



The views and experiences of Zambia's emergency medicine registrars' in South Africa: Lessons for the development of emergency care in Zambia

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ABSTRACT

Introduction: Although low- and middle-income countries (LMICs) are beginning to integrate emergency medicine (EM) specialist physicians into their healthcare systems, they must often send these trainees to other countries with established registrar programmes. Given that retention of foreign-trained EM specialist physicians is low following repatriation, there is interest in understanding their expectations and intentions when they return. This study aimed to describe the expectations of Zambia's EM registrars regarding the development of various aspects of emergency care in Zambia.

Methods: In this qualitative, descriptive study, individual telephonic interviews were conducted with current Zambian EM registrars using a semi-structured interview schedule. Recorded interviews were transcribed verbatim, validated by participants, and subjected to inductive content analysis.

Results: Four interviews were completed, representing the entire population of interest. Two key categories emerged from these discussions: that the state of emergency care in Zambia was inadequate, and that there were numerous priority areas for further developing the emergency care system. A lack of recognition of EM as a specialty, resource and training constraints in emergency units, and the lack of a formal prehospital emergency care system were prominently identified as challenges. Priority aspects that registrars hoped to focus on when developing emergency care included expanding local training and knowledge, improving the supply chain for essential medications and equipment, increasing interprofessional collaborative practice, and advocating for emergency care.

Conclusion: Zambian EM registrars characterised the nascent emergency care system by challenges that are common in many LMICs and align with previous in-country assessments of emergency care. In order to ensure that registrars' strategies are ultimately implemented upon their return to Zambia, it is imperative they are communicated with stakeholders in-country. From there, mutual planning can occur between future EM specialists and government stakeholders, to ensure that there are mechanisms in place to facilitate dissemination.

African relevance

- Many low- and middle-income countries are beginning to integrate EM specialist physicians into healthcare systems.
- It is common practice for these physicians to receive training in other countries where EM is more developed.
- Retention of foreign-trained EM specialist physicians is low after repatriation, representing a significant loss on investment.
- This study provides the first evaluation of the perceptions of foreign-trained EM physician trainees.
- Zambian EM registrars expect to face many challenges upon return to their country.
- This study identified potential solutions to the developing system's

constraints, including training and advocacy.

Introduction

Well-developed emergency care systems have the potential to lessen the burden of disease worldwide and particularly in low-and middle-income countries (LMICs), where injury and illness rates remain high despite minimal healthcare resources [1,2]. Given the potential for reductions in both death and disability related to a wide range of communicable and noncommunicable conditions, there is an urgent need to develop more robust emergency care systems in LMICs [3].

In regions that suffer from healthcare provider shortages, staffing emergency units (EUs) can be challenging: often, these units are

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covered by rotating, temporary staff members coming from other areas of the hospital, instead of dedicated specialty-trained physicians and nurses. These non-specialist providers are typically utilised because they are the only option – nearly all sub-Saharan African nations have critical shortages of emergency medicine (EM) specialists [3]. In combination with other barriers to optimal care, such as high patient volumes and lack of equipment and medications, the lack of EM-specific training opportunities contributes to higher patient mortality rates when compared to higher income countries [3,4]. Given the superior outcomes associated with care provided by specialists, expanding the availability of EM-trained physicians must be a priority development area in LMICs [5].

The Republic of Zambia is a landlocked middle-income country of 16.5 million in Southern Africa [6]. The country is highly burdened by communicable and non-communicable diseases, traumatic injuries, and high maternal and infant mortality rates [7]. In its current state, the healthcare system, including emergency care provision, is insufficient [8]. Prehospital ambulance services are rarely available and most patients are responsible for their own, less-timely transport means [9]. Once at hospitals, the healthcare workforce is also under-resourced: there is a deficit of more than half of the WHO-recommended healthcare providers and physician density is the second lowest worldwide [9]. In order to improve the status of healthcare in Zambia, a multifaceted approach needs to be taken; this must include bolstering the emergency care system that often serves as the point of entry for patients into the healthcare system.

The Zambian Ministry of Health, with support from the Swedish International Development Agency and Clinton Health Access Initiative, has begun developing emergency care in Zambia [10]. As part of this, Zambia is supporting physicians to receive supernumerary EM registrar training in South Africa, with the expectation that they will return to Zambia upon completion of their studies. Since 2017, five Zambian doctors have been provided with this training [11].

Doctors sent abroad for specialist training often do not return following completion of their studies [12]; this failure to repatriate results in a significant loss on investment in-country [13]. Data exploring Zambian EM registrars' views on the development of emergency care in Zambia could assist in retention and incorporation of EM physicians into the Zambian healthcare system. This study aimed to describe the perceptions of Zambia's EM registrars at various stages of their training regarding the development of various aspects of emergency care in Zambia upon completion of their studies.

Methods

A descriptive, qualitative study design was employed, using individual semi-structured interviews to gather data on Zambian EM registrars' perceptions.

Telephonic interviews were conducted on a purposefully selected sample of all Zambian EM registrars in South Africa in 2018; the only graduate to date – from 2017 – was also included. Participants were identified via university databases. The primary investigator, also a Zambian in one of South Africa's EM registrar programmes, was excluded. Participants were contacted via both email and telephone to request participation and confirm availability.

Semi-structured interviews were conducted between July and August 2018. Interviews were facilitated via telephone. Interviews were conducted by an independent researcher in the presence of the primary investigator. Participation was voluntary and participants were not compensated for their time. Written informed consent was obtained via electronic documentation prior to beginning discussions; verbal informed consent was also obtained at the time of the interview.

A three-part interview schedule was utilised to guide conversations: the first section focused on demographics, the second on the perceived current state of emergency care in Zambia, and the third identified priority development areas for emergency care in Zambia. Discussions

were conducted in English and audio recorded.

All identifiers were removed prior to transcription. Recordings were transcribed by an independent transcription service, after which audio files were permanently deleted. Transcripts were stored in password-protected files on a university-based computer with access restricted to study personnel, and were shared only with respective participants to correct errors.

De-identified transcripts were analysed using inductive dominant content analysis to the manifest level using NVivo Pro version 12 (© QSR International, Melbourne, Australia); this method of analysis was selected based upon small sample size and the previously non-quantifiable phenomenon under investigation [14].

Through a flexible reflective process of working and re-working on the data to reveal connections and relationships, many meaning units were condensed and then coded [15]. Codes were compared to ensure data triangulation between researchers, appraised, and arranged into main categories. A second researcher with qualitative research experience reviewed the analysis independently. After analysis, participant member checks were completed via email to improve trustworthiness and credibility. Participants were sent their coded transcriptions and the categorised results to verify the interpretation of their responses. Risks of bias in data collection and analysis were minimised by openness, vigilant awareness of pre-understandings, external transcription, and researcher and data triangulation.

Ethical approval for this study was obtained from the Human Research Ethics Committee of Stellenbosch University (Ref: S18/02/028); institutional permission was also granted by the University of the Witwatersrand prior to recruiting participants.

Results

Four current or recent Zambian EM registrars were interviewed; this represented all potential participants, thus exhausting the sample. Participants comprised an equal number of females and males, with ages ranging from 30 to 50 years. They were at different registrar training levels in South Africa. Interviews lasted between 40 min and 1 h.

Two key categories emerged from these discussions (Table 1): that the state of emergency care in Zambia was inadequate at the time of the study, and that there were numerous priority areas for developing the system. Within each of these categories, multiple meaning units were identified and coded for (Table 1).

Inadequate state of emergency care in Zambia

All participants noted that, while emergency care in Zambia was inadequate at present, it was in a nascent state of development with substantial room for improvements.

“...the care system is such that it's not that developed...”

“It is in early stages, because it's not organised, that concept of an emergency medical care system.”

Lack of recognition of EM as a specialty

Progress towards EM receiving its deserved recognition as a valuable specialty in the country is slow, in part because the specialty and its physicians are generally not recognized as important by both the medical community and general public. Participants felt that this lack of recognition and prioritisation was likely hindering the specialty's full development.

“But perhaps most of them don't really look at it as important to have a dedicated emergency physician.”

Challenges in EU

Participants expect many challenges upon returning from training. Registrars are learning to collaborate with other specialties throughout the hospital, an uncommon practice in Zambia.

Table 1
Categorical development in the qualitative content analysis process.

Category	Sub-categories	Example meaning unit
Inadequate state of emergency care	Lack of recognition of EM as a specialty	“...some colleagues don't understand what emergency medicine is, so they think that it's being a glorified intern, just because you are doing everything, but they don't really understand that it goes much deeper.”
	Challenges in the EU	“In terms of what we have in our emergency rooms, I think they are not well stocked in terms of equipment.”
	Lack of formal prehospital system	“It's really difficult, and without a system like pre-hospital care, because that's also part of emergency care.”
Priority aspects of emergency care development	Local training and knowledge	“...we've started training the nurses and paramedics...I think that's what the government is thinking about.”
	Basic emergency unit supplies, equipment, and medications	“Sometimes it's about knowing what that equipment will do, and then fight for it, because even when you want to convince the buyers for the equipment.”
	Interprofessional collaborative practice	“The emergency department should be collaborating with the other departments. It can't stand on its own.”
	Advocacy for emergency care	“...I know that it would involve a lot of policymaking, a lot of advocacy, and maybe a lot of convincing people that this is the right way to go.”

“In the emergency department, we talk a lot with other departments, whereas other departments don't talk to each other.”

Another anticipated barrier to providing optimum care in Zambia is a lack of necessary equipment.

“... our emergency room, I think that they are not well stocked in terms of equipment.”

Given that registrars have become accustomed to somewhat better stocking of essential items in South Africa, the transition to a more austere setting is expected to be challenging. Advanced equipment that they have been trained on might not be available and, where available, many will not know how to use it.

“...and if a hospital has a defibrillator that defibrillator is somewhere in the corner collecting dust.”

Lack of formal prehospital system

Similar to facility-based emergency care, participants reported that prehospital care was either inadequate or non-existent throughout the country.

“In terms of the pre-hospital care, it is where I think most of the things are still lacking.”

There is no universal access number (UAN) for patients experiencing emergencies to connect with prehospital emergency medical services (EMS).

“...we don't have a dedicated phone line...that a person can call an ambulance to come and assist them.”

Only a few dedicated providers formally trained to practice in the prehospital setting exist and, when patients require transfers between facilities, hospital-based nurses typically accompany them.

“...nurses accompany patients between the hospital transfer systems... that are not particularly trained in emergency care.”

Priority aspects of emergency care development in Zambia

Local training and knowledge

There are limited opportunities for in-country providers to receive EM-related trainings. Participants expressed interest improving this upon return, contributing to the local training of all healthcare professionals.

“...being able to teach others what I have learnt from the very basic level to higher level...”

Basic EU equipment

Participants identified the need for standards regarding minimum equipment, medication, and supplies in EUs.

“...more of lack of awareness of the need for the equipment...”

Inter-professional collaborative practice

All registrars subscribed to the importance of teamwork among health professionals, a key takeaway from their time as registrars. They noted that, in order to provide optimal care, it was essential for EM physicians to collaborate with other hospital providers.

“So, it's not just about us, but it is also about other members of the team for that patient.”

Advocacy for emergency care

Finally, advocacy for the profession was considered the cornerstone for the successful development of EM in Zambia. It is expected that opinions surrounding EM will be slow to change, but could be accelerated by intentional advocacy efforts. Participants acknowledged the work that lay ahead of them when they return post-training, and that it must include efforts to demonstrate to both the public and government how essential this care is.

“The first thing for us, when we go back home, is to demonstrate that emergency medicine is a good field and to make a difference. If we fail to do that, then there will be no support.”

Discussion

The challenges noted, and potential suggested solutions, align with previous studies from Zambia and similar LMICS [2,8].

Emergency care in Africa, and Zambia in particular, is in its infancy [8], leading to minimal recognition of EM and its specialists as necessary parts of the healthcare system. This is not uncommon [16], but is problematic nonetheless. Advocacy is an important facilitator for growth of a new profession and its role in the development of emergency care in Africa cannot be overlooked [17]. The advancement of EM depends upon EM physicians establishing leadership roles and championing the development of robust emergency care system in their respective countries through deliberate advocacy strategies [16]. Requiring specialists that are often younger and less inexperienced to immediately take on leadership roles, as is the case in Zambia, does not come without difficulties: In addition to maintaining clinical work, these physicians are expected to take on a myriad of other responsibilities, including mentorship and training, research, and perhaps developing a national professional body for their specialty. It is key that knowledge sharing is facilitated among those who are, or have previously, developed EM as a specialty in similar low-resource settings, so that new leaders are able to have reliable guidance and support.

Registrars anticipated that numerous challenges – many of which they faced previously before leaving for training – would be present in EUs. It is important to note, though, that these residents have been away from Zambia for one or more years. In their time away, some issues may have been resolved, and others may have appeared.

However, the development of medical specialities takes time, particularly in low-resource settings [18]: It is unlikely that all of the barriers noted by registrars have dissolved altogether.

Prominent were the deficits in emergency care training held by nearly all healthcare providers throughout facilities. In line with these results, a previously administered national assessment of emergency care in at 23 hospitals in Zambia generated a number of action points, including the development of EM registrar and emergency nursing training [8]. Participants agreed that local medical education will be critical to disseminating EM knowledge and skills in Zambia, and made clear their intentions to leverage existing courses (e.g. the WHO Basic Emergency Care course) for baseline training of all providers.

Also challenging is the lack of recognition by other departments in Zambia, which points to the need for different health professionals to work together towards overall improved emergency care in Zambia. Team interventions, which are highly prioritised by both WHO and the Pan American Health Organization [19,20], can lead to better outcomes than providers working in silos to provider standalone specialty interventions [21]. Improved communication can improve flow, allowing for more effective decision-making, consultations, and admissions. Thus, it appears reasonable to infer that interprofessional collaborations can improve the future state of emergency care in Zambia.

As was identified in the national assessment, participants noted that Zambian EUs and hospitals at-large suffer from limited funding and equipment supply chains [8]. Though data on availability of emergency equipment in Zambia do not exist, the 2017 assessment found that lack of necessary equipment was a common reason for health providers' inability to perform emergency procedures [8]. In order to prevent these frequent shortages, supply chains need to be strengthened, ensuring consistent availability of equipment at all facilities. Standardised, regionally-appropriate essential equipment and medicines lists should be considered when supplying EUs [22,23]. Where possible, advanced equipment, including portable ultrasounds and electrocardiogram machines, should be made available, as participants noted they received training on these devices and felt they could improve care. Furthermore, trainings must be offered to improve awareness, availability and utilisation [24].

These findings are consistent with the national assessment literature which has revealed that less than 9% of pan-Africans are served by formalised emergency medical service (EMS) [8,25]. Most Zambians cannot reach EMS because there is no nationwide access number. Some hospitals do provide basic transport and interfacility transfers; however, in the absence of dedicated EMS providers, nurses are utilised to accompany patients. Given the severe shortage of nurses in Zambia [9], dedicated out-of-hospital providers would be more effective for transports.

EMS will take time to develop, in the interim, community-based out-of-hospital emergency care systems can be leveraged to provide interventions to emergencies in their proximity and initiate transport to appropriate facilities. In Zambia, the Community First Aid Responder (CFAR) programme has been implemented to increase awareness of emergencies and train laypersons to provide potentially life-saving interventions [26]. While the programme likely improves access to emergency care, it will be more effective when paired with a formal EMS system.

Participants were interviewed by phone, as internet connectivity is often poor in the region. Although telephonic interviews eliminate non-verbal cues between interviewees and the interviewer, they were preferred over the frequent interruptions that may occur during video conferencing.

The sample size represented in this study poses limitations, as a small number of participants can reduce researcher ability to reach data saturation. Unfortunately, we cannot mitigate against this as the sampled population was exhausted. While emergency medicine in Zambia is still nascent, these preliminary results can inform future studies and can serve as a comparator for larger studies of African registrars in

similar programmes.

It is also important to note that these results reflect trainees' current perceptions of emergency care in Zambia. Participants have been training abroad for various amounts of time, meaning that they may not be fully briefed on the current state of development in-country. As this study is descriptive and qualitative, transferability is difficult to ascertain, however, by sampling every existing Zambian EM registrar (barring the principal author), the views are representative of the target population.

Conclusion

Zambia's emergency care system is nascent but developing. Zambian EM registrars felt that there are many constraints, including a lack of recognition of the importance of EM and its specialists, a lack of well-trained providers, a poor supply chain, and minimal teamwork occurring with other specialties. Both in and out of hospitals, emergency care will require substantial nurturing if it is to develop adequately. Registrars noted intentions for this to include local training, promotion of interprofessional collaborative practice for patient safety, and advocacy both within healthcare and in the community. EMS will be formalised, with the training of dedicated providers for an accessible nationwide ambulance service.

In order to ensure that these strategies are ultimately implemented by registrars upon their return to Zambia, it is imperative that they are communicated with stakeholders in-country. From there, mutual planning can occur between current and future EM specialists, and government stakeholders, to ensure that there are mechanisms in place to facilitate emergency care advancement.

Dissemination of results

Results of this study were shared with participants through an informal presentation. They were also shared through a formal presentation at an international conference and published in the Stellenbosch University SUNScholar digital archive.

Authors contribution

Authors contributed as follow to the conception or design of the work; the acquisition, analysis, or interpretation of data for the work; and drafting the work or revising it critically for important intellectual content: KEM contributed 50%; WS 20%; LAW 20%; and JLP 10%. All authors approved the version to be published and agreed to be accountable for all aspects of the work.

Declaration of competing interest

Prof Lee Wallis and Dr Willem Stassen are editors of the African Journal of Emergency Medicine. Prof Wallis and Dr Stassen were not involved in the editorial workflow for this manuscript. The African Journal of Emergency Medicine applies a double blinded process for all manuscript peer reviews. The authors declared no further conflict of interest.

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