The nature of student outreach projects related to community engagement in an emergency medical care context.

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Abstract
Background:
Community outreach within the context of emergency medical care education plays a salient role in enhancing community health outcomes and improving healthcare access within marginalized communities. This study explored the potential of outreach to strengthen both paramedic students' understanding of health and social issues in the Western Cape.

Method:
Using a qualitative research approach, the study sought the views and experiences of academics in the Western Cape. This study further employed an exploratory, descriptive qualitative research methodology. The study used purposive sampling to collect data. Data was collected using semi-structured interviews and focus group discussions, and was analysed using thematic analysis.

Results:
The study found that through community outreach, paramedic students had the opportunity to grasp the real-world problems within their communities, whilst communities were able to benefit mutually from their interventions. Five main themes emerged from the data. Namely: students working collaboratively in communities; the nature of outreach activities implemented by students; potential outreach programs for health science students; learning within communities through student outreach projects; and the benefits of student engagement.

Conclusion:
This study demonstrated how outreach served as a mechanism to promote health care while improving graduate traits of social responsibility within the paramedic profession. Furthermore, community engagement programs can help to create beneficial changes in the community.

Recommendation:
There is a need to further investigate collaborations and partnerships in emergency medical care among higher education institutions, academics, community stakeholders, NPOs, EMS, and government agencies, focusing on how these alliances generate mutual benefits and contribute to improved health outcomes.

Introduction

Community engagement has been defined as a process of working collaboratively with groups of people affiliated by geographic proximity, special interests, or similar situations regarding issues that affect their well-being (Valdez Soto et al., 2016; Taffere, Abebe, Zerihun, Mallen, Price, and Mulugeta, 2024). It has been commonly referred to as engaged scholarship, civic engagement, and service learning in the literature (Johnson, 2020). In South Africa, it has been referred to as student volunteering or community outreach

(Hart, 2019; Pienaar-Steyn, 2012). Community engagement, therefore, acts as a pathway for higher education students to connect with certain communities and use their disciplinary knowledge and skills to enhance their well-being, whilst simultaneously learning from them (Pell et al., 2019). Hence, engagement is a process whereby universities engage with vulnerable communities to undertake mutually beneficial activities, even if each side benefits in a different way (Benneworth, 2018).

It is against this backdrop that engagement and outreach activities should be prioritised within various disciplinary departments in higher education institutions. In emergency medical care in particular, paramedic practice can reduce the burden of disease in developing countries like South Africa and work collaboratively within marginalised communities. Researchers such as Harrison et al. (2020) have asserted that student engagement plays a critical role in paramedic education, particularly in relation to advancing health promotion. Whowell (2016) opined that community outreach strengthens communities that lack access to essential services within the population's geographic location. Buck, Dickson-Gomez, and Bodnar (2017) added that university outreach is distinguished by its interaction with vulnerable, disadvantaged, and difficult-to-reach communities. In addition to providing services, the objective of outreach is to inform and educate communities about matters pertaining to their needs.

Consequently, South African universities have strived to advance their outreach activities with marginalised communities in their milieu (Bheekie and van Huyssteen, 2015; Müller and Couper, 2021). A project, undertaken within the Health Sciences in the Western Cape, used an outreach approach at higher education institutions. As part of outreach activities, students provided health services to underprivileged populations in Cape Town through public facilities, using their current knowledge, skills, and medical expertise. It was found that it was able to improve graduate attributes by focusing on patient-centeredness, social responsibility, and a deeper sensitisation to social injustices within the South African health care system (Van Huyssteen and Bheekie, 2013). South Africans connect social responsibility with the African philosophy of Ubuntu, which is interpreted as "shared humanity" (Kwizera and Iputo, 2011), which can consequently strengthen engagement activities. Eminent scholar Singh (2021) further highlighted that community-university engagement impacts students, academics, and researchers with stakeholders for mutual benefit, through contextually relevant research for social justice and empowerment.

Despite these calls within the literature, activities addressing social ills and emergency care health prevention, through outreach, are yet to be formalised within Emergency Medical Care paramedic training in South Africa. Swanberg, Engwall, and Bulgarelli (2018) have consequently called for outreach initiatives to be embedded in health science faculties, as they have a unique role to play within the university and the surrounding communities to amplify health promotion and health education.

Community engagement allows universities to identify the needs of the community through direct engagement and communication with residents, organizations, and local leaders. This helps universities develop programs and services that are responsive to local needs and priorities. It also helps build trust between the universities and the community by demonstrating their commitment to addressing local issues and by involving community members in the planning and implementation of Third Mission activities (Spânu, Ulmeanu, and Doicin, 2024). By engaging with the community, university students can better understand the social, economic, and environmental issues that affect the community and design their programs and services to have the greatest positive impact (Spânu, Ulmeanu, and Doicin, 2024). Community engagement can provide opportunities for students and academics to gain real-world experience, which can enhance the educational experience and prepare graduates for careers that impact the community positively. It also promotes collaboration between universities, businesses, and organizations to address local issues and create new opportunities (Spânu, Ulmeanu, and Doicin, 2024). The other distinguishing feature is that engagement involves reciprocity and bidirectionality, which underscores the fact that "engagement" activities should be undertaken within the context of partnership, collaboration, mutuality, cooperation, and two-way flow of information (Du Plooy, 2017).

The purpose of community engagement in higher education is also to demonstrate the social responsibility of institutions as well as their commitment to the common good, by making their expertise and infrastructure available for community service programmes through student activities (Hart, 2019). Service learning, for example, is a pedagogy that enables students to engage in providing a service to the community that is linked to the academic objectives of a course. There are multiple stakeholders in the service-

learning experience that include students, instructors, and community partners. Service learning can enhance students' sense of care, build their self-confidence, and help students acquire new disciplinary knowledge and skills (Rinaldo, Davis, and Borunda, 2022).

Student tasks associated with service learning range from volunteering time with a community organization's clients to crafting business strategies with an organization's administration. Thus, service learning offers a valuable opportunity for students to implement their new skills in a real-world environment while also learning the importance of volunteerism (Rinaldo, Davis, and Borunda, 2022). Outreach activities are similar in nature, except students are not assessed against the same standards. The researcher sought to understand how the participants conceptualised community engagement and the activities that can be used to advance community engagement at local universities.

Methodology
Methodological Orientation and Theory
A qualitative research design was used to guide the study, as it sought to gain the views of health science academics, students, and community partners related to student outreach projects in Health Sciences in the Western Cape (Hunter, McCallum, and Howes, 2019). This study further employed an exploratory, descriptive qualitative research methodology. The researcher utilised an exploratory descriptive qualitative research design because community engagement, particularly in emergency medical care in South Africa, is uncommon and largely unexplored in paramedic education. It is also poorly theorised and understood; hence, not many scholars and academics understand community engagement and how it can be integrated into teaching and research locally.

Sampling and sample size
The study population comprised academics with a health science background, as well as emergency medical care students, from higher education institutions in the Western Cape province. There were three sample sets in the study. A sample of fourteen community partners was interviewed using semi-structured interviews. Sample two consisted of sixteen students who were involved in a focus group discussion, and sample three consisted of sixteen EMC academics from Health Sciences. Two focus group discussions (eight per group) were conducted. Non-probability purposive sampling was used to recruit the participants, based on their relevance to the study (Mason, 2017).

Method of approach
Participants were invited to participate in the study via email, followed by a telephonic confirmation. After agreeing to participate in the study, appointments were scheduled with the participants at a time that was convenient for them. Before conducting the interview, information and consent letters were emailed to the participants to inform them of the purpose and nature of the study and to confirm their consent, respectively.

Non-participation
During the pandemic, some participants declined due to stringent COVID-19 lockdown restrictions, and two community participants succumbed to COVID-19. These participants would have increased the sample size and thus may have been valuable to the study.

Setting of data collection
Participants were interviewed at their offices, while others, due to COVID-19 restrictions, were interviewed online on Microsoft Teams and at their residences.

Description of sample
Sample one consisted of six females and eight males. Of the fourteen participants, five were from rural districts, while nine were from the Cape Town metropole area, including red zones. Sample two consisted of nine males and seven females. The focus group consisted of six students residing in rural areas and ten students residing in the Cape Town metropolitan area. Sample three consisted of six females and ten males. All of the participants recruited for the sample were actively involved in teaching EMC and work-integrated learning since the inception of the revised 2016 Diploma Emergency Care programme in the Western Cape.

Data saturation
Data was collected until saturation was reached.

Duration
Each interview was approximately 60 minutes, and each focus group lasted approximately 90 minutes.

Interview Guide

The semi-structured interviews were conducted by the researcher. An interview guide was used. The interview guide was piloted with people who reflected similarities with the sample of participants interviewed for the actual study.

Ethics

The study was approved by the Durban University of Technology Institutional Research Ethics Committee (IREC) (Ethics number, IREC 624/2022).

Data analysis

The data was analysed using thematic analysis, which is underpinned by systematically finding themes, coding the data according to those themes, and then interpreting the data through discovering patterns, similarities, and relationships between them (Terry, Hayfield, Clarke, and Braun, 2017). The data was coded by the researcher, and the supervisor was considered the co-coder to verify the analysis of themes.

Trustworthiness

Trustworthiness was ensured using several techniques, such as member checking of the data, by keeping an audit trail of audiotapes, field notes (taken during interviews), transcriptions, and a reflexive diary. Moreover, the research process was thoroughly documented (Adler, 2022) to ensure its easy replication.

Transcripts returned

The researcher contacted the participants to verify the points that were noted or recorded and confirmed their transcriptions for clarity.

Analysis and discussion

There were five themes that emerged from the analysis of the data. These are discussed as follows:

Theme 1: Students working collaboratively in communities

Academics supported the notion that paramedic students and other students from health science disciplines should be encouraged to be involved in community outreach projects.
"*We organise outreach as a Faculty … outreach is mainly around education and prevention … As a faculty, we go out with all the disciplines … we stay at the hostel, set up a kind of a clinic situation as well as engage with the community … we do educational programmes, health promotion programmes, curative programmes.*" (A 10)

Academics supported that clusters of health science students should work collaboratively together within communities, as opposed to working within disciplinary silos. This academic shared how students from all disciplinary backgrounds had come together to set up a clinic, to implement educational programmes, health promotion programmes, and curative programmes. In this way, students not only benefited from learning from communities but also from other disciplines working within the same space. Mona-Dinthe (2020) similarly stated that collaborative practice transforms students' understanding of the other professions' roles and responsibilities, communication, and mutual trust. Transdisciplinary work can therefore enhance students' understanding of fundamental teamwork principles, which is a critical component for developing new insights, in working together within a learning environment (Mona-Dinthe, 2020).

Academics provided other examples of how health students had worked collaboratively, with an organization called CAN (Community Action Network), in the Western Cape.
"*We came up with this idea called a Community Action Network … [We] wanted the word 'action' to be in the name, and [we] wanted the word 'network' to be in the name because we want it to be clear that it isn't an organisation … especially during the lockdown. It just took off, as it spread faster than COVID, you know, so we had 170 different CANs across the city and about 20,000 people involved in the response.*" (A 9)

"*My colleagues in Khayelitsha, the CANs, have been mobilising around access to water in the Langa. They got access to a whole bunch of bicycles, and students were delivering medicine, delivering food to the elderly who couldn't leave their homes, and helping our pensioners.*" (A 9)

"*It became this powerful, social response to the pandemic that was very community-led and very adaptive, responsive, and flexible. So, when lockdown happened, and many people suddenly had no access to food, thousands of community kitchens popped up, and we had a co-learning team that allowed CANs to learn from each other.*" (A 4)

These narratives reflect how academics and students worked collaboratively, with the Community Action Network (CAN) organization, in a way that became a powerful response to working with communities during the COVID-

19 pandemic. Using bicycles, students were able to partner with CAN to deliver medicines to the elderly, who were unable to leave their homes. Students were also able to work within the community kitchens, delivering meals to those who had no access to food. Students not only learnt within these kitchen spaces, but also from the other CANS that emerged across the Western Cape Province. They emphasised the use of community networks and social mobilisation through community-university partnerships.

Van Ryneveld, Whyle, and Brady (2022) argued that the COVID-19 pandemic exposed the challenges that South Africa encountered, particularly for the poor and unemployed. In Cape Town, a movement of self-organising neighbourhood-level community action networks contributed significantly through a community-based response to the pandemic, which nurtured the opportunity to recognise and understand the power of informal networks and collective action for academics during times of unprecedented crises to engage in meeting community needs (Scheepers, Coetzee, and Klopper, 2022). Murphy and McGrath (2018) asserted that genuine collaboration with organisations enables academics and students to define problems, develop strategies, and implement realistic solutions, as evidenced within the narratives.

The potential for students to do collaborative work emerged as follows:

"*It's possible to do a project addressing social issues in their neighbourhood and working with people in their neighbourhood that could be structured as part of the community police forums and the neighbourhood watch groups, if it's around safety, or it can be with people's church groups.*" (A 3)

This narrative reflects the opportunity for students to form relationships with community police forums, neighbourhood watch groups, and church groups as part of relationship-building and networking within communities. By forming such partnerships, students can become aware of social networks and identify issues within neighbourhoods that they can address together with community members. Other academics suggested that students could become involved in other engagement activities as follows:

"*They could do a profile of our community and teach common health issues.*" (A5)

"*Community safety forum has a caravan at certain hotspots where somebody can come to them and seek help, and that's where paramedic [students] can get a better sense of the trauma and violence, the challenges that people in the community face.*" (A 11)

The notion of students working in caravans, within hotspots, was also suggested so that they could become more aware of issues related to safety and violence within certain communities. McManamny, Boyd, Sheen, and Lowthian (2022) provided similar examples within a project, which reflected the relevance of the roles of paramedics in addressing community needs. This involved the implementation of basic healthcare monitoring as well as injury and illness prevention programmes in remote, rural communities.

Theme 2: Nature of outreach activities implemented by students

The second theme captured the types of outreach activities that students have been engaging in. These were as follows:

"*It's phenomenal ... they often go out to farms, and engage with communities and crèches, and just make sure that they are giving adequate nutrition to the kids in crèches.*" (A 10)

"*We used to do a lot of work in the primary healthcare clinics ... make posters, educate people, and that's what I don't see anymore in the clinics. This is why higher education institutions should ideally place students who can make a big impact.*" (A 8)

"*We did workshops with the teachers to empower them on what a health-promoting school is.*" (A 10)

A community partner shared:

"*Students work on women on farm projects which focus on health rights, gender-based violence ... a youth programme, capacitating young boys and girls.*" (CP 2)

These narratives reflect the new diversity of health-related initiatives that students can become involved in. As evidenced, these outreach activities bridge the gap between universities and communities, strengthening opportunities for students to understand local contextual realities. Such projects can nurture trust and address the real needs of communities (Pereira, Goncharenko, Chortok, Kubatko, and Coutinho, 2020). Through the provision of resources, support, and education, outreach programs can empower the members of the community and their overall quality of life (Mey, Werner, and de Villiers, 2018; D'Ottaviano and Rovati, 2021). This was evidenced by one academic who shared how, through a youth programme, students were able to focus on health rights and gender-based violence. Outreach initiatives are therefore important to create resilient communities (German and LeMire, 2018; Elalouf,

2023), through student initiatives evidenced in the aforementioned excerpts.

Theme 3: Potential outreach programs for health science students

The third theme focused on potential outreach projects that health science students in the Western Cape could engage in. Participants suggested the following:

"*Burns is a big issue for us in the townships ... there's a step before the intervention ... the curative health promotion and health prevention, that is where the emergency medicine students and the curriculum can also focus on those aspects, and it has a big impact on the health system*" (A 10).

"*There are a lot of mountain fires ... we have good collaboration with the fire department. This could give students a sense of involvement with assisting ... [and the] Fire Department [can] teach the rescue modules [in] the Diploma.*" (CP 8)

"*We do about 300 fires a year in rural areas. If you want to build a society, we must take away that huge gap ... the students can get involved as part of their training modules.*" (CP 3)

"*Teach the children how to swim, prevent drowning ... [the] need is different in each community…*" (FG 2 S 12).

Academics shared certain context-specific issues that paramedic students could do outreach work on. They shared that in the townships, most households lack electricity and cook meals with paraffin or mobile gas cookers. These poor communities also use candles, making shack fires more prevalent in informal settlements. They believed that students could educate these communities as part of outreach activities. Another said that community outreach, to address fires within rural areas, could be included in their students' training modules. Another academic supported this type of student outreach initiative, saying that the Western Cape was notorious for mountain fires, which affected many other communities, causing smoke inhalation and, in some cases, fatalities. Hence, by working collaboratively with the Fire Department, students could be taught to become involved in these outreach efforts when fires occur.

Another outreach activity that was suggested focused on students educating the community about drownings. Academics shared that most people in disadvantaged communities wash their clothes in rivers or buckets as they have no access to water. A common call out for emergency assistance, within a paramedic context, involved children drowning. Academics believed students could educate the community regarding these dangers as an outreach initiative. Thus, the data reflected important issues to address the contextual realities of the Western Cape, within the EMC curriculum, by embedding such student outreach activities within the same. A study by Stirling, Meara, Pedler, Tourle, and Walker (2007), which focused primarily on injury prevention, found that paramedics are uniquely positioned to provide targeted injury prevention based on local needs and the frequency of incidents. Hence, by including it within the curriculum, outreach can form a pathway that enables students to connect with specific community contextual needs.

During the lockdown, emergency medical care academics and students were also requested to volunteer their time to assist with the COVID-19 vaccine roll-out and provide input on the vaccination campaign. This gave EMC academics and students a sense of social responsibility towards the public. The potential for networking with organisations and outreach was reflected as follows:

"*The vaccination campaign ... I'm hoping that EMC students will also get involved.*" (A 6)

"*We've been invited to sit on the Social Mobilisation Steering Committee for the vaccine roll-outs, and this is where students can get involved in the VAXI TAXI project.*" (FG1 EA 8)

"*COVID hit us all very badly ... most of the cohort of students are from EMS operations, and these clinical skills are in their scope. We can get them involved in the vaccination drive, and we plan on going to the poorer areas, using the ambulance as a mobile clinic, so we can reach people who don't have money for public transport. We will run a workshop to teach them how to engage with communities because this can't be taught in the classroom.*" (CP 7)

Another participant recommended student involvement in educating community members about adherence to HIV treatment as follows :

"*Students can go to the waiting room and share information with people [patients] in there about compliance with medication because the HIV medication is a big issue.*" (FG1 EA 1)

This broad range of health-related initiatives is crucial to strengthening the preparedness of paramedic students for real-world realities such as HIV and the COVID-19 pandemic. Most emergency medical care students are registered with the Health Professions Council of South Africa (HPCSA) and have clinical skills that could strengthen the vaccination drive, utilising the ambulance as

a mobile clinic in marginalised areas. As part of the preparation for service in underserved communities with limited access to healthcare, outreach creates the opportunity for paramedics to receive training in primary healthcare facilities and community contexts.

Theme 4: Learning within communities through student outreach projects

The fourth theme that emerged from the data was the potential for students to learn through outreach programs. Academics highlighted how students could strengthen their disciplinary knowledge and learn through outreach activities with communities as follows:

"*Outreach projects for students to engage in community about the chronic diseases that they are being treated for and learn from.*" (FG1 EA 2)

"*The drug and alcohol rehab centre ... our students work there ... students gain an understanding of why people keep taking drugs and why they [public] keep drinking and driving.*" (A 11)

"*A simple project like gardening impacts the well-being of people. If we feel more connected to others, it has a direct nutritional value. It needs to be stuff that they feel inspired by, so I think of our community garden ... that's become this wonderful hub of activity.*" (A 9)

These narratives reflect the opportunity for health science students to better understand the chronic diseases prevalent in local communities and how to treat them. Another shared how students' involvement in a community garden project helped the students to deepen their connectedness with community members, whilst understanding aspects of nutrition better. Most communities that emergency medical care students work in are rural spaces where there is a high level of poverty. Outreach projects can provide students with insight into these disadvantaged community environments, the limited health services in these areas, whilst developing community networks to address their problems (Cyril et al., 2015). Outreach, therefore, amplifies the opportunity for students to learn within community contexts.

Theme 5: Benefits of student engagement

The fifth theme reflected the benefits of student outreach activities to communities as follows:

"*The community gets better service delivery ... by educating the community, we might reduce the number of unnecessary call-outs just by increasing the knowledge level of the*

community ... it's mutually beneficial and sustainable ... that's the idea of the engagement.*" (FG1 EA 1)

"*The home delivery of medication by community health workers that's happened over the last year with COVID ... seriously raised the profile, and the appreciation of community health workers and students, and has led to a much greater appreciation of them.*" (A 13)

"*What we did for COVID is we've got women in the community to sew masks, which we've supplied to the community and students, and to the patients that the students see ... this became sustainable, and they make money from making these masks, which we [the university] bought from them. Now they can buy more material and then continue to make more masks and sell them to different groups.*" (A 2)

The collaborative initiatives, particularly during the pandemic, highlighted how communities benefited. As evidenced, local universities collaborated with healthcare workers to deliver medication to patients in marginalised and red zone areas in the Western Cape. Red zones are those where a high level of gang activity exists. This collaboration created greater connectivity with communities and improved the respect and appreciation for students and healthcare workers. Students also helped in the delivery and marketing of masks that local women sewn, bringing additional benefits to disadvantaged communities.

Other ways that the community benefited were as follows:

"*We had to come up with innovative ways for community engagement with EFAR [emergency first aid response] ... teach a lot of things, like how to do CPR [cardiopulmonary resuscitation] ...so we are using WhatsApp as a blended learning approach. We basically teach these critical life-saving skills to lay communities, and this is where students can assist us, because you can use a student from that area to provide training to the same community, they stay in.*" (FG1 EA 12)

"*There have been some attempts at simple first aid engagement, and these initiatives have been going for a few years already and are gaining momentum in terms of the number of students involved and the spread of the engagement across the community.*" (A 6)

As evidenced, students served as an important conduit in terms of capacitating lay community members with basic life-saving skills. One of the academics in the sample described how communities could benefit, as students who lived in given communities could train their own community members on emergency first aid responses. This was supported by participant six, who said that these initiatives

have gained momentum and benefitted the community, as they now have first aid skills, through student initiatives.

As evidenced in these narratives, there was tremendous potential to empower community members to develop resources such as masks and the delivery of essential medicines at a grassroots level. Participants highlighted the importance of using established community engagement partners to access communities, as they were the gatekeepers of such communities for mutual benefit and health promotion.

Participants also reported that paramedic students are at the forefront of the healthcare system, and they are best suited to provide health education to patients as follows:

"*During patient transport ... if there was more of an intentional engagement, you can give them medical advice to benefit the patient and ultimately the health system .... you're not just a sort of a transport system.*" (A 13)

"*The students can go into the field and show the people of the community what we do, ..., they have a better understanding as to why you need an ambulance. What goes into calling an ambulance and how to prioritise the use of EMS personnel.*" (FG2 S 2)

Participants shared that the transport process during emergencies created a rich opportunity for engagement. McManamny, Boyd, Sheen, and Lowthian (2022), however, said that paramedics are seen to be very accessible and should be consulted for general health care information, not just for emergencies. Academics perceived the paramedics' role during patient transport as focused on health education and illness prevention, which should be targeted to fit the needs of local communities. Communities should therefore see paramedics as a valuable health information resource.

Conclusion

Emergency medical care academics and students provide healthcare services to individuals with diverse healthcare and social needs, particularly within disadvantaged spaces. Through community engagement, particularly outreach, paramedic students have the opportunity to learn within these community spaces, and communities can also benefit through their health care initiatives, which are aimed at integrating healthcare services in resource-limited contexts. This study reflected how outreach acted as a pathway to strengthen health care whilst enhancing graduate attributes of social responsibility, within the paramedic profession. Moreover, community outreach initiatives can contribute to positive transformations within the community.

The study highlighted the type of projects that paramedic students can be involved in as part of student outreach and how communities can benefit within the areas of gender-based violence, nutrition, health emergencies, and preventative healthcare. The strength of outreach was further exemplified through student initiatives during the COVID-19 pandemic.

Limitations

The research was specific to the context of the Western Cape Province of South Africa. The findings could be generalized, which could be transferable to EMC academics or allied health professionals training in similar settings. Although the exploratory descriptive qualitative design used in this study is less common in EMC research than other qualitative approaches, it has been used by allied health scholars as a validated research method to uncover insights in health education that have received little or no attention.

Recommendations

A further exploration of emergency medical care collaborations and partnerships between higher education institutions, academics, community stakeholders, NPOs, EMS, and the government, and how these bring mutual benefit to both entities and improve health outcomes, needs to be conducted. Future research needs to focus on the relationship between learners' experience in community engagement and the health of a community through the social-ecological model. Research in local universities and EMC colleges should focus on the burden of disease, health care, and social justice issues in local communities surrounding these training institutions. This would mainly include marginalised communities characterised by high crime and violence, and deep rural areas where communities have limited access to health care. Research that measures the impact of community engagement activities in areas with a high volume of emergency calls, red zones, and rural communities with limited access to health care also needs to be conducted.

Acknowledgements

List of abbreviations

EMC – emergency medical care
EMS – emergency medical service

NPO – non-profit organisations

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