

Ethics and clinical responsibility on medical student electives in Africa - a mixed methods study

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ABSTRACT

Introduction

Electives are a popular aspect of undergraduate medical training, with many electives taking place in the developing world.¹ Glasgow university students undertake both junior and senior electives, presenting a unique opportunity to investigate experiences of students with differing levels of clinical competence and professional experience.

Methods

Quantitative and qualitative data included in elective reports, completed by students having returned from Africa between 2008-2012, were combined and analysed. Ten semi-structured interviews were performed with students who completed an elective in

Africa in 2011 or 2012.

Results

In 2008-2012, 183 electives (7.4%) were undertaken in 16 African countries in a variety of locations and institutions. Students had opportunities to observe medicine in a resource-limited environment, different health practices and disease patterns, and the influence of cultural practices on health. Language barriers often meant that students could not communicate directly with patients. Many students undertook clinical procedures some of which they had not yet learned in their undergraduate training. Students were usually adequately supervised, but, at times were unexpectedly confronted with inappropriate levels of clinical responsibility, and often felt obliged to intervene.

Conclusions

Electives in Africa provide a wealth of experience. The clinical situations to which students are exposed have important practical and ethical considerations for both the student and the sending institution. How a student should respond when unexpectedly confronted with inappropriate clinical responsibility centres on the ethical principles of "beneficence" and "non-maleficence". Standardised briefing on how to handle conflicts between what may be asked of students and their level of competence would ensure that students travelling to Africa for electives are better prepared to respond appropriately.

Introduction

Medical electives are a popular part of undergraduate curricula with many students going overseas, particularly to developing countries. 40% of UK medical students undertook electives in developing countries in 2004.¹

Although the benefits of international health electives are widely perceived,^{7,16,17,18} there is little evidence concerning students' experiences on electives and the ethical and professional issues that they may face.² Existing literature concerning international health electives (IHEs) covers five main areas: preparation, clinical competence, ethical considerations, personal risk and benefits.

The British Medical Association (BMA) and General Medical Council (GMC) provide advice and guidelines considering the practical and ethical considerations for students on electives as well as the appropriate behaviours that students should adopt. The primary message is that students should not act out with their clinical competence.^{3,4,5} Various papers affirm the role of the sending institution in preparing students adequately for IHEs.^{2,6,7} One study assessed the effect of specific, pre-departure training.⁸

Analysis of qualitative data gathered from 12 students after completing an IHE concluded that ethical issues fell into five main themes: uncertainty about how best to help; perceptions of Western medical students as different; moving beyond the scope of one's practice; different cultures of medicine; and unilateral capacity building.⁹ These

issues are similar to the ethical challenges in humanitarian aid work described by Schwartz et al:¹⁰ resource scarcity; historical, political, and social structures; aid agency policies; and perceived norms around health professionals' roles and interactions.

In the light of healthcare workers' heightened expectations of Western medical students in the Solomon Islands, Radstone argues that in more coordinated elective programmes students could fill human resource gaps in healthcare workforces, on the basis that some help is better than none.^{11,12} There is increasing debate, however, about the role of medical students on electives in developing countries, where resource shortages may result in pressure on students to act beyond their competence or without the supervision experienced in the UK.⁷

Other issues which have been reported include student safety on electives, advice on HIV prophylaxis and coping with personal illness.^{13,14,15}

This study analysed the feedback given following all African electives involving students from a single UK medical school over a five year period and used a mixed methods approach to describe and explain the experiences and views of medical students, with a particular focus on clinical activity and responsibility.

Methods

The Glasgow Elective Programme

Glasgow medical student electives consist of four weeks' clinical experience during the summer break, are organised independently by the student, and can be taken anywhere if granted medical school approval. About 50% of electives are taken in the UK, and most overseas electives are taken in English speaking countries.

Glasgow students undertake both junior and senior electives, at the end of years 3 and 4 respectively, resulting in about 500 student electives per year. By definition, junior and senior students approach their electives with differing levels of clinical competence and professional experience.

On return from their elective, students fill out a report containing quantitative information on the context and content of their elective and 600 words of free text explaining the clinical and cultural setting, giving a reflective summary of their experience and describing any significant learning points or challenges faced. The data for this study were obtained from student elective reports in 2008-2012. The data were extracted, collected and analysed in two phases.

Phase 1

Data from African elective reports in 2008-2012 were analysed to produce a quantitative account of the electives, including the area of Africa and type of institution visited, and the clinical procedures performed by students. Data for junior and senior electives were analysed separately.

Themes commonly arising in the free text section of elective reports were noted and content analysis performed to quantify how often issues were highlighted by students.

Phase 2

The content analysis performed on the free text within student reports and the results of the previous literature review determined the questions used in semi-structured interviews conducted with ten students who undertook electives in Africa in 2011 and 2012 (i.e. those still at University at the time of the study). 37 eligible students were contacted by a third party, unrelated to the study, by letter and email. All ten students who replied were interviewed after providing informed consent.

The interviews were recorded, transcribed verbatim and analysed. Transcripts were broken down into the individual points made, which were then allocated to an appropriate theme. This process produced a total of 411 points divided between eight themes.

Ethics approval for this study was granted by the College of Medical, Veterinary and Life Science of the University of Glasgow.

Results

In 2008-2012 there were 2458 electives, of which 183 (7.4%) took place in Africa (70 junior and 113 senior electives). African electives took place in 68 institutions in 16 countries.

Phase 1:

***Quantitative data from 183 African elective reports* Area of Africa visited**

42 (23%) electives were in South Africa, 34 (19%) in Tanzania, 27 (15%) in Uganda, 37 (20%) in South East

Africa (Madagascar, Malawi, Mozambique, Zambia, Mauritius), 23 (13%) in North East Africa (Ethiopia, Rwanda, Kenya, The Seychelles), and 20 (11%) in West Africa (Gambia, Ghana, Liberia, Nigeria).

Type of institution visited

50% of African electives took place in institutions previously visited by a Glasgow student.

43% of electives took place in teaching hospitals, 33% in large district hospitals, 10% in small community hospitals and 14% in "other" locations (e.g. Public health electives that were taken in conjunction with the charity Students for Kids International Projects that visit and undertake health promotion in orphanages in Malawi).

Clinical experience gained on elective:

Observational electives are defined as those that did not involve performing a hands-on clinical procedure (Table 1A). 36% of junior students had observational electives whilst 63% reported undertaking clinical procedures. For senior electives, these figures were

31% and 67% respectively. 83% (15 of 18) of students

who visited small community hospitals reported undertaking clinical procedures.

43% of students reported performing "other invasive procedures" including suturing, paracentesis and chest drains (Table 1B).

Phase 1:

Analysis of free text from 183 elective reports Issues reported by the majority of students were: resource limitations (81%); a significant learning experience (63%); different disease patterns to the UK (56%); differences in the doctor-patient relationship (54%); language barriers (53%) and opportunities to perform clinical procedures (52%);

Electives involving clinical responsibility were defined as those in which the student experienced clinical decision making responsibilities without appropriate supervision. 27% of students reported such clinical responsibility, including 44% of the students who visited small community hospitals. Few students reported organisational difficulties (8%) or personal illness (5%) (Table 2). One student reported sustaining a needlestick injury.

Phase 2:

Analysis of semi-structured interviews

Ten students (5 male, 5 female) were interviewed, comprising 9 junior and 1 senior electives in 6 countries. 8 of these electives took place in large district hospitals.

Clinical procedures and responsibility

Seven respondents undertook clinical procedures. They felt well supervised and never out with their competence, although some recognised that they were undertaking procedures they would not do in the UK or had been advised not to by the medical school. Two respondents who had observational electives believed they could have performed clinical procedures had they wanted to.

Five respondents reported being well supervised, three adequately supervised and two reported inadequate clinical supervision during their elective. No student reported having been pressurised into doing anything. However, six students reported situations where they felt obliged to intervene based on their principles or because no-one else would have acted:

(D) "I never felt under pressure to do things. I just felt kind of obligated.. from my own principles."

(I) "...they left me in a nursery with premature babies ...said can you continue the ward round and then one of the babies in the ward was blue and wasn't breathing so then I was left to organise the resuscitation of the baby."

Different expectations of students

Nine respondents felt that the expectations were higher than they had experienced in their UK training. Differences included the amount of knowledge they were expected to have, being asked questions by healthcare staff and their answers being taken as correct, being asked to prescribe medication and the practical procedures they were capable of.

(C) "...you got to do a lot more and they didn't really know what to expect of us like they wouldn't expect different things from a first or fifth year student, they could almost treat you like another doctor if you knew your

stuff."

How students dealt with heightened responsibility or expectations

Seven respondents did not want to act beyond their competence. Most felt able to say no when this was the case:

(A) " . i t was okay if you said no, you didn't have t o . I just said that I didn't think I was competent to make clinical decisions . I didn't feel it was safe." (I) " . I just needed to tell them I don't know. I learned quite quickly not to say anything because the things you said they would take as correct."

However, when respondents were unexpectedly given clinical responsibility, three felt it better to do something than to do nothing.

Language barrier

Six respondents experienced a language barrier between themselves and patients. Of these, five reported not being able to communicate with patients at all, often relying on a member of staff being avail-able to translate.

Three felt that due to the language barrier they may have misinterpreted clinical situations whilst another questioned whether gestures that they considered normal were culturally relevant.

Doctor-patient relationship

Every respondent reported care as being more paternalistic than in the UK with some feeling that patients accepted this, doctors being highly respected: (I) " ...the patients in Malawi just didn't ask questions, they just were told and they just accepted it"

Four suggested that the differences witnessed were due to cultural differences. Two suggested that the language barrier meant they may have misinterpreted staff-patient exchanges.

What the medical school could do differently

Nine respondents stated that the information provided by the medical school was sufficient, with positive comments made about the elective website allowing access to previous elective reports, changes in the curriculum increasing clinical experience prior to under-taking an elective and provision of a contact at the medical school if something went wrong.

Some respondents highlighted that it is not a "one size fits all" situation and that countries visited by students are varied. Two found "minimal involvement from the medical school was fine" and that the fre-dom given to students is "fantastic".

Areas which respondents felt could be improved were advice on general safety, information on the risk of HIV transmission, how to say no and not act out with your competence.

Discussion

Strengths and weaknesses

This is the first systematic review of African electives in a UK medical student elective programme. The study is based on a complete sample of five years' elective experiences in Africa. A mixed methods approach allowed for a more complete analysis of student experiences. Whilst it was intended to have equal numbers of junior and senior electives in the interview sample, senior students' final exams made this impossible. The resulting focus on junior electives is helpful nevertheless, given the uniqueness of Glasgow electives at this stage in the curriculum and

the implications regarding clinical competence and responsibility. Semi-structured interviews with recently returned students allowed in depth investigation of individual experiences, generating information regarding respondents' reactions and thoughts surrounding issues, which are difficult to portray in written reports with word limits.

In elective reports, students may include a combination of what they feel is important and what they believe the medical school expects. There are varying degrees of openness in reports, which is important to consider when viewing these results. Further to this, individual students perceive and react to situations, exposures and observations differently as a result of their own cultural experience and values.

A larger sample of student elective reports would allow for more robust conclusions to be drawn, especially with regards to the small subgroups. The semi-structured interview sample could be increased until theme saturation occurred. The relationship between the interviewer and respondent may have altered responses given. Opinions on this matter are divided. Some suggest that previous acquaintance allows for greater rapport causing the respondent to more readily disclose information, while others believe that the absence of previous contact makes respondents feel

safer to share some things as they will not see them again.¹⁹ Neither the content analysis of the elective report free text, nor the semi-structured interview analysis, could be independently corroborated.

Findings

Electives in Africa present opportunities to observe medicine in a resource-limited environment, different health behaviours and disease patterns to the UK and the influence of cultural practices on health. Language barriers often mean students cannot communicate directly with patients, potentially providing different learning opportunities such as working through a translator and allowing close observation of professional behaviours and interactions. Language barriers may also impact upon a student's perception of cultural context. These opportunities and the associated benefits for students are consistent with the existing literature.^{2,7,16,17,18}

Clinical procedures and responsibility

Large numbers of junior and senior students had opportunities to undertake clinical procedures, some of which they had not yet learned in their undergraduate training e.g. assisting in deliveries and arterial blood gases. Some procedures that students reported undertaking are not taught at an undergraduate level e.g. lumbar puncture, thoracentesis and chest drains (Table 1B). This supports the belief that electives in the developing world involve opportunities to improve clinical skills.¹⁷ Performing procedures not yet learned at home has ethical implications especially concerning junior students who may be undertaking electives in specialities not yet covered in their undergraduate course. Most interview respondents felt adequately supervised and did not feel out with their competence. This finding was particularly true of students visiting larger institutions, where it is often the case that training and supervision are available in the same way as the UK. Where this is not the case, students need to be able to say no. Most felt able to say no if asked to do something they were uncomfortable with, indicating a strong ethical approach.

Analysis of free text and interviews revealed situations where students were unexpectedly confronted with inappropriate levels of clinical responsibility, corresponding to the opinion that resource limited set-tings can present ethical challenges.^{7,9,10} 16 (23%) junior students and 33 (29%) senior students reported such an experience. How students should respond to this centres around the ethical principles "beneficence"-promoting benefit, and "non-maleficence" - minimising harm. The student should believe that the intervention will benefit the patient without posing risks at levels which outweigh the potential benefit. The BMA recognise that undertaking electives in resource poor countries can present ethical challenges and affirms that students have a professional duty to work within the limits of their competence.²⁰ The GMC state that, to demonstrate fitness to practise, students must ask for help when necessary and ensure that they are appropriately supervised for any clinical task they perform.⁵ However, emergency situations may require a student to act beyond their competence, perhaps feeling obligated to intervene. The BMA advise that students act carefully and intervene only when they believe that the intervention would reduce or prevent serious harm to the patient.²⁰

Students must remember their level of training and not allow heightened responsibilities of local students to alter their professional limits. Occurrence of such scenarios in a different cultural context to a student's own may mean that what the student believes to be right goes against local healthcare practices or proto-cols. This adds another dimension to the discussion -to what extent the ethical principles learned in the UK can and should be applied in different cultural and health system contexts.

A larger proportion of students visiting small community hospitals reported performing clinical procedures and having clinical responsibility, compared to the sample as a whole. This issue requires further investigation but could not be pursued in this study due to small numbers.

Preparation

A successful elective involves planning in advance.²⁰ The BMA provides toolkits covering the practical and ethical aspects.^{3,4} Unexpected clinical responsibility can arise in many ways, however, making it impossible to prepare for every situation.

In response to these findings, Glasgow Medical School has introduced a debriefing procedure for students returning from overseas electives and increased the advice given to students before travel, especially those travelling to resource-poor countries. It is important that medical schools maintain a supportive role to safeguard and maximise benefit to all parties involved. As student reports are the only mechanism by which medical schools can learn of students' experiences on electives, it is important to maintain this communication channel as a vehicle for shared learning.

Conclusions

This study provides a complete description of the experience of African electives by medical students from one medical school, including students at different levels of clinical competence, which may be of interest and use to other medical schools, wishing to review this aspect of their own students' experiences.

This research highlights the need for greater awareness and consideration of the clinical situations to which students may be exposed when undertaking electives in Africa, and the resulting practical and ethical implications. Standardised briefing on how to handle conflicts between what is asked of students and their level of competence would ensure that students travelling to Africa for electives are better prepared to respond appropriately.

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References:

- 1 Miranda JJ, Yudkin JS, Willott C. International Health Electives: Four years of experience. *Travel Med Infect Dis*. 2005; 3(3):133-41.
- 2 Dowell J, Merrylees N. Electives: Isn't it time for a change? *Med Educ*. 2009; 43(2):121-6
- 3 British Medical Association's Medical Students Committee. Electives for medical students. Membership guidance note -medical students. Revised 2009. Available from: <http://www.medschools.ac.uk/AboutUs/Projects/Documents/BMA%20Electives%20Medical%20Students%20Nov%202009.pdf>
- 4 British Medical Association Medical Ethics and International Committees. Ethics and medical electives in resource poor countries. A tool kit. Available from: <http://bma.org.uk/developing-your-career/studying-medicine/medical-electives-in-developing-countries>
- 5 General Medical Council Student Fitness to Practise Working Group. Medical students: professional values and fitness to practise. 2005. Available from: http://www.gmc-uk.org/education/undergraduate/professional_behaviour.asp#20categories
- 6 Murdoch-Eaton D, Green A. The contribution and challenges of electives in the development of social accountability in medical students. *Med Teach*. 2011; 33(8):643-8.
- 7 Banatvala N, Doyal L. Knowing when to say "no" on the student elective. *BMJ*. 1998; 316:1404.
- 8 Dharamsi S, Osei-Twum JA, Whiteman M. Socially responsible approaches to international electives and global health outreach. *Med Educ*. 2011; 45: 530-531.
- 9 Elit L, Hunt M, Redwood-Campbell L, Ranford J, Adelson N, Schwartz L. Ethical issues encountered by medical students during international health electives. *Med Educ*. 2011; 45(7):704-11.
- 10 Schwartz L, Sinding C, Hunt M, Elit L, Redwood-Campbell L, Adelson N et al. Ethics in humanitarian aid work: Learning from the narratives of humanitarian health workers. *AJOB Primary Research*. 2010;1(3):45-54.
- 11 Radstone SJJ. Practicing on the poor? Healthcare workers' beliefs about the role of medical students during their elective. *J Med Ethics*. 2005; 31:109-110.
- 12 Banerjee A. Medical electives: a chance for international health. *J R Soc Med*. 2010; 103(1):6-8.
- 13 Stacey K, Sellers L, Barrett S. Education provided to outgoing UK medical elective students regarding HIV risk and post exposure prophylaxis. *Int J STD AIDS*. 2012; 23(11):772-4.
- 14 Cossar JH, Allardice GM, Whiting B. Health surveillance of Glasgow medical undergraduates pursuing elective studies abroad (1992-1998). *J Travel Med*. 2000; 7(6):314-8.
- 15 Tyagi S, Corbett S, Welfare M. Safety on elective: a survey on safety advice and adverse events during electives. *Clin Med*. 2006; 6(2):154-6.
- 16 Mutchnik I, Moyer CA, Stern DT. Expanding the boundaries of medical education: evidence for cross-cultural exchanges. *Acad Med*. 2003; 78(10 Suppl):S1-5.
- 17 Thompson MJ, Huntington MK, Hunt DD, Pinsky LE, Brodie JJ. Educational effects of international health electives on U.S. and Canadian medical students and residents: a literature review. *Acad Med*. 2003; 78(3):342-7.
- 18 Stys D, Hopman W, Carpenter J. What is the value of global health electives during medical school? *Med Teach*. 2013; 35(3):209-18.
- 19 Mertens D M. Research and Evaluation in Education and Psychology: Integrating diversity with quantitative, qualitative and mixed methods. Third Edition. SAGE publications. 2010. Pg 246.
- 20 British Medical Association Ethics Department. Medical Ethics Today: The BMA's Handbook of Ethics and Law. Third Edition. Wiley- Blackwell, BMJ Books. 2012. Pg 517.

Table 1A

Clinical procedures performed by junior and senior students whilst on elective in Africa between 2008 and 2012.

Elective	Clinical procedures	Clerking No. 1%)	Venepuncture No. (%)	Lumbar puncture No. (%)	Other invasive procedures No. (%)	Assisting with deliveries No. (%)
Junior(n=70)	yes	40(57)	28(40)	16(23)	32(46)	24(34)
	no	27(39)	40(57)	52(74)	36(51)	44(63)
	missing data	3(4)	2(3)	2(3)	2(3)	2(3)
Senior(n=113)	yes	77(68)	42(37)	19(17)	46(41)	37(33)
	no	32(28)	67(59)	91(81)	62(55)	71(63)
	missing data	4(4)	4(4)	3(3)	5(4)	5(4)

Ethics and clinical responsibility on medical student... *continued*

Table 1B

Other invasive procedures performed by junior and senior students whilst on elective in Africa between 2008 and 2012.

**Procedures performed by less than five students were not included in the table. These were: pelvic examinations; wound debridement; removal of retained placenta; joint aspirate; fine needle aspirate; intubation; ventilation; resuscitation; bone marrow aspirate; stabilise open fracture; and central and arterial line.*

Other invasive procedure*	Junior (n=70) No. (%)	Senior (n=113) No. (%)
Assisting in surgery	11(16)	13(12)
Intramuscular injection	8(11)	KD
Suturing	13(19)	15(13)
Local anaesthetic	4(6)	5(4)
Paracentesis	7(10)	7(6)
Thoracentesis	5(7)	9(8)
Arterial blood gases	5(7)	11(10)
Urinary catheter	6(9)	11(10)
Nasogastric tube	3(4)	5(4)
Chest drain	3(4)	9(8)

Table 2*Issues highlighted in free text from 183 reports of electives undertaken in Africa between 2008 and 2012.*

Feature of elective	Junior electives (n=70)	Senior electives (n=113)
Differences in the doctor-patient relationship*	40 (57%)	57 (50%)
Clinical procedurest	37 (53%)	58 (51%)
Clinical responsibility*	16 (23%)	33 (29%)
Resource shortages	55 (79%)	93 (82%)
Significant learning experience	46 (66%)	67 (59%)
Personal safety	17 (24%)	25 (22%)
Illness whilst away	4 (6%)	4(4%)
Organisational difficulties	6 (9%)	7 (6%)
More advanced disease or rare in UK	38 (54%)	66 (58%)
Language barrier	38 (54%)	59 (52%)
Cultural differences	31 (44%)	50 (44%)
Personal growth	14 (20%)	21 (19%)
Professional development	17 (24%)	24 (21%)

**Differences in the doctor-patient relationship were defined as reports that described care as paternalistic, mentioned issues relating to confidentiality, consent, and autonomy or described negative experiences of healthcare worker's attitudes towards patients.*

tElectives involving clinical procedures were defined as those in which the student performed an invasive clinical procedure.

tElectives involving clinical responsibility were defined as the student being exposed to clinical decision making responsibilities without appropriate supervision.