

Brief Communication

Mentorship in African Health Research Training Programs: An Exploratory Study of Fogarty International Center Programs in Kenya and Uganda

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ABSTRACT

Introduction: Mentorship is a critical element of capacity-building for health research as it can support career counseling, promote interest in health research and build professional networks. Few studies of mentorship have taken place in low- and middle-income countries. This paper explores the mentorship dimension of the Fogarty International Center's (FIC) support to research training in Kenya and Uganda. **Methods:** This exploratory study documents the nature of mentoring that occurred within FIC programs, considers the outcomes of mentoring, and the strengths and weaknesses of FIC trainee mentorship during and after training. Two case studies were conducted, at the University of Nairobi in Kenya and Makerere University in Uganda. Semi-structured interviews were conducted with former trainees, principal investigators and institutional leaders, exploring their perceptions of mentoring and its effects. **Results:** Mentoring aspects of FIC programs were highly valued. Respondents felt that following formal training in the US there was much still to learn about conducting research, and mentoring relationships provided support in applying for and implementing research grants. Mentoring arrangements were initially with US collaborators, but over time relationships with senior African colleagues became critical, particularly in terms of navigating university administrative systems. Mentees were typically highly motivated to pass their skills on to others, and became eager mentors later in their careers. A minority of respondents raised concerns about directive approaches to mentorship that reflect more hierarchical rather than egalitarian approaches. **Discussion:** Mentorship during and after FIC research training programs, while largely informal in nature, appears to have very positive impacts upon career development and inclination to remain in health research. Local African mentors often play a critical mentorship role, and their contributions should be better recognized.

Keywords: Africa, education, faculty development, health research international collaboration, mentoring

Introduction

Mentorship is often seen as a key element of health research training programs. A number of studies in high income countries have explored the role of mentorship in research training, and what facilitates good mentorship.^[1,2] Papers from low- and

middle-income (LMIC) countries emphasize the importance of mentoring to scientific capacity development,^[3-5] but few have explored the forms or effects of mentorship in such contexts. Those that have, often described a particular mentoring scheme rather than investigating the principles of good mentorship.^[4,6]

Mentoring has been described in various ways. The widely used Standing Committee on Post-graduate Medical and Dental Education (SCOPME) definition describes – it as “A process whereby an experienced, highly regarded, empathetic person (the mentor) guides another (usually younger) individual (the mentee) in the development and re-examination of their own ideas, learning, and personal and professional development.”^[7] In addition mentoring may involve career

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counseling, developing a sense of professionalism, advocating for career advancement and fostering a safe environment where the mentee can make mistakes.

Mentorship in LMICs may work differently to that in high income countries: Variations in academic culture such as the degree of hierarchy between mentor and mentee may affect mentoring,^[8] organizational incentives and capacity to support mentorship may differ, and the interactions between mentorship from foreign collaborators or teachers and local researchers may create tension or conflicts.

We undertook two exploratory case studies focused on Makerere University in Uganda and the University of Nairobi in Kenya that sought to document the long-term effects of Fogarty International Center (FIC) investment in research training. One of the dominant themes in both case studies was the importance of mentorship. This exploratory paper investigates mentoring relations, impacts, and the strengths and weaknesses of mentorship for FIC trainees during and after training.

Fogarty research training programs invest in scientific human capital in LMIC settings, typically through the provision of short- and long-term training. Most trainees come from research settings, such as universities, and typically (although not always) return to the same setting. Long-term trainees may undertake Masters or Doctoral level research, often in the US. Fogarty programs often lead to long-lasting collaborative research relationships between LMIC and US scientists, through both the initial research training and subsequent research awards. Many Fogarty grants are made to US awardees who then subcontract their LMIC collaborators, however funds can also flow directly to LMIC organizations through direct awards. FIC currently administers 17 research training programs. Most of these programs do not have a formal mentorship component but rather mentorship is informal and woven into other strategies¹. FIC research training investments started in the University of Nairobi and Makerere University in the late 1980s.

Methods

We conducted semi-structured interviews and focus group discussions with former Fogarty trainees in Uganda and Kenya, as well as semi-structured interviews with the principal investigators (PIs) who had held the main research training grants, and institutional leaders [Table 1]. The sample was not selected based upon who was a mentor and who was a

1 The one exception to this is the Fogarty International Clinical Research Scholars, now known as the Global Health Program for Fellows and Scholars, which seeks to match junior US and LMIC researchers. This program started in 2007 and very few of our study respondents had been involved in it.

mentee as this was not known in advance. Further, given the longevity of the FIC program, the same individual had often both received and provided mentorship. Former trainees were purposively selected for interview with a bias toward those who had had greater engagement with the FIC program. Focus group discussion participants were randomly selected from the remaining trainees. While most of the interviewees came from the two case study institutions (the University of Nairobi and Makerere University), in Kenya in particular, trainees were dispersed across multiple institutions and so we also interviewed individuals outside of the focal institution.

The interview and focus group discussion guides focused on the long-term effects of Fogarty training including the strengths and weaknesses of the Fogarty training experiences, the impact of Fogarty training on trainee productivity, career satisfaction and intention to stay in the research field, and current constraints upon trainee performance. Interview probes within these questions addressed the role of mentorship, and mentorship often also arose spontaneously during interviews.

The study was ethically approved by Johns Hopkins University, Kenyatta University and Makerere University. Fieldwork was undertaken in April 2011 for Uganda and September 2011 for Kenya. Interviews were conducted by the core research team SB and LP, together with the country researchers (FS in Uganda, DW and JM in Kenya). All interviews were conducted in English and recorded (except for one in Uganda where the respondent objected). In Kenya, all interviews were transcribed and then analyzed in Atlas. In Uganda, detailed notes were taken during the interview, which were then finalized immediately after the interview. Analysis was conducted manually and the researchers referred back to the audio files to identify particular quotations. A framework approach was used for analysis, with themes initially identified based upon study aims, and then elaborated further through an examination of the data.

Results

Mentoring Relationships

Mentoring arrangements under the Fogarty programs in

Table 1: Sampling for semi-structured interviews and focus group discussions

Form of interview/ respondent	Uganda interviewees	Kenya interviewees
Focus group discussions	19 subjects in 6 groups	10 subjects in 3 groups
Principal investigators	5 (US and Ugandan)	3 (US and Kenya)
FIC Trainees	6 (4 university-based and 2 nonuniversity-based)	20 (7 based at UoN and 13 outside UoN)
Institutional leaders	5	5
Total N	35	37

FIC = Fogarty international center

Kenya and Uganda were initially largely dyadic and structured mainly through the initiative of the programs' US-based PIs. Mentoring relationships typically started out as relatively formal, with US based PIs and key faculty mentoring Kenyan and Ugandan students in the US. Sometimes mentoring relationships were with doctoral advisors, but this was not always the case. In many instances, mentoring continued, informally and mostly virtually, beyond a FIC trainee's return to their home institution. During their overseas training, respondents typically felt that they received strong mentorship from US faculty associated with the Fogarty program. Much of this mentorship focused on technical issues, though not necessarily on the specific research project that the trainee was working on. For example, respondents described, how mentors had supported them through paper writing processes, or had involved them in peer reviewing papers for journals so that the mentee was exposed to the peer review process, in advance of submitting their own papers.

Individual FIC grants differed as to whether trainees typically came from and returned to the same institutional home in their own country, and whether or not that institution had ongoing collaborative research links with the US university in receipt of the FIC research training grant. Where there was an ongoing collaboration, the trainee typically received mentoring from US faculty after their return home, and in some cases these mentoring relationships persisted for many years.

We had a good relation before, during and after so that has continued... okay they have helped me right from the beginning, writing my first proposal, writing the thesis, publishing the finding for my thesis and then going on to develop another proposal for funding and which we have done a lot after that then working together like reviewing articles together, publishing together and giving papers... Trainee, Kenya.

In addition, former trainees often also reached out to senior local researchers within their own research setting for mentorship that could supplement the international mentorship they received.

I know initially for us who were in the Fogarty program aaahhh once you enter a Fogarty program you enter a research... you start with a research that is on-going so you are working with the mentor so that way you are able to grow and publish with them yeah... It is only that when you begin on your own, then you need to re-focus on maintaining that sort of mentorship yeah... not just with the people out there but with the people in here because they also help you when you need to publish the whole thing. Trainee, Kenya

Thus, over time the initially dyadic mentoring relationships frequently evolved into triadic ones involving both US faculty and senior African faculty. However, the support

that returning FIC trainees were able to obtain from local mentors was variable and sometimes insufficient. The transition period immediately after the completion of formal training was viewed to be critical; much remained to be learned, yet it was frequently difficult to get adequate mentorship support. The extent to which trainees were able to maintain mentorship relationships with US-based mentors during this period and/or develop new ones with local, senior researchers varied considerably, depending in part on the arrangements regarding their particular Fogarty program and their affiliation to research programs in their home country.

You need good mentors after you graduate, that can help you learn how to write proposals, etc., this kind of mentorship needs to continue after graduation – many people don't get this. Trainee Uganda.

In my experience, submitting an NIH grant, preparing CVs, budgets, etc., is a lot of work, there are lots of detailed issues that you need to know, and we were not adequately prepared for this kind of thing. You move from a setting in the US where the PI does all this, and there is an effective support group, to Makerere, where you need to take on these roles. Trainee, Uganda.

Where mentees were able to link to local mentors, these relationships were key in facilitating FIC trainees re-entry into the local research system. Besides supporting the writing of research grants and papers, local mentors often played a very practical role in acting as guides to the complex systems of research administration that exist in both Makerere and the University of Nairobi.

[...] you know in terms of just how he [local senior researcher] was able to manage the grant management aspect, including human resources, a part of it I mean walking through the systems, doing the necessary tools and material, etc. I think I learnt a lot from him, issues of human resource management, and expectations of research assistants particularly if it is a large team, I learnt a lot from him. Trainee Kenya.

Respondents at Makerere and the University of Nairobi did not appear concerned that mentoring relationships with both US-based and local mentors were largely informal. They typically felt that they received sufficient mentoring support and were able to maintain virtual connections with US-based mentors. However, respondents from other research institutes in Kenya were concerned about the lack of formal support and systems for mentoring.

So I feel like that mentorship part is lacking. And when it is made available, it is not like it is structured, it is not like somebody is coaching you and you are saying what do you think about this, what do you think about my paper. Trainee outside UoN, Kenya.

Mentoring Outcomes

Many former trainees were extremely positive about the mentorship that they had received during their training and highlighted the dramatic impact mentorship had upon their decision to enter and remain in research, their productivity and their lifetime careers. Respondents viewed role models and mentors who could advise them throughout the development of research protocols or papers to be critical.

“The way the program is made, that kind of close mentorship of one-to-one was very important to me because it helped me a lot and I think my life was not the same when I came back and also through the mentorship I was also not only able to develop a proposal on my own but also to mentor others with more confidence.” Trainee outside UoN, Kenya.

Local African mentors who were also role models were particularly important in nurturing the belief among trainees that successful careers in health research could be built in their home country, thus contributing to a shift in attitudes about health research careers that had broader institutional ramifications. This was true in both Kenya and Uganda.

“So we have come a long way from that time which wasn’t too long ago, but nevertheless we have changed that. I think now you can find a medical student or even one who is like: ‘I would like to go into research as a career’, so there is that in place, that there are people they can look up to who are good role models that they can think it is possible to succeed in research.” Trainee, Outside UoN, Kenya.

Mentors were also important in helping to extend mentee’s professional networks through introducing them to potential collaborators, including those at other foreign institutions.

“One of the biggest advantages I had when I was in the US was having a mentor who was very open, because he took me along to almost all the cancer conferences taking place and I got to meet very important people during those conferences. As a result of that, when I came back I had connections, working relationships with organizations affiliated to the National Cancer Institute.” Former trainee, FGD, Uganda.

Finally, the mentorship that FIC trainees received influenced their inclination and ability to mentor others. Institutional leaders at Makerere and the University of Nairobi observed how FIC trainees had broader impacts across their institutions through mentorship, and FIC trainees frequently mentioned their own personal commitment to mentoring others.

“One preacher says, I think it is an American preacher... T.D Jakes says that you know... Success is not success without a successor, you see... so that is sort of for me speaking from my personal view... you know the way I have seen my mentors you know,

mentor me it’s sort of you know, I am a mentor, I have to mentor somebody else so it’s a big effect, it’s a big effect.” Trainee outside UoN, Kenya.

Mentoring: Strengths and Weaknesses

Respondents in both Uganda and Kenya described how they appreciated the US teaching style, which pushed them to think critically and introduced them to an egalitarian and participatory method of learning, in which mentoring played an important role. However, this more egalitarian approach did not always sit well in their home institution. At Makerere University, one concern fairly frequently expressed was the relatively limited opportunities for junior researchers to establish their own independent lines of research, and relatedly a concern that senior local mentors often received the lion’s share of the credit for work done. This theme did not emerge so strongly in Kenya, but one respondent discussed the difficulties of growing past a mentoring relationship with overseas colleagues. Given the potential tensions and power dynamics inherent in north–south relationships, it seems remarkable that this concern was not expressed more frequently.

“So I think it’s part of the you don’t want to be, you know, working in the authority of someone else for the rest of your life. There’s a point you have to transition or do something at least. I want to transition. So it reaches a point, I think, where you have to not grow to mentorship ‘passé’ but start making decisions that the mentor may not quite agree with, but this is what you want to do.” Trainee, Kenya.

Lack of time for mentoring is perhaps an even more acute problem in LMIC contexts than high income countries due to the relatively few faculty compared with students (at Makerere there are estimated to be 126 students to every PhD lecturer⁽⁹⁾). Thus, in spite of good intentions, former trainees often felt that they were unable to provide adequate mentoring.

“Because there is no critical mass so the few mentors are busy with their research. They are busy supervising post graduate students; they are busy trying to do other things, so there is not enough time to mentor people adequately.” Institutional Leader, Uganda.

Discussion

This was an exploratory study. While our findings identify a number of emerging themes, these require further and more rigorous investigation, particularly given the paucity of research evidence on this topic and in light of the significance that FIC trainees in both Kenya and Uganda accorded to the mentoring received during and after FIC research training. Further, our study did not probe into different dimensions of mentoring such as the role of mentors in advocating for career

advancement or creating a safe environment for mistakes, and these issues, among others, require further investigation.

During FIC training most mentorship came from US collaborators, but subsequently senior researchers in-country played a critical role. Mentees appreciated the different types of support provided by US versus local mentors. US mentors typically focused on technical issues such as development of research grants or writing for publication, while in-country mentors were invaluable in supporting the implementation of research projects and advising on how to navigate complex, academic administrative systems. Local mentors were often also important role models, reaffirming the feasibility of entering and maintaining a research career within the context of a particular institution. In settings such as Uganda and Kenya, where until recently many questioned the feasibility of research-based careers, this was critical. Acknowledging, valuing and supporting the role of African mentors in research capacity strengthening projects is key. Increasingly FIC is shifting its programs so as to provide direct support to developing country institutions. This should open up opportunities to provide more direct recognition of and financial support for developing country mentors.

Some mentees expressed concerns about the feasibility of developing independent research careers given their dependency upon their mentors, however, this sentiment was not dominant in either country, and there was a striking degree of commitment among mentees to “giving back” through providing mentoring to more junior researchers. Further, respondents frequently described the differences they perceived between mentoring styles in their home institutions and in the US where they perceived mentoring relationships to be less hierarchical and more likely to support critical thinking. Over time, US-based training may contribute to broader shifts in organizational culture that support flatter, less hierarchical relationships within universities and promote critical thinking. However, it would be worthwhile to consider other strategies, such as training for research mentors,^[10] that can support African mentors, and enable them to more effectively support their mentees.

Finally, the FIC investment in the development of scientific capacity is notable for its longevity. This sustained investment in capacity development has been important for mentoring as it has facilitated the emergence of in-country mentors who have become role models and mentors to others.

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