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Protecting the Safety of Medical Students on Overseas Electives:

An investigation into the Incidence, Nature and Preventability of Adverse Incidents Abroad

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Abstract

International electives are enjoyed by students, educationally beneficial and may inform career choices. However, they can be hazardous. This study aims to describe and analyse the experiences of Glasgow medical students in anticipating, avoiding and coping with adverse events while travelling alone on an overseas elective.

Methods:

Phase I - Administrative data from 2010-14 were analysed to establish trends for destinations and whether students went alone.

Phase II - 218 reports from students who travelled abroad in 2013 provided data on the incidence and nature of adverse events.

Phase III -12 semi-structured interviews were conducted with students who travelled abroad alone in 2014.

Results:

Phase I- 2590 electives were undertaken in 2010-2014; 1103 (42.6%) were abroad and 273 (10.5%) were undertaken abroad travelling alone.

Phases II & IIpa 21 adverse events were recorded from the student reports and interviews. Students were underprepared for the risks of sexually transmitted infections. More socially integrated students felt better protected from local hazards. Alcohol was considered by students to be a risk factor for adverse events. Interview respondents confirmed that there is under-reporting of adverse events to the University. The incidence of adverse events occurring on elective was estimated as at least 6%, and could be substantially more.

Conclusions: Students are at risk of adverse events occurring whilst travelling abroad. They coped with this risk by varying degrees of preparation and prudent, pragmatic behaviour, such as moderating their alcohol consumption and using helmets when using motorbikes for transport. Students overall did not see their electives as unacceptably risky. There is under-reporting of adverse events to the medical school making incidence estimates unreliable. As most serious adverse events occur unpredictably, advice on avoiding elective risks needs to be provided for all students included as part of the taught curriculum.

Introduction

Overseas electives are popular amongst students and widely considered to be educationally beneficial[1,3]. They may inform career choices and improve students' cultural competency[1,2]. The literature concerning overseas electives focuses on their educational value[1,3], ethical dilemmas[4-7] encountered and the risk of acquiring HIV[8-15] . Little has been written on student's personal safety or lived experience of risk. Electives can be hazardous although the exact nature of hazards and how students cope with them is still largely unknown making prevention a challenge. One study estimated that 45% students on electives abroad experience illness[16], while another found that 83% of Canadian students experienced a situation where their safety was jeopardized whilst on an elective in developing countries[17]. The mortality rate of medical students visiting developing countries has been estimated as 1 in 850 and 1 in 340[16]. Whilst likely to be overestimates, these data show that safety is an important issue.

Medical schools vary in how much pre-departure advice is provided[7,13,14]. Before this study, Glasgow University provided an optional evening lecture, website advice and a database of past students' elective reports.

This study describes and analyses the experience of Glasgow medical students in anticipating, avoiding and coping with adverse events while travelling alone on overseas electives.

Methods

Phase I

Data were analysed to identify trends in countries visited by students in 2010-2014, including numbers of 'solo travellers' defined as students who travelled abroad, to unfamiliar places, by themselves.

Phase II

218 elective reports from students who travelled abroad in 2013 were analysed for any references to adverse incidents, risk taking or contingency planning.

Phase III

53 'solo' travelling students undertook electives in 2014. 24 students were randomly selected by a computer random number generator to be invited to interview. The first 12 to respond were interviewed.

12 one-to-one, semi-structured interviews were undertaken. Written informed consent was obtained and participation was voluntary.

A question frame was used but there was scope for exploring other themes brought up by respondents. The anonymised interviews were recorded and transcribed verbatim.

The University of Glasgow Ethics Committee approved this study [Application Number: 200140055].

Results

Phase I- Administrative data

Of the 2590 electives carried out 2010-2014, 1487 (57.4%) were undertaken in the UK or Northern Ireland and 1103 (42.6%) abroad in 92 countries. 273 (10.5%) electives were carried out 'solo'. These students most commonly travelled to Africa, (77/273, 28.6%), and South East & East Asia (72/273, 26.4%).The percentage of students carrying out their electives in the UK increased from 51.6% in 2010 to 58.2% in 2014 (Table 1).

Phase II- Student reports

13 of the 218 reports (6%) from students who travelled abroad in 2013 contained adverse events (Table 2). 9 (4.1%) further reports contained accounts of behaviours that increased risk, the most common being motorbike riding. From this source the estimated incidence of an adverse event occurring on an overseas elective is 6%.

Phase III- Semi structured interviews

9 adverse events were reported by 7 of the 12 respondents (58% of students who were interviewed) (Table 3).

Themes

Practical preparedness and infection risk

Nine of the twelve respondents sought pre-travel advice from a GP/travel clinic. Of the four students who visited countries with >1% prevalence of HIV, only two obtained HIV Post Exposure Prophylaxis (PEP) to take with them. The two who did not cited cost and lack of planning as reasons.

Eight respondents were vaccinated against rabies. Those who were not indicated cost to be a factor with some students adding that they felt they could avoid the risk of rabies by avoiding animals; two students did however express concerns about street dogs being unavoidable. Students were better prepared against malaria which was viewed as a non-modifiable risk. 8 students went to areas with high risk of malaria: 7 took repellent, nets and prophylaxis with them.

Three female students were taking the oral contraceptive pill and one male student took condoms with him. One student reported having unprotected sex whilst on elective.

Social integration

Five respondents reported friendships with local people which enabled them to visit more hazardous, non-touristic places. Two students reported that the closer they emulated local behaviour, for example by using public transport, the more they found local people well-disposed to offer advice and help.

Road safety and risk management

Half the students expressed concerns about road safety. Three students used motorbike-taxis; all acknowledging it was a risky activity they wouldn't have done in the UK. Students found ways of reducing risks to levels they found acceptable. One student was advised not to take motorbike-taxis but found he needed to use them for essential transport so compromised by only taking motorbikes with helmets for the passenger; this approach was also taken by another student who assessed the sobriety of bus drivers before boarding.

Alcohol, smoking and drug use

10 students who drank on their electives reported a change in their drinking habits, from the binging culture of the UK to smaller, more regular consumption abroad.

Alcohol was regarded by students as a risk factor for adverse events. All 12 respondents agreed that to get drunk to an extent where decision-making was impaired in a foreign environment was ill-advised for reasons of both safety and professionalism.

Whilst several students reported feeling conspicuous in local bars, the majority felt that they attracted curiosity from local people rather than hostility.

Of the three respondents who smoked, two reported smoking more than normal due to the widespread availability and low cost of cigarettes at their elective locations.

The degree of responsibility of the medical school was contested

"Yeah I think the med school should get feedback like every week, so how are things going?... It seems like we belong to medical school, we're like their children"- Student 'F'

"I don't know whether the medical school should be like a little mummy looking after you… are they there

to look after you?"- Student 'K'

There was little expectation of practical assistance from the medical school and students named family, local police or The British Embassy as preferred sources of help.

The minority of students who said they would report adverse events said they would do so to inform future students and thus would use the medium of their elective report. Several students did not see any relevance of reporting events directly to the medical school.

Preparation from the University
The database of past reports was seen as a very useful resource. Students suggested the pre-departure advice lecture should be included in the normal timetable rather than being in the evening to increase attendance.

Risk perception
With hindsight eleven of the twelve respondents did not perceive their electives as having been unacceptably risky. Students were aware, through the media, from friends or in one case from personal contact, of the deaths of two UK students over the summer of 2014 who were murdered in a bar in Malaysia. However deaths of this kind on an elective were regarded as freak incidents, tragic but unpredictable and, most students said, unpreventable events.

Discussion
It is estimated that 90% of UK medical students undertake their electives abroad[7]. In contrast this study found that in 2010- 2014 only 42% of Glasgow students went abroad. Possible explanations include particular features of the Glasgow course, including junior electives at the end of year 3 and the timing of electives during the summer vacation.

Students in this study were well prepared for malarial risks, possibly due to the high levels of emphasis placed on malaria and HIV in BMA[18] and university pre-departure guidance. However despite adequate advice provided, this study echoed the findings of a Dutch study that HIV PEP uptake is inadequate [15]. In the Glasgow setting this was due to both students' lack of planning but also cost. Some UK medical schools provide PEP free-of-charge.

Few students were concerned about sexually transmitted infections (STIs). None of the female students and only one of the male students reported taking condoms with them. Whilst only one of the twelve students (8%) interviewed in this study reported having unprotected sex on elective the prevalence of travel-related unprotected sex is estimated to be 10% and thought to be higher for those on longer stays abroad such as a student electives[19]. Those on longer stays are also more likely to have unprotected sex with local people[19] as opposed to fellow travellers possibly further raising the risk of contracting HIV. Whilst the BMA provides advice on these issues[18], individual Universities should provide safe-sex advice as part of pre-departure preparation.

Road accidents are the 9th most common cause of morbidity worldwide[20] and were responsible for 2 of the 7 student deaths reported by Tyagi et al[16]. This study found road safety was very concerning for students and whilst this overall risk was out of their control they managed it with pragmatic measures.

It is suggested that much of the pre-departure advice provided by universities is derived from protocols implemented in the wake of singular events. To prevent this selectivity it has been recommended that a UK national mechanism be implemented to learn about adverse events and share effective interventions [13,16]. This study has shown however that students would need to be encouraged to report adverse events as there is currently under-reporting.

Several interview respondents raised the possibility that an inverse relationship occurs concerning pre-departure advice, whereby students most in need of travel advice are least likely to attend optional evening lectures.

Students do appreciate that elective travel carries risks, especially from: traffic accidents, infection and violence. They described many strategies to reduce risks, suggesting students are open to interventions for making electives safer.

Two attempts were made in this study to estimate the incidence of adverse events occurring during overseas electives. In phase II an estimate of 6% was suggested from analysis of student reports whereas, in phase III, 58% of interview respondents reported an adverse event. The former is thought to be an under-estimate as we were told by interview respondents that students often do not include adverse events in their reports. The latter approximation (58%) is likely to be an overestimate due to selection bias. We estimate that the incidence of adverse events occurring on elective was at least 6%, but could be substantially more.

Limitations and strengths
The study is limited in several ways: first, it is based on student experiences from one University; second, whilst random sampling for the interview respondents produced a broad sample in terms of

gender and years of study (Table 4); there is likely to have been selection bias.

The interviews were conducted by a current student. This potentially prevented reporting of sensitive information but the shared student experience helped build rapport.

The consistency between the nature of data from the interviews and information obtained from student reports suggests that the findings may applicable to all Glasgow students travelling abroad.

Conclusion

International electives are enjoyable and educationally beneficial. They may inform career choices and may produce more culturally competent doctors who are better equipped to work in a multi-cultural society. However this study supports the premise that elective experiences can be hazardous. Students were found to cope with elective risks with varying degrees of preparation; and prudent and pragmatic behaviour such as alcohol consumption moderation and the use of motorbike helmets. Students were found to be under-prepared for the risks of HIV and STIs. Students who integrated with local people found they were protected by this from local hazards. Students overall did not see their electives as unacceptably risky. There is under reporting of adverse events making incidence estimates unreliable. As serious elective hazards may occur unpredictably, advice on avoiding elective risks needs to be provided for all students as part of the taught curriculum.

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Tables and Graphs

Table 1: Areas visited by Glasgow University Medical Students 2010- 2014

	Areas visited										
Year	**Africa**	**South East and East Asia**	**South Asia**	**West Asia**	**UK/IE**	**Europe**	**North America**	**Central America**	**South America**	**Oceania**	**Total**
2010 (% of all 2010 electives)	49 (10%)	46 (9.3%)	13 (2.6%)	3 (0.6%)	254 (51.6%)	10 (2%)	55 (11.2%)	15 (3%)	2 (0.4%)	45 (9.1%)	492
2011 % of all 2011 electives	37 (7.6%)	43 (8.9%)	19 (3.9%)	1 (0.2%)	272 (56.2%)	20 (4.1%)	41 (8.5%)	14 (2.9%)	3 (0.6%)	34 (7%)	483
2012 % of all 2012 electives	22 (4.2%)	47 (8.9%)	28 (5.3%)	2 (0.4%)	324 (61.5%)	12 (2.3%)	50 (9.5%)	12 (2.3%)	2 (0.4%)	28 (5.3%)	527
2013 % of all 2013 electives	29 (5.5%)	54 (10.2%)	13 (2.4%)	1 (0.2%)	313 (58.9%)	12 (2.3%)	66 (12.4%)	7 (1.3%)	2 (0.4%)	34 (6.4%)	531
2014 % of all 2014 electives	22 (4.0%)	63 (11.3%)	25 (4.5%)	4 (0.7%)	324 (58.3%)	16 (2.9%)	49 (8.8%)	28 (5%)	9 (1.6%)	16 (2.9%)	556
2010-14 % of all 2010-14 electives	**159 (6.1%)**	**253 (9.8%)**	**98 (3.8%)**	**11 (0.4%)**	**1487 (57.4%)**	**70 (2.7%)**	**261 (10.1%)**	**76 (2.9%)**	**18 (0.7%)**	**157 (6.1%)**	**2590**

Table 2: Adverse events or behaviour that increased risk identified from the 218 student reports analysed from students who travelled abroad in 2013

Theme	**Number of adverse events**	**Number of reports of behaviour that increased risk**	**Circumstances of adverse event or risk-increasing behaviour**
Road safety	0	6	4 students rode motorbikes in India, Vietnam and Uganda 1 student had difficulty driving on the right in the USA 1 student ignored local advice that the bus was dangerous and took it every day in India
Personal Illness and injury	5	0	3 student had food poisoning in India and Uganda 1 student experienced heat stroke in the United Arab Emirates 1 student badly injured ankle tripping on pavement in the USA. He wasn't carrying insurance documentation so was not fully treated until they could produce them
Infection risk	5	2	2 students witnessed needle stick injuries in Malaysia and Greece although were not personally injured 2 students felt at risk due to the lack of sharps bins in Cuba and Greece 2 students witnessed people bitten by dogs in India 1 student got blood in their eye during a procedure in Uganda, they had taken PEP with them which they used, found the event very traumatic
Personal Safety	3	1	2 students experienced verbal sexual harassment on the streets in Trinidad & Tobago and Tanzania 1 student was followed by a man to their accommodation in a threatening manner in the USA 1 student reported ignoring local advice to not walk alone at night in the USA
Total	**13**	**9**	

Tables and Graphs

Table 3: Adverse events described in the 12 semi-structured interviews- 9 events reported from 7 students

Category	Number of events reports	Circumstances
Sexual harassment	2	1 student reported female friends being verbally sexually harassed in threatening manner on a bus in Argentina *"They* (young men on the bus) *were just sort of making fairly sexist comments …I think the girls I was with really didn't know what to do and I was the only guy there… I think we were all made to feel pretty scared…we got off the bus"* 1 student reported nearly getting into a fight when female friends were sexually harassed on a night out in Tanzania whilst travelling after elective *"They* (local men) *would sometimes be like just trying to grab them … and one night I got really annoyed and I went "If that was happening in Glasgow I would chin you… I was being a bit aggressive… a bit stupid"*
Robbery and potential violence	4	1 student had his wallet pickpocketed in his hostel in Malawi. 1 student was mugged for his money in South Africa by a man who claimed to have a knife 1 student had his shoes after being followed home after a night out by men in a car in Malaysia *"my shoes got stolen … we think these guys had followed us home in their car and they must have jumped…into a sealed compound… and stolen our shoes"* 1 student reported an attempted mugging of female friends from his accommodation as they walked home at night in Rwanda
Illness	3	1 student suffered from a brief but severe episode of altitude sickness in Peru 1 student reported having gastroenteritis in Peru 1 student reported getting a trombiculidae infection in their foot in Peru
Total	**9**	

Table 4: Characteristics of interview respondents: Male =8, Female =4; junior=5, Senior=7; High income= 1, Upper middle income= 5, Lower middle= 1, Low=5

Student	Junior/Senior elective	Gender	Country visited (World Bank income classification)
A	Junior	Female	Nepal (Low)
B	Junior	Male	Malaysia (Upper Middle)
C	Senior	Male	Malta (High)
D	Senior	Male	Argentina (Upper middle)
E	Junior	Male	Rwanda (Low)
F	Junior	Female	Liberia (Low)
G	Junior	Male	India (Lower middle)
H	Senior	Male	Peru (Upper middle)
I	Senior	Female	Peru (Upper middle)
J	Senior	Male	Malawi (Low)
K	Senior	Male	Namibia (Upper middle)
L	Senior	Female	Nepal (Low)

Tables and Graphs
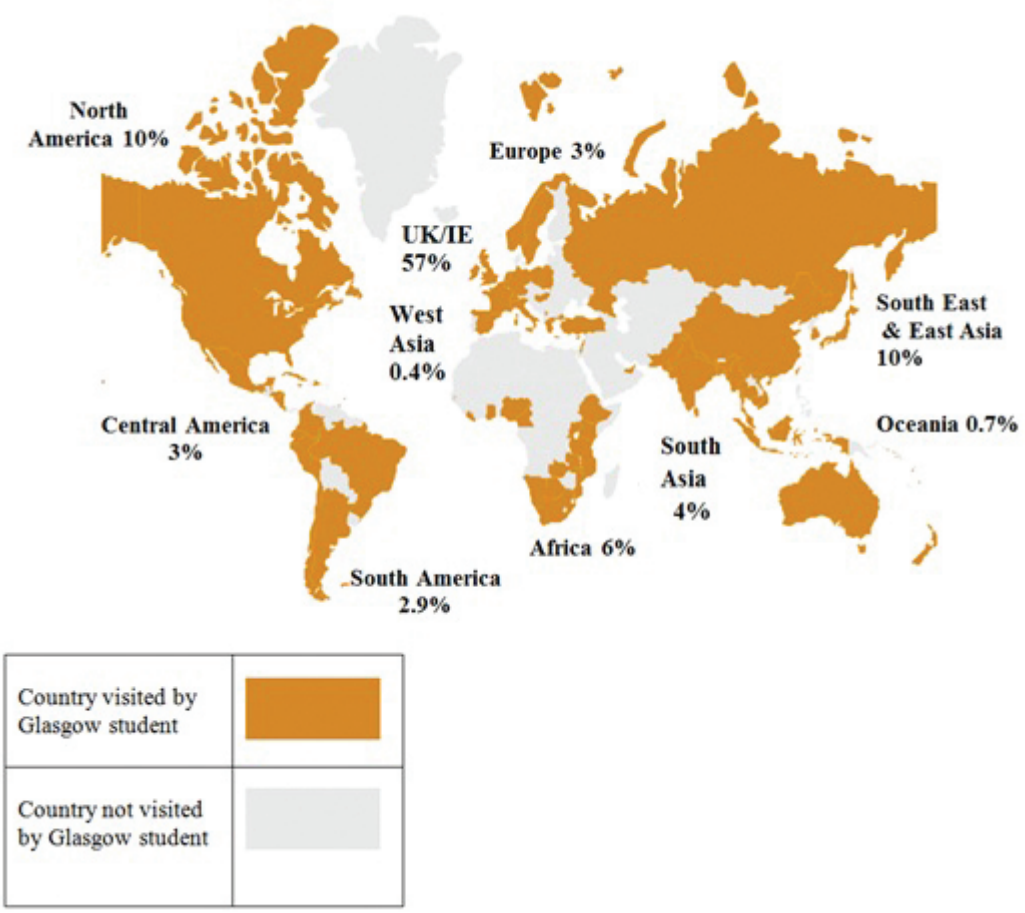
Figure 1: Percentages of the 2590 Glasgow University Medical students who undertook electives in different regions of the world between 2010 and 2014.