the criteria for patient referral and admission to the ICU were unclear and that a lack of ICU resources at both hospitals hampered access to the ICU. These factors complicated the process of referring and admitting patients to the ICU, which often involved a chain of consultations. The lack of legislation regarding discontinuing care for patients who were too sick to benefit from ICU, kept other patients from accessing the ICU.

The absence of clear criteria for ICU admission is an important factor which had a negative effect on the experiences of doctors in our study. The lack of guidelines for ICU admission and diverging ideas about ICU indications have been reported in similar studies in Tanzania and Ethiopia.22 23 Doctors in our study felt that without clear admission criteria, successful referral and admission of patients to the ICU often relied on the relationship between referring doctors and the ICU team. Such organisational factors including conflicting goals and teamwork issues have the potential of delaying ICU admission.18 31 Critically ill patients require immediate care, so delays in accessing care may worsen the patient’s condition.32 Admission guidelines could promote transparency in the admission process and potentially reduce inappropriate admissions to the ICU.33 For example, a study by Rees et al34 reported positive impact of a decision-making framework for patient referral and admission to the ICU among the doctors who used it. Therefore, our findings support calls for a structured framework to improve transparency, consistency and equity of decision-making around ICU admission.19 34 In Malawi, there are several guidelines for the management of different conditions in different settings. Such work could be extended to the development of ICU admission guidelines or frameworks to ensure effective and transparent use of the limited ICU resources.

Many hospitals in low-income countries report having limited bed space.12 22 35 36 Low-income countries have inadequate health funding. Malawi, for example, spends an average of US$30 per year on health for each Malawian. Despite Malawi being a signatory to the Abuja Declaration, which calls on African governments to increase their health budgets to at least 15% of the national budget, health financing is unstable, relying on donor support for health financing.12 These budget constraints also translate to staff shortages. ICUs in low-income countries such as Malawi are usually staffed by anaesthetists, who are usually specialist nurses or medical assistants, or physicians with postgraduate training in anaesthesia.1 37 At the time of this study, no colleges in Malawi offered critical care nurse training programmes. This is unlike in high-income countries, where ICUs are staffed by highly specialised health professionals such as intensivists.31 Low-income countries such as Malawi should support ongoing professional development activities and invest in the training of specialised doctors and nurses to improve the quality of critical care.1 21 35 In addition, new innovations such as digital technologies could increase the capacity and reduce the cost of critical care in low-income and middle-income countries.21

The two hospitals in this study differed in that one hospital had a paediatric ICU. The participants from the hospital without a paediatric ICU reported about lack of capacity to provide ICU care to paediatric patients. The lack of paediatric specific resources may explain the high paediatric mortality (54%) in ICUs, which has previously been reported in Malawi.2 A United Nations report38 indicates that sub-Saharan Africa has the highest mortality of children under 5 years old, which is more than 16 times the average for high-income countries. Child mortality has been attributed to pneumonia, infectious diseases, diarrhoea and malnutrition which are highly concentrated among the poor in low-income countries. Given the shortage of ICU beds, implementing the most basic and low-cost essential emergency and critical care could help in the early identification and treatment of critically ill patients including children, thereby reducing mortality.32

The shortage of ICU beds is further exacerbated by the lack of an ethical and legislation framework guiding end-of-life care and discontinuing intensive care treatments. In Malawi, an approximate 9.6% of ICU patients had brain death,30 Patients with brain death and others who are too sick to benefit from critical care may take up scarce ICU resources, denying other patients from accessing critical care. Although the concept of brain death is accepted in some countries, many low-income countries do not have legal clinical practice guidelines on brain death because of a lack of physician expertise and sociocultural resistance.39 40 In Malawi, stakeholders should be involved in developing legislation dealing with brain death and end-of-life care.

Since the study was conducted in two public hospitals, the findings may not be transferable to other contexts or reflect the experiences of doctors in private hospitals. Our findings do not represent the experiences of anaesthetic clinical officers who play a significant role in admitting patients to ICUs. Nevertheless, our findings have significant implications for understanding the referral and admission of patients to ICU in low-income countries. Further studies could explore experiences of the anaesthetic clinical officers and family members of patients who were referred and admitted to the ICU.

**CONCLUSION**

In Malawi, the referral and admission of patients from hospital wards to ICUs is complex and implied. Identifying...
and prioritising patients for the ICU is hampered by a lack of criteria, a shortage of ICU resources, and a lack of legislation for end-of-life care or discontinuing care for patients who are too sick to benefit from ICU. These findings have significant implications for the use of ICU beds—a valuable and scarce resource in low-income countries. In Malawi, referral and admission processes need to be improved by developing applicable admission guidelines, severity scoring systems, ongoing professional development activities and legislation for end-of-life care.

REFERENCES


37 Dünnser MW, Baelani I, Ganbold L. A review and analysis of intensive care medicine in the least developed countries*. *Critical Care Medicine* 2006;34:1234–42.

