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## **Title: A guide to the elective in undergraduate medical education**

### **Abstract**

This guide outlines the scope and potential roles an elective can fulfil in undergraduate medical training, and identifies ways to maximise learning opportunities, including within global health. The types of educational activity available for electives range from meeting individual educational need through to exploration of potential career paths, with many potential factors influencing choice. Key areas of organisation underpinning a successful elective before, during, and after the placement include developing clarity of the intended educational outcomes as well as addressing practicalities such as travel and accommodation. Risk management including the implications for the participating schools as well as the student and their elective supervisors is crucial. This guide would not be complete without some discussion around ethics and professional conduct during an elective, with consideration of the impact of elective placements, particularly in low–middle income countries.

137 words

## **Background to the elective in undergraduate medical education**

There is no standard definition of an “elective”. The term can be used to describe many widely differing curricular elements, but usually infers a period of time during undergraduate training within which there is a significant element of student choice. The conceptual role of electives and workplace based attachments within university education generally, and their influence on employability of graduates, is increasingly recognised (Bullock et al. 2012, Wilton 2012). Placements are commonly included within undergraduate higher education programmes not only outside the university setting, for example in industry or the future workplace, but additionally recognition of the benefit of broadening minds is addressed through provision of optional study modules outside of the main field of study. This reminds medical education of the importance of flexibility within the type of electives included as curricular components within most undergraduate medical programmes (Dowell & Merrylees 2009).

Despite involving (usually) several weeks of the course time, electives have tended to remain comparatively less well monitored, regulated and thus potentially of variable educational benefit. In many medical schools they remain largely untouched by significant educational innovations and practice seen in the approach to other curricular elements over the last two decades and their potential contribution to learning, not only within global health, thus underutilised (Banerjee et al. 2011). The elective may be the least-researched component of a medical course (Jolly 2009), despite an acceptance that it is also the component over which a medical school has the least control, and that potentially exposes students to both the greatest risk and simultaneously the greatest opportunity for significant “transformative” learning.

Transformative learning is described as “constructivist, an orientation which holds that the way learners interpret and reinterpret their ... experience is central to making meaning and hence learning” (Mezirow 1994). This involves two kinds of learning, ‘instrumental’ and ‘communicative’ learning. Instrumental learning focuses on “learning through task-oriented problem solving and determination of cause and effect relationships” and helps the learner to achieve their short term objectives, such as improving work performance or a specific clinical skill. Communicative learning centres around understanding how others communicate their feelings, needs and desires with another person, and underpins the development of critical, autonomous and responsible thinkers (Mezirow 1997). If an elective is to achieve such transformative learning potential and bring about real change within medical students, all these components need to be incorporated within elective placements.

The challenges of realising educational benefits from an elective have resulted in many questioning whether the elective still has a role in undergraduate training (Dowell & Merrylees 2009, Jolly 2009, Anonymous 1993, General Medical Council 2009). Nonetheless, they remain amongst the most valued components of undergraduate training, with benefits for the learner extending beyond enhancement of skills through to personal development. Many doctors reflecting on their undergraduate career consider their elective experiences to have been significant transformative experiences, with a rekindling of that initial desire to “change the world and help people” and refresh those values underpinning their initial vocational drive to enter the profession.

## **Types of elective**

Undergraduate student electives can be regarded as a heterogeneous collection of individualized activities, which may occur in diverse settings and timings within the medical programme. Most medical schools allow time for electives towards the end of the course, once core clinical skills have been acquired. Irrespective of the type of elective undertaken, there are important key principles to be considered that underpin a successful elective and that will maximise educationally beneficial outcomes (Balandin et al. 2007, Petrosioniak et al. 2010, Peluso et al. 2012) (Table 1).

[Table 1]

Whilst a significant proportion of electives are undertaken at some geographical (and often cultural) distance from students' place of primary study, this should not be regarded as an essential requirement. The primary objective is to allow students opportunities to select, direct and organise a placement during their undergraduate training responsive to individualised needs and/or interests. Historically electives may have been regarded as an opportunity for "medical tourism" with potential for engaging in inadequately supervised clinical practice outside students' competence. However, current day practice should ensure that electives providing opportunities for expansion of students' clinical experience are practised within clear ethical frameworks. They allow for sharing of knowledge whilst acquiring new clinical and cultural skills. Many students choose to undertake electives in areas not usually

provided within the curriculum, or to explore potential career paths ranging from laboratory research to specialised clinical rotations in world leading institutions.

Electives can be broadly classified into the following five categories. Although these are not mutually exclusive, a single placement may concurrently fulfil more than one of these objectives.

### *1. Global health*

Experiencing healthcare in a different geographical and cultural setting is one of the commonest types of elective. Students use a placement abroad to see a different range of clinical diseases and pathology, and to broaden their clinical skills and practical experience. Valuable experience may also be gained in international public health, and as an example, the World Health Organisation supports many elective placements for students. An international health elective additionally may involve exposure to differing models of healthcare management from the student's own training environment. Students who travel to countries with no state-provided healthcare are thus challenged to consider advantages and disadvantages of health care systems and access to such facilities in their home country. Understanding different healthcare systems and learning to manage diseases not normally seen at home are the most commonly cited educational objectives for this type of elective (Cherniak et al. 2013).

The significant impact of globalisation on health care delivery and the potential roles of health professionals of the future highlights the importance of ensuring maximum development from this type of elective (Frenk et al. 2010). Embedding global health

teaching within the undergraduate curriculum is now considered a requirement, addressing not only the social determinants of health but ensuring competencies in a wider variety of diseases and diverse cultures (General Medical Council 2009, World Federation for Medical Education 2012, Frenk et al. 2010). The benefits of enhanced global health experiences, as provided by electives or even extra-curricular activities, for example volunteering ("Think globally, act locally", United Nations 1972) contribute to cultural competence. Both learners and institutions potentially will gain from an enhanced awareness of global health issues. Collaborations and resulting initiatives are socially beneficial, engage the wider public and patients within the business of the medical school, and foster institutional growth and development. Such broadening experiences are recognised to impact upon the likelihood of working with underserved populations, and pursuing careers in primary care or public service (Smith & Weaver 2006, Jeffrey et al. 2011).

Global health electives are specifically recognised for their strengths in enhancing professional and personal development, including transferable skills in working with people from culturally, linguistically and socioeconomically diverse backgrounds (Abedini et al. 2012). However what is not fully understood is the impact upon the communities within which students are placed (Balandin et al. 2007, Stys et al. 2013).

## *2. Project work*

Electives can involve a full-time attachment of several weeks duration and thus allow opportunity to undertake a formal project. Diverse project types are possible, and can vary, for example, from engaging in cutting edge laboratory based research to a

small clinical audit or service evaluation alongside exposure to clinical practice. Inclusion of the elective as an extension of preceding curricular work, for example following project work (often as student selected components), or an intercalated BSc, will allow students to cumulatively undertake a more substantive piece of work. This does of course require students, supported by their medical school, to proactively consider how to take advantage of established course components in preparation for their elective, or adapt for later combination with an elective project. Many students may utilise their electives to undertake research, as this may provide additional time to make a project that was commenced or even completed in their home medical school more substantive, for example a student doing a laboratory based project which will require more time for completion than allowed within allocated course time.

Such longitudinal project work additionally has benefits in ensuring both adequate preparation for the elective project components, and may facilitate structured formal supervision. This focus can usefully facilitate early communication with the elective hosts, including mutual exploration of feasibility and identification of a topic useful to the local institution. Preparatory work can be initiated that includes relevant literature or documentary review, project planning and the development of project materials such as questionnaires. Project work within the elective thus provides an opportunity for students to undertake work of benefit to the host institution, and potentially engage in capacity building with a possibility for a longer term sustainable relationships, with either the student or the medical school (Provenzano et al. 2010, Balandin et al. 2007)

### *3. Career choice*

A popular motivation behind the choice of an elective placement is often to clarify the focus of a potential future career path (Kassam et al. 2003, Houlden et al. 2004, Mihalynuk et al. 2006). The elective may usefully be spent exploring a medical speciality the student may have already studied but expand into a different setting, or even gain experience in a specialty not covered in the core curriculum. Students may opt for a career choice elective simply because they are interested in a particular speciality, although it is also possible that their motivation includes a strategy to enhance their chances of obtaining a better post-graduate post in a competitive market (Kassam et al. 2003). Career choice electives in non-clinical areas have also been purposively developed to market other aspects of medical careers to students, an example being the value of 'research electives' in increasing the number of students considering an academic pathway for training (Houlden et al. 2004).

### *4. Directed elective*

Another important role electives can play in individual students' personal development is to support those who are academically struggling to undertake prescribed (or required) course components. Students can thus be directed to utilise elective time to gain further knowledge or clinical skills in identified areas of weakness. Although this may be regarded as an unattractive proposition for some students, this may at least allow these students to resit failed course units and strengthen their core competencies before graduation and thus remove a need to extend their studies. However, utilisation of the elective in this way may also be considered to potentially disadvantage the weaker students by reducing their opportunities for self development, including organisational skills. Conversely, this

can also give a message that a wholly student self-directed elective is a 'reward' incentive for satisfactory performance on the course.

##### *5. 'Wellness' elective*

An elective can allow students 'breathing space' before entering the final stages of medical school, for reflection and re-engagement with their vocational idealism. For some students the elective may be seen as an opportunity to have a change from required course components perceived to be more challenging. Some medical schools have taken this further and established specific 'wellness' electives, aimed at helping students to cope with the stress of medical studies (Lee & Graham 2001, Finkelstein et al. 2007). Both of these 'wellness' electives describe engagement of the students in specific developmental sessions around stress management.

Feedback from students who volunteered for this intervention and the associated subsequent elective indicated long-term benefits, both in terms of developing coping mechanisms and an acceptance that engaging in such preparatory and potentially longer term 'wellness' activities was appropriate. A wellness elective cannot be made mandatory for any particular student group, but one study did find that students who chose the wellness elective had higher anxiety scores than students who did not (Finkelstein et al. 2007), indicating some success in targeting the group with most need. Furthermore, an elective designed in this way not only helps the individual student but also raises their awareness of health issues in the medical profession and potential ways of managing personal and professional problems (Lee & Graham 2001, General Medical Council 2013).

## **Choosing an elective**

There are a spectacularly wide range of activities available to elective students, and for many this provides a unique opportunity for a student to personally challenge themselves, often beyond the confines of their home medical school. Ensuring a student-centred approach to elective organisation requires schools to dedicate adequate resources to support not only the student's organisation of a safe and educational elective, but as importantly to ensure maximising educational, personal and professional development. Some standardization is important to optimise benefits for students, their education, and for both host and home medical school, and reduce diversity in placement quality (Anderson et al. 2012). There are many ways schools can facilitate elective choice, encouraging students to be realistic about their aims, tailored to their individual learning needs, and ensure that the potential for high quality elective placements is optimised (University College London 2009). Resources, poor organisation and planning, and limited faculty expertise to support and guide students during electives have the potential to impact on the quality of the experience and safety of the student (Jeffrey et al. 2011).

### *Formal agreements*

One way in which medical schools can assist students with choosing electives is through established partnerships with hosts. Though not entirely without risks, this system is regarded by some as the 'gold standard' for elective organisation (Crump et al. 2010, Kanter 2010) with many potential mutual benefits. Partnerships may take the form of legally binding educational contracts (directly with institutions) or less formal agreements with hospitals or universities. Developing long term relationships provides multiple advantages including:

- enhanced risk-management.
- improved educational experience as both host and visitor develop more realistic expectations based on the local learning environment (Kraeker & Chandler 2013).
- increased scope for longer term, potentially useful student-led projects.
- in low-middle income (LMI) countries particularly, closer ties will allow the home school to provide more regular and beneficial manpower or expertise to the host.
- the relationship is more likely to become reciprocal and thus potentially facilitate students from the host institution studying at the home medical school, a form of elective reciprocity.

#### *Portfolios of prior electives*

The numbers of placements available through formal agreements may be small, and only provide a limited range or type of experience. Medical schools can valuably utilise the experiences of their previous student electives, and develop a searchable portfolio including contact details and feedback from placements. Cumulatively these portfolios can become extensive, offering an impressive range of placements for current students to explore as potential options. Alumni of the home medical school are also a valuable resource for new placements.

#### *External resources*

Over recent years there has been a rapid expansion in external bodies, of variable quality and motivation, offering to arrange medical student electives. Those that arise from charities seeking students to work with their own staff in LMI countries, and, subject to the ethical constraints detailed below, may be regarded as a reasonable source of highly motivated and skilled volunteers. Other elective organisers may be

associated with commercial companies, the elective activity being a form of marketing in order to 'sign-up' students who then remain affiliated to the parent organisation for their future career.

There are also numerous commercially driven organisations that will organise electives for students, at a price. Their marketing literature may cleverly disguise their primary aim, and thus it is important that students are made aware of this as opinions about these more commercial services are variable. Some companies provide very good placements, with doctors contributing to their arrangements and design, and provision of good support systems and risk-management of the placements in the host country. They may be an acceptable strategy for students who have access to financial support and need an interesting elective at short notice or with the minimum of personal effort, for example due to illness or if a different placement falls through at the last minute. However, it is worth reflecting that that one of the major challenges of organising an elective is for the student to use their initiative, enthusiasm and communication skills to secure an individualised placement, and simply 'buying' a pre-organised placement bypasses this valuable learning experience. There are also anecdotal reports of placements in reality not living up to the glossy webpages that might have persuaded the student to book.

### **Risk-management of electives**

An elective away from the student's home medical school is inevitably associated with a greater risk of personal injury - physical, psychological and even financial.

Accidents on electives are common and mostly occur while the student is travelling

between their accommodation and host institution or while taking part in recreational activities. One study estimated the death rate from electives to be as high as 1 in 340-430 (Tyagi et al. 2006) with most of the seven reported deaths in this study being due to accidents. Other health risks are also high with minor infectious diseases being most common, although evidence suggests these are no more common than in holidaymakers. More serious health-risks including those from blood-borne viruses are associated with the medical activities of an elective and thorough preparation for these possible risks is mandatory.

As a high proportion of elective placements are abroad, the home medical school is not able to directly evaluate and manage the risks faced by the student. This responsibility is therefore normally delegated to both the host supervisors and the student. Processes to manage risk in the host country may be equivalent to those at the home medical school, however in less well resourced environments, risk assessment processes may be less well developed or even non-existent. It may be necessary for the home medical school, which retains its legal duty of care for the student, to consider the risk-benefit analysis for individual placements, including whether or not the elective can proceed. With experience and utilisation of wider and alternative sources of information, medical schools can usually anticipate 'problem' placements and either restrict student access or modify appropriately their vpre-departure preparation.

### *Health risks*

Ill-health as a result of an elective is common, with about half of students experiencing some form of illness when on elective, this being more common in

students travelling to hot desert or tropical climates (Cossar et al. 2000, Goldsmid et al. 2003). Reassuringly, one study found no extra episodes of illness on elective amongst students with a pre-existing medical problem, and rates of illness in all areas were comparable to holidaymakers (Cossar et al. 2000).

Causes of ill-health among elective students can be broadly divided into three areas:

1. *Accidents.*

Although only a small proportion of students suffer accidents while on elective, this is the most common threat to student well-being. A majority of accidents on elective are related to road traffic collisions, but occasionally harm occurs from assault or other violent crime. Pre-departure education about the risks of road travel in less developed countries is vital. The risk of death from a road traffic collision in children is six times higher in a LMI country compared with a high income country, and this is even higher in poorer sections of the community who travel mostly as pedestrians or cyclists (Nantulya & Reich 2002). Over the last 3 decades death and injury rates from road traffic collisions have decreased in developed countries while the opposite trend is occurring in LMI countries as car-ownership increases.

Students unlucky enough to be involved in trauma incidents may not actually be on the academic component of their elective at the time; other accidents occur more frequently while travelling more widely before or after the placement or when taking part in high-risk recreational activities. Again, the safety of these activities in LMI countries is likely to be less than in high-income countries, a fact that is rarely taken into consideration by students. Examples of topics that can be discussed during pre-departure education for students regarding accidents are shown in Table 2.

[Table 2]

## *2. Infectious diseases.*

A majority of the physical illnesses experienced on elective are infections, varying from self-limiting alimentary symptoms to life threatening blood borne viruses, the former accounting for 77% of reported illness (Cossar et al. 2000). Malaria, schistosomiasis, para-typhoid and amoebic dysentery are all reported (Tyagi et al. 2006) and pre-departure education must therefore include a number of key areas of basic travel health advice (Table 2).

Two other infection risks, HIV and malaria , require more detailed consideration:

### a. HIV

The prevalence of HIV in LMI countries is often several times greater than in the student's home country. Furthermore, many elective placements are likely to involve students performing more exposure-prone procedures including taking blood samples, giving vaccinations, assisting at operations or suturing. Students are likely to be unfamiliar with performing such procedures on patients who pose a high risk of infection to the student in the event of a needlestick injury. Resource constraints may mean that the correct equipment required for such procedures may be missing , or the pressure to contribute or participate fully in the host hospital may expose students to excessive risks.

Consequently, detailed policies for minimizing HIV risk in elective students, usually based on national guidance, should be mandatory. An option may be to not allow

students to do electives in areas with high HIV prevalence, or to limit the procedures they are allowed to perform in these areas. However, this would significantly reduce the scope of attachments in large areas of the developing world, and reduce the potential to experience at first-hand a major global health challenge. A more widely used strategy is to allow students to undertake electives in these areas but insist on the safeguards outlined in Table 3. Responsibility for provision of PEP and personal protective equipment needs to be clearly identified prior to departure (Tai et al. 2003) to prevent problems while on placement (Case study 1).

[Table 3]

[Case study 1]

#### b. Malaria

Students travelling to tropical regions expose themselves to the possibility of malaria, clinical manifestations of which can be severe and delayed for up to two years following infection. A similar strategy to HIV prophylaxis is required. Pre-departure information about prevention should include information around how to avoid being bitten by mosquitoes (appropriate clothing after sunset, screened windows, mosquito nets, etc) and recognition of the signs of malaria and appropriate immediate treatment. Students need to ensure they take appropriate equipment including a mosquito net together with sufficient insect repellent for the duration of their stay. Malaria prophylaxis is essential. Plasmodium drug resistance in different areas of the world has made the choice of prophylaxis regime complex, and advice should be obtained from appropriate travel medicine clinics. The costs of doing this and then obtaining the required drugs for a stay of several weeks on elective may be high

enough to deter some students from taking suitable prophylaxis; education about the risks and consequences of this approach is vital.

### 3. *'Culture shock' and stress*

This adverse effect of electives may be considered less tangible than the other health risks, but it is no less important. At our universities each year a small proportion of students (1-2%) return early from their elective citing anxiety, stress, illness or personal problems as the reason. When discussed with the student, a common story emerges of individual difficulties in adjusting to the challenging local cultural environment, combined often with failure to adhere to the local advice provided by their hosts (Case study 2). Language barriers may prove significant, and impact more than had been anticipated, as illustrated by these comments from one student report; *'In general the staff spoke little or no English. Everyone I met was kind and welcoming, but seeing so little of the few English speakers outside of working hours made loneliness a problem.'* This also demonstrates the potential challenges of travelling alone on elective for some students; having a fellow student in the same hospital with whom you can share experiences can not only be supportive but provide more opportunities for "down time".

[Case study 2]

The different health care environment within which students become involved can also contribute to culture shock, particularly in less well resourced countries.

Witnessing preventable suffering or deaths while on elective is very stressful to students accustomed to medical practice where seemingly infinite resources are

normally available. Doctors moving to work for a period of time in LMI countries are described as progressing through a W-shaped mood curve (Parker et al. 2011, Figure 1). Students on elective often experience similar impact upon mood, but hopefully the relatively shorter duration of electives and support and supervision provided by the host supervisor can help minimise any such adverse impact.

[Figure 1]

#### *4. Finance*

Electives can be costly for students. A British Medical Association survey for the 2009/10 academic year reported a mean cost of an elective of £2268 (Health Policy & Economic Research Unit 2010). This can add significantly to what are for most students in the later stages of their training already substantial financial debts, and can be a source of added personal stress. Despite this, most students still see the elective as a once in a lifetime opportunity and choose to make the expenditure.

Medical schools in more affluent areas of the world are likely to have access to resources to support the financing of electives, for example bequeathed sums of money from alumni in the form of bursaries and awards. The amounts of money involved may be inconsistent and a number of systems used for distributing available funds. One model is to spread the available money as widely as possible, making awards to all students, each receiving a (usually small) proportion of their elective costs. Alternatively schools may award money to incentivise students to undertake ambitious or educationally exceptional electives, for example supporting those students undertaking significant project work on the elective, or by providing a useful

medical service to the host institution of a LMI country. Finally, some sources of funding may be reserved for students at more financial disadvantage, recognising the difficulties of equitable and transparent identification of need.

Some national medical institutions provide funding for electives. Whilst these are usually awarded competitively at a national level and thus not numerous, the financial rewards (and kudos) for those who succeed are usually large. Additionally, some medical specialist societies and colleges also may offer elective awards as a way of inducing students to explore their speciality as a potential career option and become involved in the specialty at an early stage of their career.

### *Strategies for managing risk*

Health problems remain a major source of elective risk and strategies for management of these risks are outlined above and in tables 2 and 3. Other problems can also occur, and examples range from involvement in criminal activity (either as perpetrator or victim), accidentally becoming embroiled in civil or political unrest, or problems with accommodation. Comprehensively assessing all potential risks within overseas electives is often impossible for the home medical school, nonetheless there are general strategies that should be incorporated within pre-departure risk management considerations.

#### *1. Criteria for country visited by home medical school*

A simple way of minimising risk for electives is to limit the places to which students can go. Whilst this will inevitably restrict the principal aim of an

elective, i.e. wide student choice, some medical schools may regard this as a necessary restriction in specific situations. It is reasonable to consider that adherence to government advice about the safety of different regions is a requirement. In the UK, the Foreign and Commonwealth Office (FCO) produces constantly updated travel advice to all regions of the world, and most UK medical schools will only permit an elective in a region that the FCO indicates is safe enough for tourism. An obvious difficulty with this approach is the constantly changing political situation and the unpredicted occurrence of civil unrest. Terrorist attacks and political unrest can occur at any time between the student arranging a placement and actually being there. Some medical schools may choose to take into account other factors, for example if the student has relatives in the area who can provide better security information and potential safe refuge than that available to a visiting tourist.

Pre-departure information is the key to reducing risk. Awareness of the political situation in the region will hopefully prevent accidental involvement in civil unrest, and this is best obtained from reliable resources. The network of diplomatic channels that most developed countries operate provides detailed and up-to-date information that is indispensable to travelling students. The same sources also provide excellent local advice on avoiding becoming a victim of crime.

## *2. Partnerships between institutions*

One of the benefits of developing a long-term relationship between two institutions is the enhanced risk management procedures that can be

established. This can include clarification around expectations, for example agreeing the levels of facilities and support provided for the student. These can be through individual schools, or potentially by utilisation of credible organisations facilitating such elective continuity (The Electives Network 2013, Global Health Learning Opportunities 2013, Warwick Medical School Malawi partnership 2013).

### 3. *Host institution*

It is important to establish expectations of host supervisors, including a reasonable 'duty-of-care' for the visiting student, at least to the same standard to which they care for their own students. This is easier to define where the expectations of students and their learning environment are similar. In more remote placements, and particularly in parts of the developing world the host may well work hard to keep the student safe and well, but lack of resources are still likely to mean that some risks are greater. The student and home medical school will need to make a judgement about the potential risks and benefits of the elective proceeding. It is important to recognise that this may not be a fully informed risk-benefit assessment as the degree of risk to which the student could be exposed, even with a diligent host supervisor, may not be possible to quantify.

### 4. *Student*

Students embarking on an Elective are young adults, and though legally responsible they may still retain a naïve approach to risk (see case study 1), seeing disasters as "things that only happen to others". The home medical

school has an obligation to make a mandatory requirement that students evidence consideration of the risks before departing for a high-risk elective. This may usefully be done through pre-departure education and risk assessment.

### **Pre-departure preparation**

Adequate preparation before an elective will enhance the chances of the experience being not only safe and educationally beneficially but also allow consideration of ways of making the placement “socially accountable” (Anderson et al. 2008, Petrosniak et al. 2010, Murdoch-Eaton & Green 2011). For many international electives, access to learning resources may be less reliable than at home, so learning about the medical challenges of the region being visited will be easier before departure. Awareness of the climate, culture and language of the region will also attenuate the onset of culture shock during the placement and avoid misunderstandings and friction with the hosts. Ideally delivery of this pre-departure learning should be via a combination of self-directed learning, online resources, formal teaching and appropriate student support, and for the more important aspects (including health risks) these may be made mandatory. A structured risk-assessment should be attempted, recognising that whilst this may not be fully comprehensive for more remote placements, the process is still useful to raise the student’s awareness of both the nature of risk-assessment and the risks they potentially face when on elective.

### *Educational preparation*

Considering the diversity and broad educational aims of electives, the required pre-departure study will of course be individual to each student. As an example, those students undertaking global health electives should familiarise themselves with the range of diseases they are likely to encounter and the challenges faced by the healthcare system in their host institution and country. In contrast, a student joining a laboratory based molecular medicine unit should ensure adequacy of their background scientific knowledge and technical skills. This type of preparatory background research will be relatively easy whilst still in their home medical school with reliable access to a wide range of resources including the internet and university library. Access to such resources after travelling for example to a LMI country is likely to be limited. Additionally the student may be tired, experiencing some 'culture shock' and their host may have expectations (realistic or not) about the students' prior knowledge and experience of the local health problems.

As a minimum students should be encouraged to undertake self-directed learning and ideally curriculum time and support provided. This has the advantage that the learning is targeted. Additionally some schools may include broader formal taught components for all students, for example in global health, that usually link in with their future elective. Whilst many students who are not doing their elective abroad or in a LMI country may see this course component as irrelevant to them, the need to develop globally competent future doctors should be highlighted, not only for local need but also for enhanced international employability.

Ideally both these approaches should be included, encouraging individualised preparation alongside a grounding in global and international public health.

### *Health and safety preparation*

A number of approaches to reduce risks around personal health and safety preparation should be considered, and might include

- Plenary sessions covering global health, common elective problems such as adequate preparatory knowledge or project preparation, basic health and hygiene, and general travel advice. Monitoring attendance at these sessions, with a mandatory requirement for those travelling internationally is desirable, particularly if covering areas such as health advice about HIV and post-exposure prophylaxis.
- Seminars and small-group teaching sessions are more likely to provide specifically focussed education for those students with similar potential challenges, and has the added benefit of fostering peer learning and support. Engagement of older students who can share experiences of similar electives is valuable.
- One-to-one meetings. Some medical schools opt to provide the more important pre-departure information by an individual meeting between the student and a member of the electives staff. This meeting occurs once the student has confirmation from their host of the placement, and allows a detailed and individually tailored discussion of all aspects of preparation for the elective. Whilst this may be the 'gold standard' of elective preparation, it may not be feasible given the numbers of students taking an

elective each year. Utilisation of returning students for such preparatory meetings may also be considered and this is an often un-tapped resource.

### *Resources for training and self-directed learning*

Whilst encouraging students to take responsibility for their own pre-departure preparation, provision of a range of resources for their learning needs can usually be helpfully provided. Collated local information about electives is easily maintained as a locally managed online resource and include a range of material from advice about how to choose your elective, data about what previous students have done including where and what they studied, and their feedback about the placements. Key generic and local-specific background reading for students about electives, copies of lectures and seminars, and all the required locally applicable documentation can also be accessed through local on-line resources and kept current.

More interactive online resources for training or self-directed learning, either bespoke or utilising one of the many resources available offer significant potential advantages (for example British Medical Association 2009, Harvard Global Health Institute 2013, MedAct 2013). Some schools have developed specific sessions aligned with the different types of electives and environments and make completion of those relevant to the student's intended placement a requirement. Assessment can additionally be built into the sessions either for self-evaluation to document understanding of key issues (eg what to do in the event of a needlestick injury), and provide electronic confirmation of completion by the student to evidence engagement with preparatory material.

### *What to do in a crisis*

It is important for students to have considered what constitutes a crisis, how to deal with the issues that might arise, and the routes and sources of information available to them (as illustrated in case studies 1 and 2). Institutions additionally must ensure and articulate, clear, well-developed communication and response plans for students who inadvertently find themselves in difficult and unpredictable situations (Steiner et al. 2010).

### *Cultural awareness and language competency*

The excitement and challenges of working in different cultures and communication difficulties posed by not being fluent in the local language are important aspects of pre departure preparation to ensure these do not detract from the elective experience (Cherniak et al. 2013). Cultural competence, recognition of one's own limitations and effective communication skills are crucial to facilitate meaningful and respectful interactions. Lack of appreciation of cultural nuances within host institutions has been cited as a source of friction between student and host, potentially causing offense as well as rendering the visit less effective for both parties (Kraeker & Chandler 2013). Hosts will appreciate the student making an effort to understand the cultural needs of their healthcare system *before* arriving in their country.

Although current medical undergraduate training ensures all students have some exposure to diverse cultures, it is imperative that additional personal research into the society to be visited is undertaken. Students will benefit from investigation into the elective location, covering areas including geography, history, politics, economics, religion, values and local health beliefs and practices. Particular aspects

around gender roles may be important to specifically consider, together with host communication expectations by identifying languages spoken by their patients and supervisors.

Occupying local staff to translate for a student assessing a patient is rarely of benefit to the host institution. As a minimum, students embarking on a placement where the language is different from their mother-tongue should undertake some language training before departure. A valuable strategy might also be for students who are bilingual because of family migration to deliberately arrange electives in the country of their family's origin, and to even link with a peer so they can assist with translation.

The "Cultural Learning Strategies Inventory" is a valuable resource, either used as a teaching tool or for self-directed preparation (Paige et al. 2013). This can be used to help students recognize additional strategies for improving their cross-cultural communication strategies. Such pre-departure education about the risks of culture shock may be helpful in preventing its occurrence (Table 4). A student who has carefully considered the environment into which they are going is less likely to become anxious or stressed (Table 5).

[Table 4]

[Table 5]

#### *Individual student risk assessment*

Studying abroad is not unique to medical courses, with many students travelling overseas as part of their learning. Most universities therefore now have formal

systems in place for preparing and supporting students for overseas study. Medical electives may differ from other courses in the length of placements (many other university courses electives involving a year abroad) and the activities being undertaken i.e. participation in medical interventions. Even so, integrating elective activity into university-wide systems, including formalisation of risk management assessment, is helpful to both students and elective organisers. Thus most medical schools are introducing individual risk assessments as part of the elective preparation, and for many this will be discussed less formally, for example in individual interviews by either academic staff or by an occupational health physician. Increasingly students are asked to submit a written risk-assessment or complete risk-awareness documentation, often supported by teaching sessions, written guidance and / or academic support from a nominated staff member. This process serves two purposes; it introduces students to the concept of risk assessment and ensures consideration of the challenges their elective may pose before they depart. Formal documentation of a risk assessment will be a useful skill to acquire for later medical workplace practice. The primary aim of a pre elective departure risk-assessment is to enhance students' awareness of the potential areas of risk, and considered measures to reduce risk as well as potential solutions should an adverse incident arise .

Illustrative examples can be valuable to demonstrate to students the value of a comprehensive risk-assessment. A simple example is to ask the student to consider the climate conditions in the region of the placement. Evidencing appropriate strategies including suitable clothing, sun protection cream, and access to safe water to avoid becoming ill due to excessive heat are illustrative of the general approach.

When considering personal safety and keeping in touch with host and home institutions, students can be advised to look into taking with them a low cost mobile phone, and purchasing a local SIM card in the host country. Other practical advice over personal safety can be incorporated within the risk-awareness procedures, and useful prompts include suggestions such as ensuring someone knows where they are if out on visits, and how to keep key documents safe, with photocopies being held back at home, or accessible via the internet in case of emergency.

### **Support during elective placements**

Ensuring appropriate and adequate student support during an elective should be considered standard good practice (General Medical Council 2009; Valani 2009). This support is, by necessity, mostly provided by the host supervisor, and home medical schools in effect delegate their duty of care to the host. This usually works well for the day-to-day support of students, with the opportunity for email liaison with the home medical school for advice as required. Other crises requiring urgent intervention and support will still regularly occur (Case study 2), some of which the host may not be aware of or able to help with, occasionally because the crisis is caused by a problem occurring between the student and the host. The home medical school thus needs to ensure a reliable means of communication with the parent institution. Email is likely to be most frequently used, although time differences and unreliable access to the internet may mean this still takes several hours for a useful

interaction to occur. For this reason some medical schools maintain a dedicated electives mobile telephone staffed for 24 hours a day while students are on elective.

The help that a tutor in the home medical school can give to a far distant student may also be limited so as part of their pre-departure preparation students should ensure they know where and how to get help locally. In the event of accident, illness or crime their hosts and the local police should help, but it is also advisable to know how to contact the embassy or consulate of their own country and to have ensured adequate travel insurance.

### **Post-elective placement**

Readjustment on returning from an elective may take some time for many students, with issues that occurred on the elective only emerging once they are safely back home (re-entry shock, Figure 1). Reflection on challenging experiences often occurs more readily when back in a more familiar environment. Additionally, some crimes, particularly sexual assault, have been known to occur during an elective but were not reported; this could have been because of unfamiliarity with the local system and anxieties that the crime would not be dealt with sensitively, or even that the victim of the crime may not be safe from the perpetrator. Support and identification of students showing signs of anxiety or difficulty coping following an elective should include access to appropriate counselling and readily accessible medical treatment.

### *Debriefing and reflection*

Reflecting on elective experiences is the most common post-elective learning activity required by medical schools, illustrating the importance of this activity not only in documenting outcomes but also in highlighting personal and professional development achievements (Bender & Walker 2013, Peluso et al. 2012, Cherniak et al. 2013). Formal and informal debriefing is frequently by both peers as well as faculty members. The ideal timing for debriefing is an important consideration; whilst immediate debriefing has the advantage of experiences being fresh in the students' mind, deferring formal debriefing for a few weeks enhances considered reflection, processing and transference / application of the experiences (Mann et al. 2009). Key roles within any debriefing process are to provide opportunities for enhanced insight and critical analysis of the situations encountered, reflection on the roles the student played within these, and the consequences of their actions. While emotional release is considered important, transformative learning is empowered by careful consideration of what the students were thinking, doing and feeling in clinical practice situations. Opportunities for reflection on unintended consequences are important to explore.

The value of such debriefing, whether formally by teaching staff or less formally, for example within groups of peers (which may be usefully facilitated by trained staff), places weight upon such an activity, and ensures that learning is recognised, valued and facilitated to transfer into other situations both within the clinical environment and more broadly. Debriefing around challenging cultural or socio-economic experiences are often a major theme of such student experiential learning encounters and usefully shared both with peers and more junior students in preparation for their electives.

### *Evaluation*

Most medical schools ask students to provide feedback about their placements, and this incorporates not only their views on the educational areas of their specific elective but also details around practicalities such as accommodation, food, transport etc. This allows elective staff to objectively evaluate placements where aspects of provision may warrant attention if future students wish to consider placements in the same environment. Such information is usefully incorporated into locally held databases to provide contact information as well as “essential tips” on making the best of the attachments.

### *Occupational health requirements*

It is not uncommon for a few students each year to return from their elective unwell, with some of the infectious diseases occasionally brought back from electives not becoming apparent for some time eg tuberculosis or malaria. Furthermore, these, or other infectious illnesses, can potentially be transmitted to patients by the student when back on hospital wards continuing their study after the elective. For this reason, occupational health screening of students on their return is mandatory, particularly for the possibility of contact with TB, hepatitis B, hepatitis C and HIV. In the UK, Department of Health guidance states that students returning from electives must be screened for infectious disease contact in the same way as new healthcare workers entering the UK from countries where there is a high prevalence of TB or blood borne viruses (Department of Health 2007). As elective students are already known to their local Occupational Health department this health screening may simply take the form

of a questionnaire that must be completed by all students who have visited a country with a high prevalence of the relevant infectious diseases.

### *Assessment*

Electives are an important and integral part of the medical undergraduate curriculum, and formal assessment with a satisfactory “pass” is required for progression in many schools. A range of different approaches to assessment are utilised, and will range from comprehensive reports of several thousand words, with required sections evidencing achievement of predetermined outcomes, reflecting the stage of the student and the purpose of the elective to a formatively reflective essay illustrating personal development. Incorporation of a requirement for reflection is essential, whether this is written or a verbal debrief. Inclusion of the personal reflection may not necessarily comprise part of the assessed elective report, and many would consider more authentic and life-changing reflection is more likely to occur verbally or be included within a personal development portfolio.

### **Ethical challenges of electives**

Ensuring that students are aware of the ethical dimensions of studying and working in environments outside their usual supervised place of practice and particularly when in environments that may pose new challenges, including LMI countries, are crucial. Preparation and practice should follow recognized standards of professional

and ethical behaviour whilst on any elective (Shah & Wu 2008, British Medical Association 2009, Anderson et al. 2008, Responsible Electives Coordinator 2013).

### *Clinical experience in the host institution*

Electives in a LMI country may present a temptation to students to undertake medical care or procedures which they would not be permitted to perform at home (Shah & Wu 2008, British Medical Association 2009). Indeed, for some students, this may be a motivating factor in choosing their placement. Apart from 'wanting to have a go', resource challenges may be one of the factors leading to students considering they are under pressure to perform beyond their capabilities, for example an urge to 'help' in an under-resourced healthcare setting and a reluctance to seek supervision to avoid being a burden on their host. This overt or subliminal pressure may be exacerbated by hosting healthcare staff who may wish to be hospitable, or consider their visiting students to potentially be more competent or experienced than the reality. A study from the Solomon Islands showed that the local healthcare workers consistently judged visiting students to require less supervision when diagnosing patients, treating with practical procedures and prescribing drugs compared with their tutors in England (Radstone 2005).

Awareness of these pressures and the ethical imperative to practice within personal competency levels is thus an important part of both elective preparation, and honest, reflective debriefing. The BMA guidance (British Medical Association 2009) suggests that before undertaking a procedure on elective that a student has not performed at home, they should ask themselves four questions:

1. Why are you not allowed to do this procedure at home?

2. Are you capable of performing it without suitable supervision?
3. Are you putting your patient or yourself at risk?
4. Would it be possible or practicable to ask for supervision without imposing excessive burdens on other key health personnel?

Unless there are clear and favourable answers to all these questions, the student should politely decline to perform the procedure. Students who accidentally, or even worse deliberately, perform a procedure at which they are not competent are endangering the patient, breaching professional practice guidance and additionally may be breaking the law in their host country (General Medical Council 2009, Association of American Medical Colleges 2013a, Royal College of Physicians and Surgeons of Canada 2005).

Cultural differences can be difficult for students to accept however well prepared they are. For example, in some countries patient autonomy is not as highly regarded as in the developed world with relatives or doctors taking a greater role in a patient's healthcare choices. Cultural differences may further complicate this situation by, for example, adding in different gender roles, with a more patriarchal approach meaning that normal practice is for husbands to contribute directly to decisions about their wife's reproductive health. Students must respect these differing cultural situations and learn from them, while also being aware that harmful practices can develop in any culture. If situations arise that the student believes to be detrimental to the patient, they must politely refuse to participate and then try to discuss their concerns with their hosts (Kraeker & Chandler 2013).

Pre-departure elective preparation should thus ensure students have the opportunity to enhance their awareness of challenges to practicing outside their competency and in culturally challenging environments, and be provided with opportunities to consider potential ethical dilemmas. This can be by locally run sessions through to providing access to e-learning resources relevant to preparing students for international experiences. Establishing clear and appropriate goals and expectations, including liaison with hosts, are an essential pre-requisite to facilitate students in making the right choices (Banatvala & Doyal 1998, Elit et al. 2011). Provision of debriefing and reflection after return, an identified on-site colleague or supervisor, and maintaining an ongoing connection with the home institution are also recommended.

#### *Emergency medical care*

Whilst clear guidelines around competence and practice remain valid in an emergency situation, the lack of any other personnel being present may pose different challenges and alter the situation somewhat. Just as when at home, if a student finds themselves present at a medical emergency they must act in the patient's best interest, and failure to help breaches their ethical duty of care. The BMA toolkit (British Medical Association 2009) provides practical advice for this situation, articulated as '*Where a patient is at immediate risk of death or serious harm, and no other qualified health professional is available, students can assist, provided they have a reasonable belief that they have appropriate skills and can improve outcomes.*'

#### *Clinical competence of fellow students, or other doctors*

A further ethical problem on electives arises from the behaviour of other students on the same placement or even of qualified practitioners within the host institution.

Anecdotal reports exist of students exceeding their competence to such an extent that their peer colleagues feel uncomfortable about the behaviour. If students believe a colleague may be potentially harming a patient by these actions, then they are obliged to intervene. This is a challenging enough situation if at home, but even greater while on elective where the support by peers, supervisors and colleagues may be much less certain. Observation of unsafe or even unethical practice that students might consider inappropriate in their home institution and culture can be an ethical and moral challenge. Once again, pre-departure consideration of this situation along with support from the home medical school during the placement are important to both support the students in making the “right” choice, and prevent potential harm to both patients and students.

### *Project work*

Projects undertaken while on electives require ethical review in the same way as projects in any other course component. The home medical school will already have in place procedures for the ethical review of student projects, and must ensure that students doing projects apply for review even if the project is taking place away from the home institution. A student doing an elective project in another country is still, at that time, studying on a course at the home institution. For projects involving patients, the student and their supervisors must also apply to the local healthcare provider for approval, for example in the UK the National Research Ethics Service system must be used for any research projects involving National Health Service patients. In the developed world there will be established, and often complex, systems in existence

for this process, and for research involving patients abroad students will need to work closely with their host supervisor to ensure that local ethical review requirements have been met. Numerous examples exist where these local policies and their implementation have been found to be less robust than at home, so it remains imperative that students apply the same standards when on elective as they would at their home medical school (British Medical Association 2009, Harvey et al. 2011, Association of American Medical Colleges 2013b). It is for this reason that ethical review of all student elective projects by the home medical school is mandatory.

### **Electives in an international context**

Electives are an established component of undergraduate medical training throughout the world, resulting in tens of thousands of students travelling each year to experience wider healthcare environments. A significant proportion of these students choose to visit LMI countries which undoubtedly have the least resources to cope with this. It is questionable whether or not the presence of all these students in anyway contributes to the host institutions or simply results in an even greater burden on already stretched resources. Students going on electives to resource-poor hospitals believe, sometimes rather naïvely, that they are going to help the hospital deliver healthcare. This aim may indeed be achieved in some cases, but in many, the effort required by the host to facilitate the elective may take far more time than the student gives back (Cherniak et al. 2013, Kraeker & Chandler 2013). Furthermore, highly skilled healthcare staff may be taken away from direct patient care to

supervise a student. Students should be aware of this finely balanced situation and when on their own elective endeavour to tip the balance in favour of helping their hosts, even if this is to the detriment of their own educational experience, for example contributing by doing what might be perceived as boring tasks. The burden presented by elective students is increased if the student is not adequately prepared for the placement as described above.

Considering the huge numbers of medical students from the developed world that benefit from elective placements in LMI countries, there are only a very, very small number of students travelling in the opposite direction. Developed world medical schools have a moral obligation to reciprocate the opportunities given to their students but few achieve this. Barriers to students from LMI countries undertaking placements in the developed world include:

- financial- the costs of travel, accommodation and other living costs are commonly prohibitive.
- Language - although more students from non-English speaking countries will speak English than vice versa, conversing in English in a healthcare and learning environment is challenging for most visiting international students.
- Border controls - many countries, including the UK, have restrictions on the entry of students from abroad. An elective, which is by nature only a short placement, often undertaken mostly in a hospital, falls outside of the usual descriptions adopted by border agencies for students coming to study in another country who normally do so for a whole academic year.
- Lack of teaching resources - in these austere times resources for teaching students are under pressure and medical schools may consider they are obliged to focus their

available resources on their own students. Formal teaching specifically for visiting students is therefore not always available and their presence in the clinical environment is only allowed if this is not to the perceived detriment of local students. The educational experience for visiting students may therefore be below that available to local students.

On a global scale, there is currently a gross mismatch between the movement of elective students from the developed world to LMI countries compared with in the opposite direction. Medical schools in globally well resourced countries should be challenged to consider their obligation to attempt to overcome these barriers for visiting students, even if this is in relatively small numbers compared with outgoing students. Partnerships between institutions can provide an effective way of facilitating visiting students; once established, organising the visiting placements becomes easier. All medical schools that allow students to do electives abroad should additionally consider allocating specific resources for visiting students in token compensation for the free tuition that the numerous hosts are providing for their own students. Despite the numerous barriers to students from LMI countries visiting developed world medical schools, every effort should be made to facilitate this both to reciprocate the LMI country electives undertaken by their own students, and to encourage the internationalisation of medical education. The aspiration must be to ensure true reciprocity of learning from each other. Responsible electives additionally challenge visiting students from wealthier parts of the world to contribute to their host institution not only financially, to recompense for board, lodging and tuition, as well as ensuring collaborative and reciprocal partnerships around the activities undertaken during the placement.

This mass global movement of students may confer some benefit to broadening concepts around sustainable global health care. Electives contribute to the internationalisation of medical education by enhancing global health competencies and developing a concept of what it means to be a global citizen (Murdoch-Eaton and Green 2011, Oxfam 2012, Stys et al. 2013). Contact between students and health care professionals from different countries can lead to a better mutual understanding of medical education in very different settings with shared learning, as well as enhanced recognition of the challenges to face in future global health care professionals (Frenk et al. 2010).

(word count 9882)

### **Practice points**

- Electives provide unique opportunities for students to design and organise individualised educational experiences.
- maximising education benefit requires clearly defined and realistic learning outcomes
- ethical challenges should be an integral part of required professional elective practice.
- international electives expose students to greater risks than when at home and thorough pre-departure preparation should include risk management.
- Establishing mutually beneficial partnerships between home medical schools and elective provider, are an ideal aspirational elective model.

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**Declaration of Interest**

The authors report no declarations of interest.

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## Tables and Case studies

*Table 1. Key principles within any elective*

All electives should include:

1. Clearly articulated purpose and educational objectives.
2. Comprehensive pre-departure preparation, including communication with hosts, and consideration of competence needs, culture, conflict and ethical challenges.
3. Supervision whilst on placement, both locally and from home institution.
4. Undertaking project work, particularly if beneficial to the host.
5. Incorporation of reflective practice, before, during and after the placement.

Table 2. Potential topics for coverage as part of pre-departure education about health risks

<b>Potential health challenge</b>	<b>Strategies to avoid or manage the challenge</b>
<i>Accidents</i>	<ul style="list-style-type: none"> <li>• travel advice about how to avoid being a victim of crime.</li> <li>• advice about the risks of recreational activities outside of the highly-regulated developed world.</li> <li>• advice regarding elective travel arrangements, including how to get to and from the area of the placement and the means of travel between the placement and residence. This last area requires close consideration - walking to the hospital is cheap, easy and in many exotic environments very pleasant, but the student should be aware this is also a high risk form of transport if the route is along roads.</li> </ul>
<i>Infectious diseases</i>	<ul style="list-style-type: none"> <li>• have normal health checks before departure e.g. dental check-up.</li> <li>• review any pre-existing medical problems and ensure sufficient regular medication for the duration of the elective, and any other medication that may be required if their condition deteriorates e.g. steroid inhalers for an exacerbation of asthma.</li> <li>• immunisations should all be up-to-date, including hepatitis B.</li> <li>• blood borne viruses, including understanding of the prevalence in the local region, avoidance of transmission (e.g. availability of required personal protective equipment), risk-benefit analysis of participating in exposure prone procedures, and availability of post-exposure prophylaxis if required.</li> <li>• understanding of malaria transmission, and the required preventative measures</li> <li>• safe drinking water, including pre-departure research to establish where this will come from, and implications, for example are purification tablets required, is bottled water available and safe, avoiding ice-cubes in drinks etc.</li> <li>• basic hygiene, including vigilance around their own hygiene habits and handwashing, consider taking a personal supply of personal resources like antiseptic hand gels and to be alert for potential for less adequate food preparation and hygiene.</li> </ul>
<i>Climate challenges</i>	<ul style="list-style-type: none"> <li>• how to prevent problems from extremes of heat, extremes of humidity and sun-burn.</li> </ul>
<i>Behaviour</i>	<ul style="list-style-type: none"> <li>• safe behaviour, including the avoidance of sexually transmitted diseases.</li> </ul>
<i>Common travellers' illnesses</i>	<ul style="list-style-type: none"> <li>• how to manage gastrointestinal illness including electrolyte replacement products and knowing when antibiotic therapy may be indicated.</li> <li>• insect bites and how to treat the bite and any ensuing infection.</li> </ul>

*Table 3. Components of mandatory pre-departure HIV education*

**1. Pre-departure education:**

This includes safe practices when treating HIV positive patients, and how to manage a needlestick injury both in terms of first aid, the risk-assessment required to determine if HIV post-exposure prophylaxis (PEP) is required, and how to initiate this. This information may be provided by any combination of face-to-face seminars/lectures, in writing, or by online learning. Whatever format is chosen, most medical schools make this education mandatory, requiring confirmation of completion before the student's elective is approved.

**2. Safety equipment:**

Addressing the availability of appropriate safety equipment such as personal protective equipment, sharps disposal bins etc. These may be supplied either by the host hospital or purchased by the student before departure, but must be available to the student throughout the elective.

**3. Post-exposure prophylaxis:**

PEP must be available to the student at the host hospital immediately. This may be provided by the host, but more commonly students take sufficient drugs with them for enough days PEP to allow them to return to the UK to complete the required treatment. This also allows continued medical follow-up and counselling. PEP regimes evolve constantly due to the changing susceptibility of HIV to the various anti-retroviral drugs currently available, and national guidelines provide the required information. In most medical schools the cost of acquiring PEP drugs for an elective must be borne by the student, and only following appropriate counselling and a prescription from an occupational health or infectious disease specialist.

Table 4. Preparing for 'culture shock' (after Parker et al. 2011)

**Items for students to consider including in pre-departure training:**

- the W-curve of mood – students should be aware of potential mood changes, and that feeling low after a few weeks is a perfectly normal response.
- cultural considerations - suitable research before departure can highlight the cultural challenges to be faced i.e. knowing about the politics, religion, community structure, language, dress code etc of the region reduces the stress of having to work these things out on arrival.
- defining your role - in particular identifying your supervisors, feeling comfortable working with them to develop mutual understanding of expectations as well as an understanding of your role as a student in the host hospital.
- medical landscape - research the type of medical activities you will be engaged in before departure and make sure you are familiar with the diseases and problems you will face. The pathology seen in patients in other countries, including LMI countries is likely to be different (and potentially more advanced) than you have seen before.
- stress management - be aware of strategies you can deliberately use to reduce personal stress (Table 5)

*Table 5. Stress reduction strategies when on elective (after Parker et al. 2011)*

- don't expect too much of yourself early on
- try not to overwork
- maintain an open mind, some perspective and a sense of humour
- practise healthy habits i.e. don't overindulge in caffeine, alcohol, over-the-counter or other medications; avoid unhealthy foods; get some exercise; ensure a good night's sleep
- keep a journal and communicate regularly with home
- share things with a trusted colleague or companion

*Case study 1: Needlestick injury in a 'high-risk' setting*

A student arranged an elective in rural Mozambique using an established charity. One week into the placement he sustained a needlestick injury with a syringe which had been used for taking blood. The estimated prevalence of HIV+ve patients in the area was 12%, so the student began taking his 7 day supply of PEP drugs. Three days later, and after obtaining appropriate consent, the patient was tested for HIV and found to be negative. Despite this result, and on the advice of a visiting military doctor in the area, the student decided that he should continue to take PEP drugs and that if he did this he could safely continue his placement in Mozambique. There being no PEP available in the rural hospital, he travelled to the country's capital Maputo to obtain more. A private hospital provided further PEP drugs, and advised the student to have his liver function tested. When these results were available, some 10 days after starting PEP, they were significantly abnormal. At this point he contacted his home medical school who requested that he return to the UK for further medical assessment and treatment. The student made a full recovery from his drug induced hepatitis and did not acquire any blood-borne viruses.

Learning points: Although the initial management of this needlestick injury was entirely correct, in a bid to remain on his elective the student then sought informal medical advice, and continued taking his PEP, which may not have been necessary. PEP drugs have significant side-effects, and should only be used where there is access to suitable medical expertise and facilities to do so safely.

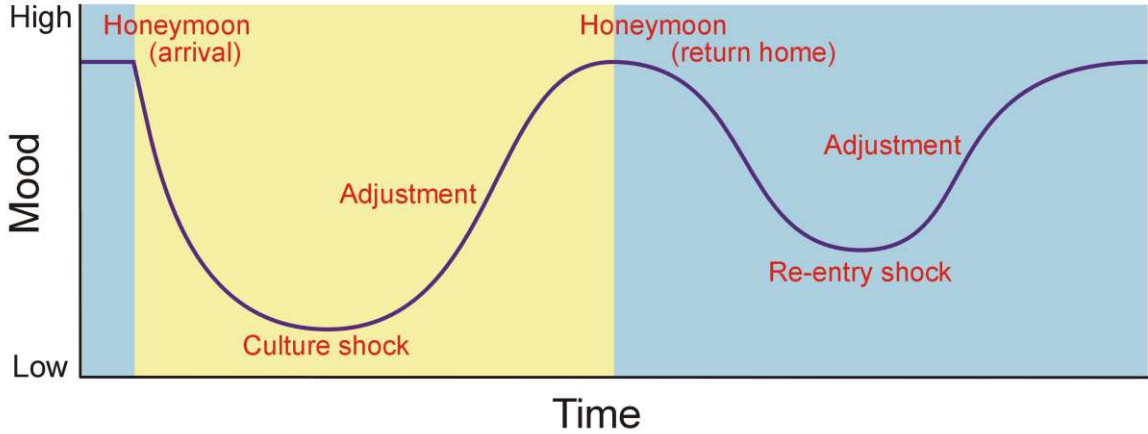
### *Case study 2: Culture-shock on elective*

Two students arranged an elective in a teaching hospital setting in central Hong Kong. The hospital accommodation offered by their host was adjudged too expensive by the students, who made their own arrangements via a website. After two weeks on the placement, both students returned home early citing gastrointestinal illness as the reason.

When debriefed, a different picture emerged. Neither student had ever travelled outside of western Europe before. On arrival in Hong Kong, the students discovered that the commute from the hospital to their flat took over an hour, and the flat was near the top of a high rise block in a distant suburb of Kowloon. Furthermore, after a few days, the landlord had increased the rent to double the agreed rate, and had threatened physical violence if it wasn't paid. Embarrassed by their bad choice of accommodation the students had not felt able to report these events to either the local authorities, their host, or their home university so had simply returned home early on a false pretext.

*Learning Points:* Medical schools should have clear plans for communication with students in a crisis, set-up to be non-judgemental and supportive to ensure student safety. Students should be cautioned against ignoring their host's advice, even if this involves a more difficult or expensive option.

**Figure and legend**



**Figure 1.** The W-curve of mood when working in a LMI country. The trip (yellow section) begins on a high, honeymoon, phase with a new and exciting environment, but as the challenges of the role become apparent mood declines towards culture-shock. With time, some adjustment occurs and mood partly recovers. On returning home (blue section) a similar high mood occurs before the challenge of returning to the high-income country causes feelings of guilt about what has been left behind and stress (re-entry shock) from adjusting back to 'normal' life (after Parker et al. 2011).