

# Perceptions of graduates from Africa's first emergency medicine training program at the University of Cape Town/Stellenbosch University

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## ABSTRACT

**Objective:** Africa's first postgraduate training program in emergency medicine (EM) was established at the University of Cape Town/Stellenbosch University (UCT/SUN) in 2004. This study of the UCT/SUN EM program investigated the backgrounds, perceptions, and experiences of its graduates.

**Methods:** This was a cross-sectional descriptive study. The study population was the 30 graduates from the first four classes in the UCT/SUN EM program (2007–2010). We employed a scripted interview with a combination of closed and open-ended questions. Data were analyzed using the thematic method of qualitative analysis.

**Results:** Twenty-seven (90%) graduates were interviewed. Initial career goals were primarily (78%) to practice EM in a nonacademic clinical capacity. At the time of the interview, 52% held academic positions, 15% had nonacademic clinical positions, and 33% had temporary positions and were looking for other posts. The three most commonly cited strengths of their program were diversity of clinical rotations (85%), autonomy and procedural experience (63%), and importance of being pioneers within Africa (52%). The three most commonly cited weaknesses were lack of bedside teaching in the ED (96%), lack of career options after graduation (74%), and lack of preparation for academic careers (70%).

**Conclusions:** The lessons identified from structured interviews with graduates from Africa's first EM training include the importance of strong clinical training, difficulty of ensuring bedside teaching in a new program, the necessity of ensuring postgraduation positions, and the need for academic training. These findings may be useful for other developing countries looking to start EM training programs.

## RÉSUMÉ

**Objectif:** Le premier programme de formation de deuxième cycle en médecine d'urgence (MU) en Afrique a été mis sur pied à l'University of Cape Town/Stellenbosch University (UCT/SUN) en 2004. La présente étude sur le programme de MU UCT/SUN portait sur les antécédents, les perceptions, et les expériences des diplômés.

**Méthodes:** Il s'agit d'une étude descriptive transversale. La population à l'étude était composée de 30 diplômés des quatre premières promotions du programme de MU UCT/SUN (de 2007 à 2010). Nous avons utilisé une interview préétablie comportant des questions ouvertes et des questions fermées. Les données ont été analysées à l'aide de la méthode thématique de l'analyse qualitative.

**Résultats:** Vingt-sept (90 %) diplômés ont été interviewés. Les principaux objectifs de carrière (78 %) étaient d'abord la pratique de la MU dans un milieu clinique. Lors de l'interview, 52 % des répondants occupaient un poste dans une université, 15 % occupaient un poste dans une clinique, et 33 % occupaient un poste temporaire et cherchaient une nouvelle affectation. Les trois avantages les plus souvent mentionnés relativement à ce programme étaient la diversité des rotations cliniques (85 %), l'autonomie, et l'acquisition d'expérience des procédures (63 %), ainsi que l'importance d'être des pionniers en Afrique (52 %). Les trois points faibles les plus souvent mentionnés étaient le manque d'activités d'enseignement du service des urgences au chevet du patient (96 %), la manque de possibilités de carrières après l'obtention du diplôme (74 %), ainsi que le manque de préparation à une carrière en enseignement (70 %).

**Conclusions:** Les leçons tirées des interviews structurées auprès de diplômés du premier programme de MU en

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Afrique comprennent les suivantes: l'importance d'une formation clinique solide, la difficulté à garantir des activités d'enseignement au chevet de patients dans un nouveau programme, la nécessité de garantir des emplois après l'obtention du diplôme, de même que la nécessité d'une formation pédagogique. Ces conclusions pourraient être

utiles pour d'autres pays en développement qui veulent mettre sur pied un programme de formation en MU.

**Keywords:** international emergency medicine, medical education, residency, South Africa

Emergency medicine (EM) is a relatively new field, with formal postgraduate training programs first starting in developed countries in the late 1970s.<sup>1</sup> In the last several years, some developing countries have begun to incorporate EM as a specialty and to develop their own training programs.<sup>2</sup>

South Africa is a country of 50 million that lies at the southernmost tip of Africa. It has the second wealthiest economy in Africa and is considered a middle-income country, ranking twenty-fifth in the world by gross domestic product.<sup>3</sup> Although medical emergencies of the developed world, such as heart disease and cancer, are prevalent, South Africa also has many of the health problems that plague poor African countries, including a 20% rate of human immunodeficiency virus (HIV) infection among adults.<sup>4</sup> South Africa has some of the highest rates of trauma and violence in the world, with approximately 66 trauma presentations per 1,000 population.<sup>5</sup>

South Africa's health care system is divided into public and private sectors. All academic training programs fall under the purview of the public sector, which serves over 80% of the population. In academic centres, doctors are salaried workers and paid by the government. Workforce needs are centrally determined, with the government allocating a set number of slots per public hospital.<sup>6</sup>

EM was recognized as a specialty in South Africa in 2003. In 2004, the University of Cape Town/Stellenbosch University (UCT/SUN) established the first EM training program in Africa. The program is a 4-year registrarship that is roughly the equivalent of a US residency. One major difference from the US training system, however, is that all registrars must have completed a minimum of 3 additional years of clinical training after medical school (2 years of rotating internship akin to the US transitional year and 1 year of community service as a general practitioner). The registrarship curriculum includes 30 months in the emergency department (ED), along with 3-month blocks of rotations in anesthesia, intensive care, obstetrics, pediatrics, otolaryngology/ophthalmology/psychiatry, and prehospital care. Training occurs at two urban tertiary-level teaching

hospitals with an annual ED census over 100,000 each and at three secondary-level regional hospitals with an annual ED census over 40,000. Two sets of examinations are required before graduates become board-certified EM specialists.<sup>7</sup>

Since its formation, the UCT/SUN EM program has graduated four classes for a total of 30 individuals. Currently, 43 registrars are enrolled in the program. Three other academic centres in South Africa have also developed EM training programs, and a number of African nations, including Botswana and Tanzania, are exploring options for EM training by looking to the UCT/SUN EM program as an example.

Three articles have described the history and evolution of the program and state of EM in South Africa,<sup>6-8</sup> but to date, there has been no evaluation of the UCT/SUN EM program. As burgeoning programs within Africa have started to duplicate its format and structure, it is critical to understand the experiences of the first group of the program's graduates to investigate the strengths and weaknesses of the programs and to identify lessons learned.

The goals of our investigation were to understand the background of the trainees who completed EM training in this novel program in South Africa; to trace their initial career trajectory; to identify the strengths and weaknesses that they perceived in their training program; and to describe the major challenges to the development of EM as a specialty in South Africa. Our overall aim is to identify lessons that may assist other developing countries looking to start EM training programs.

## **METHODS**

This was a cross-sectional descriptive study based on scripted interviews of subjects. The study population was composed of all graduates from the first four classes in the UCT/SUN EM program (2007–2010). All 30 individuals who completed the UCT/SUN EM program were invited to participate in the study. Individuals who began but did not complete the

training were not interviewed. Basic demographic information about them was collected and compared to those who comprised the study population. This study was approved by the Institutional Review Boards at UCT/SUN and at Partners Healthcare.

A five-part verbal questionnaire with a combination of open-ended and closed questions was developed in collaboration with two South African EM physician-educators and a senior US EM physician-educator. The use of scripted interviews was selected over anonymous paper questionnaires to allow for more open responses to be probed. The five topics addressed were background and prior training; initial career plans compared to current position; perception of teaching and other academic training; perceived strengths and weaknesses of the training program; and vision of EM in South Africa (Appendix).

The questionnaire was subject to a pretest in five US EM physicians. Based on their response, questions were edited for clarity. It was then further pilot-tested on 10 South African non-EM medical doctors. Their feedback on relevance to EM in South Africa and face validity were used to further refine this instrument.

Face-to-face interviews were conducted in Cape Town, South Africa. Individuals who were not in Cape Town were interviewed over the telephone. Interviews were conducted solely by the first author, a US senior EM resident not affiliated with UCT/SUN who holds a master's degree in economic history and is well-versed in narrative interview technique. Responses were recorded verbatim during the interview and deidentified except for year of training.

For questions with descriptive data, the transcripts were analyzed in accordance with the thematic method of qualitative analysis.<sup>9</sup> A primary data coder reviewed the transcripts, performed a preliminary manual coding of the themes for each question, and identified representative quotations for each theme. A secondary coder independently compared the primary coder's themes and representative quotations against the transcripts. The two coders discussed in person the draft analysis and reconciled minor differences; no kappa score was calculated. After major themes were identified for each "perceptions" question, percentages were manually tabulated into an *Excel* sheet and checked twice for accuracy by a research assistant. Simple descriptive statistics were calculated using *Excel* 2003 (Microsoft Corp., Redmond, WA).

## RESULTS

### Characteristics of study subjects

Twenty-seven (90%) graduates responded to requests for interview. Face-to-face interviews were conducted for 24 of these individuals in the Cape Town area. Three graduates chose not to participate in the research. One refused to participate, and two others initially consented to be interviewed but then were unable to be reached despite multiple e-mails and telephone calls. Basic demographic information (e.g., gender, country of origin, prior clinical experience) did not differ in the group that did not participate and the physicians who began but did not complete registrarship training.

All of the graduates interviewed were from South Africa (Table 1). The majority were from major urban areas. Most had significant work experience prior to starting postgraduate EM training, with half having worked outside South Africa in locum tenens positions, primarily in the United Kingdom but also in Ireland, Australia, and Canada. Two switched from another field (anesthesia), and one had completed 2 years of postgraduate training in Australia prior to withdrawing for personal reasons and starting over at the UCT/SUN program. All graduates stated that they chose postgraduate training in EM because they wished to be board-certified EM specialists practicing in EDs.

### Perceptions of training experience

The three most commonly cited strengths of their program were diversity of clinical rotations (85%; 95%

**Table 1. Demographics of the first four classes of graduates (2007–2010) in the UCT/SUN EM program**

Demographics	%
Male gender	59
From South Africa	100
From Cape Town	30
From urban area*	89
Completed ACLS, ATLS, PALS prior to starting EM training program	100
At least 1 yr of clinical training prior to starting EM training program <sup>†</sup>	85

ACLS = Advanced Cardiac Life Support; ATLS = Advanced Trauma Life Support; EM = emergency medicine; PALS = Pediatric Advanced Life Support; UCT/SUN = University of Cape Town/Stellenbosch University.

\*Defined as a metropolitan area > 1 million population.

<sup>†</sup>At least 1 year in addition to 3 years already required of all South African registrar candidates.

CI 81–89), autonomy and procedural experience (63%; 95% CI 57–69), and importance of being pioneers within Africa (52%; 95% CI 47–58). Specific comments regarding each of the strengths are compiled in Table 2. The three most commonly cited weaknesses were lack of bedside teaching in the ED (96%; 95% CI 94–98), lack of clear career options after graduation (74%; 95% CI 69–79), and lack of research training and preparation for academic careers (70%; 95% CI 65–75). The frequency of strengths and weaknesses cited did not differ by year of graduation. All respondents answered that they received direct feedback in fewer than 10% of their ED shifts.

The majority of graduates reported that their training prepared them well to practice independently at urban (93%; 95% CI 90–96) and rural (81%; 95% CI 76–86) EDs. The major reason for not being prepared for urban EDs was lack of management and supervisory experience. The one individual who did not feel well prepared for practice at an urban ED said, “I didn’t realize when I finished that I had to run a whole unit. Up to that point, I didn’t have experience making schedules, and definitely didn’t know about finances and dealing with

politics.” Among those who responded that they did not feel prepared to run rural EDs, the major reason cited was not feeling comfortable in resource-poor settings: “It’s very different to practice in a major academic centre in Cape Town with a lot of specialists to call on compared to a small hospital in the middle of nowhere where you are the only one.”

### **Initial career plan compared to current career**

At the time of the interview, 14 (52%) held academic posts, 4 (15%) had nonacademic clinical positions, and 9 (33%) had temporary positions and were looking for permanent posts. Of the 21 (89%) who stayed in South Africa, the majority practiced in urban locations (83%), and most stayed in Cape Town (78%). Three (11%) left for permanent overseas employment: one in the United Kingdom and one in Australia were settled into academic positions there; another was doing nonacademic clinical practice in an urban ED in the United Kingdom.

When asked what type of career they envisioned at the end of their first year of postgraduate EM training, 6 participants (22%) answered that they intended to

**Table 2. Perceptions of the major strengths and weaknesses of the UCT/SUN EM program**

Major strengths	% respondents	Representative comments
Diversity of clinical rotations	85	“We were fortunate to have so many well-planned rotations that enhanced our EM skills.” “The rotations were diverse and excellent, ranging from great ICU blocks to EMS to related specialties like pediatrics and anesthesia.”
Autonomy and procedural experience	64	“Even as junior registrars, we were expected to supervise everyone else in the ED. We had to handle a high volume of patients.” “Now that I’ve graduated, I’m completely comfortable seeing all types of patients and performing any procedure that comes my way.”
Importance of being pioneers within Africa	52	“Being among the first several classes, we got to shape our program and make significant improvements to it.” “I was excited to be among the first group of graduates within Africa because we can pave the way for other programs on the continent.”
Major weaknesses	% respondents	Representative comments
Lack of bedside teaching in the ED	96	“There were very few senior EM faculty, so we had to rely on teaching from non-EM supervisors on rotations.” “In the ED, we mainly taught each other. We were close and had excellent camaraderie, and a lot of people had significant clinical experience, but we all wanted more direct supervision and teaching.”
Lack of clear career options after graduation	74	“There are more of us graduating than there are specialist posts. It wasn’t clear to us whether we could get posts coming out of training. This led to a lot of uncertainty.” “I know that many people, including myself, are looking for positions overseas. We don’t want to leave South Africa, but we just can’t find specialist posts here.”
Lack of research training and preparation for academic careers	70	“Our training prepares us to be good clinical doctors, but we don’t have exposure to management and research.” “We need more training in how to be researchers and leaders in academic medicine.”

ED = emergency department; EM = emergency medicine; EMS = emergency medical service; ICU = intensive care unit; UCT/SUN = University of Cape Town/Stellenbosch University.

enter a career in academic EM compared to 21 (78%) who intended to enter nonacademic clinical practice. Two (7%) stated a specific desire to practice overseas. Only one (3%) intended to practice in a rural environment; the rest (97%) stated a preference for urban practice. Figure 1 and Figure 2 contain graphical comparisons of initial compared to current career trajectories.

Most of the initial groups of graduates (78%; 95% CI 73–83) reported that they received little to no mentorship regarding career options. Only two of the six who initially desired to enter academics ended up in academic posts. Of the remaining four, one took up a private practice position in another major city (Durban, South Africa) and the other three were actively looking for academic posts at the time of the interview. The 12 who ended up in academics who had not initially set out to do so reported that the change was due to love of teaching and research that developed during training (42%) and availability of posts (58%). As a member of the latter group remarked, “They needed new graduates to assume leadership roles. A job

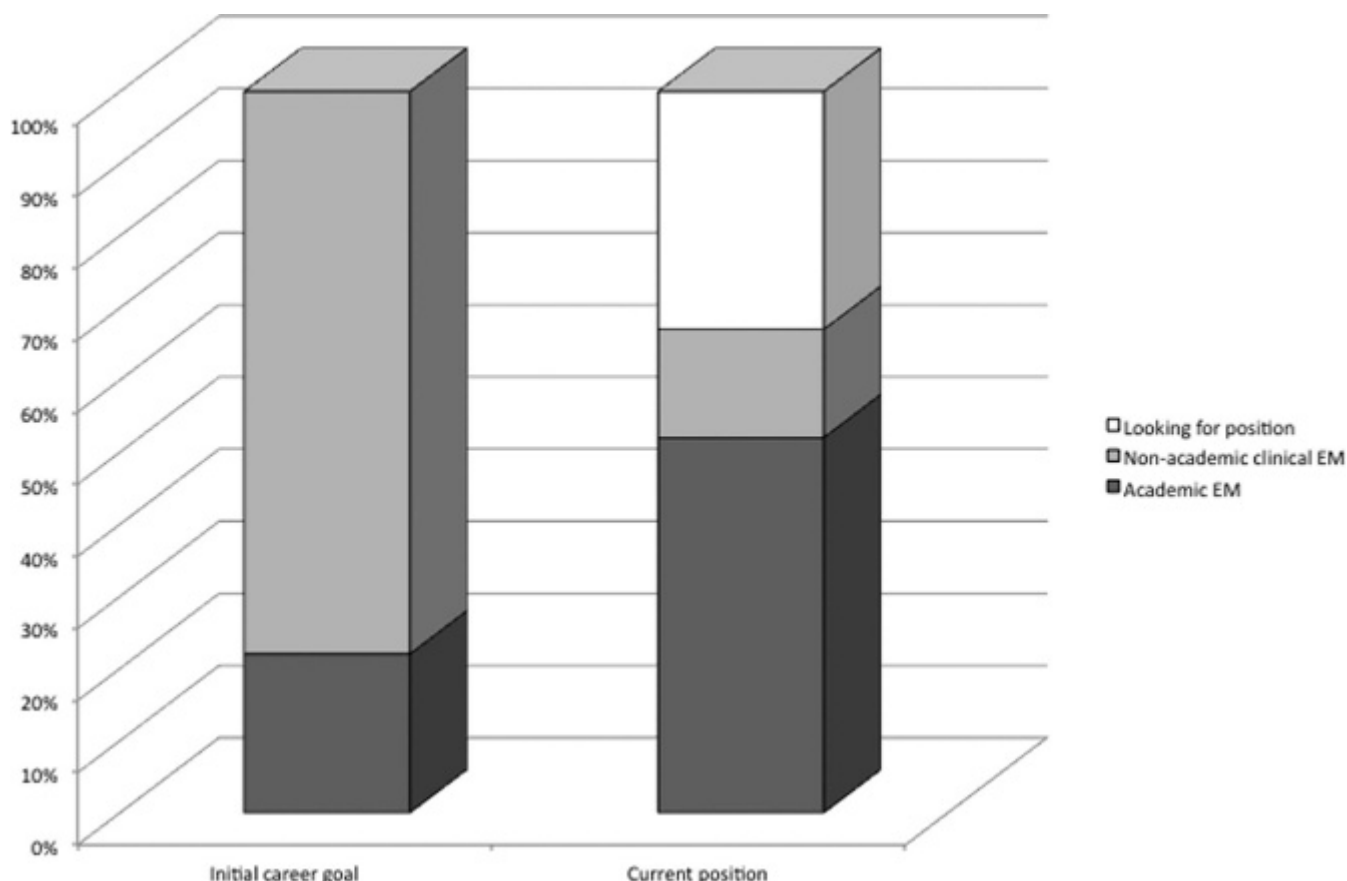
came up, and although I never saw myself as a teacher and leader, I took it.”

**Perception of EM in South Africa**

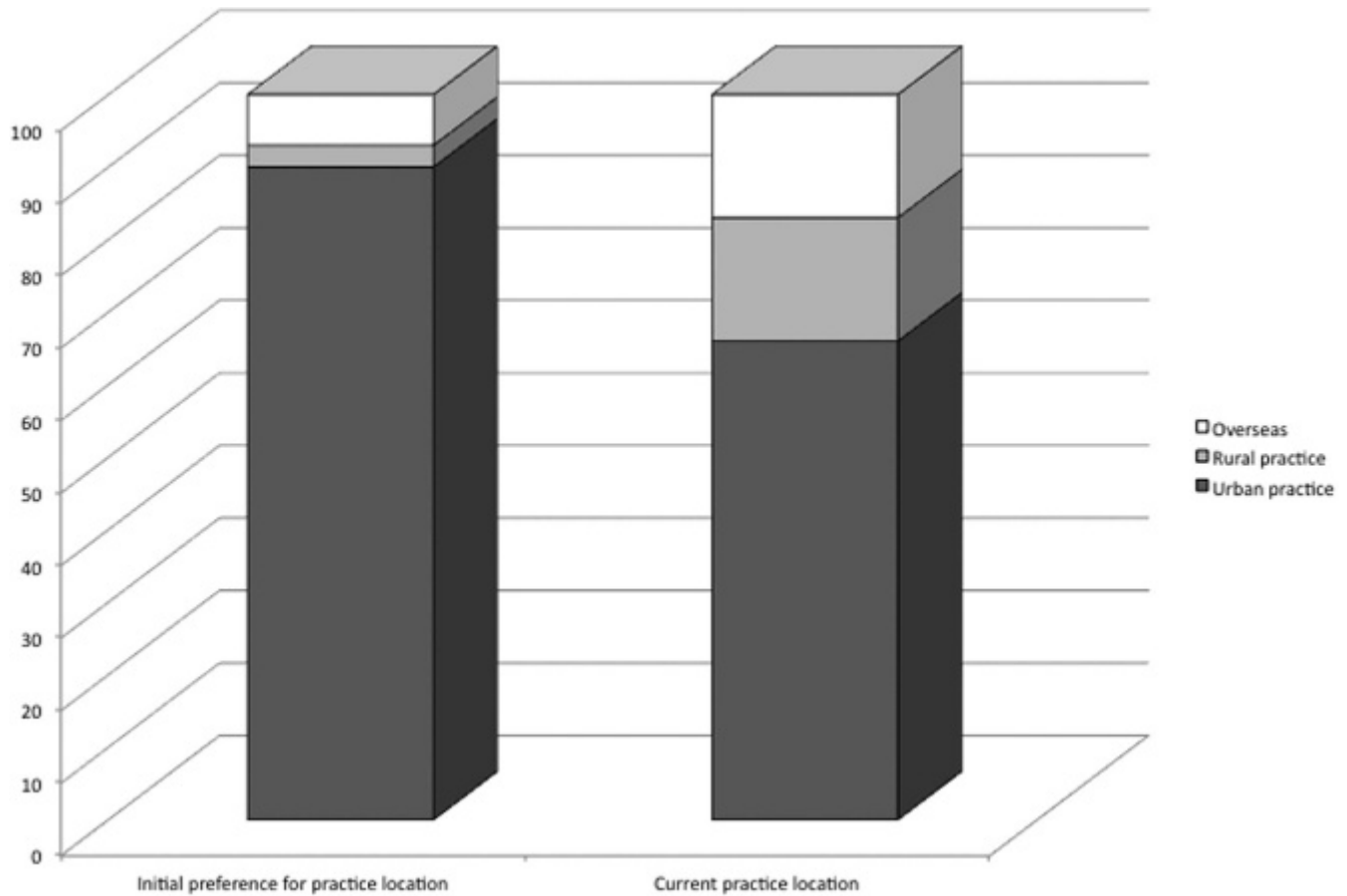
The major challenges identified to the development of EM as a specialty in South Africa were the political will of the government to fund EM posts (100%), respect and recognition from other specialties (100%), and spread of EM beyond cities to rural areas (59%; 95% CI 53–65). When asked to specify their vision for EM in South Africa, respondents cited three major themes: EM specialists staffing every ED in major hospitals (78%; 95% CI 73–83), EM as a recognized specialty in its own right (74%; 95% CI 69–79), and South Africa as an emerging leader in EM to spread EM to the rest of Africa (48%; 95% CI 42–54). Table 3 contains specific comments about respondents' challenges and vision.

**DISCUSSION**

Five major themes can be identified from this study of graduates from the pioneering EM program in Africa.



**Figure 1.** Initial career goal after 1 year of training compared to current position. EM = emergency medicine.



**Figure 2.** Initial preference for practice location compared to current practice location.

First, strong clinical training is paramount. That the respondents felt that their program prepared them well clinically and remarked on clinical training being a key

strength of the UCT/SUN EM program is a testament to the careful planning and coordination that went into conceptualizing the training program.<sup>6-8</sup> Nascent EM

**Table 3. Perception of major challenges and vision for the future of EM in South Africa**

Major challenges	% respondents	Representative comments
Political will of government to fund EM posts	100	“In order for EM to grow as a specialty, we need to have a critical mass of EM practitioners. The government needs to fund posts for specialists to teach EM in cities and direct EM in more rural locales.”
Respect and recognition from other specialties	100	“We need acceptance from other specialties. Their buy-in is important as we look to expand our scope of practice.”
Spread of EM beyond cities to rural areas	59	“The problem of emergency care in South Africa isn’t just in the cities. We have to train not just doctors but also nurses and midlevel practitioners who can provide quality emergency care in rural areas.”
Vision	% respondents	Representative comments
EM specialists staffing every ED in major hospitals	78	“We need to show that the standard of emergency care is higher when EDs are staffed by EM specialists. Then we need to make sure that there are EM specialists working in every hospital’s ED.”
EM as recognized specialty in its own right	74	“My hope is for EM to be recognized as a legitimate specialty in South Africa, not just as a sister of medicine and surgery.”
South Africa as an emerging superpower in EM to spread EM to the rest of Africa	48	“We will improve our training program so that South Africa becomes a superpower in EM like the US, UK, and Australia. We can be a beacon of hope for the rest of Africa.”

ED = emergency department; EM = emergency medicine.

programs should aim, first and foremost, to have strong clinical curriculum with diverse and well-integrated rotations that provide ample opportunity to learn clinical management and critical procedures.

Second, a major weakness identified by graduates was a lack of bedside teaching in the ED. This was attributed to the lack of senior EM practitioners when the program first began,<sup>8</sup> a problem that will likely apply to any developing nation starting a new training program. South Africa did attempt to address this problem by grandfathering in about two dozen practitioners; however, most of them did not practice in academic settings.<sup>7</sup> To supplement bedside teaching, new EM programs should consider adopting the teaching methods recommended by the International Federation of Emergency Medicine's consensus group, including structured didactics, formal evaluation processes, one-on-one mentorship, and simulation sessions.<sup>10</sup>

Third, the success of a training program hinges on its identifying a future for its graduates. In the beginning, when the program first began, there were academic posts to be filled at UCT/SUN; now, with four classes of graduates, virtually every open position has been filled. As a result, even though most EDs in Cape Town are still staffed by non-EM physicians, few EM specialist positions are available to the entire 2011 graduating class (and to the nine graduates who are seeking permanent posts). As seen in our study, this lack of posts has created disillusionment. Those who completed the program but cannot find posts in South Africa are considering leaving for more lucrative positions overseas, exacerbating the "brain-drain" away from Africa.<sup>11-13</sup> Although the number of jobs has decreased over the years, the strengths and weaknesses identified by respondents were similar over the four class years. We speculate that this is due to later graduates having clearer expectations coming into the program. Thus, although the primary responsibility rests with the government to create more EM specialist posts, new training programs should take heed and try to ensure that specialist posts exist for their graduates, as well as set expectations to matriculants accordingly.

Fourth, an unexpected challenge that other new programs could encounter is the need for academic training for the initial classes of graduates. Due to the lack of senior EM practitioners, the first groups of UCT/SUN EM graduates were expected to assume immediate leadership roles—a position that, given their initial career preferences, the graduates themselves had

not anticipated. Perhaps as a result, a major weakness identified was the lack of research and academic training. In addition to focusing on clinical skills, new programs have the additional duty to prepare graduates for academic exposures with research exposure, teaching and supervisory experiences, and management training. These goals are consistent with the core competences as established by the US Accreditation Council for Graduate Medical Education and the Royal College of Physicians and Surgeons of Canada.<sup>14,15</sup>

Fifth, even though development is expected to occur first in urban areas, new programs should eventually aim for graduates to take leadership roles and practice in rural locations. Most new graduates remained in Cape Town, a finding that is not unexpected given the deficiency of EM providers in rural areas in other countries<sup>16</sup> and given that all but one individual stated an initial preference to practicing in an urban setting. As critical mass develops in urban areas around major academic centres, the government needs to be proactive about decentralizing posts, and training programs should encourage new graduates to consider practicing in and elevating the level of emergency care in rural and semirural areas.

### **LIMITATIONS**

This is a cross-sectional descriptive study based on an in-person interview using a scripted verbal questionnaire. One limitation is that our study instrument is not validated. To our knowledge, there is no validated instrument that examines perceptions of EM residents in developing countries. Our questionnaire was subject to two stages of pilot testing to ensure clarity and contextual appropriateness. Questions were simple and noncompound, and there should be little confusion regarding interpretation of the factual background questions or the questions about perception of strengths/weaknesses and challenges/vision.

There could be recall bias with questions regarding initial career plans as envisioned after 1 year of training; however, in aggregate, the initial career plan differed from the current position, and respondents were able to identify the discrepancy and explain why they made the change.

Three graduates (10%) chose not to participate in the research: one did not wish to participate in the project, and two initially consented to be interviewed but then were unable to be reached despite multiple

efforts to be contacted. We also did not include those who did not complete the program. If their experience or responses differed markedly from those of graduates studied, this could introduce a selection bias. Available demographics for both groups of these individuals do show that they are similar in terms of years of prior training, gender, and place of origin.

Another limitation could be perceived lack of confidentiality. It was made clear to the participants that the answers were anonymous and would be deidentified other than by year of training. Given that the interviewer was not affiliated with the program or involved in any supervisory capacity over the respondents, we expect that respondents were able to answer truthfully. That the answers were truthful is suggested by responses to questions such as amount of bedside teaching and mentorship.

## CONCLUSIONS

Scripted interviews of graduates of Africa's first EM program highlight the dichotomy of South Africa being a relatively wealthy country while still plagued with problems of the developing world, in particular issues such as funding for specialist posts. As the UCT/SUN EM program continues to grow, it will be instructive to follow the first graduates of this pioneering program and compare their paths to the experiences of future classes. We hope that the strengths and weaknesses, challenges and vision identified by the first four classes of graduates can aid other nations in Africa and the developing world as they design their own EM training programs and promote EM as a specialty.

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## REFERENCES

1. Arnold JL. Lessons learned from international emergency medicine development. *Emerg Med Clin N Am* 2005;23:133-47, doi:[10.1016/j.emc.2004.10.001](https://doi.org/10.1016/j.emc.2004.10.001).
2. Alagappan K, Schafermeyer R, Holliman CJ, et al. International emergency medicine and the role for academic emergency medicine. *Acad Emerg Med* 2007;14:451-6.
3. Central Intelligence Agency, *The world factbook*, Available at: <https://www.cia.gov/library/publications/the-world-factbook/geos/sf.html> (accessed April 19, 2011).
4. Perrott CA. Emergency medicine in South Africa: a personal perspective. *J Emerg Med* 2003;25:325-8, doi:[10.1016/S0736-4679\(03\)00215-4](https://doi.org/10.1016/S0736-4679(03)00215-4).
5. Wallis LA, Twomey M. Workload and case mix in Cape Town emergency departments. *S Afr Emerg J* 2007;97:1276-80.
6. Wallis LA, Garach SR, Kropman A. State of emergency medicine in South Africa. *Int J Emerg Med* 2008;1:69-71, doi:[10.1007/s12245-008-0033-3](https://doi.org/10.1007/s12245-008-0033-3).
7. Wen LS, Geduld HI, Nagurney JT, et al. Africa's first emergency medicine training program at the University of Cape Town/Stellenbosch University: history, progress, and lessons learned. *Acad Emerg Med* 2011;18:868-71, doi:[10.1111/j.1553-2712.2011.01131.x](https://doi.org/10.1111/j.1553-2712.2011.01131.x).
8. Balfour C. Emergency medicine—a new era in South Africa. *S Afr Med J* 2006;96:47-8.
9. Bradley EH, Curry LA, Devers KJ. Qualitative data analysis for health services research: developing taxonomy, themes, and theory. *Health Serv Res* 2007;42:1758-72, doi:[10.1111/j.1475-6773.2006.00684.x](https://doi.org/10.1111/j.1475-6773.2006.00684.x).
10. International EM Core Curriculum and Education Committee for the International Federation for Emergency Medicine. International Federation of Emergency Medicine model curriculum for emergency medicine specialists. *CJEM* 2011;13:109-21.
11. Mullan F. The metrics of the physician brain drain. *N Engl J Med* 2005;1810-8.
12. Wen LS, Greysen SR, Kesthelyi D, et al. Social accountability in health professionals' training. *Lancet* 2011. April 6. [Epub ahead of print]
13. Wen LS, Char DM. Existing infrastructure for the delivery of emergency care in post-conflict Rwanda: an initial descriptive study. *Afr J Emerg Med* 2011;18:868-71, doi:[10.1016/j.afjem.2011.07.004](https://doi.org/10.1016/j.afjem.2011.07.004).
14. Accreditation Council of Graduate Medical Education. *Core competencies*. Available at: [http://www.acgme.org/acwebsite/RRC\\_280/280\\_corecomp.asp](http://www.acgme.org/acwebsite/RRC_280/280_corecomp.asp) (accessed July 20, 2011).
15. Royal College of Physicians and Surgeons of Canada. *The CanMeds Physician Competency Framework*. Available at: <http://rcpsc.medical.org/canmeds/index.php> (accessed July 20, 2011).
16. Muelleman RL, Sullivan AF, Espinola JA, et al. Distribution of emergency departments according to annual visit volume and urban-rural status: implications for access and staffing. *Acad Emerg Med* 2010;17:1390-7, doi:[10.1111/j.1553-2712.2010.00924.x](https://doi.org/10.1111/j.1553-2712.2010.00924.x).

## APPENDIX: SCRIPTED VERBAL QUESTIONNAIRE

*Opening script:* Hello and thank you for taking part in this survey. I'm Dr. XXX, a resident emergency physician from the US working with Professor XXX at UCT/SUN. As I wrote in the introductory e-mail,



this is a 30-minute interview about your experiences in the UCT/SUN emergency medicine training program. The purpose of our research is to examine the experiences and perceptions of the first few groups of graduates of South Africa's first EM training program. We hope to use the information obtained to improve EM training in your program, in South Africa, and in the rest of sub-Saharan Africa and other developing countries that are looking to start up their specialty EM training. This survey is anonymous, and there will not be any identifying information attached to your answers. Participation in this survey is entirely voluntary. If you decide at any moment that you do not wish to participate, you can terminate the questions. Can you please confirm your willingness to participate in this survey?

Thank you. Once again, I appreciate your taking part in this project.

Let's start with a few factual questions.

*[Background and prior training]*

1a) What is your year of graduation from EM training? (This is the sole identifier that is recorded.)

1b) What is your city and country of origin?

1c) Where did you attend medical school?

1d) What year did you graduate from medical school?

1e) What (if anything) did you do between graduation from medical school and starting EM training?

1f) Where are you practicing now? [IF NOT OBVIOUS] Is it an academic or community practice? Is it in an urban or rural setting?

I want to begin by asking you a few questions about your EM training and career path.

*[Initial career plans v. current position]*

2a) Did you have experience in EMS/paramedic training prior to starting postgraduate EM training?

2b) Why did you choose postgraduate training in EM?

2c) If you didn't enter EM, what specialty would you have chosen?

2d) During your first year of postgraduate EM training, what kind of career did you envision? Specifically, academic versus community? Urban versus rural?

2e) Did you get mentorship within your training program to support this initial career plan?

2f) [IF ANSWER TO 2D DIFFERENT FROM 1F] What factors made you decide to change your initial career plans?

The next set of questions is about your postgraduate EM training at the UCT/SUN EM program.

*[Perception of teaching and other academic training]*

3a) Did you take courses like ACLS, ATLS, PALS? On a scale of 1 to 5, with 1 being not helpful at all, 3 being neutral, 5 being very helpful, how important do you think it is for EM practitioners to take these courses?

3b) During what percentage of shifts in the emergency department did you get at least 1 minute of feedback about your clinical skills? On a scale of 1 to 5, 1 being not at all important, 3 being neutral, 5 being very important, how important was this feedback?

3c) How often over your entire EM training did you meet with a faculty member to discuss your career options? Was this person assigned to you, or did you find them yourself? On a scale of 1 to 5, 1 being not at all important, 3 being neutral, 5 being very important, how important were these meetings?

3d) Did you work on an academic research project? How did you identify your research mentor? On a scale of 1 to 5, 1 being not at all important, 3 being neutral, 5 being very important, how important was research during your training?

3f) Please rate on a scale of 1 to 5, 1 being not at all comfortable, 3 being neutral, 5 being very comfortable. Do you feel that your EM training prepares you to practice independently at an urban hospital? At a rural hospital? Teaching medical students?

I want to ask now about your perceived strengths/weakness of your training.

*[Perceived strengths/weaknesses of training program]*

4a) What are three major strengths of your training program?

4b) What are three major weaknesses of your training program?

Finally, a few questions about the future of EM

*[Vision for EM in South Africa]*

5a) What are three major challenges to EM's development as a specialty in South Africa?

5b) I know that you are committed to the practice of EM and its future. What is your hope for EM in South Africa and for Africa over your professional lifetime?

Thank you very much for taking the time to participate in this survey. I appreciate your time and effort. I would be happy to share the results of the survey with you when we have compiled them. If you have any follow-up thoughts or questions, please feel free to contact me at XXX (e-mail address and telephone number).