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Editorial

2015 has been a year of anniversaries; 25th edition of this journal, 30th of TRAVAX and coincidentally as well as editor for the BGTHA, I am a medical director for the Nomad Clinics which this year also celebrated its 25th anniversary. It was founded at a time when 'Travel Medicine' became a formally recognised discipline at the end of the 1980s. Previous to that point as a medical speciality it was considered by many to be a branch of Tropical Medicine and there were very few specialist clinics, with GPs and nurses simply mostly concerned with administering the vaccines. There was also an absence of much formal training in the subject.

The first ever conference of International Travel Medicine was held in 1988 and from around that point it developed into the discipline we see today with a large number of specialist travel clinics, pharmacies and GP surgeries in the UK offering a service. There is now quite a range educational opportunities available with a good selection of both National and International Conferences to attend. The Northern European Conference in Travel Medicine (NECTM) will be a landmark as it is being held in London 1st - 4th June 2016, the BGTHA being host organisation. More recently travel medicine has become associated with interests in Global health reflected in the content of this journal. It is worth reflecting at the start of the new year upon where travel medicine comes from and what the future may hold.

In the 1980s vaccines and other medicines that we used were very different from today. For instance, typhoid/paratyphoid and cholera were whole cell vaccines and often caused more local and systemic reactions than the modern ones. Hepatitis A was only covered by short term passive immunity through a painful IM injection, hepatitis B vaccine was only just available and not used for travellers. Meningitis vaccine did not have all the strains in the modern ones and we had no licensed Japanese B encephalitis vaccine. In those days, a certificate of Cholera vaccination was required for entry to many countries.

We did not know as much then about managing many of the common travel ailments such as traveller's diarrhoea and mountain sickness as well as how to properly assess the health risk to travellers and supply appropriate advice, medicines and vaccinations. Also, in the 80's, we did not have the same range of tablets to protect against malaria. The most widely used was chloroquine and proguanil, but by the end of the decade most strains of *falci-*

parum malaria were resistant to these. Lariam appeared in the early 90s and we started to use doxycycline, with Malarone coming on the market for prophylaxis in early 2000s.

What will be the developments going forward? In terms of vaccines and medicines, we are already seeing the benefits of research and improved understanding of the risks to travellers. Modern vaccines are certainly safer and many seem to offer good lifelong protection after completing a course. There should be a vaccine against dengue very soon and I expect another against chikungunya at some point. There are early signs that the incidence of travellers' diarrhoea to some countries is reducing, though it remains a likely and unpleasant experience for many travellers. Also the need to take malaria prophylaxis to regions outside of Sub-Saharan Africa seems to be on the decline. It could appear therefore that the health prospects for the traveller are improving and increasingly we do seem to have the tools to minimise the risks. This does not obviate the need for travellers to access travel clinics, in whatever setting, something we know the public does not do to nearly the level we would wish. There is also probably work to be done to ensure that travellers are offered a consistent service by all health professionals and those at greater risk or with special needs receive more expert advice.

Larry Goodyer
Editor

Altitude, Ageing and the Heart

M Townend

Most travellers to high altitude are vigorous, healthy young climbers and trekkers. Older people are becoming ever more adventurous in their choices of holiday destinations, some travel to high altitude in parts of the world such as South America and Tibet on package tours. It is not unusual to find trekkers in their 60s and 70s on high altitude paths in Nepal, Bhutan and Peru. Some may have cardiovascular problems e.g. latent, treated or untreated ischaemic heart disease or hypertension. Three papers published in the June 2015 edition of High Altitude Medicine and Biology^{1,2}, offer a basis for advice to older travellers with or without cardiovascular problems.

Richalet and Lhuissier³ point out that it is generally accepted that ageing may be protective, at least at moderate altitude, and that there have been several ascents of peaks at much altitudes of over 8000m by older people. They also state, however, that there have been few studies exploring the influence of ageing on tolerance to high altitude and prevalence of altitude related diseases that take into account such factors as speed of ascent, altitude reached, sex, training status and other potential confounding factors. Their study of 4675 subjects aged 14 to 85 years over a 20 year period showed a decrease in cardiac responsiveness, but an increase in hypoxic ventilatory response on exposure to hypoxia with increasing age. *They concluded that ageing per se is not a contraindication to travel to high altitude provided that there was no pathological condition present and that the individual's level of fitness was appropriate for the chosen activity.*

Parati et al² refer to studies on young and middle aged subjects that show an effect of high altitude tending to increase levels of arterial blood pressure. They point out that ageing also has a tendency to increase systolic blood pressure by a combination of atherosclerosis, renal dysfunction and impaired baroreflexes. Though there have been few studies of the effect of altitude on blood pressure in older people, the authors state that *there does not appear to be much difference in the blood pressure response to high altitude from that of younger people.*

One study⁴ on subjects with a mean age of 69.8 years at an altitude of 2500m showed a clear increase in blood pressure on the first day of exposure to altitude, decreasing on subsequent days, the increase being much higher in hypertensive subjects. There have been no specific studies on the effect of altitude on drug control of hypertension in older people. In young and middle aged subjects, studies have found varying results. The β adrenergic blocking drugs carvedilol and nebivolol were both shown to reduce the altitude effect of raising blood pressure at altitude. In one study⁵, the effect being greater with carvedilol. In another study⁶ the effect of an angiotensin blocker telmisartan was investigated, It was found that at sea level and at 3400m, ambulatory blood in an elderly

trekker on the Everest trail in Nepal pressure was reduced but the pressor effect of altitude was not affected, whereas at 5400m the blood pressure lowering effect of the drug was no longer evident, due no doubt to the suppression of the renin-angiotensin-aldoosterone mechanism that is known to occur at high altitude. When the effect of telmisartan in combination with the calcium channel blocker nifedipine was investigated the blood pressure reducing effect of the combination was well maintained at 3260m. The authors suggest that *it would be wise to monitor blood pressure in hypertensive subjects going to high altitude and to be prepared to modify their treatment regimes, particularly those subjects with a labile blood pressure or those who are known to have had a significant rise in blood pressure on previous, exposure to altitude.*

Levine¹ points out that atherosclerosis, both clinical and subclinical, progresses with age, and that as a result the risk of high altitude exposure in older individuals is linked closely with both clinical and subclinical coronary heart disease. Hypoxia may cause or exacerbate symptoms at altitude, as may stress, exertion and dehydration. *Adverse events such as acute coronary syndromes (unstable angina or myocardial infarction) or sudden death may occur, especially in older and unfit men, within the first few days of altitude exposure, and the affected individual is likely to be far from advanced medical care, resulting in worse outcomes.* The author states that it is necessary to ensure optimal fitness for the chosen activity and to allow adequate time, at least 5 days, for acclimatisation. Optimising drug therapy such as statins and aspirin is important, and a graded exercise test at sea level will assess exercise capacity and the presence of provokable ischaemia. The author's opinion is that with these provisos *most older individuals with coronary heart disease should be able to tolerate exposure to high altitude safely.*

The information contained in these papers and the wealth of references that they contain should provide an evidence base for advice to older travellers, especially those with hypertension and coronary heart disease, who wish to travel to high altitude.

Mike Townend, MB ChB (Hons), Dip Trav Med, FFTM RCPS (Glas), Former GP. Chairman of British Global Travel Health Association

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Global Travel and Trauma

V Vickers

Many travellers believe that infectious disease is the most likely hazard to health while travelling abroad. Excluding diarrhoea they are however more likely to suffer a traumatic incident, a fact not always appreciated by health advisors. In terms of chronic morbidity, trauma is a common occurrence and road traffic accidents are one of the leading causes of mortality in travellers (22%).

The WHO global status report on road safety 2015,¹ shows that worldwide the total number of road traffic deaths is about 1.25 million per year, with the highest road traffic fatality rates in low-income countries, the destination of many tourists. 99% of road traffic deaths occur in low and middle income countries, which account for 82% of the world's population, but only 54% of the world's registered vehicles. The global rate for road traffic deaths is 17.4 per 100 000, with rates more than twice as high in low and middle income countries than in high income countries. 68 countries have seen a rise in the number of road traffic deaths since 2010, of which 84% are low or middle income countries.

Table 1

%Causes of death in travellers while abroad: ²	
Cardiovascular Disease	49
Medical conditions	13.7
Trauma	22
Cancer	5.9
Others	5.5
Suicide/Homicide	2.9
Infectious disease	1

A great deal of emphasis is placed on disease prevention at pre-travel health clinics and the importance of appropriate immunisation, a perceived risk, with scant regard to the real risk of trauma exposure in international travel (see table 1). Greater awareness of this accidental hazard might ensure that more of the travelling public take sensible safety precautions in their journeys abroad. Many people fail to practise simple measures of personal safety when overseas and neglect the conventional safety procedures they practise routinely at home. They put themselves at high risk of suffering accident and trauma. They are overwhelmed by the impact of new cultures, human and traffic congestion, carried away by holiday euphoria or, over-indulgence in alcohol or drugs, and unaware of their exposure to inadequate or non-existent public safety regulations.

Conventional measures to protect against disease are important, but more emphasis needs to be placed on traumatic dangers to health by travel health clinic and health promotion staff, when advising the traveller. Advice on accident prevention has potential for reducing morbidity and mortality. People should practice more rigorous safety measures abroad, than those the norm in the safe home environment. Minimal advice and intervention such as the distribution of informative leaflets drawing attention

to the need for extra care might increase awareness.²

Victims of accidental trauma often require expensive evacuation and repatriation and place a heavy burden on local health service resources, which may struggle to meet the demands of the local populace. Review of the literature shows road traffic accidents (RTAs) were most common cause requiring medical evacuation and in 1369 consecutive medical problems advised by foreign travellers, 30.9% were due to trauma and only 1.7% involved tropical or exotic infections. In medically-assisted repatriated travellers, in 40.5% of cases the pathology was due to trauma. A UN commission (2011) reported that road related trauma is the biggest killer of young people worldwide. Teenagers and males are most at risk with 42 deaths per million of the general population, with young males having an even higher rate of 127.³

Risk of a road traffic death varies significantly by country with highest rates in Africa, while the Europe has a rate far below the global average (9.3 per 100,000 population, relative to the global rate of 17.4 (see table 2). The Eastern Mediterranean region is the only one where high income countries have a higher road traffic death rate than low- or middle-income countries. Almost half of all deaths on the world's roads are among motorcyclists, cyclists and pedestrians. The likelihood of dying on the road as a motorcyclist, cyclist or pedestrian varies by region, with Africa having the highest proportion of pedestrian and cyclist deaths, at 43% of all road traffic deaths.

Table 2

%Road traffic deaths by type of road user, by WHO region						
	%	Cyclists	Pedestrians	Vehicles	Motor cyclists	Car occupants
W. Pacific		23	7	34	14	22
SE Asia		13	3	34	34	16
Africa		39	7	40	11	3
E Med.		3	45	14	27	11
Europe		10	51	4	26	9
Americas		20	21	35	22	4
Other World		22	4	23	21	31

Road traffic deaths among pedestrians, cyclists and motorcyclists are very high in South-East Asia. Walking and cycling are important forms of mobility in Africa, while in South-East Asia and Western Pacific, motorcycles are frequently used.

- About 1.25 million people die each year as a result of road traffic crashes.
- Road traffic injuries are the leading cause of death among young people, aged 15–29 years.
- 90% of fatalities on roads occur in low and middle income countries, although they have half the world's vehicles.
- Up to 50 million more people suffer non-fatal injuries, with many incurring a disability as a result of their injury.¹

Global Travel and Trauma *continued*

Vulnerable road users and risks

People aged between 15 and 44 years account for 48% of global road traffic deaths with males more likely to be involved in road traffic crashes than females. About three-quarters of all road traffic deaths occur among men. Among young drivers, young males under the age of 25 years are almost 3 times as likely to be killed in a car crash as young females. An adult pedestrian's risk of dying is less than 20% if struck by a car at 50 km/hr and almost 60% if hit at 80 km/hr. The risk of being involved in a crash increases significantly if the person has a blood alcohol concentration of 0.04 g/dl. Wearing a seat-belt reduces risk of a fatality among front-seat passengers by 40–50% and rear-seat passengers by between 25–75%.

Motorcyclists are particularly vulnerable, making up 23% of all road traffic deaths. In many regions this problem is increasing; in the region of the Americas, the proportion of motorcycle deaths out of all road traffic fatalities rose from 15% to 20% between 2010 and 2013. In South-East Asia and Western Pacific regions, a third of all road traffic deaths are among motorcyclists. Pedestrians and cyclists, make up 22% and 4% of global deaths respectively. Wearing a motorcycle helmet correctly, reduces the risk of death by almost 40% and the risk of severe injury by over 70%.¹

Risk factors

Travellers have a cavalier attitude to vulnerability in road travel while overseas, which is unrealistic in terms of risk, and remarkable in terms of admitted travel fears to another transport mode - air travel. In a large survey, few people stated that they had worries about road travel while abroad. Twenty per cent, however, admitted to considerable anxieties experienced about flying.³ Yet flying is a remarkably safe form of transport with only one accident reported per half million flights. Being killed in an RTA is 1000 times more likely than in a flying accident. Compared to risk in an air-travel accident a person is:

- Eight times more likely to have a physical accident while out walking
- Eight times more likely to be involved in a boating accident
- ten times more likely to have an accident at work³

Globally:

- 105 countries have good seat-belt laws that apply to all car occupants;
- 47 countries have good speed laws defining a national urban maximum speed limit of 50 Km/hr
- 34 countries have a drink-driving law
- 44 countries have helmet laws that apply to all drivers, passengers

- 52 countries have a child restraint law for occupants of vehicles

Increased trauma risk for travellers is due to:

- Narrow, truck-congested routes
- Poorly maintained, poorly engineered roads
- Proliferation of bicycles, animals and pedestrians
- Unmarked, unlit, unmade roads
- Ancient vehicles without safety devices and routine checks for road worthiness
- Unfamiliar, hazardous environments
- Unfamiliar, hazardous environments
- Absent or poor health and safety regulations
- Unlicensed, untested drivers and those under influence of alcohol
- Hired vehicles
- Inadequate or unenforced legislation
- Unpoliced road and vehicle regulations⁴

Traffic accidents in foreign countries are an important cause of death for Peace Corps volunteers and American Missionaries. Dutch workers in developing countries have a mortality rate from traffic accidents double that of population living in Holland. When adjustment is made for number of registered vehicles the RTA fatality rate is nearly 20 times higher in developing countries than in developed ones. A greater proportion of pedestrians is involved in these countries compared with the developed world, where the greater proportion of injuries deaths occur in vehicles.²

Many underdeveloped countries in Africa and Asia are undergoing very rapid industrialisation and motorisation goes with it. They attract many tourists. Delhi for example is one of the most congested cities in the world with poor roads crammed with unroadworthy vehicles, animals and people. In China motor vehicle transport is growing at 20% per year. The number of road deaths in China is about 50, 000 per year. Road death rates are close to those in USA, but the Chinese road fatality problems are just beginning. Currently there are five vehicles per half million people on Chinese roads, whereas there are 770 on US roads. Where motors, thousands of cycles pedestrians intermix there is traffic chaos and injury. Tourists in deluxe coaches are not insulated from traffic frenzy commonplace in Beijing, Cairo, Istanbul, Lima and many of the world's capitals. Coach drivers can be unskilled, overworked, on drugs or under the influence of drink.

Non-fatal injuries

For every person who dies in a road traffic crash there are at least 20 others who sustain non-fatal injuries. These injuries can have considerable impact on quality of life, and often carry with them significant economic costs. Gross disparities in injury outcomes between high-income countries and low and middle income countries relate directly to the level of care

received immediately post-crash, and later in a health-care facility. Quality of care at scene of the crash is variable. In high-income countries, delivering emergency care at the scene of the collision and getting crash victims quickly to a health-care facility is often performed by professionally trained providers using sophisticated equipment and designated vehicles. However, in low-income countries, lay people such as community leaders, police, or taxi drivers who are trained in basic injury care.¹

Case Histories

1. A tour group was driven in a coach along the narrow, truck-congested road between Istanbul and the Mediterranean by a driver who had been driving constantly for 10 hours by the time. He was high on hashish and insisted on driving with feet on the steering wheel, until forcibly removed from his seat by terrified passengers.

2. A coach driver in Nicaragua had been quietly imbibing alcohol over the lunchbreak. His performance on the road in the afternoon was erratic and accompanied by frenzied bursts of singing and waving hands in the air. He failed to negotiate a turning and the bus smashed into a bridge, injuring some passengers. It took 4 hours before an emergency response vehicle arrived.

3. Bhutan has an embryonic transport system with few cars and very young drivers. The latter vie with one another in death defying journeys along precipitous narrow roads. One driver of a tourist car endeavoured to emulate fellow drivers who had squeezed past an Indian army munitions convoy. He underestimated the gap between a truck full of ammunition and nearly blew all up, as his vehicle scraped the length of the truck. Sparks flew into the air as metal gashed metal, until the car hit a large boulder and came to an abrupt stop.

Emergency Care

If an RTA occurs, even in developed parts of Europe and North America, good trauma care systems may be some distance away and geography presents obstacles to speediness and quality of care rendered to the injured. In many parts of the world, medical aid is very delayed and limited e.g. transport to a clinic with poor facilities was only possible in Grenada after a taxi-driver was paid to make a detour. Traveller insurance cover is only partly protective. It is only as good as the proximity of facilities, their quality and that of their staff. Hospitals can be distant and lacking in equipment, medication and trained staff. Blood for transfusion may be unavailable or, suspect in terms of HIV infection. Reusable needles and giving-sets can be scarce and a badly injured RTA victim cannot oversee the quality of care and sterility of equipment and blood products.

Travel clinic education

Educational effort by travel health professionals working in travel clinics and with the travelling public can help to address lack of tourist concern for

road traffic trauma and distorted awareness of vulnerability abroad. Higher-risk groups should be targeted for special advice about RTA likelihood while abroad. Children using bicycles, young adults hiring motorcycles, mopeds, scooters and bicycles have high accident rates and the elderly are at particular risk. Older drivers find it more difficult to judge speed, intentions and directions of other road users and are more likely to have problems with a change of environment. About 21% of all car drivers killed on the road in UK are over 60 years of age. The risk of fatality or serious injury increases with older age. Young adults are more likely to drive under the influence of drink while abroad, are less likely to wear helmets on bicycles or motor bicycles while overseas and often fail to check the roadworthiness of hired vehicles. Smaller children unaccustomed to different road rules and at play are also more likely to become casualties in unfamiliar surroundings.

Travel clinic personnel should advise on the risks of and from trauma abroad. Provision of simple advice and instructional leaflets may save lives and morbidity. Gap year students, teenagers and young male and elderly travellers should be specifically targeted

Advice to Travellers should cover:-

- Hire of roadworthy vehicles & Segway transporters
- Hire of vehicles with safety features such as seatbelts and child seat restraints
- Wear of helmets on scooters, motor bikes and Segway transporters
- Avoidance of driving on unlit, unmade roads after dark in developing countries
- Hazards related to blood transfusions while overseas
- Paucity of proximal casualty facilities in many areas.
- Lack of first aid equipment and trained staff to deal with RTAs

Summary

Travel afflicted trauma brings mortality, morbidity and returning travellers who can be a burden on state resources. RTAs are common in travellers. The travel industry and travel clinic personnel should ensure that tourists and businessmen are aware of the risk and encouraged to take precautions. Exhortations to travel safely may save more lives than the educational effort placed on the avoidance of infection while people are abroad.

Valerie Vickers, has a special interest in travel medicine and global travel

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International Emergency Medical Assistance

I B McIntosh

General Practitioners rarely advise a patient against international travel and most potential travellers enjoy their vacation and return home safely. A sizeable number however require medical intervention while overseas. Health professionals often emphasise the dangers of infection in foreign lands. Courses on 'travel medicine' tend to concentrate on infectious diseases, rather than more mundane problems. The most frequently occurring conditions among travellers abroad are however, the same conditions that would have occurred had they not travelled but stayed at home i.e. day to day routine medical problems, e.g. heart, lung conditions and trauma. Pretravel immunisation and disease prevention have a primary role to play in healthy international travel, but the real gains in reducing adverse medical events amongst travellers are perhaps in secondary prevention. This requires a sensible pre-travel screening programme, combining primary prevention through immunisation, with accurate, pragmatic advice on whether the proposed trip is appropriate given the pre-morbid state of the traveller and precautions to make it safer.

International Emergency Medical Assistance companies help travellers who become ill or injured away from home. Their databases can provide information about incidence and prevalence of illness abroad, but for commercial reasons these are not publicised. They guarantee a measure of medical expense protection and provide personalised emergency assistance for about 0.3% of those covered by a travel insurance scheme. The range is 0.15-0.6% depending upon the age skew of the target group to whom the insurance is marketed and whether or not dangerous sports are involved. Approximately 100,000-150,000 people worldwide require medical care and possible repatriation each year.

Traveller incapacity while abroad

70% require minimal intervention for minor illness or injury.

20% acquire some form of assistance with repatriation

10% need medical escort home with attending doctor/nurse

0.1% require expensive care with a modified air ambulance transfer home.

The method and mode of repatriation depends upon local medical facilities and how capable they are of coping with the presenting problems and factors relating to the medical condition.¹

Caseload

The commonest category is trauma, especially where travel is for skiing or other injury-prone activities. The incidence of road traffic accidents is

significantly more common in many developing countries. Most trauma cases are minor injuries involving simple treatments such as dressings and minor suturing. More serious cases pose great difficulties when it comes to repatriation.

The second highest category, gastro-intestinal problems reflects the high incidence of travellers' diarrhoea which usually results in simple treatment only. Over-treatment in some resorts constitutes a major management problem for travel insurance companies. The inappropriate use of IV fluids necessitating expensive hospital admission is known in the world of Medical Assistance as the 'ball and chain' routine, as patients are afraid of leaving the bed when tethered to apparatus, or unable to escape from hospital until the drip has been taken down.

The third highest category is cardiovascular disease which poses the biggest problem for Assistance organisations and Insurers. It perhaps reflects the high prevalence of risk factors for coronary heart disease in the UK population. There is some evidence that the first episode of adverse events associated with these risk factors, may be as much as three times higher amongst travellers than in their matched equivalents who choose to stay at home.¹

Deep vein thrombosis and pulmonary embolism are prominent in presentations. The incidence of DVT is higher in global travellers, probably related to physiological conditions and stress associated with travel and air travel in particular, predisposing to greater potential for vascular events, such as venous or arterial thrombus formation.²

Medical Assistance Cases

The single greatest problem for International Medical Assistance and Medical Repatriation organisations is cardiovascular disease which can constitute 35%+ of workload and probably a much higher percentage of expenditure on claims. By comparison trauma and gastro-intestinal problems are less of a concern, since they usually involve minimal assistance and are far less costly.

Management of cardiac cases has changed. Formerly the strategy was to stabilise and then repatriate for definitive treatment in the UK. Now however there is no guaranteed rapid access to treatment in UK and the patient may end up on a waiting-list. By contrast many near European countries now offer an immediate and effective service, with no waiting for revascularisation procedures. Recommending repatriation for treatment in the UK can be a dangerous decision, with potentially adverse consequences. Comparative risks for the patient have to be addressed when considering local or home treatment.

In near Europe, the Antipodes, North America, Singapore and many Asian capital cities, medical

standards are equivalent to those in the UK. The Assistance company medical officer may therefore face a difficult dilemma, as some insurers pressurise them to mitigate costs by repatriating rather than covering treatment abroad. This is more of a problem in the USA since most European destinations have some cover through reciprocal agreements using E111.

From a preventative point of view the Travel Health clinic, doctor or nurse should ensure that high risk patients take good, appropriate health precautions and do not travel to high-risk destinations. If they insist in so doing, they should be aware of the health risk, the need for adequate appropriate travel health insurance and its limitation in evacuation, treatment and repatriation.

In Australia, pretravel health intervention programmes succeeded in reducing the claims costs to insurers by one third, thereby showing that good advice before travel reduces adverse medical events abroad. Similar experiences have resulted from innovative services in the UK. Any would-be traveller declaring a pre-existing medical condition is screened by a nurse using a simple basic decision support system to determine access to and degree of insurance cover to be offered by the insurer.

A Study of Travel Insurance Protection in Travellers

63% travellers were fully covered

29% were not offered cover

8% were part-covered

Part cover - 57% paid an additional insurance premium for protection.

The 29% who refused cover were turned down on the basis of factors relating to the stability of the chronic/pre-existing medical condition and the chosen destination. For example, a patient with angina might be fully covered to go to France but turned down for the USA. If however the indicators were that their condition was likely to be stable during the period of cover, then no restrictions would be imposed.

Part Cover

Insurance companies, who set the criteria for whom they will or will not cover, are not legally required by law to follow any rational evidence-based policies when determining their screening requirements. They are however required by law to comply with the terms of the Disabilities Discrimination act (DDA). The 8% 'part covered' are affected by this legal requirement, for insurers are obliged to comply with the DDA (i.e. not to discriminate against someone with a medical condition). The consequence of this for practical purposes is that, the individual with the pre-existing problem is likely to be covered for everything except the one thing most likely to give rise to a claim. In the

case of Ischaemic Heart Disease, in the USA this means that any personal disaster such as a coronary event with emergency admission to hospital could also become a financial disaster, for the person concerned and their families. Since the DDA did not take account of this repercussion, taking a literal interpretation of it, as most insurers have done, is both irresponsible and dangerous for the insured, who may find that they may even be denied entry to a hospital as their insurance precludes cover for their problem. The Insurance companies should either cover fully or not at all. Many, particularly older people, either knowingly or unaware, are now travelling the world with what they see as comprehensive insurance protection, but in likely medical mishaps, does not cover the condition most likely to befall them.

The number of insurance companies prepared to offer travel health insurance cover for the elderly population has fallen dramatically in a few years. Whereas dozens competed in the market in 2012, only a handful now provide a service and most have strict criteria for acceptance of risk. They seek to insure those at lowest risk and many of the rejects will travel with restricted cover or uninsured. Insurers now rigorously adhere to the terms of cover and will reject claims on sometimes trivial grounds, claiming that a minor condition had not been declared when the policy was taken out and therefore voided the contract. These are often irrelevant to the claim.

There is rarely access to a doctor in these screening assessments which are often carried out by variably trained call-centre personnel who have to rigidly apply insurers' protocols. A positive response to the question for example, "Have you ever taken a statin?" opens sub menus and an inquisition on cardiac status. This is not individualised and can easily penalise a fit older person taking a prophylactic dose of a drug considered to minimise the risk of cardiac event. In this screening process, there are no grey areas based on probability, only a black interpretation of possibility loaded against the individual. There is no recourse to unbiased medical judgement. The exercise seeks to identify fit younger people with no medical history with the objective, the insurance of health people unlikely to make a claim. This leaves older travellers with increasing problems in acquiring adequate appropriate insurance and many now travel uninsured or, without protection for the chronic medical conditions most likely to befall them while they are abroad.

Many, particularly aged, travellers purchasing travel health insurance cannot be expected to understand the subtleties of policy cover and exclusions, which often appear in documents of smallest point size, a further deterrent to older readers with visual problems. The Travel Clinic doctor or nurse, in the best interest of the patient has a responsibility to ensure that the global traveller has

International Emergency Medical Assistance *continued*

adequate, suitable medical insurance protection which covers treatment and repatriation. In particular they must be fully covered for any pre-existing conditions from which they may suffer. Part cover should be avoided. A different insurer should be approached if necessary.³

Other cases that pose a problem for the Assistance companies are, patients travelling with terminal illnesses. These cases are far less frequent, but when they arise are most distressing for all concerned. A terminal event in a traveller while overseas is a tragedy best avoided with careful forethought. The illusion of 'rest and recuperation' associated with 'sun sand and sea' and a holiday in a tourist resort although enticing, is inappropriate for someone needing palliative care. They will cope badly with the heat, and do not adapt well to being in a setting away from home. They will be cut off from the usual networks of GP and community nurses and may well be faced with disastrous alternatives if needing medical care of any kind. Palliative care patients usually prefer to stay at home, Travel-plans are frequently misguided attempts by caring relatives attempting a parting gift, which can easily disadvantage all concerned. Doctors should advise against travel. People who meet with accidents and illness abroad become dependent on others for help.

Adventure Travel

Evacuation, treatment and repatriation is a major problem when travel is off the beaten track, in a faraway destination. An assistance company response may be diverse and life-saving from evacuation and repatriation, to paying claims and auditing foreign clinic bills. The staff will liaise with the medical team of the facility where the traveller is treated and occasionally advise a junior doctor abroad on the best method of treatment of a critically ill patient.⁴

At best however, the company can only provide whatever facilities are available locally. Geography, weather, transportation and communication can determine speed and adequacy of response from the insurer. The terms of the policy often dictate that in any health misadventure, the insurer is immediately advised of the event, before aid is organised, to confirm that, insurance cover is in place. This can be impracticable. Despite a preponderance of cell-phones globally, there are times of crisis when communication with insurers is impossible, especially in remote and exotic locations.

Case history

A middle aged man became breathless and ill seventy difficult mountain miles from Everest base camp in Tibet. No electronic contact could be made with the UK insurer, but after several hours a message was finally got to the parent company in USA. A multi- communication morass

with messages between USA, UK, China, Lhasa and Nepal ensued, with the those in urgent need unable to intervene. The Chinese authorities wanted the patient transported back a two day journey to Lhasa, whereas the insurer, seeking the best medical aid, wanted evacuation to Nepal. The wrangling by spasmodic e-mail and telephonic contact continued for a day until the patient died. The climbing party ultimately tucked the body in to the back of a land cruiser and exited across the Nepalese border.

Health facilities are also very variable in many tourist destinations e.g. Thailand, there are excellent hospital health resources in the capital, but away from the capital health facilities become scarce and of variable quality. In Kuala Lumpur and Penang in Malaysia, there are excellent medical facilities, outside these cities facilities are limited. In some countries doctors and surgeons are well trained but health infra-structure is lacking. eg Cuba. Medical facilities in the old Eastern European block countries vary enormously from the indifferent to the mediocre. Conditions in the former Soviet Union are often unacceptable to western travellers, as basic hygiene is poor with risk of hepatitis B and HIV infections through contaminated needles. Demand for evacuation of ill westerners. is high. Medvac repatriation to Europe is often the only answer. In parts of Africa, South Africa is frequently the best place to evacuate critically ill patients.

Accreditation of private clinics is an issue. In the UK, private hospitals operate under strict guidelines set by a governing body. Elsewhere this is not the norm, "medical clinics" can trade independently and are not accountable to any official body. In other countries, were it not for private facilities, there would be no medical care to western standards e.g. Dominican Republic and private clinics serve western travellers. Others have a reasonable standard of medical care in national hospitals, but not to western standards- eg Egypt and India. Nursing care can be inadequate or lacking in many countries. Nurses may be poorly trained and poorly motivated. In places like rural Greece, family members look after feeding and washing of their ill relative, a problem for people who may be travelling alone.

Recommendations

Pre-travel health clinic intervention for patients with pre-existing medical conditions should include discussion about appropriate, relevant adequate health providers and insurance protection. Untoward medical events may be avoided, prompt evacuation and treatment and repatriation instituted, if health protection is truly comprehensive. Certain travellers with pre-existing diseases should be advised to avoid global travel, or choose a destination where good health facilities prevail. Those having palliative care should be advised to remain at home, or seek travel within the UK.

Questions to be asked in clinics:

1. *"What health problems does the patient have? Are they chronic, recurrent, or remitting ('pre-existing' in insurance terminology)*
2. *What past medical conditions are in the history?*
3. *What is the purpose of travel? Is it to visit friends or relations?*
4. *When are they going? How soon? If well will they remain so till they depart if the departure date is distant.*
5. *What is the mode of travel? By air, land or sea*
6. *What is the destination? Is it North America where healthcare costs are prohibitive?*
7. *Are they covered by travel health insurance? Is it adequate and comprehensive?.*
8. *Will the local medical facilities be adequate?*
9. *Who will be the travel companion? Do they have a fit supporter ?"*

Summary

Travel health insurance provision has limitations.

Emergency medical assistance is dependent on available local facilities which may be absent or variable quality

Unfit people can have a problem acquiring adequate travel health insurance

Many elderly people are travelling with absent or inadequate health insurance.

Health professionals should ensure that patients are aware of the need for health protection while overseas and encourage comprehensive cover.

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Health hazards and the Hajj

A Melrose

Large gatherings occur at vacation rendezvous, pop concerts and religious meetings. The largest of the latter takes place in Mecca during the annual religious pilgrimage. Annually devout Muslims perform this holy ritual which is the fifth pillar of Islamic faith. Every follower of Islam is required to visit Mecca during the Hajj at least once in his or her lifetime, if able to do so. During the Hajj, Mecca must cope with as many as three million pilgrims. Hajj occurs on the 8th to 12th of Dhul Hijjah, the last month of the Islamic calendar. This mass human migration is unparalleled in scale, and pilgrims face numerous health hazards. The extreme congestion of people and vehicles during this time amplifies health risks, such as those from infectious diseases.

On 24 September 2015, a crowd collapse caused the deaths of at least 2,070 pilgrims who were suffocated or crushed during the Hajj in Mina, Mecca, making it the deadliest Hajj disaster in history¹ There have been many serious incidents before that have caused the loss of thousands of lives.

Plane travel has made Mecca and the Hajj more accessible to pilgrims from all over the world and the Hajj has become increasingly crowded. City officials are required to control large crowds and provide food, shelter, sanitation, and emergency services for millions. It has not always been possible to prevent incidents. The stoning of the devil ritual is the most dangerous part of the pilgrimage because of the huge crowds, dense, surging crowds, trekking from one

station of the pilgrimage to the next, can cause a stampede, more precisely, a progressive crowd collapse. At densities above 6 or 7 persons per square meter, individuals cannot move, groups are swept along in waves, individuals jostle to find breath and avoid falling and being trampled, and hundreds of deaths can occur as a result. The stoning of the devil ceremony is particularly crowded and dangerous. Pilgrims fling pebbles at three walls (formerly pillars) in a one of a series of ritual acts that must be performed in the Hajj.

Some notable incidents include:

- July 2, 1990: A stampede inside a pedestrian tunnel leading out from Mecca led to the deaths of 1,426 pilgrims,
- May 23, 1994: A stampede killed at least 270 pilgrims at the stoning of the Devil ritual.
- April 9, 1998: at least 118 pilgrims were trampled to death and 180 injured in an incident on Jamarat Bridge.⁴
- March 5, 2001: 35 pilgrims were trampled to death in a stampede during the stoning of the Devil ritual.⁵
- February 11, 2003: The stoning of the Devil ritual claimed 14 pilgrims' lives.⁶
- February 1, 2004: 251 pilgrims were killed and another 244 injured in a stampede during the stoning ritual
- January 12, 2006: A stampede during the stoning of the Devil killed at least 346 pilgrims

Health hazards and the Hajj *continued*

and injured at least 289 more. Some pilgrims tripped, rapidly resulting in a lethal stampede as two million people were performing the ritual at the time.

- September 24, 2015: More than 2000 pilgrims were killed and another 950 injured during a stampede in the 2015 Hajj.
- December 1975: An exploding gas cylinder caused a fire in a tent colony and resulted in the deaths of 200 pilgrims.¹⁵

Past stampedes have often begun as minor incidents. Death usually results from asphyxiation or head trauma, and providing prompt treatment is next to impossible in large crowds.

The pilgrimage has become less hazardous in recent years. However, the increasing number of pilgrims and the concentrated gathering of people from all over the world whose languages and customs differ, makes this an awesome responsibility for the Saudi health authorities. Infection, trauma and over crowding are serious problems.

Disease

Mingling of visitors from many countries, some of which have poor health care systems still plagued by preventable infectious diseases, can lead to the spread of epidemics. A large percentage of the pilgrims come from remote areas with a high rate of illiteracy and minimal knowledge of hygiene and self-preservation. The enforcement of strict preventive measures and the presence of adequate curative services have been instrumental in managing and controlling the health welfare of this vast gathering. This is the largest congregation of people, with great potential for the spread of infection and adverse impact on individual ill health. However pilgrim education, prevention and prompt, adequate therapy make it a manageable problem.

Health Issues

Immunisations

Pilgrims should be up-to-date with routine immunisations and hepatitis A and B and typhoid vaccination.

Meningococcal Vaccine

Meningococcal disease has historically been a problem during Hajj because of the intensely crowded conditions and high carrier rates of *Neisseria meningitidis* among pilgrims. Outbreaks in 2000 and 2001 affected 1,300 and 1,109 people, respectively. Hajj visas cannot be issued without proof of meningococcal vaccination. All adults must have received a single dose of quadrivalent A/C/Y/W-135 vaccine and must show proof of vaccination on a valid

International Certificate of Vaccination or Prophylaxis.

Respiratory Infections

Respiratory tract infections are common during Hajj; the most common cause of hospital admission is pneumonia. Recommendations are for pneumococcal polysaccharide vaccine for pilgrims aged >65 years and for younger pilgrims with comorbidities. Seasonal influenza vaccine, including H1N1, is strongly recommended for all pilgrims. Pre-Hajj travel advice about common respiratory conditions should include a general assessment for respiratory fitness, necessary vaccinations, and prescription of adequate supplies of portable respiratory medications (inhalers preferred over nebulizers). The crowded conditions during Hajj increase the probability of tuberculosis transmission.

Middle East respiratory syndrome (MERS) was first identified in Saudi Arabia in 2012. The illness is caused by a novel coronavirus that is similar to the virus responsible for the 2003 global outbreak of severe acute respiratory syndrome (SARS). The most common symptoms include fever, cough, and shortness of breath. However, myalgias, diarrhea, vomiting, abdominal pain, thrombocytopenia, and leukopenia have also been reported. The severity of illness has ranged from mild to severe, and approximately 35% of reported cases have been fatal.

Diarrheal disease is common. A pre-travel visit should include discussions about prevention, oral rehydration strategies, antimotility agents.

Heat exhaustion and heatstroke are leading causes of death, particularly when Hajj occurs during the summer months.

Skin chafing and blistering caused by long rituals of standing and walking barefoot in the heat can lead to fungal or bacterial skin infections. Skin infection. At the end of Hajj, Muslim men must shave their heads. The use of unclean blades can transmit blood borne pathogens, such as hepatitis B, hepatitis C, and HIV.. Unfortunately, unlicensed barbers continue to operate by the roadside, where they use nonsterile blades on multiple men..

Pretravel health Assessment

Hajj is arduous, and many Muslims wait until they are older before making Hajj. and may forget to take their usual medications. Travelers with chronic medical conditions should undergo a functional assessment before leaving for Hajj. The medical provider should identify each traveller's unique risks and tailor a plan on how to reduce them. The provider should make any adjustments to the usual medical regimen, ensure that the traveller has an adequate

supply of medications, and educate the traveller about symptoms that should prompt urgent medical attention.. Pilgrims should stay hydrated, wear sunscreen, and seek shade when possible. Umbrellas should be used to provide portable sun protection. Travellers should be counselled on minimizing the risk of heat-related injuries as well as sun avoidance. Clothing should be light, not restrictive, and changed often to maintain hygiene. Advice should be given to keep skin dry, use talcum powder, and be aware of any pain or soreness caused by garments. Any sores or blisters that develop should be disinfected and kept covered.

Trauma

Trauma is a major cause of injury and death during Hajj. Pilgrims may walk long distances through or near dense traffic, and motor vehicle accidents are inevitable. The most feared trauma hazard, however, is stampede. In such dense crowds, little can be done to avoid or escape a stampede once it has begun. The physical environment of the Hajj has been engineered to minimize this risk.

Guidelines for pilgrims

Advice issued by the Saudi Arabia Ministry of Health recommends that people above 65 years of age and those with chronic diseases (e.g. heart disease, kidney disease, respiratory disease, diabetes), immune deficiency (congenital and acquired), malignancy and terminal illnesses, pregnant women and children (under 12 years) postpone the performance of the Hajj and Umrah for their own safety if there is any outbreak of MERS.

Pilgrims Health Guidelines:-

- Wash hands with soap and water or disinfectant, after coughing and sneezing.
- Use disposable tissues when coughing or sneezing and dispose of them appropriately.
- Avoid hand contact with the eyes, nose and mouth.
- Avoid direct contact with infected persons or use of their personal gadgets.
- Avoid direct contact with camels and staying away from their gathering places.
- Avoid drinking camel milk unless it is pasteurized or boiled, or eating their undercooked meat.
- Wear facemasks, especially when in crowded places.
- Maintain good personal hygiene.

Health Facilities

Hospitals and health centres in and around the holy sites are adequately staffed and equipped for the large gathering. Medical facilities offer high quality of care,

and services are offered free to Hajj pilgrims. To mitigate the risk of heat exposure during this journey, the government provides complimentary water distributed from refrigerated trucks,

Allan Melrose, a global traveller with a special interest in travel related medicine

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Correction

A table to the following article was misprinted in the Summer 2015 edition (Vol XXV) of the BGTHA Journal and the correct version is now shown below with apologies for the misinformation.

D.E. Evans Keeping the traveller hydrated and healthy - an examination of the published information of the required hydration levels for travellers and advice given by travel health providers; including a comparison of water filter systems for individual use. BGTHA Journal 2015; 25: 62-64

Table 1
Survey of drinking Water Advice

Question	Number (%)
Can he drink the tap water out there?	
Yes	0
No	9 (45)
Ask Dr/Nurse for advice	5 (25)
Not sure/Don't know	6 (30)
Suggestions to provide water source	
Bottled water	16
Tablets	4
Filtration system	0
How much (water) will he need for trip? (From tablet answers)	
Don't know	3
Seek advice	
How much water does he need each day?	
Ask Dr/Nurse	7 (35)
Drink a lot /drink plenty	4 (20)
2 litres	2 (10)
3-6 litres	2 (10)
Look it up / Google it	4 (20)
Go to a camp shop and ask	1 (5)
Is that the same (water intake) in the jungle and for diving?	
Yes	3 (15)
No(more in jungle)	4 (20)
Don't know	5 (25)
(Speak to) Dr/Nurse	6 (30)
Google it	2 (10)

Positive and Negative Effects of Medical Tourism

I Mackay

Medical tourists are people who cross international borders for the exclusive purpose of obtaining medical services. World-wide medical tourism has increased partly due to rising health-care costs in developed countries and widespread access to air travel. The industry has been growing annually and involves about 50 countries in most continents with several Asian countries, prominently India, Singapore and Thailand, lead providers. Singapore is reputed to be the leading Asian medical tourist destination and the “medical hub of Asia”.

These countries are responsible for 90% of the medical tourism market share and have invested heavily in health-care infrastructures to meet the increased demand for accredited medical care and provision of first-class facilities. However, without appropriate management, medical tourism can become a heavy burden for the public health systems of these countries, especially those with universal health-care coverage. The funding for good medical tourism facilities can be drawn from public funds to the detriment of the country’s own health care system. Scarce resources and man power can be attracted into private health care and leave the state’s health facilities under- resourced. Detrimental effects are also recognised for the patients involved in medical tourism. Foreign patients behave similarly to residents when seeking health care, share views regarding patient’s rights, and have similar health-care needs. Once they fall ill and need health care, they tend to have similar demands and requirements¹.

Thailand is a favourite vacation destination for UK tourists and provides medical services for as many as 1.4 million foreign patients, including medical tourists, general tourists and foreigners working in the country each year. Nearly 30% of all foreign patients in 2008 were medical tourists. This figure is increasing annually. Although medical tourists are still a small fraction of the foreigners who receive medical care in Thailand, they are the tourist group most likely to affect the country’s provision of health care to the populace.

Unlike general tourists and expatriates, medical tourists are increasing at a rapid pace – from almost none to 450 000 a year in less than a decade. Medical tourists tend to seek more intensive and costly treatments than other foreign patients, so their effect on the country is more profound. Medical tourism generally involves transporting patients from developed countries to developing countries where they can get treated at lower expense. These patients do not necessarily belong to the highest social bracket in their own countries, but they (and their insurers) generally have greater purchasing power than most patients in the destination countries. Most developing country governments see medical tourism as an

opportunity to generate more national income and therefore support it strongly.²

Effects on the economy

In 2008, medical tourism in Thailand generated £777 million of revenue from medical services plus £22 million from related tourism. In Thailand, medical tourism has both positive and negative effects. For the Thai economy, medical tourism generates a value added approximately equal to 0.4% of the GDP. It helps raise income for the medical services sector, the tourist sector and all related businesses, and it provides other intangible benefits. Direct and indirect positive effects for the Thai economy are well recognized. Medical education in Thailand is neither self-funded nor privately funded; rather, it is heavily subsidised by Thai taxpayers. With their much higher purchasing power, medical tourists can prevent Thai taxpayers from accessing quality health care. All Governments encouraging medical tourism have a responsibility to balance the welfare of their citizens against the extra income generated by medical tourism.

The negative effects for Thai society stem from having to provide health-care services for up to 500 000 medical tourists annually with an unchanging number of health-care staff. Negative effects result in a shortage of physicians and increased medical fees for self-paying Thais, which are likely to undermine their access to quality medical services. In India, similar adverse effects have been detected. The influx of medical tourists does not always lead to a “win-win situation” and to “windfall” income for host country governments. They will have to increase their health budgets to meet the rising and highly competitive foreign demand for health services. To alleviate the shortage of staff and reduce health-care costs for Thais, Thailand needs to increase its health sector human resources, especially physicians, dentists and nurses.

Ian Mackay, Travel Health Writer

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REVIEW

HIV/AIDS: Gender Inequalities in Uganda

L Clark

This report looks at the impact of gender inequalities in Uganda, on the difference in male and female prevalence of HIV/AIDS. Cultural norms, including child marriage, polygamy and widow inheritance, along with violence against women and female's limited access to education all contribute to the higher level of HIV/AIDS in women. Strategies implemented to control the epidemic of HIV/AIDS and combat gender inequality, at the level of the community, NGOs and government, along with their effectiveness, have also been explored. These findings will be of special interest to health care workers and volunteers going to work in Uganda.

Global Distribution of HIV/AIDS

A 2013 United Nations report showed that HIV infections among adults and children had reduced by 33% since 2001¹. Despite this, there are still 35 million people living with HIV, 71% of whom are living in sub-Saharan Africa². Western Pacific countries such as Australia and Japan have an exceptionally low prevalence ($\leq 0.1\%$) of HIV. Within the World Health Organisation (WHO) regions there are huge disparities. As shown in Figure 1 below, North African countries have a far lower prevalence of HIV than sub-Saharan countries.

Rates of HIV Infection in Uganda and Use of Antiretroviral Drugs (ARVs)

Uganda is a sub-Saharan country in East Africa, with a population of 34.8 million. Life expectancy is low at 52.7 and 55.4⁴, for men and women respectively. Uganda was ravaged by the HIV/AIDS epidemic in the 1980s and early 1990s, when almost one third of the population was estimated to be HIV positive⁵,

However the country has had some success in controlling the infection. Uganda launched a programme of free ARVs in 2003 using external funding⁶. By 2012, 62% of people requiring HIV treatment were using ARVs but this is still short of the 80% target for 2015⁷.

The current average prevalence of HIV for 15-49 year olds in Uganda has now fallen to 7.3%, although rates between sexes vary. As shown on the map below, in Kampala the capital of Uganda, rates of HIV are more than double in women compared with men⁸.

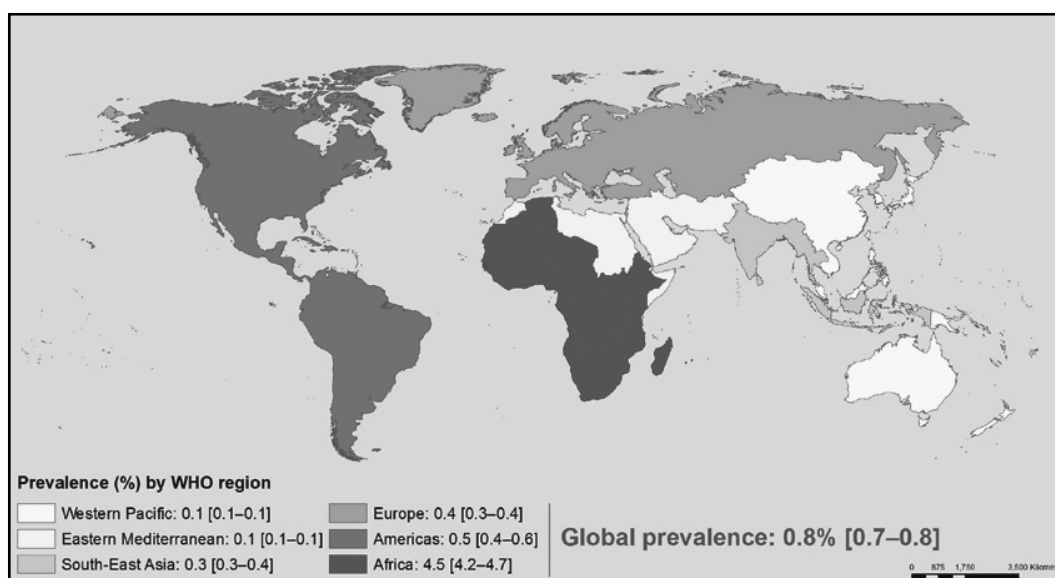
This huge discrepancy in HIV prevalence between men and women in Uganda increases when looking at HIV prevalence by age. Women are infected at a younger age, and women aged 25-29 are almost three times more likely to be infected with HIV than males of a similar age⁸. These dramatic figures can be looked at as a combination of the physiological susceptibility of the female to HIV, gender inequalities, and cultural norms and values, driving the HIV epidemic.

The Low Status of Women in Uganda

In Uganda the subordinate position of women, holding a lower social status than men is a widely accepted cultural phenomenon. Girls are born into the world denied the opportunity to make decisions and generate change in their lives. Their lower status is pre-determined. Discrimination, violence, restricted access to education and lack of economic self-sufficiency, are some of the hardships and inequalities experienced daily Ugandan women every day⁹.

Despite the introduction of ARVs, Uganda will not be able to move forwards in reducing the number of HIV/AIDS sufferers without addressing and

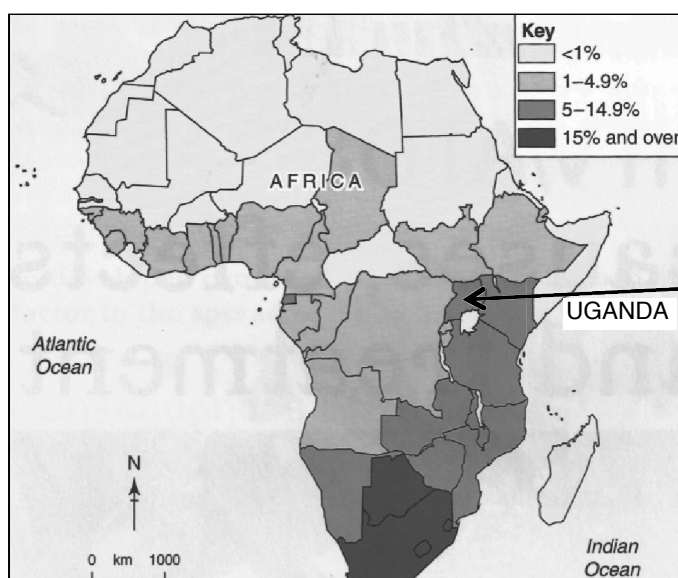
Figure 1: Adult HIV prevalence (15-49 years) by WHO region²



HIV/AIDS: Gender Inequalities in Uganda *continued*

changing the cultural beliefs which increase the female population's risk of exposure to HIV. Uganda will never be truly successful in decreasing the prevalence of HIV, until women are empowered and given the higher social status they deserve. A transformational change in the culture will be

Figure 2
HIV prevalence in Africa³



required to tackle this problem.

By focussing on cultural norms (child marriages, polygamy, and widow inheritance), violence against women and the limited access to education experienced by girls, the low status of women and potential strategies to combat this inequality, will be addressed.

Cultural Norms: Child Marriages

Problems

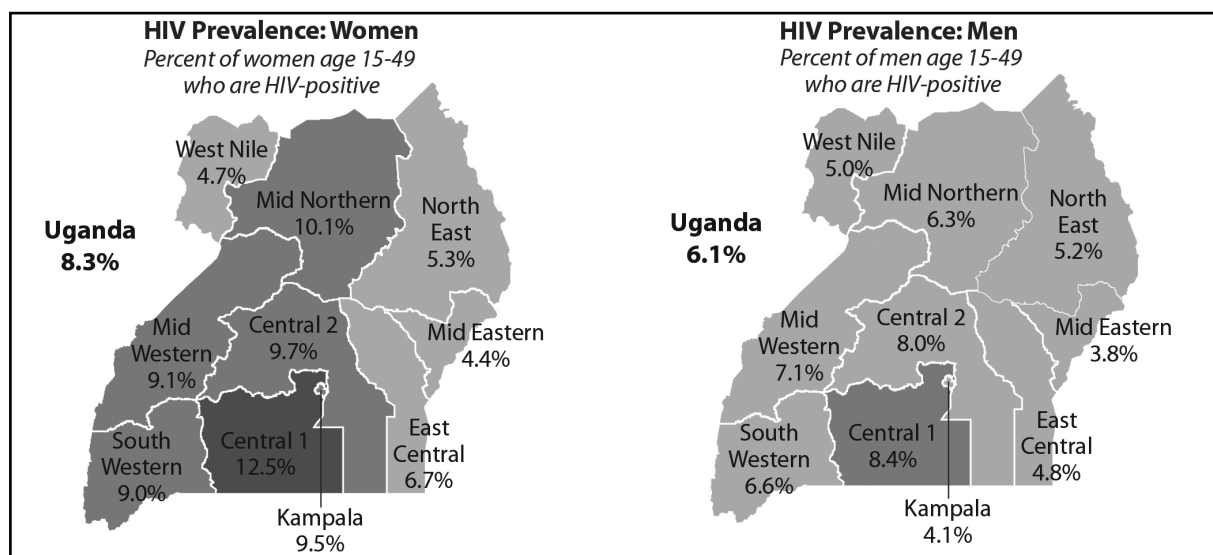
In Uganda 46% of girls are married before the age of 18¹⁰. Many of these marriages are forced, and poverty often results in poorer families selling daughters in return for a 'bride price' to gain income, either in the form of money or livestock¹¹. In Uganda women are not required to consent to marriage¹². The social norm is for early marriage to occur, the bride's family believing it will provide their daughter with financial security.

With husbands often many years older, this age gap reinforces the high level of authority and power over the young bride, increasing the likelihood of domestic violence. These men who can afford the 'bride price' are likely to have other sexual partners increasing the woman's exposure to HIV¹³. In Uganda, married females aged 15-24 are almost five times more likely to be infected than females who have never been married¹⁴.

Solutions

It is proving difficult in Uganda to prevent child marriages, and despite the Ugandan Constitution stating that the minimum legal age to marry is 18¹⁵, the implementation of the law remains limited. 'Girls Not Brides' is a worldwide organisation founded in 2011, which is devoted to ending child marriage and protecting the rights of the millions of young girls forced into marriage every year. In January 2013, 'Girls Not Brides' Uganda was launched in partnership with 'Joy for Children, Uganda'¹⁶. Both aim to involve the government within the programme to receive financial support, to stress to parliamentarians the importance of ending child marriage and to prevent community leaders from issuing informal marriage certificates to minors. They promote gender equality at the level of the community, running youth

Figure 3: Prevalence of HIV in men and women across Uganda⁸

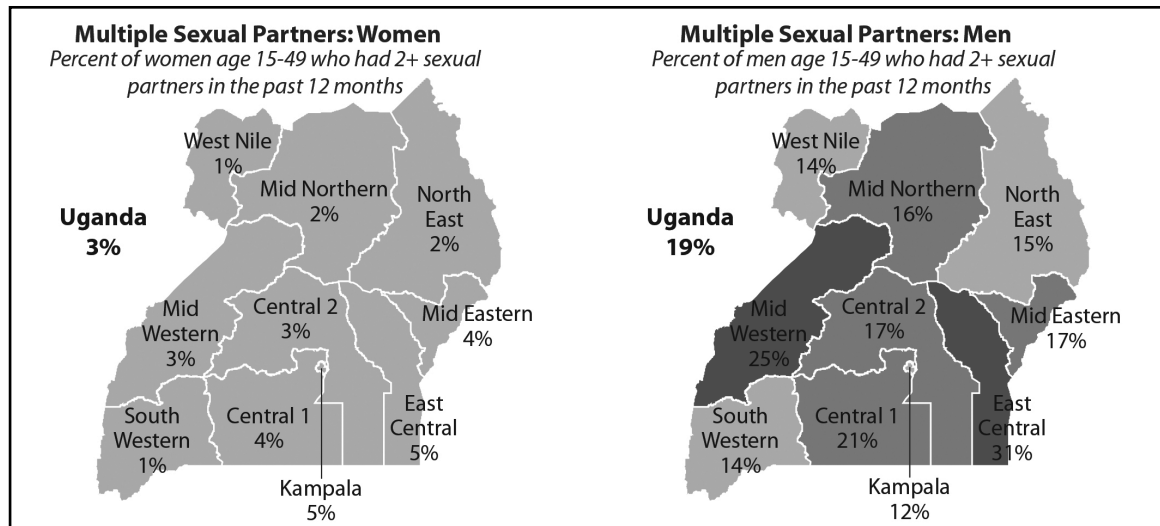


groups and conferences to educate and empower girls. In addition economic incentives such as microfinance schemes and loans are offered to reduce

Cultural Norms: Widow Inheritance Problems

It is common practice in Uganda for a woman who

Figure 4: Percentage of women and men who have had 2+ sexual partners in Uganda in the past 12 months⁸



the need for families to marry off their young daughter.

Cultural Norms: Polygamy Problems

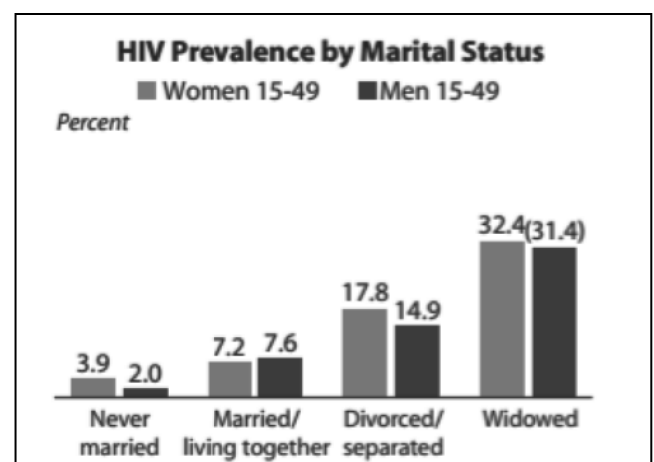
Polygamy is a normal occurrence in Uganda for males who can afford to do so, and having multiple wives symbolises high status. Men are more than 6 times more likely to have multiple sexual partners than females (Figure 4). This is an obvious risk factor for HIV transmission, as it only requires one female to pass HIV on to the male before the whole group of female sexual partners will be infected. Although this in itself may not be gender inequality, the concept of lawfully allowing a man to have multiple wives when women are denied multiple partners encourages the widespread belief that men are superior and hold a position of authority over their female partners¹⁷. This male dominance places the partners in a disadvantaged position, and leaves the wives with little capacity to negotiate safer sex.

Solutions

Polygamy is legal in Uganda, and bills to prevent this practice have been refused. Therefore, strategies to prevent HIV and health risks associated with polygamy should be aimed at educating women, enabling them to gain qualifications, take advantage of microfinances. Being financially independent of their partners, empowers women to stand up for themselves against their husbands, propose condom use, and live without the fear of being abandoned by their partners and left with nothing.

has lost her husband to be rejected by her family and forced to give up her property to her deceased spouse's relatives. Widows are seen as outsiders in society and are often separated from their own children. They are left economically vulnerable with little to support themselves, and lacking qualifications as a result of the early marriage means they are often forced into prostitution, contracting and spreading HIV¹⁸. Their female children are left equally vulnerable and seen as an asset to be married on in exchange for the previously mentioned 'bride price'. If

Figure 5:
Prevalence of HIV by Marital Status⁸



the widow wishes to remain with her children at home, she has no choice but to agree to be 'inherited' by a man from her late husband's family – often his brother¹⁸. Women are trapped in this vicious cycle, increasing their risk of exposure and infection to HIV. Figure 5 illustrates the colossal impact being widowed has on HIV prevalence.

HIV/AIDS: Gender Inequalities in Uganda *continued*

Solutions

The Constitution of the Republic of Uganda (1995) states “parliament shall make appropriate laws for the protection of the rights of widows and widowers to inherit the property of their deceased spouses and to enjoy parental rights over their children”¹⁵. There are 3 types of law in Uganda, statutory, customary and religious law. Despite the statutory laws that are in place in Uganda to protect inheritance and parental rights of widows, this is rarely adhered to due to the opposing customary and religious laws, which often fail to support the rights of women¹⁹.

Violence against Women

Problems

Violence against women is deeply rooted into Ugandan tradition and culture. Over half (59%) of women in Uganda have experienced physical and/or sexual intimate partner violence at some point throughout their lives, and a third have experienced violence in the last year²⁰. The power difference between sexes is believed to be the primary cause of this abuse. A huge 46% of Ugandan women experience marital rape²⁰ with violence used to control women, keeping them aware of their inferior status to their male partner. Figure 6 illustrates how many women believe their husband is justified in beating them for a variety of reasons, emphasising the wide acceptance of violence. Not just at home, gender based violence against girls takes place in schools, perpetrated by classmates and teachers, and also by strangers on the journey to and from school²¹.

Risk of violence prevents girls from attending school, and from a young age leaves them with psychological health problems. Lack of education results in lower literacy rates, diminishing their prospects for self-reliance and financial

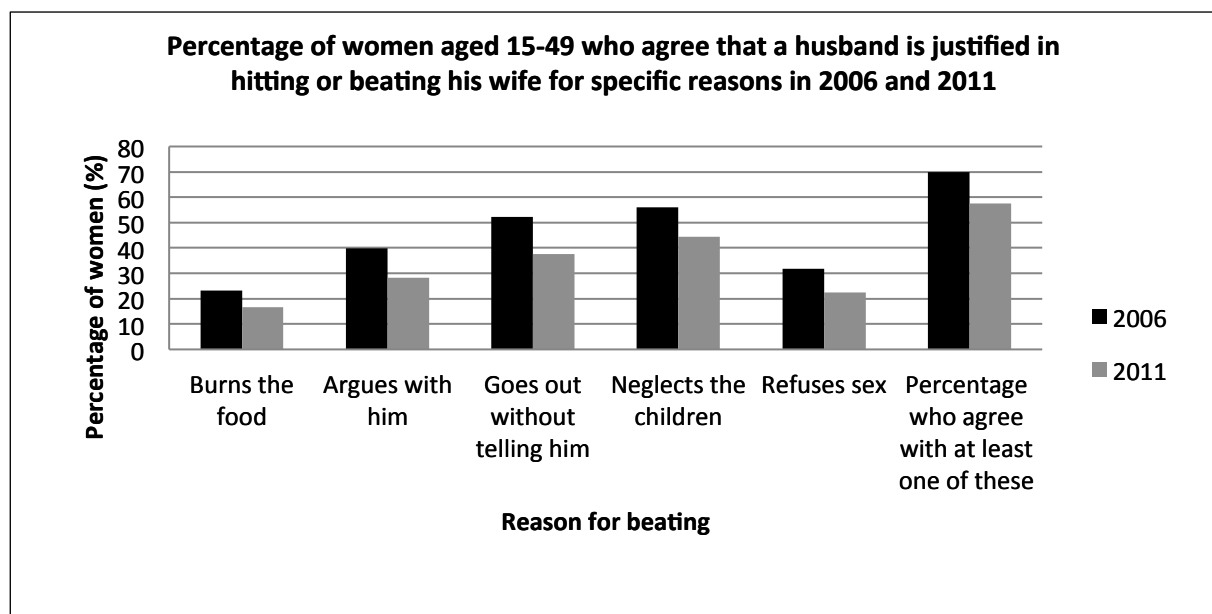
independence, which would reduce the power gap within their marriage. Violence against women is a key driver of the HIV epidemic in Uganda, and accounts for the disproportionate level of infection in women. Physiologically, women are more susceptible to infection. During forced intercourse the vaginal mucosa is scraped and torn, facilitating the entry of the virus into the blood²². A quarter of women claim that their first sexual intercourse was forced²⁰, and in younger girls, the immature vaginal mucous surface does not provide an effective barrier²², heightening their chances of contracting HIV.

Solutions

In 2010, the Ugandan government introduced the Domestic Violence Act (2010)²⁵ enshrining it in law. Despite its introduction, it is clear that the act has yet to be implemented across many legal practices and police forces²⁶. Until those in authority disseminate effective information on these new laws, the likelihood of prosecutions on the street will remain limited.

Trócaire is an Irish organisation founded in 1973 that works in partnership with communities in some of the world’s poorest countries²⁷. When investigating methods of tackling gender-based violence in Uganda, Trócaire noticed an absence of involvement of any major religions in reducing domestic violence, and decided to adopt a faith approach. Almost half of the Ugandan population are Catholic⁴ and in 2009 Trócaire along with Archbishop Lwang of Kampala founded a project, aiming to spread awareness of violence against women throughout Catholic Churches. In Ugandan culture, admitting domestic violence is a social taboo, and women suffer silently. Following introduction of the project, 88% of those attending Catholic Churches report hearing their

Figure 6: *Percentage of women who agree it is acceptable to be beaten for various reasons*



priest speak openly of domestic abuse²⁷. Trócaire encourage women to report domestic violence without fear and stigma. Reaching over 25,000 churches across Uganda, Trócaire has continued to spread and a similar initiative has been launched within the Muslim religion.

'Raising Voices' is a non-governmental organisation (NGO) founded in 1999 in Kampala, Uganda that aims to transform society and its traditions from one which accepts and condones violence against women, to one in which violence is a breach of human rights²⁸. 'Raising Voices' developed a methodology called SASA!, an approach designed to tackle violence against women and HIV through addressing the power discrepancy between men and women, which is the primary driver of the violence. SASA! uses a step-by-step (Start⇒awareness⇒Support⇒Action) approach that leads communities through a process of change, involving both men and women in the transition to a society with a happier, healthier environment free of violence²⁹. 'SASA!' means 'now' in Swahili, an African language spoken by many in Eastern and Central Africa, and the letters represent the four phases of the project. It uses four main strategies³⁰ to empower women, and facilitate the communities in learning about equality, and that no man has the right to use violence against women:

- Local activism
- Media and advocacy
- Communication materials
- Training

Youngsters from the local community get involved in putting across the message at a "grassroots" level. This ensures the message reaches the heart of the community, with drama presentations and action groups encouraging locals to interact with the project. Radio soap operas help engage the community, comic strips and posters are accessible to a full range of age groups within the population, and media is also used to target government leaders. Training and mentoring is used to increase knowledge of the link between violence and HIV/AIDS, and motivate the groups and individuals involved in the project to accept and adapt to the necessary cultural change.

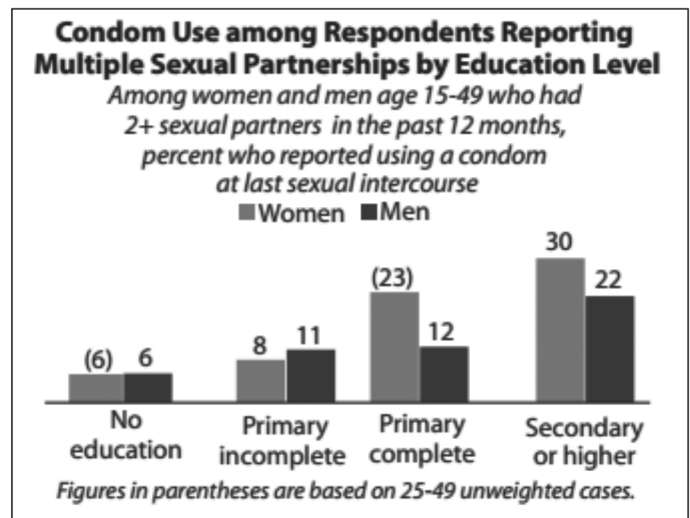
Girls Limited Access to Education Problems

Education is crucial in ensuring the Ugandan population have sufficient knowledge of HIV and its transmission, in order to reduce the prevalence of infection. When looking at use of contraception in those with multiple partners in Figure 7, there is a direct correlation between condom use and level of education.

In Uganda, 14% of women compared with 6% of men have no education⁸. Educating girls is not considered as important, whereas boys are encouraged to attend school, achieve qualifications and then work

becoming the sole 'breadwinner' of the family. The girl's role is to cook and care for the family, so girls are less likely to complete secondary education, failing to gain qualifications necessary for work and financial independence³¹. As a result, unless girls marry young, relying on their husbands for money, they are often left trading sex for economic survival, perpetuating the spread of HIV.

Figure 7: Use of condoms according to education level in Uganda⁸



Further to this, few girls complete their education due to lack of sanitation facilities in school, in particular menstrual hygiene facilities, available at only 7.1% of schools in Uganda³². This results in 61% of girls missing their education during menstruation, which could equate to multiple weeks of absences throughout the school year.

Solutions

WaterAid in Uganda (WAU) have developed a strategic plan to address this situation which takes account of the needs of local people, helps coordinate the work of charities and NGOs and challenges the government to allocate resources³³. The School Girl Health and Sanitation Project in the Mpigi District of Uganda³⁴ focusses on improving sanitation in schools, providing separate latrines for boys and girls, with handwashing facilities, and hopes to reduce the stigma associated with menstruation through education.

In 2007, Uganda introduced free secondary education but the costs of providing uniforms, materials and meals have to be borne by parents³⁵. Families unable to afford to send all of their children to school, often prioritise their sons. Mary's Meals, a registered charity founded in Scotland, is feeding over 11,000 Ugandan school children every day, which is increasing attendance, improving concentration, encouraging families to send girls to school and allowing them to achieve their potential³⁶.

HIV/AIDS: Gender Inequalities in Uganda *continued*

Summary and Conclusion

Global rates of HIV infection are decreasing however the current rate of 7.3% within Uganda is still unacceptably high. The main reasons for the gender differences in HIV prevalence are related to cultural norms, violence against women and barriers to education faced by girls. It is clear a holistic approach to healthcare is necessary to make sustainable changes, and although government measures have been put in place, it will take time for these to filter through society. Many NGOs are facilitating the uptake of programmes and acceptance of changes to traditional values through community involvement. Open forums for discussion have helped to reduce stigmas and raise awareness of the value of women in society. The strategies mentioned have the potential to address gender inequalities and in time should lead to a reduction in the prevalence of HIV/AIDS in Uganda.

Louise Clark, 4th year student, University of Glasgow

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REVIEW

Stopping the Spread of Dengue Fever?

J Candan

Dengue Fever is currently a pandemic and has spread rapidly over the past 50 years. It is a dangerous disease that causes a great burden to both countries and individuals. Its spread is perpetuated by uncontrolled urbanisation, globalisation and poor vector control.

There are a number of upcoming interventions currently being trialled that could potentially reverse the spread of this disease, including a vaccine. Research comparing the efficacy of these emerging interventions is required in order to make progress in control and prevention of Dengue Fever

Introduction

Dengue Fever is the most common arthropod-borne viral infection in the world, and is transmitted by several species of mosquito within the *Aedes* genus, the most common vector being *Aedes Aegypti*. Around half of the Earth's population is at risk of contracting Dengue Fever, one estimate indicates 390 million dengue infections per year (95% confidence interval 284–528 million), of which 96 million (67–136 million) manifest clinically (with any severity of disease).¹

The presentation of the disease can vary greatly; from being asymptomatic to severe manifestations (see Figure 2). The most dangerous complications are Dengue Haemorrhagic Fever and Dengue Shock Syndrome; these occur in approximately 1% of patients with Dengue Fever, and mortality rate is 1–5% if not treated properly.³

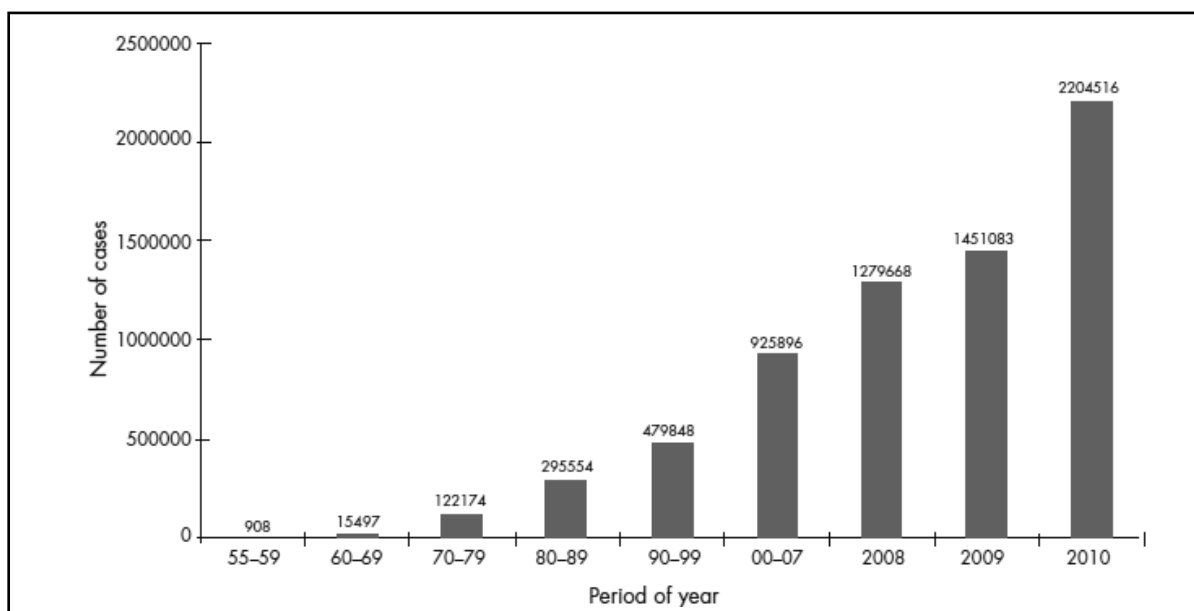
This report will look at the current epidemiology and impact of Dengue Fever, and analyse current and future tools that can be used to prevent and control this pandemic. The techniques discussed in this review are specific to the prevention of Dengue Fever; the review does not address mosquito bite prophylaxis such as sleeping beneath mosquito nets, or wearing mosquito repellent.

Literature Search

A search of Google Scholar, Pubmed and Medline was conducted using a combination of the terms: 'dengue fever', 'impact', 'epidemiology' and 'vaccine'. Information regarding latest guidelines and future strategies to combat Dengue Fever were the WHO (World Health Organisation) and CDC (Centre for Disease Control). 'Global Strategy For Dengue Prevention And Control' contained reliable, recent facts regarding epidemiology and prevention strategies for Dengue Fever. The British Global and Travel Health Association's journal provided some useful background reading and is a reliable, peer-reviewed journal. Articles that were not peer reviewed and that had a potential bias were not used. The Cochrane library was used to search for meta-analyses, however this was of limited use. TRAVAX, Fit for Travel and 'Travelhealthpro' were all beneficial sources of information.

Figure 1

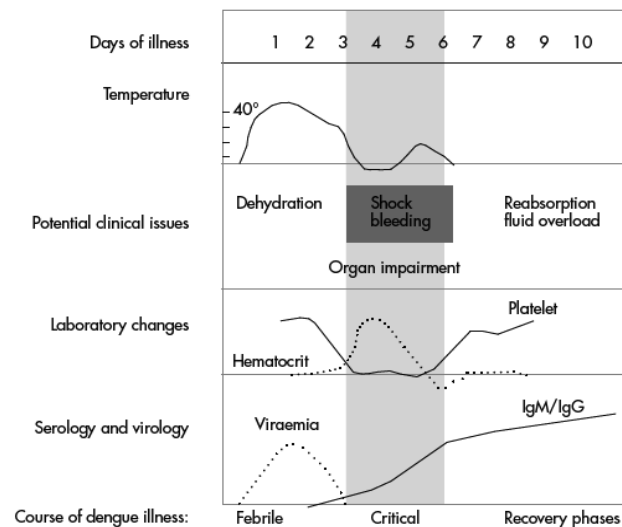
The average number of new Dengue and severe Dengue cases reported to WHO annually from 1955-2007 and the number of cases reported in recent years, 2008-2010.²



Stopping the Spread of Dengue Fever? *continued*

Figure 2. A disease summary of Dengue Fever ⁴

Definition: An infectious tropical virus. It has the possibility of developing into Dengue Haemorrhagic Fever or Dengue Shock Syndrome. These are more severe forms of the disease, and are associated with secondary infection of Dengue Fever. Pulmonary oedema and shock and can be caused by capillary leakage.



Epidemiology: Dengue Fever is currently spread across much of South America, Africa and South East Asia. It is estimated that there are 50-100 million Dengue infections each year, and that half the world's population is at risk.²

Serotypes: There are 4 serotypes of Dengue Fever, named DEN-1, DEN-2, DEN-3 and DEN-4. Recovery from one infection provides lifelong protection, however cross-immunity is limited and temporary. Infection with a different serotype increases the chance of the subsequent infection being severe.

Method of transmission: It is mainly spread by mosquito bites from the *Aedes* genus, although some other mosquitoes are capable of spreading the disease.

Diagnosis + Treatment: Dengue Fever is mainly diagnosed clinically, but can also be diagnosed by isolating the Dengue virus in a laboratory. Generally treatment is generally symptomatic as there is little that can be done to change the course of the disease.

Prevention: The most effective measure of prevention is to avoid being bitten by mosquitoes. Other methods of prevention include reduction of mosquito populations, and a vaccine is in the latter stages of research.

Discussion

Impact of Dengue Fever

Dengue Fever has a significant impact on the public health of the countries that it is endemic to. Although it is difficult to obtain this information regarding many countries in Africa, there are estimates from other areas in the world. In South East Asia it is estimated that it is comparable to the burden caused by meningitis,⁵ and is in the top 10 most common causes of paediatric hospitalisation.¹ The disease's severity can vary from mild symptoms to a potentially fatal manifestation. Because of this, the cost of treatment varies significantly, from hospitalisation to absence from work. In Brazil, where there were up to 1.4 million cases of Dengue fever in 2013²⁵ it is estimated to cost the country \$135 million dollars per year.⁶ This includes the money spent on surveillance, prevention, treatment and care. However, the estimated cost may be even more as Dengue Fever is underreported. It is often diagnosed clinically, as the test to confirm diagnosis is expensive. This could have a significant margin of error, and may lead to fewer diagnoses of Dengue Fever.⁷

In terms of impact on an individual basis, Dengue Fever can be a very painful and distressing disease to suffer from (see case study). In some cases, it causes encephalitis or hepatitis, which could have detrimental effects to the long-term health of the patient.⁸ Although recovery from one type of serovirus usually makes one immune for life, it only provides temporary immunity from the other strands of Dengue Fever. As a result, people can become re-infected months or even years after contracting the initial infection; this is normally even more dangerous than the first infection.¹ If Dengue Fever progresses to become Dengue Haemorrhagic Fever or Dengue Shock Syndrome then the affected person will need

hospitalisation and has a 1-5% chance of mortality.³ Hospitalisation alone has the potential to cause financial hardship to a family if the country in which they live does not provide free healthcare.

Figure 3 A Case Study of Dengue Fever

A 19 year old male travelled to Georgetown, Guyana to teach science on his gap year. He has a past medical history of childhood leukaemia that has been in remission for 13 years, and was not on any medications. He forgot to wear mosquito repellent one evening, and was subsequently bitten. Approximately four days later, he began developing symptoms of pyrexia, anorexia and severe myalgia. He described his symptoms as like, 'having very bad flu'. These symptoms rapidly worsened, and a General Practitioner was called. The doctor made a clinical diagnosis of Dengue Fever and advised the patients' flatmates to give him lots of fluids and let him rest. He also gave them information on warning signs that may show the disease progressing to Dengue Haemorrhagic Fever or him going into shock and advised them to come to hospital immediately if they saw any of these symptoms. Over the next four days gradually recovered from the fever without the disease progressing to Dengue Haemorrhagic Fever or Dengue Shock Syndrome. He described his ordeal as an exhausting, painful experience.

Spread of Dengue Fever

Although Dengue Fever has been recognised for hundreds of years. The Second World War contributed greatly to the spread of the disease and its vectors. The movement of soldiers and destruction of the environment around South East Asia and the Pacific could have both spread the disease and increased the populations of *Aedes* mosquitoes. However, this cannot be known for certain as it is only in the Second World War that the strands of the Dengue Virus were isolated.¹⁰

There are many diverse reasons for the current pandemic of Dengue Fever. The 4 main causes are listed below:¹¹

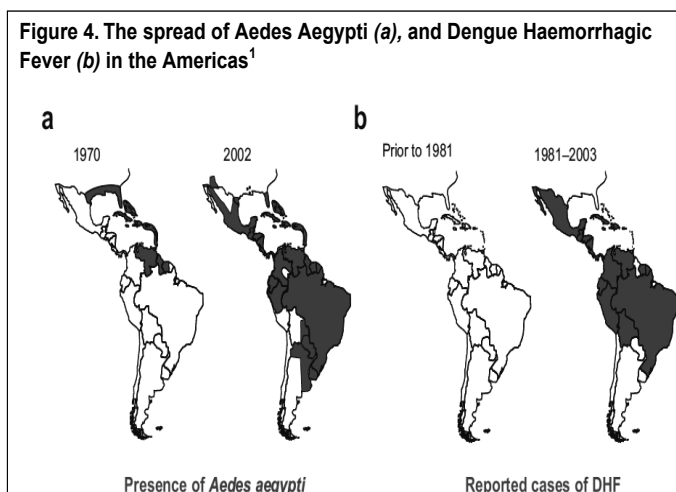
- 1) Population growth in tropical developing countries
- 2) Unprecedented urban growth in those same countries
- 3) Lack of effective mosquito control in tropical urban centres
- 4) Globalisation

It is largely dictated by the presence of the *Aedes Aegypti* mosquito in South America (see Figure 4), as well as a number of other genii of mosquitoes across the rest of the world.¹

Due to modern transportation, it is easier for

Figure 4

The spread of Aedes Aegypti (a), and Dengue Haemorrhagic Fever (b) in the Americas¹



Stopping the Spread of Dengue Fever? *continued*

Dengue Fever to spread from one community to another within a country, allowing the rapid spread of the disease across a continent. Travellers are thought to have played a large role in its spread. It is frequently asymptomatic therefore they may carry more virulent strains to countries where the virus is normally milder, or not present at all. Introducing the new strain to an area of the world where there is a large population of *Aedes* mosquitoes but no previous instance of Dengue Fever causes an outbreak in the affected region.¹² When this occurs in conjunction with increasing populations and uncontrolled urbanisation, it can cause Dengue to become endemic to a country.

A more recent development is the potential risk of Dengue Fever spreading to North America and Europe. A variety of species of mosquito have been able to cause some cases of Dengue Fever in recent years. An example of this is the mosquito *Aedes Albopictus*, a second Dengue vector that has spread to North America and Europe largely due to the international used tyre trade. The mosquito larvae, laid in stagnant water, are hardy and can survive temperatures below freezing when hibernating, and the tyres act as breeding grounds for the mosquitoes. This shows how vector control requires implementation and maintenance in order for Dengue Fever to be controlled.²

Past Vector Control

In the past, countries have implemented various schemes and legislations to reduce mosquito populations, many of which have proved successful. An example was the massive reduction of the population of *Aedes Aegypti* in the South and Central Americas in the 1940's to the 1960's. These, like many vector programmes, involved the interruption of vertical transmission by honing in on breeding sites of the arthropods and through environmental hygiene in conjunction with chemical pesticides. However, in the 1970s this problem re-emerged for a number of reasons: the two most important being loss of funding to such programmes due to economic distress and the reliance on insecticides and prophylaxis. This is thought to be one of the reasons for the increase of Dengue Fever since 1970 (see Figure 1), as prior to this the disease was mainly isolated to the South Pacific.¹³ The efficacy of such government schemes are shown by the near-eradication of Dengue throughout the years of implementation. Another example of effective *Aedes Aegypti* control that is more recent can currently be found in Singapore and Cuba. These countries have legislation ensuring that populations of *Aedes Aegypti* are controlled, therefore reducing the spread of Dengue Fever and other diseases.²

Future Vector Control

Some promising research has shown that the

bacteria *Wolbachia pipiensis* could help to reduce the transmission of the Dengue Fever virus by the mosquito *Aedes Aegypti*.¹⁴ This strain of bacteria decreases the chance of the transmission of the Dengue virus in mosquito saliva. It has great potential to infiltrate the mosquito population as it has been shown to cause the embryos of uninfected females to die when infected by an infected male. This allows the bacteria to be introduced rapidly to a community of mosquitoes, as it is maternally transmitted. Some strains are effective at preventing Dengue Fever transmission but harm the host mosquito, making it less likely to pass on the bacteria. However, there are some strains that have been shown to cause minimal damage to the fitness of the host mosquito and retain the anti-Dengue effect.¹⁵ Although there are serious ethical implications when introducing potentially harmful bacteria to an animal population, the 'Eliminate Dengue' program has published trials with varying degrees of success from several countries. This program has been investigating the use of *Wolbachia* in the prevention of Dengue since 2005 and is currently carrying out a city-wide trial in Townsville, Australia¹⁶.

Another important instrument in Dengue prevention is genetic manipulation of insects. There are 2 main techniques: RIDL (Release of Insects carrying a Dominant Lethal) and SIT (Sterile Insect Technique). SIT involves sterilising a large number of male insects using irradiation and releasing them into their natural environment, where they mate with females unsuccessfully. This leads to a decrease, or complete elimination, of a pest population and has been implemented successfully in other species such as with the New World Screwworm in Libya¹⁷. This method causes minimal pollution to the environment and is very specific to the targeted species. However, it is an expensive endeavour and if a male insect's physical abilities are affected by the irradiation then they may be less likely to mate than their unsterilized counterparts. RIDL involves genetically modifying mosquitoes so that their offspring dies before they are able to reproduce. This removes the possibility of the mosquitoes being hindered physically by being irradiated, allowing them to mate as competitively as the other mosquitoes.¹⁸ There is some recent research into the most efficacious way to employ this technique that shows great promise.¹⁹

Vaccine

It is thought that a vaccine, if properly implemented, would be able to greatly reduce the global burden of Dengue Fever. There is currently no licensed vaccine for Dengue Fever, although some vaccines are currently undergoing clinical trials.² At present there is no information published regarding the efficacy of this intervention, particularly in the long term, however WHO has published guidelines which

comprehensively account for the practicalities of implementing the first generation of the vaccine.¹⁹ The current most advanced candidate vaccine has shown mixed results, with the worrying feature of increased risk of hospitalisation in children under 9 in the 3rd year after immunisation.²⁰ Overall, the vaccine for Dengue Fever is likely to play a major role in Dengue prevention, and is important to consider it as an aspect of stopping the spread of the disease.

Future Research

Each method described has some benefits and drawbacks; however, there is not enough literature comparing the possible interventions. An audit comparing the efficacy of each intervention is a vital aspect of Dengue prevention, as it is required to proficiently and economically. In order for these interventions to be used effectively there must be research that helps countries identify which of these would be best for their specific economic and geographical circumstances. An important aspect of this research is the safety and efficacy of the vaccine that is currently in development, as this has the potential to have a great impact on the prevention of Dengue Fever.

Conclusion

This review has discussed a number of techniques that can reduce the spread of Dengue Fever. Although no single intervention has been effective over the past 50 years, there are imminent new interventions that show great promise: bacteria, genetic engineering and a vaccine. However, these interventions must be proven to be both efficacious and economically viable to be employed by countries in which Dengue Fever is endemic.

Lesson

Dengue Fever is a significant burden on the public health of many nations, and the upcoming interventions must be implemented carefully in order to help to reverse the spread of Dengue Fever.

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Alexandra Hospital, Redditch

Additional Education Resources

TRAVAX: This website provides evidence-based, practical information and is very useful in the clinical setting. It helps to provide information regarding health risks, outbreak news and provides assistance with risk assessment. It contains information suitable for health professionals and the general public.

Fit For Travel: This website provides travel health information for those travelling abroad from the UK. It is more easily accessible to the general public than TRAVAX and also has a very useful section on

general travel advice, covering everything from altitude sickness to vaccination schedules.

Travelhealthpro: This is a resource pioneered by NaTHNaC. It provides free, up-to-date travel health information. This free resource is intended to assist healthcare professionals in advising the general public prior to going abroad. It is a source of health-care-related travel news and contains information about a large number of tropical diseases.

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Reducing pain and gaining co-operation at time of vaccination

A Willcox

In September the World Health Organisation (WHO) published a new position paper on vaccination pain reduction.¹ It is their first policy paper on pain mitigation at the time of vaccination, endorsed by the WHO Strategic Advisory Group of Experts on Immunisation (SAGE). The findings were drawn from a systematic review of interventions to prevent or reduce pain from injections, including those given for reasons other than vaccine delivery, and applicable across the age spectrum. This paper outlines the measures recommended by WHO, and due to the close association between pain perception and anxiety, discusses them in the light of gaining co-operation in the travel health consultation. It therefore also incorporates empirical findings used by the author to gain co-operation, particularly from children and young people, in the travel clinic.

The importance of pain reduction and the need for co-operation

Previously painful experiences of vaccination may be expected to trigger fear or distress in anticipation of the next vaccination. Conversely, if vaccination is an unfamiliar experience, fear of the unknown can also trigger anticipation of pain. Each of these can result in distress, particularly in children and young people. WHO recognise that concerns about pain are common in recipients, care-givers and health professionals administering the injection.

Whereas multiple injections in one visit are generally acceptable to parents, the issue of pain has been found to be a primary source of anxiety.² This can affect attitudes towards vaccination, cause hesitancy and delay in attending for vaccination and lead to lower coverage rates.³ This is of particular concern for routine childhood vaccination schedules, which are the foundation of an individualised vaccination plan for a child traveller. If fear and distress are not managed, they may become strongly evident in the child's behaviour during the consultation, occasionally making it unsafe to proceed with vaccination.

The WHO therefore sought pain-mitigation strategies that were:

- applicable in high, middle and low-income countries worldwide
- effective
- feasible
- non-costly
- culturally acceptable
- age-specific
- evidence-based.

Interestingly much of WHO's findings were drawn from the work of Taddio, a pharmacist who authored Canadian guidelines on pain mitigation⁴ and other studies in this field⁵.

WHO general measures

The demeanour of the vaccinator was a first consideration. A calm manner and the ability to work collaboratively with the parents or vaccine recipient are needed, together with the health professional being well informed. All these factors will help to instil confidence in the process and the provider. The language used needs to be neutral, avoiding untruths or false reassurance. For instance, saying "This won't hurt" isn't true. Saying "Here I go then" is neutral, unlike "Here comes the jab" or "The sting's coming....NOW!" Expanding on this advice by WHO, it is important to stress the need to take time to communicate before proceeding with vaccination, using an age-appropriate level of language, eye contact and smiles to include children and adolescents, not just their parents.

Although WHO do not address them, there are measures that can be taken prior to the travel consultation to help prepare for vaccination, perhaps at the time of booking. Advice on dress and the need to see the upper arm is helpful to know so that travellers can avoid having to undress and any resultant embarrassment. Ascertaining expectations allows the health professional to adapt their consultation appropriately – people still expect "a needle ... goes in my bottom", or parents may not have told their children about the appointment, or have transmitted their fear or dislike of injections to their child. It can be helpful to plan in advance for multiple attendees too: are there two adults to look after the child being vaccinated and those in the waiting room? Children have a low threshold for boredom, so it may be possible to see a parent on their own to take the history and discuss any vaccines for the child prior to attending for vaccination, and to see them on time to avoid a build-up of anxious anticipation.

The position of the person to be vaccinated obviously depends on their age, with most vaccinees sitting upright. Babies and young children should be held by their parent, and those with a history of fainting should be able to lie down. The 'Green Book'⁹ illustrates a therapeutic holding technique for infants and young children where the child is sat sideways on the parent's lap, one arm around their parent's waist, the other held at the elbow by the parent. Their legs are tucked between the parent's legs and the parent's spare hand can hold the child's head against the parent's chest. This firm but not-too-tight hold feels like a reassuring cuddle but leaves the vaccinator able to access injection sites without risking flailing, moving limbs. An older child may wish to stand between the parent's legs with the parent holding both forearms in a cuddle.

WHO no longer recommend aspiration (pulling back the plunger after intramuscular needle insertion). Although this practice stopped being advised for vaccines a few years ago,⁶ it is useful to have it reiterated for use in training others how to vaccinate – habituated practice needs to be challenged! The rationale is that aspiration can increase pain due to needle movement and increase distress due to longer procedural time. To expand on this WHO advice, always check for the degree of muscle tension – nervousness, or the idea that the deltoid needs to be presented in a state of manly contraction may result in greater discomfort if the vaccinator proceeds to inject an arm that is solidly resistant.

Other techniques not recommended by WHO include vigorous rubbing or, pinching of the injection site, warming of the vaccine or prophylactic pain relief. However, check the Summary of Product Characteristics (SPC)¹⁰ for each product as there may be exceptions – meningococcal B vaccine for infants does carry a recommendation for the management of fever with paracetamol.

When several vaccines have to be given in one visit, WHO recommends administering them in order of increasing painfulness. However, research has been focused on routine childhood vaccines rather than travel vaccines. For instance, oral rotavirus vaccine should be administered first as the sucrose content has a pain mitigating effect.⁷¹ It may be reasonable to expect larger volume vaccines such as 1.0ml rabies to exert more pressure within the muscle than the more common vaccine volume of 0.5ml.

Specific additional measures

For children, the parent or carer should be present during the procedure, and given help and advice on how to hold the infant or position the child. If the mother wishes, she can comfort the infant by breastfeeding during the administration of injectable vaccines. There is no evidence of adverse events such as vomiting, aspiration of feed or respiratory changes.¹

Distraction techniques are positively recommended by WHO. These can divert the focus of attention away from the vaccination procedure and should be age-appropriate. Ensure vaccines are reconstituted and prepared out of the traveller's sight. For children, a toy, video or music may help. For adults, conversation, breathing techniques or a visually-busy poster such as 'Where's Wally?'⁸ are useful. WHO claim that distraction is not effective for adolescents, although this is not the view or experience of the author. WHO do support the application of principles such as privacy, suggestion that vaccinations in open areas such as schools can induce vaccine-related anxiety, fainting and mass psychogenic illness.¹ Inviting people to look the other way just prior to

vaccination certainly seems to help many people to cope, especially if they have something else to look at or talk about.

Other tips the author has found work well in practice are: as you administer the vaccine, praise the child. Tell them what a good/brave/clever person they are. It's normal for some children to cry, however kind you have been. Take a few moments to 'make friends' – you may be seeing them again next week! Rewards work well, especially if a child knows in advance that they will get one. Parents may bring sweets or offer the promise of a treat such as a comic afterwards. You may wish to stock stickers or certificates of bravery to give to children. Heap more praise upon them too.

Conclusions

Reducing pain and gaining co-operation in the travel consultation are topics that have not attracted a great deal of attention so far. WHO calls for more research into the extent of concerns about pain and any impact this has on decisions not to accept vaccination (or perhaps not to attend in travel clinic?); better understanding of ways to mitigate pain, and further assessment of which vaccines are perceived as more painful and less painful. This latest position paper helpfully identifies strategies known to have an evidence base, which have been discussed in the light of additional empirical findings. Readers experienced in vaccinating will no doubt have some tips of their own to contribute.

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Reopening a debate: oral cholera vaccine to provide protection against travellers diarrhoea

L Goodyer

There is currently one UK licensed oral cholera vaccine available (Dukoral™) which is due to be marketed by Valneva in March 2016. In this article reference to the cholera vaccine will be solely in relation to Dukoral. Whilst this vaccine is also licensed for use in the prevention of diarrhoea caused by LT producing ETEC – the most common cause of travellers diarrhoea (TD) – in some countries, this does not currently apply to the European Union. Of course the vaccine can be used ‘off label’ for this indication and there are many examples where a licensed medical product is used outside of the licensed Summary of Product Characteristics (SPC) in Travel Medicine e.g. acetazolamide for acute mountain sickness and intradermal rabies. However, there is some debate over how effective the vaccine might be in preventing travellers diarrhoea and currently NaThNaC¹ describes that it is not of value for this indication, citing two major reviews of evidence that will be discussed later. The purpose of this article is to re-examine the evidence and outline the reasoning behind both sides of the argument.

Why should the cholera vaccine also be effective in preventing travellers diarrhoea

Diarrhoea in travellers can be caused by infection from a large range of organisms, but one of the most common causative agents is Enterotoxigenic E.Coli (ETEC). There are two broad categories of ETEC that can be responsible for TD: those that produce a heat stable toxin (ST) and those forming heat labile toxin (LT), some strains of ETEC do produce both types. It is the LT Forming ETEC against which the cholera vaccine has an effect. Globally, 60% of ETEC isolates express LT either alone (27%) or in combination with ST (33%). As the name implies the toxin produced by these strains of E.Coli will act on the gastrointestinal tract to cause the symptoms associated with travellers diarrhoea. The cholera vaccine actually produces an immune response to the cholera toxin (CT) as well as bacterial components of (*V. Cholera*). If the toxin produced by cholera was antigenically similar to the toxin produced by E.coli then immunisation could result in a level of protection against both conditions. In other words the anti-toxin antibodies resulting from cholera vaccination will cross react against the ETEC produced toxins. It is the case that LT-ETEC and CT toxins do have functional, structural and immunological similarities.²

Studies demonstrating Protection against Travellers Diarrhoea

The first study of clinical efficacy of the vaccine against ETEC diarrhea was in an endemic population in Bangladesh³ which reported a 67% protection rate against LT-ETEC for three months only after immunisation. If ETEC diarrhoea was rated by severity then this rate increased to 86% for severe disease and 54% for less severe disease. Further a protective efficacy of 50% was noted at one year follow up for severe ETEC episodes but no efficacy for non-severe episodes. The finding of a higher protective effect on severe cases has also been observed in some cohort studies.^{4,5}

In a randomised controlled trial⁶, 1991 involving Finnish tourists travelling to Morocco, participants (N=615) received two doses of either the vaccine or placebo before departure. The protective efficacy against diarrhea caused by LT-ETEC strains was estimated as 60% (p=0.04). Interestingly, the protective efficacy against diarrhoea caused by a combination of ETEC with any other pathogen was 71% (p=0.02) this resulted in an overall reduction of TD compared to placebo of 23% (p=0.03). Due to the mechanism of action, the efficacy of Dukoral against all-cause TD is linked with the incidence of LT-producing ETEC. In the Peltola study⁶ the incidence rate of overall TD (any cause) was 27% (166/615) and 12% (21/166) of those diarrheal episodes were caused by LT-producing ETEC. Providing a rationale for the higher observed protection against all-cause TD compared to the incidence of LT-ETEC, the authors hypothesised that suppression of colonization with LT-ETEC, might have made colonization with other pathogens less likely.

In another prospective, randomized placebo controlled study by Scerpella et al.⁷ students from the USA travelling to Mexico were vaccinated after arrival. When all patients were considered no protection against ETEC was observed. However, on a sub-analysis of cases occurring at 7 days after the second dose when an adequate antibody response would be expected, 50% protective efficacy against all ETEC was reported, regardless of toxin producing type. However, only 19 cases of TD were reported in total in this sub-group. This finding led to the recommendation that protection can be expected after two doses of Dukoral and at least 1 week after the second dose.

A further RCT⁸ did not demonstrate any efficacy of Dukoral against TD, though it could be argued that the study was underpowered. There was only a single subject with diarrhoea caused by ETEC in the Dukoral

group compared to 5 subjects with ETEC diarrhoea in the placebo group.

Systematic Reviews of the efficacy of Dukoral against TD

There are two systematic reviews which are critical of the use of Dukoral to prevent TD^{9,10}

The Cochrane review based its conclusions on a single study by Scerpella⁷ but did not consider their sub-analysis of cases occurring more than seven days after the second dose as described above. They also discounted the Bangladesh³ and Morocco⁶ studies on the basis that a different vaccine to Dukoral was used. However, all vaccine formulations used during the clinical development program of Dukoral were identical with regards to the whole cell component formulation. For the CTB component, vaccine containing native CTB obtained by extraction from cultured *V. cholerae* was used in early clinical trials. In 1991 recombinant cholera toxin B-subunit (rCTB-213) produced by fermentation of a genetically modified *V. cholerae* strain came into use and little difference in anti toxin antibody titres resulting from the two methods of production have been shown.¹¹ There is extensive unpublished comparability data available – including characterization of purity profiles. In fact, the European medicine Agency EMA concluded in its assessment report on Dukoral that both formulations are comparable.¹² Therefore the argument for not considering those studies might seem to be weak. Interestingly, the Cochrane analysis does conclude that the studies in an endemic population in Bangladesh and in people travelling from Finland to Morocco described above,

demonstrate short term protective efficacy against ETEC diarrhea lasting for around three months (RR 0.43, 95% CI 0.26 to 0.71; two trials, 50,227 participants).

The second review by Hill et al. from 2006 concluded that the vaccine can be expected to only prevent 1-7% or less of cases of TD and should not be used for this purpose. They point out that the observations from the Clemens study are based upon local populations rather than travellers and that some of the protection from the vaccine could depend on previous exposure to ETEC. They also argue that there are only three studies in travellers that seem to demonstrate efficacy and of these the Finnish study⁶ shows very wide confidence intervals and the Weidemann⁸ study was underpowered. Their calculations are based in considering available studies that estimate rates of TD in travellers, finding the incidence of diarrhea due to ETEC is 8-35% (median 21%) and that 5%-20% (median 11%) are due to LT producing strains. Taking into account the potential protective efficacy the 1-7% prevention rate is argued.

Even though conclusions on the benefit of Dukoral with regards to overall TD differ, the variable efficacy of the vaccine against Travelers' TD might reflect the multiple etiologies of this condition and that the beneficial effect of Dukoral will largely depend on the incidence of ETEC. There are considerable variations of the incidence rate of ETEC between different seasons and geographic areas. Therefore it may be that in some higher risk destinations/activities the incidence of LT-ETEC might be much greater than the 11% median calculated by Hill i.e nearer 20%.

Table 1 Estimated Numbers needed to Treat of some studies describing the efficacy of Dukoral against all cause TD

Study	Estimated Numbers needed to treat (NNT) to prevent one case of TD	Observed rates of TD in respective studies
Peltola 1991 ⁹	14	23,5% in vaccinated 30,5% in unvaccinated ARR=0,07
Torrell 2009 ¹⁴	4	17,4% in vaccinated 39,7% in unvaccinated ARR=0,223
Lopez-Gigosis 2009 ¹⁵	6	21.1% in vaccinated 36.6% in unvaccinated ARR=0,155
Gabutti 2012 ¹⁶	15	14,1% in vaccinated 20.6% in unvaccinated ARR=0,065

Calculation of NNT: $NNT=1/ARR$, ARR (absolute risk reduction) = CER (Control Event Rate) – EER (Experimental Event Rate)

Reopening a debate: oral cholera vaccine to provide protection against travellers diarrhoea

The actual risk of traveler's diarrhoea depends not only on the destination and duration of exposure but also on the travel style and individual risk behavior. In addition pre-existing medical conditions or taking medication such as proton pump inhibitors might also increase the risk for some individuals. It has been argued in a cost-effectiveness analysis that the proportion of preventable cases with the vaccine is large in areas or travelers with high risk of ETEC-caused TD¹³, such that vaccination would be considered cost-effective at incidence rates of ETEC-caused TD above about 13% and 9% for leisure and business travelers, respectively.

Apart from those mentioned there are a few further small studies that have indicated an efficacy of the cholera vaccine in preventing TD.^{14,15} Table 1 describes effectiveness of such studies in terms of the numbers needed to treat to prevent one case of TD.

Even with a very low LT-ETEC incidence of 5.6% as in a recent study¹⁷, NNT has been described as small at approximately 30.¹⁸

Conclusion

Overall the studies demonstrating efficacy of the cholera vaccine in preventing TD are limited in size and scope. Although there is a *prima facie* argument that in general the vaccine would have little impact of the incidence of travellers diarrhea on a population basis, there are many other vaccines commonly administered with a lower impact of total number of cases prevented. For instance it has been estimated that 5206 vaccinations with pneumococcal vaccines for the elderly are needed to prevent one case of pneumococcal disease.¹⁹

The other compelling consideration is that TD is usually a mild and self-limiting condition and that the risk of harm from the vaccine would outweigh risks associated with infection. On the other hand long term problems resulting from TD have been well documented: post infectious irritable bowel syndrome (PI-IBS) after traveler's diarrhea may occur in 3% to 17% of patients. Chronic gastrointestinal symptoms other than IBS (e.g, persistent or chronic diarrhea) also occur at a higher rates.²⁰

The evidence that the cholera vaccine reduces the incidence of all cause diarrhea and that it is more efficacious in preventing cases of severe diarrhoea is probably relatively weak and needs further study. It can be argued though that the numbers needed to treat becomes much more favorable in those destinations where incidence of ETEC diarrhoea is high. Therefore one could conclude that it might be worthwhile considering discussing vaccination with high risk individuals who themselves are risk adverse and willing to pay for what might be considered the marginal benefits of the vaccine. This would still not obviate the need to ensure the traveller was also

informed of the options for self treatment, as well as the approach to food and water hygiene. For preventing cholera the vaccine can be provided on the NHS but the indications for this specifically would be at a much lower level than for TD.

As for much in travel medicine it boils down to a question of the traveller being presented by the risk and the possible benefits of prophylaxis. That uncertainty regarding benefits is challenging to describe to the lay person in the absence of a strong evidence base. This article leaves it for practitioners to decide if the current UK recommendation of the vaccine not to be used for TD prevention is an absolute or relative contraindication.

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FOR THE NOVICE

Assessing Health Risks for Travellers

J Mandizha

Risk assessment is fundamental to the pre-travel consultation. The process involves gathering as much information from the traveller as possible about themselves and the nature of their journey and using this information to make an assessment of the most important health risks faced.

In collaboration with the traveller, the health professional must develop a realistic plan to mitigate these risks through providing information and advice, vaccinations and anti-malarial prophylaxis. Achieving informed consent from the traveller for procedures such as vaccination is always important. Most intending travellers do not come to the clinic because they are unwell.

Selecting which topics are most appropriate to discuss with a particular traveller is the starting point of a successful consultation and risk assessment. Your assessment of risk may differ from the initial notions of the traveller and the first stage of education is listening to those whom you are trying to help. They may have just come for advice on vaccinations and wonder why you start raising other issues. The focus on preventive advice is a reason why a good travel health consultation usually takes longer than many other medical consultations although there is sometimes a second chance to raise issues when the traveller returns for booster doses of vaccines.

Health hazards

Hazards may be defined, for example, as objects, substances or a phenomenon or activity that can cause harm. Risk can be defined as 'the likelihood that a hazard will cause harm'. Risk assessment involves making a judgement about both the likelihood of harm and the severity of that harm should it occur. Potential health hazards that travellers face may be:

- Vector-borne (e.g. Malaria, Yellow Fever)
- Air-borne (e.g. MERS, Avian Influenza)
- Food and Water-borne (e.g. Campylobacter, Cholera)
- Environmental (e.g. Sunburn, Flooding, Altitude)
- Safety/Security-related (e.g. Theft, Political Violence)
- Journey-related (e.g. Deep Vein Thrombosis, Motion Sickness)
- Traveller-related (e.g. Myocardial Infarction, Asthma exacerbation)

Approximately 8% of travellers will require medical attention during their trip. Many more will self-treat, or require treatment on return.

The key to good risk assessment is appreciating that not all hazards will represent a risk to all travellers.

An outbreak of typhoid in a particular city does not necessarily mean a traveller is at risk from the disease if they have access to clean water; political unrest in a particular country will not necessarily be a security concern if it is geographically and culturally specific and episodes of Meningococcal Meningitis reported during the dry season will not be a concern for a traveller who arrives in-country many months later.

The more information that can be gathered about the traveller and the trip, the better equipped the travel health advisor will be to make an assessment.

Gathering information

Obtaining detailed information about the traveller and proposed trip is usually carried out via a travel questionnaire. It is important that this is supported by an interview with the travel health advisor, to ensure that questions have been understood and answered thoroughly and accurately. As with all health-related interactions, gaining trust and developing rapport will increase the likelihood of a successful outcome. Adequate time must be allowed for this process. The initial consultation will take a minimum of twenty minutes, and longer if the traveller or the trip poses significant risks.

Budget

Travellers with a limited budget will generally be at higher risk from food and water-borne illness and communicable disease. Using cheaper forms of public transport may also put them at increased risk of road traffic accidents. They are also more likely to be vulnerable to crime. The uninsured traveller is particularly at risk if they become ill or injured and are unable to pay for medical care. Whilst it is outside the remit of the travel health advisor to assist with selecting a specific policy, it is wise to ensure that the cost of repatriation is covered.

Previous travel experience

Generally, experienced travellers will be better prepared, more widely immunised and better educated on managing travel-related health risks. As such, they will be less likely to suffer from health problems overseas. They may also be better prepared psychologically.

First-time travellers may need more guidance on basic safety and security, for example, carrying a copy of important documents separately from the originals, and ensuring that accommodation is arranged in advance for at least the first few nights in a new country. Psychological wellbeing is often overlooked, but it is worth broaching issues such as culture stress.

Assessing Health Risks for Travellers *continued*

Evaluating Potential Risks

Age/Gender issues

Young children and babies are more susceptible to travel-related health risks such as sunburn or diarrhoeal disease. Depending on age, they may not be able to receive all recommended vaccinations. Young adults are at higher risk from accidents and injuries, as well as drug and alcohol-related incidents. Young adults, and particularly young men, are generally more likely to be involved in risk-taking behaviour, although this is a complex subject with many factors playing a role.

Older travellers can be more susceptible to environmental factors such as heat and humidity and diarrhoeal disease. They are more likely to have underlying medical conditions which may be exacerbated by travel and require treatment overseas. Significantly, cardiovascular disease is the most common cause of death overall in overseas travellers,

dependent on specific issues which arise.

It is important to identify immunosuppressed individuals, who not only are potentially more susceptible to disease, but may also need to have a modified immunisation schedule, as some vaccines will be contraindicated and others may not induce an adequate response.

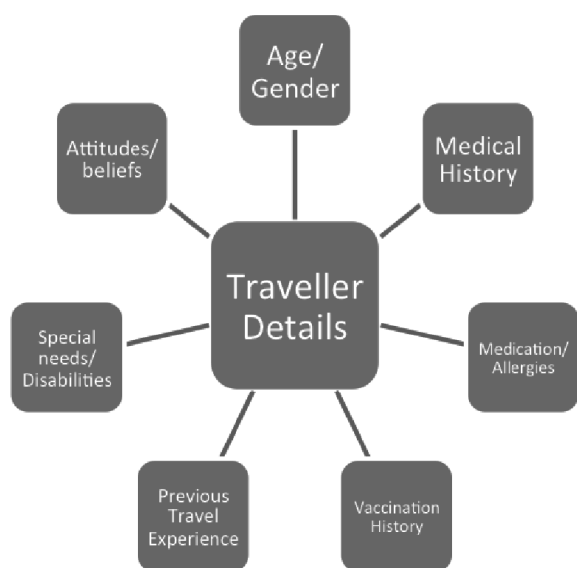
All travellers with pre-existing conditions need to ensure that they are adequately protected by health insurance. It may be necessary to discuss contingency planning, for example, identifying sources of medical support in-country prior to travel. For more complex patients, it may be appropriate to involve their wider medical team, for example, their consultant or clinical nurse specialist.

Charities and organisations related to specific medical conditions, such as diabetes or asthma, are a great resource and any charity websites will offer disease-specific advice for travellers.

Travellers on regular medication must ensure that they have adequate quantities for their trip and should pack this in hand luggage. It may be appropriate to discuss the issue of counterfeit medication. Some countries will have strict rules about quantities and class of drugs which can be imported. Checking with specific embassies may be necessary and having copy of the prescription or a letter from the GP is advisable.

History of allergy needs to be considered before starting a course of immunisations or providing anti-malarials. A severe allergic reaction to a vaccine is rare, and if the history is not clear, it is worth attempting to gain further information before withholding the vaccine. A severe hypersensitivity reaction to egg will contraindicate certain vaccines, such as Yellow Fever. Travellers with a history of anaphylaxis should consider travelling with adrenaline.

TRAVEL RELATED RISKS



and this is much more likely to be experienced by the elderly. Discussing management of existing conditions may be much more important to the traveller's health than discussing a tropical disease rarely seen in a returning traveller.

Female travellers will have specific needs regarding issues such as contraception. They may need additional advice regarding personal security and, occasionally. This may have a cultural context, for example, if travelling to countries, which impose strict Islamic law.

Medical History

Underlying conditions need to be identified and reviewed in the context of the proposed itinerary. Action taken and advice given will obviously be

Special needs and Disabilities

More travel opportunities than ever exist for travellers with various special needs or disabilities. During pre-travel consultation consider whether travel arrangements and facilities are appropriate to the traveller's needs. Adequate insurance and good contingency planning are paramount.

Vaccination History

Before discussing travel vaccinations, it is good practice to ensure the traveller's childhood schedule of immunisations is up to date, when planning schedules record a vaccination history. This is not always possible. It may be safer to assume that the traveller is not protected, and administer a booster. Whilst it is important that travellers know what relevant vaccinations are available to them, it is also vital to remember that very few travel-related

illnesses are vaccine-preventable, travellers must not be given a false sense of security.

Destinations

Destination is probably the most important piece of information required for risk assessment. From the tropics of Africa to the Himalayas, health risks vary greatly. Some diseases are strictly geographical, for example, Yellow Fever, which affects only Sub-Saharan Africa and South America. Some issues are related to climate, for example, heat illness or frost bite. Some issues will be related to standards of living within a particular place, or how accessible health care may be.

In identifying destinations, be as specific as possible, for example, will most time be spent rurally, where clean water and medical facilities may be less accessible, or in urban areas, where crime may be more of an issue? It is helpful to know which cities or areas are likely to be visited in terms of assessing risk from any current disease outbreaks which are occurring. The world is in a state of constant flux, and places that have, historically, been marred by poverty and poor health may have become more affluent. Places that have, historically, enjoyed a high standard of living, may have been affected by issues such as civil unrest or war. As an advisor, it is vital to stay as up-to-date as possible.

Planned departure date/Length of stay

Health risks for short stay travellers may differ from those experienced by travellers staying for longer periods. Generally, the latter will be at higher risk. This is because they will be exposed to more seasonal changes, may adapt to living a lifestyle more similar to the local population or are likely to have prolonged contact with local people. There is also the risk that they may become complacent about certain risks, for example, malaria, or simply succumb to the law of averages- the longer you are exposed to a hazard, the more likely it will become a risk.

Planned departure date is also of importance, as last-minute travellers may not have sufficient time to seek and consider advice, complete vaccination courses or make other necessary preparations for their trip.

Purpose of trip

Reasons for travel are many and varied- from business travel to adventure travel, from visiting friends and relatives to volunteering, from expeditions to package breaks. The purpose of the journey will impact greatly on the associated risks.

Business travel may be associated with higher standards of accommodation, but can be at short notice, cover multiple destinations and leave travellers at risk from isolation and home-sickness

due to cultural and language barriers. Alcohol use and sexual risk-taking behaviour may be an issue for this group of travellers.

Backpackers, or those undertaking adventure travel, are more likely to visit places that are 'off-the-beaten-track'. They may be on a lower budget and may indulge in activities such as climbing or water sports, which put them at higher risk of accidental

JOURNEY RELATED RISKS



injury. They may also be more exposed to insect bites, for example, whilst camping or during a jungle trek.

Travellers undertaking expeditions may need additional advice regarding issues like acute mountain sickness or exercise induced hyponatraemia. Many larger companies attempt to minimise risk by adopting a pre-screening process which helps to ensure that travellers are suited to the planned activities. They may also provide medical support and contingency planning. Travellers should be encouraged to check these details.

Those visiting friends and relatives are amongst the most vulnerable of travellers, as they will be more susceptible to the health risks affecting the local population. Complacency about diseases such as malaria is dangerous. Acquired immunity is gradually lost in the absence of repeat infections and it may be difficult to persuade this group to take anti-malarial medication.

Package tourists tend to have less contact with the local population and more contact with other tourists. Their trips tend to be more organised and controlled and they are likely to have support from their tour company if any problems arise. However such travellers are more likely to partake in risk-taking behaviour whilst abroad. Excessive alcohol consumption or drug taking can make travellers more

Assessing Health Risks for Travellers *continued*

vulnerable to injury and sexual health risks. Travel to more unusual areas is increasing and package tourists to destinations like The Gambia may be unaware of the increased health risks and the need for vaccinations and anti-malarials.

Volunteers and those working overseas are likely to have closer contact with local people, so will be at higher risk of communicable diseases. They may have specific needs related to their occupations, for example, healthcare workers will need to consider vaccination against Hepatitis B and, potentially, post-exposure prophylaxis for HIV. Those working with animals may need to consider Rabies vaccination more carefully and teachers may need to consider the risks from tuberculosis.

Type of accommodation

In terms of health risks, there is obviously a huge difference between a luxury hotel with air conditioning, well-maintained kitchens and safe drinking water and budget accommodation in an impoverished area or a tent in the jungle. Travellers must be advised accordingly, whilst not forgetting that even five star accommodation is not without risks.

Mode of transport

Risks will vary depending on the modes of transport used to both reach a destination and to travel once there. Air travel carries increased risk for certain travellers, for example, those with underlying respiratory illness, those with other risk factors for developing deep vein thrombosis and for some travellers who have recently undergone major surgery. Cruising is increasingly popular, but comes with the risk of motion sickness, as well as accidental injury during poor weather, especially for older travellers. Road traffic accidents are a major cause of death and injury, and, in many destinations, using public transport will increase this risk due to inadequately maintained vehicles, poor road surfaces or unsafe drivers. Motorcyclists and cyclists are potentially even more vulnerable to injury and will need to plan their trips more thoroughly and carefully consider carrying appropriate medical kit.

Communicating Risk

Communicating information and opinion about health-related risks to the traveller is probably the most difficult, and important, part of the consultation. The aim is to improve understanding, promote better decisions and improve health outcomes for the traveller.

Within this process, it is important to realise that we are generally very poor at assessing risk, for example, we tend to over-estimate unfamiliar risks (for

example, Yellow Fever disease) and under-estimate familiar risks (for example, excessive alcohol use). The most important factor in risk communication is trust.

It is essential to keep messages simple, and to prioritise when giving information and discussing issues. This may mean that, for some travellers, less time is spent discussing Japanese Encephalitis vaccine and more addressing issues such as sexual health and sun exposure. (This may be difficult for the travel health advisor, as it is tempting to focus on problems which have an easy 'solution' in the form of a vaccination!)

Generally, adjectives used to express risk are poorly understood, and, where possible, it is better to use figures to reflect risk. For example, the statement 'Japanese Encephalitis is low risk' is more difficult to interpret than the statement 'There have been approximately 40 confirmed cases of Japanese Encephalitis in returning travellers over the last 30 years'.

Advice must be as accurate as possible, and based on current information. This means using an online information service that is regularly updated, such as TRAVAX, will be better than using texts. It is important to use reliable sources, such as NaTHNaC (National Travel Health Network and Centre), the CDC (Centers for Disease Control and Prevention) or WHO (World Health Organisation), but to also be aware of limitations, for example, under-reporting of disease due to a lack of diagnostic facilities or time-lags in reporting. It is also vital to remember that local epidemiology does not always reflect the risks for travellers.

Advice given must be relevant to the traveller and realistic. It might be possible to advise a short-term business traveller to use only bottled water during their trip, but not for a long-term volunteer, with whom it would be wiser to discuss boiling or filtering techniques. Advice regarding malaria may be limited to anti-malarial prophylaxis and bite avoidance for one traveller, where, for another, it may be more appropriate to also carefully discuss issues such as self-diagnosis and self-treatment.

Our risk assessment will involve weighing up patient preference, clinical considerations, local policy and epidemiological evidence. Often we rely on 'expert opinion' rather than a firm scientific evidence-base, and there is a need within the travel medicine world to expand our evidence-base further. We must remain vigilant to this and open to changes in practice as this specialty evolves.

Risk-Taking Behaviour is not necessarily bad

It is important to recognise that all experiences come with some degree of risk, and there are many rewards associated with this, including experiencing

excitement and adventure, being exposed to learning opportunities and developing personally as a result, as well as creating memories.

Various factors influence individuals when making decisions about risk and frequently these factors are beyond the control of the health professional. Our main role is to ensure that decisions are not made on the basis of ignorance or misinformation.

Summary of Good Practice in Travel Health

- Use a pre-travel assessment form or questionnaire to record details of the traveller and their trip.
- As with all medical interventions, it is important to gain consent prior to proceeding. This can be written, verbal or implied by co-operation. For the consent to be informed, travellers must be aware of the processes involved, understand potential risks and benefits and have an opportunity to discuss these.
- Document vaccinations and anti-malarials

given, but also record significant parts of the conversation, for example, if certain vaccinations are recommended, but declined.

- Travellers will only retain a limited amount of the information given verbally. Provide written advice/leaflets to support this.
- Signpost travellers to reliable sources of information on the internet. These might include NaTHNaC, Health Protection Scotland or NHS Choices.

Travel health is a dynamic specialty and staying up to date is a professional responsibility. This may be through private study, attending workshops or conferences or networking with colleagues. This is essential to good practice, which will hopefully result in better health outcomes for individuals, improved public health for the UK population and a reduced burden on health services from returning travellers.

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This review of risk assessment has been prepared as one of the learning modules for a BGTHA e-learning course in Travel Medicine.

Basics of Travel Medicine - Immunity and Vaccines

M Townsend

The immune system

The body's immune system provides a defence against invading micro-organisms. It recognises antigens specific to invading organisms and mobilises cells and produces antibodies as a defence against them. Antibodies can also be produced by vaccines which imitate the effects of an invading organism.

Lymphocytes are an essential part of the immune system. B lymphocytes produce antibodies which attach themselves to the antigen. Each antibody is specific to a particular antigen and will attach itself only to that antigen, rather like a key fitting a lock. They may have a direct effect by inactivating the antigen or by rendering it more susceptible to attack by phagocytic cells, which ingest and destroy it, or to cytotoxic cells, which attack and destroy it. T lymphocytes respond to antigens in two ways. One type attacks and destroys cells infected by viruses, while the other type mobilises B cells to produce antibodies, and also mobilises other types of cells to attack the antigen.

An individual may acquire resistance to a specific infection either by encountering the infection or by the process of immunisation using a vaccine derived from the organism concerned. On subsequent exposure to the organism a rapid antibody response is produced by the action of "memory" B cells.

Immunisation may be either active or passive.

Active immunisation consists of the administration of a vaccine to stimulate an immune response as outlined above.

Passive immunisation consists of the administration of antibodies in the form of human immunoglobulin; because the immune system has not been primed to produce antibodies, immunity will rapidly wane as the immunoglobulins are broken down in the body. Before the advent of a hepatitis A vaccine immunoglobulin was used to confer temporary immunity, but this has now been superseded by the use of the vaccine. Human rabies immunoglobulin is still advised in addition to rabies vaccine as part of the post-exposure treatment of a potentially rabid animal bite in a non-immunised individual. A more recent development is the use of a monoclonal antibody, Palivizumab, manufactured by recombinant DNA technology, to provide passive immunity against respiratory syncytial virus (RSV) in certain vulnerable infants.

Types of Vaccines

Live attenuated vaccines contain a version of the living micro-organism that has been treated in a way that weakens it so it can still be recognised by the immune system but is unable to cause disease. They produce strong cellular and antibody responses and often produce lifelong immunity. There are, however, some potential drawbacks to them. There is a small

Basics of Travel Medicine *continued*

possibility that an attenuated organism could revert to a virulent form and cause disease. In addition, those with suppression of the immune system by, for example, chemotherapy, high doses of corticosteroid drugs or HIV should not usually be given live vaccines. Examples of live vaccines are:

- BCG (tuberculosis vaccine)
- Rotavirus vaccine
- Oral typhoid vaccine
- Oral poliomyelitis vaccine
- Yellow fever vaccine
- Varicella vaccine
- MMR vaccine

Inactivated vaccines are produced by killing the micro-organism with chemicals, heat, or radiation. They are more stable and safer than live vaccines, as the dead micro-organism is unable to revert to an active form and cause disease. The immune response produced is usually not as strong as that produced by a live vaccine and inactivated vaccines will often require multiple doses with booster doses at intervals. Examples of inactivated vaccines are

- Hepatitis A
- Inactivated poliomyelitis vaccine IPV)
- Oral cholera vaccine
- Influenza vaccine
- Japanese encephalitis vaccine
- Rabies vaccine
- Tick-borne encephalitis vaccine

Sub-unit vaccines

Instead of using the whole organism, subunit vaccines include only specific parts of the organism that stimulate the immune system. Because they do not contain the whole organism they are less likely to produce adverse reactions than the whole organism

may produce. Vaccines based on the polysaccharide-outer coating of a bacterium are unsuitable for young children whose immature immune system cannot easily recognise their antigens. Examples of subunit vaccines are

- Typhoid V1 vaccine
- Meningococcal ACWY polysaccharide vaccine
- Pneumococcal polysaccharide vaccine

Toxoids

Some bacteria exert their pathogenic effect by producing toxins. These toxins can be treated chemically to deactivate them, producing toxoids that can still be recognised by the immune system but have lost their toxic effect. Examples of toxoids are:

- Diphtheria
- Tetanus

Conjugate vaccines

Some bacteria have an outer coating of polysaccharides, which may make it difficult for the immature immune system of very young children to recognise their antigens. Conjugate vaccines attach these antigens to another protein that the immune system can recognise more easily. Examples of conjugate vaccines are:

- Pneumococcal conjugate vaccine
- Meningitis C conjugate vaccine
- Meningococcal ACWY conjugate vaccine

Recombinant vaccines

Recombinant vaccines attach the antigenic material from the micro-organism concerned to a "carrier" molecule or to an attenuated virus or bacterium which produces a greater immune response. An example of a recombinant vaccine is Hepatitis B vaccine

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UPDATE

Amoebiasis

Amoebiasis describes internal colonisation with Entamoeba histolyticaparasites.¹ All or part of the colon can be affected with the caecum, ascending colon and rectosigmoid most commonly involved.² Superficial erosions penetrate the colonic submucosa where they expand and form flask-shaped ulcers.³ Amoebiasis is prevalent in regions where sanitary infrastructure is sub-optimal and is common in many tropical regions of the world.⁴ Returning travellers from Asia, Africa and Latin America, in that order of incidence, bring it back as an unwanted souvenir.⁴ Approximately 200 cases are reported in the UK each year.⁵

What are the causes of Amoebiasis?

Low standards of hygiene and sanitation, in particular those related to crowding, contamination of food and water, and inadequate disposal of faeces, are

all high risk factors for infection with *E. histolytica*.¹ Persistent travellers' diarrhoea can have several aetiologies including post-infective IBS, while *Dientamoeba fragilis* is thought by some experts to be a cause and its eradication can settle symptoms.⁶

What are the signs and symptoms?

Although amoebae can cause dysentery (abdominal pain, tenesmus, frequent stools containing blood and mucus), it can be asymptomatic and the clinical picture is often relatively mild with an insidious onset.^{1,7} The diarrhoea tends to last for several weeks.⁷ However, there can be recurrences and infection can persist for several years.³ Toxic megacolon and multiple perforations can occasionally occur.^{2,3} Extraintestinal disease can develop if amoebomas

form, causing liver and brain abscesses.^{2,7} Amoebic liver abscess is a late complication and may present with fever, rigors and shoulder tip pain.^{2,7}

The aetiology is likely bacterial if the diarrhoea is severe, with visible blood in the stool, dehydration and a significantly raised temperature, even if amoebic cysts are seen on microscopic stool examination.^{4,8} Some patients are unfortunate enough to host two or even three pathogens at once.⁹

How is the diagnosis made?

It is important to have a high index of suspicion and take a travel history in those presenting with symptoms of amoebiasis. In developing countries, intestinal amoebiasis is most commonly diagnosed by identifying cysts or motile trophozoites in a stool specimen.⁷ This should be based on three fresh stool samples taken on different days.¹⁰ However, due to low sensitivity and false positive results, the diagnosis should be based on detection in stool of *E. histolytica* specific antigen or DNA and the presence of anti-amoebic serum antibodies.⁷ Examination of colonic mucosal biopsy specimens and exudates obtained by sigmoidoscopy can reveal a wide range of pathological findings associated with amoebic colitis, including classic flask-shaped lesions.⁷

In amoebic abscess, a blood count is likely to show a neutrophilia and positive amoebic serology but liver function tests may be normal.^{3,4,7,11} In patients with abscesses, stool microscopy may fail to demonstrate parasites,¹¹ but the ESR is usually raised.² From personal experience, the ESR is usually >50mm/hr.

What treatments are available?

Treatment of acute invasive amoebic dysentery in adults is with metronidazole 800mg three times daily for five days.¹² Metronidazole treatment is then followed by a luminal agent such as diloxanide 500mg three times daily for 10 days.⁷ Tinidazole is also effective and more tolerable than nitroimidazoles with shorter half-lives.⁷ Both drugs are also active against parasites that have migrated to the liver and in the treatment of liver abscesses.⁷ Chloroquine is effective against amoebic hepatitis¹ although this is now generally used only if metronidazole is not available.

What can be done to prevent Amoebiasis?

Strategies that help avoid infective/travellers' diarrhoea will dramatically reduce the risk of

acquiring amoebae.⁸ Food that has been properly cooked or thoroughly heated should be safe whereas uncooked foods, especially those that grow at ground level, are risky, as are foods that have been cooked, cooled and then subsequently handled in an unhygienic manner.^{4,8}

Why is it important to test for Asymptomatic Amoebiasis and to treat Carriers?

Those who have returned from long-term travel to the tropics may be carriers. Sending three stool samples for microscopy is a relatively cheap investigation and should reassure patients.^{4,10} It is probably wise to screen stools of any returning traveller who is planning a pregnancy or is to undergo treatment that will cause immuno-compromise.^{3,4} Asymptomatic amoebiasis may progress to severe invasive disease in pregnancy or immunosuppression.³ It makes sense to eradicate amoebae as it should reduce the risk of complications.⁷ There is also some risk of infecting others if hygiene practices are poor or there is sexual contact.^{3,11} Presence of the commensal organism *Entamoeba coli* may suggest faecal contamination of a food or water source and does not exclude the possibility of other pathogens but in itself needs no treatment.^{10,11,13} Treatment of simple asymptomatic intestinal colonisation is with diloxanide alone.⁷

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Travel and People with Cancer

People with cancer need to advise airline and cruise shipping operators of their condition prior to travel and they may not be accepted as passengers. For air travel they require to complete a Medif form submitted to the airline for their consideration and the airline may contact the GP. for further information regarding medical status.

They should not travel by air if they are :-

- very breathless
- very anaemic
- at risk of developing increased pressure or swelling in the brain (cerebral oedema) due to brain tumour
- have recently had surgery to the chest
- have recently had brain surgery
- have problems with ears or sinuses – pressure changes may make symptoms worse
- have recently had surgery or a medical procedure. Flying can introduce gas into the body that may expand to cause pain and stretch your wound.

Clotting factors

Clotting factors can be higher in people with particular types of cancer. Lung, stomach or bowel cancers produce a substance called mucin, which can raise the risk of clots. Acute myeloid leukaemia or pancreatic, ovarian or womb cancers have a slightly raised risk too.

Some cancer treatments can increase the risk of blood clots. eg. hormonal therapy, such as tamoxifen for breast cancer and stilboestrol for prostate cancer. There is increased risk also with some types of biological therapy, including thalidomide or lenalidomide for multiple myeloma.

Travelling on long flights with lymphoedema may make the condition worse due to low cabin pressure, air quality and immobility for long periods.

Vaccinations should not be given in a limb affected with lymphoedema. Patients who have had surgery or radiotherapy to the armpit, should avoid vaccinations in that arm and wear a compression sleeve if the flight is over four hours. It should be worn throughout the journey and for a few hours after landing. Exercise of the limb, lymphatic drainage massage and dehydration prevention should be considered. The skin in the area that was treated by radiotherapy will stay sensitive. Patients need take extra care to protect it from the sun.

The immune system may be weakened in those having or have recently had chemotherapy or radiotherapy, high doses of steroids or immuno suppressive drugs. If contemplating long air travel

patients with leukaemia, lymphoma cancer treatment may need to take a supply of antibiotics

Live vaccines can be given after completing immuno-suppressive treatments.

These include:

- MMR (measles, mumps and rubella)
- Oral polio (not currently given in the UK)
- Oral typhoid
- Yellow fever

Inactivated vaccines aren't dangerous and are safe after cancer treatment. They may be less effective in people who have low immunity.eg.

- Cholera
- Diphtheria, tetanus and polio
- Haemophilus influenza B (Hib)
- Hepatitis A
- Hepatitis B
- Influenza
- Japanese encephalitis
- Meningococcal meningitis
- Pertussis (whooping cough)
- Pneumococcal
- Typhoid injection
- Tick-borne encephalitis
- Rabies

Travel Assistance

Patients with cancer have certain rights when using transport at European airports. They can get help at arrival points, check-in desk, registration, moving through the airport. The airline needs advance information of status at least 48 hours before flight, if there are specific needs during travel. Disabled people also have the right to free help getting on and off cruise ships.

Travel Health Insurance

People who have advanced cancer, or currently having treatment, are less likely to get travel insurance. Many insurers will not insure terminal cancer patients. A travel insurance blog on "Macmillan's online community", gives updates and tips about getting travel insurance.

Visit www.tinyurl.com/travelinsuranceblog

Hints for travellers

If taking regular medicines make sure you have enough for the whole trip and keep it in hand luggage. Keep a record of generic names. Painkillers like morphine, need an accompanying letter from the family doctor including :-

- name and address
- date of birth

- dates of travel in and out of the country
- The country to be visited
- The medicines being taken, the doses and total amounts being carried.

Carry all medicines, covering letters and licences for controlled drugs in hand luggage, as custom officers will usually need to see them.

Keep all medicines in their original packaging.

Keep a list of the medicines being taken, along with information about the doses. This will help get replacements if lost. Always use the generic name of the medicine, as brand names can vary from country to country.

Fluid medication can be taken on board an aeroplane. No more than 100ml of a liquid medicine. Check this with airline and departure airport before travel.

IBM

Book Reviews

A Glimpse of Eternal Snows

Jane Wilson-Howarth

Published by Bradt Travel Guides UK
ISBN 978 -1841624358

A doctor chooses to stay in rural Nepal a month after the birth of her second child, despite admonitions of doctors about her disabled son's health safety and gloomy prognostications about loss of access to good medical care. In Nepal, life is not dominated by hospitals. She quotes "I didn't know what to expect of the future. But believed it would be better than submitting to what doctors had planned for our quiet beautiful baby."

On Rajapur island they entered an accepting, straightforward community where her son was special – touched by god – not abnormal. Neighbours saw beyond his handicap. They settled into a contented, life close to tigers, rhino and elephants.

The book is a commanding story about their life in Nepal. It considers difficult problems surrounding disability and the ethics of who should be treated – or not. It contrasts Western views of imperfection and death with more tolerant, fatalistic views in Nepal. Valuable to these caring for disabled children, health professionals can learn from her experiences and enjoy a good read

Oxford Handbook of Expedition and Wilderness Medicine

Chris Johnson, Sarah R. Anderson, Jon Dallimore, Shane Winsor, David Warrell, Chris Imray and James Moore

Publisher: Oxford University Press
ISBN 978 0199688418, 2015

A product of the Royal Geographical Society, advertised as an indispensable companion for all travellers to wild places this is the second edition of what has proved to be a very popular book. Multi-authored by contributors well versed in their field of expertise, content has been expanded with additional emphasis on risk management and the addition of more treatment algorithms. It is intended to be an immediate aid for the expeditioner and adventurer to remote and exotic places and is of a size to fit in the anorak pocket. This has resulted in a volume packed with concise information on dealing with all the adverse medical events that can

befall the traveller far from conventional emergency care. In the effort to include all potential clinical mishaps print point size is reduced and it will not be an easy read with a head torch in tent or bivouac, but the data available is comprehensive and the layout aids access and assimilation. Content covers psychological aspects of travel and includes a section on older adventurers often disregarded by writers.

The sections on expedition planning, identifying health threats and assessing risk are sound and reader compliance may save lives and reduce risk. This is an essential book for expedition planners, medical officers and health professionals and all those who travel far from emergency medical care

Handbook of Contemporary Clinical Hypnosis

Les Brann (Editor), Jacky Owens (Co-Editor), Ann Williamson (Co-Editor)

Publisher: Wiley - Blackwell
ISBN 978-0-470-68367-5

Potential travellers with travel related phobias commonly present to travel clinics and health professionals can be unsure how to manage the problem. Anxiolytics are sometimes prescribed which do little to treat the underlying source of distress. An effective response is the use of hypnotherapy, a subject covered in depth in this book, a valuable information source. It is an authoritative evidence-based volume which covers the clinical uses for hypnosis, the theory behind the practice and practical techniques used. One of its many uses is treatment of phobias which is covered comprehensively, with content suitable for learner and experienced practitioners.

Published in association with the British Society of Clinical and Experimental Hypnosis the book draws on the experience and expertise of doctors, nurses and psychologists using hypnosis in their practice. Input comes from academics, researchers and clinicians and data is well referenced. The book will satisfy those first approaching hypnotherapy and the more experienced looking to expand their practice. Well presented and laid out, case histories and summaries make for easy reading. I wish it had been published when I was tutoring in this field. My only criticism is that the small point and italic script used in case history presentations makes reading difficult in those with less than perfect vision.

Handbook of the Clinical Psychology of Ageing
Robert T. Woods (Editor), Linda Clare (Editor)

Publisher: Wiley - Blackwell
ISBN 978-0-470-01230-7, 2nd Edition

First published in 1996, this edition brings a popular book up to date with changes in practice and philosophy over the last 2 decades. With increasing longevity and enlarging populations of elderly people, this is a recommended read for all those dealing with older citizens. A comprehensive reference guide aimed primarily at clinical psychologists, there is much in its content to benefit any professional health carer working with older folk.

Elderly tourists are an increasing cohort of world travellers and are identified as at higher health risk in global wanderings. They can suffer from travel related mishaps in global wanderings and may have poorer adaptation and coping strategies in adversity. Exposed to a strange environment, different cultures, with possible memory impairment and limited, foreign, supportive resources, they can become psychologically disturbed. They also suffer from the phobias and anxieties which befall all travellers and may be less able to overcome them. Travel health professionals can find these psychological problems challenging and many lack expertise in this field. This book with its practical solutions should prove a useful reference manual.

Multi-authored with contributions from recognised British, American and Scandinavian experts in the field, content covers a wide-ranging, balanced exposition of this field of endeavour. It considers the ageing process and individual response to decline in mental performance and physique with passing years and the relationship of age to physical health. Travel-related stressors have gained greater prominence recently with terrorist attacks, aircraft delays, environmental disaster and airport related stress has been shown to create physical disorder particularly in vulnerable older people.

The book deals with common psychological problems, manifestations of anxiety and depression in older people, their assessment and management. Appropriate interventions are recommended including cognitive behaviour therapy. It is well referenced and merits its place as an informative reference book for all those faced with the psychological management of older people.

Stress and Your Health: From Vulnerability to Resilience

Hymie Anisman

Publisher: Wiley - Blackwell
ISBN 978-1-118-85024-4

The author is an established neuroscientist, researcher on stressors on neurochemical and endocrine systems and authority on stress psychology. International relocation is a recognised stressor with global transportation a major cause of anxieties and the contents of this book will be of interest to travel health professionals and managers intent on diminishing stress on world travellers. Global travel can have physical effects and disturb health. The psychological status of an

intending traveller and both physical and psychological effects of global relocation and international transit have sometimes to be considered in pre-travel health consultation. Studies have shown the physiological effects of passage through Heathrow airport resulting from the stress of security checks, baggage loss, flight delays and terrorist threat and there are management measures which can help passengers minimise these psychological effects.

This book considers stress, stressors and associated distress in detail with the coping mechanisms often used to contain or manage them. It provides an evidence-based evaluation of a wide range of stressor effects with proven methods for their alleviation. Attention is given to appraisal of stressors, their influence on neurotransmitter functioning and the coping methods people use in dealing with stress. The immunological effects of stress and how stressors influence vulnerability and the course of infectious illness is considered with specific focus on cardiovascular disease and diabetes mellitus. There is a useful chapter on practical stress reduction through cognitive and behavioural strategies. There are useful case histories to illustrate specific clinical points and the information is easy to assimilate. Although referenced not all the named authors appear in the reference list at the end of the book which diminishes the related evidence base.

Doctors and nurses often concentrate on the physical element of patients' well-being and underrate the psychological component when they suffer disease. A browse through this book might help redress the balance and induce the use of positive psychotherapy to help stressed travellers and diminish the risk that the stress associated with international travel does not precipitate physical illness.

To Oldly Go: Tales of Intrepid Travel by the Over-60s
Dervla Murphy

Publisher: Bradt (£10.99)
ISBN 978 1784770273

A new book on travel for the over 60s, Dervla Murphy, now 83, reveals why age is no barrier to wanderlust. "The convenient thing about non-competitive cycling (or walking): the more of it you do on a daily basis, the longer you can keep doing it. In a three month cycle via Kenya, Uganda, Tanzania, Zambia and Malawi my grey hair and wrinkles worried many of those who offered hospitality in small villages and towns.

In Siberia, being a babushka was a huge bonus. In the former "Third World" one is, on the whole, conscious of being respected for one's superior wisdom or at least for having acquired experience made available only by time. At 77, one can't cycle or walk as many miles per diem as one could at 67. On my 77th birthday, I celebrated by walking many miles through an uninhabited and dramatically beautiful corner of Negev."

In the traveller's world, social media have enlarged the generation gap. The internet has brought a change in the very concept of travel as a process taking one away from the familiar into the unknown. Now the familiar is not left behind and the unknown has become familiar before one leaves home.

CASE STUDIES

Case Studies from The London Vaccination Clinic

K Peters

Case 1, Travel to Nigeria, malaria prophylaxis and poly-pharmacy

The following case study discusses the travel health provision for a woman seeking malaria prophylaxis and prevention advice, and illustrates the perplexity in selecting and prescribing appropriate malaria chemoprophylaxis for a given patient.

A 35 year old woman presented to the travel health clinic for malaria advice three weeks before her departure to Nigeria, she would be on business for four weeks, based in Lagos, in a 4 star hotel where she was running a training course, she would be required, on occasion to make day excursions to projects in less populated, more rural areas north of Lagos. She had come specifically with malaria in mind, following reports of malaria cases within her working community in Nigeria. She had previously visited Nigeria without taking malaria medication, due in part to her hearing that the medication made you 'feel crazy.' She stated she was up to date with vaccinations.

She had received vaccinations for typhoid, hepatitis A, and tetanus, diphtheria and polio the previous year. She has no history of having Yellow fever, rabies, hepatitis B or Meningitis. She had received her childhood vaccinations in line with the UK national schedule. She had a current history of depression for which she was taking citalopram 20mg. She had a long term history of eczema for which she was currently taking an oral steroid, prednisolone 25mg on alternate days and clarithromycin 250mg twice a day for 7 days following a recent severe bout. She used diprobase cream regularly. She was allergic to animal fur and pollen.

For the purposes of this case study Yellow fever vaccination and Malaria chemoprophylaxis/ bite prevention will be discussed.

Yellow fever

It is necessary to determine via a risk assessment the justification for a yellow fever vaccination.¹ The specific risk of travelers acquiring yellow fever is difficult to predict however the Center for Disease Control estimates the risk of illness from yellow fever in West Africa in unvaccinated travelers as being 50 in 100,000.² Nigeria is considered high risk, endemic for the virus vaccination is therefore advised. As a live vaccine, one must consider the side effects associated with vaccination for each traveller. It is necessary to consider if one's risk of disease outweighs the risk of side effects from vaccination.³ The reality is that severe side effects from vaccination are low, of the 300 to 400 million doses provided worldwide, adverse events occur is only 0.3 to 0.4 cases.⁴

A dilemma presents when a traveller has a contraindication for vaccination. This traveller is on oral steroids for eczema which can lead to immunosuppression, in some cases a contraindication for vaccination. The British National Formulary recommends considering immunosuppression in those taking 40mg a day for more than a week.⁵ Our traveller is on less than half this dose, this is not a contraindication for vaccination so it was in her interest to have the yellow fever vaccination. In the severely immunocompromised the need for protection must be outweighed by the risks of vaccination and is looked at case by case, expert advice from travelers medical consultants is often recommended, for example in HIV positive patients. Appropriate health promotion should be provided to this traveller to encourage her to accept the necessity of yellow fever vaccination for travel to Nigeria whilst taking into account the international health regulations and certificate requirements for this country.

Malaria

A further dilemma presents when deciding on an appropriate malaria prophylaxis for this traveller. Nigeria is high risk for falciparum malaria⁶ a potentially life threatening species of malaria. It is essential she takes chemoprophylaxis to aid in the prevention of malaria. The traveller to Nigeria has three choices of medication, Mefloquine 250 mg weekly, Doxycycline 100mg daily or atovaquone and proguanil (250/100mg) daily.

Mefloquine, a weekly, suppressive prophylactic is considered to increase the chances of adverse neuropsychiatric problems, particularly in women, there is evidence to suggest that mefloquine can increase the risk of psychosis and anxiety disorders. One in 10,000 prescribed, suffer from acute reversible neuropsychiatric reaction,⁷ it is therefore contraindicated in those with these illnesses. Taking into account this travelers history of medicated depression and her fears around taking a medication that may effect her mood, mefloquine would not be recommended to this patient. Atovaquone and proguanil is a good choice for business travelers, it is a casual prophylactic so only needs to be taken for 7 days after leaving and has minimal side effects, it is the clear choice for this traveller. However on discussion the traveller reported the trip was self funded and taking atovaquone and proguanil would cost over £90 from our clinic, the only alternative left to her was Doxycycline 100mg, a cheaper choice at £30, a broad-spectrum antibiotic taken daily, acting on the red blood stage of the parasitic life cycle, it need to be taken for 4 weeks following departure from the risk area to prevent infection). The significant side effect

Case Studies from The London Vaccination Clinic *continued*

for this traveller is its effect on the skin, doxycycline reduces melanin levels in the skin increasing the chance of sunburn, it also causes rashes, her vulnerability to such effects were increased by her skin tone and propensity and severity of her eczema. It was necessary for her to make an informed choice, taking into account her budget and the likelihood of her suffering unwanted side effects and subsequent compliance. She decided she would attempt to obtain a private prescription for atovaquone and proguanil (£10) from her GP in the hope she may be able to get cheaper tablets from one of the leading supermarket chain pharmacies. This was documented in her notes.

Bite prevention is paramount in the avoidance of malaria infection in travellers. It is an essential step in prevention. There are many methods one can use to prevent bites, minimizing time spent outdoors between dusk and dawn and reducing travel or time spent in infested areas are obvious preventative measures however more specific and effective measures would be to use DEET 50% is the recommended chemical mosquito repellent for prevention of bites, it is a spray or lotion applied to the skin. Taking into account the travellers severe eczema and the possibility DEET could further sting or irritate, a challenge presented with how best to advise mosquito bite avoidance. Bite prevention is of particular importance during dusk and dawn it would be sensible to use an impregnated permethrin mosquito net for sleeping and to cover up with longer sleeves in the evening, she could consider using a repellent applied directly to the clothes and knock down sprays in her room. Instead of DEET, she could consider using lemon eucalyptus, favored for its low toxicity but comparable protection, it is considered as effective as DEET 15% for shorter periods of time.⁸ She should test a very small amount of these products on her skin to how it feels.

Case study 2. An infant traveller visiting family in Democratic republic of Congo.

This case relates to a 3 month old baby boy brought into clinic by his mother for a pre arranged meningitis B vaccination. His parents were both British/Congolese and were requesting the meningitis B vaccine in time for a visit back home in the DRC. Initially there was some confusion as to which meningitis she wanted for her child and whether she was also requiring general travel health advice for her son.

On discovering their travel plans a travel risk assessment was initiated and an in depth history taken. They planned to leave in 3 months time and would stay in The DRC for 6 months. The child had never been overseas before. They would be staying with family in Lumbumbashi, a large city on the South DRC, in Katanga province. The child was being exclusively breast feeding exclusively. Her husband

had instructed her to seek out the meningitis B vaccine for their son after reading about it in the press. The child was up to date with his childhood vaccinations and had had the first 1 set of injections. He was booked in for his second set in 2 days. He had also had two pediatric dose of Hepatitis B at birth and 1 month (Energix B). He had no allergies or significant medical history to date and was on no current medications.

On further discussion it was clear that the mother was not aware of the health implications for her family trip to DRC. She had assumed the meningitis B would protect her child in the DRC and was surprised when informed that this strain was primarily for protecting children in the UK. This case discusses a selection of the range of issues, dilemmas and challenges that were apparent in this case, it was selected to highlight the broader role of the travel health professionals, common misconceptions of risk and the vulnerabilities of infant traveller traveling to Central Africa.

For the purposes of this case study only vaccination choices will be discussed.

Yellow fever in Katanga province, South DRC is generally considered to be low risk for most travellers, in April 2014 however, following an outbreak in this region, all travelers were being advised to have the vaccination. The dilemma in this case is the age of the child, at presenting to the clinic he was 3 months old, he would be just six months on departure. Yellow fever vaccination for babies under 6 months is contraindicated due to the high incidences of yellow fever vaccines associated neurological disease in this age group, from 6-9 months it should be given under precaution, where risk of disease outweighs risk of side effects. The recent outbreak and duration of stay with friends and family in local housing puts this child as high risk. Vaccination needed to be considered. The challenge was that the child would be 6 months 5 days before their scheduled departure to DRC, ten days is the recommended time to gain protective immunity after vaccination. It was therefore proposed to the family that they delay their flight by a few days to ensure full immunity, we would vaccinate the child as he turned 6 months.

Meningitis ACWY should be considered in this group, despite the risk being lower than on the Sub Saharan Belt, the long stay with friends and family and the increased vulnerability associated with age brings this vaccine under consideration. In two days the child was to receive his first Meningitis C vaccine at 3 months in line with the national schedule, he is to receive another between 12-13 months. The dilemma is that he requires the ACWY strains for protection in Africa. Ideally we would replace the Men C vaccine at 3 months with a menveo vaccine providing all the necessary strains for both the UK and Africa, whilst maintaining the UK national schedule. Menveo is the

conjugate vaccine considered most effective for infants under one year of age it is approved for use in children over 2 months of age (off license). When an infant requires conjugate MenACWY vaccination at the same time as their routine Men C vaccination, Menveo should be given in its place. As an independent nurse prescriber, when an alternative licensed medication does not fit the patient's needs and with justification an off license medication can be provided following the guidelines set out by the MHRA (2009).⁹ Currently there is no way of sharing medical records between parties within the NHS and private travel services, this presents a dilemma. How best to communicate our clinical decision to the GP surgery in charge of the child's vaccination schedule whilst ensuring he does not receive an additional Men C following a menveo dose given by us. It was decided the safest course of action was to request that the GP or practice nurse administer the Menveo in place of the usual Meningitis vaccination, to prevent any delay due to a lack of stock, a prescription for Menveo was provided for the child alongside a letter explaining the rationale behind this decision. The mother was instructed to contact the local pharmacy to ensure they had stock of the vaccine and to deliver the letter before her appointment in two days. He would, require 2 doses one month apart, the second would be administered by us.

Meningitis B strain is the most common cause of bacterial meningitis in the UK. It accounts for 88% of the UK cases and is recommended for children at 2, 4 and 12 months, although it has been accepted it is not yet provided in the national schedule, due to the cost implications. The vaccination can be provided privately but is expensive, it can be given at the same time as other vaccines but preferably in a separate limb. It is licensed for children over 8 weeks. The implementation of the vaccine into the national schedule was discussed with the mother, as there was no knowledge of when this would be it was sensible to consider the vaccination.

Summary of Recommendations.

- Hepatitis B, (energix B pediatric) dose 3 at six months before departure
- Meningitis ACWY (menveo) to replace the 3 month meningitis C vaccine.
- Malaria prophylaxis, mefloquine was prescribed based on weight at the six month appointment starting one week before travel.
- Yellow fever vaccination at 6 months, ideally 10 days before travel.
- Meningitis B was also offered as requested by the parents, two doses one month apart.
- Consideration of early MMR dose to protect from measles, referral to GP for consideration, including plans to vaccinate for Yellow fever at 6 months.

- Rabies first aid and food and water advice

Conclusion

Again this case emphasizes the importance of the risk assessment and probing clients for more information. Without this the health professional may not have discovered the family were due to travel despite only coming in for meningitis B vaccine and missed providing travel advice for this vulnerable traveller. Traveller's visiting friends and family are a vulnerable group, often associated with high levels of malaria and tropical disease infection.¹⁰ This case further emphasizes the need for specialist consideration with this group, taking into account different cultural beliefs and attitudes. The importance of awareness of the UK childhood vaccination schedule is apparent, the need to work and communicate with a multi disciplinary team and the challenges that lie there is an issue travel health nurses must consider.

Case study 3, A last minute volunteer to rural India.

A 28 year old woman came to the clinic for travel health advice for her trip to Pune in central West India. She was leaving in 8 days to go and work in a small village primary school for 5 months, she had only just realized she might need some vaccinations and malaria tablets as she had not travelled beyond Europe before. She would be living and eating with the head teacher and his family. She was healthy, on the combined contraceptive pill only and had an allergy to peanuts (with anaphylaxis risk), she had no other medical history and had been through the complete UK childhood vaccination schedule. She had no additional vaccination history. Only the vaccination aspects of this case will be discussed.

Her last minute departure has an impact on protecting her from vaccine preventable diseases. Despite time restrictions the following vaccinations were recommended;

Hepatitis A, Typhoid and DTP (revaxis) should be provided immediately, she would reach full immunity over the next one to two weeks. The selected country, the duration of stay, the remote, rural community setting, the accommodation and occupation put her in a higher risk category for the remaining selection of vaccinations. These vaccinations require multiple doses over a certain timeframe. The dilemma is that she was leaving in 8 days. An initial enquiry was made as to the possibility of her delaying her departure date was rejected. We were faced with a challenge, she could only have one dose of Japanese encephalitis and two doses of rabies and hepatitis B before her departure.

Energix B vaccine can be given at an accelerated rate (day 0, 7 and 21) by having two doses before departure she could build up some immunity before travel, she would then receive the third dose at a later date. However research suggests that a slower schedule of 0,1,2 months (with a 12 month booster) provides the

Case Studies from The London Vaccination Clinic *continued*

best long term immunity. The dilemma is deciding which is the best option for her, Hepatitis B prevalence in India is considered to be intermediate (2-7% of the population are chronic carriers) due to the duration of her time there it may be preferable for her to have the three month schedule to build up higher levels of immunity over the duration of the trip, similarly there is an argument for having two doses to give her some protection immediately. Either choice would depend on her continuing the course overseas, a point to be discussed later. Regardless of the decision she would need to take a sterile kit, to prevent and reduce her risk of hepatitis B infection in the case of medical intervention. Sexual health advice is also necessary as is a discussion on other sources of infection (Field and Ford, 2010).

Japanese encephalitis is prevalent across SE Asia and India and although is considered to be of low risk to travelers, vaccination is recommended for those traveling to rural areas for extended periods of time. This is primarily because they are more at risk of exposure and extended contact with infected mosquitos (breeding sites, host animals) The schedule at the time was two doses 28 days apart. However this has recently changed to an advised two doses just 7 days apart.

Rabies is a three dose schedule over 28 days, research however suggests that the vaccine when administered intradermally can provide immunity over a shorter schedule. Her risk of rabies is high, India is high risk there are significant numbers of unvaccinated stray dogs and she is in a remote and rural setting away from immediate medical attention.

It is essential that she considers vaccination, however due to her limited time frame she would only be able to have two, this would leave her partially immunized and could result in her having to have the full post exposure treatment if she was exposed. The dilemma; should she have two vaccinations to afford her limited protection but risk complacency on her part resulting in her not taking appropriate action should she be exposed or is it better not to start the course at all and focus on prevention and health promotion. Some research indicates that two doses of rabipur 0.1ml given intradermally affords high levels of protection,^{11,12} however more research needs to be carried out to determine the efficacy of this technique and schedule and so was not considered as a choice for this patient.

Considering the challenges discussed, the final recommendations where that she start the course of all three vaccinations, on further enquiry it was confirmed she would be having some weekends free to travel to Mumbai, she could therefore complete the vaccination courses there. The third dose of rabies, second and third dose of hepatitis B could be arranged for a month later in Mumbai. The International society of travel medicine have

compiled a list travel health services. It is possible to identify regulated travel clinics overseas. There are a number in Mumbai. An email was sent to a selected clinic detailing the required vaccinations and schedule. The traveler was copied in to the conversation and instructed to make arrangements from there.

Conclusion.

The last minute traveller is becoming increasingly common place in the travel clinic setting. Keeping in mind that vaccination can protect against only 1.5% of travel related health disease preventive health promotion is a priority with this group whilst maintaining a flexible and open approach to clinical decisions.

Katy Peters Executive Committee member of BGTHA

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Pharmacists in Collaborative Travel Health Practice: Are we there yet?

M Mutie, G Cooper, G Kylea, M Nauntona, N Zwarb

In travel medicine practice has become increasingly complex due to changes in global infectious disease epidemiology, changing patterns of drug resistance and a rise in the number of travellers with chronic health conditions.¹ Other factors, such as the age of travelers, the complexity of travel itineraries including the increased number of vaccines and treatment strategies recommended for international travel also add to this complexity.

Specific issues include:

- increasing incidence of infectious disease such as dengue in Japan and chikungunya in the Americas²
- increasing numbers of travellers who have chronic diseases and are therefore travelling with multiple medications and medical items for personal use³
- The shifting nature of demographics of the travelling population, with a marked increase in number of individuals travelling to study abroad⁴
- people travelling for international sport

This suggests the need for collaboration among multidisciplinary health care providers and educationists to improve health outcomes for the travelling population.

Collaboration

The degree to which pharmacists collaborate with other travel health providers varies across countries. The level of collaboration ranges from minimal contact through to advice from pharmacists who are a core component of multidisciplinary travel health providers, with authority to initiate and modify therapy. However, evidence around pharmacists initiating and modifying medications directly is less well developed in travel medicine than other clinical areas. This paper aims to initiate a discussion about collaborative care of travellers in which pharmacists (experts on drug therapy and medicines management) provide direct care to travellers in collaboration with other clinicians.

The processes of drug prescribing, dispensing, administration, and monitoring including dose adjustment as practiced in traditional travel health services occur in a disjointed fashion often leading to avoidable drug-related problems that contribute to poor patient outcomes.^{5,6} Collaborative travel health practice occurs when the pharmacist moves from offering advice on the basis of an existing prescription to becoming part of the decision to initiate or modify a treatment strategy. There are three main models of this type of collaboration-(i) inclusion of the

pharmacist in the team prescribing and making recommendations and (ii) triage and referral by the pharmacist to another clinician for advice and care. iii) Linkage of clinical practice to research.

The degree to which the pharmacist will intervene will depend on the amount of travel-related information that the pharmacist has about the patient and the professional competence in travel medicine.

Competence in undertaking travel consultations is supported through training and experience in travel medicine. Available literature indicates that previous training in travel medicine is the most significant factor relating to the quality of advice given.⁷ It is crucial for travel health providers to attain and maintain sufficient relevant knowledge and patient specific skills in this area. Up to date knowledge about global epidemiology of infectious disease and non-infectious risks for desired health outcomes for the traveller is essential.⁸ Clinicians interested in provision of in travel health services need to have regular opportunities to advise a variety of travellers with varying health conditions and planned activities during travel. Where practices are small, isolated or with small workload related to travel health, collaboration with other travel health clinicians will help build the experience.

Australian exploratory study

In February 2014, pharmacists undertook a self-administered online questionnaire to document their activities in travel health. Of the seventy respondents (n=70), thirty one (n=31) 43.7% reported they undertook an average of three travel health related consultations per week. This indicates travel health does not present a significant workload for the pharmacists responding in this survey. Action around strategies to improve on the practical experience is required if pharmacists are to achieve competence in this area.

The literature is unclear on the volume of travel health workload that may relate to competence in travel medicine. It is interesting to note that without indicating quality measures (morbidity, mortality, incidence rate), the Canadian Committee to Advise on Tropical and Travel Medicine (CATMAT) suggests that 5-10 travel health consultations per week are required⁸ while some authors suggest 10-20 consultations per week.⁷ Although there is no evidence on the optimal number of consultations to maintain competence in travel medicine, there is evidence that higher work volumes do improve patient outcomes in infectious disease and oncology practices.^{9,10}

Pharmacists in collaborative travel health practice: Are we there yet? *continued*

Lack of expanded pharmacy practice into travel health

Previous research initiatives to explore limitations to collaborative practice in pharmacy including professional service areas have generally focussed on and identified barriers to practice change, including pharmacists' time constraints, remuneration issues, patient apathy and limited support for collaboration by other health professionals (including pharmacists themselves). Interestingly, documented efforts to overcome these barriers have not resulted in sustained practice change, raising questions if they really are true barriers.¹¹ Do pharmacists really want to innovate and expand their practice into travel health? Can pharmacists change their approach to pharmacy practice? Or, are the suggested barriers to practice change a sign of initiative to innovate, when the main barrier is pharmacists' own drive and culture?

Clinical responsibilities

Pharmacists often "fly under the radar" of patients and other clinicians, staying away from new responsibilities and accountability for patient outcomes. Often people are unable to clearly define the role of pharmacists in patient care, travel health in particular.¹²

A change in perception, attitude is required. Pharmacists should be more visible and become an integral part of a collaborative multidisciplinary team providing care to travellers. Other clinicians must be confident that the pharmacist is competent to assess and treat the patient and refer that patient to other clinicians when necessary. The 'independent' nature of care refers to the fact that the pharmacist is independently and legally responsible for their actions rather than having a shared responsibility with another care provider.

Conclusion

Although collaboration facilitates innovation, pharmacists and travel health practitioners are not taking full advantage of collaboration. Practice partnerships in travel health can be optimised by forming linkages between practitioners and researchers to best utilise each skillsets for the benefit of the travelling population. In a collaborative model of care, clinicians will work to their strengths to generate better health outcomes and provide a value added travel health service.

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Tick borne encephalitis - does the current vaccination schedule reflect the necessary requirements for all travellers to infected areas?

D Evans

The use of tick borne encephalitis vaccine (TBE) is offered to travellers from the UK who are visiting endemic areas of continental Europe. However, it appears to be one of the least used travel vaccinations and I have observed that frequently a course is not completed prior to travel. One of the reasons quoted by travellers attending the clinic is that the full vaccination schedule can take up to 12 months and in most cases this cannot be completed as a pre-travel course, with a full course reliant on a short term pre-

traveller to return for the third dose post- travel. Outside of Europe this may be due to a lack of awareness of TBE or as in the USA currently there is no licensed vaccine for travellers.

In the UK the TBE vaccine has a vaccination schedule of 3 doses with a booster after 3 years, if necessary. The schedule of day 0; 1-3 months and 5-12 months is listed in the BNF1¹, manufacturers Summary of Product Characteristics (SPC)² and

World Health Organisation (WHO) literature⁵, and it is interesting to note that on the current WHO site there are no reference materials for TBE available.

The pharmacodynamic properties quoted in literature² show the results from an Austrian study where a 90% seroconversion is obtained after the second dose and 97% after the third dose. The accelerated schedule of 0,14 days, and 5-12 months also showed a protection rate at least as high with 89.3% seropositivity seen at 14 days.⁶ Additionally the Joint Committee on Vaccination and Immunisation³ advocates that in addition to vaccination some protection is provided by covering arms, legs, ankles and using insect repellents on socks and outer clothes.

In 2011 the WHO produced the first background document on TBE⁵. In section 3 it concludes that when considering the 2 differing types of vaccine (Western and Russian) that there are no controlled trials of vaccine efficacy against clinical TBE. The indirect protection data is provided by trials using immunogenicity (neutralising antibodies) as an endpoint. These randomised, controlled trials, show strong antibody induction (85-100% seroconversion rate) following a primary series of TBE vaccination.

When considering this advice: comparing the practicality of a traveller from a non- infected area who technically would require a 3 vaccination course over 5-12 months before travel to provide full immunity; with that of providing a 2 dose course (giving 90% protection) with additional bite prevention advice and the patient compliance. Is there strong enough evidence that adequate compliance and hence protection could be found from using a 2

dose strategy (including the accelerated course) and bite protection. Should the three dose strategy only be retained for travellers living or working in the infected area for over 12 months?

By comparison we know that in the prevention of malaria, atovaquone/proguanil is around 90% effective, and to get close to 100% protection, the advice is to include bite prevention strategies⁴. Using a parallel if the 2 dose strategy provides the similar levels of protection and the remainder is provided with bite protection strategy then this may not be sufficient to change the vaccination schedule; however the clinical studies fail to bring into the equation the largest variable- that of the patient compliance. By removing one of the needs for a third dose this could be considered sufficient incentive to gain improved compliance to TBE vaccination. There is currently still insufficient evidence to support a two dose regimen and it would appear to be worthwhile for further research to be conducted to add to the available data.

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Travel and Health Highs and Lows

Joint RCN/Travel Health Training Ltd Travel Health Conference, London, September 2015

A Burnard. S Webb

Sundeep Dhillon from the centre for Altitude Space and Extreme Environment (CASE) medicine opened the day. He began by discussing the various routes up Mount Kilimanjaro and how the shorter fast paced trip is putting travellers at increased risk of acute mountain sickness and how a 7 day ascent will put travellers at very high risk of AMS. He describes AMS associated headache at altitude occurs most commonly 6-12 hours after arrival. If a traveller still has a severe headache following a dose of paracetamol then AMS is highly likely. He recommended the use of a portable altitude chamber which can simulate descent if actual descent is not possible at that time due to poor conditions, as an essential piece of safety equipment. He advised travellers to climb Mount Meru first which is west of Mount Kilimanjaro and has a lower elevation of 4,565 m. This will enable travellers to acclimatise prior to attempting Mount Kilimanjaro and increase the chances of completing it successfully. He would advise such climbers to take acetazolamide prophylactically and always take a slower route where possible. Climbers who only manage to reach Gilman's point at 5681 m still receive a certificate.

The next speaker was Fiona Marra – Lead Pharmacist at Brownlee Centre for Infectious Disease. She discussed the management of medications whilst travelling. Points to inform travellers about keeping medication cool and not at extremes of temperature, to take a list of medications written by a pharmacist, or Doctor, with the generic names and keeping them in original packaging. A very useful website for travellers who may wish to carry narcotics or psychotropics is www.incb.org. What the UK classes as a Controlled drug (CD) may not be a CD elsewhere and vice versa. An example of this would be Pseudoephedrine (Sudafed) which is a CD in Australia. Surprisingly there are still restrictions on travel for people with HIV and carrying medication for this purpose. Country's with a complete entry ban are Brunei, Oman, UAE, Sudan and Yemen. Some countries still need proof of a negative test for entry between 10-90 days such as Egypt, Iraq, Singapore and Qatar.

Jennifer Bourne -Project manager of the Female Genital Mutilation (FGM) prevention programme reiterated the responsibilities of health care professionals and it is now mandatory to report to the social services and police if any girl under 18 has disclosed that she has undergone FGM. In a travel health clinic it is good practice to find out who is travelling and be alert for any signs that girls may be at risk and reporting concerns appropriately.

Dr Andrea Rossanese gave a presentation on high risk travellers. He stated that roughly 15 million people in the UK have a long term condition and travel may cause problems for people with underlying disease. Travellers with a pre existing long term condition may be at higher risk of developing infections and also may have worse manifestations of travel-related illnesses. He advised the importance of reminding travellers to have a pre travel check up with their GP and for cardiac patients to bring a copy of ECG with them when travelling. Cardiovascular events

were listed as the most frequent cause of death in travellers. He discussed the elderly traveller and advised that we check they have had a general health check with their GP, ensuring they carry routine medications and leave themselves adequate time for travelling. He explained how travellers were more susceptible to extremes of temperature and to ensure they pack adequate clothing for all weather types. Elderly travellers might not make an adequate antibody response as quickly as a young traveller therefore it is important for them to plan ahead with their vaccines.

He provided a link www.globaldialysis.com which would be extremely useful for travellers with renal disease. These travellers should be given advice on how to prevent/manage diarrhoea to avoid dehydration which could worsen their renal function.

Some Key points on a travel health update presented by Jane Chiodini, included:

- Ixiaro can now be given on day 0 and 7 for travellers aged between 18- 65 years of age. The second dose should ideally be given 7 days before entry to risk areas.
- The malaria vaccine – Mosquirix has been approved by the European regulators. The studies completed shows that the best protection was among children aged 5 to 17 months who received three doses of the vaccine a month apart plus a booster dose at 20 months. In this age group severe cases of malaria were cut by a third over four years. The effectiveness of the vaccine waned overtime, making the booster shot essential. Without a booster the vaccine did not cut the rate of severe malaria over the trial period. Disappointingly the vaccine did not prove very effective in protecting young babies from severe malaria.
- The statistics for malaria in 2014 shows that it continues to be VFR's who are more commonly getting malaria in 2014- 82% of VFR's did not take chemoprophylaxis.
- The new Malaria Guidelines 2015 have been published:
Hydroxychloroquine – Individuals taking hydroxychloroquine and for whom chloroquine would be an appropriate malaria chemoprophylactic agent, can remain on hydroxychloroquine and do NOT need to transfer to Chloroquine.
Half –life of doxycycline may be reduced by phenytoin, carbamazepine and barbiturates. If doxycycline is the only possible choice of anti-malarial the doxycycline dose can be increased to 100mg twice daily and council regarding measures to minimise the risk of adverse events.
- There are useful leaflets from the Royal College of obstetricians and Gynaecologists on malaria and pregnancy.

Anna Burnard and Sue Webb, (Nomad Travel Clinics)

In the News

Emigrant Doctors

The number of UK-trained doctors working in the US shot up by 22% over the recent five years. Numbers have risen by a similar percentage in New Zealand. 13% of GPs in Australia and 22% of all specialists came from the UK, according to the Australian Bureau of Statistics.

UK Doctors wanting to work abroad need to show future employers a Certificate of Good Standing from the General Medical Council – the number applying has risen every year since 2009.

Air

Aeroplane seat size

A petition demanding legal restrictions on the shrinking of aeroplane seat sizes has been lodged with the Federal Aviation Administration in the United States, asking for a regulation mandating minimum seat width.

Coffee and air travel

Caffeine affects the body clock by delaying a rise in the level of melatonin, the main sleep hormone released by the body. A US team studied five people to see when melatonin started to appear in the saliva. Each person lived in the lab for 49 days without a clock or external light to tell them if it was night or day. They were then given caffeine, the equivalent of a double espresso, or a placebo three hours before they went to sleep and were exposed to dim or bright light – which also delays the human circadian clock – to find when the surge in melatonin occurred. In those who were given the caffeine, their melatonin levels rose on average 40 minutes later than those given the placebo.

Drinking coffee in the evening can turn back the body clock and could help fight jet lag – but only for travellers heading west. Coffee appears to trick the body into thinking that it is around an hour earlier in the day, reactivating bodily functions that should be powering down in the evening. For people travelling west on a plane who need to push back their body clocks, drinking a double espresso when changing time zones is likely to help with jet lag, said scientists from the Medical Research Council in Cambridge. Those travelling east may make jet lag worse by drinking coffee. There are implications for people with circadian sleep disorder, where their normal 24-hour body clock doesn't work properly, or even help with getting over jet lag.

USA Health Care

The Digital Doctor

Many Americans do not have a primary-care doctor. Relative ease and value are turning cyber-medicine from a controversial practice into an

increasingly mainstream health care option. "Maven" is one of several new digital platforms that let patients video-chat with doctors and get common prescriptions at any hour of the day, seven days a week.

Major hospitals now offer virtual appointments for simple cases. United Healthcare, the nation's largest health insurer, began covering digital consultations. By 2019 there will be an estimated 124 million doctor-patient video consultations in the U.S., up from close to 7.2 million in 2015. It takes nearly 20 days on average to get an appointment with a family physician in the U.S., and urgent care visits average \$150. "Maven" charges \$18 for a 10 minute session, while rival "Doctor on Demand" charges \$40 for 15 minutes – all done through an app.

Cybermedicine could help fix the nation's growing shortage of primary-care physicians – the Association of American Medical Colleges estimates that we'll be short by as many as 31,000 by 2025.

The American Academy of Pediatrics says cyber-medicine can prevent patients from forming lasting relationships with a doctor versed in their medical history.

A recent study found that doctors were more likely to prescribe broad spectrum antibiotics in virtual appointments, raising concerns about drug resistance.

BREXIT

Under current rules, Britons can visit any EU country and expect to receive the same health services at the same cost to a local. The future of this service depends on whether an exit agreement will include "reciprocal health care".

There is a precedent for such an agreement. Non EU countries Iceland, Liechtenstein and Norway can belong to the European Health Insurance Card (Ehic) scheme even though they are not members, because they are part of the single market of the EEA.

Bob Atkinson of comparison website travel supermarket.com said "Reciprocal health agreements form an important part of premiums, although other things like the cost of repatriation are also factored in." A healthy couple travelling to Australia, for example, where Britain has a health agreement, will pay £21 for cover on a two week trip but £38 in the United States, where there is no agreement

Land Transport

A survey of more than 29,000 drivers found more than one in 10 women say they avoid driving on motorways because of nerves.

Latest government figures suggest that motorways in Britain are actually safer than other types of road, as they accounted for 5.4% of all fatalities last year

In the News *continued*

despite carrying around 21% of traffic.

Motorcyclists make up just 1% of total road traffic, yet account for 19% of all road user deaths, with an average of 30 motorcyclists killed or injured every day at junctions.

Motorcyclists are roughly 38 times more likely to be killed in a road traffic accident than car occupants, per mile ridden. Ninety% of motorcyclists wear protective clothing. From age 17 one can ride a 125cc motorbike but must be 24 years old to hold a full motorcycle licence.

India

The country has the world's most dangerous roads, with more people dying in traffic accidents than in China, which has more cars and a bigger population. According to the latest Indian government figures, 134,513 people died in road accidents in India in 2010; the comparable figure for China was less than half that 62,225, while for the US., it was less than 40,000.50% of these deaths could have been averted had the victims received timely medical care.

Vaccination

Statins can stop the flu jab from working properly. Statins interfere with the response to flu vaccine and lower the immune response. The influenza vaccine is only moderately effective in older adults. In a Cincinnati study, researchers looked at data from 7,000 people over 65 who took part in a flu vaccine trial conducted between 2009 and 2011. Statin users had a significantly reduced immune response to vaccination compared to those not taking statins.

Health Service in France

Doctors are protesting against a proposal to make France's health system – in the British fashion – “free at the point of delivery”, a move that the Socialist government says will encourage poor patients who may be put-off by the present upfront payment system. GPs say the reform will lead to yet more red tape as they try to claim the money back. A strike was called in the week France feted the 70th anniversary of la Secu, the country's social security system, founded on October 6, 1945. The state health system, which has a budget of 170 billion euros (£125 billion) will be 7 billion euros in the red this year.

Global Warming

A worrying aspect of global warming is its likely impact on infectious diseases. Epidemics of conditions such as dengue fever may affect many travellers and even become a health risk in southern Britain. According to the Wellcome Trust, dengue fever only affected 7 countries in 1970. Today it has affected 100 countries including outbreaks in Spain, Florida and

Italy and threatens to be an infection risk in 128 countries affecting about 4 billion people if global warming continues. The health dangers of adverse climatic change may have been underestimated. Dengue, a mosquito viral disease, causes fever, headache and dangerous drops of blood pressure on occasion. There is currently no vaccine. Climatic warming and urbanisation are driving the spread of the disease. 2.5% of cases are fatal, but its recurrent effects will affect many people, be a threat to world travellers and a burden on health services.

Sea Travel

Accessible Cruise Travel for the disabled

In the wake of the “Americans with Disabilities Act” (ADA), the cruise industry has been under pressure to demonstrate ADA compliance, particularly since a federal appeals court agreed with federal regulators that cruise ships registered in foreign countries are covered by the U.S. law. Designed from the keel up with the special needs of disabled passengers in mind, new cruise ships are opening the world to guests with mobility, sight, and breathing impairments. Call the Cruise Line in advance to inquire about facilities if a medical condition requires special attention. Health problems that will require treatment on board must be reported at the time of booking the cruise. The doctor is the only ship's officer who is actually an independent contractor. Aboard ship, that means that standard fees are charged for treatment, including seasickness shots and medicine.

Age UK. Health and Care of Older People Report 2015

- 7.5 million are over 65yrs of age in England (2015) with an increase of 18.8% in last decade.
- 33% of over 65-78 yr olds have a fall each year.
- Over 65's significantly underestimate their risk of falling (9-17%).
- A common cause of holiday curtailment in seniors is a fall.
- 1.9 million UK people over 65yrs have significant sight loss.

IBM

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Journal Watch

Edited by M Townend

Understanding of altitude illness and use of pharmacotherapy among trekkers and porters in the Annapurna region of Nepal.

Havryliuk T, Acharya B, Caruso E, Cushing T. *High Alt Med Biol.* 16(3):236-243

In this study, trekkers of various nationalities and Nepali porters and guides were surveyed with regard to their knowledge of altitude illness and its treatment during treks in the Annapurna region of Nepal. The 504 subjects included 108 Nepalis. The incidence of acute mountain sickness (AMS) symptoms was 5% in Nepalis and 21% in trekkers, with an overall incidence of 16%. 88% of subjects recognised headache as a symptom of AMS, but 40% did not know the symptoms of high altitude pulmonary oedema and 42% did not know the symptoms of high altitude cerebral oedema. 58% carried acetazolamide and 16% used the drug; only 0.4% took dexamethasone. 67% stated that they could recognise altitude illness and 62% stated that they knew how to treat it. The authors conclude that although most subjects recognised symptoms of AMS, both Nepalis and trekkers lacked knowledge of more serious high altitude illness and were therefore over-confident in their ability to recognise and treat altitude illness.

Comment

This study highlights the need for travel health advisers to ensure that trekkers and other travellers to high altitude are given adequate information about the symptoms and treatment of all aspects of altitude illness. Organisers of trekking holidays also have a responsibility to ensure that not only their clients but their local staff are adequately informed about altitude illness.

Dengue fever

Kularatne S A M. *BMJ* 2015;351:h4661

This review of dengue appears in the CPD/CME section of the BMJ of 19 September 2015. It covers the cause, prevention, diagnosis and management of this increasingly common disease and should be read not only by all pre-travel health advisers but by all who are likely to see patients returning ill from a trip to a tropical or sub-tropical region. Its key points are:

- Dengue is a globally important arboviral infection transmitted by the *Aedes* genus of mosquitoes
- It is endemic in over 100 countries, especially in Southeast Asia, the Western Pacific and the Americas

- the average incubation period is 7 days (range 3-14)
- Clinical features include fever, headache, myalgia, arthralgia and skin rash or flushing, with leucopaenia, thrombocytopaenia and altered liver function
- Severe thrombocytopaenia, haemorrhage and plasma leakage are the key features of more severe infection
- Fluid replacement and identification of the critical phase are the most important aspects of management

Tuberculosis and latent tuberculosis infection among health care workers in Kisumu, Kenya.

Agaya J, Chimberem DN, Odhiambo J et al. *Tropical medicine & International Health.* DOI: 10.1111/tmi.12601

A cross-sectional study was carried out of health care workers in dispensaries, health centres and hospitals offering TB and HIV services in Western Kenya in 2013. School workers in the same catchment areas were randomly selected for comparison with the health workers. Latent TB infection was diagnosed by tuberculin skin testing and HIV status was assessed. In all, 1005 health care workers and 411 school workers were assessed. 22% of health care workers and 12% of school workers were HIV positive. A self-reported history of TB infection was positive in 7.4% of health care workers and 3.6% of school workers, but latent TB infection was found in 60% of health care workers and 48% of school workers; adjusted odds of latent TB in health care workers were 1.5 times higher in the health care workers, with length of employment in health care being associated with increased odds. The authors concluded that health care workers in western Kenya are at increased risk of latent TB infection, and that WHO recommended infection control measures are urgently needed to protect them.

Comment

This study is of interest not only to those working in health care in Kenya but also to those intending to travel in order to volunteer or work in medical services there. They should be made aware of the presence of active or latent TB infection, and also HIV infection, not only in their patients but also among their potential colleagues. Although the prevalence of both types of infection is lower among school workers, those intending to travel in order to volunteer or work in education should also be made aware of the prevalence of these infections.

Journal Watch *continued*

Counselling about infection control measures against TB and HIV should be a part of the routine pre-travel preparation of travellers for all those likely to be working in health care or education in African countries.

Profile of travellers with pre-existing medical conditions attending a specialist travel medicine clinic in Ireland.

Han, CTJ, Flaherty, G. Journal of Travel Medicine 22 (5): 312-317, 2015

The authors describe how relatively little is known about the chronic disease burden of travellers, or their medicines usage. Yet such information forms such an essential part of the travel consultation. The 4,817 travellers in this study attended an Irish travel clinic between 2008 and 2014 and who had declared a medical condition or use of a medicine. They had a mean age of 31 years and were predominantly female, with 56% declaring a medical condition and 24% listing use of medications. The most frequently reported conditions were allergies (20%), insect bite sensitivity (15%), asthma (11%), psychiatric conditions (4%) and hypertension (3%). There is useful discussion on the implications of travelling with some of these conditions, and with over 200 being declared, it is acknowledged that a significant breadth and depth of knowledge is required by practitioners to sift out the relevant from the unimportant, in terms of preparation for healthy travel..

Comment

This is an interesting article for stimulating reflection on one's own practice and the population of travellers we see. There is too little evaluation of travel health intervention outcomes (in my view) and this paper helps to guide some thinking towards this.

Perhaps identification and sifting of medical conditions is not being widely done to the requisite standards quoted by these authors and I applaud their revealing of the complexity of what practitioners must manage within the consultation. They are also very frank about the limitations of the study: it is this sort of analysis which can lead the way to improving services, whether that is our data collection templates, increasing our knowledge of contraindications and cautions for travel, vaccination and antimalarial use, or building resources such as information leaflets for travellers with pre-existing conditions.

Influenza outbreaks among passengers and crew on two cruise ships: a recent account of preparedness and response to an ever-present challenge

Millman AJ et al. Journal of Travel Medicine 22 (5): 306-311, 2015

This report by the CDC is a reminder of the many factors surrounding the spread of influenza and the risks to cruise travellers. Between 3 and 6% of travellers and crew became ill enough to require medical attendance, with diagnostic testing identifying a range of both A and B flu strains. In both ships, passengers had reported illness prior to the ship's departure, although levels of flu circulation were low in their ports of origin. Both ships had trans-hemispheric itineraries during periods of low influenza activity, suggesting the particular vulnerability of cruises to atypical outbreaks outside of traditional seasonal activity. The authors argue that for cruises, the season should be considered 'year round' and also because passengers have come from so many different destinations to join the ship. The vessel environment is of course another factor in influenza transmission, with many people in close contact and in enclosed spaces. With new crew and passengers joining at each port of call, there are more potential 'infectors' and susceptible people to add to the population.

Comment

The article discusses the importance of surveillance and the various systems around the world to manage such incidents, which will be of interest to those in roles with Port Health Authorities and 'fit to travel' signatories.

Perhaps an opportunity to reduce spread was missed by not isolating those individuals joining the ship when unwell, although containment was achieved by both ships.

Managing such outbreaks has similarities to the actions required in long-term care facilities – surveillance, case identification, treatment and response measures. However, flu prevention is still an elusive goal. Ill passengers may not self-declare for fear of not being allowed to travel. It seems logical to think that annual flu vaccination would contribute to prevention yet both passengers and crew reported good levels of vaccination coverage prior to departure. Travel health practitioners are well acquainted with the fact that vaccines against opposite-hemisphere flu strains are not available, neither is year-round vaccination. Surveillance and containment are therefore likely to be an ongoing requirement for cruise travel.

RESEARCH

Travel Health and Pre-travel Preparation in the Inflammatory Bowel Disease Patient

K Greveson

Introduction

Inflammatory bowel disease (IBD) and foreign travel is associated with an increased risk of travel-related morbidity caused through exacerbations of IBD, acquisition of infectious diseases endemic to the destination and availability of healthcare and medicines whilst abroad^{1,2}. Patients receiving immunosuppressive medication have an increased susceptibility to these infections in addition to an attenuated immune response to vaccinations^{1,3-6}. Detailed pre-travel consultations and vaccinations are advised prior to travel to ensure travellers are armed with the appropriate education and resources to stay healthy during their journey.^{1,3-8} Despite guidelines specifying appropriate vaccination strategies for IBD patients¹, knowledge and provision of this information has been found to be poor, particularly vaccination for those on immunosuppressive medication.⁹⁻¹¹

There is a paucity of information for IBD patients wishing to travel^{12,13}. Generic travel health websites¹⁴⁻¹⁶ provide information regarding risk assessment and management of vaccine-preventable diseases. This can be confusing to navigate and interpret in relation to IBD-specific risk factors, such as patients on immunomodulator therapy. No single resource is available to provide transparent, comprehensive, evidence-based information to adequately inform both patients and healthcare professionals on IBD-specific travel issues.

There is limited research looking specifically at travel-associated health risks and health preparation in patients with IBD.^{2,17} No prior studies have examined this in conjunction with the IBD healthcare professionals' knowledge and provision of IBD-specific travel information. The aim of this study was to explore the patient's experience of travel with IBD including pre-travel preparation and to examine IBD healthcare professionals' perception of IBD and travel, including knowledge and provision of IBD-specific travel health information in order to evaluate and improve the quality of pre-travel advice.

Materials and methods

We distributed a paper questionnaire to 150 IBD patients attending a London teaching hospital outpatient clinic from October 2013-December 2013. A separate web-based survey was sent to IBD healthcare professionals (HCP) using regional IBD network contact lists and European Crohn's and Colitis Organisation network databases.

Survey design

Two separate, structured and anonymous questionnaires were developed and piloted on a sample of 10 IBD patients and healthcare professionals respectively. The self-administered patient survey was administered to consecutive patients attending the IBD clinic. It contained thirty two questions regarding demographics and disease characteristics as well as detailed travel questions regarding the last travel overseas, including experience of travelling with IBD, pre-travel preparation undertaken and knowledge of travel-related health issues such as vaccinations and insurance. We enquired about respondent's disease activity in the preceding six months and compared this with tendency to travel abroad during this time. Flare of disease was classified as bowel frequency >5/day with blood and abdominal pain that required an alteration or escalation of medical therapy. Patients were asked about travel destination according to continent visited. This was then classified according to the United Nations Human Development Index of 2013.¹⁸ Continents predominantly containing countries with a HDI of <0.70 were considered to be developing. We hypothesised that respondents would be less likely to travel if they were currently experiencing or recovering from a flare of their IBD. The time frame of six months was chosen as it was felt that respondents would be able to recall their disease activity during this period.

IBD HCPs were asked to complete a web-based survey consisting of demographic information and questions regarding perceptions of IBD and travel, confidence at providing travel advice and the content of this advice.

Statistical analysis

Data were entered and analysed on a Microsoft Excel spreadsheet. Descriptive statistics were used to characterise the population and data.

Ethical consideration

As this was a review to inform service improvement for IBD-related travel health, formal ethical approval was not required.¹⁹

Results**Patients**

A total of 136 IBD patients completed the questionnaire but only 132 (97%) had travelled overseas in the past five years and were therefore included in the final analysis. Respondents' median

Travel Health and Pre-travel Preparation in the Inflammatory Bowel Disease Patient *continued*

age was 38 years (range 18-85 years); Crohn's disease 67/132, 51%; male 60/132, 45%; 91% response rate). At the time of the survey 57% (75/132) were using a combination of single or dual immunomodulator therapy; of these 75, 15% were on corticosteroids, 42% thiopurine, 23% anti-TNF and 4% methotrexate. Thirty-seven percent (49/132) had previously had IBD-related surgery. The demographic characteristics are shown in table 1. Patients were asked whether having IBD influenced their decision to travel abroad or their choice of destination. The majority reported

Table 1
Patient Demographics

Patient Demographics		All	CD	UC	IBD type Unknown
		132	65 (49%)	63 (48%)	4 (3%)
Gender	Sex (male)	58 (44%)	29 (45%)	27 (43%)	2 (50%)
Age	Median (range)	37 (18-85)	43 (18-79)	59 (18-85)	30 (26-82)
Flare in last 6 months	No	52 (38%)	27 (40%)	24 (38%)	1 (20%)
	Yes	80 (61%)	38 (58%)	39 (62%)	3 (75%)
Current Medication					
	5-ASA	79 (60%)	28 (43%)	50 (79%)	1 (25%)
	Steroids	20 (15%)	8 (12%)	12 (19%)	0
	Thiopurine	56 (42%)	29 (45%)	27 (43%)	0
	Anti-TNF α	31 (23%)	25 (38%)	6 (10%)	0
	Methotrexate	5 (4%)	4 (6%)	1 (2%)	0
Surgery	Yes	49 (37%)	37 (57%)	11 (17%)	1 (25%)
	Stoma	10 (8%)	5 (8%)	5 (8%)	0

IBD affected travel (62%, 82/132) and 61% (80/132) said IBD limited their choice of travel destination. Individuals taking immunomodulator medication reported that IBD limited travel more than those not on immunosuppression (63/75, 84% v's 19/38, 50%). Europe was the main destination for 52% of travellers, with 26% (34/132) visiting developing countries. Those who travelled to developing countries sought more pre-travel advice (14/34, 41%) compared with those who travelled to developed countries (17/98, 17%), particularly information regarding vaccinations, safety of destination and advice specific to IBD (Table 2). The majority of patients travelled for leisure (122/132, 92%). Median time since travel was 20 months (IQR 18-27). Twenty one % (28/132) of individuals experienced an alteration in bowel habit, they thought was related to their IBD while overseas. Only 2/28 of those individuals had a confirmed infective cause for their symptoms and 50% were not tested. Four % (5/132) of all respondents had been hospitalised for an IBD-related issue during their last trip overseas.

A total of 64% (84/132) respondents experienced a self-reported IBD flare in the six months prior to the review, of whom 64% (54/84) still travelled overseas during this time. Only 23% (31/132) travellers sought pre-travel medical advice of any kind. Travel insurance that covered IBD was obtained by only 40%

(53/132) of all patients, the majority of whom (70%, 37/53) reported paying an increased premium. We did not ascertain whether this was because of their IBD or other cause. Individuals taking immunomodulator therapy sought more information regarding vaccinations (15% v 8%) and travel insurance (52% v's 37%) compared with those not taking such medication. We also found that 48% (36/75) of respondents on immunomodulator therapy were unaware of the need to avoid live vaccines.

Table 2

Travel characteristics and pre-travel preparation sought by IBD patients on the most recent overseas trip.

	All (n=132)	Travel to developing country* n=34	Travel to developed country* n=98
IBD limits overseas travel Yes (n/%)	82 (62%)	22 (65%)	60 (61%)
IBD limits choice of destination Yes (n/%)	80 (61%)	15 (44%)	65 (66%)
Purpose of travel			
Business/ Study	10 (8%)	4 (12%)	6 (6%)
Leisure/ Tourism	122 (92%)	30 (88%)	92 (94%)
New episode of diarrhoea during travel Yes (n/%)	28 (21%)	8 (24%)	20 (21%)
Found to be infective? N = 28			
Yes	2/28 (7%)	1 (3%)	1 (1%)
No	12/28 (43%)	4 (12%)	8 (8%)
Not tested	14/28 (50%)	3 (9%)	11 (11%)
Sought medical advice whilst abroad Yes (n/%)	29 (22%)	9 (26%)	20 (21%)
Admission to hospital that was IBD related Yes (n/%)	5 (4%)	1 (3%)	4 (4%)
Reason that IBD limits overseas travel n=82			
Vaccinations required	9 (11%)	2 (6%)	7 (7%)
Perceived problems obtaining medical care	26 (32%)	4 (12%)	22 (22%)
Obtaining insurance	11 (13%)	1 (3%)	10 (10%)
Concerns about medication	5 (6%)	0 (0%)	5 (5%)
Access to toilet facilities	58 (71%)	17 (50%)	41 (42%)
Concerns about sanitation	35 (43%)	7 (21%)	28 (29%)
Worries about contracting a bowel infection	32 (39%)	8 (24%)	24 (24%)
Concerns about diet	32 (39%)	7 (21%)	25 (26%)
Obtain pre-travel advice Yes (n/%)	31 (23%)	14 (41%)	17 (17%)
Sources of pre-travel information n = 31			
Internet	5 (16%)	0 (0%)	5 (5%)
General practitioner	15 (48%)	6 (18%)	9 (9%)
Travel clinic	5 (16%)	3 (9%)	2 (2%)
Patient organisation	8 (26%)	3 (9%)	5 (5%)
IBD clinic	15 (48%)	7 (21%)	8 (8%)
Leaflet / brochure	3 (10%)	1 (3%)	2 (2%)
Family/ friend	2 (6%)	0 (0%)	2 (2%)
Type of information sought n = 31			
Country-specific	7 (23%)	3 (9%)	4 (4%)
Vaccination	14 (45%)	8 (24%)	6 (6%)
Travel Insurance	13 (42%)	3 (9%)	10 (10%)
IBD-specific	15 (48%)	6 (18%)	9 (9%)
Safety of destination	6 (19%)	5 (15%)	1 (1%)
Facilities of destination	3 (10%)	1 (3%)	2 (2%)
Local IBD centres at destination	5 (16%)	2 (6%)	3 (3%)

*Developing continents according to HDI19: Central America, Africa, Asia, South East Asia, India

Healthcare professionals

A total of 128 IBD HCPs completed the questionnaire (113; 88%, IBD nurse specialist; 15;12%,IBD physician); the majority (66%) of respondents were from the United Kingdom (Table 3).The survey was initially sent to 430 IBD nurses, asking them to cascade to their medical and nursing colleagues, therefore It was not possible to calculate an accurate response rate. The majority of respondents (94; 73%) felt that having IBD would affect a patient's decision to travel overseas.

Table 3
Healthcare professional demographics

	All n=128	IBD Nurse n=113	IBD Physician n=15
Country of work			
United Kingdom	84(66%)	72 (6%)	12 (80%)
Europe	38 (30%)	36 (32%)	2 (13%)
Australia, New Zealand & Canada	6 (4%)	5 (4%)	1(7%)
Confidence at providing pre-travel information			
Confident	94 (73%)	82 (73%)	12 (80%)
Not confident	34 (27%)	31 (27%)	3 (20%)
Types of Information least confident to provide			
Country-specific advice	84 (66%)	71 (63%)	13 (87%)
Vaccinations	58 (45%)	50 (44%)	8 (53%)
Details of obtaining healthcare abroad	100 (78%)	90 (80%)	10 (67%)
General travel & IBD advice	14 (11%)	12 (11%)	2 (13%)
How to obtain travel health insurance	78 (61%)	65 (58%)	13 (87%)

A total of 73% (82/113) of all IBD nurses felt confident to provide pre-travel information to patients. Twenty-seven % (34/128) of HCP respondents do not feel confident at providing pre-travel advice (91%, 31/34 of these were IBD nurse specialists; 9%, 3/34were IBD physicians), with 82% (28/34) of all those stating they were not confident to provide advice referring to specialist travel centres.

The majority of all respondents were confident to provide general advice regarding infective travellers' diarrhoea, but only 55% (70/128) were confident on vaccinations and 39%(50/128) on travel insurance. The areas where IBD HCPs had most uncertainty were providing country-specific advice (66% uncertain) and guidance on obtaining healthcare abroad in the event of a flare (78% uncertain).

Discussion

This is the first study to examine patients' pre-travel preparation in conjunction with healthcare professionals' experience and confidence at providing this advice. The majority of IBD patients feel their disease affects both travel in general and destination; however, surprisingly despite some concerns, patients still travel abroad even if they have suffered a recent flare and few seek prior expert medical advice.

Our study found that a quarter of all HCPs do not feel confident to provide pre-travel advice to IBD

patients and of these, the vast majority would refer to a specialist centre for this information. Interestingly, similar findings were also seen in those who felt they had adequate knowledge to give such advice; with 80% also stating they would refer to a travel clinic or general practitioner rather than provide the information themselves. This suggests that healthcare professionals are happy to provide IBD-specific travel information regarding medication and managing symptoms but would refer to specialist travel clinics for destination-specific information such as vaccination and other travel health risks. The majority of the healthcare professionals in our survey were IBD nurses from various countries within Europe, where there are recognised country-specific variances in role, title, salary and level of training of IBD nurses.²⁰ Outpatient visits to the IBD clinic average approximately 3 per year in the UK,²¹ with patients tending to have longer appointment times with the IBD nurse compared with the physician. This will impact on the content and detail of any discussions that take place during the appointment, particularly limiting the time available to discuss travel health.

With regard to vaccinations, we found that more than half of patients receiving immunomodulator therapy are unaware they should avoid live vaccines, and only 55% of healthcare professionals reported being confident at giving vaccination advice. Low counselling rates for avoidance of live vaccines and inadequate understanding and knowledge of vaccinations has been cited in previous research.^{10,11,22} Possible explanations for this include healthcare professionals' lack of awareness, ambiguity regarding who should assume responsibility for vaccine administration, and concerns regarding safety and efficacy of vaccinations, including fear of vaccine-induced exacerbations of IBD.^{3-5,9-11} The European Crohn's and Colitis Organisation guidelines¹ recommend that travel consultations should be provided jointly by a gastroenterologist and expert travel clinic. Deficiencies in the advice provided by such clinics have been highlighted in previous research¹⁷ which found 27% of patients were incorrectly given the yellow fever vaccination whilst receiving immunomodulator therapy. This highlights the need for travel clinics to have increased vigilance when prescribing live vaccinations. In the UK, advice regarding travel health is sought mainly in primary care from dedicated travel clinics or GP's. Travel medicine is an emerging field but not currently a speciality that is recognised in the UK.²³ There are several independent associations offering support and qualifications for those working in travel medicine but to our knowledge these are not compulsory.^{24,25,26} No National UK guideline exists specifically for pre-travel advice, although recommendations for practice have been developed^{27,28} This may impact on

Travel Health and Pre-travel Preparation in the Inflammatory Bowel Disease Patient *continued*

the quality and accessibility of travel advice and is an area that should be further explored to investigate the content and accuracy of information given by primary care or specialist travel clinics and whether they appropriately address the issues relevant to IBD patients. This is an important finding from our research and suggests that improved awareness regarding the importance of obtaining and providing adequate pre-travel consultations can potentially lead to prevention of infectious complications whilst travelling.

A minority of patients sought pre-travel consultation and those that did were more likely to do so if they had, or were recovering from, a flare at the time of travel. A reason for our observed low rates of travel preparation could be explained if the destination had previously been visited and information sought prior to an earlier trip; this was not surveyed in the present study. Although vaccination, insurance and general advice regarding IBD were the main areas of interest in these patients, low numbers of patients in this group actually went on to obtain travel insurance to cover their IBD, meaning most are possibly under, or not, insured. Travel insurance in the UK covers many aspects of travel but there are often caveats for chronic disease, particularly if the traveller is under regular specialist follow-up. Obtaining adequate insurance can often be difficult and incur additional premiums, but travelling without adequate cover carries the risk of the individual incurring significant personal medical costs in the event of illness overseas.²⁹ It is worth noting that both vaccination and travel insurance advice are among the areas that healthcare professionals in our study report feeling least confident to advise on. This demonstrates that there is ambiguity in the information patients seek and what HCPs feel confident to provide and that despite education and counselling, there are still barriers preventing patients from taking correct measures to protect themselves abroad. This again could be explained by inadequacies in the information given at the time of consultation, lack of knowledge regarding how to source adequate information such as travel insurance and external factors including increased premiums for those with pre-existing medical conditions, particularly when recovering from a period of illness.

Previous research found that generally IBD patients travelling to developing countries are no more at risk of developing enteric infections compared with healthy counterparts, although many individuals with IBD would avoid these destinations for this reason.² We found similar results, with most individuals citing concerns over toilet facilities, sanitation and greater risk of contracting enteric

infections as the main reasons for avoiding particular destinations. Recent research has also linked journeys and flights at high altitude to an increased risk of IBD flare within four weeks of travel due to hypoxia-induced inflammation³⁰, although further studies with are needed in this field. Travel overseas is becoming more prevalent and forms part of maintaining a balanced quality of life. The overall impact of IBD and restrictions posed on daily life have been documented in a recent European survey³¹ and indicates that most individuals faced disruption in their daily life caused by the current status of their disease but over half avoided cancelling or rescheduling plans. The availability of toilets remains one of the main concerns of individuals with IBD³¹ and is again mirrored in our findings.

There are several limitations to this study. First, the retrospective survey design may introduce recall bias regarding specific details of the respondents' last overseas trip. Similarly we asked for the individual's self-reported disease activity within the last 6 months using a symptom-based assessment but did not use standardised classification criteria. It is difficult therefore to define the onset of some symptoms as a definite relapse. The most recent episode of travel may not be representative of travel behaviour generally. For example, 10% of our sample travelled for business or study, meaning they may have had no option but to travel during a flare of disease. Finally the sample of HCPs who responded was likely to have included individuals with an interest or some knowledge in this subject and was skewed towards IBD nurses and therefore the results may not be generalised to other IBD professionals. The inclusion of a matched control group of healthy subjects would have helped to underline the burden of IBD in determining new symptoms when compared to the healthy traveller. Our study was conducted in a single centre university hospital with a wide variety of socioeconomic groups and tertiary referrals from the surrounding areas and therefore our results could be generalised to the rest of the UK.

In conclusion, our findings suggest individuals with IBD do not always receive the recommended pre-travel medical advice, including the need to avoid live vaccinations if immunosuppressed, and support the need for further research on travel behaviour in IBD. We suggest there is a need for greater IBD specific travel education and awareness for both patients and healthcare professionals in primary and secondary care.

Conclusion

This paper presents the first comprehensive web based travel resource developed for both IBD patients and professionals; providing evidence-based IBD and country-specific travel information. The next step in

the development process is to formally evaluate IBDPassport™ with IBD patients, healthcare professionals and Crohn's and colitis UK patient charity respectively, to inform further development. It is hoped that this evidence-based resource will become a reliable and reputable resource for IBD related travel information and help to reduce travel-related morbidity through improved awareness, education and patient involvement.

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Development of IBD Passport™

The results of this research, the author developed the IBDPassport™ (www.ibdpassport.com) online travel resource for inflammatory bowel disease. The website was developed for both IBD patients and healthcare professionals as a non-profit, IBD-specific travel resource with the primary aim of developing patient-centred information to support living with inflammatory bowel disease and improve education and pre-travel preparation by providing evidence based information on all aspects of travel and IBD.

The website draws together evidence-based information from national and international IBD guidelines, patient organisations and government literature into one resource and includes practical information on issues such as obtaining healthcare overseas, managing travellers' diarrhoea, travel following surgery and details regarding travel insurance and vaccination advice specific to the immune-compromised patient. In addition to this, features include an interactive map of country specific vaccination advice and a 'search and refer' directory of IBD centres to enable IBD healthcare professionals to refer to other IBD centres globally. There is also access to a smartphone app that enables users to securely carry their healthcare records and vaccination/ insurance history when travelling.

RESEARCH

Risk factors associated with adverse outcomes from overseas work placements in the voluntary sector: an exploratory study of administrative data?

E Murphy, K Cope, E Pine, E Pine, E Walker, A Williamson

In recent decades, the contribution of professional and non-professional volunteers to the development efforts of less economically developed countries has risen considerably.¹ Gap years and voluntary placements abroad have become common in many western societies. A 2008 study counted over 1.6 million people (this number is likely to increase) volunteering internationally every year.² With increasing interconnectedness of countries, and rising international awareness of developmental and humanitarian needs.

Volunteers can make a positive contribution to the well-being of the host community, as well as raising awareness and establishing an intercultural dialogue in their home country. To ensure that their contribution is effective and to maximise the benefit to both Community and Volunteer, the physical and mental health of volunteers during placement and on return needs to be prioritised.

Much research into the health of travellers and expatriates has been conducted,^{3,4,5,6} volunteers however, often face different and more challenging environments and health issues. Alongside unfamiliar climate, and associated health issues, volunteers are often more exposed to health hazards due to the nature of their work. They often work in close contact with the local population, under deprived circumstances, with limited resources and infrastructure.⁷

Despite this, there have been few studies focusing on the specific issues that affect overseas volunteers. Additionally, these studies have been limited to summarising the most commonly encountered health problems and have failed to examine potential links between volunteer characteristics and the development of health issues.^{8,9} Furthermore, no study to date has examined factors affecting the likelihood of early repatriation. Given the potential costs, for organisations, volunteers and communities, charity organisations have much to gain from assessing the likelihood of these outcomes prior to placement.

Many organisations already have systems in place to assess volunteers' health pre-travel. Incorporating new insights into specific factors that influence risk of injury or illness whilst in the field should therefore be possible. Investigating this may help organisations screen and prepare volunteers more appropriately and manage their limited resources more efficiently.

Aim

The primary objective of this study is to establish whether there are volunteer characteristics associated with a greater risk of injury or illness, with a secondary analysis of characteristics increasing the risk of early repatriation. It is hoped that this

relatively small study may encourage further research across broader demographics.

Methods

InterHealth is a London based charity working with organisations including The International Citizen Service (ICS) to assess the health of volunteers prior to placement, help sustain their health and well-being whilst on placement and offer medical check-ups and a review on return.¹⁰

In this retrospective cohort study, administrative health data was gathered from InterHealth's pre- and post-departure health evaluations of volunteers from 4 consenting ICS organisations.

Cohort Selection

ICS is a UK government-funded development programme led by Voluntary Service Overseas. Volunteers, aged 18-25 years, participate in 10-12 week placements overseas aimed at tackling poverty.¹¹ ICS volunteers were selected as they are the largest cohort of clients that use InterHealth's pre-departure screening services; in 2014 62% of volunteers cleared for travel were affiliated with ICS.¹² Additionally, the majority of ICS volunteers are of similar age, bar older team leaders, and are overseas for a similar duration,¹¹ minimising confounding variables within this cohort. Although 7 ICS organisations currently work with InterHealth for health screening and support, 3 were unable to provide additional information on volunteers who experienced issues or early repatriation. Therefore 4 organisations (A, B, C and D) make up the focus of this study.

Data Sources

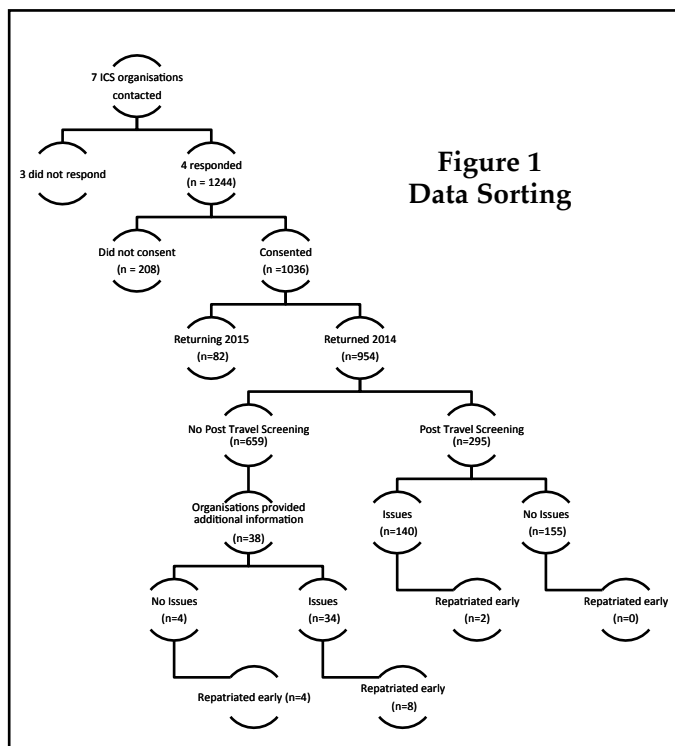
Administrative health data are collected for clinical health assessment purposes and not specifically for research, although it may be suitable for this purpose - InterHealth's health evaluations consist of web-based questionnaires and, when necessary, include follow-up emails and phone consultations with health professionals from InterHealth's centres in London and Nairobi. All ICS volunteers were required to undergo pre-departure health evaluation by InterHealth in order to be cleared as medically 'fit-for-travel' but were under no obligation to do so after returning. Only organisation C routinely requested volunteers to complete post-travel screening.

745 volunteers were excluded from this study; criteria are shown in table 1. The remaining sample (n=295) was analysed as 2 subgroups - those who experienced injuries or illness in the field and those who did not.

An additional source of data was volunteers who had not completed Post Travel Screening with InterHealth but had been specifically identified by the 4 organisations as having experienced injuries, illnesses or early repatriation ($n=38$) (figure 1). These were included solely as an additional data source when comparing client characteristics in those who were early repatriated against those who were not.

Consent and Ethical Approval

A total of 1244 volunteers from these organisations underwent pre-departure screening in 2014. As part of



pre-travel screening, written informed consent was provided by 1036 of these for their medical data to be anonymously used for research purposes. Full details of data anonymisation are summarised in table 1.

Ethical approval was obtained on 25th September 2014 from the University of Glasgow's MVLS College ethics committee.

Data Sorting & Statistical Analysis

Data were collated by InterHealth using online screening forms and their system of crosscare patient notes gathered from additional email and phone consultations. Data from the additional 38 volunteers lacking post-travel screening was obtained directly from ICS organisations and matched to their pre travel screening data. For further details of data sorting see table 1.

For the purposes of this study, where 'issues' is mentioned, this refers to illnesses, injuries or accidents encountered overseas. The number of pre-existing

conditions was calculated by summing the conditions listed under figure 2 reported by each volunteer.

Information on statistical methodology can be found in table 1.

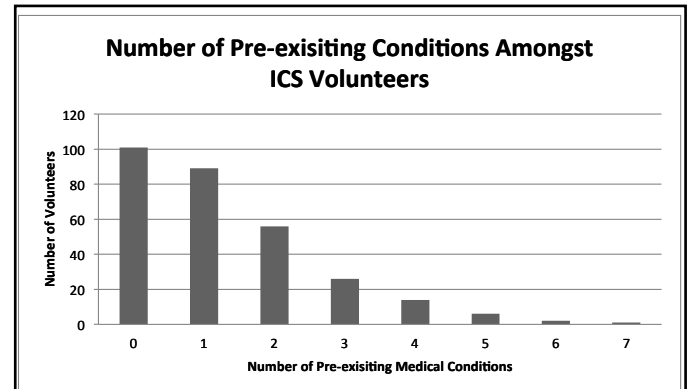


Figure 2 - Pre Existing Conditions

Pre-existing medical conditions

Defined according to questions from pre-travel screening; allergies, eczema/other skin conditions, fits, convulsions, headaches, migraines or other neurological conditions, anaemia or other blood disorder, Glandular fever, chronic fatigue syndrome, impaired immune system (e.g. HIV or removed spleen), Infectious diseases (e.g. Hep B, TB), diabetes or other endocrine or hormonal disorder, anxiety, depression or other psychological illness, stomach or bowel problems, eating disorders, joint conditions, malignancy, asthma or other lung diseases and regarding oneself as being disabled.

Not all are necessarily current problems; e.g. childhood asthma, past episodes of depression.

Results

Demographics of Participants

Of the 295 volunteers with completed Post-travel screening, 69.2% were aged 18-25yrs with 7 volunteers aged 17, due to turn 18 before commencing placement. The majority of volunteers were female (67.8%); 28.1% were male. The sex of 12 volunteers was unrecorded. All volunteers who completed. Post-travel screening were from organisation C (table 2).

The geographical distribution of placements is shown in figure 3, with the majority (71%) volunteering in Africa. The primary occupation of volunteers abroad is summarised in table 2. Almost a quarter (23.4%) were unsure of what sort of accommodation they would be staying in; 25.8% planned to stay in hotels, 24.7% with local families and 20.7% in a combination of these (table 2).

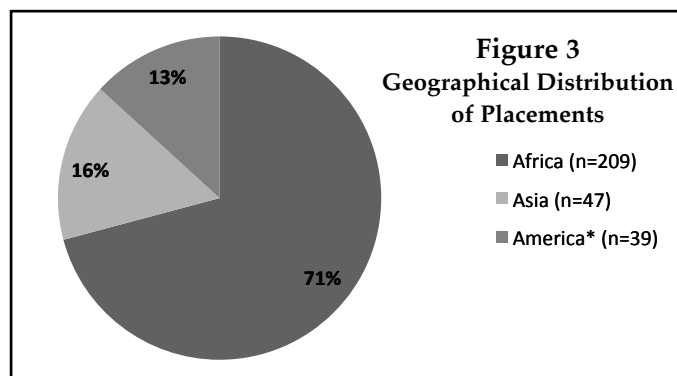
Nearly half (46.8%) reported that they expected to be located 'near' good health facilities, although a large proportion (41.4%) were unsure (table 2).

Pre-existing Health conditions Reported

Most volunteers (65.8%) reported ≥ 1 pre-existing medical condition (figure 3), with 35.6% reporting ≥ 2 health conditions prior to placement. Despite these high figures, 51.5% reported that they were not prescribed medication in the past 12 months (table 3).

The most prevalent health condition was 'allergy'

Risk Factors and Overseas Work Placements *continued*



reported as affecting 26.4% of volunteers, followed by pre-existing eczema (22.4%) (table 4). A further 9 volunteers reported other pre-existing skin conditions including acne, psoriasis and hyperhidrosis (excessive sweating).

16.3% of volunteers reported a history of "fits, convulsions, headaches, migraines or other neurological condition" with 23 of these having experienced migraines, 19 headaches and 5 fits and convulsions.

47 (15.9%) volunteers reported pre-existing asthma. Of these, 29 reported the use of prescription asthma medications within the past 12 months (table 3), 18 reported having asthma but not having been prescribed medication for it, describing their asthma as either childhood or mild. 1 additional volunteer reported having been prescribed asthma medications, but not having asthma.

10.5% of volunteers reported having experienced 'anxiety, depression or other psychological illness' in the past, although only 4.4% of volunteers reported having been prescribed relevant medicine in the past 12 months (table 3).

The remaining reported health conditions are summarised in table 4.

Health Risk Behaviours

Only 1 volunteer identified themselves as a smoker. 2.0% had taken drugs recreationally at least once in the past. 53.9% of volunteers stated that they drink 1-9 units of alcohol/week, 37.6% reported abstinence from alcohol. 0.7% stated that they consumed 20-29 units/week.

Illnesses, Injuries and Accidents Encountered

Almost 50% (n=140) of volunteers with completed post-travel screening had experienced issues whilst on placement. 72% were female, although this was not statistically significant ($p=0.0678$) but instead reflected the gender profile of this cohort. Furthermore, age and accommodation did not significantly affect the risk of experiencing an issue.

Acute diarrhoea was most common; 39.7% experienced it to some degree (table 5). There was no statistically significant difference in risk between

genders, age groups, accommodation types or occupation.

Dermatological problems were the second most common complaint (6.1%) and primarily consisted of worsening of pre-existing conditions (n=7), rashes (n=4) and infections (n=4). The pre-existing conditions were eczema (n=3), acne (n=3) and recurring ulceration (n=1).

18 volunteers received treatment at a local clinic/hospital. Nearly all of these (n=17) were female although this was not statistically significant. Age also was not significant. Most attended for infections, with antibiotics given in 10 cases, anti-fungal medication in 1 case and supportive care, painkillers and IV fluids, in 4 cases. The remaining attended due to 1 accident and 2 volunteers experiencing worsening of pre-existing conditions.

Impact of existing health conditions

61.0% of volunteers with ≥ 2 pre-existing health conditions (n=105) (figure 2) experienced an issue whilst away. They were more likely to have experienced issues (OR=2.3415; 95% CI=1.4376-3.8137; $p=0.0006$) than those with <2 conditions and were at increased risk of requiring treatment at a local clinic/hospital (OR=3.9570; 95% CI=1.4394-10.8777; $p=0.0077$).

The 140 volunteers who experienced issues had an average of 1.7 pre-existing conditions prior to placement compared to 1.0 in those who did not. The difference between the two groups with regards to pre-existing conditions was highly significant ($p<0.0001$).

Despite almost 40% (n=7) of skin problems being associated with a pre-existing dermatological condition, this association was not significant ($p=0.0631$).

A history of asthma did not significantly increase the risk of a volunteer experiencing an issue. This included being treated at a clinic/hospital, despite 4/18 having asthma.

Regional Variation

10% of volunteers expecting to be at high altitude experienced altitude sickness. 85.7% of these cases occurred in volunteers in America, with only 1 other case; a volunteer working around Mount Kenya. As such, volunteers in America faced an increased risk of experiencing altitude sickness (OR=44.9091; $p=0.0005$) compared to those in Africa or Asia.

When examining only those expecting to be at high altitude, America (n=36) and Africa (n=34), there was no significant difference in the risk of experiencing altitude sickness ($p=0.0889$).

Volunteering in America was associated with an increased risk of experiencing an issue (OR=2.8473; $p=0.0046$). Specifically, the risk of diarrhoea was

higher compared to volunteers in Africa or Asia (OR=3.1832; 95% CI=1.5771-6.4251; $p=0.0012$), as was the risk of requiring treatment at a clinic/hospital (OR=3.6970; 95% CI=1.2999-10.5146; $p=0.0142$) and the risk of excessive (≥ 10 kg) weight loss (OR=7.2000; 95% CI=1.7225-30.0961; $p=0.0068$) with 10.3% ($n=4$) of volunteers in America losing ≥ 10 kg. Only 3 of these offered further information with 'snacking less', 'loss of appetite' and 'lack of food available' cited as explanations for this weight loss. Similar reasons were given by 3 volunteers in Africa who lost ≥ 10 kg. There were no cases of excessive weight loss in Asia.

Examination of the volunteering profile across regions, found that age differed significantly; in America volunteers tended to be younger with 87.2% aged 18-25yrs compared with 71.8% in Africa ($p=0.0437$) and 42.6% in Asia ($p<0.00001$). In contrast, those in Asia tended to be older, with 23.4% aged 26-35yrs and 34% >35 yrs. These were significantly different from the age profile of volunteers in Africa and America (table 6).

Differences in accommodation types were highly significant across regions; 82.1% of volunteers in America stayed with Host Families as opposed to 4.3% in Asia ($p<0.00001$) and 18.7% in Africa ($p<0.00001$). Significantly fewer volunteers in America ($n=0$) stayed in hotels compared to both Asia ($n=23$; $p<0.00001$) and Africa ($n=53$; $p=0.0002$) (table 6).

Psychological Problems

10 volunteers experienced 'Undue anxiety, depression or psychological problems' whilst overseas. Gender did not significantly impact this, but age did ($p=0.0317$) with all 10 being 18-25yrs.

Furthermore, although volunteers with pre-existing psychological problems were not generally at an increased risk of experiencing issues ($p=0.1071$), they did have an increased risk of experiencing psychological problems (OR=6.3704; 95% CI=1.6919-23.9865; $p=0.0062$) compared to volunteers without these pre-existing problems. 40% of volunteers who cited 'undue anxiety, depression or other psychological problems' as a problem whilst away had a medical history of psychological illness.

Early Repatriated

Including data from the additional 38 volunteers, who had not completed post-travel screening but whose information was obtained directly from their organisations, 14 were repatriated early. Their demographics, including reason for early repatriation, are shown in table 7.

The most common reasons for repatriation were bereavement ($n=3$), 'mental state findings' ($n=3$), examination resits ($n=2$) and 'difficulty adjusting to work situation' ($n=2$).

When comparing volunteers who were repatriated

early and those who were not ($n=319$), there was a highly significant difference in age ($p=0.0086$) - all volunteers repatriated early were 18-25yrs. There was a significant difference in the number of early repatriated volunteers placed in Africa ($n=12$, 85.7%) compared to the non-repatriated group ($n=209$; 70.9%) ($p=0.0314$). There was no significant difference between the cohorts with regards to other regions, gender, accommodation type, number of pre-existing conditions or occupation, with the exception of Sports/Expedition/Adventure; the number of volunteers in the repatriated group with this occupation ($n=1$; 7.14%) differing significantly from the non-repatriated group ($n=2$; 0.63%) ($p=0.0203$).

None of the repatriated volunteers reported smoking tobacco, or recreational drug use. Nine completely abstained from alcohol, two reported drinking 1-9 units/week, one 10-19 units and one 20-29 units/week. This volunteer also reported drinking up to 15 units at one time and was repatriated with 'stress related heart palpitations' (table 7).

71.4% ($n=10$) of those who were repatriated early experienced an issue in the field that led to their repatriation ($n=9$) or was unrelated ($n=2$) (table 7). The 2 with additional issues experienced diarrhoea ($n=2$) and worsening of a pre-existing condition ($n=1$). It is possible that >2 volunteers faced additional problems whilst away, but as only 2 of those who were early repatriated completed post-travel screening this cannot be established.

3 (21.4%) volunteers had a history of pre-existing psychological problems, which was not significantly different from the main cohort ($n=293$) ($p=0.2100$). However, the number of volunteers repatriated early, who had taken antidepressants in the past 12 months, 14.3% ($n=2$), differed significantly from that of the other cohort (3.4%, $n=11$) ($p=0.0368$). Of those who had been prescribed antidepressants, 1 was repatriated for a mental state finding, the other for bereavement.

Discussion

This retrospective cohort study adds to existing studies on health risks faced by overseas volunteers.^{8,9} It builds on the association between specific volunteer characteristics and adverse outcomes, and reviews the characteristics of those repatriated early.

Consistent with Previous Literature Illnesses, Injuries and Accidents Encountered

Consistent with previous research into travel to resource poor countries, almost 50% of volunteers experienced health issues whilst overseas.¹³ Diarrhoea was the most common problem,^{8,9,14,15} with 39.7% ($n=117$) reporting at least one episode.

Similar to a previous study carried out by InterHealth,¹⁶ volunteering in America was associated with the highest risk of diarrhoea. Although

Risk Factors and Overseas Work Placements *continued*

accommodation type did not impact significantly on the diarrhoea risk, compared to other regions more volunteers in America stayed with host families and fewer in hotels; this may have been a contributing factor.

Previous studies have shown volunteers in both Africa⁹ and Asia¹⁴ to be at increased risk of diarrhoea, demonstrating that simplistic explanations implicating a single geographical region are inadequate. Rather, a multitude of complex factors must be considered. Volunteers should be advised to take precautions against diarrhoea regardless of destination.

As in previous studies of volunteers^{8,9}, dermatological problems were one of the most common issues encountered (6.1%). Most common was 'worsening of pre-existing conditions', such as eczema and acne; with one volunteer suggesting insect repellent caused irritation and a flare up of eczema. Despite this, having a pre-existing skin condition was not a significant risk factor for experiencing skin problems overseas.

6.1% of volunteers sought medical attention at a clinic/hospital whilst overseas with the predominant reason being infections, as consistent with previous studies.^{13,17}

Novel Findings

Health Risk Behaviours

Only 0.3% of volunteers identified themselves as smokers. This may be a reflection of the characteristics of those choosing to volunteer abroad, or could be underreporting; smoking prevalence in the UK is highest in the 25-34 age group, at 25%.¹⁸ 2% reported recreational drug use, compared to nationwide surveys with estimates of 36.5% of UK adults and 37.7% of 16-24 year olds.¹⁹

Whether volunteer BMI impacted on the risk of adverse outcomes was not possible to ascertain as data were incomplete and could not be integrated into analysis. Future research of this could be beneficial, as eating disorders and obesity increasingly affect young people and their health.

Impact of Reported Health conditions

A main finding of this study was that the 35.6% of volunteers who reported ≥ 2 medical conditions prior to placement had an increased risk of experiencing issues whilst away. Specifically, they were at an increased risk of requiring treatment at a hospital/clinic. This is a particularly apt finding as multimorbidity is increasingly becoming the norm in society.^{20,21} Undoubtedly this epidemiological transition will impact on the health of the estimated 1.6 million volunteering internationally each year.²

10.2% of volunteers reported having received a prescription for asthma medication in the past 12

months, slightly above the UK treatment prevalence in adults of 8.3%.²² Interestingly, despite pre-travel screening having a large focus on asthma; volunteers with a history of asthma did not face an increased risk of experiencing issues overseas.

Psychological Problems

Pre-existing psychological problems were found to increase the risk of experiencing psychological problems overseas, but not the risk of generally experiencing an issue. This suggests that a history of mental illness should not be a barrier to overseas volunteering. Instead, the focus should be on targeted preparation to minimise this risk.

Age was also found to be a factor; all 10 volunteers experiencing psychological issues were aged 18-25yrs. While older volunteers experienced as many other health issues as younger volunteers, more experience of travel may have equipped them better mentally to deal with problems. No existing study has highlighted age as a risk factor for psychological issues on overseas placements.

Illnesses, Injuries and Accidents Encountered

Unlike previous research, which has suggested younger volunteers are at an increased risk of diarrhoea,^{8,16} which may have been due to greater risk taking,²³ age in this study was not found to significantly impact on diarrhoea risk. Furthermore, age was not found to increase the risk of volunteers attending a clinic/hospital, despite others studies having found this to be significant.¹⁶

Other studies have reported higher prevalence's of skin problems; a study of VSO volunteers reported 15.4%⁸ whilst a previous Peace Corps Study reported 19% encountering bacterial skin infections.¹⁵ In comparison, only 1.4% of volunteers in this study reported skin infections. This may be explained by the short period of time ICS volunteers are overseas; comparable studies have focussed on volunteers abroad for months to years.^{8,15} This may contribute to why the proportion of volunteers injured in accidents (2%) was much lower than previous studies, which have found up to 20% of volunteers being injured in such.^{8,15}

Regional Variation

Volunteers in America faced an increased risk of health issues. They were more likely to experience diarrhoea, altitude sickness, excessive weight loss and to need to seek medical attention than those in Africa or Asia.

A larger proportion of volunteers in America were at high altitude (15.4%) compared with other regions, so it is unsurprising that the majority of altitude sickness occurred in this group. When the actual risk of altitude sickness across regions was compared, there was no significantly increased risk in those in America. This is

an important distinction; each volunteer's circumstances should be examined individually and advice given appropriately – a volunteer in Africa at high altitude is as likely to fall ill as one in America.

10.3% of volunteers in America experienced excessive (>10kg) weight loss. The higher risk of diarrhoea may have contributed although most volunteers felt that eating less was the cause. Whether this should be viewed as an adverse event is uncertain; BMI was not available to establish whether these changes were hazardous.

This may be responsible for the subsequent increased risk of requiring healthcare overseas. If these factors were found, through future analysis, to be connected, the prevention of one, namely diarrhoea, could prevent others from occurring.

Early Repatriated

It is encouraging for both InterHealth and the ICS organisations that so few volunteers were repatriated early, and that of those, 5/14 were for non-medical reasons; bereavements and examination resits.

Interestingly, the proportion of volunteers with a history of pre-existing psychological condition was the same for both cohorts, but there was a significantly larger proportion that had been prescribed anti-depressants in the repatriated cohort. Perhaps medication is a better indication of a volunteer's current health status than their self reported medical history; the validity of self-reported health data has been widely contested.^{24,25}

Limitations

Findings were limited by the method of data collection. Underreporting is a potential issue - it is likely that some volunteers were motivated not to disclose particular aspects of their health as they wanted to be cleared as 'fit-for-travel'. On the other hand, some pre-existing conditions, such as allergy and headache, may have been over-reported; medical diagnosis was not a requirement.

Furthermore, some forms were incomplete and the gender of 12 volunteers remained unknown. Other volunteers were not informed of their trip itinerary prior to screening. This meant a large number were unsure about their accommodation and distance from health facilities, impeding complete analysis.

As with most questionnaire samples, there was likely to have been response bias; all who completed the post-travel screening were from organisation C and a larger proportion than expected (28.4%) were >25yrs. Volunteers' ages were calculated from when data were collected for analysis, not at the time of screening, so some may be recorded as one year older than when they volunteered. Another possible explanation is that older volunteers were more diligent in completing post-travel screening. Results

should therefore be interpreted cautiously, particularly those comparing the early repatriated volunteers with the main cohort.

The findings of this study may overestimate the true prevalence of multimorbidities in this population. Not all of the medical conditions included (table 3) coincide with the generally agreed definition of multimorbidity,^{21,26} but were included to offer a comprehensive overview of volunteers' medical histories.

Finally, the small number of volunteers who were repatriated early limits analysis and extent to which these results can be interpreted.

Conclusion

Many of the findings from this study of administrative health data resonate with the previous literature on the topic with some important distinctions. This study offered a novel insight into the role that pre-existing health conditions have on volunteers experiencing issues or repatriation while on placement.

Contrary to previous suggestions, that younger volunteers tend to be less cautious overseas and place themselves at greater risk of diarrhoea, younger age was not found to significantly increase this risk or the risk of requiring treatment at a clinic. This highlights the need for thorough pre-travel screening, advice and preparation of older (as well as younger) volunteers, who cope better with, but still experience, illnesses to a similar extent.

More research is needed as to why ICS volunteers in America faced so many additional issues overseas. Until this is established, those volunteering in America should be made aware of the increased risks they face and receive additional advice.

Volunteers with ≥ 2 pre-existing health conditions had an increased risk of experiencing issues. Multimorbidity is becoming increasingly more common and health services, including the screening process of volunteering organisations, have struggled to adapt to this change. No study to date has investigated the additional risks faced by overseas volunteers with multimorbidities; there is much scope for future research into this.

Efforts should continue to improve volunteer screening and preparation to minimise occurrence of adverse outcomes. Volunteers could benefit from individualised advice, alongside general training for all regarding common risk factors. Screening may be improved by collating volunteer experiences and by implementing the results of this and future studies. In order to best adapt preparation to the ever-changing issues faced, organisations should be encouraged to make post-travel screening a requirement. Post-travel assessment can give an opportunity for guidance with on any ongoing travel-related medical conditions.

Risk Factors and Overseas Work Placements *continued*

Early repatriation was less than previously suggested, perhaps indicating that pre-travel screening is successful in assessing volunteers as fit-for-travel. To confirm this, more detailed studies investigating the health status of rejected volunteers would be required.

Due to the limited number repatriated early these results merely provide a starting point for further research and should not be taken to apply universally. The findings should however reassure volunteers and organisations of how infrequent the adverse events leading to repatriation are.

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Table 1
Data Processing

Process	Methods
Inclusion Criteria	☐ Completed Pre- and Post-travel Screening ☐ Additional (n=38) with injuries/illnesses/accidents/early repatriation; information obtained directly from ICS organisations
Exclusion Criteria	☐ Due to return in 2015 (n=86) ☐ Lacking completed Post Travel Screening Forms (n=659)
Data Handling	☐ Data was anonymised by the data manager at InterHealth ☐ Each volunteer was given a unique identifier ☐ Data was securely transferred to the research supervisor via the University of Glasgow transfer.ac system encrypted in Microsoft excel format
Data Sorting	☐ Volunteers returning in 2015 and duplications were filtered and removed ☐ Missing data on gender was completed where appropriate based on past medical and drug histories ☐ Data were split into 2 cohorts and analysed on separate spreadsheets; volunteers who experienced illness, injury or accidents whilst away and those who did not ☐ In some cases, data was incomplete for volunteers, due to unanswered questions or data that appeared to be recorded incorrectly on the system; such cases have been recorded as 'unknown'
Statistical Analysis	☐ Data were analysed using SPSS version 21.0: ☐ Descriptive statistics - to summarise the data ☐ Odds ratios - to measure association between particular client characteristics and risk of experiencing issues ☐ 2-sample T-tests - to establish whether there were differences between client characteristics in those who were repatriated early and those who were not ☐ A p value of <0.05 was deemed significant

Table 2
Demographic Characteristics of Volunteers

Characteristic	n (Issues/no issues)	%
Sex		
Male	83 (32/51)	28.1
Female	200 (101/99)	67.8
Unknown	12 (7/5)	4.1
Age Group		
<18	7 (2/5)	2.4
18-25	204 (100/104)	69.2
26-35	32 (16/16)	10.8
>35	52 (22/30)	17.6
Range	17-72	
Median	22	
Organisation		
A	0	0
B	0	0
C	295 (140/155)	100.0
D	0	0
Distance from good health facilities		
Near (under 2hrs)	138 (64/74)	46.8
Quite Distant (2-12hrs)	25 (10/15)	8.5
Remote (12-24hrs)	4 (2/2)	1.4
Unsure	121 (64/57)	41.0
Unknown	7 (0/7)	2.0
Occupation abroad		
Community/Teaching	183 (93/90)	62.0
Sport/Expedition/Adventure	2 (2/0)	0.7
Health	4 (2/2)	1.4
Missionary/Advocacy	74 (29/45)	25.1
Construction/Agricultural	19 (7/12)	6.4
Other	12 (7/5)	4.1
Unknown	1 (0/1)	0.3
Accommodation		
Host Family	73 (37/36)	24.7
Hotel	76 (31/45)	25.8
Guesthouse	1 (0/1)	0.3
Mixed	61 (33/28)	20.7
Unsure	69 (35/34)	23.4
Unknown	15 (4/11)	5.1

Table 3
Prescribed medications in the past 12 months

Medications in Past 12 Months	n (Issues/no issues)	%
None	152 (70/82)	51.5
Asthma Medication	30 (17/13)	10.2
Antidepressants	9 (8/1)	3.1
Anti-Anxiety Medication	3 (3/0)	1.0
Anti-Psychotics	1 (1/0)	0.3
DMARDS*	1 (1/0)	0.3
Anticonvulsants	1 (0/1)	0.3
IBS Medication**	4 (3/1)	1.4
Tamoxifen	2 (0/2)	0.7
Unknown	14 (4/10)	4.7

Table 4
Reported Health Conditions Prior to Placement

Characteristic	n (Issues/no issues)	%
Allergies	78 (43/35)	26.4
Eczema	66 (37/29)	22.4
Fits, convulsions, headaches, migraines or any other neurological condition.	48 (20/28)	16.3
Asthma/Lung Disease	47 (26/21)	15.9
Back, neck or other joint conditions.	34 (19/15)	11.5
Previous/Existing Anxiety/Depression/other Psychological Problem	31 (19/12)	10.5
Stomach/Bowel Problems	24 (18/6)	8.1
Infections which could be passed on to others while at work e.g. Hepatitis B, TB	19 (4/15)	6.4
Anaemia/Other Blood disorder	16 (8/8)	5.4
Glandular Fever, Chronic Fatigue Syndrome	16 (11/5)	5.4
Other Skin Conditions	9 (5/4)	3.1
Eating Disorders	4 (1/3)	1.4
Diabetes/Other Endocrine Disorders	3 (2/1)	1.0
Malignancy	2 (2/0)	0.7
Conditions which impair your immune system e.g. HIV, removed spleen.	1 (0/1)	0.3
Disability	1 (1/0)	0.3

Table 5
All reported Issues (Illnesses, Injuries, and Accidents) on Placement

Issues Experienced on Placement	n	%
Diarrhoea	117	39.7
Dermatological	18	6.1
Treatment at local clinic/hospital whilst away	18	6.1
Worsening/Flare up of existing condition	13	4.4
Undue anxiety, depression or other psychological problems	10	3.4
Other Infections	9	3.1
Excessive Weight Loss (<1 stone/8kg)	8	2.7
Altitude sickness	7	2.4
Accidents	6	2.0
Sleep disturbance	4	1.4
Dental	2	0.7

Risk Factors and Overseas Work Placements *continued*

Table 6
Demographics of Volunteers across Regions

	Africa		Asia		America	
	n	%	n	%	n	%
Age Group						
<18	6	2.9	0	0.0	1	2.6
18-25	150	71.8	20	42.6	34	87.2
26-35	19	9.1	11	23.4	2	5.1
>35	34	16.3	16	34.0	2	5.1
Occupation abroad						
Community/Teaching	135	64.6	19	40.4	29	74.4
Sport/Expedition/Adventure	0	0.0	0	0.0	2	5.1
Health	2	1.0	2	4.3	0	0.0
Missionary/Advocacy	48	23.0	18	38.3	8	20.5
Construction/Agricultural	19	9.1	0	0.0	0	0.0
Other	5	2.4	7	14.9	0	0.0
Unknown	0	0.0	1	2.1	0	0.0
Accommodation						
Host Family	39	18.7	2	4.3	32	82.1
Hotel	53	25.4	23	48.9	0	0.0
Guesthouse	1	0.5	0	0.0	0	0.0
Mixed	48	23.0	8	17.0	5	12.8
Unsure	56	26.8	12	25.5	1	2.6
Unknown	12	5.7	2	4.3	1	2.6

Table 7
Volunteers Repatriated Early

Cause of Early Repatriation	Sex	Age Group	Organisation	Region	Occupation	Accommodation	Issues Prior to Repatriation
Bereavement							
- 1	F	18-25	D	Africa	Community/Teaching	Unsure	/
- 2	F	18-25	C	Africa	Missionary/Advocacy	Host Family House	/
- 3	F	18-25	C	Africa	Community/Teaching	Mixed	Diarrhoea, Worsening of Pre-existing condition
Examination Results							
- 4	F	18-25	C	Africa	Community/Teaching	Unsure	/
- 5	F	18-25	C	Africa	Community/Teaching	Hotel	/
Difficulty adjusting to work situation							
- 6	F	18-25	C	Africa	Community/Teaching	Unsure	Diarrhoea
- 7	?	18-25	C	Africa	Community/Teaching	Mixed	/
Physical Assault (Stabbed & Mugged)							
- 8	M	18-25	B	??	??	??	/
Sexual Assault (Rape)							
- 9	F	18-25	B	Africa	Sports/Expedition/Adventure	Host Family House	/
Persistent Fainting							
- 10	M	18-25	B	Africa	Community/Teaching	Unsure	/
Physical Health (No further info given)							
- 11	M	18-25	C	America	Community/Teaching	Host Family House	/
Mental State Finding							
(No further info given)							
- 12	F	18-25	C	Africa	Community/Teaching	Mixed	/
- 13 (Stress Related Heart Palpitations)	F	18-25	C	Africa	Community/Teaching	Mixed	/
- 14	M	18-25	B	Africa	Community/Teaching	Host Family House	/

ANECDOTE

Flying-solo, jet-lag and delusion

"How far did I fly Doc?" was Ben's opening question at the start of the consultation. My thoughts were jolted from the trivial routine of morning surgery and I jumped to the conclusion that he was referring to a recent vacation.

"You mean on holiday?" I responded guardedly.

"No. No! The day I flew off the mountain," he replied forcefully and I was reminded of a distant time when we were both members of the same rock climbing club and had climbed together in the Alps and Himalayas. I had not seen Ben for several years and could not recall any mountain flights however.

Playing for time, I added, "It's some time since we were out together."

"Ten or eleven years", he interjected, leaving me none the wiser.

Apologetically, I added, "My memory fails me for I cannot recall our last outing."

"Of course you do, you cannot possibly forget the occasion," he retorted angrily.

Taken aback by his vehemence, "I hastily raked back through my climbing memories, without further enlightenment."

Loudly and aggressively he continued, "It was the most remarkable thing to ever happen to me."

"A lot has happened over these intervening years," I said defensively,

"You cannot have forgotten. It was the most momentous event I have ever experienced," and he pounded on the

desk to emphasise his point. I apprehensively edged my seat further along the desk and away from him. To my dismay, he followed this manoeuvre by lunging further towards me.

Ben was a big, burly fellow in fair physical condition despite being in his sixties. He made an intimidating figure, becoming more so as his testiness turned to ire and anger. I wondered for the first time if a desk-mounted panic button might have had its place in the surgery.

I endeavoured to establish some rapport with him and asked, "What hill were we on?"

"Tallihoy" he responded and I was no further forward, recalling no such location. Striving for elusive common communication, I tentatively ventured,

"Oh, a great day."

His response was derisory. "Great day! It was a disaster. I could have died instead of flown. You must remember, I was the first Flying Scotsman.-Icarus personified."

Now I was really in trouble.

For me the Flying Scotsman was the east coast train service from Edinburgh to London, aptly named after the lead locomotive "The Mallard took the steam engine world speed record in 1938 with a speed of 125mph. I could not conceive a link between a mountain, train and Icarus. Study of the Classics had never been my strong point, but I was aware that Icarus had flown to disaster.. The connection eluded

me as Ben lurched to his feet and lumbered round to my side of the desk.

Now towering above me, I edged beyond the confines of the desk gauging the distance to be covered between desk, exit door and safety.

I temporised, humouring him with, "Of course you flew. Quite remarkable. Nothing quite like it. The 'Flying Scotsman.' It must have been a record."

"How far did I fly?" he queried again with increasing agitation. He was now jumping up and down, beside me.

"I flew, I flew."

Seeking to pacify him, I agreed and suggested a flight path of several metres,

"More than three or four metres" he ejaculated, "thirty or forty metres and more. You must remember." He faced up to me with clenched fists. My retreat was cut off by a filing cabinet and it seemed physical attack was imminent. The desk telephone-link with reception was out of reach and I now believed that I was in the company of a schizophrenic, with very disturbed processes. How could I escape from this imbroglio?

Struggling for a solution, I remembered a recent course I had attended. Neuro-linguistic programming was an innovative means of dealing with patients who had psychological problems. The techniques had been simplistic, but I had had no previous opportunity to practice them. One instruction suggested had been to mirror the gestures and behaviour of a disturbed patient, as this was often calming and they could be induced into then following the therapist's gestures.

I tentatively stepped forward towards Ben and lifted my hands to mirror his gestures, half expecting a wild swipe in retaliation. He retreated a little but continued to jump up and down wildly. Feeling foolish, I mimicked his steps, jumping up and down in unison with his movements. Remarkably, he retreated further, his agitation decreased and the threatening behaviour turned abruptly into conventional soft-voiced discourse.

"I have come for my pills Doc. We have been on holiday and I have nearly run out." His conversation continued as if there had been no emotional outburst. He responded sensibly to further questioning,

"I have been in Vancouver, the flight was long-delayed and I did not get much sleep. I have been feeling a bit dizzy and disorientated." He allowed me to make a physical examination and some simple psychological tests. None of which were abnormal and he made no further reference to flying off a mountain.

He appeared to be suffering from sleep-lack and jet-lag, but these events hardly accounted for his bizarre behaviour. I arranged a further appointment for him to visit with his wife and returned to waiting humdrum consultations. Between patients, there were a few moments to wonder about his strange conduct.

He returned a month later to tell me that all his hospital investigations had been normal, but he was always feeling fatigued and was struggling to manage at work. He made no further reference to flying even when prompted. Ben struggled on at work, often returning home after work to stay in bed until the time for work the next morning. Then one day, he called in to surgery very agitated, he had experienced a short episode of lost consciousness while watching television at home. His very worried wife, said the screen had showed flash-photographic scenes.

"He was twitching before and after the attack." She was

describing an epileptic seizure. What had been the trigger I wondered, as I arranged immediate hospital referral.

After emergency admission, he suffered several full-blown convulsions in the ward and finally a brain tumour was diagnosed after he lost power on one side of the body.

He was operated upon. A meningioma tumour the size of a tennis ball was discovered and surgically removed and he made a very good recovery.

"I am feeling fine," he announced six weeks later on a return visit to see me. "Fit for work. I need a final certificate please."

"How is the memory?" I asked.

"A bit patchy. Ben replied, but it is much better than it was," then, "these were great days we had on the mountains." For a moment I feared a replay of his previous disturbing visit to the surgery, but he continued, "You really did save my life then."

In the intervening weeks my own memory had finally recalled a climb we had done together in Kashmir. Bad weather had delayed our departure for the mountains and once en route, it had proved a long, hard climb and difficult terrain. Darkness overtook us high up on the mountain ridge and far above base camp. We were tired and both our head-torches had lost power. Ben's finally lost illumination. It was difficult to follow a compass bearing on a trackless descent in the moonless night.

At one point Ben had forged ahead over a small rock bluff and as he disappeared from view, I suddenly realised that he had deviated from our route along a razor backed ridge.

"Veer left I shouted to him."

Hearing my instruction, he turned sharply and abruptly disappeared from view. When I reached his position, the weak beam from my torch revealed we were on top of the cliff. There was a dark void in front of me and I shouted for Ben. There was a worrying silence, then to the left and quite a bit below came a response. Skirting the cliff edge I worked my way down the mountain, to ultimately find him perched on a narrow ledge, jutting out from the cliff-side. He was winded, but uninjured, except for bruising to a thigh and shoulder.

"I flew right off the mountain," he announced. "If you had not called I would have been right over that cliff and it seems to go down for ever," as he peered to the right. The map confirmed several hundred metres of vertical cliff beside us and if he had gone over there, he would not have survived the fall. We took great care over the rest of the descent and parted on our separate ways.

Over time, I had completely forgotten about the incident, until prompted by the strange vagaries of memory. Ben's brain lesion had distorted his recall of the incident and had fixed on the moment when he left terra firma and did, for a few seconds, fly out into space. My memory of the event had been buried until stimulated by the bizarre encounter with him.

Happily his recovery was maintained, he returned to work. I saw him infrequently, but when we met he invariably stated that I had saved his life. A sixth sense premonition that we were off-route and my timely shout had certainly saved him from serious mishap. Mischance and perchance often seemed to determine some of the mishaps which befell patients, but in this encounter with Ben, underlying pathology and distortion of memory had triggered an unhealthy event.

ANECDOTE

The Power of Suggestion and Flying Phobia

It was the end of a long day and even longer surgery consultation list. By 8pm, I was longing for dinner and relaxation by the fireside.

"It's another extra," announced the receptionist and my heart sank. *"She is not one of ours. Do you want to see her?"* and I cheered up. I did not contractually have to see this patient. *"She is emigrating tomorrow and needs a note to say she is unfit to travel."* Intrigued and aware that a note would only take a moment to write, I hesitated. *"She really is in a bad state doctor. You will have to see her."* I was trapped, so unwillingly, she was added to the waiting list.

In due course an attractive, thirty year old women came into see me. She was smartly-dressed but her face was streaked with tears, make-up was running and she was very agitated. She introduced herself.

She told me her story hesitantly with much prompting. She was a very successful businesswoman locally, had prospered financially, met a South African and was going to Nairobi to marry him and set up business there. She had sold her shops in Britain, disposed of her home and assets and had tickets for a flight out of the UK the next day. She had become ever more emotionally and mentally disturbed in the previous few days.

"The thought of boarding a plane and leaving the ground terrifies me and I can't sleep for thinking about it," she said, in tears She had apparently always had a slight phobia of flying, but now it had become entrenched.

"I would like an insurance note stating I am unfit for travel." This was an easy option for me and she would have been gone from the office in minutes if I complied. I could be en route for dinner and fireside in minutes. I was sorely tempted, but to qualm my conscience I offered,

"Perhaps a tranquilliser would help?"

"No I do not want to be sedated," as she spurned the offer. I knew their use merely treated the symptoms of her malady and not the cause and was not curative. Gradually she calmed down as we talked. I realised that she was normally a very self-possessed woman with good control of her life and perhaps I could help her. Joan was facing a rare crisis in her life which she could not control.

"Hypnotherapy could help you get to Kenya," I put to her. She was surprised but admitted that a friend had an experience of medical therapy which had been beneficial.

"Will it cure me?" Joan wanted to know. I temporised,

"It often works and I have had many patients overcome a fear of flying when they have had hypnotherapy."

"Okay. I'll have it," she said decisively,

I went through the usual informative procedures and then trance-induction, with suggestions that she would be able to travel calmly the next day and that she could overcome the fears she had of her new partnership and change in location. In half an hour she was gone and I could thankfully get home to wife and family.

Six weeks later she telephoned to say she had experienced an uneventful flight. A year later a Christmas card advised that her marriage and business were thriving and I forgot about the incident. Six years later, at the end of another long day, I saw another name had been added to the list, one which I did not recognise.

"It's a temp." said the receptionist. *"She says you met her previously."* Temporary patients were always a nuisance for

there were no accompanying notes and it took extra time to deal with them. The name eluded my memory.

"She says you treated her some time ago."

Grudgingly I acceded to the request. The door opened to reveal the South African immigrant. Joan looked very glamorous and was dressed in an elegant costume with matching expensive, hand-bag.

"I was hoping to see you doctor. I have brought you some wine," as she dumped a box on the floor beside me.

"I have been doing well and business is good but I need another miracle cure."

"Why what has happened?" and her features darkened.

"I was subjected to an attempted rape in a shopping centre in Johannesburg. I got away and am physically okay but my fear of flying has returned. I have had to come back by sea to see you!"

We chatted about her life abroad, then I once again repeated the procedure of six years previously and off she went. Once again some weeks later there was a call to say all was well and she was flying again and she never returned.

Hypnosis seemed an effective way of treating the very common fear of flying. I was flying down to London to a Medical Conference. By chance I was seated beside, the manager of a drug company. As we took off he exhibited all the signs of panic associated with a flying phobia and I offered some calming comments. He revealed he was about to lose his job, as his fear of flight was interfering with his ability to do his work which involved much flying. He had been spending many hours driving round the UK to avoid flying and his company had warned him that he must fly, or they would dismiss him. Without contemplating what I was doing, I continued to talk to him encouraged him to drift into a hypnotic trance with suggestions of how he would overcome his fears and deal with his anxieties so that he could maintain his employment. He made the rest of the air trip successfully and continued to fly around the country in his work. He had dug into his own mental resources to counter his fear. Once again, *"Quiet words could prove effective words and be remarkably successful."*