

Clinical electives at the University of Michigan from the perspective of Ghanaian medical students: A qualitative study

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Background. Participation in international electives is an integral part of medical training for many medical students, yet little research explores the experiences of students from low-income countries who travel to high-income countries for medical electives.

Methods. One hundred and two Ghanaian medical students who participated in 3 - 4-week clinical rotations at the University of Michigan between January 2008 and December 2011 were invited to participate in a mixed-methods study. Face-to-face, semi-structured interviews were conducted with 15 respondents from the larger group who agreed to take part in follow-up interviews. The 60- to 90-minute interviews were audio-recorded and transcribed verbatim, and transcripts were coded by three investigators in an iterative process of thematic identification, codebook generation and revision and consensus discussions.

Results. Respondents described perceived differences between Ghana and the USA, including: exposure to 'new' aspects of medicine; differences between Ghanaian and US patients, healthcare workers, and patient-provider relationships; and aspects of the US system that they would like to see emulated in Ghana.

Conclusion. This preliminary study suggests that international bilateral exchange programmes have lasting value for participants from low-income nations. Further research is needed to determine if the different types of experiences yield measurably different benefits.

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Over the past few decades, the field of medicine has changed dramatically, reflecting changing disease patterns, increased ease of travel and growing interest in international health. Medical-school curricula have evolved accordingly, to include more international health experiences, in the form of electives, as a key feature for trainees.^[1] However, most of these international electives are skewed towards students from the resource-rich nations of the Global North travelling to low-income countries.^[2,3]

The exact number of international opportunities available is unknown, but a clear disparity exists,^[2] with very few opportunities for students from low-income countries to undertake international electives in resource-rich countries, particularly the USA. This inequality has raised concerns and led to an increased push for academic medical centres in high-income countries to become more involved in collaborative partnerships with medical centres in low-income countries.^[3] Further concerns raised about the effect international health experiences have on host communities include students practising beyond their medical competence,^[4] perpetrating a hero model in the host population^[5,6] and working outside of national policies or priorities.^[5] However, international medical experiences have also been shown to lead to the participants being more inclined to specialise in public

health or primary-care related fields, and students who have completed international clinical rotations often report a greater ability to recognise disease presentations, more comprehensive physical-examination skills with less reliance on expensive imaging, and greater cultural sensitivity.^[6,7]

Unfortunately, very little literature addresses the design and structure of international rotations for students from the Global South, and literature that examines the benefits for these students is almost non-existent. Based on the results of our previous quantitative analysis, where 97% of participants deemed their University of Michigan Medical School (UMMS) rotation as valuable to their medical training, and 90% reported changes in how they approach patient care, the investigators deemed it prudent to conduct a qualitative analysis of in-depth interviews to elucidate exactly what these changes were.^[8]

History of the Ghana-Michigan medical-student exchange

The University of Michigan Department of Obstetrics and Gynecology has had a long-term partnership with the University of Ghana Medical School (UGMS), the Kwame Nkrumah University of Science and Technology

School of Medical Sciences (KNUST-SMS), and Ghana's Ministry of Health. It started through a Carnegie Foundation-funded programme, in partnership with universities and colleges of obstetricians and gynaecologists in the USA and the UK. The programme assisted in the development of postgraduate training in obstetrics and gynaecology in Ghana,^[9] and the resulting partnership has provided opportunities for bilateral student and faculty exchanges, and created a platform for ongoing training, research and collaborative endeavours.^[10] The programme has seen more than 80 students from Ghana rotate at UMMS between 2007 and 2011, and has expanded to include the University of Development Studies School of Medicine and Health Sciences (UDS-SMHS) and the University of Cape Coast School of Medical Sciences.

Structure of the Ghana-Michigan medical-student exchange

Ghanaian students typically spend 3 - 4 weeks in Ann Arbor, Michigan, participating in direct patient care and observation of clinical activities through rotations that are similar to those experienced by UMMS third- and fourth-year students, including the UMMS Simulation Centre. Students receive an orientation to the clinical environment, with topics such as utilisation of electronic medical records, sterile technique protocols and searching medical literature. Similarly, UMMS students undertake clinical electives at UGMS, KNUST-SMS or UDS-SMHS, commonly for a period of 4 weeks.

Methods

This study was reviewed and performed under an exemption granted by both the Ethical and Protocol Review Committee of UGMS (ref. no. MS-Et/M.11-P.4.6/2010-11) and the University of Michigan Institutional Review Board (ref. no. HUM00048221). All participants gave electronic consent prior to participation.

Data collection

In late 2011, all 73 Ghanaian medical students from UGMS and KNUST-SMS who had participated in 1-month rotations between January 2008 and December 2010 were contacted via email and asked to complete a survey,^[8] at the end of which, participants were given the option to be contacted for a follow up-interview. In mid-2012, invitations for interviews were also extended to a wider pool that included students who had subsequently completed rotations by August 2011, and students from UDS-SMHS. The 15 respondents who agreed to the follow-up were interviewed face-to-face for 60 - 90 minutes using a study-specific semi-structured interview tool and an audio recorder. To maintain anonymity, the interviewees' names were not mentioned during the interview, and audio recordings were labelled anonymously and uploaded to a cloud-based file-sharing platform (Dropbox), from which they were accessed and transcribed by another member of the research team (HM).

Data analysis

The audio recordings of the interviews were transcribed verbatim, and transcripts were coded by three separate investigators (SDB, NCA, and CAM), as described by Charmaz.^[11] Open codes were discussed and harmonised among the investigators, and a codebook was created to describe the codes. Transcripts were then coded using the identified coding schema, allowing room for further themes to emerge during the coding process. When additional codes arose, the team discussed the

additional code and either amended the definition of an existing code or added a new code category to the codebook. Two of the investigators (SDB and CAM) discussed the hierarchy of codes, as well as any overarching themes.

Results

In-depth interviews with the 15 former medical students were completed in 2012, between 8 and 40 months after their rotation (mean = 16.7 months). This diverse group of eight women and seven men comprised five graduates of UGMS, six graduates of KNUST-SMS, and four graduates of UDS-SMHS, whose ages ranged from 24 to 29 years old, and was highly representative of the gender, age and medical-school affiliation of the general cohort of participants.^[8]

Respondents described perceived differences between Ghana and the USA with regard to the practice of medicine and the behaviours that they wished to emulate. The strongest themes identified in the data included: exposure to 'new' aspects of medicine; differences between Ghanaian and American patients; differences in the relationships and interactions between healthcare providers and patients, as well as among healthcare providers; and aspects of the US system that they would like to see emulated in Ghana.

Exposure to 'new' aspects of medicine

Many of the respondents described being exposed to new opportunities for further training that they had not been aware of before rotating in the USA. They also learned about subspecialties as well as new and emerging fields in medicine:

'Before I went there I actually didn't know there were so many specialties. I thought every obstetrics and gynaecology specialist was supposed to do everything [...] I didn't know that gynaecology was on its own, obstetrics was on its own. I didn't even know that infertility was on its own as a specialty, so yeah [...] I [now] know there are more subspecialties around I can explore.' (25-year-old female, UDS-SMHS)

Differences regarding patients, healthcare workers and their interrelationships

Respondents described noticeable differences between Ghana and the USA regarding patient and provider demographics, the relationships between providers and their patients, and also between providers and trainees. They commented that some patients had done research on their illnesses and came to see the doctor ready with questions – something that would be uncommon in Ghana:

'It's a more literate community [in the USA] and so patients come knowing more about their condition, asking more questions and expecting to receive more response from the doctor. Doctors don't impose too much of the decisions on patients, and patients form a very important part of the ... clinical practice.' (25-year-old male, UGMS)

Respondents also commented on resident demographics, indicating that many of the residents and faculty in the USA were female, which is not the case in Ghana.

'I was amazed that most of their residents [at Michigan] were females ... even their chief resident was a female. I was very impressed because I want to do obstetrics and gynaecology but ... not a lot of women rotate through that in Ghana and everybody says it's quite difficult. But I was happy to see so many women doing the surgeries.' (25-year-old female, KNUST-SMS)

One of the most common observations made by visiting trainees related to the differences between how medical students and faculty interacted in USA and Ghana. Respondents found that the relationship between 'teacher' and 'student' was less formal in the USA, and faculty were very accessible and approachable:

'I didn't expect them [the attendings] to be as eager and willing to help us as they were. They were very open, very ready to teach any opportunity they had. They were gentler if you made a mistake.' (27-year-old female, KNUST-SMS)

Respondents noted that this difference in interaction style had a significant effect on them as learners:

'Personally ... I think it boosted my self-esteem. It was like, "Oh so you can approach people like this and then talk freely?"' (28-year-old male, UGMS)

Differences in learning environment

Respondents spoke about differences in the physical learning environment, particularly, the speed and efficiency with which procedures were done and the state-of-the-art machines that were in use, including automated dictation:

'You got the history on a sheet of paper, nicely typed, you know, printed out. And to me I think it was nice. It was a way of making things more efficient so that I don't waste time.' (28-year-old male, UGMS)

Trainees also commented on the speed with which laboratory results were available, and the advantages of having a computerised medical-records system:

'In Ghana [in the morning] we have to go and see the patient immediately to open the folders, to see what the doctors have written ... but there you can easily go back and look at their various investigation, labs, and consultations that have been done, and then you just go to the patient and ask a few pertinent questions, then just put your findings together and then just present it to the fellow or the attendant. I find that really as a step beyond what I find in Ghana here.' (24-year-old male, UGMS)

Areas for improvement

Some respondents also mentioned certain aspects of their experience as less than desirable. The most common complaints were about the amount of hands-on clinical engagement they had, as well as limited contact with local medical students:

'When we had our letters, it said we were coming mainly in an observatory capacity, but for some reason I thought I would get to do more than I got to do ... so for me that was kind of, like, a disappointment because it gets boring when you are only watching people all the time, you're not really doing much.' (25-year-old female, UDS-SMHS)

Trainees also mentioned organisational lapses as one area of potential improvement. In particular, students reported variability in terms of expectations:

'Sometimes it's like OK, you get there today, but it's like quite undefined. You don't really know whether today you should be going here or be going there. You know sometimes, but I think ... those things should be streamlined properly.' (28-year-old male, UGMS)

Potential applications at home

Overall, respondents reported learning behaviours that they felt were worth emulating. This included paying more attention to infection control, punctuality, improving the way they relate to patients and being more mindful of how they as individuals can improve the health outcomes of their patients.

Infection control

Interviewees reported the desire to improve certain aspects of the hospital setup in Ghana that were related to controlling the spread of infections. These included: hand-washing, the use of antibacterial solutions to disinfect hands and limiting the number of people allowed into the theatre to watch surgeries:

'I don't think it will cost much for the hospital to provide sanitisers all around ... so I think it is a very achievable thing that we can use to prevent infection control ... it is something we can apply without spending money.' (24-year old-male, UGMS)

Punctuality

The interviewees reported that punctuality is highly regarded in the USA and they desired to emulate such ideals in Ghana:

'That is one thing that I think I've gotten to appreciate. That if you have, if you work within the time that you have, as timely as you can, then you would be able to actually achieve everything that you are trying to do.' (26-year-old female, KNUST-SMS)

Empathy

Another area that trainees repeatedly mentioned was witnessing providers' empathy and kindness toward patients and wanting to be sure to do that more in Ghana:

'What I saw from the interaction between workers, health workers and patients was a certain level of respect ... you wouldn't see a doctor or a nurse being rude to a patient or shouting at him. I really hope to put this into practice because a lot of times our patients just come and they need someone to be nice to them.' (25-year-old male, KNUST-SMS)

Discussion

The majority of Ghanaian trainees who completed rotations at UMMS and participated in this study deemed the experience of their overseas rotation valuable. Few other studies have explored international health experiences from the perspective of students from the Global South, which is one of the main strengths of this study. Our interviewees formed a balanced sample, with both male and female students from three different participating schools. Furthermore, we conducted follow-up interviews as long as 2 - 3 years after trainees' international health experiences, and in this regard, our study was able to solicit the views of students who had recently returned from the exchange as well as those who had undertaken it several years before. We were therefore able to see both the short- and medium-term impacts of the experience, particularly with regard to the influence it has had on the final leg of their medical training, their professional lives and postgraduate plans.

One common theme that arose was of potential application of the lessons learned at home, which we termed 'translation'. It describes the desire several students expressed of wanting to import certain aspects of what they had learned at UMMS and apply it at their home institution. The theme of

translation included: paying more attention to infection control; improving 'system factors' such as orderliness and punctuality; and being more empathetic toward patients. We found that while there are many advantages to a truly bilateral exchange relationship for trainees from under-resourced settings, the design of such a programme is critical to its success. Apart from a few articles, such as those by Crump and Sugarman^[12] and Bishop and Litch,^[13] little attention has been paid to the ethical considerations necessary to ensure that North-South training or education initiatives have minimal undesirable effects on the relatively disadvantaged partner. Additionally, to help guide the design of ethically sound North-South medical partnerships, Crump and Sugarman,^[14] as part of the Working Group on Ethics Guidelines for Global Health Training (WEIGHT), have developed a set of guidelines for institutions, trainees and sponsors of field-based global health training on ethics and best practices (Table 1) that we believe is a laudable starting point for any institution that is already engaged in or considering engaging in medical exchanges.

While the Ghana-Michigan exchange programme has been beneficial, it is not without its challenge, one of which is the trainee's level of engagement in clinical care while rotating in the USA. Improving efforts to genuinely integrate visiting trainees into patient management is an important learning point for those developing exchange programmes, especially in the face of regulatory and medicolegal challenges that may limit what visitors are allowed to do. While such integration may be difficult in some situations, it is undoubtedly the best way for trainees to maximise their learning. Another challenge relates to the organisational structure, and the need to ensure that

all participating attending faculty and residents understand the programme and the role of the visiting trainees.

Study limitations

As with all studies, we recognise that our study had some limitations, namely the small sample size and the possibility of people being predisposed to give positive answers when being interviewed face-to-face. We attempted to mitigate the risk of social desirability bias by using a Ghanaian interviewer who was also a part of the larger Ghana-Michigan exchange cohort. Given the balance of positive and negative comments recorded, we believe that this strategy was successful in limiting potential biases. We also recognise that our study could be strengthened if we could link participants to their ultimate residency training choice or specialty area of practice; however none of the participants interviewed had entered residency programmes at the time of data collection and as such our study can yield only a relationship between participation in the exchange programme and plans (or the lack thereof) for specialisation and not the participants' ultimate specialisation choice.

It is also possible that the study design – qualitative interviews with a small subset of the participants within a few years of the experience – precludes the observation of other potential outcomes associated with the exchange programme, for example, an exploration of the effects of an increased desire for subspecialisation among exchange participants. It could spark the development of additional in-country training programmes – as we have seen with the addition of the Reproductive Health and Family Planning

Table 1. Selected guidelines proposed by the Working Group on Ethics Guidelines for Global Health Training (WEIGHT)^[14]

Trainees	Host/sending institutions	Sponsors
Recognise that the primary purpose of the experience is global health learning and appropriately supervised service. The duration of the training experience should be tailored so that the burden to the host is minimised	Develop well-structured programmes so that host and sender as well as other stakeholders derive mutual, equitable benefit	Consider local needs and priorities, reciprocity and sustainability of programmes
Learn appropriate language skills relevant to the host's locale as well as sociocultural, political and historical aspects of the host community	Clarify goals, expectations and responsibilities through explicit agreements and periodic review	Ensure that true costs are recognised and supported
Seek to acquire knowledge and learn new skills with appropriate training and supervision, but be cognisant and respectful of their current capability and level of training	Clarify the trainees' level of training and experience for the host institution so that appropriate activities are assigned and patient care and community wellbeing is not compromised	Aim to select trainees who are adaptable, motivated to address global health issues, sensitive to local priorities, willing to learn, whose abilities and experience match the expectation of the position and who will be a good representative of their home institution
Recognise and respect divergent diagnostic and treatment paradigms	Select trainees who are adaptable, motivated to address global health issues, sensitive to local priorities, willing to listen and learn, whose abilities and experience matches the expectations of the position, and who will be good representatives of their home institution and country	Promote safety of trainees to the furthest extent possible
When requested, be willing to share feedback on the training experience and follow-up information on career progression	Establish methods to solicit feedback from the trainees both during and on completion of the programme, including exit interviews, and track the participants post training to evaluate the impact of the experience	Encourage effective supervision and mentorship by the host and sending institutions

fellowship to the postgraduate training programmes in the Ghana College within the past few years. However, it could also increase the number of trainees who leave Ghana to seek training elsewhere. Additionally, seeing more women in positions of leadership during an exchange programme may have lasting effects on trainees – both male and female – in terms of their views on the potential of female physicians to rise to positions of leadership in Ghana. Furthermore, it would have been of added benefit to measure the systems-level changes (punctuality, infection control, empathy), if any, that occurred in the participants' home institutions as a result of the participation. However, these outcomes are beyond the scope of the current study, and warrant future research to explore the longer-term outputs of the exchange programme, in terms of its effect on the individual, the profession and society as a whole. Furthermore, given the highly regarded nature of the exchange programme and the non-random means of selection (academic merit, interest in participating, access to financial support), we did not compare the participants of the Ghana-Michigan exchange with non-participants, and this is perhaps another warranted direction for further research. Finally, while these trainees participated in an exchange programme in which Ghanaian students travel to Michigan and Michigan students travel to Ghana, the focus of this research was on the Ghanaian students only. Additional work comparing the impact on Ghanaian students v. US students is warranted.

Conclusion

We hope the findings of this study will encourage other medical schools and hospitals in the Global North to form partnerships with schools in the Global South in which there can be a mutual transfer of knowledge through student exchanges. This study suggests that medical trainees from under-resourced countries who complete clinical electives in high-resource settings stand to gain a great deal, not only from exposure to the technology and specialisation that are hallmarks of Western medicine, but also from the more often-overlooked differences in the practice of medicine between high- and low-resource settings, such as the teaching methods employed; relationships and interaction between trainer and trainee and patient and provider; and systems management. It is this exposure to new ideas and behaviours, leading to rethinking and challenging the status quo of medical training in the delivery of care, that we have found to be the most useful change.

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Author contributions. CAM led and SDB, NA, TRBJ and JCK assisted in the conceptualisation of this study. KAD, TRBJ and JCK provided feedback on the coding schema and reviewed early drafts of the manuscript. NA also provided feedback on the qualitative interviews and assisted in the coding and analysis. HM transcribed the qualitative interviews and provided input on coding schema and worked on data analysis. SDB conducted all qualitative interviews, led the coding and analysis, completed the first draft of the manuscript, and conducted final manuscript revisions, while CAM assisted in manuscript drafting. All authors contributed to the final manuscript revisions, and have approved the final manuscript.

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Conflicts of interest. None.

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