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Kenyan medical student and consultant experiences in a pilot decentralised training program at the University of Nairobi

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Abstract

Background—Over the past decade, the University of Nairobi (UoN) has increased the number of enrolled medical students three-fold in response to the growing need for more doctors. This has resulted in a congested clinical training environment and limited opportunities for students to practice clinical skills at the tertiary teaching facility. To enhance the clinical experience, the UoN Medical Education Partnership Initiative Program undertook to train medical students in non-tertiary hospitals around the country under the mentorship of consultant preceptors at these hospitals. This study focused on the evaluation of the pilot decentralised training rotation.

Methods—The decentralised training program was piloted in October 2011 with 29 fourth-year medical students at four public hospitals for a seven-week rotation. We evaluated student and consultant experiences using a series of focus group discussions. A three-person team developed the codes for the focus groups and then individually and anonymously coded the transcripts. The teams' findings were triangulated to confirm major themes.

Results—Before the rotation, the students expressed the motivation to gain more clinical experience as they felt they lacked adequate opportunity to exercise clinical skills at the tertiary referral hospital. By the end of the rotation, the students felt they had been actively involved in patient care, had gained clinical skills and had learned to navigate socio-cultural challenges in patient care. They further expressed the wish to return to those hospitals for future practice. The consultants expressed their motivation to teach and mentor students and acknowledged that the academic interaction had positively impacted on patient care.

Discussion—The decentralised training enhanced students' learning by providing opportunities for clinical and community experiences and has demonstrated how practicing medical consultants can be engaged as preceptors in students learning. This training may also increase students' ability and willingness to work in rural and underserved areas.

Keywords

Decentralised training; clinical experience; medical students; clinical mentorship; consultant preceptors

BACKGROUND

Recent studies with medical students in sub-Saharan Africa (SSA) have demonstrated that completion of short-term, community-based training in rural areas may increase their motivation to practice medicine in these areas.^[1-8] Community-based training is a structured medical education program that places students in rural or underserved areas to give them exposure to clinical and community health practice in these settings. As a result, there is renewed effort to support community-based programs in SSA medical schools with the ultimate goal of increasing the number of doctors practicing in these settings.^[9-16]

The majority of the research conducted on community-based programs focuses on student intent to practice in rural areas after their medical school training.^[2,4,7,9] There is, however, limited understanding of how community-based medical training impacts clinical training and there is concern that teaching outside of the tertiary teaching hospitals by clinicians other than university lecturers may result in poor acquisition of clinical skills. On the other hand, it is argued that shadowing of experienced clinicians providing close mentorship in smaller rural hospitals may actually improve skills in patient care as well as increase retention of the medical professional there.^[17]

In this paper, we present a qualitative evaluation of student and consultant experiences with one such community-based training intervention at the University of Nairobi (UoN) that was focused on clinical experience. First, we provide the background of medical training at the UoN to provide context, then we describe the community-based program as a training intervention. Next, we outline the methods used for this evaluation, and present four findings that focus on student and consultant experiences. We conclude with a discussion of implications for future research and directions in community-based medical training.

University of Nairobi Medical Training

Medical school training at the UoN is five years. This includes an initial two years of pre-clinical training and then three years of clinical training which is largely carried out at the national referral hospital in Nairobi, the Kenyatta National Hospital (KNH). Over the past decade, medical student enrollment has increased three-fold in response to a countrywide need to train more doctors. The clinical teaching faculty and clinical training environment at KNH has, however, not expanded enough to match the increased student population.

Medical school is followed by a one-year internship period in selected public, private or faith-based hospitals around the country. The internship selection includes both individual

and Ministry of Health (MoH) decisions. Frequently, students opt for tertiary urban facilities and a lottery is held for over-selected facilities with a majority of students placed at rural sites that they did not initially select during the lottery process. After successful completion of a one-year internship, students are registered to practice medicine in Kenya. At this time, the majority leave rural public hospitals to seek opportunities in urban private hospitals or other sectors.^[18]

Decentralised Training Program

The community-based training program at the UoN, or the Decentralised Training Program (DTP), is an intervention designed to engage practicing medical consultants in public non-tertiary facilities as community-based training preceptors to offer clinical, managerial and community experiences to medical students. The program team hypothesized that this training intervention would enhance medical students' learning by increased patient contact and encourage the development of positive attitudes to rural practice through direct mentorship and community involvement.

The DTP is an activity of the Medical Education Partnership Initiative (MEPI) program funded by the National Institutes of Health (NIH).^[19] The MEPI program at the UoN is termed the Partnerships for Innovative Medical Education in Kenya (PRIME-K) and is a collaboration of the UoN, University of Washington (UW) and the University of Maryland Baltimore (UMB). The overall mission of PRIME-K is to improve health outcomes in Kenya through clinical training and research.

During the pilot DTP in October and November of 2011, selected medical students completed a seven-week rotation in one of four public non-tertiary hospitals in Kenya during their elective term. Students were paired with consultants at these hospitals who acted as their mentors and preceptors. The consultants selected were medical specialists who had a strong desire to engage in teaching and mentoring students.

Students from all the sites interacted weekly on-line via webcast where each site would present a case from a specific discipline, and a UoN faculty member would facilitate the case discussion via the e-learning platform, *Adobe-Connect^R*. In addition, students completed a micro-project to address a clinical or managerial problem supervised by their respective mentors at the sites.

Consultant and Site Preparation Processes

In preparation to receive the students, the program offered the consultants training on medical teaching methodology and mentorship adopted from the St. John's Medical College in Bangalore, India [Pre-service Medical Teaching Methodologies Handbook. Department of Medical Education. St. John's Medical College, Bangalore India]. The training focuses on concepts of adult teaching methodology^[20] and clinical mentorship that are important in medical education.

After the training, the consultants were offered an opportunity to apply for the position of adjunct faculty at the UoN. The position of adjunct faculty is similar to that of an honorary lecturer where the consultants undertake teaching and mentorship of students and in return

have access to training programs, fellowships and research seed money from the UoN. Out of the 53 staff who underwent the training from the 4 decentralised sites, 30 met the selection criteria and were confirmed as adjunct faculty. Each site then appointed a coordinator from the pool of adjunct faculty. The role of the site coordinator was overall supervision of the students and liaising with the UoN faculty member appointed to oversee the site. Consultants were paired with a maximum of three students to ensure effective one-on-one mentorship. The students were mentored and assessed in ward rounds, while undertaking procedures, during community activities, and in academic presentations. The students were evaluated using the logbooks for each rotation that documents cases clerked and procedures undertaken, observed or assisted. Faculty from the UoN visited the sites twice in the course of the rotation and met with students and adjunct faculty to discuss students' progress and review challenges to implementation of the program. It is within the context of these site visits that the study team conducted focus groups with consultants and students to understand their experience in the program.

METHODS

We conducted a study to collect information on consultant and medical student clinical experiences within this pilot program. Serial focus groups and a student questionnaire were used to collect data. The questionnaire was used to collect student demographic data which was analyzed to generate descriptive statistics of the student group.

This evaluation of the DTP was approved by the KNH/UoN Ethical Review Committee and participants provided verbal consent after they were accepted into the program and informed that the focus groups were part of the program's monitoring and evaluation process. Participants were assured that their responses would remain anonymous and that they could refrain from participation at any point in time. The focus groups were designed to generate in-depth discussion as participants elaborate and build upon each other's ideas, interpretations and experiences within a shared activity.^[21,22]

Three study investigators conducted focus groups in English at three different time periods during the 7-week DTP with all students from each site. The **pre-term focus groups** occurred during the pre-training orientation for students participating in the program. The **mid-term focus groups** were conducted with students and consultants separately during supervisory visits by UoN faculty and **post-term focus groups** conducted with students during the supervisory visits at the end of the rotation.

The focus groups were audio-recorded and notes were taken as well. The audio-recordings were transcribed and reviewed for accuracy. The three-person qualitative evaluation team developed the codes in preliminary analysis, and then each member of the team coded the transcripts anonymously.^[23] The team discussed individual findings as a group, and then these findings were triangulated to confirm the major findings presented here.^[24]

RESULTS

Student Demographics

We initially enrolled 30 students; however one student dropped out soon after orientation and did not participate in the DTP. Twenty-nine (N=29) students completed the DTP including 11 women and 18 men. The students represented five disciplines based on their rotation in the program including Internal Medicine (Med), Obstetrics and Gynaecology (Ob/Gyn), Paediatrics (Paeds), Public Health (PH) and Surgery. The students completed their rotation at one of four public hospitals in Kenya participating in the DTP: Coast Provincial General Hospital (CPGH); Garissa Provincial General Hospital (GPGH); Mbagathi District Hospital (MDH); and Naivasha District Hospital (NDH). [Table 1] The 4 hospitals are located in different areas of the country with diverse communities, geography, ethnicity, culture and religion. [Figure 1]

A majority of the medical students grew up and attended school in large urban centres. Two-thirds of the students reside in the three largest cities in Kenya: Nairobi, Mombasa and Kisumu. Over 50% of the students attended secondary school in Nairobi with another 35% attending secondary schools in other large urban areas [Table 2].

We conducted 15 Focus groups in total, 12 with the students and 3 with the consultants. Each focus group was conducted with participants from the same site. The students Focus groups were conducted pre, mid and post-term with a minimum of 5 and a maximum of 10 students per focus group depending on site distribution [Table 1]. Consultant focus groups were conducted at mid-term with consultants from three sites; Coast PGH (N=8), Garissa PGH (N=4) and Mbagathi DH (N=5). We were unable to carry out a focus group discussion with consultants at Naivasha due to scheduling difficulties.

Student Motivations and Learning Expectations at Pre-Term

Based on the data from the first set of focus groups, we identified three main expectations that students shared prior to the start of the program. These expectations included building clinical skills, decision-making about careers and mentoring.

Building clinical experiences and skills—During the pre-term focus groups, students discussed their motivations to participate in the DTP and their desire to build on existing knowledge and skills. Overall the students expressed a desire to gain hands-on clinical experience as they felt they were getting limited opportunities to practice clinical skills in their current medical training. One student explained:

“To be honest, when you go to ward rounds there are 40 plus students there....so I have to push myself to the front row. If this (DTP) is going to make students get experience in a clinical area, then this is good experience.” -Student rotating at MDH

Like this student who discussed her experience navigating a crowded ward round, students discussed competing with other students in their medical training to get opportunities to practice clinical skills and they saw this program as an opportunity to do so and to build their confidence in clinical practice.

Decision-making about medical careers—Students viewed this program as a means to clarify their decision-making about a specialization in their medical careers.

“..Rotating in paediatrics will give me a good platform. I want to do post-grad in paediatrics and so I need a good exposure to children. In the five years of medical school, I only had three months in paediatrics.”-Student rotating at MDH

Like the student quoted above who was interested in specializing in paediatrics but found the rotation period too short to make that determination, students generally stated they were planning to use this experience to inform their future choice of medical specialization in their careers.

Mentoring—Clinical mentorship was highly valued by the students because they perceived mentoring would help them to gain confidence in clinical practice. In the quote below, the student explains her expectations for the mentoring relationships at the training sites.

“Most of us think that presenting in the ward round is something we are looking forward to... I hope when we go there that I will get someone that is supportive. My expectation is to get someone who will ask how I am doing. If I don't know something [correctly in the ward rounds], I hope they will accept me as I am. As for my part, I hope to become more confident and be a good mentee.” -Student rotating at CPGH

Students across the sites shared a common desire to have mentors who were interested in their professional development and supportive of their learning process during the rotation.

Clinical Experience at Mid-Term

At the mid-term of the program, across the sites, students shared similar experiences that we broadly categorized as skill learning, gaining confidence in patient management and navigating socio-cultural challenges.

Skill learning—In general, it was found that students were learning skills from all cadres of health professionals and participating in clinical and public health activities. They worked with consultants during major ward rounds, in theatre and specialist clinics and with medical officers, interns and nurses when performing routine clinical procedures.

“...Today, it was theatre day, and we had two emergency cesarean sections [CS]. We were to scrub inthey [consultants] always take us along to theatre. So, [during the CS], they allow us to suture under supervision, they watch us and show us the right suture for the uterus and rectus....I want to be very honest. Before I came to this program, I never stitched. When I was at KNH, it wasn't possible [to stitch]...This time round I am happy that I know how to stitch and different types of stitches”. -Student rotating at MDH

In the public health rotation, students discussed how their learning occurred mainly in hospital and district health management team meetings.

“The most interesting thing for me was attending the committee meetings. I attended the financial and public health committee meeting.... I got to learn about

procurement, budgeting and tendering processes how they acquire equipment. It's been very interesting for me.” -Student rotating at MDH

As seen in the first quote, opportunities to learn and practice surgical skills were highly valued by the students. Another key finding was that public health rotation served to introduce students to administrative aspects of medical practice and allowed them to gain an understanding of how hospital operations impacted on care at the clinical level.

Confidence-building—Many students described how this exposure and involvement in patient care improved their sense of confidence in clinical care and public health.

“Personally, I can confidently say that if I was left alone in the labor ward, I would not panic. ... Before this rotation? Very much. Right now I am able to admit and do routine examinations. I am able to deliver, repair tears...But I haven't yet delivered a multiple pregnancy, but I hope to do so before I leave. Plus the small ones like fixing lines and bleeding [patients]”-Student rotating at NDH

By the mid-term of the program, students were getting mentored clinical experiences, and were setting additional clinical goals. Students were meeting their expectations for the program and developing confidence to complete some procedures as the lead clinician with supervision.

Navigating socio-cultural challenges—Students had opportunities to gain a better understanding of the social determinants of health such as this student who educated families on the need for the vaccination, while undertaking a door to door polio campaign.

“When we were doing the polio campaign, we noticed the importance of health education. The mothers we were assisting with the campaign, they didn't take their children to the hospital, so we tried to convince mothers to bring their children to clinic [for vaccination]. We talked to them until they accepted.”-Student rotating at NDH.

The students, in the course of their rotation demonstrated they were experiencing socio-cultural challenges with respect to health and understood the need to educate the communities on their health.

Decision-making on Internship Sites at Post-Term

During the post-term focus groups, the students reported that the opportunity to develop their clinical skills and to work in a supportive environment has influenced their decision to intern and practice at these sites. The following quote captures these factors in student decision-making.

“....There is respect here especially for the interns. Things are delegated to you.... Even the consultants will delegate down to the interns unless it is a special case and the intern is on the phone with the consultant. They believe you can do this. They have faith in you. That is really important in any working set up. -Student rotating at MDH

Across the decentralised sites, students stated that they had developed good working relationships with other healthcare workers, which were important to their clinical skill learning.

Consultant Experiences in the Program

During the mid-term of the DTP, we had an opportunity to carry out FGD with consultants from three of the four decentralised sites. They also shared their experiences with the students as well as their motivation to teach and mentor the students. One surgeon from MDH elaborated on his interaction with the students.

“In surgery, the two that are there, they really did assist me. I think they have gained because they have been close enough to surgery. At KNH, they wouldn't be able to scrub in, but here they can scrub in and assist....In the procedure, I am the one doing the surgery and telling them what I am doing and how to do it. It is one-to-one. In addition to assisting, they learned how to write notes. They were able to write post-op notes. They worked with interns to evaluate the patients. Even the ward rounds, they know the patients one-on-one, that is clear”. Consultant, MDH

The surgeon from MDH elaborated on how he teaches the students as they assist him in surgery. He noted that the students rarely get an opportunity to scrub in while undertaking their training and they are now gaining these skills at the hospital.

The next quote from GPGH demonstrates how the consultants engaged with the students on a day-to-day basis and how they mentored them on rural careers.

“Students have seen doctors in KNH and these sites [Garissa]. So, they will choose the path where they see life moving forward... we mentor them on these issues, we tell them that they can have career progression here. You don't need to go to Nairobi... we would like them to stay in Garissa after their internship rather than just coming here for the skills and so they need to see that a career is possible here rather a place that de-motivates you.” –Consultant, GPGH

The consultant talked about how he mentored the students in taking a rural career path and commented that with such programs, it was possible to have career progression even out in the rural areas, and this would motivate the doctors to stay and offer services.

The consultants also discussed their motivation to teach the students and how this has impacted on their job satisfaction.

“On a personal level, I am excited. This is a far-away place,I think the tradition has been that once you finished your post-graduate there is limited connection to training. The excitement is that we are getting back, interacting with former colleagues and find out what is happening. A psychological boost that you're just not cut off. This will hold me there for a while.” Consultant, GPGH

“When you see a student, you dust off your textbooks. It keeps you on your toes because they might ask you a question...I learned about the stem cells again.” Consultant, CPGH

Overall, consultants acknowledged they felt challenged and motivated by teaching students and reported that this improved quality of care at the hospital because the staff was inspired to study. The consultants also stated they no longer felt academically isolated and this motivated them to stay in these settings since they could teach and participate in medical training.

DISCUSSION

Although prior research and evaluations of similar community-based training programs focus on student motivations to practice in rural areas after medical school^[1-8], this qualitative evaluation also demonstrated that DTP contributed to the professional development of a medical student by integrating clinical knowledge, skills and mentoring in the provision of patient care. Specifically, we demonstrated that exposure to short-term clinical training experiences in non-tertiary settings during medical training helps to build knowledge and essential clinical skills required for future medical practice. Students also expressed increased confidence in management of patients with various conditions and positive experiences as integral members of patient management teams. Due to the challenges with human resources for health in SSA, new medical graduates need to be as practice-ready as possible when they complete their training. The DTP provided enhanced exposure to patient management and the development of clinical skills necessary for safe practice.

Concerns expressed about community-based medical training programs, such as the one evaluated in this study, are based on perceptions that effective training of the medical student can only take place in well-equipped tertiary institutions under the guidance of a university lecturer. In this evaluation, we were able to show the value of shadowing experienced clinicians as they carry out their practice. This model of learning by apprenticeship was how medical education started and the importance of this one-on-one mentorship cannot be underestimated in developing quality skills and professional attitudes in the practice of medicine. Kenya has a critical shortage of doctors at 1 doctor per 7,000 people; this is far below the WHO recommended number of 1 doctor per 600 people. There is therefore the need to train more doctors in the setting of having limited university faculty coupled with limited resources for expansion of training facilities. It is clear that there is a need for other cost-effective sustainable methods of increasing the quantity of medical doctors while maintaining high quality training. Our evaluation of the DTP has shown that use of non-tertiary facilities with consultant preceptors to mentor students is a viable method of doing so.

Studies have demonstrated that motivations to practice medicine in rural or underserved areas are positively influenced by being raised in a rural area^[25] as well as considerations such as financial incentives, children's schooling and undervalue of rural service in the health system.^[15] In this evaluation, students' motivation to intern in a decentralised site was based on their perceived opportunities to gain the clinical skills as well as the support they needed to practice medicine. Further, the engagement of consultants and other healthcare workers who work in non-tertiary facilities in the training of the medical students may contribute to their retention there. Academic isolation and lack of career progression

often results in doctors leaving rural practice to seek these opportunities in large urban areas. [1,3,4,14] Programs such as this can provide career development opportunities to medical doctors by integrating a clinical preceptor-ship with opportunities for additional training and research seed money. This may incentivize current medical doctors to remain in these hospitals, which in turn will stabilize the rural career pathway for future cadres of medical doctors. This program has the potential to be implemented in middle and low income countries that need to increase the number of medical graduates using available resources and ensuring a high quality education.

This study has two limitations that affected student and consultant experiences. First, while the program attempted to evaluate the students' general performance, there was no official rating of individual students' performance. Future plans for the program include integrating this training into the actual student curriculum with official examinations and formal evaluation of performance. Second, during the pilot program, there were two external events that affected student and consultant experiences in the program. One event included a conflict episode that resulted in a large number of casualties in the wards, and the second event was a health workers' strike that resulted in hospital closer for a period of two weeks.

Nevertheless, this pilot program has demonstrated early evidence to begin advocating for the integration of community-based training into the UoN medical school program. The next steps toward this goal will involve: 1) formalizing professional support for consultants at these sites who will teach and mentor medical students; 2) comparing hard outcomes of student performance when at the decentralised sites compared to the tertiary hospital; and 3) tracking rural career decision-making among medical students who completed the DTP.

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REFERENCES

1. Johnson JC, Nakua E, Dzodzomenyo M, Agyei-Baffour P, Gyakobo M, Asabir K, et al. For money or service?: a cross-sectional survey of preference for financial versus non-financial rural practice characteristics among Ghanaian medical students. *BMC Health Serv Res.* 2011; 11:300. [PubMed: 22050704]
2. Kaye DK, Mwanika A, Sekimpi P, Tugumisirize J, Sewankambo N. Perceptions of newly admitted undergraduate medical students on experiential training on community placements and working in rural areas of Uganda. *BMC Med Educ.* 2010; 10:47. [PubMed: 20573221]
3. Reid SJ, Cakwe M, Chandia J, Couper ID, Conradie H, Hugo J, et al. The contribution of South African curricula to prepare health professionals for working in rural or under-served areas in South Africa: a peer review evaluation. *S Afr Med J.* 2011; 101:34–38. [PubMed: 21626979]
4. Reid SJ, Couper ID, Volmink J. Educational factors that influence the urban-rural distribution of health professionals in South Africa: a case-control study. *S Afr Med J.* 2011; 101:29–33. [PubMed: 21626978]
5. Vaz R, Gona O. Undergraduate education in rural primary health care: evaluation of a first-year field attachment programme. *Med Educ.* 1992; 26:27–33. [PubMed: 1538652]

6. Awofeso N. Improving health workforce recruitment and retention in rural and remote regions of Nigeria. *Rural Remote Health*. 2010; 10:13–19.
7. Agyei-Baffour P, Kotha SR, Johnson JC, Gyakobo M, Asabir K, Kwansah J, et al. Willingness to work in rural areas and the role of intrinsic versus extrinsic professional motivations - a survey of medical students in Ghana. *BMC Med Educ*. 2011; 11:56. [PubMed: 21827698]
8. Heestand SDE, Onoka CA, Ofoebgu EN. Community-based education in Nigerian medical schools: students' perspectives. *Educ Health*. 2008; 21:83.
9. Kaye DK, Mwanika A, Sewankambo N. Influence of the training experience of Makerere University medical and nursing graduates on willingness and competence to work in rural health facilities. *Rural Remote Health*. 2010; 10:1372. [PubMed: 20222757]
10. Kruk ME, Johnson JC, Kotha SR, Gyakobo M, Agyei-Baffour P, Nakua E, et al. Rural practice preferences among medical students in Ghana: A discrete choice experiment. *Bull World Health Organ*. 2010; 88:333–341. [PubMed: 20458371]
11. Mullan F, Frehywot S, Chen C, Greysen S, Cyprien S. Medical schools in sub-Saharan Africa. *Lancet*. 2011; 377:1113–1121. [PubMed: 21074256]
12. Awases, A.; Gbary, A.; Nyoni, J.; Chatora, R. Migration of health professionals in six countries: a synthesis report. WHO Regional Office for Africa; Brazzaville: 2004.
13. Van Schalkwyk S, Bezuidenhout J, Burch VC, Clarke M, Conradie H, Van Heerden B, et al. Developing an educational research framework for evaluating rural training of health professionals: A case for innovation. *Med Teach*. 2012; 34:1064–1069. [PubMed: 22957506]
14. Frenk J, Chen L, Bhutta ZA, Cohen J, Crisp N, Evans T, et al. Health professionals for a new century: transforming education to strengthen health systems in an interdependent world. *Lancet*. 2010; 376(9756):1923–1958. [PubMed: 21112623]
15. Mullan F, Frehywot S, Omaswa F, Buch E, Chen C, Greysen SR, et al. Medical schools in sub-Saharan Africa. *Lancet*. 2011; 377(9771):1076. [PubMed: 21440806]
16. Frehywot S, Mullan F, Payne PW, Ross H. Compulsory service programmes for recruiting health workers in remote and rural areas: do they work? *Bull World Health Organ*. 2010; 88:364–370. [PubMed: 20461136]
17. Epstein RM, Cole DR, Gawinski BA, Piotrowski-Lee S, Ruddy NB. How Students Learn From Community-Based Preceptors. *Archives of Family Medicine*. 1998
18. National Human Resources for Health (HRH) Kenya. Strengthening the Health Workforce for Improved Services. Annual Report. 2010
19. Fogarty International Center; National Institutes of Health; Department of Health and Human Services. HHS partners with PEPFAR to transform African medical education with \$130 million investment. *Global Health Matters*. Oct.2010 9(5)
20. Yorke M. Formative assessment in higher education: Moves towards theory and the enhancement of pedagogic practice. *Higher Education*. 2003; 45:477–501.
21. Krueger, RA.; Casey, MA. Focus groups: A practical guide for applied research. Sage Publications; Thousand Oaks, Calif: 2000.
22. Bradley EH, Curry LA, Devers KJ. Qualitative Data Analysis for Health Services Research: Developing Taxonomy, Themes, and Theory. *Health Serv Res*. 2006; 42:1758–72. [PubMed: 17286625]
23. Charmaz, K. Constructing grounded theory: A practical guide through qualitative analysis. Sage Publications; London: 2006.
24. Miles, MB.; Huberman, AM. Qualitative data analysis: An expanded sourcebook. Sage Publications; Thousand Oaks: 1994.
25. Glasser M, MacDowell M, Hunsaker M, Salafsky B, Nielsen K, Peters K, et al. Factors and outcomes in primary care physician retention in rural areas. *SA Fam Pract*. 2010; 52:336–340.

Figure 1.
Map of Kenya with the Decentralised Training Sites in 2011

Table 1

Program Participants per Site and Discipline (Women/Men)

Decentralised Site	Obstetrics/Gynaecology	Public Health	Surgery	Internal Medicine	Paediatrics	Total
Coast PGH *	2/1	0/1	0/2	2/2	0/0	4/6
Garissa PGH	0/0	0/0	0/1	0/2	1/1	1/4
Mbagathi DH **	0/1	0/1	0/2	0/0	2/0	2/4
Naivasha DH	1/1	0/2	2/0	0/0	1/1	4/4
Total	3/3	0/4	2/5	2/4	4/2	11/18

* PGH- Provincial General Hospital

** DH- District Hospital

Table 2

Socio-demographic Characteristics of Program Participants

Gender	Number (N=29)	Percent
Female	11	37.9%
Male	18	62.1%
Education level of mother		
Primary and below	06	20.7%
Secondary and above	23	79.3%
Education level of Father		
Primary and below	08	27.6%
Secondary and above	21	72.4%
Site of secondary school attendance		
Nairobi	15	51.7%
Other urban	10	34.5%
Rural	4	13.8%
Residence prior to medical school		
Nairobi	11	37.9%
Other urban	10	34.5%
Rural	8	27.6%