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Perceptions of emergency care in Kenyan communities lacking access to formalised emergency medical systems: a qualitative study

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ABSTRACT

Objectives: We undertook this study in Kenya to understand the community's emergency care needs and barriers they face when trying to access care, and to seek community members' thoughts regarding high impact solutions to expand access to essential emergency services.

Design: We used a qualitative research methodology to conduct 59 focus groups with 528 total Kenyan community member participants. Data were coded, aggregated and analysed using the content analysis approach.

Setting: Participants were uniformly selected from all eight of the historical Kenyan provinces (Central, Coast, Eastern, Nairobi, North Eastern, Nyanza, Rift Valley and Western), with equal rural and urban community representation.

Results: Socioeconomic and cultural factors play a major role both in seeking and reaching emergency care. Community members in Kenya experience a wide range of medical emergencies, and seem to understand their time-critical nature. They rely on one another for assistance in the face of substantial barriers to care—a lack of: system structure, resources, transportation, trained healthcare providers and initial care at the scene.

Conclusions: Access to emergency care in Kenya can be improved by encouraging recognition and initial treatment of emergent illness in the community, strengthening the pre-hospital care system, improving emergency care delivery at health facilities and creating new policies at a national level. These community-generated solutions likely have a wider applicability in the region.

Strengths and limitations of this study

- Access to quality emergency services is an essential component of the human right to health, but barriers to emergency care are found throughout Africa and the wider world.
- Data to support the development of emergency care are essential to improve access to care and further infrastructure development.
- We solicited input from community members for an initial needs assessment, encouraging shared ownership of the project to produce interventions that are more likely to be successful and sustainable.
- Focus groups were conducted in Swahili by trained facilitators, and were then translated and transcribed into English. While the potential exists for misinformation, as many words in Swahili do not directly translate, every effort was made to ensure that the collected data were representative and accurate.
- This study indicates the need for specific interventions to reduce barriers to access essential emergency services in Kenya, many of which are low cost: community first-aid education, training health providers in basic emergency care and triage protocols at health facilities.

INTRODUCTION

Recent attention has highlighted the need to integrate emergency care into existing health-care systems.[1–7] Delays in treatment of acute illness and injury are known to cause increased morbidity and mortality,[1 8–12] and the implementation of effective, prioritised, timely emergency care has the potential to address 45% of deaths and 36% of disability in low-income and middle-income countries.[6]

In sub-Saharan Africa, health systems have traditionally addressed the burden of infectious diseases, but now face an increasing prevalence of non-communicable diseases and injury.[13] Kenya typifies this epidemiological transition, with a clear need for horizontally integrated emergency care systems currently unmet by the public health system.[14–17] The current Kenyan health system has 265 primary hospitals, 10 secondary hospitals and 4 tertiary hospitals, serving a population of over 45 million,

approximately 78% of whom live in rural areas far from healthcare facilities.[14–19] Emergency departments are typically staffed by clinical officers (mid-level providers with 3 years of clinical medicine training) who provide most of the country's emergency care, yet lack specific training in prioritisation, resuscitation and stabilisation.[16] Most acutely ill and injured patients self-present at hospital, as the only public ambulance provider operates nine ambulances throughout the entire country,[15] and private ambulances are not affordable for most.[16]

Although key strategic plans reference the need for emergency care systems in Kenya, there has been little progress in data gathering to augment system improvement, or in implementing interventions.[16 20] Data to support the development of emergency care and inform priority areas—specifically the community's experience—are essential to improve access to care and further infrastructure development. Soliciting input from community members for an initial needs assessment encourages shared ownership of projects, resulting in interventions that are more likely to be successful and sustainable.[21 22] We undertook this study in Kenya to understand the community's emergency care needs, barriers to their care and high impact solutions to expand access to essential emergency services.

METHODS

This study adapted and expanded on the qualitative methodology used in a Zambian pilot study.[23] Focus groups were used to gather data, to encourage participation and to provide insight on a wide range of opinions, shared experiences and social norms.[24 25] The investigators honed focus group questions from the pilot study that maximally yielded robust responses and elicited data about barriers to emergency care. 'Medical emergency' was explained to participants as any life-threatening condition requiring emergency care, whether obstetric, traumatic or medical in nature—to differentiate from public health emergencies such as flooding.[23]

Four Kenyan healthcare providers were trained in best practices for focus group facilitation in a 4-day course.[23 24] Facilitators were given dedicated time to translate the focus group script into Swahili and adapt it to local cultural expression. Swahili was chosen as it is one of two national languages, with English, and is the most commonly spoken language in Kenya. All facilitators contributed to the translation, which was then back translated into English as a quality control measure. The back translation was checked against the original English language version by two investigators (MCB and APS).

We sampled uniformly from all eight of the historical Kenyan provinces (Central, Coast, Eastern, Nairobi, North Eastern, Nyanza, Rift Valley and Western), with equal rural and urban community representation. Each facilitator visited urban and rural districts in two

provinces, identified through the Kenyan Urban Areas and Cities Act.[26] The only exception was Nairobi Province, as it does not technically contain any rural areas. For this province, purposeful sampling was used to conduct focus groups in urban upper-middle class areas, urban middle class areas, urban slums and peri-urban ('rural') areas.

Kenyan community members aged 18 years and older who spoke Swahili or English were eligible for inclusion. On arrival in the selected location, investigators approached a local community leader and provided full information on the study. The community leader then assisted in recruiting focus group participants. Five to 10 participants were selected using convenience sampling at each site,[27] representing a range of participants in each group. Focus groups were conducted in each province until thematic saturation was reached for that province.

Focus group discussions were audio recorded and then immediately translated and transcribed into English by the facilitators who were fluent in both languages. These were then checked for accuracy by another Kenyan facilitator.

Data analysis

The lead investigator initially read all transcripts and identified key themes on which to construct a codebook within NVivo (QSR International Pty Ltd), using a content analysis approach.[28 29] We selected a content analysis approach because it aids in making the results reliable and valid.[28] The lead investigator then provided a detailed definition of each theme and code to a second investigator who would also be coding the data, including examples for each theme. After the second investigator coded several transcripts, inter-rater reliability was assessed. Once both investigators were coding consistently, each investigator independently coded half of the transcripts.[30] The lead investigator went through the coded focus group scripts and aggregated the data by theme or by structural code. Thematic saturation was determined by the coding researchers when additional focus group data failed to identify participant sentiments that were unique to those previously expressed. Saturation was determined separately for each historical province, which increased validity by limiting the geographic heterogeneity of the population and exceeded guidelines for the number of interviews generally required to reach saturation.[31] Questions identifying exposure to emergencies, and the type and frequency of emergencies witnessed, were coded in a structural fashion, and a coding frequency report was produced.[29] Using NVivo, we undertook a thematic analysis to aggregate responses into larger groups; grouped responses were then classified as desire to provide assistance, barriers to emergency care, and ideas for how to improve access to emergency care.

Ethical approval was obtained from the University of Cape Town, the Aga Khan University Hospital Nairobi,

the Kenyan National Commission for Science, Technology and Innovation, and the University of Maryland School of Medicine. Informed, written consent was obtained from each focus group participant: the consent form explicitly detailed the purpose of the study and the participant's role, in addition to their freedom to withdraw at any stage. No form of remuneration was made available to any participant.

RESULTS

We conducted 59 focus groups with 528 participants in the eight Kenyan provinces. A detailed breakdown of participants is included in online supplementary appendix S1. Results were analysed and compared for urban and rural locations, but as no substantial differences were found, we have only reported the totals.

Exposure to medical emergencies

Most participants understood the definition of a medical emergency to be a life-threatening medical condition requiring rapid or urgent treatment. No one gave an 'inappropriate' answer, although many offered specific diseases instead of a definition. Most had witnessed at least one medical emergency, with a significant number having witnessed three or more. When grouped by categories, traumatic emergencies were the most frequently mentioned, followed by medical and obstetric (table 1). There was little variability in the frequency with which different types of emergencies were reported between rural and urban communities.

Community members suffering medical emergencies reached healthcare facilities by a variety of different methods, with most respondents choosing private or public transport means and few using emergency services. Reported means of transport did not differ between rural and urban communities (box 1).

Assistance and willingness to help

Most participants had witnessed assistance being provided to the patient at the scene, usually first aid or transportation. Bystanders were most often referenced as providing help, along with family members, neighbours or friends. Community members demonstrated great willingness to help each other; most had helped in the past, and the overwhelming majority said they would help in the future. Participants reported that they would help due to feelings of moral obligation, a desire to relieve suffering and if they had the necessary training or resources. Participants also provided reasons why they might not help; the most common themes were lack of knowledge on how to assist, lack of personal protective equipment and the potential to cause inconvenience or harm to the helper. Specific concerns included that the helper might be blamed for the accident or involved in legal proceedings, or that they may need to answer many questions from police and doctors.

Table 1 Types of emergencies most commonly referenced

Trauma	Road traffic accidents
	Assault/mob justice
	Burns
	Blunt trauma
	Bleeding (traumatic)
	Fractures
	Other trauma*
	Penetrating trauma (stabbing, GSW)
	Snakebites
	Riots/mass casualty incidents
	Sexual assault/rape
	Electrocution
	Suicide
	Bites (dog, spider, crocodile)
Medical	Loss of consciousness
	Difficulty breathing/asthma
	Overdose/poisoning (alcohol, drugs, poisons, pesticides)
	Drowning
	Seizures/epilepsy
	Hypertension
	Infection
	Infectious disease exposure
	Pneumonia
	Non-traumatic bleeding (nose, ulcers, varicose veins)
	Malaria (cerebral)
	Chest pain/heart attack
	Foreign body (in airway)
	'Sick' (non-specific)
	Abdominal pain
Obstetric	Labour
	Birth complications, ectopic pregnancy, abortion complications

*Sports injuries, eye injuries, self-circumcision, accidents, being buried alive, children hurt while playing, hanging, overeating. GSW, gunshot wounds.

You can be afraid to help because in the example of road accidents, our government can arrest you on trumped up charges. You may be helping someone who is injured and when you take them to hospital only to realise that he was the thief which can get you in trouble.—Western

Box 1 Types of transportation most commonly referenced

► Private cars
► Motorcycles
► Ambulances
► Taxis
► Walking or being carried
► Minibuses
► Police vehicles
► Tuk-tuks*
► Aircraft (planes and helicopters)
► School buses
► Lorries†
   *Three-wheeled rickshaws, often used to transport passengers.
   †Trucks, often used for transporting goods.

When asked how they would hypothetically provide help to someone suffering a medical emergency, many responded that they would help in any way they could. More specifically, participants answered that they would provide medical care (such as bleeding control) or transportation, or call for help. They also responded that they would be more likely to help if they had the necessary knowledge, skills and protective equipment.

> I think people would help more if they knew what to do, so they need to be trained on first aid or lifesaving courses. —Nairobi

Access to quality emergency care
Barriers
The barriers were grouped in five major themes: cost, system structure and lack of resources, transportation, healthcare providers, and initial care at the scene.

Cost
The most commonly referenced barrier was the high cost of treatment. This was particularly evident when participants spoke of private facilities, which were regarded as providing higher quality emergency care, but cost substantially more than government facilities.

> In private hospitals they are very good and quick with emergencies but they want money which we don't have. In public hospitals people die in the queue waiting and nobody considers you.—Nyanza

System structure
The second most common barrier referenced was a lack of prioritisation protocols, causing critically ill patients to queue a long time before being seen. When grouped into larger themes, a non-functional system—one lacking triage, healthcare providers, resources and critical medications at facilities—was the most common barrier. Difficulties with communication such as unavailable emergency phone lines, prolonged admitting time due to paperwork before emergency care is provided and poor medical records systems, also contributed to difficulty accessing the system.

> You may have a patient you took from home as an emergency then when you get to the hospital you find a long line and nobody is willing to assist you. So they can even die in line waiting to see the doctor and nobody cares.—Nairobi

Transportation
Several barriers were transport related, including difficulty obtaining transportation and long distances required for travel (due to insufficient healthcare facilities and lack of emergency care after business hours).

Healthcare providers
Healthcare providers were seen as a substantial barrier to care. Participants felt that many providers were unfriendly towards patients or unmotivated to provide timely, appropriate care. Participants were also concerned about corruption; many felt that they were sent to buy medications that were unfairly priced, and witnessed physicians leaving the hospital during their working hours to work at private clinics. Participants felt that healthcare providers lack training in the basics of emergency care, and are unable to provide appropriate care.

Initial care at the scene
The final theme included barriers caused by initial care at the scene of an accident or illness. Participants felt that police caused barriers when they brought accident victims to the police station before taking them to the hospital. They also described how the individuals assisting during an emergency were often untrained and did not know how to properly care for the patient due to a lack of medical knowledge. Additional barriers to the provision of initial care at the scene of an accident included fear of police or looters, difficulty extricating the patient and general chaos.

> Community is not aware of emergencies and how to deal with them so at times people just stand and stare.—Coast

Ease of access
Kenyan community members were specifically asked about factors that make it easier to access emergency care. The most common response was that patient-specific qualities make accessing emergency care easier. Participants related that they had an easier time accessing emergency care when they were dressed well, had a good attitude and showed patience, had personal financial resources or insurance and personally knew a healthcare provider. Other factors included having available transportation, seeking care at a good healthcare facility such as one in the private sector and having neighbours with first aid knowledge.

> My brother told me that if you want to be treated well and survive in Kenya, you need to shave neatly and wear a suit; you will be attended to very fast if you have an emergency.—Western

Community-identified solutions to improve access to quality emergency care
When asked for ideas that would improve their access to emergency care, focus group participants identified many interventions.

Improved emergency care system structure
Many of the recommendations involved improving the structure of the emergency care system. Participants wanted improved material resource availability at all

levels, from gloves and first aid kits in their communities to resuscitation equipment and stocked medications in hospitals. They recommended designated areas for emergency care in facilities where patients would be triaged and treated according to the severity of their case. Communication was another area of concern; participants felt that there should be one central, accessible, functional emergency number for the entire country. Participants also felt that their government should pay healthcare providers better, manage healthcare facilities to reduce corruption, streamline the referral system and enact laws requiring provision of medical care to occur before paperwork, police investigation or payment.

> If there was a separate emergency section it'd help as opposed to being made to queue with everyone else.—Coast

Improved healthcare providers

Another significant theme was that access to emergency care could be improved by increasing the numbers of healthcare providers, by training providers in emergency care and by having dedicated emergency care providers. Participants also thought that provision of care could be improved by paying providers more, and by penalising providers who accept bribes or who work at private clinics during their public hospital shifts.

Improved transportation

Transportation and physical access to healthcare facilities were other areas where participants felt there should be improvement. Suggestions included increasing the number of ambulances, numbering houses for easier ambulance dispatch, increasing the number of healthcare facilities or clinics in remote areas and increasing clinic hours to allow for emergency care at all hours of the day.

Community capacity building

Emergency care capacity building at the community level was the second most commonly requested intervention. Participants predominately wanted community first responder training, so they could appropriately care for their neighbours when needed. They also felt that communities should have general 'emergency awareness' classes that teach everyone to recognise medical emergencies and how to obtain assistance.

> I think first aid should be taught to people in the community. Learning basic first aid skills would help because sometimes people fail to help due to lack of knowhow.—North Eastern

Decreased cost of care

Many participants also wanted to see decreased costs of healthcare treatment, including less expensive medications, reduced costs at private hospitals, increased insurance coverage and subsidised healthcare.

LIMITATIONS

While every effort was taken to ensure that the research was methodologically sound, two limitations need to be considered. Most focus groups were conducted in Swahili, then translated and transcribed into English. While the potential exists for misinformation, as many words in Swahili do not directly translate, a second facilitator was used to back translate, with verification provided by a third independent auditor. Also, the investigators themselves did not conduct the focus groups, which could lead to lost opportunities for more meaningful exploration of important opinions. Kenyan healthcare providers were utilised as it was crucial to have the focus groups conducted in the local language by individuals from the community. However, they are unlikely to have had a full understanding of the study, meaning that our coding results needed to be more robust.

Using translators to mediate the focus groups would not have been successful, as such discussions rely on group dynamics and participation. The Kenyan facilitators were rigorously selected and trained, and first conducted trial focus group sessions to determine their ability to consistently and accurately direct the discussion.

DISCUSSION

This study improves on the community-centred methodology first piloted in Zambia to solicit community members' experiences with access to emergency care and their priority interventions to improve the Kenyan emergency care system.[23]

Conceptually, access to healthcare has been described using the pillars of availability, acceptability and affordability, with notable variations.[32–34] While such models may be functional in the world of health policy, everyday emergencies require acknowledgement of time-dependent, appropriate clinical care in order to maximise clinical outcomes. The recent literature has referenced the applicability of the 'three delays' model (a framework initially developed for obstetric care) to describe provision and utilisation of effective, timely emergency care.[32 35] The delays described include the decision to seek care, reaching care and receiving appropriate care, and are influenced by socioeconomic and cultural factors, accessibility of healthcare facilities and quality of care provided.[35 36]

Socioeconomic and cultural factors (such as community understanding of, and prior experience with, emergencies) play a major role both in deciding to seek care and in reaching care. Participants in this study have experienced a wide range of medical emergencies, and seem to understand their time-critical nature. They rely on family members, neighbours and 'good Samaritans' for assistance, often with transportation to healthcare facilities and basic first aid. But untrained bystanders and police officers may add to delays, such as when officers take patients to the police station before taking them to the hospital. And

although community members are the primary source of assistance during emergencies, and are willing to continue helping one another, many are concerned that they place themselves at risk by helping; these fears must be addressed through education and governance to protect responders before community-based interventions to increase access can be successful.[37]

Accessibility of healthcare facilities also affects both the decision to seek care and how quickly one is able to reach a facility. Transportation barriers appear common; due to the paucity and cost of transportation, private transport is most frequently used. This is consistent with other Kenyan studies showing that most road traffic crash victims are transported by private cars and taxis.[38] [39] The frequency of ambulance use is low; in addition to poor availability, in most cases, ambulances function only as a taxi, as very few have either trained attendants or necessary equipment.[16] In fact, waiting for an ambulance rather than taking the most immediately available form of transportation may delay time to definitive care. Other important accessibility barriers include an inadequate number of healthcare facilities resulting in substantial travel distances, lack of care outside of business hours and absence of a centralised emergency phone number.

The quality of emergency care services ultimately affects the decision to seek care and the delivery of appropriate treatment. At healthcare facilities, a lack of triage, insufficient trained providers and scarce resources prohibit the delivery of effective emergency care, and leave community members dissatisfied. Cost of care is also a substantial barrier; participants agreed that private facilities offered better emergency care, yet, due to high costs, if they sought care they did it at government facilities.

Community members in this study drew on their personal experiences to identify multiple barriers to emergency care, along with ideas for improving access. The community generated solutions are consistent with those elicited from Zambian community members, and likely have a wider applicability in the region.[23]

Early recognition and initial treatment of emergent illness in the community

Community members and police officers have no training in the initial recognition, stabilisation and transport of emergency patients, although they are the first (and often only) available help. With training, such responders can recognise emergent conditions and appropriately utilise available resources to avoid unnecessary delays in care.[36] [40–46] Early care for critical illness is one of the most essential interventions, as delays result in increased morbidity and mortality.[10–12] Basic first aid training increases the likelihood that community members will assist in an emergency, improving their knowledge and skills and empowering them to take precautions to ensure their own safety.[37] [45] [47] [48]

Strengthen the pre-hospital care system to augment patients' ability to reach care

Kenya has too few ambulances, they are not part of a unified system and most do not provide care, focusing only on transportation. Creating a single national emergency number would allow community members to request emergency help when needed. Focus should then be placed on increasing the availability of emergency transportation and ambulance staff trained to provide basic emergency care; there is ample evidence that emergency transportation to appropriate care saves lives.[3] [49] [50]

Improve appropriate emergency care delivery at health facilities via training and process improvement

Lack of properly trained healthcare providers, triage systems, dedicated space and equipment for emergency care, and lack of a timely, effective referral system at healthcare facilities, all contribute to delays in receiving quality emergency care.[36] All levels of the healthcare system should have certified healthcare providers with dedicated training to recognise and treat acutely ill and injured patients. We recommend that training initially focus on providers working in clinics and district hospitals, as well as those working in the emergency intake areas of larger hospitals.[3] [51]

At the facility level, many barriers could be diminished by simple re-structuring of patient flow. Context-appropriate triage systems should be implemented at all facilities, to maximise the efficient use of resources while minimising overall morbidity and mortality.[52] It is also important to create dedicated spaces for emergency care in facilities, and to equip these with basic supplies needed for resuscitation. All facility-level improvements should be prioritised at lower level facilities, as emergent patients generally present to their closest healthcare facility, and must be stabilised before they can be safely transferred to a higher level of care.

Improve the regulatory environment around everyday emergencies

The creation of new policies at a national level would reduce several barriers. Community members worry about helping one another because they fear being involved in a legal case, or being blamed for the incident. Many countries have 'good Samaritan' laws that protect bystanders who provide assistance to others in emergency situations. If community members felt that they would be protected from legal harm, they may be more likely to assist.

Requiring paperwork and payment before provision of medical care creates a significant barrier, and is easily eliminated by requiring that emergent patients be stabilised immediately on arrival. Although Kenya's Constitution prohibits denying anyone emergency medical treatment,[53] initial delays caused by paperwork and payment have the potential to cause significant morbidity and mortality. Poor health worker pay was noted to

have a negative effect on patient care, and improved incentives could enhance their motivation and commitment, and alleviate their need for a second job.[54]

This study indicates the need for specific interventions to reduce barriers to access essential emergency services in Kenya. Participants identified solutions at all levels of the health system. A few of the proposed solutions, such as creation of a unified pre-hospital system, need substantial financial investment, requiring an urgent prioritisation process within the Kenyan government. Most community-based solutions, however, are low cost, including community first aid education, training health providers in basic emergency care and simple process changes such as triage protocols at health facilities. The challenges of community access to emergency care are not unique to Kenya. The themes of difficulty in seeking care, reaching care and receiving appropriate emergency care are found throughout healthcare systems in Africa. Communities themselves have the capacity to identify barriers and generate essential steps to address the most often overlooked component in their right to health—the right to quality emergency services.

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