



Original Article

Perceptions and reflections of early graduates of the first emergency medicine residency program in Ethiopia: A qualitative study

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ABSTRACT

Introduction: A bi-institutional partnership between physicians at Addis Ababa University, Ethiopia and the University of Toronto, Canada led the development and implementation of a novel emergency medicine (EM) postgraduate training program at Addis Ababa University (AAU). Subsequently, the first three cohorts of trainees were invited to participate in the evaluation of the curricular components devised and delivered by Toronto EM physicians as part of the Toronto Addis Ababa Academic Collaboration in EM (TAAAC-EM). We sought to characterise the strengths and weaknesses of the curriculum to improve it for future trainee cohorts.

Methods: This curriculum assessment used semi-structured, in-depth individual interviews to evaluate components of the TAAAC-EM program curriculum. Interviews were conducted with a purposive sampling of graduates from the first three cohorts of the TAAAC-EM program.

Results: Twelve participants were interviewed. The following themes were identified; The TAAAC-EM program built a novel EM culture at AAU and shifted teaching from didactic to learner-centered strategies where teachers serve as role models; The curriculum content of the EM resident program, including didactic and practical sessions, was well received by the graduates interviewed; Challenges identified included lack of continuity in training, and difficulties transitioning to practice in a locally nascent field; Participants evaluated the TAAAC-EM program model as very positive overall, and supported replicating the model by expanding within Ethiopia and beyond.

Conclusions: The challenges identified in the program, including lack of continuity of clinical teaching and meeting the local educational resource needs of new graduates, helped inform program adaptations and improvements. TAAAC-EM, currently in its eleventh year, is now focused on transitioning full teaching responsibilities to local faculty and continuing to support a positive EM teaching culture. We believe that this thriving partnership can serve as a model for future north-south and south-south collaborations in postgraduate medical education.

African relevance

- Our assessment applies to south-south or north-south partnerships looking to implement EM residency programs.
- Our findings highlight graduates' perceptions of the content and organization of their emergency medicine training.
- This assessment contributes to the growing literature on emergency medicine development throughout the African continent.

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Introduction

Ethiopians face a high burden of acute illness and injury inadequately addressed by their existing health system. To address this unmet health care need, the Ethiopian Ministry of Health approved emergency medicine (EM) as a newly recognised medical specialty in 2008 [1]. Shortly following this recognition, the Addis Ababa University (AAU) School of Medicine established Ethiopia's first postgraduate residency training program in EM.

In 2009, the Toronto Addis Ababa Academic Collaboration in Emergency Medicine (TAAAC-EM) was established following an invitation from AAU for University of Toronto (UT) EM faculty to partner with a taskforce of non-EM AAU faculty to establish and run AAU's EM residency program. This bi-institutional collaboration represents a now long-standing partnership committed specifically to the development and implementation of the EM residency training program at AAU, and to the broader development of EM in Ethiopia overall.

TAAAC-EM brings two UT EM faculty and one senior EM resident for three month-long teaching trips per year to coincide with the AAU EM residents' core EM rotations. Two faculty curriculum co-directors and one curriculum coordinator at UT developed and oversaw implementation of the EM curriculum content [2]. The residency program launched in September 2010. To date, 61 EM specialists have graduated from AAU and 42 residents ((Post graduate year (PGY) 1–3)) are in active training.

Prompted by teaching feedback gathered throughout our initial three years of implementation, we undertook this formal study to understand the perceptions and reflections of the initial cohorts that received the TAAAC-EM curriculum (i.e. the first three cohorts of trainees consisting of 15 total graduates). Specifically, we sought to characterise the strengths and weaknesses of the delivered curriculum and the TAAAC-EM model, to improve the curriculum for future trainee cohorts and to inform future potential TAAAC-EM model expansion in Ethiopia.

Methods

This paper is a qualitative, descriptive study consisting of semi-structured individual interviews using purposive sampling. Inclusion criteria were all graduates from the first three years of the program (15 candidates total). There were no exclusion criteria. Interviews were conducted in Addis Ababa, Ethiopia in April 2016.

A semi-structured interview guide in English, the main language of medical interactions in Addis Ababa University, was organised around the educational components of the TAAAC-EM program to explore strengths and weaknesses for future program improvement and development. The questions and prompts were exploratory in nature, allowing for differences in participants' perceptions and experiences to emerge during the interviews.

Research Ethics Board approval was obtained at the University Health Network Hospital (Study ID #15-9585) in Toronto, Canada and the Addis Ababa University College of Health Science Institutional Ethics Review Board. No financial incentive was offered for participation in the study. All study recordings and documents were kept private, and confidentiality was maintained.

Participants included the first three cohorts from the AAU EM residency program. A total of 15 candidates were invited to participate. All interviews were conducted post-graduation. Study participants received an invitation for voluntary participation by email. Informed written consent was obtained by the study interviewer (EF) directly prior to each interview. Interviews were conducted in-person, and if unable by phone, and were audio recorded with permission from the participants, transcribed and de-identified prior to thematic analysis by three study researchers.

Reflexive thematic analysis grounded in a realist approach was employed, with interviews as the unit of analysis [3]. Two study researchers (NM and CH) independently read and coded two transcripts

for emerging themes. The researchers' views and comments were recorded as marginal notes during the coding/theme development phase with the goal of focusing on the emerging concepts. The coding framework was shared, and the two researchers plus a third researcher individually contributed to the final coding framework. These three study members then met to establish inter-coder reliability and determine themes and sub-themes. Participant answers were sorted verbatim into theme categories, and the most relevant answers in each category were selected by each of the researchers. The frequency of similar answers was not evaluated. Discrepancies were resolved through discussion and input from the third researcher. This process was reflexive as the first two researchers, both involved in the curriculum development, considered any personal biases throughout the data analysis, with the third researcher providing an unbiased perspective.

Results

A total of 15 eligible candidates were contacted to participate in the study (Table 1).

All interviews were completed in April 2016, and interviews ranged from 20 to 45 min in duration. During the interview period, two candidates were unavailable due to personal leave. One interviewee did not complete the interview due to competing clinical duties during the time of the call. Hence, twelve interviews were conducted. Interviews were conducted in-person (10), and if unable, by phone (2). All interviews were included in this analysis.

We organised our findings into seven broad themes. All quotations contain the original language used by our interviewees and have been lightly edited for grammatical errors, recognising that English is the participants' second language. The identified themes were as follows:

Creating a novel emergency medicine culture: All interviewees expressed that the TAAAC-EM curriculum shifted their mindset towards emergency care concepts and scopes of practice on an individual practitioner level.

"I've learned to act fast. I've learned what EM is really about.... like as medical students... if a patient is bleeding or he can't really breathe I would always start from the history, that was what the prior medicine was like. But after they [UT EM faculty] came, they introduced emergency medicine" (Interviewee 10).

However, the interviewees indicated that the culture shift went beyond the individual experience, and was positively influenced at the departmental, hospital and health care system levels as well.

"...even the idea has sunken into other departments also, so it has changed." (Interviewee 10).

Educational shift from a didactic method to a learner-centered model: Interviewees felt strongly that TAAAC-EM teaching teams played a significant role in shifting both the processes of learning and the teacher-learner relationship. Process changes that were identified included a shift from lecture-based didactic learning to a stronger focus on bedside learning led by experienced physicians supplemented with relevant clinical teaching in the classroom.

Table 1
Participant information.

Residency cohort	Years practicing	Sample size achieved	Description of participants
1; Graduation year 2013	3	4	2 female, 2 male
2; Graduation year 2014	2	5	2 female, 3 male
3; Graduation year 2015	1	3	3 male

“Now I am trying to change, I am creating more friendly slides for [my learners], more of not fully crowded type of slides, more of evidence-based slides. And I'm trying to create a really welcoming environment, that's what I get from the TAAAC-EM.” (Interviewee 11).

Interviewees identified a positive teacher-learner relationship with particular emphasis on faculty approachability and availability.

“I think it has changed our way of thinking and learning and teaching process. It has affected our approach to our residents and communication with each other and so it has changed us a lot in a positive way, especially considering the teaching/learning relationship.” (Interviewee 1).

Clinical teachers role modeling in comprehensive physician skills: The TAAAC-EM role modeling extended beyond the teacher-learner relationship, and an attitudinal shift in everyday physician-patient interactions was identified by the majority of participants.

“They have changed the way I approach my patients. And in a way it's considering their dignity, being compassionate, being respectful and prioritising their needs according to their medical problems and explaining to the patients what we are going to do. Communication skills as well as ethical considerations were greatly enhanced.” (Interviewee 1).

The role-modeling and resident learning provided by the TAAAC-EM team also extended into areas such as leadership.

“They also showed us some leadership qualities, which is a real advantage for us [...] five, six years back it was chaotic. [...] Because they taught us how to lead it. They taught us how we could change things.” (Interviewee 2).

Positive reception of didactic, practical and clinical components of the curriculum.

Overall, the content, organization, and delivery of the three-year TAAAC-EM curriculum consisting of didactic sessions (clinical, clinical epidemiology, administration, journal club) and practical sessions (simulation and procedural workshops) during residents' core EM rotations at AAU were very well-received.

“...well researched and they are well updated [—] I always refer to them whenever I have difficulties, especially with my students, teaching.” (Interviewee 2).

“Journals were well chosen... those journals that we discussed in our journal club, we never forget those. Because they select the best papers.” (Interviewee 2).

Simulation sessions were identified as a highly valuable, novel component of the program, with the caveat that the learners almost unanimously desired more sessions.

“TAAAC-EM would have been the first to really do sims again and again for residents to consolidate whatever clinical teaching was being done.... I know how to create cases, I know which topics would be best taught by simulations and which will not be. I can choose that because of my experience with the TAAAC-EM team.” (Interviewee 2).

“The simulations are very important as we all know. And it is very helpful but I think the numbers are limited. And we should have more. If there is any way to practice when there is no teaching team, that should be good.” (Interviewee 12).

A few issues were identified around timing and spiraling of the

curriculum content, specifically around graded educational content and the non-clinical content including the clinical epidemiology and administration curricular streams.

The EM administration curriculum was deemed important for future careers of specialists in a country where EM was nascent.

“These are also very important because... when we are going to different hospitals, our own new emergency, we need to know the administration as well. It was very helpful...” (Interviewee 12).

However, it was expressed that the EM administration curriculum competed with clinical learning during the first year of training, and would be better reserved for the senior years (PGY2–3).

“We don't want to hear about leadership, about ED management during PGY-1. Cause you know the importance while you are senior residents, while you want to communicate with someone else. So these sessions are very important in senior years.” (Interviewee 9).

The nine-lecture clinical epidemiology series developed and delivered by TAAAC-EM was generally regarded by graduates as a necessary AAU requirement to complete mandatory research projects and would be temporally better suited to the latter part of the residency program.

“We were doing our research projects during our final year, so there lots of time that lapsed between [clinical epidemiology] training and the actual process of doing the research.” (Interviewee 1).

The context specificity of the clinical didactic teachings were largely regarded positively, with several interviewees identifying specific areas for improvement.

“Most of our patients will stay in our department for a longer period of time and considering that, our clinical teaching round bedside has to also be oriented based on the patients nature and length of stay in our department.” (Interviewee 4).

Challenges of maintaining teaching continuity: A few challenging operational elements of program delivery, mainly due to a discontinuity in core EM educational exposures, were identified. In the first few years of the program, AAU EM residents only had exposure to EM faculty during TAAAC-EM teaching trips. They then completed mainly off-service rotations in the remaining months of the year.

“During their presence there would be teaching and learning process and the emergency would be active. But when they leave the ED for two-to-three months, there was no teaching at all. And it will only start after they came. In between there is a break of educational process. If it has continuity that would be great.” (Interviewee 8).

This had important implications in a nascent program where there were a paucity of physician teachers with EM expertise.

“Greatest disadvantage was lack of continuity ...when they go back to their home you are alone and EM is a unique field and no one understands.” (Interviewee 6).

As residents became more senior, their clinical responsibilities at times interfered with teaching sessions due to a lack of protected teaching time.

“Most of the time residents will be busy, in the department on service and they will be parallel classroom teaching and that has created some gap between, like some of the students or resident will be tired. For me there was a lot of time where I have been obliged to miss this classroom teaching.” (Interviewee 4).

Overall, it was felt that continuity in EM teaching and expert faculty

presence year-round would be an important and welcome addition to the TAAAC-EM program.

“They should have some residing clinicians and EM specialists. Not only the TAAAC-EM alone. I recommend that. Because the presence of that faculty member is important.” (Interviewee 9).

Supporting transition to practice: The TAAAC-EM curriculum facilitated some aspects of transition to practice, such as developing an understanding of system issues.

“In my current practice, things that is helping me is the system management... that has actually helped me to see the, I mean the root cause of the problems we have there... so administrative wise, the things, the facility, the equipment, and everything has been structured based on this experience that I have got from this residency program.” (Interviewee 4).

Many graduates expressed a need for additional support during their transition to practice in a new medical field where the EM infrastructure, resources, peer support and in-country expertise was very much still under development.

“As new faculty and as we are now shouldering most of the responsibility, I would have liked if we were more engaged in other collaborative stuff with the Toronto team. Like the university, maybe even teaching activity and also on-job trainings for us.” (Interviewee 2).

Support for model expansion: The sentiment towards the TAAAC-EM model was unanimously positive, with emphatic support for model replication in other parts of Ethiopia to help foster expertise development in satellite Ethiopian regions and training hospitals.

“I think it should be continued if it is possible cause we need so much emergency physicians for this country and only the Black Lion TAAAC-EM is not enough to cover all those needs, and I think if it is possible it would be nice. And even I recommend to establish a link to other institutions especially Jimma, Hawassa, Mekelle and so on.” (Interviewee 3).

However, the challenges identified earlier were highlighted for future consideration and improvements, should the model be replicated.

“Three-to-four months a year is not enough. Especially to start a program, at the beginning, especially at the first year... it should be more.” (Interviewee 10).

Discussion

This qualitative study provides strong support for the TAAAC-EM model as a thriving north-south bi-institutional partnership that has successfully developed and delivered postgraduate medical training in a novel medical specialty. Participants identified that this educational partnership model effectively introduced and cultivated clinical and administrative EM concepts at the individual and systems level. Further, a positive shift was identified in the traditional Ethiopian medical teaching and learning culture, specifically stronger teacher-learner-mentor relationships, patient-centeredness, and leadership. The curriculum content was received positively, with an expressed desire for increased simulation opportunities and better spiraling of content by tailoring topics to senior residents.

Two main challenges were identified that centered around the complexities of developing and implementing a postgraduate training curriculum in a nascent field with limited local expertise. First, graduating residents identified a void in local EM infrastructure, resources and

peer-support during their transition to practice as Ethiopia's first EM specialists. Second, the short-term, intermittent nature of TAAAC-EM teaching trips was identified as an ongoing challenge. During the months when the TAAAC-EM teaching teams were absent, so was the EM clinical expertise they brought with them. The TAAAC-EM team, keenly aware of this problem, implemented several ‘distance-bridging initiatives’ to alleviate this, including a distance mentorship program and regular videoconferencing clinical teaching sessions. Unfortunately, scheduled videoconferencing sessions were frequently impeded by poor internet connectivity in the early years of the program.

In the years since this study was conducted, the challenges have been eased by a growing cadre of local graduates that have taken on key educational and administrative leadership positions. Currently, eight cohorts of EM residents have graduated from AAU, with most filling EM leadership positions in Addis Ababa and surrounding regions. Accordingly, the TAAAC-EM program is now beginning to transition full teaching responsibilities to AAU EM faculty graduates who are prepared to continue fostering EM in the area. Despite these efforts and developments, the extent to which the above challenges have been curtailed is unknown and would benefit from further study by re-evaluating the reflections and perceptions of later graduating cohorts.

Around the globe, LMICs face the complex and urgent issue of human resource shortages in healthcare. In particular, the African continent faces 24% of the global burden of disease and yet holds only 3% of the world's health care workforce [4]. One-time educational workshops, while logistically much easier to implement, do not address capacity building and health leadership development, both of which are required to train and retain quality health workers. The TAAAC-EM model allows for increased involvement with local leaders and credentialing organisations over time as local expertise grows, which is essential to understand changing competency requirements, to ensure that the development of the specialty is meeting societal needs and to improve patient outcomes.

There is a paucity of applicable program evaluation studies published evaluating longitudinal EM curriculum in countries where EM is nascent. In the realm of both EM and medicine more broadly there are few quantitative survey-based studies, pre-post experimental studies, or isolated studies on specific curriculum implementation (such as point-of-care ultrasound curriculum) within north-south collaborations [5–7]. However, this study is the first we are aware of to qualitatively evaluate a novel EM curriculum delivered on the African continent, which was one of the first of its kind when launched. The findings of this evaluation have already been used to continually ensure the curriculum is meeting the needs of the learners and local population.

Our study has several potential limitations. First, we interviewed a relatively small sample, which could have biased our results. However, this represents the vast majority of all graduates from the first three years of the TAAAC-EM program, and we reached data saturation during analysis. These results may also not be applicable to all educational settings or partnership circumstances.

In conclusion, TAAAC-EM has successfully built and sustained a thriving global health partnership to deliver postgraduate EM training at AAU. The program is one of the first attempts at such training on the continent and is now well established. The challenges faced during early program development included a lack of continuity of clinical teaching expertise year-round and the need for resources and mentorship to support nascent EM practice locally for new graduates. In response, now that a growing cadre of EM experts in Ethiopia has been established, the partnership is focused on transitioning full teaching responsibilities to local AAU EM faculty in the coming years, and has established a bi-annual leadership conference for new EM faculty. With less resident teaching responsibilities in the future, TAAAC-EM plans to develop and facilitate additional faculty development opportunities for new EM faculty as they transition to practice.

The TAAAC-EM educational model has proven to be a robust curriculum in didactic, practical and clinical components that foster role-

modeling and was well received by graduates. It can serve as a model for rigor, continuity, and context-specificity in the development of similar bi-institutional collaborations in postgraduate medical education.

Dissemination of results

In conjunction with preparing this manuscript for publication, results from this study have been shared through various informal and formal meetings and conferences including: the Canadian Association of Emergency Physicians (CAEP) Annual Conference and World Association for Disaster and Emergency Medicine (WADEM) Annual Conference. Information gleaned from the interviews was shared anonymously with TAAAC-EM curriculum leads to make improvements to the EM curriculum for immediate future cohorts of learners.

Authorship contribution statement

Authors contributed as follow to the conception or design of the work; the acquisition, analysis, or interpretation of data for the work; and drafting the work or revising it critically for important intellectual content: NM contributed 40%; CH and EF 25%; and SK and JD contributed 5% each. All authors approved the version to be published and agreed to be accountable for all aspects of the work.

Declaration of competing interest

SK was involved in this study as a participant as well as an author, however this conflict of interest was resolved by SK not being involved in interview transcription or data analysis. The remaining authors have

no competing interests.

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