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Editorial

At the time of writing the 11th International Society of Travel Medicine Conference in Budapest has just taken place with over two thousand participants from around the globe demonstrating the ever growing interest in this particular speciality. There were educational sessions suitable for the novice through to presentation on the latest developments, including much discussion on the soon to be introduced new Japanese Encephalitis vaccine.

Education is a major part of the BTHA Journal and in this issue we commence with a new series of articles describing the various courses that are available in the UK.

Research also continues to be a major feature of the Journal with a number of original research papers in this issue. We are now trying to encourage BTHA members to become involved in research and a call for volunteers to take part in a series of interviews had a tremendous response. Dr Iain McIntosh recently also circulated a questionnaire regarding evidence based decision making. Those who have an email address will be receiving an online questionnaire on travel medicine research and an invitation to join a new BTHA research network. This will also include a novel collaboration with colleagues in the Irish Society of Travel Medicine so we hope that as many as possible respond.

Larry Goodyer.

Report from the Chair

The outbreak of swine flu and its rapid spread through America and Europe illustrates how diseases can travel rapidly. We in travel medicine must play our part in understanding the most up to date knowledge and using that in our practice to reduce the risk to travellers and to reduce the risk of the pandemic spreading further. This also emphasises the importance of monitoring outbreaks by various sentinel groups worldwide and disseminating that knowledge quickly via travel health websites such as NaTHNaC and Travax. However this knowledge is only of use when it is accessed.

The journal is a vehicle for sharing research and considered scientific views with our members and readers and I urge all who are involved with Travel Medicine to contribute what they can.

The British Travel Health Association (BTHA) is organising its annual conference in London at the Charing Cross Hotel on the 28th November. We have decided to concentrate on the diseases spread by mosquitoes, many of which are on the increase. There will also be a chance for research students to display their work in poster format.

By devoting the whole day to this subject we will be able to give an in depth account of the current knowledge and there will be workshops to enable learning. I hope you will all come and support this important conference. We will also take the opportunity to take a short time to hold the AGM of the BTHA, which apart from being a legal requirement for the Association is your forum to tell us what you want and to vote in new candidates where vacancies occur.

John E Davies.

Financial Aspects of GP Immunisation Clinics

G. Kassianos

Under the old Statement of Fees & Allowances (the 'Red Book'), the main childhood immunisations were target-based and most other immunisations were paid on an item-of-service basis.

Under the new GP Contract[1] (in force since April 2004), immunisations are paid through various mechanisms, dependent on which services the GP agrees to provide.

Payments to GPs generally, come under the following headings:

The Global Sum: Additional Services – Theses include *Travel Immunisations and Non-Target Childhood and other Vaccinations and Immunisations;*

Directed Enhanced Services – include *Influenza and Pneumococcal immunisations* for those eligible on the NHS in the "groups at risk", and the Childhood Target immunisations for children under 2 and under 5 years of age;

Quality & Outcome Framework (QOF) – payments in various clinical domains for *Influenza immunisation* (2004 to 2008);

Personal Dispensing of Vaccines – applies to non-dispensing GPs in England & Wales;

Payments to GPs by NHS patients for immunisations not covered by the NHS.

The Global Sum: Additional Services[1] – Theses include *Travel Immunisations* (see later) and *Non-Target Childhood and other Vaccinations Immunisations* (paragraph 2.49 of reference 1).

Note: in the initial 2004 contract, Schedule 5, (Fees & Charges) of the NHS (GMS) Regulations 2004 replaced the old paragraph 38h of the old "Terms of Service"
http://www.legislation.hmso.gov.uk/si/si2004/20040291.htm).

Non-target vaccinations in the Global Sum include:

School leavers
Td /IPV (if not done by the school nursing service)
Men C
aged 24 years and under at risk (e.g. students)
asplenia
2nd MMR
given at or near routine pre-school immunisations
If no MMR previously
3 to 15 years
if they had only MR (as this is not the MMR)
childbearing age Rubella non-immune woman
males working in Antenatal Clinics

Vaccinations performed outside the target vaccinations for any age, set out in the 2002/03 Red Book (see paragraph 2.49, table 5, of reference 1), are in the Global Sum under Additional Services. These are as follows:

Diphtheria (in the combined vaccine)
children 5 years and over (therefore, not in the immunisation targets) with no primary course or booster
staff in hospitals at risk

Tetanus: (in the combined vaccine)
previously unimmunised aged 5 years and over (therefore, not in the immunisation targets)
previously immunised having a booster on:
leaving school/entering higher education/starting work
not having had a booster during last 5 years. Readers should note clinically there is no need for 5-yearly boosters. Once a person has received 5 doses of the vaccine as per UK schedule, there is no need for boosters unless the patient is at increased risk i.e. a farmer and even then a 10 year gap is more than adequate.

Poliomyelitis:
Unimmunised persons aged 5 and over (therefore, not in the immunisation targets) to 40 years
Parents or guardians of children given oral polio vaccine (no longer used in the UK other than for contacts)
Groups at risk, regardless of age:
doctors, nurses, dentists, GP staff, medical students, ambulance staff and their families
Receiving a booster:
groups at risk above
children 5 years and over
leaving school/entering higher education/starting work

Rubella (give MMR)
seronegative future mothers
seronegative male staff in AN Clinics

Haemophilus Influenzae b
(in targets for under 2s)
Asplenia and splenic dysfunction

Infectious hepatitis (this has been defined by the Department of Health in the 1990s as just hepatitis A).

Hepatitis A in institutions at risk (when immunisation recommended by the local Public Health Department).

The reader should note that there is no provision for Hepatitis B immunisation other than the clinical responsibility of every GP to immunise those in the groups at risk as per *Green Book* (http://www.dh.gov.uk/en/Publichealth/Healthprotection/Immunisation/Greenbook/index.htm). The exception is where legislation puts the responsibility

Financial Aspects of GP Immunisation Clinics *continued*

onto the employer, as in the case where an employee may, in the context of their every day work, come in contact with the hepatitis B virus. In this case, it is the employer's responsibility to ensure his/her employees are offered hepatitis B immunisation. In the case of medical, dental and nursing students, the BMA[9] advises referral of these prospective students to their universities' occupational health services. By providing hepatitis B immunisation in such cases, "a GP could place inexperienced healthcare students at risk by providing a false sense of security and potentially exposing them to clinical risk of other blood borne infections, including HIV and hepatitis C, before they have received appropriate training".

Typhoid - staff in hospitals that may receive patients with typhoid fever.

Rabies - persons at special risk because of their employment. The regulations for rabies immunisation were first set in the 'Memorandum on Rabies' published by the DoH in 2002 and now incorporated in the 2006 *Green Book*. These are groups of workers who could come in contact with the rabies virus in the context of their work:
Laboratory workers in contact with the virus
At animal quarantine centres
At zoos
At research and acclimatisation centres where primates and other imported animals are housed
At ports, e.g. certain Customs and Excise Officers
Agents authorised to carry imported animals
Local Authority inspectors appointed under the Animal health Act (1981): it only includes dog wardens who are also inspectors
Workers in enzootic areas abroad, who by the nature of their work are at special risk of contact with rabid animals (e.g. veterinary staff, zoologists)
Health workers who are likely to come into close contact with a patient with rabies
Licensed bat handlers

Opting out: a practice may opt out from providing these Additional Services (paragraphs 2.25 & 2.52 of reference 1). It loses 2% of the Global Sum (the basic GP income) and the Primary Care Organisation (PCO) is obliged to appoint another contractor to perform these vaccinations. In such a case, if GP who has opted out, performs any of these vaccinations for his registered patients, gets no payment from the PCO and cannot request a payment from the patient directly.

Under Additional Services (paragraph 2.49, table 5 of reference 1), GPs need to:

"Provide all necessary vaccinations and immunisations (except flu and childhood vaccinations and immunisations and certain travel vaccines) set out in the 2002/03 *Red Book*";

"Provide necessary information and advice to patients, and where appropriate to parents, about such vaccinations and immunisations";

Record in the notes: consent to or refusal of vaccination. The batch number, expiry date, title of the vaccine, date of administration. If two vaccines given in close succession, the site of injection for each vaccine. Any contraindications to immunisation, and any adverse reactions to the vaccine;

All staff involved in the administration of vaccines must be trained in managing anaphylaxis;

Vaccines must be stored according to the manufacturer's instructions and advice given in the *Green Book*;

The vaccine refrigerators have a minimum/maximum thermometer and readings are taken on all working days;

Provide all necessary childhood vaccinations and immunisations according to the 2002/03 Red Book.

Directed Enhanced Services[1] – include:
Influenza immunisations (paragraph 2.19 of reference 1) for those eligible on the NHS in the "groups at risk" in the Green Book;

The Childhood Target immunisations for children under 2 and under 5 years of age (paragraph 2.12, table 14, of reference 1). A practice that achieves a target of less than 70% receives no payment. For achievement of 70% to <90% the practice receives a third of the sum allocated to target childhood vaccinations. To receive the full amount, a practice needs to achieve a target of 90% and above; From April 2006, the weighting for childhood vaccinations and immunisations targets for the UK changed to the following[2]:
50% for the Pentavalent Vaccine
25% for the MMR
25% for Meningitis C

The Pneumococcal immunisation programme was established in two letters from the Chief Medical Officer (CMO):

Pneumococcal Immunisation[3] for those eligible on the NHS in the "groups at risk" in the Green Book; A national fee is agreed.

Pneumococcal vaccinations[4] at 2, 4 and 13 months of age, and the additional combined booster (Hib/MenC) delivered at 12 month of age. A national fee is agreed;

The General Medical Services (GMS) Statement of Financial Entitlements[5] contains additional payments in respect of pneumococcal immunisation of children with the pneumococcal Conjugate vaccine (PCV). The level of the fee payable is a nationally agreed:
aged 12 months to under 5 year with asplenia, splenic dysfunction, or immunocompromised: if receiving two doses of PCV, at least 2 months apart;
aged 13 months to under 5 years who has previously had invasive pneumococcal disease: if receiving one dose of PCV;
aged 13 months to under 5 years with unknown or

incomplete vaccination status: if receiving one dose of PCV.

Quality & Outcome Framework (QOF)[2] – payments in various clinical domains for *Influenza immunisation* (2006/2008). These include Coronary Heart Disease, Stroke/TIA (transient ischaemic attack), Diabetes, and Chronic Obstructive Pulmonary Disease.

Personal Dispensing of Vaccines for non-dispensing GPs in England & Wales[6,7]. Non-dispensing GPs in England and Wales (does not apply to Scotland or Northern Ireland) can claim a fee for purchasing and dispensing certain vaccines Such GPs purchase vaccines privately and administer them to their NHS patients, claiming reimbursement of the vaccines used. Vaccines which can be reimbursed this way are:

Hepatitis A
Hepatitis B
Hepatitis A & B combined
Typhoid Vi
Hepatitis A & Typhoid combined
Meningococcal ACWY
Pneumococcal polysaccharide
Influenza
Revaxis® - for travellers
Human Papilloma Virus
Vaccines which *cannot* be reimbursed are:
Yellow fever (not available on the NHS)
Tick-borne encephalitis (not available on the NHS)
Japanese B encephalitis (not available on the NHS)
Rabies (NHS prescription for 'approved list at risk' only as per Green Book)
Dukoral® oral cholera vaccine (can go on NHS prescription)
Vivotif® oral typhoid vaccine (can go on NHS prescription)
Rotavirus oral vaccine (can go on NHS prescrip tion)

The reimbursable vaccines may be administered by the doctor or the nurse. They are bought in bulk directly from the manufacturer, local pharmacy, or other supplier and administered to NHS patients of the practice. Almost all vaccine suppliers operate discount schemes for GPs. The greater the discount, the greater the (additional) practice profit. The largest discounts tend to be in the most competitive areas or when a large number of vaccines are purchased or a group of GPs together purchases vaccines.

Overall, the government reimburses the GP the following (see Section 17 of reference 6):

- the vaccine basic price – it is defined in Part II, Clause 8 and 11, of the Drug Tariff, less discount calculated in accordance with Part 1 of Annex G (in reference 6);
- an on-cost allowance of 10.5% of the basic vaccine price before the deduction of the discount referred to above;
- a container allowance of 3.8 pence per prescription;
- the appropriate dispensing fee as set out in Part 3 of Annex G (in reference 6);
- unless the contractor (the GP) is registered with Customs & Excise for VAT purposes, an allowance in respect of VAT payable on the purchase of the vaccines, calculated as a percentage (currently 17.5%) both of the basic price less the Government discount applied, and of the container allowance.

The patient does not (and should not be asked to) pay a prescription charge. The GP should raise a prescription for each item administered except for the following vaccines, which are claimed as a bulk entry using Form FP34D (Appendix): Hepatitis A, Typhoid, Hepatitis B, Pneumococcal polysaccharide, Meningococcal, Influenza. All prescriptions should be noted, counted and sent under cover of Form FP34D to the Prescription Pricing Authority (PPA – Bridge House, 152 Pilgrim Street, Newcastle-upon-Tyne, NE1 6SN) by the fifth day of the month following that to which the prescriptions relate.

Payments to GPs by NHS patients for immunisations not covered by the NHS. To understand this section, we first need to explore the subject of travel vaccinations.

Travel Vaccinations

As mentioned above, travel vaccinations are governed by the regulations for the 'Additional Services' in the Global Sum. The GP Contract states the following ('charging for services', paragraph 2.24)[1]: *"travel vaccines are provided free of charge for infectious diseases where there is a risk that, on return, the traveller could pass the disease to members of the home population, namely, vaccination against typhoid, poliomyelitis and hepatitis A"*. So, only these three vaccines are considered 'travel vaccines'.

The Standard GMS Contract (January 2008)[8] defines the duties of the Contractor (the GP) under paragraph 7.21: " offer to provide to patients all vaccinations and immunisations (excluding *childhood vaccinations and immunisations*) of a type and in the circumstances for which a fee was provided for under the 2003-04 Statement of Fees and Allowances made under regulation 34 of the National Health Service (General Medical Services) Regulations 1992 other than influenza and pneumococcal vaccinations"

Further, the GMS Contract[8] defines the situations when "a contractor may demand or accept a fee or other remuneration" under paragraph 484. Here are the relevant paragraphs:

484.7 for treatment consisting of an immunisation for which no remuneration is payable by the PCT and which is requested in connection with travel

Financial Aspects of GP Immunisation Clinics *continued*

abroad;
484.8 for prescribing or providing drugs, medicines or appliances (including a collection of such drugs, medicines or appliances in the form of a travel kit) which a patient requires to have in his possession solely in anticipation of the onset of an ailment or occurrence of an injury while he is outside the United Kingdom but for which he is not requiring treatment when the medicine is prescribed;
484.12 for prescribing or providing drugs for malaria chemoprophylaxis.

Destinations that qualify for free travel vaccinations

These vaccinations are provided free on the NHS for the following destinations under the following circumstances and in accordance to the 2002/03 *Red Book*:

Typhoid:
- travelling to an infected area
- typhoid immunisation is a condition of entry
- all countries except North America, Australasia, Northern Europe

Poliomyelitis:
- travelling to an infected area
- polio immunisation is a condition for entry
- all countries except North America, Australasia, Europe (Europe includes Turkey and Cyprus)

Hepatitis A:
- persons (particularly if staying for over 3 months, or at risk because of pre-existing disease) travelling to all countries except Northern Europe and Australia/New Zealand

Vaccines not available on the NHS for travellers

There is no provision for travellers to receive the following vaccines for the sole reason of travel abroad:

Yellow fever
Tetanus
Tick-borne encephalitis
Diphtheria
Japanese B encephalitis
Influenza
Rabies
Meningococcal ACWY
Hepatitis B
Pneumococcal polysaccharide

However, there are provisions for some of these vaccines to be administered in the UK, whether one travels or not (diphtheria, tetanus, poliomyelitis) or because the individual is in a group at risk as defined by the *Green Book* and the occasional CMO's letters (Hepatitis B, meningococcal, influenza, pneumococcal).

Examples:
- An asplenic patient travelling to an endemic area should be immunised free of charge on the NHS with the Meningococcal ACWY vaccine, whilst a 65-year old (non-asplenic) travelling to Mecca during the Hajj and requesting this vaccine should receive the vaccine privately.
- A male homosexual should receive the Hepatitis B vaccine free of charge whether he travels or not.
- A Local Authority Animal Inspector (see *Green Book* 2006 page 333) should have the rabies vaccine free of charge on the NHS whilst his wife should pay.

When the NHS patient should not be asked to pay

NHS registered or temporary patient should not be asked to pay if the practice claims reimbursement of the vaccine (England & Wales) from the Prescription Pricing Department under personal dispensing of vaccines (non-dispensing GPs in England & Wales)5,6, or writes a NHS prescription for the vaccine, or uses a vaccine supplied free of charge by the Movianto on behalf of the Department of Health (these vaccines are supplied free for the sole reason of carrying out the DoH's immunisation programmes). These free vaccines include:

DTaP/Hib/IPV (Pediacel®)
dTaP/IPV (Repevax®)
DTaP/IPV (Infanrix-IPV®)
DTaP/IPV (Infanrix-IPV+Hib®)
dT/IPV (Revaxis®) – not for travellers
MenC
MMR
Hib/MenC (Menitorix®)
PCV (Prevenar®)
OPV (for contacts)
BCG, tuberculin protein

When does the NHS patient pay?

A registered patient pays for treatment consisting of an immunisation requested in connection to travel abroad when no remuneration is payable by the Primary Care Organisation or the vaccination is not included in the nGMS Global Sum (see paragraph 484.7/8/12 of reference 8). It is important that in such a case the GP or practice nurse:
- does not claim reimbursement for the vaccine used (England & Wales);
- does not use a vaccine supplied free on behalf of the DoH. The vaccine must be purchased privately;
- does not issue an NHS prescription for the vaccine;
- the patient does not belong to a 'group at risk'
- because of a medical condition or age - as
- defined by the Green Book and the occasional CMO's letters.

In addition, the registered patient has to pay for their drugs, medicines or appliances if provided and

purchased by the NHS patient traveller (including a travel kit), which are required solely in the anticipation of the onset of an ailment or occurrence of an injury while he/she is outside the UK, but for which he is not requiring treatment when that medicine is prescribed. For example, a request for loperamide in case of diarrhoea abroad falls outside the NHS, while a request for a triptan (normally on the patient's repeat prescription for migraine) falls within the NHS as the patient receives this medication in the UK. Malaria chemoprophylaxis, if available in the general practice travel clinic, is supplied to registered patients privately (i.e. they pay). A Primary Care Organisation may allow GPs to prescribe malaria chemoprophylaxis if the circumstances are unique in that area (an example is Lewisham - South London).

Combination vaccines: these are provided free on the NHS if one of the two vaccines in the combined preparation is available on the NHS. Examples are the combined hepatitis A+typhoid for travel to the USA, or the combined hepatitis A+B vaccine for a healthy young woman traveling to India. If given separately, the typhoid and Hepatitis B vaccines in the above examples are payable by the patient. If Td/IPV is given to the young woman travelling to India and it is over 5 years (the tetanus component qualifies) since she last had the last dose at school, it is free on the NHS.

The following table can aid your decision as to whether the particular immunisation is provided free on the NHS or the patient has to pay.

It is important that the NHS and private element of payment are not mixed. If a particular immunisation is not available on the NHS, then the vaccine must be purchased privately and the patient should pay for the cost of the vaccine. In these instances, practices can request also payment for administration of the vaccine. On the other hand, practices cannot charge their registered NHS patients for advice in the Travel Clinic. This, the Practice Nurses or GP provide free as per GMS Contract (paragraph 2.49, table 5 of reference 1). Any immunisations commenced on the NHS must be completed on the NHS (sometimes after the patient had returned home). This is because the NHS covers the patient's 'vaccination and immunisation'. In the case of hepatitis A, one dose of the vaccine is vaccination while the immunocompetent patient is immunised after the second dose.

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2 Revision to the GMS contract 2006/07. BMA & NHS Employers http://www.bma.org.uk/ap.nsf/Content/revisionnGMSFeb20062

3 CMO's letter of 31st March 2005: The pneumococcal immunisation programme for older people and risk groups http://www.dh.gov.uk/en/Publicationsandstatistics/Lettersandcirculars/Professionalletters/Chiefmedicalofficerletters/DH_4107903

4 CMO's letter of 12th July 2006. Important changes to the child hood immunisation programme http://www.dh.gov.uk/en/Publicationsandstatistics/Lettersandcirculars/Professionalletters/Chiefmedicalofficerletters/DH_4137171

5 GMS Statement of Financial Entitlements (last modified 3 December 2007) http://www.dh.gov.uk/en/Healthcare/Primarycare/Primarycarecontracting/GMS/DH_4133079

6 GMS Statement of Financial Entitlements (SFE) 2005 onwards (section 17) http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_4107508

7 Changes to the zero discount lists from 1 September 2006 http://www.dh.gov.uk/en/Healthcare/Medicinespharmacyandindustry/Prescriptions/DH_4137605

8 Standard General Medical Services Contract – January 2008 http://www.dh.gov.uk/en/Healthcare/Primarycare/Primarycarecontracting/GMS/DH_4125638

9 BMA circular August 2005: General Practitioners' Committee (GPC) Hepatitis B immunisation for employees at risk. BMA Members can access this document on: http://www.bma.org.uk/ap.nsf/Content/HepBimmunisationforemployeesatrisk?OpenDocument

Table: Travel Vaccines – when to charge Travellers registered with a NHS Practice

From the forthcoming 5th edition Kassianos G: *"Paediatric – Adult Immunisations & Travel Health"*

Vaccine	NHS			Private
	Central Supply†	**NHS Prescription or reimbursed***	**In the Global Sum (free to NHS registered with the Practice patients)**	**Charge patient vaccine costs and administration**
Diphtheria/Tetanus/Polio (Td/IPV) Repevax®	■ Td/IPV for 1st booster, and 2nd booster if aged ≥10 years	■	- Form age 10 years - For second booster, 10+ years after the first booster - For travellers to endemic areas every 10 or more years **- Poliomyelitis:** ■ All countries (free) except Europe (includes Cyprus and Turkey), North America, Australia/New Zealand - If immunisation is a condition for entry - For travel to an endemic area - For primary immunisation of individuals aged 6 to 40 years of age	■ If not in the Global Sum and vaccine purchased privately If not qualifying in the UK (first 5 doses of vaccine) or for high risk patients e.g. farmers [every ≥10 years (tetanus(] Every 10+ y for Polio and diphtheria

Financial Aspects of GP Immunisation Clinics *continued*

Vaccine	NHS			Private
	Central Supply†	**NHS Prescription or reimbursed***	**In the Global Sum (free to NHS registered with the Practice patients)**	**Charge patient vaccine costs and administration**
	Td/IPV for 1st booster, and 2nd booster if aged ≥10 years		**Note:** DTaTP/IPV/Hib for p.c. <10 years dTaP/IPV for 1st booster to 10 years Td/IPV for 1st or 2nd booster and primary course if >10 years of age	
***Haemophilus influenza* b & meningococcal C combined [Menitorix®]**	■	X	■ For asplenic patients	X (vaccine centrally supplied)
Hepatitis A	X	■	■ All countries (free) except Australia, New Zealand and Northern Europe	If not in the Global Sum and vaccine purchased privately
Hepatitis A and B combined	X	■	If traveller qualifies for Hepatitis A as above	If not in the Global Sum (Hepatitis A) and vaccine purchased privately
Hepatitis B	X	■	X Exception: in the Global Sum for protection on the NHS of those with "at risk" medical or lifestyle conditions as defined by Green Book – independent of travel intentions	If vaccine purchased privately and patient not in a 'group at risk' (see Green Book) – see previous column
Japanese B encephalitis	X	X	X	■
Meningococcal polysaccharide ACWY	X	■	Free, for travellers with asplenia	■ If vaccine purchased privately and patient not asplenic
Meningococcal C conjugate	■	X	■ Free for children & young adults <24 years, and travellers with asplenia	X (vaccine centrally supplied)
Pneumococcal polysaccharide	X	■	X But free claimable for the over 65's as per Green Book and CMO's letters	If vaccine purchased privately and patient not in a 'group at risk' (Green Book & CMO's letter)

Vaccine	NHS			Private
	Central Supply†	**NHS Prescription or reimbursed***	**In the Global Sum (free to NHS registered with the Practice patients)**	**Charge patient vaccine costs and administration**
Rabies	X [■ from HPA for post-exposure but not always]	X ■ On FP10 & reimbursed for 'occupational groups at risk' (see 'Memorandum on Rabies') For travellers not on NHS not reimbursed	X ■ 'occupational groups at risk' (see 'Memorandum on Rabies')	■ all travellers X cannot charge special groups at risk (see Memorandum on Rabies – Prevention and Control, DH, 2000, and Green Book)
Tick-bourne encephalitis	X	X	X	■
Typhoid Vi antigen	X	■	■ All countries (free) except Northern Europe USA, Canada, Australia & New Zealand - Infected area - Condition for entry	■ If not in the Global Sum and vaccine purchased privatley
Typhoid and hepatitis A Combined	X	■	■ for both (see under individual vaccines) X Countries not qualifying (see under individual vaccines)	■ If not in the Global Sum and vaccine purchased privatley
Yellow Fever	X	X	X	■ from approved Centres
Cholera oral vaccine	X	■ on prescription X not reimbursed	X	■ if vaccine purchased privately X if vaccine put on NHS prescription

† by Movianto on behalf of the Department of Health

* under 'Personal dispensing of vaccines' available in England and Wales for non-dispensing GPs

Pc = primary course

Copyright: G. Kassianos, Hon. Secretary, BTHA
Extract from the forthcoming 5th edition of *Paediatric-Adult Immunisations and Travel Health*, Blackwell Science.

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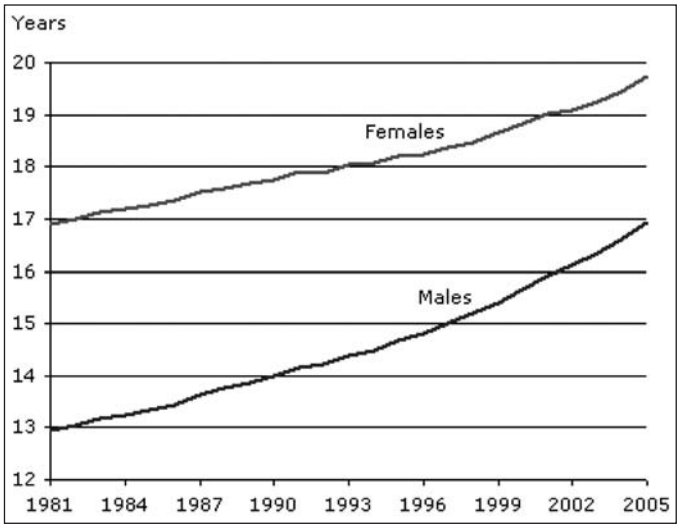
Travel and Health in Older People

Iain McIntosh

Older people make up an increasing proportion of the UK, European and North American populations. Many lead active and healthy lives for many years over the age of 65 years. With increasing life expectancy there will be many more of them, motivated to expand personal horizons and fit to embark on travel. Living longer, they can anticipate years of international travel after retirement from work. In Britain the number of elderly people and pensioners is increasing steadily each year. Soon, twenty percent of the UK population will be over 65 years of age, with a considerable increase in those over 75 years anticipated in coming years. By the year 2010, 7.2% of the population will be over that age.[1]

Table 1
Life expectancy continues to rise



Life expectancy at age 65, United Kingdom

Source: Office for National Statistics; Government Actuary's Department

Life expectancy at age 65 in the UK has reached its highest level ever for both men and women. Men aged 65 can expect to live a further 16.9 years and women a further 19.7 years if mortality rates remain the same as they were in 2004-06.[2] The majority of the recently retired population are physically fit and in good health. They have time on hand, relative affluence and past experience of travel in near Europe. A large number are now seizing the opportunity for extensive travel abroad, Budget and no-frills air travel allows them to make long-anticipated global journeys of a lifetime, to meet loved ones and satisfy a thirst to see the worlds wonders and enjoy international adventure before passing years bring declining health. There is a window of opportunity for people aged between 65 and 85 years to travel to the far corners of the earth. Many now do so several times per year. The majority of older people make the pilgrimage to distant family and fulfil world travel dreams to remote objectives without mishap. With women having a longer life expectancy than men, they will travel into more senior years and widowed, many may choose to travel on their own.

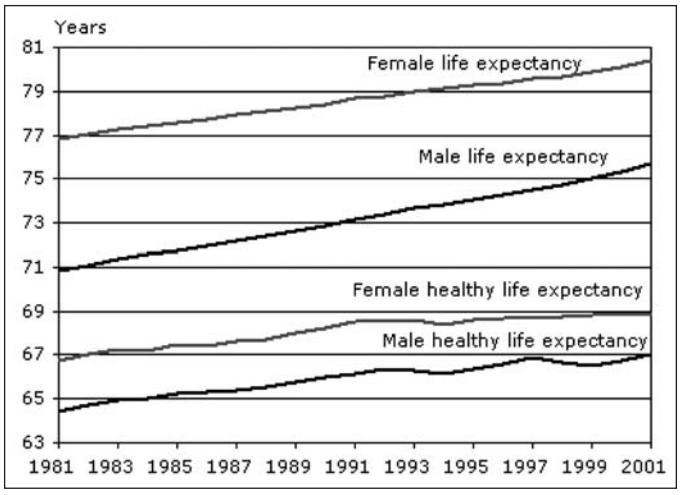
Table 2.
United Kingdom Population

	Life expectancy – Over 65 years	
	Women	*Men*
2008	20.1	17.4
2009	20.3	17.6
2010	20.4	17.8
2011	20.6	18.0
2012	20.8	18.2
2013	20.9	18.3
2014	21.1	18.5
2015	21.2	18.6

Source: Government Actuary's Department

Not only can they expect to live longer, many can also assume that they will remain physically fit for much of this time. The majority will remain fit enough for global travel in the first decade after the state retirement age.

Table 3
Health Expectancy:
Living longer, with years in good health



Life expectancy and healthy life expectancy at birth: by sex in Great Britain

Source: Government Actuary's Department

The healthy and not so well leave British shores, often with scant concern or consideration for risk to health that world travel can bring. They travel to des-

Travel and Health in Older People *continued*

tinations in undeveloped countries and to remote parts, where conventional medical support in emergency is not available. They venture forth with pre-existing and chronic illness and on medication and put their lives at risk. Few consider the availability and quality of local medical resources and repatriation possibilities, when embarking on their long anticipated holidays.

Many depend on travel medical insurance cover for protection in time of need. This cover may be illusory however and limited to the best available in the locale and the environment, which may be inadequate in emergency. Insurers are becoming more selective in accepting senior citizens as clients and some older people are now travelling with limited or no health insurance protection. When medical emergency arises while they are away and immediate first aid is delayed, local resources are inadequate, evacuation protracted and hospitalisation sub-optimal, this may have a serious impact on the individual and their recovery. Chronic morbidity and mortality is a possibility. In the absence of adequate health insurance protection, financial demands for treatment and repatriation may prove penal.

Physical and clinical fitness

A large number of elderly people remain fit and well into their eighties and can indulge in international visits and holidays, with many retaining car driving ability into advanced old age – a measure of their independence and capability.

Table 4
Older UK Drivers
Full car driving licence holders:
by age and sex

Gender	Age 50-9 years	Age 60-9 years	% 70 years and over
Men			
1996/1998	88	82	64
1999/2001	88	86	69
2002	89	85	68
Women			
1996/1998	63	48	20
1999/2001	69	57	25
2002	74	56	28

Source: National Travel Survey, Department for Transport UK

Surveys have shown that 80% of 75 year olds are fit enough to travel from home unassisted and considerable numbers now indulge in international travel.[3] In a community study of over 65 year olds, 33% had travelled out with the UK within the past year and 35% of 75-80 year olds had participated in foreign travel in the preceding three year period.[4] Many elderly people set off from the security of their homes and the protective net of the NHS and reciprocal European Union health provisions on long foreign journeys, often ignorant of the health risks which accompany global travel. Seeking winter sun and relaxation they embark on worldwide sea cruises. The increasing popularity of fly/ cruising is testimony to their commitment to far distant travel.

In Britain, many now take early retirement at 60 years age or leave employment at 65 and there is a good likelihood of maintained good health until the late seventies.[5] Many can anticipate global wanderings until the mid 70s with serenity.

Thereafter, increasing age and chronic disease begins to take the inevitable toll and may make long distance travel a more hazardous undertaking. The stereotyped view of the elderly person as confused, disabled and dependent is outdated. One finds elderly people exploring in the Amazon, visiting polar regions, climbing to high altitude and adventuring into remote parts of the world.

Mild and moderate impairment does not deprive the right of the elderly to venture afar, but it is the responsibility of the health professional and the travel agent to appraise them of the health hazard involved and endeavour to minimise the risk and optimise protection. The GP, surgery nurse, and practice travel clinic are ideally suited for interventions to forward this medical purpose.

Ageism and age discrimination are still dominant attitudes in Britain. Many cultures value their old but Britain has yet to come to terms with its elderly population and value their contribution to society. There is often an assumption that advancing years alone rob the individual of physical and mental prowess and steal away independence. Compensatory mechanisms, the accrued wisdom of years and sound medical advice can however ensure that most older global holidaymakers will travel in good health.

Reduction in immune, renal, cardiac and pulmonary function and declining glucose tolerance with physiological stress, can place the elderly at higher risk of succumbing to travel-induced illness. However, pre-existing disease plus the effects of senescence can make senior citizens very vulnerable to ill health during international travel.

Health status and the traveller

In terms of health risk, the potential older traveller is likely to fall into one of three categories:[1]

1 **The low risk group** - the 'young' old, which includes those:
- travelling to low risk destinations on short-haul journeys
- free from any pre-disposing illness

2 **The medium risk group** includes:
- group 1, where travel involves environmental extremes, or tropical countries
- the frail old
- those with pre-existing illness

3 **The high risk group:**
- immuno-compromised people
- those on "last-fling" holidays with terminal illness
- people with pre-existing illness travelling to high infection and trauma-risk countries
- those with pre-existing illness going to tropical countries and areas of environmental extreme
- people who have had very recent serious illness precluding them from travel.

Aeroplanes, cruise ships and tourist resorts will have their complement of older people in all of these categories who will enjoy their vacation and return home in sound health. A minority will however become ill abroad, require local medical services, evacuation and repatriation. Some will never return to good health after acquiring travel induced illness and the experience will prove physically and psychologically traumatic. This critical event may adversely also affect the travelling companion and spouse.

Effects of the ageing process

The cohort of people aged 65 + years shows differences from the general population which can have an effect on the outcome of global travel.
These are:
- Heterogeneity of health status
- Age-related physiological changes
- Increased incidence of comorbidity
- Atypical disease presentations
- Increased incidence of iatrogenic illness
- Higher need of social support
- Functional disability increases with age and is closely associated with chronic disease[6]

Pre-existing or chronic illness is likely to affect this group and should be considered by travel health professionals if their travel is far from Britain. Long term illness and disability increasingly affects people as they age.

Table 5
Long-term illness or disability restricting daily activities: by sex and age

Great Britain

Years of Age	Percentages	
	Men	Women
50-64	27.02	26.44
65-84	47.22	47.57
85 and over	67.10	73.79

Limiting long-term illness: calculated from a 'Yes' response to the question:
Do you have any long-term illness, health problem or disability which limits your activities or the work you can do?
This includes problems due to old age

Source: Census, April 2001, Office for National Statistics General Register Office for Scotland

Many people in older age groups are however healthy, health-conscious and follow active fitness programmes. They still wish to travel and they should be encouraged to do so as long as it is practical. The impact of relocation, international transit and environmental factors en route and at the destination does require their consideration however. Only some of this information will be available in the public domain and access to specialist knowledge is necessary to complete the broader picture and permit a personal assessment of potential health risk. The medical risk factors of transit mode, destination, itinerary, local environment and the medical facilities at the locale are within the remit of doctors, nurse and travel health clinic. Pre-travel health consultation provides the opportunity for health assessment, risk identification, and the discussion of precautions and prophylaxis.

Age in years is not the arbiter of fitness to travel abroad, however a fit 90 year old will have a pulmonary function only half that of a thirty year old,[7] a serious consideration when the individual can be exposed to reduced partial pressure of oxygen in an aircraft, or at high terrestrial altitude.

Effects of the ageing process which may have an impact on the world traveller[7]

Changes occur in:
Renal function
Water and sodium regulation
Temperature regulation
Cardio-pulmonary function
Gastro-intestinal function
Cell-mediated immune response
Neurological function
Metabolic response
Psychological reaction

The physiological baseline in the older individual should be considered by health professional and trav-

Travel and Health in Older People *continued*

el organisers, so that advice can be given on health risks likely to impact on their travels.

Physiological function effects
Changes occur in physiological function[8]
Renal
There are quite marked changes in renal function with the passing of years:
60% loss of renal physiological function by age of 65years
decreased sodium conservation
decreased ability to conserve water
Pulmonary
decrease in pulmonary function
decrease in ventilatory responseto hypoxia
Cardiac
increased cardiac load
Hormonal
Skin differences
decreased sweating ability

The effects of these changes in function can be markedly increased when pre-existing illness and other medical conditions have also to be taken into account, such as chronic obstructive airways disease, cardiac failure arrythmias and thyroid dysfunction.

Physical disability may also add to the effects of physiological malfunction and decrease in sensorial ability, such as diminished vision , hearing or proprioopraxis, have also to be taken into account in risk assessment.

Psychological factors also require consideration in the older long distance international traveller. The effects of stress in airports and transit stations and congestion on the roads and public concourses can be marked in the general public and have deleterious health effects in elderly people. Transit through airport lounges has been shown to have marked physiologically and psychological effects on travellers[9] and may be sufficient to tip the vulnerable older person into cardiac failure or arrest.[9] When the potential adverse affects of overexposure to the sun, tropical infection, high altitude and environmental effects are also considered it is obvious that there can be disadvantageous effects on the global traveller's health status. Many of these can be neutralised by careful advance planning by traveller, travel health professional and travel agent organiser.

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Iain B. McIntosh, former GP and hospital practitioner (geriatrics) and author of *Travel and Health in the Elderly.* This is the first chapter of a book on *The Older Traveller* to be published as an E.book on the BTHA website as a service to members.

APOLOGIES to James Alexander Waddell

I'm sorry to see that we made a grave error in not attributing your article to you, and offer sincere apologies. I was aware that you had indeed written the article, but the error slipped past my gaze on reading the final proof. I do hope this error on my part will not put you off writing for us again, although I perfectly understand if it does.

I can assure you there is no malevolence, corruption or deviance intended, and there has been no intentional misconduct.

Once again, my sincerest apologies.

Sarah Buckley, Editor (Vol. XI).

Travel Medicine and Extreme Endurance Events

James Moore

The Jungle Marathon is an extreme adventure race which takes place every year in the Para region of Brazil. Competitors race 230km through some of Brazil's toughest jungle, carrying everything they might need to live for 7 days in a rain forest. This includes their food, clothes, a hammock, basha and mosquito net and a few personal items, such as an MP3 player and some tasty snacks to help them maintain their sanity. One could question the participants' level of sanity prior to starting the race, as this event pushes people to the limit of their physical abilities, and with a 10-20% drop-out rate, it pushes many past their coping capacity.

The race takes part in the rainforest bordering the shores of the Tapajos river, a 1400 mile tributary of the great Amazon. The Tapajos Forest is the second largest conservation area located in the region, with over 1400 families living in 29 traditional communities along its shores, surrounded by a wealth of biodiversity.

Each day the competitors start off at around 6am, just as the sun begins to take the chill out off the night air, but before the solar rays shine down with the fierce intensity all too familiar at these latitudes. Not only do the competitors have to contend with this heat, but as the hours go by the humidity becomes stifling.

The race is split into six stages, ranging from 18 to 90km in length. Each stage is then divided up with between three and nine checkpoints depending on the overall stage length. Check points are manned by a number of staff with differing roles, and often somebody from the local community. The penultimate stage, covering 90km, takes place over a 36 hour period and for some of the competitors who make it past checkpoint four before 16:45, this will involve a run through the jungle in the dark. The time limit imposed at this point prevents individuals entering an area of jungle, at dinner time for the higher than average jaguar population!

From a travel and expedition medicine standpoint this event presents a colossal challenge, arguably encompassing most aspects of our speciality. Firstly there are approximately 60 runners of varying nationalities, backgrounds and experience, all of whom require appropriate pre-trip advice and Doctor's certificates demonstrating their fitness to participate. Much of this advice is gained through peer-to-peer forums and discussion with previous competitors, some of whom were returning for the third time. As one could predict there was a considerable variation in pre-trip vaccinations and anti-malarial regimes given to competitors. This demonstrates not only individual requirements, but arguably the ongoing variations in experience and knowledge present in travel health practice. However even this pre-trip screening does not prevent the odd surprise, with some competitors arriving at the pre-race medical briefing disclosing such information as 'they are waiting for test results following an arthroscopy', or 'a course of chemotherapy recently finished', and even 'cardiac stenting within the past 4 months'. Following these disclosures the issues raised are considerable. For example, can one provide appropriate care for individuals following such surgery; do these individuals really know and understand the risks; is there an option to withdraw a competitor out of the race at this late stage and what if they refuse?

Medical cover was provided by a highly skilled and experienced team comprising of an Emergency Department (ED) Staff Grade (race Medical Director), two ED Registrars, an ED Charge Nurse and three fully qualified Paramedics. All but two of the medical team had provided event cover before, so knew exactly what to expect. This experience is vital, as many would-be expedition medics often find themselves in unfamiliar situations, where they are unprepared for the tasks expected of them or the conditions in which they have to live.

A list of medical equipment needed to cover such an event could be incredibly long and as with any expedition there needs to be a balance between the ideal, catering for every eventuality, against practicality, availability and cost. Other factors to be considered are the fact that some medications, such as codeine based analgesics and benzodiazepines, have controlled status in countries outside of the UK, as is the case in Brazil. The medical kit was tailored to both 'worst case scenarios', having oxygen, airway management apparatus, fluids and a defibrillator, but also with equipment needed for the 'bread and butter' work - namely foot care.

Medical cover provided during the race comprised a medic at each check point, two at the finish and one on standby with a small rescue/transfer launch. The nature and location of some stages meant that most medics were taken out to their checkpoints the night before – spending a night in the jungle soothed to sleep by the sound of howler monkeys and cicadas, to the uninitiated is a most unnerving experience! On longer stages medics leapfrogged from early checkpoints to the finish, thus enabling greater cover and in the process, creating a 'medical rota' – proving that one cannot escape to off-duty even in the depths of the jungle!

Competitors are on the whole highly trained and physically fit individuals capable of looking after themselves with an awareness of their limitations. However this motivation can be a double edged sword as most are willing to push themselves to the limit, ignoring pain and discomfort in the process. The pre-race confidence tangible prior to the start was soon shattered by the end of day one, as competitors

Travel Medicine and Extreme Endurance Events *continued*

soon realised running in a jungle is not like anything they had done before.

As humidity approaches 85%, sweating ceases to be effective. However, the body continues to sweat and under these conditions and activity, loses fluid at a rate measured in litres per hour. Electrolyte loss through sweat in the initial stage is commensurate to this fluid loss and will only decrease after a period of adjustment. This acclimatisation increases the renin-angiotension-aldosterone system, enabling kidneys and sweat glands to retain sodium whilst maintaining significant fluid output. Acclimatisation takes between 2 to 3 weeks, occurring only with physical exertion which means that having arrived 2 days before the race, this particular group of athletes are at an increased risk of developing heat illness. In an effort to combat salt depletion, many runners were supplementing their diet with salt tablets or capsules. Although there are good arguments for their use, they are not without their side effects – the most noticeable being nausea and gastric irritation. As the race progressed some runners opted to use regular salt, added to their freeze dried expedition food.

Although heat related illnesses were the major concern of the medical team, the most common problems encountered were soft tissue injuries, wear and tear. These began to manifest themselves as the race progressed with many hours spent in the evenings draining blisters, removing toenails and debridement of wounds. Management of competitors' wounds in the jungle requires skill and determination, as dressings do not stick, become filthy within minutes of being applied and do little to prevent further contamination. The dressing saviours were a combination of 'Friar's Balsam' and zinc oxide tape. When applied to the skin and left to go tacky Friar's Balsam aids the adherence of zinc oxide tape, steri-strips and other dressings. However as one can imagine, they required regular attention.

Considering the event's nature and location, only one serious medical problem occurred – a competitor with heat stroke. After cooling and fluids he was evacuated to the regional hospital at Santarem where he underwent blood tests, a CT scan and had a period of close observation. At initial glance this evacuation sounds straight forward, however it took over five hours, at night, in rough conditions along a jungle river and involved several transfers, throughout which the patient remained unconscious.

A situation such as this raises *important issues regarding pre-trip preparation* that can be extrapolated into the wider travel health arena. For instance: do those travelling to environments such as these really understand the issues associated with medical evacuation; do they/you have an awareness of the medical facilities available to them; are they aware of the possible length of time an evacuation might take; have they compared available medical cover with previous endurance events run elsewhere and is this comparison appropriate. Although these issues are pertinent to all who travel, their importance is arguably greater to those participating in events such as this, as they are more likely to need them.

With the race complete, runners departed for their home countries and the comfort of a normal bed and some proper food. Following their return several required a course of antibiotics for infected feet, a familiar problem associated with this kind of event. A post course e-mail from the medical team to all who were involved described signs and symptoms of possible infections and reminded individuals to mention their recent travel if seeking medical follow-up.

Extreme endurance events such as the Jungle Marathon present major challenges to healthcare providers before, during and after travel. Although difficult, they highlight the need for Travel Health specialists to have a good awareness of the issues which competitors might face and which they might not have considered. This article has hopefully highlighted some of these issues and will stimulate further reading.

Recommended Reading:

Johnson, C., Anderson, S., Dallimore, J., Winser, S., Warrell, D. (2008) *Oxford Handbook of Expedition and Wilderness Medicine.* Oxford: OUP (ISBN978-0-19-929661-3)

James Moore is the Director of Travel Health Consultancy. An Emergency Dept. Charge Nurse and Expedition Medic.

Keeping Safe During Humanitarian Aid Deployment

Dr Christopher Jones

The purpose of this article is to give you a potential aid worker some ideas on how to prepare for overseas aid deployment, and how to keep safe during one of these deployments.

Initially, to consider how to prepare yourself. There are three areas to concentrate on; Physical, Medical and Emotional

On the physical side:

- What is your general health and fitness like?
- Is your Body Mass Index within the healthy range?
- Do you find normal physical activity strenuous in this country?

If you do, then don't forget that you are likely to be doing more physical work for longer episodes in the tropics and the heat and the possible altitude associated with the deployment, you may find that fitness becomes an issue.

On the emotional side you may be used to seeing individual suffering. In the Emergency Service you have all seen dead bodies and people with bits of their body's missing, but this is completely different to dealing with a situation of mass suffering and multiple deaths or drownings. Until you are exposed to these conditions, you don't know how you will respond; so you need to think about this and how you will personally cope with it and also how it will reflect on your professionalism.

On the medical side you need to consider:

Do you have any medical conditions such as diabetes, epilepsy, asthma or angina, that may be worsened by physical stress or climate change? Do you have enough of the correct medications for the deployment? Have you received the relevant immunisations and anti-malarial medications? Don't forget that the tropics are a wonderful breeding ground for exotic illnesses, like leptospirosis, cholera, Q-Fever and interesting parasites.

Consider your reasons for doing this type of work:

Why are you going?

For me it is a combination of several factors; from an altruistic point of view, I have got some skills that I can use in the larger arena. It is certainly adventurous travelling to exotic regions, which I would not visit on holiday usually, or with my family. There is also a massive sense of achievement when something goes right, and importantly, working as part of a team where all of your goals are similar, does give you an enormous high.

What do you expect to see and do?

Most of us would say large-scale search and rescue, casualty evacuation, treatment and aid distribution. However, the reality is often different from what we expect. Certainly, when I was in Sri Lanka following the tsunami, I expected to see injuries, fractures, infected wounds and acute medical conditions. However, the reality was that most of my patients had chronic medical conditions, or psychological problems. Those with injuries that had occurred acutely had either been treated, or had died. You also need to be aware that as a disaster progresses, the needs of the population evolve and change, and there is also the background of political imperatives, which often influence what you are able do on the ground.

Consider the perceptions of risks and threats on a deployment

The following was taken from a questionnaire given out by an NGO to the volunteers prior to deployment: Kidnapping and murder occur at the top, closely followed by rape and targeted assassinations or attacks, and then the risk of bombings and incursions into safe areas. *The realities of the risks* that are out there; the most risky things that happen in the field are traffic accidents, by any method of transport, whether it is road, sea or air. You may forget that you are in an unknown country or territory, you are not used to the topography, your friendly AA man or Lifeboat Service can't come and pick you up when things go wrong.

Second highest risk is robbery. You are in country where the average daily wage maybe only a couple of dollars, and you are kitted up with your ipod, your camera, your mobile phone and your diving watch, needless to say you are an obvious target.

There is also the possibility of verbal or physical threats but then you have also got to consider illness or disease that you contract locally. It is important not to forget the psychological distress that working in the field in a hostile environment can cause you.

Last on the list, but by no means least, is loss of personal property or documents. It is vitally important to back-up anything that is important that you have got, on to a disc, or photocopy, and keep separate from your personal belongings – (things like passports, visas, medical problems, credit card numbers, personal phone numbers and next of kin).

Assessing the risks?

The job of the Advanced Team is to research risks associated with the deployment locality, its political stability, and the Advanced Team needs to have a rapid exit strategy should things turn acutely unfriendly, to minimise the risks to the team members.

Keeping Safe During Humanitarian Aid Deployment *continued*

There is never any situation that puts the well-being of the team at risk because there are no medals for dead aid heroes. If things do go badly wrong and you have aid casualties, this not only compromises future aid work generally by the organisation, but has a massive impact on the moral of the teams. Team members themselves to be made fully aware of the local risks and appropriate actions that they need to take to minimise exposure to those risks and how to act if those risks present themselves. Again the team needs to have a defined entry and exit strategy with reliable communication links, not only between team members themselves, but also with the outside world; and deployment, wherever possible, needs to be proactive rather than reactive.

Most traffic accidents occur at night when navigation is impaired, and you are more exposed to unfriendly local personnel. It is essential to try to get to know the area that you are working in, and avoid travelling at night in unknown territory.

Once you have arrived on deployment, you have got to keep yourself healthy. From a food and drink point of view, the key message is to eat healthy and drink plenty or suffer. It's the job of the Advanced Team to source local nutritional supplies. What are your options? Do you cook for yourself? Do you go local? Do you use military sources or do you use civilian sources? In Guyana, the RNLI's Rapid Response Team ate in the Officers Mess and one can safely assume that if its good enough for local Senior Military Officers, then its good enough for you. In Sri Lanka we managed to negotiate our food supply from a 5 star hotel and again, 5 star hotels attract rich overseas tourists, and people like that demand good food and drink. So, is it going to be safe. If you are in camp preparing your own food, then you are going to have to make sure that it is fully cooked and that any milk that you use, if it's local, is pasteurised, and if you can't ensure this, then you are going to have to use powdered milk, which you bring in from the U.K. Cereals and local fruit should be generally o.k. to eat, but I would avoid eating salads and cold meats.

It is really important to be drinking plenty of water, but you are only going to be drinking bottled water, no local water at all, certainly no ice in your drinks, and you are going to use bottled water to clean your teeth and also to wash the fruit that you buy. Supplements shouldn't be necessary in short term deployment, and most Aid Teams also carry military ration packs, which can be very useful. Each pack provides appropriate sustenance for 24 hours and you can use it to top up local foods, or as a replacement, if you become unwell from things like sunstroke, diarrhoea, vomiting or dehydration. Don't forget that should you become unwell, then it's the team leaders job to take you off your duties and confine you to light duties until you are fully rested.

Don't forget that good personal hygiene promotes good health, whilst sloppy hygiene promotes the spread of disease and infection. You need to be fully aware of the camp latrine and personal washing facilities and make sure that you clean your clothes and your kit at the end of each day if possible. Generally a camp that is clean and tidy keeps you healthy and displays professionalism, whilst a sloppy camp may reflect on your general deployment. Do not forget about foot rot as well. It is very common, usually caused by fungal infection, by working in areas that are warm and moist. Similarly, although we all want a suntan, use your hat and sun block.

With regard to medications that are available for Team Members, the doctor's kitbag should have adequate and strong pain relief to cope with those problems that may occur with injuries or illness, ideally this would include Morphine based drugs; there should be no reason why a team member should suffer. In your general kit, you are going to have things to stop diarrhoea and vomiting, antibiotics, antiseptics and dressings and also each team member will have their own needles, syringes and giving sets should they need blood transfusions or blood tests, so that this would limit to use of local injectables.

Regarding teamwork, everyone should know how important it is to be part of a team. Every player in the team is as important as the next, and if you have a well running team things go well. If the team dynamics has a problem, then the mission of deployment can be compromised. So it is really important that you respect each other, support each other and are constructive in your criticisms towards each other. I think using a buddy system is good because it allows you to properly look after each other and support each other so that you can act on any concerns that might arise.

As the deployment comes to an end and you are ready to go home, it is important that you have a planned exit strategy, because with this type of work you need to have a beginning and an end to maximise your enthusiasm, efficiency and results. This strategy needs to be communicated well with the whole team. Once you have left the deployment zone, either for some rest and relaxation or you have arrived home, you should have a short debrief and the Team Leader needs to follow up any anxieties or concerns or issues that were raised byte team members. It is important to be responsive to constructive criticism because by being constructive you can learn and also develop your skills for future deployments.

Then finally about 3-6 months post deployment, it is a very useful exercise to have an e-mail summary de-brief of everything that has gone on with an update as to what the current situation is at the locality. It is important, I believe, to enjoy the deployment and to be proud of what you are doing.

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Travel Related Medicine – a Discipline with a Tenuous Evidence Base

Ian MacKay

A mere 15 years ago travel-related medicine was practiced by isolated individuals working in general practice and infectious disease units, with a sparse support network. In time, some practitioners developed a common need for cooperation and the International Society of Travel Medicine (ISTM) was born, followed shortly by the British Travel health Association (BTHA). The ultimate acknowledgement of travel medicine as an independent discipline came with the admission of Members and Fellows to a Faculty in the Glasgow Royal College of Physicians and Surgeons.

In the UK the general practitioner contract of 1995 encouraged establishment of travel health clinics, now staffed predominantly by nurses. There was a need for educative courses and conferences which have proliferated since, with diploma, degree and post graduate courses meeting the demand.

The paucity of empirical research within the embryonic discipline was recognised,[1] with Wilkes noting that," little attention was being given to empirical research, even though field studies are a critical component in provision of accurate medical advice for patients." In the interim, the vogue for evidence based medical practice (EBM) also became established as a gold standard and the basis for good clinical practice. Integrating evidence based medicine into routine management can improve care of patients if treatment guidelines are based on the best available evidence,[2] maximising efficacy and convenience and minimising toxicity Much of current general medical practice still does not have a strong researched literature base, or what is available may be misleading due to conflict of interest.[3] However, GPs and consultants appreciate the need to utilise the evidence base in clinical decision making.[2,3]

The BTHA executive has continued to recognise the importance of research and endeavoured to stimulate new projects with research grants and provide a platform for authors to report research results through the medium of the journal. Few have responded to these offers and the association is now investigating the opinions of members on the relevance of research and their personal involvement. New BTHA initiatives are promised if unmet need for support is identified.

Diploma and degree courses require students to undertake small research projects, but very few reach publication and even fewer students continue with research once graduated. Few members and fellows of the new Faculty of Travel Medicine were elected on their research accomplishments.

The research section of the BTHA journal was created to facilitate the publication of research papers by novice authors, but relatively few articles come from British sources and these mainly from the academic environment, or teaching hospitals. Some researchers may opt for publication in a medline-cited publication, but trawl of peer-reviewed journals does not support this hypothesis. There is evidence that travel medicine journals and more general medical journals read by UK doctor and nurse have skewed research and review contents, with undue emphasis on topics such as malaria, vaccine-preventable and infectious disease.[4] Malaria management can be complex and vaccination guidelines justify a large presentation, however many important topics relevant to the everyday practice of travel medicine are neglected. Specialist journals in other disciplines, such as dermatology, respiratory, cardiac disease and geriatrics do not appear to make up the shortfall. Rarely read by family doctors and practice nurses, they are unlikely to be effective in disseminating results to travel health professionals, or consolidate, or widen the disciplines evidence base.[5]

Risk assessment and clinical management are fundamental to travel clinics, but their value and efficacy is rarely audited or subjected to community study and is poorly represented in the journals. One of the most likely medical mishaps to international travellers especially younger travellers, is a traumatic event, in a road traffic accident or sporting activity[6], but there are no good UK research statistics on incidence, causation, injury type, outcome and avoidance. National surveillance of accidents and injuries occurring in travellers while abroad is not currently undertaken[7] leaving many unanswered questions for the practitioner in the travel health clinic, endeavouring to identify potential risk and advise the traveller. The insurance industry must have a substantial data base established from accident insurance claims, but this never appears in the medical literature if released at all, as it is considered commercially sensitive.

A similar situation arises with people travelling with pre-existing disease the effects of which are most likely to cause morbidity and mortality in older travellers. How many succumb while abroad? What conditions are most likely to create problems whilst overseas? How and where are they treated? How many are hospitalised and require repatriation? The definitive data to provide the evidence base for rational pre-travel clinic advice in this respect is not available. Sea cruising attracts ever more travellers with many of senior years. There are very few publications casting light on their mishaps, management and outcome. Ship-board trauma is common and many demands are made on ship doctors who often have

Travel Related Medicine *continued*

very short contracts and have no time, or inclination for on board research. The data collected by cruise-line management is not disseminated to the medical profession, again for commercial reasons. Travel thrombosis is a subject of extensive professional debate and lay interest, but the subject is poorly researched, with case reports and small studies merely fuelling the debate. The Government action and reporting needed to provide the research based evidence of a relationship with air travel is still awaited. The evidence base required to support guidelines for best practice is not extant.[5] Common conditions affecting hundreds of world travellers are poorly addressed in the literature, often with reviews based on a few insubstantial published papers.

Travel clinic consultations often involve pregnant, diabetic, elderly and child travellers and correct advice and management is important, yet the researched based data to back up advice and guidelines is paper thin. Innovative and necessary research, carried out by nurses and doctors in the travel medicine field is very limited, outwith investigation of malaria and infectious disease. Recent changes in contract and work demands, have diminished the likelihood that gps will initiate personal research into subjects of special interest. Overworked practice and travel clinic nurses get no protected time or encouragement to participate in research

Few active researchers involved in travel medicine are interested in the wider range of topics in this field of special interest. International conferences publicise a plethora of papers on many topics, but these are often small, parochial and pedestrian with no lasting impact on the research scene. Globally there is a paucity of evidence base for many of the crucial elements in the practice of travel medicine. Continued professional development and revalidation processes place emphasis on professional access to the research literature, but this may be a weak source of professional advancement and updating, if subjects pertinent to everyday practice are absent or poorly recorded.[4]

Literature reviews also show an over -abundance of publications and citations in some travel medicine subjects and a paucity and absence of material in many others. Again, topics of everyday importance in travel health management, e.g. pregnancy, diabetes and trauma, are poorly represented. Research journals do not adequately cover the wide range of subjects associated with travel medicine, a cause for concern as research reports provide substance for reviews and educational texts.[4]

Many practicing travel health professionals may depend on reference books and manuals which were initially in short supply with the advent of travel medicine. This has been addressed, although several important areas of immediate interest to travel health professionals like elderly travellers, cardio and pulmonary compromised travellers and those with pre-existing illness are often poorly served. Travel health text books and guide-lines can be poorly refer-

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enced, provide dated references, or quote from obscure inaccessible journals. In the absence of researched evidence, the educative value of their text is diminished.

Some may now access the worldwide web, but material can be inadequately referenced and provide a poor evidence base. Government-backed websites are excellent sources of information on malaria and infectious disease, but can be unhelpful for the professional managing the traveller with a phobia, or the debilitated elderly person intent on a sea cruise to Antarctica.

Attention has been drawn to the fact research publications provide authenticity and the evidence base for rational management which, added to clinical experience, can guide towards best practice. EBM can help to build consensus around clinical guidelines and ensure that guidelines evolve to incorporate new evidence, but this needs a sound evidence base which is fragmentary within this discipline. Without current best evidence, practice and management run the risk of becoming out of date, and without it the discipline may be built on a pack of cards.[4]

There is an obvious need for more research across the broadest spectrum of travel related medicine. The revalidation process may encourage this in some, but for most individuals working in the field, there needs to be the incentive of protected time or financial incentive. The colleges must develop, encourage and support interest. Without research and improved evidence base, management depends on experience, which only comes with many years of practice, anecdote, and case history .Without improved data collection and its dissemination,the discipline cannot advance and health professionals cannot provide "best practice ".It has taken a decade for travel medicine to gain recognition , without a commitment to data collection and research it may never reach full maturity

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Medical Care for Visitors to France

Martin Honor

A short hop across the English Channel, France has long been a holiday destination for British tourists. Many people have bought residences in the country and have longer sojourns in the country. Trauma on the ski slopes and medical mishap may require them to seek health care outwith the UK.

Statutory Provisions for all British Visitors

There are differences in medical cover for residents and visitors. The following concerns the latter.

Visitors to France

- should obtain an EHIC (European Health Insurance Card) – http://www.dh.gov.uk/en/Healthcare/Healthadvicefortravellers/Gettingtreatmentaroundtheworld/EEAandSwitzerland/DH_4114793

- should consult the procedures for care and reimbursement: http://www.dh.gov.uk/en/Healthcare/Healthadvicefortravellers/Gettingtreatmentaroundtheworld/EEAandSwitzerland/DH_4114793

- consult a useful reference resource: http://www.frenchentree.com/fe- health/DisplayArticle.asp?ID=26454an and other articles at this excellent website http://www.frenchentree.com - intended for residents but containing a wealth of information pertinent to visitors.

The French authorities are redefining the rules for eligibility. This should not affect EHIC entitlement but may affect reimbursements.

Emergency Care

What to do if you fall ill or are injured:

- Find the address/phone number of the local doctor (**medecin**) and make an appointment – *'je voudrais prendre un rendezvous pour moi/ mon mari/ma femme/mon enfant pour ce soir/demain….'* Unlike in UK, appointments are arranged for the same day!
  The consultation will cost between 22 and 28 euros which is payable directly to the doctor. He provides a form for reimbursement. If he prescribes medicine, he will give a prescription (**ordonnance**) to obtain the prescribed medicine from a chemist (**pharmacie**).
  Should it be necessary to see a specialist, the doctor will explain the procedure. Again, an appointment will be made with very little delay.

- If the situation is urgent the patient should report directly to casualty (**urgences**) or call the **Sapeurs Pompiers**. This is a section of the fire service that deals with accidents and injuries. They will decide if the situation requires further attention and will make the necessary arrangements.
  If situation is critical call the **SAMU** (Le Service d'Aide Médicale Urgente) – *'j'ai besoin d'une*

ambulance'. An emergency team will arrive in minutes. They will perform emergency treatment sur place and, if necessary, take the patient to casualty for further care.
On arrival at the Casualty Unit needs will be assessed. Urgent cases receive priority treatment. As in UK, waiting time for less urgent cases will depend on the queue.

Contacts

Note the following numbers
15 SAMU
17 Police
18 Sapeurs Pompiers or
112 from a mobile (Single European emergency call number) – valid throughout Europe for emergency treatment - see this for further information
http://www.112.public.lu/publications/depliants/Depliant_urgence_112.pdf

Disclaimer

The above is intended as a guide to further research. There are so many changes to the rules and regulations in France at present that visitors should ensure they have the latest information.

Reimbursement

Full details of how to reclaim expenses are here: http://www.dh.gov.uk/en/Healthcare/Healthadvicefortravellers/Gettingtreatmentaroundtheworld/EEAandSwitzerland/EEAandSwitzerlandbycountry/DH_4114701

- Like many professionals in France the doctor will probably speak English
- The French do not have an inbuilt antipathy to the British!
- Hospitals and clinics are clean, well equipped and staffed by sympathetic and efficient staff
- There are few special arrangements for the elderly, but then the standard of care is so good there is little need

Martin Honor was for many years a resident in France, but has now retired to England.

A British Travel Health Association Project

Study of GP's Management of Travel Health Consultation

This preliminary pilot study investigated the basis of health professionals' management in travel health consultations – on behalf of the British Travel Health Association.

Results from a pilot questionnaire completed by 82 GPs attending general medical educational meetings, suggest that family doctors may have different approaches to management of general medical consultations and travel health related ones. Evidence based medicine was seen as of greater import in the latter and may have greater educational significance. The need to advise on and be familiar with changing malaria prophylaxis and vaccine schedules in many pre-travel consultations, may emphasise the importance of an evidence base for these management decisions.

I. McIntosh

Health and Tourism in Madeira, Canary Islands and the Azores

Alistair Durie

The Atlantic Islands off the west coast of Africa, once occasional ports of call for sailing ships on long world voyages, first attracted the tourist with the advent of steamships en route to Australia and South Africa. The coming of the clipper service before the first world war brought a steady trickle of affluent air travellers to Madeira in particular. Mass air travel flooded the Canary Islands with package tourists , with the more discerning going to Madeira and the Azores. Now they feature on all the tourist brochures and suffer under a deluge of British holidaymakers.

Relatively poor undeveloped islands fifty years ago, sanitation and health care facilities have improved dramatically over the decades. They have long had a reputation as health resorts for invalids as old guide books testify and were early destinations of health tourism. Air repatriation of Britons who become ill during their sojourn on the islands is common.

In the late nineteenth century, travel guides of big commercial firms – as Baedeker – dominated the English speaking world. Covering European, Middle East, Egypt and Palestine destinations in depth. There was always room for the specialist product, aimed at promoting tourism in less favoured markets, and informing the traveller who wanted off the beaten track. One such author, Samler Brown, a resident of Santa Cruz, Teneriffe prepared a report for the British government on the Canary Islands in 1892,

This group of islands was once very remote but in the later nineteenth century thanks to better sea transport, came to public notice, Madeira had been a 'coming place' for some time, thanks to works such as Edgar Crane's 'Nsida, Two Winters'. Journalists from the *Lancet* played their part in drawing attention to the possiblities of health tourism. Brown's Guide was first issued in 1889, and was updated every other year thereafter, reaching the 11th in 1919. Important to the development of these islands as tourist destinations were better sea services. "Thanks to steam", Brown says, "the islands are now reachable in a few days". Steamship companies were interested. The kind of European traveller travelling to these island resorts changed when one company claimed that it offered the cheapest and best route to what it dubbed 'the healthy islands', sailing from Liverpool: 15 guineas for a normal passage, 18 for express. There were long distance services that stopped off en route to South Africa or via the Cape of Good Hope, Australia and New Zealand.

The appeal of this part of the world, and to which all the advertising referred, was the climate and in particular, sunshine, for invalids. 'The Azores have a mild winter climate... the inhabitants have the languid look of lotus easters', rhapsodises Brown. A lengthy analysis followed as to which time of year is best, for whom, in what condition; where the invalid could best find treatment, thermal baths or seabathing. At Funchal there was the bonus of hill air, reachable by an electric tramway, and a cog railway, to near the summit.

Madeira, according to an article in the *Lancet* which is cited was particularly good for bronchitis –it has been 'long known as a haven for weak lungs' - with its absence of wind and 'absolute freedom for dust. There is a chapter for invalids, which notes that there are European doctors - English, German and French - and dentists. It gives a warning to visitors about diarrhoea: 'be cautious as a newcomer, about fruit, native wine, excessive fatigue or even undue exercise.' The guide puts strong emphasis on the quality of water and sanitation now available. In past times, or so critics had agreed unanimously, a great drawback had been the wretched sanitary arrangements to be encountered. This, Brown assured his readers, had been vastly improved by new hotels under *English* management.

The guide was written with tourists, either on a cruise but also for those – perhaps for reasons of health, considering longer term residence. Isolation was not a problem as there were colonies of British residents in many places. There was a specific British cemetery, 'prettily laid out and carefully tended by the foreign residents'. Brown's Guide is a cornucopeaia, with its text, photographs and advertisements.

Tourist Health Care Today

The tourist and vacationers of today will be residing on islands now part of the European Community and health care facilities, once primitive, equate well with their parent countries of Spain and Portugal. Private and state supported health care facilities coexist but it is wise for the traveller to be protected by travel health insurance. The EHIC health card provides a measure of protection, but does not cover the cost of repatriation. The very ill tourist will need air evacuation and this can prove very expensive. Ill cruise passengers are off-loaded on to the islands and the Azores have limited facilities for investigation. Patient's requiring more extensive exploratory work-up and surgery will be flown to Europe. Air links between Azorean Islands can be tenuous and repatriation may involve ferries.

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The Health Care Service in Argentina

Gabay P Schweiger, A F Bruno MD

Visitors and tourists to Argentina will find a different health care system to that of the UK. Insurance is vital as emergency care for the ill British visitor will depend upon access to private health care. Repatriation costs are very expensive.

The structure of health care services in Argentina consists of three subsectors: the public sector, national insurance (social security funds) and the private (prepaid) health care. They provide a large sectors of the population with a health care system until the 1970s.

Coexistence of these diverse subsectors and strategies implemented by the governments – both national, province governments and city councils – give the health system some peculiar operative features. These have major consequences, concerning population access to service, and quality of goods and services rendered within different jurisdictions, varying even within the same province. The outcome is a material inequality in health care and the funding of the diverse subsectors in the Argentinian health system, concerning *per capita* expenditure, the population included and the services rendered. This is due to system fragmentation, lack of coordination, integration organizational heterogeinity, diverse funding and differences in access possibilities not only between but with sub sectors. There is also lack of lineal relationship between employment and health coverage. With differences between the population's health indicators. Scarce or nonexistent integration between public and private sectors and fragmentation within each of them have been highlighted and intensified by two factors:

1. Public health services decentralisation; with detachment from health institutions, by national government passing them on to provincial administration and city council levels. The national administration gave province states all health institutes under its command located in the provinces, and state provinces followed suit with respect to city councils. As a consequence, national government stopped sending provinces the budget items to fund health care and education.

2. The serious economic crisis in recent years, gave rise to major social difficulties linked with unemployment, marginalization ,poverty and increase in black economy employment, None contribute financially to the social security funds and receive public (hardly ever private) health care.

Health expenditure has three main funding sources: family direct expenditure (prepaid health systems included), the three administration levels (national, province level and city councils) and employees and employers, who pay for the social security funds. Private subsector represents 40-50% of overall health exenditure. The rest goes for the social security funds and the public sector and is 8% of Argentina's GDP (Gross Domestic Product).

The public subsector

The public subsector is divided according to different jurisdictions (national, province and city councils), with no coordination. The central level (Department of Health of Argentina) is in charge of comprehensively managing the system through regulations and programmes. Province governments have autonomy concerning health policies and are in charge of rendering health services. The public sector offers general and cost-free access. *Most health services demand comes from people with no or insufficient coverage. The population under 15 are least covered (44%) whereas people over 65 receive the largest share 81.3% of the coverage.*

Management is decentralised. Due to the remarkable diversity in social and economic development of the regions, with inequalities in the public expenditure per person in each of the 24 provinces, sharp dissimilarities exist between public hospitals according to their being ascribed either to national, provincial or municipal levels.

Health care system funding is by three different means, one for each of the subsectors making part of it. The public subsector is financed through taxes, levies and special excises collected by all three administration levels (national, provincial and municipal) and which are used mainly to give health care to those people with scarce financial resources and those lacking any official health coverage

National government manages a compensating fund aimed at redistributing certain budget items among the Social Security Funds with more economic resources and those with less in order to ensure an equitable health coverage to all workers. It also covering the expenditure of all decentralised entities and programmes created by it: REMEDIAR (medicines), community medicine (general practitioners), Mother-Child care scheme vaccination, etc. It compensates the differences in resources and health performance/indicators between the provinces through primary level interventions. 67% of the population with no health coverage live in provinces whose governments are unable to provide the minimum coverage .

66% of the public sector's health expenditure comes from provincial governments and is allocated to hospitals. City councils spend 15% of the overall public expenditure, mainly through Primary Health Care Centres.

Social Security Funds (National Insurance)

Almost 53% of Argentinians receive their health care coverage through the Social Security Funds or private insurance (see below). Money is automatically deducted from worker's wages and contributed into the Social Security Fund. Each Social Fund is managed

The Health Care Service in Argentina *continued*

the Social Security Fund. Each Social Fund is managed by the corresponding guild/trade association, and as a consequence these guilds/trade associations receive and manage large sums of money from workers through their Social Fund. As membership in a guild/trade association and the subsequent financial contribution to the guild by the worker are not compulsory in Argentina, and yet affiliation to a Social Security Fund is, guilds/trade associations receive in this way an amount of money that would otherwise not be available to them.

The system in 1990 allowed the Social Security Funds to outsource to private health insurance (prepayment) companies through special schemes .Meanwhile some Social Security Funds purchased private health care suppliers in charge of directly providing these services to their members.

There are currently 290 Social Security Funds throughout Argentina. This system is formed by:

1. National Social Service (National Social Security Funds, "OSN").
covering all retired workers pensioners throughout the country, their under age children and many disabled; trade union Social Services, run by the guilds/trade unions, and also the Managerial Social Services (Management Staff).

2. Provincial Social Security Funds ("OSP").
24 Provincial Benefit Institutes providing health care and pensions schemes.

3. Social Security Funds under special regulations: for members of the armed forces, staff of the national universities and of the judiciary and legislative power.

4. Mother-child care National Social Security Fund ("Cuidarnos provides specific medical specialities covering all aspects of mother and child health.

5. Primary Health Care ("APS"), (for those with no health coverage) and by the

Certain health services have been statutorily guaranteed since 1999, to provide a set of Compulsory Emergency Health Services (PMO)

The National Insurance is financed through the officially contracted workers' individual contributions and those of their employers, which are transferred to the Social Security Funds (National, provincial, municipal and others) and their expenditure finances the health care provided to all those formally belonging to the work market.

The beneficiaries of some national Social Security Funds have been allowed since 1993 to freely choose their health care coverage.Those who shift to a Social Security Fund which provides more services (thus a richer one) are generally the wealthiest individuals. This entails a transfer of their contribution to their new Social Security Fund. This way the poorest Social Security Funds become poorer while the richest increase their resources and ensures that coverage differs from one Social Security Fund to another. This is the so-called adverse selection mechanism.

This has led to some private suppliers' inabilitybto pay their taxes and to carry out any technological and building updates and refurbishings and rendered them indebted to staff and suppliers.

The private subsector

The private subsector's financial resources come from families' direct expenditure and voluntary health insurance premiums. In early 2007 with the objective to control the cost increase in the health care of the private prepaid health services users, two possibilities were approached: 1) an individual contribution-quota rise by around 20%, also adding new services (such as gym, optician's or beauty products' discounts), or 2) a much lesser increase, by only 5%, but with additional payments by the affiliates with each service actually received. Most affiliates chose the first option.

As with the UK health care, there have been many recent changes to the Argentina Health Service, with fragmentation resulting in inadequate health care provisions for vulnerable groups. Tourists should ensure they are well protected with travel health insurance care.

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Health and Welfare in Rural Honduras

Nigel Potter

Some weeks ago the machines moved in. The dirt road 5kms long to my village is being improved. It was improved a year ago by one machine that bulldozed the ruts and bumps and ditches. The results were soon washed away by the rains and the road was soon back to its usual rough, bumpy, dusty, stony, muddy state. So this time round, at great expense, many machines have arrived to do the job properly. Bulldozers, lorries, tractors, compactors, the results are impressive. A wide, smooth road, so the daily bus, the odd lorry and a few "pick ups" can race along in no time at all. On horseback, its like galloping down a runway with no fear of the horse tripping in a pothole and being thrown.

How long this will last it is difficult to say, a bit longer than the last repair job, say the locals, but not long once the torrential rains have done their work over the months. In the meantime everything is dandy and someone is going to get killed. No one is used to the new speeds. Before, in the mud, if a vehicle could get out at all, it slithered and slipped, wheels spinning and went dead slow. In the dust it was not much faster, going carefully over rocks, stones, ruts and potholes so as not to rip the chassis off. Everyone co-existed happily; children wandering up and down, scattered across the road, going to and from school, groups of women carrying loads on their heads, men on horseback, pack-mules being driven along, inevitably straddling and zig-zagging all over. Time enough for a vehicle to go from slow to dead slow and for people and animals to get themselves together and get out of the way.

Now everyone, whether on 4 legs or 2 has to jump for their lives as a honking, hooting vehicle comes hurtling round. It's not much safer on 4 wheels either. There never used to be bends, or if there were, nobody noticed them for the "pick up" had to go slowly. Suddenly at speed, there are curves, sharp ones, always unexpected after being unnoticed for years. It takes some frantic pulling on the steering wheel to get safely round. When it's wet, the tyres, invariably bald, will never make it and the vehicle will take flight – over the edge, and that's one more cross stuck in the ground by the roadside.

Whenever somebody dies violently, a cross is routinely erected where the body fell. You see them all along the roads, recording smashes, crashes, pileups, going over the cliff, children run over. You come across them in the most unexpected places. I discovered one recently walking in a wood where a man I knew was attacked and hacked to death with machetes. I never knew exactly where he was murdered. I know now! There is another one near the local football pitch, across from a house, also by the side of the road. This person wasn't run over or crushed in a crash. He was shot to death by a father and son who were annoyed at him! Every time they come out of the house they see that cross! Worse than hanging to live with that one I would say, but who knows what they feel. He was only an old Indian peasant after all who got too loud in the mouth one day when drunk. They seem completely indifferent to their murderous act and go on their merry way.

All that, however, is death and dying. At the other end is birthing and feeding baby. For all the poverty, filth and squalor the one problem most families don't have here is, all the problems, difficulties and dangers of bottle feeding. Breast-feeding is practically 100% here and if it weren't, rates of diarrhoea, malnutrition and infant deaths would be even higher than they are. What does an educated woman do? Bottle-feed her baby? I can think of one in particular. She is from a peasant family herself but broke out of the cycle of making endless tortillas and babies by getting herself an education and very wisely marrying a man who had some education too but who had a little money. A nice woman and a teacher, she works at the local school. She's breast-feeding at the moment, but next week she returns to work and is determined to bottle feed. So she'll be back to teaching but WHAT will she be teaching? Ostensibly the 3 R's. In fact, the lesson that will be going over to be picked up by the couple of a hundred children who see her every day is that, bottle-feeding is smart, educated and convenient! She's very good with her charges, a dedicated teacher. Good to know she'll be making some inroads into the rates of illiteracy, sad to know more babies and small children will die because of her example. I suppose that is my problem - I want to be "under-developed" while everyone else wants to be "developed", to be sophisticated and civilised.

I curse muddy roads and feel fed up when the "pick-up" or bus in which I am travelling gets bogged down and stuck. I hate clouds of dust in my face, my mouth and up my nose. I hate sliding about in the back of a "pick-up" as it slithers in the mire, or being jolted around so hard my backbone feels as if it is coming out of the top of my head. Besides, the journeys can be so slow. And yet… and yet, I like it too. I like earth tracks just as I like to see women offering their babies the breast and see them feeding, sucking away. If I had wanted all roads to be paved and babies to be fed cow milk powder out of a bottle in public (and be breast-fed in the lavatory) I guess I would have stayed in Britain.

I would have loved to have known and lived in Honduras, not so long ago, when there were no paved roads, but a wide network of paths, hardly any cars but long trains of pack ponies and mules. The rich travelled in small planes and most towns had old landing strips. Nothing faster than a horse, riding or walking everywhere, where breast was best. Now

Health and Welfare in Rural Honduras *continued*

that's real development, there's a little piece of paradise there.

Not so, says a British friend, aghast at my romanticism and sentimentalism and male chauvinism. Such life is drudgery: where, for instance, would women be without washing machines? So now the developed world has machines there is no drudgery? Interesting too, "washing" machines are still associated with women, and what unbelievable, insupportable drudgery goes into making, buying and maintaining such machinery. It is progress, watching dirty clothes chop and churn around in soapy water then spinning around in a glass to make you dizzy (oh, great). Far better anyway than standing up to the knees in water, in the river, slapping clothes against a rock, hanging them on bushes to dry and having a blether with the girls.

Nigel Potter, former NHS Health Visitor.
Our health correspondent now resident in Honduras.

Photo: I B McIntosh

Bites, Bugs and Uninvited Bed-Fellows

Allan Melrose

Bites and stings from a variety of winged insects, ticks, leeches, snakes, animals and fish can be either a mere nuisance to the traveller or a serious threat to life. Vacationers need not travel far from home to be exposed to skin-puncturing creatures, and the wounds may prompt a minor inflammatory response or a generalised allergic reaction. Summer brings unwanted skin invasion from bees, wasps, horseflies, black flies, midges, ticks and mosquitoes and bites from snakes and four legged animals. Single insect bites and stings – unless to the allergic individual – are usually insignificant – although painful. They are treated by removal of the sting if present, skin lavage, with an antiseptic and the application of an antihistamine cream. The multiple bites of the voracious highland midge, however, may require oral antihistamine administration and topical steroid cream to contain the pain and itch.

With bites and stings, some people develop a resultant skin infection and cellulitis, and older people with oedematous limbs appear more at risk in this respect. Anecdotally, women appear to have a more violent response to insect bites than their male counterparts.The more extensive use of perfumed products also seems to attract more biting insects to their proximity.

Snake, rabid dog, monkey and bat bites can be lethal, especially in children, but they are rare in Europe. Fear of snakes and snake bites is a dominant phobia in America[1] and does appear in the hierarchy of common fears in the British public[2] but the risk to the holiday-maker and traveller in Britain is very low.

Tick borne disease is very likely to affect the hiker, climber or forest walker in the UK, Europe and the USA, although the public is largely unaware of its prevalence and health risk. Some measure of protection from skin bites can be provided by clothing, especially if impregnated with permethrin and the application of good anti-insect skin barrier DEET (N.N-diethyl meta-toluamide).

Mosquitoes

Much is written of the malaria and dengue mosquito, but their more benign non-malaria transmitting counterparts are much more common world-wide. They can leave the unprotected with multiple bites and an insatiable itch for several days after the attack.

Holiday-makers to the Mediterranean, Greek, Spanish and Turkish islands are often badly bitten during hot nights. They throw off bedclothes and abandon nightwear to provide a feast for the attendant mosquitoes. Bites rank after sunburn as the most common reason for tourists to present to pharmacies in popular tourist areas. Mosquitoes are at their most active at dawn and dusk, when skin should be covered and protected by a good chemical deterrent. Mosquito nets should be impregnated with an acaride such as permethrin.

The midge

Midges are common in damp ,misty upland areas of Europe and Asia. The Scottish Highland midge, although small is mighty and makes up in number for its minute size. Midges rise from the heather in their thousands and the unwary intruder can be left with a myriad of irritating pin pricks, each causing a local response, Those particularly susceptible can be left with every exposed skin surface so peppered with bites that the inflammatory response merges to angry red perfusions, with an itch that drives the individual to distraction

The midge invasion is at its zenith in British holiday months of July and August and travel on the moors and hills of the Highlands, especially after rain in windless conditions, is best avoided. Midge bites are not usually associated with other more generalised disease, although the bites continue to itch for days after they occur. The first frosts wipe out the midge hordes until they rise again in another season. The mighty midges of Skye are often undeterred by any chemical barriers,but the application of 'Jungle Juice' to exposed areas deters some from attacking.

Ticks

Tick bites bring the risk of a generalised infection and when the bracken and grasses are high there is a high risk of unwittingly hosting these animal vectors. Ticks will settle and gorge just as happily on human skin as on animal skin. Lyme borreliosis is a risk to which hikers and climbers are exposed to in land grazed by cattle, sheep and deer.

The reservoir of infection of the Borrelia burgdorferi lies with small rodents, while larger mammals such as farm animals, dogs, roe deer and red deer serve as hosts for the adult tick. B. garinii has also been isolated from song birds and pheasants with spirochates localising in their skin. The birds become parasitised by ticks including those known to be vectors of Lyme disease for man.[3] Risk of infection is highest in high summer when the bracken and grasses grow tall on hillsides and in woodlands.The current high deer population in the Scottish Highlands increases the risk still further. Lyme borreliosis occurs throughout the northern hemisphere from America, through Europe to China and Japan. The risk to walkers, forest workers and farmers is still poorly appreciated. Clinical manifestations of infection are not always identified by health professionals. In Britain up to 30% of ticks are infected with spirochaetes and walkers in shorts or skirts are likely to have ticks attach themselves to the skin of their legs and thighs. The advent of cold weather with frost kills the brack-

Bites, Bugs and Uninvited Bed-Fellows *continued*

en and grass and reduces the risk. Wearing trousers tucked into the socks and clothing impregnated with acarides such as permethrin can deter tick attachment. They can, however, adhere to clothing and work their way to the skin over time. In the high season, clothing used in risk areas should be laundered before reuse. The wearing of light coloured clothing expedites the finding of ticks in a search. Clothing and skin should be searched for ticks after summer walks in infected areas. Removal of attached ticks within a period of 48 hours may avoid tick infection. Care has to be taken to remove all biting parts embedded in the skin.

Cattle and sheep ticks are large enough to be identified before they become engorged with blood and can be carefully detached from the skin. The deer tick is the size of a pin head and difficult to detect, until full of blood, when it becomes discernible where it has burrowed its head into the skin. The resultant bite is itchy and usually becomes an irritable lump.

Thereafter it can proceed to an erythema migrans lesion and symptoms of fatigue, malaise, headache fever, arthralgia and myalgia can develop.

Tetracycline therapy early in the disease presentation can abort the disease process. Vaccines have been in development to combat some tick borne infection.

Tick borne encephalitis (TBE) is a health risk to backpackers, climbers and campers in areas of Europe such as the Black Forest. A vaccine is available and should be recommended to travellers to infected areas by health professionals at travel health clinics. In central and western Europe, TBE is transmitted in highly focal areas of sheltered forest and meadows, and are best avoided. Tick activity is usually seasonal – peak transmission for Colorado tick fever is during April and May – and those with a flexible itinerary should avoid travel to high risk destinations at peak times.

Mites

Mites too can sometimes affect the unwary backpacker. In rural areas of India and South America, mites from poultry can infest the person. On one trip into the Himalayas, a group of climbers bought food from local markets as the trail was climbed. Hens and ducks were slaughtered for each evening meal. The men killed the birds and the women plucked them. The latter task invariably meant the women were soon covered in red chicken mites not averse to nipping the skin. Infestation can be avoided by plunging the birds into boiling water before removing the feathers.

Bed bugs

Bed bugs can also enjoy a meal from human flesh. Travellers are bitten while sleeping on unprotected mattresses that furnish the wayside huts and bothies used by walkers and climbers on the lower Himalayan trails. They produce itchy skin lumps which are often mistaken for mosquito bites. The swelling and itch lasts for weeks.

Snake Bites

Snake bite is feared by many travellers. Few people in Britain have ever seen a snake in the wild. The risk of a bite in the UK is very small but is a risk for tourists in the Australian Outback. In a life time of wandering the hills in the UK I have only seen them three or four times. Forewarned, they avoid contact with humans and only the adder has a potentially dangerous bite. It strikes only in defence when startled or unable to escape. This summer when crossing a bracken patch, I stubbed a foot on an exposed boulder lit and warmed by the sun. An adder was basking on the rock and startled, it struck immediately. Fortunately, the fangs hit my boot and venom was splashed along the upper. It immediately slithered off at speed and I was left contemplating a lucky escape from a bite. In the past, first-aiders were taught to put a tourniquet on the limb above the bite. This is unwise. Prompt access to a casualty department and administration of appropriate anti-venom antidote is recommended. Fatal responses to snake bite in Britain are very rare.

Rabid animals

Rabid animals are not uncommon in many parts of the world and may bite the incautious traveller. A bite by a rabid monkey is likely to occur to the tourist who, unwisely attempts to feed monkeys which frequent temples and tourist attractions in many parts of the Indian subcontinent. In Asia, where caves are often on the tourist agenda, the risk from bat bite is low, but spelaeologists ought to be wary of rabies-infected bats. Rabies vaccination should be a consideration for back-packing travellers and cave expeditioners visiting areas of high risk. Most travellers to India will be in reach of a hospital holding vaccine supplies for emergency use.

Sea creatures

Beach and sea are magnets for national and international adventurers. *Seabathers' eruption* and *swimmers'* itch are water borne conditions. The former is caused by the venomous stings of larval forms of **cnidaria** such as **jellyfish** and **sea anemones.** The latter results from skin penetration by intact schistosome cercariae. The traveller should be advised to avoid swimming in affected water.[4]

Hook worm larvae

The hook worm larva, discarded from the intestines of dogs and cats, infects sand above the waterline on beaches of the Caribbean. Those wandering barefoot are liable to become infected with larva migrans, which once in situ wanders aimlessly up the foot and leg, leaving an itchy trail to torment the sufferer. A course of merbendezole will cure the disorder but it is best avoided by wearing beach shoes.

INSECTS

Fleas can be unwanted companions of the traveller, Human and animal fleas easily transfer between hosts when in close proximity. Bus, train and plane travel provides ample opportunity to unwittingly host fleas, which leave small itchy lumps that are easily infected in tropical climes. They merit prompt treatment with an antihistamine and where appropriate an antibiotic cream. Rare outbreaks of bubonic plague are reminder of this potential for infection from rat fleas. Tourists are at low risk unless frequenting rat infested areas.

Sandflies, because of their small size, can penetrate screens and bednets. They feed on windless evenings and at night and can produce febrile illness. They are common, but they are deterred by permethrin sprays on clothing. Natural citronella products may be more effective than synthetic products in repelling. Most travellers to India will be in reach of sandflies.

Leishmaniasis is a protozoal infection transmitted by the bite of **phlebotamus.**

The tsetse fly can carry the trypanosome and safari travellers in east Africa run the risk of infection. A week after a bite by an infected fly, a chancre develops at the site, which may be mistaken for a simple unrelated insect bite. The traveller should be advised to be wary of infected insect bites and ensure they are not mistreated.[5]

Leeches In the monsoon and wet weather on Himalayan and jungle trails, the leech suspends itself on greenery for ready transfer to the passing human. It sucks blood painlessly from its victim, until satiated, when it falls off leaving a bleeding wound which attracts attention. Protective clothing lowers the risk from bites, but the leech has remarkable skill in penetrating to unprotected skin.

Travel and vacation in rural, wilderness and beach environments exposes people to skin invasion by a legion of flying, crawling, hopping and slithering insects and animal bites. Bites and puncture wounds usually bring discomfort, itching and pain, but in most instances the agony is short lived and of no lasting consequence. The allergic individual is at much greater hazard and should be aware of the risk in the area of travel and perhaps be encouraged to carry steroid medication. A few skin intrusions can lead to chronicity and fatality. Barrier prevention of contact with the use of insect repellents is recommended.[6] The wearing of protective clothing, awareness of risk and appropriate precautions can minimise insect bite risks to health. Good counsel is for travellers to 'be aware and travel prepared'.

Allan Melrose is a retired family doctor and world wanderer.

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Creepy Crawlies, How to avoid… Centipedes and Millipedes

Jane Wilson-Howarth

Most centipedes are nocturnal predators that feed on small arthropods; the largest scolopridrids have been reported to take mice, small birds, amphibia and reptiles. behind the obvious head, the flattened trunk comprises 15 to to well over 100 segments. The first pair of trunk appendages are powerful claws with ducts leading to large venom glands. Few temperate species are able to penetrate human skin with their poison claws, although bites of the small common *Lithobius forficatus* are described as sharply (if transiently) painful.

Bites of scolopendrid centipedes, which are common in the tropics and sub-tropics, inflict 'almost unbearable pain' but it fades in 20 minutes. There was a fatality attributed to centipede bite. In 1923 a seven year old Philippino died 29 hours after being bitten on the head by *Scolopendra subspinipes.* Although some large centipedes are capable of killing guinea pigs, generally they are considered to be painful rather than life-threatening.

Case History

A 55 year old Yugoslavia woman accidentally swallowed a centipede. She vomited, cold-perspired, experienced palputations and then the animal was suddenly discharged from her bowl; later it was identified as *Scolopendra cingulata.*

Millipedes are more rounded in cross section and

Creepy Crawlies, How to avoid… *continued*

can be almost snake-like in appearance. They are detritus-eaters and possess no venom glands. When threatened though they secrete caustic fluids from repugnatorial glands. Some tropical species can squirt this fluid 50cm and if this enters the eyes causes immediate pain and swelling. Tropical millipedes not infrequently climb into bed with people. When the sleeper rolls onto them, the skin becomes blistered. These are powerful secretions; some are capable of killing lizards. Even so, in humans the inflammation generally settles after a week or two; usually no long term harm is done and there is no scarring.

Protection

When in the tropics, sleeping under a permethrin-impregnated bednet tucked into the mattress protects from such accidents – as well as from mosquitoe bites.

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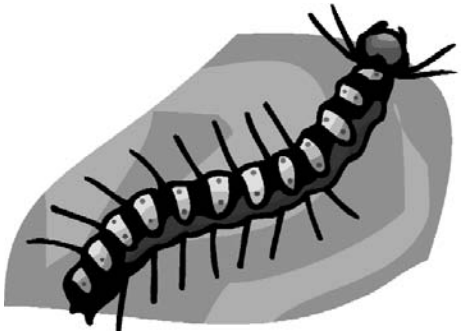
Jane Wilson-Howarth is a GP, travel health consultant and author.



INFORMATION ABOUT NaTHNaC

National Travel Health Network and Centre (NaTHNaC)

Travel health Advice

Nurse-led advice line for health professionals advising travellers
NaTHNaC administer YFVCs in England, Wales and Northern Ireland

Website

www.nathnac.org

10th Annual Scientific Conference

The British Travel Health Association
10th Annual Scientific Conference
Birmingham 14th June 2008
Chaired by Prof. Larry Goodyer

Conference presentations were made by a range of national and international experts.

Dr Nick Beeching (Senior Lecturer, Liverpool School of Tropical Medicine) presented an overview and update on a range of insect borne diseases that could be encountered by travellers overseas. Increases in travel to areas of high endemicity for these diseases have been seen worldwide. He described his experience in 2005 with eight British travellers who went on a two week fishing trip to the increasingly popular Gambia; 5 were subsequently admitted to intensive care with malaria. As imported malaria often results in a hospitalisation and may be life-threatening, it represents 80% of ITU admissions due to imported tropical disease in adults, with 10-15 deaths per year in the UK. Other diseases have spread in distribution and in South America there has been a recent increase in the number of regions where yellow fever is a problem and vaccination is now recommended. Dengue continues to cause epidemics in parts of Asia, the Pacific and Central and South America and is increasingly common in travelers. A new tetravalent vaccine against dengue has now entered expanded clinical trials. Chikungunya, spread by the same species of Aedes mosquitoes, is similar to dengue, but often has more prolonged sequelae. The current epidemic began in the Indian ocean islands and spread across to India and Sri Lanka, resulting in 133 cases imported to the UK in 2006. Also worrying was a local outbreak in north Italy in September 2007, and this and the spread of West Nile virus in the USA over the past decade demonstrate how imported vector borne diseases might become established in the UK. The conference was reminded of the danger from other insects apart from mosquitoes and Dr Beeching described a number of cases of tick borne typhus acquired by British travelers after visiting the very popular African game parks.

Dr Nigel Hill (Head of the Disease Control and Vector Biology Unit London School of Hygiene and Tropical Medicine) argued that personal protection measures should be tailored to the circumstances of travel and vector behavior. For instance the species of anopheles mosquito causing malaria in many countries in South America tend to bite out of doors and in the earlier part of the evening, resulting in a limited effectiveness in the use of bed nets to reduce malaria. A recent study by Dr Hill published in the BMJ using a lemon eucalyptus based skin repellent on the local population in Bolivia, demonstrated for the first time that repellents can reduce the incidence of malaria. On the other hand in Sub Saharan Africa the mosquito species tend to bite indoors and later in the evening so the use of insecticide treated bed nets are a key strategy in the prevention of malaria. In the discussion concerning the potential of malaria being imported to the UK he concluded that climate changes could well see the introduction and spread of different mosquito species but doubted this would ever result in the establishment of endemic malaria. Dr Hill confirmed that DEET was still the most effective of repellents, particularly in terms of dose for dose longevity. 50% DEET is now recommended for all higher risk malaria endemic areas. He emphasized the use of insecticide treated bed nets, which were now available as longer lasting nets not requiring retreatment for many years. Another use for insecticides such as permethrin was in treating clothing, a strategy recommended for avoiding tick bites.

Dr Lisa Ford (Lecturer in Travel Medicine Liverpool School of Tropical Medicine) covered travel to environmental extremes and described her own personal experiences of Polar travel with some of the inherent health risks. In her presentation she described the attractions of visiting the Antarctic and the inherent risks that might be encountered. Awareness by travellers of the dangers of exposure to the extreme cold and UV light were viewed as important, particularly in view of the more elderly population attending increasingly popular cruises. She also pointed out that there had been cases of poorly equipped cruises and even some liners not having hulls strengthened against the ice that could potentially have extremely serious consequences. The impact of tourism on the unique environment of the Antarctica was also a cause of growing concern.

Dr Geoff Tothill (Chief Medical Officer, First Assist) gave an overview of dealing with medical emergencies as they arose in remote and environmentally dangerous locations. He summarised the problems of a rise in the mass marketing of trips to remote locations; people often undertook little additional planning, had a false sense of security, lacked an understanding of the environment, had inappropriate expectations of local medical capability and often misunderstood the role of the Assistance Company.

He explained the key elements of personal and contingency planning and the importance of checking exactly what was being offered in terms of emergency assistance under the terms of any insurance cover. An important part of contingency planning was adequate communication in an emergency and the use of satellite systems, which he illustrated with a multimedia presentation of a real life case in which he had been involved.

Dr Ron Behrens (Consultant in Travel Medicine

10th Annual Scientific Conference *continued*

Hospital for Tropical Diseases, London) described a controversial view of the lack of consideration to research incorporated in travel medicine practice and policy and even expert opinion can be divided. In a study of 33 European experts given 4 case scenarios describing travel to low to moderate areas of malaria risk there was dived opinion as to whether prophylaxis was required and in the type of medication recommended. He believes that while prophylaxis is justified in high risk areas such as SS Africa current policies may be encouraging over prescribing to destinations in India and South America It is common practice to try and spend time advising on food and water hygiene to avoid travellers diarrhoea but a Swiss study indicated that despite detailed advice being given it was accurately adhered to by only 2% resulting in 20% of the cohort developing TD. This is compared to 84% being cured of symptoms by the use of a quinolone antibiotic within 72 hours (most within 24 hours) and yet very few travelers in the UK being provided with this treatment.

Japanese encephalitis vaccine is currently available on a named patient basis although a new licensed vaccine should soon be available. Current policy is to recommend vaccination for those staying more than one month in certain rural areas of Asia, yet there have only been 33 reports of JE in travelers worldwide 1978-2006 despite very few being vaccinated and even these do not correlate to travel in high risk rural areas. Some interesting observations were made regarding pre travel consultations and how little is known about traveller's health beliefs and attitude to risk, whether health professionals change these attitudes and whether the highest risk travelers actually seek advice. There is some evidence that those who have pre travel advice are more likely to be adherent to malaria chemoprophylaxis, but a study he has recently conducted in his own clinic indicates that those who spend the longest in discussion regarding prophylaxis the less adherent they tend to be. He hypothesized that these individuals were often seeking some confirmation that prophylaxis would not be required.

Mrs Claire Wong (specialist nurse in Travel health), described recent developments in her organisation, The National Travel Health Network and Centre (NaTHNaC). Since 2002 they have provided a travel health advice line, administered and supported the yellow fever vaccination centers and maintained a website of travel medicine resources. Last year NaTHNaC introduced its own country information pages and outbreak surveillance database, covering vaccine requirements, malaria prophylaxis and a range of other advice relevant to travellers. This is supported by a fully searchable database of disease outbreaks and informs regular clinical updates posted on the site, which is open access.

Dr Kitty Smith (Medical Lead Health Protection, Travel Team, Health Protection Scotland) described the malaria mapping activities of the well established TRAVAX information service that produces country specific information used by health professionals, as well as the 'FitForTravel' site designed specifically for the general public. Their malaria maps, which summarise the levels of risk and chemoprophylaxis recommendations, are among the most frequently used pages on their websites. Dr Smith described how recent detailed mapping had shown a change in risk for the Indian Sub-Continent since 2002. There had been no overall change in risk in Bangledesh 2001-2004, a reduced risk in India 2003-2006 but experiencing periodic outbreaks, and a low risk in Sri Lanka with unreliable information for the northeast of that country

Dr Eric Walker (Dean of the Faculty of Travel Medicine, Royal College of Surgeons and Physicians of Glasgow and President of the BTHA) discussed the activities of the Faculty and how it was a truly multiprofessional body. He reported that from 2009 entry to the Faculty will be possible by an examination for those eligible to apply. The current activities of the Faculty include basic practical 'nets and bolts' training courses held in various parts of the UK and an annual Travel Medicine Symposium. Work under way include the development of defined professional competences in anticipation of Specialty Recognition and an 'E' Journal from Jan. 2009 which aims to encourage consistent, rational and effective decision making in practice

Dr Iain McIntosh Deputy Chair of BTHA Chaired a very lively debate concerning the provision of travel medicine education to health professionals, also including the question of competence to deliver and funding for travel medicine services. The general conclusion was that more 'apprentice style' training provision was needed rather than formal education, but the capacity to achieve this widely was debatable. The conference was divided over the question of whether clinics should be available only through certain general practices or private clinics with sufficient expertise, or whether it should be only available privately rather than part NHS supported as at present.

(Part of this article was published in the Pharmaceutical Journal 12th July 2008. www.pjonline.com)

Sarah Buckley Travel health clinic director and council member of BTHA.

UPDATE FOR NOVICE AND EXPERT

Risk of Dying Abroad

According to the Association of British Insurers (2009) people over the age of 70 years are three times more likely to be killed or injured on the roads compared to 40-65 years olds. Further information on the prevention of accidents for individual travellers is available from NaTHNaC

National surveillance of accidents and injuries ocurring intravellers is not currently undertaken in the UK. The United States figures are published:

The odds of dying whilst abroad for a US citizen in 2007, were 1 in 449,510. Highest risk was as a result of an automobile accident (1 in 2,250,904)

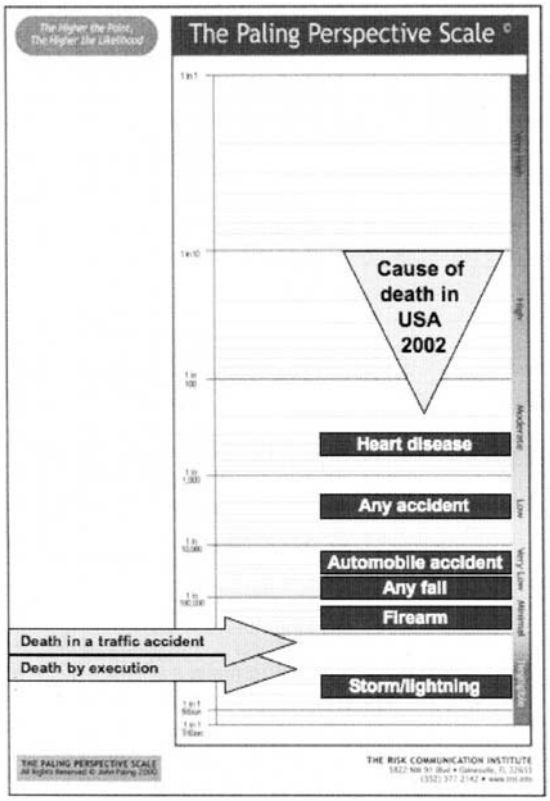
Total number of non-natural deaths of US citizens abroad in 2007 was 671:

- 134 deaths as a result of automobile accidents
- 109 deaths by drowning
- 108 homicides
- 98 suicides
- 32 deaths due to motorcycle accidents
- 26 deaths from air accidents
- 23 deaths related to drugs
- 12 deaths of pedestrians
- 11 deaths as a result of bus accidents
- 9 deaths due to terrorist action
- 6 deaths from maritime accidents
- 3 executions

The odds of an average US citizen dying abroad from a non-natural cause are 1 in 449,510, made up of:

- road traffic accident 1 in 2,250,904
- drowning 1 in 2,767,167
- being a victim of murder 1 in 2,792,788
- in a motorcycle accident 1 in 9,425,661
- an air accident 1 in 11,600,814
- dying as a pedestrian 1 in 25,135,096
- in a bus accident 1 in 27,420,105
- the odds of dying as a result of terrorist action 1 in 33,513,462
- in a maritime accident are 1 in 50,270,193

Annual risk of death abroad for US citizen
(Risk Communication Tool© John Paling 2000)
(www.riskcomm.com)



Figures do not include casualties of war. (Surprisingly few Americans travel abroad, compared with western European countries, where not only do many more people travel abroad, but many more older people travel. – Ed.)

US Department of State
http://travel.state.gov/law/family_issues/death/death_594.html)
US Census Bureau
http://www.census.gov/popest/states/NST-ann-est.html)

Helminthic Infections – a Source of Concern for Travellers

Helminthic infections can cause eosinophilic meningitis (EM). Neuroangiostrongyliasis, a rodent zoonosis caused by the rat lungworm, is endemic throughout Southeast Asia and the United States and reported in the Indo-Pacific Basin and many Atlantic and Gulf of Mexico port cities following the worldwide importation of its causative parasite, *Angiostrongylus cantonensis,* in stowaway rats on container ships. Giant African land snails, *Achatina fulica,* and indigenous snail and slug species serve as intermediate hosts of *A. cantonensis,* which is now capable of completing its complex life cycle almost worldwide.

Baylisascariasis, a raccoon zoonosis, has distribution range from the northern US to the southeast and west coast since the 1980s and and has now appeared in Japan.

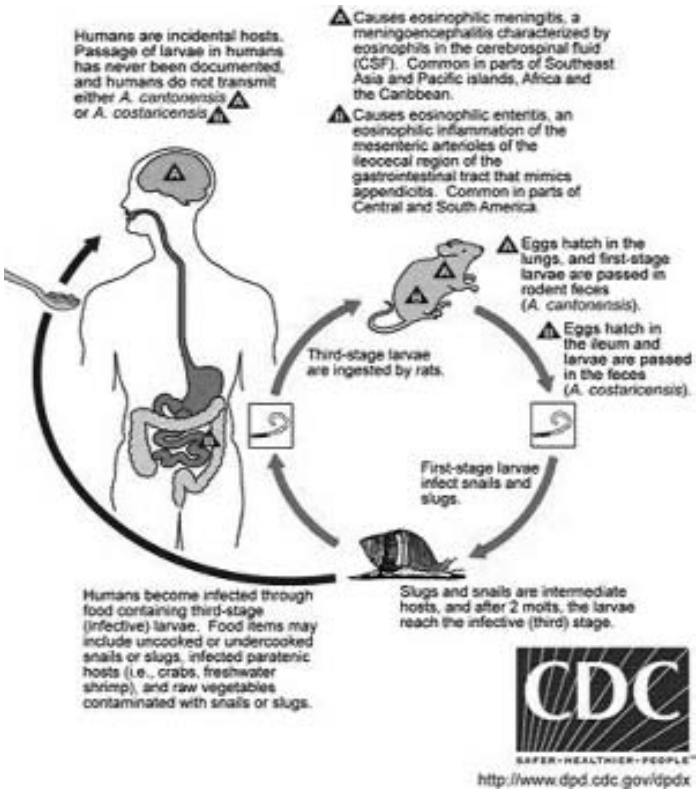
Gnathostomiasis, a zoonosis of wild carnivores, has appeared as a cause of EM among travellers

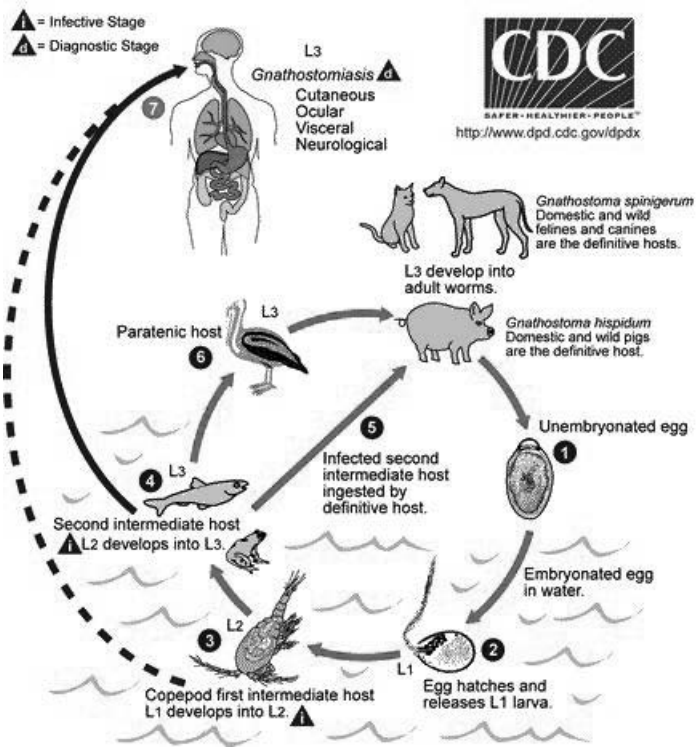
Helminthic Infections *continued*

returning to the United Kingdom. It is an endemic cause of EM throughout Asia and Latin America.

Neurocysticercosis is a central nervous system infection with the larval or cystic (cysticercus) stage of the pork tapeworm, and a leading cause of late-onset epilepsy in adults.

Taenia solium, is now the most common parasitic disease of the CNS worldwide .Most parasitic diseases causing EM are no longer confined to tropical countries; many are now endemic throughout the developed world.





Fees for Hepatitis B Immunisation

Opinions of LMCs and PCTs and advice from pharmaceutical companies can be contradictory.

There has been a rise in long-haul travel: destinations of high endemicity of hepatitis B, China and Egypt, intermediate endemicity such as South Asia and North Africa and in adventure sports with increased risk of contacting hepatitis B from the local population through contact with blood or bodily fluids.

Fees can be claimed from

- Patients requesting single antigen hepatitis B immunisation for foreign travel
- Employers of people needing the injection for occupational reasons

No charge can be made if the injection is needed for clinical reasons.

There is a higher risk of ending up in hospital or at a clinic with an injury needing medical intervention. Sterility cannot be taken for granted when healthcare is needed. If a NHS patient registered on practice list, claiming is governed by rules set out in Schedule 5, regulation 24 of the NHS (GMS Contracts) regulations:

Allows practices to charge for hepatitis B immunisations given for travel purposes.

Can only charge for giving the hepatitis vaccine as a single antigen.

Cannot charge patients for hepatitis B immunisations given because their job puts them at risk of contracting infection. Obligation rests with the patient's employer.

Employer must assess the risks of contracting hepatitis B and take responsibility for providing immunisation. The Practice may enter into an arrangement whereby it may work on behalf of employers and charge it accordingly. If you decide to immunise a patient for occupational purposes and not charge a

fee, then you can claim reimbursement on the vaccine through the FP34D claim.

- Patients should be given the immunisation where clinically indicated.
- Injecting drug users
- Individuals who change sexual partners frequently
- Close family contacts of an individual with chronic hepatitis B infection
- Families adopting children from countries with a high or intermediate prevalence of hepatitis B
- Individuals receiving regular blood or blood products, and their carers
- Patients with chronic liver disease

No fee can be charged to the patient but the dispensing fee and reimbursement can be claimed.

The legislation dictates that patients can only be charged when a single antigen hepatitis B immunisation is requested and given in connection with travel abroad. Where occupation is the risk factor, then any fee charged is a matter between employer and practice.

Pulmonary Thromboembolism (PTE)

PTE is a potential risk from DVT related to travel
Three quarters of patients will have a recognised predisposing factor. PTE may present dyspnoea and/or pleuritic chest pain. History and examination are unreliable in excluding the diagnosis of PTE. A patient is high risk if they have clinical features of PTE.

RISK FACTORS
MAJOR
Reduced mobility in prolonged travel
Past history proven venous thromboembolism

MINOR
Cardiovascular disease
Oestrogen consumption
Chronic illness

Investigation

A negative plasma D-Dimer result (<500 ug/l) coupled with a low or intermediate clinical probability does not require further investigation, with a 3 month thromboembolic risk in patients left untreated below 1%. The crucial investigations are markers of myocardial injury, either troponin I or T, or brain natriuretic peptide (BNP), as well as markers of RV dysfunction.

A chest x-ray is often taken, but is normal in PTE. CT pulmonary angiography (CTPA) is the best test in patients with an elevated D-Dimer level with a high clinical probability.

Isotope scanning (the V/Q scan) is used.

Acute Treatment

Supplemental oxygen with ventilation as backup.

Shocked patients – fluids or inotropes and thrombolysis.

Thrombolytic therapy resolves thromboembolic obstruction so should be administered to patients with high risk PE.

Pitfalls in diagnosis and treatment include:

- Having too low an index of suspicion for thromboembolic causes of chest pain/dyspnoea.
- Over-reliance on normal clinical findings – up to 50% of patients with convincing symptoms but no signs may have a DVT.

Diagnosis of PTE in most cases is relatively straightforward as long as it has been considered.

Scenarios from the NaTHNaC Telephone Advice Line

Alexandra Jordan

The National Travel Health Network and Centre (NaTHNaC) is a Government funded initiative, developed by the London School of Hygiene and Tropical Medicine, the Hospital for Tropical Diseases, Communicable Disease Surveillance Centre (now part of the Health Protection Agency), the Liverpool School of Tropical Medicine and the Defence Medical Services.

The telephone advice line service provides detailed advice for health professionals advising travellers with special needs or complex itineraries, between the hours of 9am – 12pm and 2pm – 4.30pm, Monday – Friday. Queries are answered by the team of specialist nurses, with medical cover provided. For more information on NaTHNaC refer to the website at www.nathnac.org

It was felt that some scenarios from the calls might prove informative to health professionals and so a selection has been included below. With all travellers it is essential to complete a risk assessment. This involves finding out some details about a) the traveller, including; past/current medical history, previous vaccines/malaria chemoprophylaxis and b) the trip, including; date of departure, length of time away, the countries to be visited and the areas within those countries (i.e. urban, rural, coastal, altitude), type of accommodation and any planned activities.

Scenario One

A 25 year old female is travelling to Cameroon in 5 months time for 2 months, where she will be teaching English as part of an NGO project.

She has a past medical history of congenital C1 esterase deficiency also known as heredity angioedema which first presented in adolescence (as is normal for this disease).[1]Common symptoms are angioedema and urticaria often affecting the gastrointestinal tract. Relapses can occur once or twice per year. Treatment for a relapse is an intravenous infusion of esterase. In 2004 she had an acute attack whilst travelling in Australia; she was hospitalised for four days and treated with various drugs and intravenous infusions. As part of that trip she also went to Thailand and she took doxycycline which caused serious abdominal pain and vomiting. She received MMR vaccine as a child and no problems were reported.

Question; what would you advise in regard to yellow fever vaccine and malaria tablets?

The advice of the on-call physician was sought to help answer this question. This trip is very high risk for a variety of reasons; infections are known to precipitate the onset of acute attacks (so any tropical/infectious disease that is contracted will lead to a high risk of an acute attack of hereditary angioedema)[1]; trauma can also precipitate the onset of attack[1]; angioedema constitutes a medical emergency; access to medical care may be difficult in Cameroon, the facilities available may not be able to cope with her condition and there would be a risk of blood borne virus if any invasive medical procedures are necessary. Although she would be recommended to take a sterile needle pack there is no guarantee that this will be used. Esterase is commonly used to treat acute attacks[1], but no supplies will be available in Cameroon. The traveller should be advised on how to carry her regular medication[2] and should consider wearing a form of identification relating to her medical condition, e.g. MedicAlert bracelet/necklace.[3] She should ensure that she has a comprehensive travel health insurance policy; an air evacuation clause may be useful in case of an emergency. Advice on the avoidance of food and water borne diseases[4] and what to do in case of travellers' diarrhoea[5] should be given.

The risk of malaria in Cameroon is known to be high.[6] She would be advised to avoid doxycycline due to previous problems, but mefloquine or malarone would be acceptable options. The health professional would be advised to discuss the different regimens, so the traveller can make an informed decision about prophylaxis.[6] Mosquito bite avoidance and observing for symptoms of malaria would be vitally important for this traveller.

There are no known contraindications to yellow fever vaccine and so she would be recommended to receive it. There is a mandatory requirement for yellow fever vaccine for entry into Cameroon.[7] For general recommendations for travellers to Cameroon, health professionals can consult the NaTHNaC Country Information Pages.[8] She would be recommended to be up to date with routine diphtheria, tetanus and polio and should have a second dose of MMR if she has not already.[9] Other vaccines that need to be considered would be hepatitis A, hepatitis B, typhoid, rabies and meningococcal meningitis ACW135Y.

Scenario Two

An 81 yr old male is travelling to the Dominican Republic (San Juan inland, 50km from the border with Haiti) in 1 week for a 2 week holiday.

His past medical history includes a cerebrovascular accident in 2004, hypertension and ischaemic heart disease. His medication is warfarin, digoxin and valsartan. Regular INR checks show relatively stable levels.

Question; what would you advise about malaria?

The advice of the on-call physician was sought to

help answer this question. The Dominican Republic is a high risk destination and inland is more of a risk than the coast. This traveller would be at high risk of the complications of malaria and should be made aware of that before deciding to travel.

The choice of malaria prophylaxis for this traveller was a difficult decision as there were potential problems with all of the options. The decision was based on long term clinical experience.

- The drug of choice for the Dominican Republic is usually chloroquine, but it would not be recommended in this situation as there is a risk of drug interaction with digoxin causing plasma concentration of digoxin to possibly be increased.[10]
- Mefloquine would not be recommended due to the potential for drug interactions with digoxin, causing a possible increased risk of bradycardia.[10]
- Neither proguanil nor malarone (atovaquone /proguanil) would be recommended due to the risk of drug interaction with warfarin due to risk that proguanil may enhance the anticoagulant effect of warfarin.[10]
- Doxycycline is not an ideal choice due to the possibility that the anticoagulant effect of coumarins (including warfarin) is enhanced by tetracyclines.[10]

On the basis of clinical experience and risk assessment it was felt that the risk of drug interactions with doxycycline was lower than with the other options. And so doxycycline was recommended. Travellers taking warfarin should start taking their malaria tablets at least 1 week prior to their departure. A baseline INR should be checked prior to starting malaria chemoprohylaxis, and re-checked after 1 week of taking them (although in this situation there was only time for three days trial). The dose of warfarin should be adjusted accordingly and the INR rechecked if there is a demonstrated effect. If a traveller is away for a long period of time the INR should be checked at intervals at the destination. However, the sensitivity of thromboplastin reagent used by some laboratories in different countries may vary.[6] Once the malaria chemoprohylaxis has been discontinued the traveller can resume their normal maintenance dose of warfarin.

Advice on the importance of mosquito bite precautions[6] and promptly reporting any possible symptoms of malaria was stressed.

Other advice – see previous scenario for advice on travelling with a pre-existing medical condition, advice on food and water borne diseases etc.

Scenario Three

A female in her 30s and her baby boy of 3 months are travelling to Ghana to visit family in Accra and in rural areas in three weeks time. They will be there for a month or more. The baby was born by emergency caesarean section due to respiratory distress, but is now thriving and breast feeding. Mother has post natal depression but has refused to take any medication or have counselling. The caesarean wound has not yet healed and is weeping a yellow pus-like fluid, the Practice Nurse changes the dressing daily. The only medication she is taking is diclofenac for pain relief. She had yellow fever vaccine in 1998 for a previous trip home to visit her family. She does not have much money and wants to pay the absolute minimum for vaccines and malaria tablets.

Question; what malaria tablets would be recommended?

The advice of the on-call physician was sought to help answer this question. This is a very high risk trip for both mother and baby and the health professional should stress this to the mother. Clear documentation of the advice given and issues discussed needs to be made in the notes.

Malaria - There is evidence to show that travellers visiting friends and relatives are significantly less likely to take malaria prophylaxis than other travellers to Africa,[6] so the health professional would be recommended to stress that the risk of malaria is high in Ghana and neither she nor her baby will have any natural immunity to malaria. It is vitally important that they take prophylaxis and take good mosquito bite precautions and promptly reporting any possible symptoms of malaria. The mother would be recommended to take chloroquine and paludrine for malaria prophylaxis, with great reluctance due to the known low efficacy of this combination. However it was felt that there was no other option - mefloquine is contraindicated due to the post-natal depression, doxycycline is contraindicated due to breast feeding and she refuses atovoquone/proguanil as it is too expensive. It was felt that the baby could take mefloquine, doxycycline being contraindicated and malarone being expensive was stressed.

Vaccines – the mother should carry her yellow fever certificate on the trip as there is a mandatory requirement for entry into Ghana.[7] The use of vaccines during breast feeding requires a comprehensive risk assessment and an informed decision by the traveller. None of the vaccines are licensed, but they would be recommended on a risk versus benefit basis. She would be recommended to have diphtheria /tetanus /polio, hepatitis A, typhoid, meningococcal meningitis ACW135&Y, rabies and hepatitis B.[8] There may be cost issues because a charge will need to be made for some of these vaccines and a low perception of risk by the traveller, but the risks are known to be high. The time schedule for the courses of hepatitis B and rabies is short, but both of these vaccines can be administered over a three week period.

The baby is at high risk of vaccine preventable

Scenarios from the NaTHNaC Telephone Advice Line *continued*

diseases because it has not yet completed primary immunisations and also could be at risk of measles, mumps and rubella.[9] Travel vaccines as per recommendations to mother are also known to be a high risk. Hepatitis A, typhoid, meningococcal meningitis and yellow fever are all contraindicated due to the baby's age; an accelerated course of rabies vaccine could be given as there is no minimum age on this vaccine. Hepatitis B vaccine can be given from birth, but the accelerated course is not licensed for children of this age, so options need to be discussed i.e. start the course now and complete in Ghana or start course on return for the next trip. The individual Summary of Product Characteristics (SmPC) should be checked for details of the vaccines.[11]

Other advice - the baby is also at high risk of food and water-borne diseases, although breast feeding reduces that risk it does not eliminate it completely. The mother should be advised about what to do in case of diarrhoea and vomiting to maintain hydration.[5] Medical advice should be sought if it does not resolve quickly.

The mother is a high risk traveller because she has an unresolved wound infection at the site of the caesarean section and she has ongoing post natal depression. Changing the dressing and seeking medical advice in case either of these situations worsens may be difficult to arrange.

Scenario Four

A female in her 30s returned from a two week holiday in the Dominican Republic a week ago. She received a dose of diphtheria/tetanus/polio, hepatitis A before the trip. She has been taking chloroquine for malaria prophylaxis. She discovered yesterday that she is five weeks pregnant; there is no other medical history of note. She is very concerned about how vaccines and malaria tablets might have affected the pregnancy.

Question; what advice would you give?

Malaria – the risk of malaria in the Dominican Republic is known to be relatively high. There have been recent cases in tourists.[12,13] She would be recommended to continue taking the chloroquine for four weeks after return home. Although it is not licensed for use in pregnancy, chloroquine is regarded as safe to take during all trimesters.[6] She should be vigilant in observing for any malaria symptoms for a year after returning home and seek emergency medical advice in that situation. The risks of complications from malaria are increased during pregnancy and the fatality rate is higher.[6]

Vaccines – vaccinating a pregnant traveller requires a comprehensive risk assessment and an informed decision by the traveller. The risks of vaccines in pregnancy are mostly theoretical, although they are usually avoided during the first trimester.[14] Therefore the use of vaccines is not licensed in pregnancy. However from clinical experience there is no demonstrable adverse effect to the foetus. The administration of these vaccines would not be considered a valid reason to terminate the pregnancy for fear of foetal abnormality. This lady will require lots of reassurance and support for the decisions that she makes.

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CASE HISTORY

Ticks

A Two year old presented with a small red mark between the shoulder blades. Mother had pulled something off the skin when he was in the bath days before. The "Something" brought to show me in a small box, was a tiny tick.

Ticks

Ticks are second only to mosquitoes for carrying disease to humans. Changes in farming practices and global warming mean that there are more ticks in the countryside in many parts of the UK and Europe.

Diseases are contracted from the bite of infected ticks. The primary relevant illnesses are Lyme disease in the UK and Tick Borne Encephalitis (TBE), which is potentially fatal and currently endemic in 27 countries in mainland Europe, including many established and new holiday destinations.

Travellers and holidaymakers visiting rural areas, spending time in public spaces including beer gardens, picnic spots, parks and gardens are at risk from tick bites. High risk groups are those participating in camping, hiking/trekking, cycling, climbing and other outdoor activities and pursuits.

Ticks live in the soil and emerge to climb tall grass, shrubs, bushes and low level tree branches up to a height of 20cm-70cm in search of host blood.

Ticks can attach themselves almost anywhere on the body, but prefer creases like the armpit, groin and back of the knee.

Victims do not feel the bite because the tick also injects a toxin that anaesthetises the bite area.

Lyme disease risk areas in the UK

Exmoor, Wiltshire, the Lake District
the New Forest, Berkshire, The Yorkshire Moors
the South Downs, Thetford Forest
the Scottish Highlands

The main tick season begins in March and lasts until November.

Protection

Use an insect repellent that is effective against ticks.

Avoid wearing shorts in rural and wooded areas, tuck trousers into socks, or cover all exposed skin with protective clothing (though not always practical in summer). AFTER POSSIBLE EXPOSURE TO TICK INVASION EXAMINE skin for ticks, to include parts that bend (back of the knee, between fingers and toes, under arms).

Pressure points where clothing presses against the skin (underwear, elastic, belts). Remove as soon as possible with fine forceps.

Avoid unpasteurised milk which may also be infected with the TBE virus in endemic regions.

Further information: info@tickalert.org

IBM

BOOK REVIEW

A Glimpse of Eternal Snows

'a family's journey of love and loss in Nepal'.

Published by Peir 9.
Jane Wilson-Howarth – www.wilson-howarth.com

"thought-provoking reading for medical students!"
Ann Allison RGN

James LeFanu of the *Telegraph* described this 'the proverbial life-changing book'.

RESEARCH AND REVIEW

A Structured Review of Publications in Travel Health Related Journals

Iain B. McIntosh

Abstract

Much importance is currently given to evidence-based practice and patient management, which depends upon published, scientifically researched evidence. Many current medical practices do not however have a strong literature-supportive base.

This study endeavoured to establish the status of researched support for travel related medicine. The quantity and content of five journals were systematically analysed. Malaria, vaccine -preventable disease, infectious diseases and gastro-intestinal illness were the most frequent topics recorded in the review and research sections, with a preponderance of the first two. Other topics of considerable interest to the travel health professional were poorly represented, or completely neglected. The literature base for the practice of travel related medicine appears to be skewed, with a paucity of items important in management and determining good practice.

Objectives

To quantify and analyse the topic content of specialist and general professional journals, to determine their scope and relevance to the practice of evidence-based travel related medicine.

Introduction

Evidence-based medicine (EBM) applies evidence from scientific method to medical practice. It assesses the quality of evidence relevant to the risks and benefits in patient management. It is the conscientious, explicit and judicious use of current best evidence. EBM endeavours to clarify those parts of medical practice that are in principle, subject to scientific methods and to apply these methods to ensure the best of outcomes in medical treatment and management. The bed-rock of evidence-based medicine is the systematic review of evidence for particular treatments and management, from randomised control trials and other studies. The practice of evidence-based medicine requires integration of individual clinical expertise with the best available external clinical evidence provided by sound research.[1] General practitioner attitudes to EBM have been generally welcoming with most agreeing that it improves patient care.[2] Few doctors would care to say that their practice is not evidence based.[3]

Travel related medicine falls within the scope of EBM, with practitioners dependent upon publication and dissemination of research results and the personal assimilation of findings to promote best practice. Scientific, professional journals are prime sources of information for most doctors and nurses seeking enlightenment. In a small pilot study of family doctors[4,] most recorded that they regularly read the British Medical Journal and acknowledged the importance of research evidence in aiding decision making in patient management. The results inferred that they might also draw more on research publications in travel health consultation than in general medical management. The capacity of travel-health focused journals to meet the demands of EBM has not been assessed.

Personal searches of the most frequently read journals on specific travel- health related topics of everyday importance in traveller's health management, e.g. pregnancy, diabetes and trauma, frequently reveal a paucity of research references. Journals may not be adequately covering the wide range of subjects associated with travel medicine. This may be cause for concern, as their research reports provide substance for reviews and educational texts. Travel health text books and guide-lines can be poorly referenced, provide dated references or, quote from obscure inaccessible journals. In the absence of researched evidence, the educative value of their text is diminished. Research publications provide authenticity and the evidence base for rational management which, added to clinical experience, can guide towards best practice. Without current best evidence, practice and management run the risk of becoming out of date, to patient detriment.[4]

Three predominant, scientific, peer-reviewed journals cater for travel medicine health professionals. The scope of their content and their provision of evidence based reports, relevant to the management of people presenting for travel health consultation, has yet to be explored. These journals, with the addition of the widely circulated *British Medical Journal* and *Lancet* were included in this study. This was a structured literature review of two decades of journal issues, with analysis of sections of their travel-health related contents. The time span covers the period travel medicine has developed as an independent discipline.

Method

The three principal journals covering the travel medicine field were accessed manually and on line via their websites. The Journal of Travel Medicine (JTM) is circulated to all members of the International Society of Travel Medicine, The British Travel Health Association Journal (BTHAJ) is sent to all members of the BTHA and Travel Medicine and Infectious Disease TMID) is an independent publication by Elsevier.

Contents pages were analysed and 28 categories of title topic were identified in the referenced review and research sections.

All issues since the inception of the journals until September 2008 were analysed, categorised and the frequency of publication of each topic for each section was recorded. As peer reviewed journals the quality of each article was assumed.

Topic Categories

Malaria
Vaccines/ vaccine preventable disease
Motion sickness
Substance abuse
Altitude medicine
Risk assessment
Travel related phobias
Sporting activities
Travel health insurance
Health professional knowledge
Public education
Trauma
Diabetes
Pregnancy
Travel clinics
Gastro-intestinal disease
Infectious diseases
Travel related medical problems
Parasitic infection
Psychiatric/psychological problems
Air travel
Sexually transmitted disease
Migrants
Returned travellers
Clinical management
Elderly travellers
Child travellers
Sea travel

The British Medical Journal – general practice- (BMJ) is circulated to all British Medical Association members and 70% of GPs. it is regularly read by doctors and nurses and included in the investigation as a probable source of travel related medical articles[6] BMJ issues were accessed via the website and analysed as for the other journals, with citations in travel health related topics for the years 1988-2008 identified separately to ascertain their source e.g. correspondence, case report, feature, review, editorial or research. The Lancet was accessed through its website and the malaria citation section was analysed similarly. Key word search was also undertaken to confirm the trawl had identified all relevant papers. Results were categorised, tabulated and statistically analysed for occurrence, frequency and between journal comparisons.

Results

Table 1
JOURNALS, ISSUES AND CONTENT

Journal	Years reviewed	Review/research papers (n)
J. Travel Medicine	1994-2008	408
British Travel Health Assoc. J	2000-2008	56
Travel Med and Infectious disease	2003-2008	100
Brit. Med. J.	1994-2008	49

There were 613 publications in the four journals above, of which 179 (29%) were reviews and 434 (71%) were research articles.

The three travel health focused journals carried 144 (24%) of all the reviews and 420 (69%) of all research reports. The BMJ and TMID carried twice as many reviews as the other journals.

Table 2

Category frequency. occurrence in publications	Topic	% of all publications	% reviews in all articles	research reports % all articles
1	Malaria	15	3	12
2	Vaccines/ vaccine preventable disease	13	2	11
3	Infectious disease	8	2.9	4.8
4	Gastro-intestinal illness	6	1.1	4.9
5(a)	Parasitic infections	5	2.3	2.7
5 (b)	Travel clinic	5	0. 8	4.2
6	Air travel	4	2	2
7 (a)	Travellers knowledge and compliance	3	0.3	2.7
7(a)	Returned travellers	3	0.4	2.6
8(a)	Mountain Medicine	2	1.2	0.8
8(b)	Migrants	2	0.4	1.6
8(c)	Travel health risks	2	0.4	1.6
9(a)	Trauma	2	1	1
9(b)	Public education	2	0.3	1.7

A Structured Review of Publications… *continued*

Other categories:
Travel related health problems, travel health professional knowledge, psychiatric/psychological problems, sexually transmitted disease, sea travel ,sporting activities abroad and returned travellers were represented by only a few publications in each section. Diabetic, pregnant, elderly and child travellers, substance abuse, motion sickness and travel related phobias attracted no publications, and only a few reviews. Infectious disease and malaria were responsible for 42% of the publications and 33% of the research papers. Malaria papers were biased towards chemoprophylaxis with little input on bite protection in prevention. Gastro-intestinal illness accounted for 6 % of the papers with only half of these relating to the common condition of travel related diarrhoea. Parasitic illness attracted an equal number of reviews and research reports. Although air travel attracted 4 % of the papers, there was only one research publication on traveller related thrombosis, a major concern for all air travellers

Other categories included parasitic infection, sea travel, trauma and health problem management, which had no research papers and only one or two reviews.

The *Lancet* carried enough articles on malaria for it to have its own website sub-section (citation) the only travel medicine topic represented.

The *Lancet* is published by Elsevier and its website allows access to specific topic selections one of which is malaria. Analysis of this topic in 5 years of issues from 2004-2008 was undertaken. The journal carries about 3 feature articles and 3 research reports each issue with occasional reviews.

There were 78 citations on malaria approximately 5% of all articles. 12% of citations were of interest in travel related medicine, with one specific to travellers. Pregnancy and malaria problems attracted 10 papers. 3% of the papers were reviews and 8% were research reports. The *Lancet* results again show a preponderance of malaria publications. The journal has a low GP readership, but its contents are often quoted in journals and the lay press.

Discussion

In this literature review of all issues of the three travel health focused journals and articles from the BMJ from 1988-2008, the most published topics were malaria, vaccines and vaccine preventable disease, appearing twice as often as the next two occurring topics, infectious diseases and gastro-intestinal illness.

One topic, malaria, dominated in occurrence with vaccine preventable disease a close second. Malaria and vaccine-preventable diseases are responsible for much global morbidity and mortality. Malaria prophylaxis and vaccination are also driving forces in motivating potential travellers to attend travel health clinics and they have brought protection to many travellers. Many individualised travel health consultations involve malaria prophylaxis and vaccination. Their relevance and importance is not disputed, but is their preponderance in publications justified? The evidence base in regard to prophylaxis and vaccination is substantial, well established with consensus support. The majority of tourists are not however exposed to the related medical conditions. International travellers are however at high risk of contracting traveller's diarrhoea and non-vaccine preventable infection. The

Table 3
Analysis of citations from the British Medical Journal

Frequency of occurrence	% Category	Number	Citations	% Peviews/research in category	% Research/review in section
1	malaria	44	31	18	25
2	Vaccine preventable diseases	35	24	14	20
3	Air travel	17	12	17	5
4	Sexually transmitted disease	15	10	13	0
5	Infectious disease	12	8	50	16
6a.	mountain medicine	8	6	77	50
6b	Gastrointestinal illness	8	6	25	55
7	others	3	3		
	144	100			

most likely adverse medical event to befall world wanderers is a cardio-vascular event, the exacerbation of chronic and predisposing illness or trauma, which demand the attention of researchers and require action by consulting travel health professionals. However these topics are inadequately represented in the publication list.

Potential travellers present with concerns regarding travellers thrombosis, travel related phobias , motion sickness and the possible effects of travel on pregnancy, diabetes and pre-existing conditions and sporting activities while abroad. Travel health professionals have to acquire and maintain a broad range of knowledge within the discipline. Prime practice objectives revolve round identification of health risk, illness prevention and the management of medical problems in travellers while outwith the UK and on their return home. Doctor and nurses professional needs depend on an evidence base of published material which seems poorly served by the literature. The overall content of travel medicine publications over the last decade has catered poorly for the health professional endeavoring to meet the demands of potential travellers. These go far beyond advice on prophylaxis and vaccination.

Disproportionate attention focuses on malaria and vaccine preventable disease. Only a third of travellers are vaccinated and the cost efficacy of some procedures have been questioned.[7] This contribution may be generated by a plentiful supply of research papers, perhaps determined by commercial and academic interests. Financial incentives may stimulate interest in certain areas, to the exclusion of conditions which attract less media and public attention. The disparity in reports might be explained by authors publishing their findings in specialist journals in other disciplines, but this is not supported by a trawl of the most frequently quoted journals in textbook references. Even if these were making up the shortfall, travel clinic doctors and nurses rarely read these publications and are not using them for the evidence base of their practice management.[4]

Editors and peer reviewers may be excluding submitted material from the range of rarely appearing topics. This has been shown to occur in regard to negative findings in highly regarded journals.[8] The rejection rate for the JTM has risen steadily over the years,[9] perhaps a reflection of poor quality, or an over-abundance of submissions, but this would not explain the large discrepancy. The almost total absence of research papers on important subjects such as traveller's thrombosis makes this an unlikely explanation. It would appear there is a dearth of reported research on many important topics in the travel medicine field.

Travellers diarrhoea for instance, the scourge of international travel[10] accounts for a mere half of the small number of gastro-intestinal papers published. The occurrence of research pieces on every other aspect of travel related medicine falls markedly after the first four most frequently appearing topics. Important subjects appear to have attracted little innovative research and their reviews have often a thin research base. Risk identification, assessment and management, the bed-rock of travel health professional philosophy, are poorly served, with incidence and epidemiology of many conditions affecting the international traveller inadequately recorded.

Specific problems commonly affecting tourists are insufficiently addressed, with virtually no research papers on, pregnant, diabetic and child travellers, the effects of pre-existing disease, cardio vascular risk, motion sickness, and travel related phobias. A large number of the world-travelling public now travel extensively by sea on cruise ships. Many are elderly with pre-existing illness and many fall ill or are injured while on board,[11] but there is scant published research establishing morbidity and mortality for this cohort. The hard data, needed to establish best practice based on evidence for many groups of travellers, appears to be absent.

There is an obvious need for research over a wide range of topics embraced by travel medicine. Very common conditions affecting the tourist are poorly served by research, resulting in a paltry evidence base for practitioners guidance in decision-making. This lack needs to be addressed by all those working in the discipline. Editors should consider regular, extensive screening of the specialist literature from all other disciplines and abstracting and high-lighting the findings. A data base holding publications pertinent to the widest range of travel medicine interests should be established, as a one stop reference source for those seeking the evidence base to support their practice. College facilities, such as Faculty of Travel Medicine, RCPS. Glasgow, should consider establishing review groups modelled on the Scottish Intercollegiate Network (SIGN), to assess the quantity and quality of research in the field and use their findings to establish and define the evidence base for good practice in the discipline and encourage research in neglected topics.

Summary

Research and review articles on malaria and vaccine-preventable disease predominate in travel health focused journals.

Many common topics of importance to the health of the world traveller are poorly represented in journal literature.

The evidence for "best practice" of travel related medicine is poorly supported by published literature in discipline journals

There is a need for research on a wide range of travel medicine subjects

Published literature references on travel medicine should be collated from all published journals and be held in one database

A Structured Review of Publications… *continued*

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Tick-borne Encephalitis (TBE) in East Asia

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Abstract

Currently data available about the epidemiology of TBE in East Asia is limited. TBE appears to be endemic in several regions of East Asia. Risk assessment for travellers and the need to become protected by vaccination is hampered by the limited data about TBE in these areas. It has been shown that vaccination with TBE antigens derived from Western subtype of TBE virus induces cross-reactive immune response to Siberian and the Far-Eastern subtypes of TBE virus.[1-3] Unequivocally, travellers to the Russian part of East Asia should become vaccinated, but vaccination can also be recommended for travellers to northern parts of Mongolia and to the northern and north-eastern parts of China.

The epidemiology of TBE virus, transmitted by ticks, is well described for Europe. The northernmost occurrence in Europe is in the region of Kokkola (Finland), which is only 300 km south of the polar circle. The Western restriction is in the Alsace and the West Alps of France. The TBE virus also is endemic south of the Alps and infections have been reported from the Latium, a region in Central Italy. During the last 10 years, the number of reported cases has been increased in Central Europe (e.g. Germany, Czech Republic), the Baltic countries and the European part of Russia. Although there is no uniform case definition for TBE in Europe and notification is not mandatory in every European country, the epidemiology of TBE virus and the appearance of new foci is well reported in the national and international literature[4,5] and by national reference centres.

The European TBE virus subtype generally produces a biphasic febrile illness starting with fever lasting 2-7 days and followed by an afebrile and relatively asymptomatic period, lasting 2-10 days. In approximately 30 % of patients infected, the second phase of disease develops and this phase represents symptoms and signs of meningitis or meningoencephalitis.[6]

Compared to Europe, less data are available on TBE epidemiology in Asia, except that most of TBE cases occur east of the Ural in Siberia and Far Eastern Russia (about 10,000 cases annually.[6] This geographic differentiation into Siberia and Far Eastern Russia is also used for the classification of two subtypes of the TBE virus based on molecular characteristics, the Siberian and the Far Eastern subtypes in addition to the European subtype.[6] The European TBE virus subtype mostly is transmitted by the tick *Ixodes ricinus*, while the Siberian and the Far Eastern subtypes are generally transmitted by *I. persulcatus* (and also by other tick species e.g. *I. ovatus*).

Until recently, the knowledge about TBE virus in Asia was very limited with the exception of Russia. This review is aimed to summarise the epidemiology of the TBE virus in East Asia, to evaluate the risk for travellers to acquire TBE and to possibly become protected by vaccination.

Japan

The first case of TBE has been reported from the southern part of Hokkaido in 1993 and occurred in a farmer's wife.[7] Epidemiological investigations revealed that infections have happened in human individuals, cows, goats and dogs in closer surroundings to this index case,[8] indicating that the south of the island is an endemic area for TBE virus. Sequencing of various Japanese TBE virus isolates revealed a high homology to isolates from Far Eastern Russia (Far Eastern subtype).[9] It was concluded that the main vector is *I. ovatus*.[10] Molecular epidemiology studies indicate that the TBE virus is at least endemic in Japan since 1300 B.C. E. and multiple exchanges must have occurred between Far Eastern Russia and Japan.[11] This is in agreement with the finding that ticks of the genus *Ixodes* have been found on migratory birds.

Mongolia

In 2003, an epidemiological survey was carried out in two northern provinces of Mongolia to analyse the seroprevalence of pathogens transmitted by ticks. Among adults in the provinces Selenge and Bulgan, a TBE prevalence of 5.1 % and 1.0 % was measured respectively.[12] Positive results in ELISA were confirmed by neutralization assay. TBE virus strains have yet not been isolated in Mongolia.

China

Knowledge on TBE epidemiology in China was limited until recently, because most of the reports are in Chinese and have not been published in international journals. A recent published review article delivers insight into the epidemiology of the TBE virus in various regions of China.[13] Seroepidemiological investigations in humans and animals revealed that TBE virus is endemic in the northeast of China (provinces Heilongjiang and Jilin), in the north (Inner Mongolia) and in the north-west (Province Xinjiang). In addition, human TBE cases have been reported since the 1940ies from north-eastern regions of China. In 1952, incidence rates were notified of 3.2 per 100,000 inhabitants from the province Heilongjiang. Several TBE virus strains have been isolated from ticks and from ill humans and molecular analyses of the genome showed a high similarity to strains from Far Eastern Russia. The molecular characterisation of Chinese TBE virus isolates is confirmed by the high mortality rate of 25 %, which is a typical feature of the Far Eastern subtype.[4] *I. persulcatus* is supposed to be the main vector in China.

Seroepidemiological studies in humans indicate a high infection rate in the region of Linzhi in the south of Tibet. A high rate of seropositive serum samples from mammals and humans is also reported in region of higher altitude in the province of Yunnan in the south-western part of China. However, several of these studies may have been carried out with diagnostics not unequivocally discriminating with antibodies to other flaviviruses like Japanese encephalitis virus, which are known to cross-react. Thus, as long as molecular characterized viral clones are not available, these two regions should be regarded as possible TBE endemic regions.[13]

South Korea

No TBE case has been reported yet from South Korea. Admittedly, the number of patients with encephalitis by unknown agents is increasing each year. This has prompted scientists to determine the possible presence of TBE virus in Korea. TBE virus could be isolated from ticks and field mice collected in northern regions of South Korea. Possibly, the ticks *Haemaphysalis longicornis* and *I. nipponensis* are the main vectors in South Korea. Molecular analyses revealed Korean TBE virus isolates belonging to the European subtype.[14]

Conclusion

The current knowledge on TBE in East Asia is still incomplete. There is no compulsory registration of disease, no uniform case definition and no valid identification and registration of cases in East Asia, probably causing underestimation of the medical importance.

With increasing intercontinental travel to areas of endemicity, the risk for tourists of acquiring TBE will increase. Serodiagnosis for TBE is hampered in some of East Asian regions by the presence of other flaviviruses, e.g. Japanese encephalitis virus due to cross-reactivity among antibodies directed to the viral envelope glycoproteins. [4] Thus, exact diagnosis needs the access to neutralisation assays and/or PCR-based genomic analyses. Table 1 and Figure 1 outline our current knowledge on TBE in East Asia. Travellers to countries with marked zones in grey should consider TBE vaccination – depending on which region they travel to and on their outside-activities.

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Tick-borne Encephalitis (TBE) in East Asia *continued*

Declaration of interests
The author is an employee of Novartis Vaccines, producing TBE vaccines.

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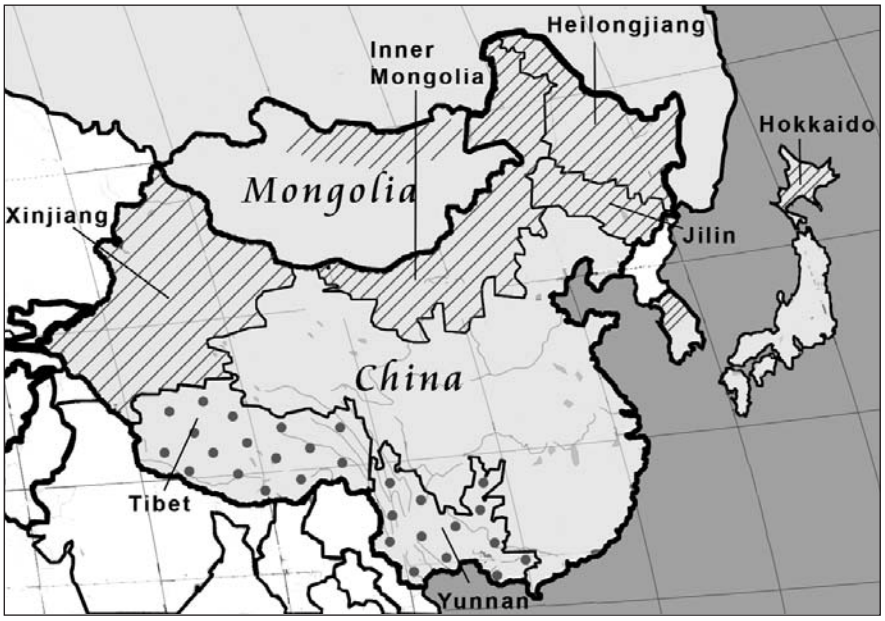
Table 1
Countries in East Asia with investigations in TBE

Spectrum of data, available on TBE / TBE virus	*Russia*	*Mongolia*	*China*	*Korea*	*Japan*
TBE virus isolated	yes	no	from some regions	yes	yes
Genome sequences available	yes	no	yes	yes	yes
Human cases reported	yes	no	from some regions	no	from Hokkaido
Human serology data available:					
- neutralisation test	yes	limited	no	no	limited
- ELISA	yes	limited	limited	no	limited
Animal serology data available	yes	no	yes	no	limited

Figure 1
Geographic section of East Asia



Countries, in which TBE virus has been identified, are marked in grey (Russia, Mongolia, China, South Korea). Regions of these countries where TBE endemiciy has been proven, are hatched (Hokkaido, northern parts of South Korea, Mongolia and China). The Chinese provinces Tibet and Yunnan, which are probable TBE endemic areas are dotted.

Detection of the eae gene in Escherichia coli isolates causing traveller's diarrhoea both in atypical EPEC and in non-EPEC, non EHEC isolates

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Summary

The *eae* gene was detected in 9 out of 167 (5.4%) Escherichia coli isolates recovered from faeces of patients with traveller's diarrhoea. Two out of those 9 isolates were identified as enteroaggregative and other one as enterotoxigenic. Detection of the eae gene may be useful for detecting diarrheogenic *E.coli* in traveller's diarrhoe

Introduction

Traveller's diarrhoea (TD), is the most frequent pathology affecting travellers returning from developing countries.[1,2] A long series of etiological causes have been described, including bacteria, virus and parasites.[1] Among these, *Escherichia coli* is the main aetiologic cause of traveller's diarrhoea.[1] Despite this fact, currently only a few laboratories include the detection of diarrheogenic E.coli in their diagnostic armamentarium. That results in the presence of a high number of diarrhoea episodes without known aetiological cause. This may cause both incorrect empiric antibiotic treatments and a lack of knowledge of the evolution of the main clinical characteristics of these pathogens such a virulence and antibiotic resistance.

At least six different pathotypes of *E.coli* have been described:[2] enteroaggregative (EAEC), enterotoxigenic (ETEC), enteropathogenic (EPEC), enterohemorrhagic (EHEC), enteroinvasive (EIEC) and diffusely adherent (DAEC). Among these EAEC and ETEC are the most frequently isolated, with other pathotypes being isolated less frequently.[1] Detection of specific virulence factors is used to identify and classify diarrheogenic *E.coli*. However, in some cases such as EAEC the knowledge of the virulence characteristics is incomplete, leaving unclear the exact pathogenicity mechanisms.

Intimin is a virulence factor encoded by the *eae* gene. It is involved in adherence to the intestinal surface.[2] This virulence factor is located in the pathogenicity island LEE present in EPEC and EHEC isolates,[2] in this manner, its amplification may result in an easy way to detect, at least, this two different diarrheogenic *E.coli* pathotypes. Besides, although sporadically, the eae gene has been detected in a few number of ETEC and EAEC isolates.[3-5]

Objectives

The aim of this study was to analyse the prevalence of the *eae* gene in *E.coli* isolated from travellers with TD, as well as, identifying the pathotype to which they belonged.

Methodology

The presence of the *eae* gene was evaluated by PCR in 130 consecutive *E.coli* isolates recovered from faeces of travellers attending with diarrhoea at the Hospital Clinic of Barcelona (HCB) between April and July of 2005, as well as in 37 consecutive isolates from the Hospital Carlos III (HCIII) of Madrid recovered from September-2005 to February-2006.

The presence of the *eae* gene was detected using the primers and annealing temperatures stated in the table 1. Furthermore, a second specific PCR was performed in those *eae*-positive isolates, in order to establish whether they belonged to the EPEC (*bfpA* gene), EHEC (*sxt1* and *sxt2* genes), ETEC (presence of LT or ST toxins encoding genes) or EAEC (detection of the *aatA* gene) pathotypes (table 1). In all cases the following amplification conditions were used: dNTPs: 0.2mM; Mg: 3mM; Tris-HCl (pH 8.8): 10mM; potassium chloride: 100mM; gelatin: 0.05% wt/vol and 0.5μM of each primer. All, the amplified products were visualized in 2% agarose gel stained with ethidium bromide. In order to confirm the results, in those strains belonging to the EAEC or ETEC pathotypes the amplified products were sequenced using the BigDye Terminator v3.1 Cycle Sequencing Kit (Applied Biosystems, Foster City, CA) and an automatic DNA sequencer. When necessary, clonal relationships were established by REP-PCR, as previously described.[8]

Results and Discusion

A total of 6 isolates out of 130 from HCB, and 3 out of 37 from HCIII harbored the *eae* gene (4.6% and 8.1% respectively). In none of them was detected the presence of the *bfpA*, *sxt1* or *sxt2* genes. Two out of those 9 eae positive isolates, one from HCB and other from

Detection of the eae gene… *continued*

HCIII were also positive for the detection of EAEC pathotype while one from HCIII was positive for detection of toxin LT. Thus, the remaining 5 out of 130 strains (3.8%) from HCB and 1 out of 37 from HCIII (2.7%) presenting the *eae* gene were not included in either ETEC or EAEC pathotypes.

Following the classification previously established,[2] the 6 isolates presenting the *eae* gene, but none of the other searched virulence factors, were classified as atypical EPEC. Although the association between atypical EPEC and diarrhea remains controversial, the present report suggests a possible role of atypical EPEC as a cause of diarrhoea.

The finding of the *eae* gene in ETEC and EAEC isolates is unusual, showing both the ability of *E.coli* to acquire genetic material, as well as the limitations of the classical pathotype identification based on detection of a single virulence factor. In fact, horizontal transfer of genetic material, such as pathogenicity islands, has been claimed as a mechanism of dispersion of genes encoding virulence factors.[5]

Curiously, the two EAEC strains harboring the *eae* gene have the same geographical origin (Equatorial Guinea), although they do not belong to the same clone (data not showed). The remaining *eae* positive isolates isolates were recovered from faeces of travellers to Sri Lanka, Viet Nam, Brazil, Egypt, Senegal, Peru and Afghanistan.

Conclusions

The fact that approximately 3% of the E.*coli* isolates from patients with TD might be classified as atypical EPEC, shows the potential of diarrhoeagenic *E.coli* pathotypes other than those more usually searched (ETEC, EAEC, typical EPEC) to be considered as possible causes of travelers' diarrhoea. Furthermore, the *eae* gene has been described in EAEC and ETEC isolates, demonstrating that the limits between different *E.coli* pathotypes may be blurred.

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Table 1
Primers and PCR conditions used in the study

Gene	*Primers*	*Size (bp)1*	*Tª 2*	*No Cycles*	*Ref*
eae	5'-TCA ATG CAG TTC CGT TAT CAG TT-3' 5'-GTA AAG TCC GTT ACC CCA ACC TG-3'		460	55	35 6
lt	5'-TCT CTA TGT GCA TAC GGA GC-3' 5'-CCA TAC TGA TTG CCG CAA T-3'	322	55	30	7
st	5'- AAA GGA GAG CTT CGT CAC ATT TT-3' 5'- AAT GTC CGT CTT GCG TTA GGA C-3'	129	55	35	6
aatA	5'-CTG GCG AAA GAC TGT ATC AT-3' 5'-CAA TGT ATA GAA ATC CGC TGT T-3'	628	55	30	7
bfpA	5'-ACA AAG ATA CAA CAA ACA AAA A-3' 5'-TTC AGC AGG AGT AAT AGC AGT C-3'	259	55	30	7
stx1	5'-CAG TTA ATG TGG TGG CGA AG-3' 5'-CTG CTA ATA GTT CTG CGC ATC-3'	895	55	30	7
stx2	5'-CTT CGG TAT CCT ATT CCC GG-3' 5'-GGA TGC ATC TCT GGT CAT TG-3'	482	55	30	7

1 Amplicon size in bp

2 Annealing temperature

Seroprevalence of Hepatitis A infection in Bulgaria

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Summary:

Background: VHA is distributed worldwide , but with different frequency. The different countries endemicity for the disease is determined by the incidence rate of the morbidity as well as by the seroprevalence of anti-HAVt among the different age groups of the population. The lack of current data in Bulgaria about the latter index has lead us to make this survey.

The objective is to determine the seroprevalence of anti-HAVt among 180 people, who have no history data for suffering from VHA in *Plovdiv region*.

Methods: 180 people have been studied for anti-HAVt under ELISA with kits and Dia Sorin apparatuses.

The examined persons have been divided into two groups: 1st. Those, living under bad hygienic conditions (mainly of the Roma origin), and 2nd. Those, living under good hygienic conditions.

Results: 93 people from the first group have been examined, where 84 (90,32%) are positive for anti-HAVt. The persons, who have been examined in the second group, are 87, where 39 (44,83%) are positive. The average seroprevalence for all people (180) who have been included in the study is 68,33%.

Conclusions. The determined average seroprevalence of anti-HAVt is typical for the countries with intermediate endemicity of VHA. The epidemiology of the disease is different among people living under different sanitary-hygienic conditions. Diverse measures of prevention should be applied for the two groups of population, in accordance with the established epidemiology of the disease.

Background

Viral hepatitis A (VHA) is distributed worldwide. Depending on the anti-HAVt seroprevalence and according to CDC[1] the world is separated in four zones with different endemicity: 1. High; 2. Transitional; 3. Intermediate; 4. Low or very low. Together with the growth of the social status and the better sanitary hygiene conditions of living in many countries the incidence rate of VHA is getting lower.[2,1,3,4] The endemicity of the different countries for the disease is determined by the incidence rate of morbidity, as well as by the seroprevalence of anti-HAVt. According to Nothdurft et al.[5] the endemicity is based on age-specific seroprevalence. The national incidence of HAV disease may not be relevant because it is possible to have hyperendemic areas without a high incidence of clinical HAV. The age-specific seroprevalence typical of an intermediate-endemicity area for HAV is estimated at >40% in those younger than 25 years. VHA is a serious problem for the travellers in all the world.[6,7,8] It is necessary that permanent surveillance of seroprevalence of hepatitis A infection is introduced for the entire Europe and that a Consensus for preventive measures is developed.[5,9,10,11]

The objective of the study is to examine the seroprevalence of anti-HAVt in the Plovdiv region, for which there is no existing data from before.

Methods

The sero-epidemiological research is conducted between 05.01.2008 and 20.03.2008. It covers 180 people, aged between 16 and 43. The examined people are included in two groups: 1-st group – 93, living under bad sanitary-hygienic conditions, mainly of Roma origin; 2-nd group – 87 living under good sanitary-hygienic conditions. All of them come from *Plovdiv* (the second biggest city in Bulgaria) and *from the Plovdiv region*. The entire region has around 400 000 residents of 7 million residents in the entire country. The studied people have no history data for illness from VHA. None of them have been immunized against the disease, nor he has been in contact with a diseased from hepatitis A during the preceding 50 days. We collected serum from all of them after obtaining their informed consent. The samples were tested for anti-HAVt with kits and apparatus of Dia Sorin. The tests with antibodies against hepatitis A virus above 20 mIU/ml are accepted as positive.

Following methods were used: epidemiological research and analyze; and ELISA to estimate anti-HAVt in serum samples.

Data are statistically processed, using Fisher's exact test 2x2 tables.

Results

The studied people from the 1st group – living under bad sanitary-hygienic conditions (Table 1) were divided in 2 age subgroups: between 16 and 25 and between 26 and 43. Those aged 25 or less are with seroprevalence 88,25%, and among those aged 26-43 – the seroprevalence is 92,86%. The average seroprevalence among all 93 examined from this group is 90,32%.

Table 1

1st group – people living under bad sanitary-hygienic conditions

Age	№ of examined	Anti-HAV$_t$(+)	Anti-HAV$_t$(-)
16-25	51	45 (88,23 %)	6 (11,77 %)
26-43	42	39 (92,86 %)	3 (7,16 %)
Total	93	84 (90,32 %)	9 (9,68 %)

From the 2nd group – living under good sanitary–hygienic conditions (Table 2), 87 persons were examined altogether. They were also divided in 2 age

Seroprevalence of Hepatitis A infection… *continued*

subgroups – between 16 and 25 and between 26 and 43. The seroprevalence in the first subgroup (aged 16-25) is 50%, and among these aged 26-43 years was lower – 41,18%. The average seroprevalence for the whole group is 44,83%.

Table 2

2nd group – people living under good sanitary-hygienic conditions

Age	№ of examined	Anti-HAV$_t$(+)	Anti-HAV$_t$(-)
16-25	36	18 (50 %)	18 (50 %)
26-43	51	21 (41,18 %)	30 (58,82 %)
Total	87	39 (44,83 %)	48 (55,17 %)

The average seroprevalence for all 180 persons included in the study is 68,33%. (Table 3). The summed results for the both groups show seroprevalence of 72,41% for the people aged 16-25 and 64,52% among the people aged 26-43. These results are different from the ones received from the other authors[1,3,4], who determine increase of the seroprevalence with increase of the age. íhat we comment with the conclusions.

Table3

Average seroprevalence for all examined persons

Age	№ of examined	Anti-HAV$_t$(+)	Anti-HAV$_t$(-)
16-25	87	63 (72,41 %)	24 (29,59 %)
26-43	93	60 (64,52 %)	33 (35,48 %)
Total	180	123 (68,33 %)	57 (32,67 %)

Conclusions

We should acknowledge that the study is provided in one of the regions in Bulgaria and therefore conclusions for the entire country can not be drawn. But it includes enough persons, so reliable conclusions for the region can be made.

The established very high seroprevalence in the 1st group (90,32%) shows a high endemicity of the disease in that group of population, which is due to the low social status and the bad sanitary-hygienic conditions of life. An inessential difference (ê=0,505) in the seroprevalence between the two age subgroups is determined – those aged 16-25 and those aged 26-43 (respectively 88,23% and 92,86%). This indicates that the infection with hepatitis A happens in the child age (before the 16th year).

The seroprevalence in the 2nd group (44,83%) is characteristic for the intermediate-endemicity, and it even reaches the border with the low-endemicity <40%.[5] In this group a trend for a lower seroprevalence is determined in the bigger age subgroup (16-25:50%; 26-43: 41,18%). Despite of the unessential difference (ê=0,512) it seems paradoxical at first. But this could be due to a period of time (1975-1990) during which the asymptomatic forms of VHA were with very low incidence in that population. With the increase of the incidence of the asymptomatic forms among the children during the next years (1990-2000) the seroprevalence of anti-HAVt has risen as well among the people who are currently aged between 16-25. This data is in full correspondence with the sickness from VHA in the region, which we have determined through another survey we conducted, but we have not yet published. People from the 1st group are the ones who are usually diseased (over 70%), and most of them (above 80%) are children not older than 10 years. In the 2nd group the clinical forms are mainly among people above 25 who have a higher receptivity due to the lower seroprevalence of anti-HAVt for them.

The conclusion is as follows:

1 The average seroprevalence for all examined people (68,33%) reveals intermediate endemicity for the region of Plovdiv.

2 Essential difference (ê<0,0001) is established in the seroprevalence between the groups. This indicates that the epidemiology of the disease is different for the two groups.

3 The preventive measures against VHA including active or passive immunoprophylaxis have to be consistent with the epidemiology of the disease for the respective group of the population, which has not been done in the routine practice yet.

4 Sero-epidemiological surveillance for VHA is necessary to be conducted. With it the endemicity of a certain country or region for the disease, and also the risk for the persons in the different age groups to become diseased will be determined more precisely.

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The Epidemiology, Toxidromic Classification, Management, and Prevention of Mushroom Poisoning in Travellers

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Abstract
Since the 1990s, reports of severe and fatal mushroom poisonings have increased in the United States and worldwide. Several new mushroom toxidromes have also been described worldwide, including some following consumption of edible mushrooms.

Hallucinogenic mushroom poisoning is occurring more commonly as spore-sellers, enticing websites, and drug-paraphernalia shopkeepers encourage adolescents and young adults to experiment with natural neurotoxins, especially when away from home. Travel medicine practitioners should, therefore, consider mushroom poisoning in the evaluation of all patients, who may be intoxicated by natural substances. Since information on natural exposures is often incorrect and insufficient, a new toxidromic classification of mushroom poisoning is recommended to guide clinicians in making earlier, more specific diagnoses, especially in cases where only advanced critical care, including kidney or liver transplantation, may be life-saving.

Fortunately, most severe mushroom poisonings and fatalities remain infrequent, and usually due to hepatic failure from accidental ingestion of *Amanita phalloides* (Death Cap) and other amanitin-containing species, or renal failure from ingestion of orellanine-containing *Cortinarius* mushrooms. However, the rapidly growing popularity of picking and eating wild, foraged mushrooms for their gastronomic or psychedelic delights has triggered increasing worldwide reports of severe, potentially fatal, mushroom poisonings. Travelers and expatriates are also uniquely predisposed to accidental mushroom poisonings by mistaking poisonous species in foreign or adopted countries for similar appearing edible species in their home countries. Lastly, several new toxic species of mushrooms, including some formerly edible species, have been described since the early 1990s.

Materials and Methods

A MEDLINE search, 1966-2008 and an *Ovid* OLDMEDLINE search, 1951-1965, were conducted in order to assess the evolving global epidemiology of mushroom poisoning and to identify any new mushroom poisonings, antidotes, or therapies. Data sources included case reports, case series, descriptive studies, and laboratory studies of mushroom poisonings and the toxicokinetics of mycotoxins. In order to better guide travel medicine clinicians in establishing diagnoses and implementing therapies, despite confusing ingestion histories and clinical presentations, data sources were extracted to permit the use of a newly developed and expanded toxidromic classification of mushroom poisoning based on presentation timing and target organ systemic toxicity.[1]

Results: The Global Epidemiology of Mushroom Poisoning (Table 1)

Although the exact poisonous species and their toxins remain unidentified in most mushroom poisonings, the worldwide incidence of mushroom poisoning now appears to be increasing due to increased human demands for uncultivated gourmet or hallucinogenic mushrooms (Table 1). In 1987, Tomini and co-authors reviewed 282 cases of spore-confirmed mushroom poisoning in Italy over 18 years;

The Epidemiology, Toxidromic Classification… *continued*

and determined that 16% of the poisonings resulted from highly toxic cyclopeptide-containing mushroom ingestions, 14% resulted from moderately toxic ingestions, and the remainder resulted from relatively non-toxic species.[2] The authors concluded that mushroom poisonings were increasing in Italy over the study period.[2] In 1989, Sanz and co-authors reported their experiences in managing 46 cases of confirmed amatoxic mushroom poisonings in Spain during 1986-1988.[3] There were 4 fatalities in males, between 7 and 65 years of age.[3] The authors concluded that mushroom poisonings were increasing in Spain over the study period.[3] In 1990, Kacic and co-authors described a 1988 outbreak of mushroom poisonings in Croatia in 140 persons who consumed a variety of mushrooms over a period of less than 3 weeks.[4] Of 18 children who ingested amanitin-containing mushrooms, 4 died for a case fatality rate of 22%.[4] Suspect mushrooms were identified in 21 of 27 patients, who had spores or partially digested mushrooms retrieved by gastric lavage.[4] In 2000, Ducat and co-authors reported an increasing occurrence of fatal mushroom poisonings in Slovakia, and were among the first investigators to emphasize that poisonings could result from preserved mushrooms and even decomposing, edible mushrooms.[5] In 2003, Unluoglu and Tayfur analyzed 143 cases of mushroom poisoning in Turkey between 1996 and 2000 and reported 4 deaths from cyclopeptide-induced fulminant liver failure, and 8 poisonings by cultivated, edible mushrooms.[6] The authors concluded that mushroom poisonings, especially poisonings by edible mushrooms, were increasing significantly in Turkey over the period analyzed.[6] In 1992, Ishihara and Yamaura conducted a comprehensive epidemiologic analysis on all mushroom poisonings in Japan between 1959 and 1988, which included 10,924 patients and 72 deaths.[7] The authors calculated a mean number of 70 cases of mushroom poisoning per year in Japan with 2.4 deaths per year.[7] In 2000, Hender and co-investigators analyzed 174 telephone reports of witnessed mushroom ingestions made to the Victoria Poison Information Centre in Australia and found *Coprinus* (Inky Caps) species mushrooms to be the most common accidental toxic mushroom ingestion, and *Agaricus xanthodermus* (Toxic Yellowing Agaricus), often confused with other edible *Agaricus* species, to be the most common mushroom unintentionally ingested as food.[8] The authors concluded that non-lethal mushroom poisonings among amateur mushroom foragers confusing toxic with edible mushrooms were increasing significantly in Australia over the study period.[8] In 2001 meta-analysis, Danel and co-authors collected 245 cases of *Cortinarius* species mushroom poisoning in Europe and Scandinavia reported between 1965 and 1998.[9] The authors analyzed 90 cases with complete outcome data in detail, and found that 62 patients (69%) developed renal insufficiency and 45 patients required dialysis.[9] Five deaths were described among the 90 cases analyzed in depth for a case fatality rate of 5.6%.[9] In a 2005 meta-analysis of over 28,000 cases of mushroom poisoning throughout the world during the period 1959-2002, Diaz reported statistically significant increases over time in the proportions of fatal mushroom poisonings between the periods 1959-1989 and 1993-1997 ($P = 0.005$) and 1959-1992 and 1998-2002 ($P = 0.006$).[1]

Unintentional mushroom poisonings from known and newly recognized toxic mushrooms also appear to be increasing in the US, as in the rest of the world. In 1986, and later, in 1994, amanitin-containing *Lepiota* mushrooms poisoned 5 experienced, amateur mushroom hunters in suburban New York City, with 2 deaths from fulminant hepatic failure.[10, 11] In all 5 cases, the mushroom foragers carefully avoided the poisonous *Amanita* species, but did not recognize the amatoxic *Lepiota* (Deadly Lepiota) species (*L. chlorophyllum = 4, L. josserandi = 1*) as also highly amatoxic.10, 11 In 1988, Schwartz and Smith studied 174 adolescent substance abusers and found that 26% (n = 45) ingested hallucinogenic mushrooms, primarily *Psilocybe* species mushrooms (Mellow Mushrooms), frequently and, often, in conjunction with other synergistic intoxicants, including alcohol, marijuana, and other drugs.[12] The authors warned pediatricians of increasing mixed drug and mushroom abuse by adolescents and recommended that pediatricians consider hallucinogenic mushroom poisoning whenever evaluating delirious or psychotic adolescents.[12] In 1989, Klein and co-investigators were among the first to report that *Amanita phalloides* (Death Cap) poisonings were becoming new and increasingly common indications for liver transplantation in California.[13] Pinson and co-authors subsequently confirmed these findings the following year by reporting that A. *phalloides* poisonings were becoming new and increasingly common indications for liver transplantation in neighboring Oregon.[14] During the winter of 1995-1996, Yamada et al. reported 13 *Amanita phalloides* poisonings in northern California, with one death, and one urgent liver transplant.[15] Over the following winter, 1996-1997, the US CDC reported another 9 *Amanita phalloides* poisonings in northern California, with 2 deaths.[16]

In addition to increasing poisonings following ingestions of known toxic species, formerly edible and new mushroom species are causing newly recognized toxidromes from mushroom poisonings. Between 1992 and 2001, French investigators initially reported 12 cases of severe rhabdomyolysis with 3 deaths following the ingestion of large, cooked quantities of the edible yellow *Tricholoma* mushroom, *Tricholoma equestre* (Yellow Trich, formerly *Tricholoma flavovirens*).[17] Two new toxidromes from mushroom poisoning were also described in the US: (1) acute GI toxicity, followed by anuric renal failure, after

ingestion of *Amanita smithiana* (Toxic Lepidella Amanita) with 13 cases reported from the US Pacific Northwest; and (2) the *Paxillus* syndrome of immune-complex mediated hemolysis and interstitial nephritis, following ingestion of *Paxillus involutus* (Poison Pax) and possibly other species, particularly the gill-less boletes.[18, 19] In 1998, German investigators first identified polyporic acid as the toxic constituent in 3 patients who developed delayed neurotoxicity after consuming *Hapalopilus rutilans* (Purple-dye Polypore).[20] In 2001, Saviuc and co-authors in France reported the first European observations of erythromelalgia, following the ingestion of *Clitocybe amoenolens* (Poison Dwarf Bamboo Mushroom).[21]

In conclusion, a number of epidemiologic studies and case reports and series have suggested that mushroom exposures are increasing worldwide; 4 new mushroom syndromes have been described over the past decade; most exposures were acute and unintentional with good outcomes; children younger than 6 years were at greatest risk of mushroom poisoning; and deaths, although rare, occurred most commonly in adult amateur mushroom hunters who consumed hepatotoxic or nephrotoxic mushrooms, often while on vacation (Table 1).

Results: The Toxidromic Classification of Mushroom Poisoning by Common Poisonous Mushroom Species Worldwide (Table 1)[1]

The final 11 major syndromes of mushroom poisoning depicted in Table 1 were stratified first by presentation timing and then by organ system toxicity and included early (< 6 hours), late (6-24 hours), and delayed syndromes (> 1 or more days).[1] There were 8 early syndromes (4 neutotoxic, 2 gastrointestinal, and 2 allergic); 2 late syndromes (hepatotoxic cyclopeptide poisoning, accelerated acute renal failure); and 1 delayed syndrome (delayed acute renal failure).[1]

Early Onset Toxicity (< 6 hours)

Peripheral Cholinergic Neurotoxicity

Muscarine, a quaternary ammonium compound, is similar structurally to acetylcholine, and can stimulate peripheral muscarinic receptors. Muscarine cannot stimulate nicotinic receptors or cross the blood-brain barrier to cause a central cholinergic syndrome.[22] Although many mushroom species, including *Amanita* mushrooms (*A. muscaria, A. pantherina*) contain limited quantities of muscarine, only *Clitocybe* and *Inocybe* mushrooms contain enough muscarine to cause an acute cholinergic syndrome within 30 minutes to 2 hours of ingestion.[22] Muscarine-containing mushroom poisoning is characterized by salivation, lacrimation, urination, diarrhea, and emesis, often with miosis, bronchorrhea, and bronchospasm. Unlike acetylcholine, muscarine is not hydrolyzed by plasma or red blood cell acetylcholinesterases, and its peripheral cholinergic effects often last for several hours following ingestion of raw or even cooked muscarine-containing mushrooms.

Since significant toxicity and fatalities are uncommon, the treatment of muscarine poisoning is primarily supportive with fluid rehydration and secretion control with intravenous atropine boluses, 0.01-0.02 mg/kg. Other than atropine, there are no specific antidotes for muscarine, and no commonly available analytical techniques to identify muscarine in body fluids.

Glutaminergic Neurotoxicity

Several of the most brightly colored (red, pink, gold, blue-gray) Amanita mushrooms (*A. muscaria, A. pantherina*) are often accidentally ingested by children because of their familiar bright colors, or intentionally ingested for their hallucinogenic effects.[22] The stimulatory and hallucinogenic effects are caused by ibotenic acid and its initial, primary metabolite, muscimol. Ibotenic acid resembles glutamic acid structurally and can directly stimulate central glutaminergic receptors.[22] Muscimol resembles gamma-aminobutyric acid (GABA) structurally and can directly stimulate central GABA receptors.[22] Within 30 minutes to 2 hours following large ingestions, adults will experience a predominance of GABA-*ergic* effects including dizziness, somnolence, delirium, dysphoria, and hallucinations.[22] On the other hand, children often experience a preponderance of glutaminergic excitatory effects following unintentional ingestions of ibotenic acid-containing mushrooms.[22] The excitatory manifestations of ibotenic acid poisoning can be reversed with intravenous benzodiazepines and include hyperactivity, hyperreflexia, clonus, and seizures. Besides benzodiazepines for seizure control, the treatment of ibotenic acid poisoning is entirely supportive; CNS toxicity is short-lived; and case fatalities are rare.

Gyromitrin Neurotoxicity

The gyromitrin-containing mushrooms (*Gyromitra brunnea, G. californica, G. esculenta, G. infula*) rarely cause mushroom poisoning in the US, but frequently cause mushroom poisoning in Europe, where they are commonly mistaken for prized, edible morels (*Morchella esculenta*). Since gyromitrin is water-soluble and highly volatile, vigorous boiling followed by prolonged drying makes *Gyromitra* mushrooms edible, but mushroom foragers rarely practice these detoxifying steps. Self-limited headache, weakness, nausea, vomiting, abdominal cramping, and diarrhea characterize gyromitrin-containing mushroom poisoning, within 4-6 hours of ingestion. This subacute onset of GI toxicity may be followed by gyromitrin-induced epileptogenic neurotoxicity, with vertigo, delirium, seizures, stupor, and coma, especially in the elderly and in predisposed patients on hydrazine therapy. Since gyromitrin is a hydrazine, its neurotoxicities are

The Epidemiology, Toxidromic Classification… *continued*

additive with other hydrazines, such as isoniazid (INH) and the triazine cancer chemotherapeitics, dacarbazine and procarbazine. Epileptogenic neurotoxicity results from gyromitrin's activation by phase I hydrolysis to its active neurotoxic metabolite, monomethylhydrazine (MMH), which, like INH and the triazines, inhibits pyridoxine (vitamin B6), a glutamic acid decarboxylase cofactor, with diminished production of GABA, a central inhibitory neurotransmitter.

Hepatocellular damage, presumably from the formation of free methyl radicals, may follow gyromitrin-induced seizures, and is manifested by elevated hepatic transaminases, and hyperglycemica, often followed by hypoglycemia. From 1 to 3 days following evidence of hepatic damage, intravascular hemolysis with methemoglobinemia may occur and possibly cause renal damage. Fulminant hepatic failure and death are very rare following gyromitrin poisoning.

Although there are no specific diagnostic tests for gyromitrin poisoning, gas chromatography and mass spectrometry may identify MMH and its neurotoxic metabolites. The treatment of gyromitrin poisoning includes initial GI decontamination with oral activated charcoal, 1 gram/kg, and seizure control with titrated intravenous doses of benzodiazepines and repeated intravenous boluses of pyridoxine, 25 mg/kg, a specific MMH antidote.

Hallucinogenic Neurotoxicity

An acute hallucinogenic or psilocin syndrome, resembling lysergic acid diethylamide (LSD)-induced hallucinations, and characterized by ataxia, hallucinations, and hyperkinesis can be caused by a large variety of psilocybin-containing mushrooms within minutes of ingestion.[12, 23-26] Common psilocybin-containing mushrooms include *Psilocybe caerulescens, P. cubensis, P. semilanceata, Conocybe cyanopus, Gymnopilus spectabilis, Panaeolus foenisecii, and Psathyrella foenisecii*.[12, 23-26] Psilocybin-containing mushrooms are frequently cultivated from dried spores domestically, particularly *P. cubensis*, for their hallucinogenic effects. *Psilocybe* and other hallucinogenic mushroom spores are readily available from enticing Internet websites and spore-selling pushers.

Psilocybin and its primary initial metabolite, psilocin, are centrally acting indoles that resemble LSD and serotonin structurally. Psilocybin can act as both a serotonin agonist-antagonist. Although the hallucinogenic effects of psilocybin-containing mushrooms are short-lived and fatalities are rare, renal failure, seizures, and cardiac arrest have occurred after mixed mushroom ingestions and intravenous injections of hallucinogenic mushroom extracts.[23-26] Mixed psilocybin-containing mushroom intoxications are usually characterized by anxiety, mydriasis, tachycardia, hypertension, dysphoria, hallucinations, tremor, and dyskinesias.[25, 26] Management of hallucinogenic mushroom poisoning is mainly supportive, with benzodiazepines reserved for hyperkinesias and seizures.

The *Paxillus involutus* Immunohemolytic Syndrome

The *Paxillus* syndrome is a rare, and potentially fatal, immuno-allergic reaction that may follow the consumption of many common, but inedible, mushroom species, including *Paxillus involutus*, and possibly, *Boletus luridus and Clitocybe claviceps*.[27] The *Paxillus* syndrome occurs most commonly after the repeated ingestion of *Paxillus involutus* and is characterized by an acute onset of nausea, vomiting, epigastric pain, and diarrhea within 30 minutes to 3 hours of ingestion.[27] An acute immune complex-mediated hemolytic anemia with hemoglobinuria, oliguria, anuria, and acute renal failure from immune-complex nephritis may follow, possibly initiated by an allergic response to a common *Paxillus* and *Boletus* mushroom protein constituent, involutin.[27] Treatment is entirely supportive and may include hemodialysis. Deaths are rare.[27]

Allergic Pneumonic Syndrome (Lycoperdonosis)

An acute pneumonic syndrome, or lycoperdonosis, may follow the accidental or intentional inhalation or insufflation of spores from *Lycoperdon* species puffballs, including *L. gemmatum, L. perlatum, and L. pyriforme*. Lycoperdonosis is an acute allergic alveolitis that is not related to mycotoxin production, as in hemorrhagic pulmonary stachybotryotoxicosis. Puffballs are often edible in the fall, but dry out and decay over the winter, and release massive quantities of spores in explosive aerosols when bitten or crushed in the spring. Lycoperdonosis is characterized by the acute onset of nausea, vomiting, and nasopharyngitis, followed within days by fever, malaise, dyspnea, and inflammatory pneumonitis with diffuse reticulonodular infiltrates on chest X-rays. Patients managed with antifungals, bronchodilators, and steroids usually recover without chronic pulmonary sequelae.

Disulfiram Reaction

Many *Coprinus* mushrooms, especially *C. atramentarius*, the ubiquitous inky-cap mushrooms, contain coprine, an amino acid toxin that inhibits acetaldehyde dehydrogenase and causes acetaldehyde poisoning following ingestion of ethyl alcohol.[28] Coprine poisoning usually occurs when *C. atramentarius* is mistaken for the edible *C. comatus*.[28] Alcohol and raw or cooked *C. atramantarius* co-consumption do not result in an immediate disulfiram reaction because of coprine's delayed inhibition of acetaldehyde dehydrogenase over 30 minutes to 2 hours.[28-30] Alcohol consumption within 2 hours of a coprine-containing mushroom meal will result in tachycardia, facial flushing, diaphoresis, nausea, and projectile vomiting.[28-30]

Miscellaneous Gastrointestinal Toxicity Alone

The most common type of mushroom poisoning worldwide is a syndrome of malaise, epigastric pain, nausea, vomiting, and diarrhea that occurs within 30 minutes to 3 hours of ingesting a wide variety of inedible mushrooms and even some edible mushrooms, especially those that have recently decomposed. Gastrointestinal toxin-containing mushrooms may come from several genera including *Boletus, Chlorophyllum, Entoloma, Lactarius, Omphalotus, and Tricholoma*.[31] Resolution of symptoms occurs rapidly over 6 to 24 hours, and treatment is entirely supportive with antiemetics and fluid rehydration.

Late Onset Toxicity (within 6-24 hours)

Amatoxic Hepatotoxicity

A triphasic onset of subacute GI toxicity, followed by a false recovery or *honeymoon* period, and, subsequently, late onset hepatic failure is pathognomonic of poisoning with the cyclopeptide-containing mushrooms. Most mushroom fatalities worldwide continue to be caused by cyclopeptide-containing species from three major genera: *Amanita, Galerina,* and *Lepiota. Amanita phalloides* is generally considered among the most toxic of the world's cyclopeptide-containing *Amanita* mushrooms, with *Galerina* species being the least toxic of the cyclopeptide-containing mushrooms.

The cyclopeptides are divided into 3 classes of high molecular weight peptides: amatoxins, phallotoxins, and virotoxins. The amatoxins, principally amanitin, are the most toxic cyclopeptides, and may be enterohepatically recirculated.[32] Amatoxins cause delayed hepatorenal failure by inactivating RNA polymerase II and inhibiting protein synthesis.[32] The amatoxins exhibit limited protein binding; are eliminated in urine, vomitus, and feces; and may be detected in body fluids and hepatorenal biopsies by enzyme-linked immunosorbent assay (ELISA).[33] The phallotoxins, principally phalloidin, are rapidly acting, but not highly absorbed, and cause subacute GI toxicity by reducing mucosal cell membrane integrity.[32] The virotoxins have not been implicated in human toxicity.

Cyclopeptide poisoning may be divided into 3 phases with phase I occurring 6-24 hours after mushroom ingestion and presenting a nonspecific, phalloidin-mediated toxidrome of nausea, vomiting, abdominal cramps, and watery diarrhea, which mimics self-limited food poisoning, cholera, or acute viral gastroenteritis.[34] Since phase II is characterized by transient clinical improvement with delayed, asymptomatically rising liver enzymes 18-36 hours after ingestion, patients with phase II cyclopeptide poisoning may be discharged home, only to return jaundiced with hepatorenal failure within 2 to 6 days of mushroom ingestion.[34] Phase III is characterized by severe gastroenteritis, significantly elevated liver enzymes, and evidence of hepatic, renal, and, rarely, pancreatic insufficiency.[34] Without intensive care, often including urgent liver transplantation, phase III may cause death within a week of ingestion.[34]

There are no specific antidotes or therapies for amatoxin poisoning, but many occasionally successful pharmacotherapies have been recommended over the years including n-acetylcysteine, cimetidine, cytochrome-c, penicillin, silibinin, and thioctic acid. Nevertheless, none of these therapies has been proven uniformly effective in reversing amatoxin poisoning in large, randomized, placebo-controlled drug trials. (Table 2) Plasmapheresis, hemofiltration, hemoperfusion, and hemodialysis have also not demonstrated any effectiveness in reversing fulminant hepatic failure in phase III cyclopeptide poisoning.

Since most patients with amatoxin poisoning are hospitalized after onset of gastrointestinal symptoms, gastric decontamination by lavage has little usefulness beyond 6 hours post-ingestion. Multiple-dose activated charcoal (1 gm/kg initially, followed by 0.5 gm/kg), administered orally or by gastric tube during the first 3 days post-ingestion, and intensive care, including fluid resuscitation and, possibly, liver transplantation, remain the standard of care for amatoxin poisoning.

Accelerated Acute Renal Failure

Between 1992 and 1998, 13 patients in the US Pacific Northwest developed anorexia, malaise, nausea, vomiting, abdominal cramping, diarrhea, diaphoresis, and vertigo within 30 minutes to 12 hours of consuming either raw or cooked *Amanita smithiana* mushrooms.[18] Many of the poisoned patients were apparently seeking the edible matsutake mushroom, *Tricholoma magnivalere*, an *A. smithiana* look-alike in the Pacific Northwest.[18] All patients were either oliguric or anuric upon presentation, and manifested acute renal insufficiency within a week of mushroom ingestion.[18] In addition, both serum alanine aminotransferase (ALT) and lactic dehydrogenase (LDH) were frequently elevated, while other liver function tests usually remained normal.[18] Although none of the *A. smithiana*-poisoned patients died, several required hemodialysis for 1-4 weeks following ingestion.[18]

Treatment of suspected *A. smithiana* mushroom poisoning is primarily supportive and should commence with gastric emptying by lavage and gastrointestinal (GI) decontamination with activated charcoal. The combination of acute GI distress and renal insufficiency within 24 hours of mushroom ingestion should alert clinicians to the possibility of *A. smithiana* poisoning, and the need for early institution of hemodialysis.

Delayed Onset Toxicity (> 1 or more days)

The Epidemiology, Toxidromic Classification… *continued*

Delayed Renal Failure

Cortinarius mushrooms can cause renal failure following ingestions worldwide.[9] *Cortinarius* mushrooms contain orellanine, a nephrotoxic bipyridine N-oxide. Orellanine inhibits protein synthesis, generates free oxygen radicals, and causes tubulo-interstitial nephritis in rodent models and in man.[9] The orellanine-containing *Cortinarius* mushrooms include *C. cinnamomeus, C. henrici (C. splendens henrici), C. orellanoides, C. orellanus, C. rainierensis, and C. speciosissimus*.[9] In Canada and the US, *Cortinarius* poisoning predominantly follows ingestion of *C. rainierensis*.[9]

Cortinarius-poisoned patients will typically present with anorexia, headache, nausea, vomiting, gastritis, and chills within 24 to 36 hours of ingestion. Oliguric renal failure due to interstitial nephritis and tubular necrosis with later fibrosis will develop in most cases days to weeks following ingestion. Although most patients regain near-normal renal function following short-term hemodialysis, 40%-60% of *Cortinarius*-poisoned patients may develop chronic renal failure and require chronic hemodialysis or renal transplantation.

Although orellanine can be detected by thin-layer chromatography on renal biopsy specimens for months after *Cortinarius* poisoning, there are no specific laboratory tests to predict outcomes after *Cortinarius* ingestions. Only the onset times of GI toxicity and subsequent nephrotoxicity will assist clinicians in differentiating *A. smithiana* from *Cortinarius* poisoning. Acute GI toxicity within 6 hours followed by subacute nephrotoxicity within 24-36 hours suggests *A. smithiana* poisoning. Subacute GI toxicity within 24-36 hours followed days-to-weeks later (mean, 8.5 days) by nephrotoxicity suggests *Cortinarius* poisoning.[9]

Although activated charcoal has not been proven to absorb orelline, orellanine, or even norleucine, the suspected nephrotoxin in *A. smithiana* poisoning, early treatment of known *Cortinarius* ingestions may include immediate gastric emptying, GI decontamination with activated charcoal, and baseline assessment of renal function.[9, 18] The treatment protocol for *Cortinarius* ingestions with renal failure should include hemodialysis or peritoneal dialysis for short-term renal failure, and chronic hemodialysis or renal transplantation for chronic renal failure.[9]

The General Management of Poisoning by Unknown Mushrooms

By far the most common toxidrome that may follow an unknown wild mushroom ingestion is one of initial gastrointestinal (GI) toxicity with either early onset (< 6 h) or late onset (6-24 h) (Figures 1 and 2). General management should include fluid resuscitation, early (within 6 hours of ingestion) gastric decontamination by both gastric lavage (with gastric contents submitted immediately for toxicologic analysis and spore examination by mycologists) and multiple-dose activated charcoal (1 g/kg initially, 0.5 g/kg subsequently). Since activated charcoal has not been conclusively proven to absorb many known mushroom toxins, such as amatoxin and norleucine, some authorities recommend initial gastric emptying within 6 hours of suspected poisonous mushroom ingestion followed by toxidrome-directed supportive therapies.

Baseline laboratory assessment should include complete blood count, peripheral blood smear, serum glucose and electrolytes, liver and renal function tests, and serum creatine phosphokinase (CPK). Hepatic transaminases, serum bilirubin, serum glucose, serum amylase, serum creatinine, blood urea nitrogen (BUN), and serum creatine phosphokinase (CPK) should be measured initially as baseline comparative laboratory values and to rule out any pre-existing comorbidities. Liver and renal function tests should be repeated at least 36 hours following toxic mushroom ingestions and followed periodically in order to exclude late onset hepatotoxicity from cyclopeptide-containing mushroom ingestions (*Amanita, Galerina, and Lepiota* species) and delayed onset nephrotoxicity from *A. smithiana* and *Cortinarius* ingestions (Figure 1). Finally, renal function tests and serum CPK should be measured every 24-36 hours for 10-14 days in order to detect delayed onset nephrotoxicity from *A. smithiana* and *Cortinarius* ingestions and rhabdomyolysis from *Tricholoma equestre* ingestions.

Since mushroom-poisoned patients are often admitted with vomiting and diarrhea, emetics and cathartics are rarely indicated. Initial GI toxicity may be followed by acute or chronic renal failure or hepatic and, rarely, pancreatic insufficiency and liver failure. Any evidence of worsening hepatic or renal function should alert clinicians to the possibility of potentially fatal toxidromes, and immediate preparations should be made to transfer patients to the closest facilities equipped and staffed for hemodialysis and multiple solid organ transplantation.[1]

Prevention of Mushroom Poisoning

The primary prevention of mushroom poisoning is primarily dependent on health education through counseling and includes the 12 Steps outlined in Table 3.

Conclusions

The growing popularity of picking and eating wild, foraged mushrooms for their gastronomic or psychedelic delights has triggered increasing worldwide reports of severe, potentially fatal, mushroom poisonings. Travelers and expatriates are predisposed to accidental mushroom poisonings by mistaking poisonous species in foreign or adopted countries for similar appearing edible species in their home countries. Travel medicine practitioners must consider mushroom poisoning in the evaluation of all patients, who may be intoxicated by natural substances. Since information on natural exposures is often incorrect

and insufficient, a new toxidromic classification of mushroom poisoning is recommended to guide clinicians in making earlier, specific diagnoses, especially in cases where only advanced critical care, including kidney or liver transplantation, may be life saving.[1]

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The Epidemiology, Toxidromic Classification… *continued*

Figure 1. A Toxidromic Diagnostic Algorithm for Unknown Mushroom Poisoning with Initial Gastrointestinal Toxicity

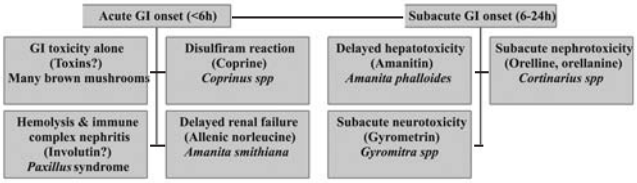

Figure 2. A Toxidromic Diagnostic Algorithm for Unknown Mushroom Poisoning with Initial Neuromuscular v. Pneumonic Toxicity

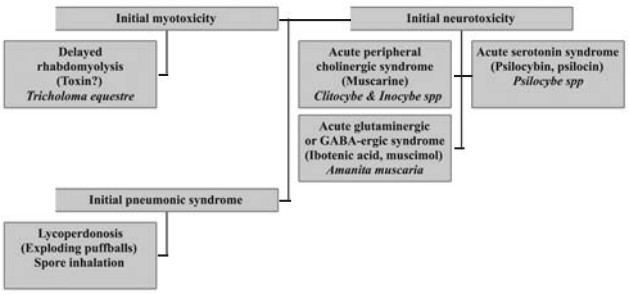

Table 1
An Onset Time and Target System Classification of Mushroom Poisoning by Common Mushroom Species (spp.) in the US

Early Onset Toxicity (< 6 hours)	*Late Onset Toxicity (within 6-24 hours)*	*Delayed Onset Toxicity (> 1 or more days)*
Neurotoxic Cholinergic *Clitocybe* spp. (Funnel Caps) *Inocybe* spp. Glutaminergic *Amanita muscaria* (Fly amanita) *Amanita pantherina* (Panther Amanita) Epileptogenic *Gyromitra* spp. (False Morels) Hallucinogenic *Psilocybe* spp. (Mellow Mushrooms) Allergic Immunohemolytic *Paxillus involutus* (Poison Pax) Pneumonic *Lycoperdon* spp. (Puffballs) Gastrointestinal (GI) Disulfiram reaction *Coprinus atramentarius* (Alcohol Inky Caps) Miscellaneous GI *Boletus* spp. *Chlorophyllum* spp. *Entoloma* spp.	Hepatotoxic Amatoxic *Amanita* spp. *Galerina* spp. *Lepiota* spp. Nephrotoxic *Amanita proxima* *Amanita smithiana* (Toxic Lepidella)	Nephrotoxic Orellanine *Cortinarius* spp. (Corts)

Table 2
Treatment Strategies for Cyclopeptide-Containing Mushroom Poisoning

Treatments	*Doses*	*Proposed mechanisms*	*Outcomes*
Thioctic acid	Empiric dosing.	Free radical scavenger; tricarboxylic acid cycle coenzyme	Outcomes conflicting; hypoglycemia common.
Benzyl penicillin G	1 million units/kg/day for 3-7 days, often reduced to 500,000 units/kg/day on day 2.	May displace amanitin from albumin binding sites; block uptake by hepatocytes; & prevent binding to RNA polymerase II.	Efficacy uncertain due to inadequate number of controlled trials; good safety profile; often combined with silibinin.
Silibinin	5 mg/kg iv loading dose, continuous infusion of 20 mg/kg/day for 3 days.	May occupy or modify hepatic receptor sites & block amanitin uptake by hepatocytes.	Use not FDA approved in US; Efficacy uncertain due to inadequate number of controlled trials.
N-acetylcysteine, (NAC), or glutathione	1.2 grams/kg loading dose.	Glutathione precursor (NAC) or glutathione alone; hepatoprotective.	Efficacy uncertain, few controlled trials, some with no change in survival of poisoned rodent models.
Cimetidine	Empiric dosing.	CYP450 inhibition may block hepatic metabolism of amanitin.	Efficacy uncertain due to inadequate number of controlled trials
Cytochrome c (alone or combined with penicillin G)	Empiric dosing.	May be hepatoprotective.	Experimental use in laboratory animals; efficacy uncertain due to inadequate number of controlled trials

Table 3
The Primary Prevention of Mushroom Poisoning

1. Do not consume raw or cooked uncultivated, unidentified mushrooms, or offer uncultivated mushrooms to children.
2. Invite an experienced amateur mushroom hunter or professional mycologist to accompany you on your mushroom-foraging ventures.
3. Do not rely completely on field guides for mushroom identity and edibility, as field guides are country and region-specific.
4. Do not identify mushrooms by common names only, as common names may differ among regions and localities.
5. Be aware that edible mushrooms may grow alongside inedible, toxic mushrooms.
6. Be aware that recent immigrants may mistake toxic mushrooms in their adopted countries for edible mushrooms in their homelands.
7. Do not accept commonly held mushroom edibility myths, including safety of consumption by non-human species and not staining silver ware black.
8. Recognize that even edible mushrooms may decay and become toxic over time, even with refrigeration.
9. Be aware that alcohol co-ingestion, boiling, or cooking may activate mushroom toxins.
10. Be aware that mushroom allergies exist and may be inherited.
11. Do not over-consume mushrooms, especially mushrooms with alcohol.
12. Do enjoy edible mushrooms as cooked seasonings, side dishes, or in soups, rather than as main courses.

IN THE NEWS

Skiers and snowboarders can bomb around on steep slopes with poor or limited control and expertise. Boots have been developed to lessen the risk of ankle injuries, but there is no protection for the back. Over 6 years, 728 patients were admitted to a tertiary trauma centre in Bern as a result of snow sports injuries. 73 (63 skiers and 10 snowboarders) had severe spinal injuries like a fracture, and half of these had fractures at more than one level. None of the boarders had persistent neurological sequelae - perhaps because they were younger than the skiers. Suggestions for preventing spinal injuries include wearing spine protectors, sticking to slope s you can manage, checking that all equipment fits properly, and swallowing your pride and having lessons to refresh technique.

British Journal of Sports Medicine 2008;42:55-58

Ski Injuries

Female skiers are being urged to ensure that their ski boots fit properly. Women are more likely than men to suffer a serious knee injury due to ill-fitting footwear.

Doctors revealed that up to half of all knee injuries are caused by loose fitting or over tightened ski boots. The report advises skiers have their boots professionally adjusted before heading out on to the slopes.

France attracts 8.5 million visitors to its mountains annually. Last season there were 9,400 reported collisions at French ski resorts while a further 140,000 skiers suffered a skiing injury. Snowboarders were found to be marginally more at risk of having an accident than skiers.

Skiers should check that their travel insurance covers them for medical and air ambulance costs as well as any physiotherapy that may be required on their return to Britain.

One in four Britons travel without insurance. A fifth of those with no cover say they cannot afford it. But skiers who travel without insurance, risk having to pay in excess of £20,000 for medical and repatriation costs.

Onboard ice skating rink

On a recent cruise, a passenger fell and sustained a multiple fracture, which meant he had to disembark and fly home for treatment. This accident would not have been dealt with by the insurance company had we not had winter sports cover. How many people when booking a Caribbean or Mediterranean cruise would think about winter sports cover?

Chinese health care

A study of China's health system was commissioned by the *Lancet* journal.

Investment was so heavily focused on prosperous urban areas that life expectancy is now 11 years greater in Shanghai than in the poor western province of Gansu.

Children born in parts of the Chinese countryside are six times more likely to die by the age of five as their counterparts in cities. In some of China's poorest counties, infant mortality – death at near birth – was 123 for every 1,000 births. In the richest, the figure was 26. Ten children out of every 1,000 died before the age of in the richest cities, compared to 64 in rural areas. 96 per cent of the population of large cities had safe drinking water but fewer than 30 per cent in poor areas.

Most people in rural areas have to pay doctors' and hospital bills out of their own pocket even though the average cost of a hospital admission is almost equal to the average annual income. Too often doctors prescribe drugs that are profitable rather than useful.

Chipmunk invasion and infection

Siberian chipmunks have invaded forests around Paris in their tens of thousands, many carrying the potentially lethal Lyme disease.Many of them carry ticks that can transmit the disease.The population has exploded in woods around the French capital – including the suburb of Versailles.Experts are advising people strolling in the city's parks and surrounding woodland to steer clear of the rodents.

The chipmunk was first imported from East Asia in the 1970s but a few specimens escaped.In the southern suburbs – the forest of Sénart – there are several thousand.

Studies on the colony in Sénart woods show that up to a third of the animals carry the Borrelia virus, which causes Lyme disease. The chipmunks have been placed on the list of the European Union's most invasive species.

Cruise Ships

Last year, 14 per cent of passengers were single people, and almost 60 per cent of those were female.

The Passenger Shipping Association (PSA) expects the number of British travellers taking cruises to reach 1.5 million by the end of this year.

There has been a sustained boom for the past decade, with the number of Britons taking a cruise holiday more than doubling.

44 more cruise ships will be built by 2012, by which time British cruise passengers are expected to exceed the two million mark.

Proportion of Britons aged over 60 is predicted to rise from about 16pc now to 22pc in 2030.

In the News *continued*

World travellers

Breakdown of 70.4m passenger trips per year.

8.7m	12.6.	19.2m	27.2m
Business	VFR*	Package Holiday	Independent Holiday

*Visits to friends and relatives

67% of travellers surveyed undertook a risk activity.

In a 2006 survey of 5948 European travellers – 7% of travellers required medical attention for an illness or accident.

In a 2005 survey of 2000 travellers – 3% of travellers were involved in a road incident.

In a 2005 survey of 2000 travellers – 17% of travellers have a chronic condition (asthma, diabetes, or heart condition).

Up to 75% of travellers became ill during their time abroad in developing world. These illnesses are most often self limiting episodes of diarrhoea or upper respiratory illnesses.

Up to 50% of injections in the developing world are unsafe – WHO reports.

Medicines to Dubai

Importing tablets into the United Arab Emirates, and some medications, such as codeine, is illegal in the UAE.

Some popular prescribed and over the counter medicines available in Britain are controlled substances in the UAE.

These include many cold and flu remedies, some HRT treatments and medications for treating depression. A full list of restricted and controlled medicines is available on the Dubai tourist board's website, www.dubaiupdate.co.uk

Anyone carrying medicines on this list should have a doctor's letter and a prescription to authenticate their use.

Medicines should be carried in their original packaging and visitors should carry only enough for the length of their stay.

Advice Sheet for Travellers

In flight-exercises

Sitting in the same position for hours builds tension in the muscles , prevents effective circulation and leaves the joints feeling stiff.

- Gently ease into the stretching position
- Stretch until you feel a mild tension in the muscle
- Allow the body to relax and hold for approximately 10-20 seconds
- Breath easily
- Slowly release from the position

1 Upper Body

- Raise the arms to their full extension
- Keep the head and neck relaxed
- Pull up the waist and chest

2 Upper Back

- Tuck the chin in towards the chest
- Extend the elbows and round the arms outwards in front of the chest
- Stretch out the upper chest and arms

3 Chest stretch

- Place the hands in the small of the back
- Extend the elbows out, keeping the chin up
- Stretch the upper chest and he front of the shoulders

Health tips for travellers

- Avoid stiff muscles by making sure you get up and walk around once in a while to keep the blood flowing
- Ear plugs and an eye mask can be helpful when you are trying to sleep

TRAVEL INSURANCE

Age and Insurance Protection

More than one third of travel insurers refuse cover to the over 65s and almost 70pc of providers will not even provide quotes to people over the age of 75. Those that do frequently charge high prices, according to the Association of British Insurers (ABI).

A person over 65 is eight times more likely to claim on their travel policy than a person under 50 and the claim will be three and a half times more expensive. Companies such as Age Concern specialise in cover for the over 65s.

Halifax Travel Insurance provides cover for customers up to the age of 75 years, but excludes trips to the United States.

Ski insurance is probably the only field in which product quality should not be cut. Funding helicopter rescue in Europe could cost £1,500 and a couple of pisteurs sliding you down in a "blood wagon" cost around £250. Once in hospital, reckon on £10,000 for a ruptured knee ligament. A compound fracture can cost up to £7,000 to treat in Switzerland, but cheaper elsewhere. Industry figures show one in seven people on winter sports holidays has no insurance. Accident rates are particularly high among beginners, children under 11 and adults over 55. Snowborders are 50 per cent more likely to be injured than skiers.

Medical treatment in East Europe is not what people are used to. Esure you have good cover for local treatment and subsequent repatriation. You may not want to go to the hospital the emergency services pick. The insurer may not want it either.

Once outside the European Union (EU) and Switzerland, the European Health Insurance Card (EHIC), designed to cover emergency treatment, is worthless. An uninsured skier in Croatia for example gains no protection at all from the EHIC. Slovenia joined the European Economic Area (EEA) last year along with Bulgaria and Romania.

People relying on EHIC within the EU are not covered for transport off the slopes, physiotherapy and transport home.

Cover for the over 70s

Many people aged 70 or over are shocked to find travel insurers unwilling to provide cover at prices they can afford.

Almost three-quarters of insurers refuse to provide cover at any price for those over the age of 75. As a result many older people travel without insurance, which can have serious financial consequences in the event of an accident or injury while abroad.

Around four times as many over 70s claim on their medical expenses cover than younger travellers, so the cost of insurance will reflect this.

Heart, stroke and respiratory are the most expensive, while broken bones are the most frequent conditions added to the cost of repatriation.

As people over 70 tend to plan well in advance, there is often the risk that something will crop up before they take off.

It is vital for clients to be familiar with the terms of the policy in order to know what exactly what you are paying for and what cover you are getting.

Covering someone in France who suffers a heart attack could cost up to £2,000, in the US the cost could be as high as £100,000.

Insurance Provider	*Premium*	*Medical expenses*
Travelinsure Genie – Genie Plus Annual Multi-Trip	£88	£10m
Insurefor.com – Standard Annual Multi-Trip Double Excess	£123	£5m
24DrTravel Market Special – Standard Annual Multi-Trip	£171	£2m
TopDog – Diamond Annual Multi-Trip	£177	£10m
AA Travel Insurance – Annual Multi-Trip	£188	£10m
Preferential Travel – Deluxe Annual Multi-Trip	£224	£10m

Source: moneysupermarket.com

Customers must always contact their travel insurance company to register any medical problem that has necessitated an appointment with a medical consultant or admission to hospital since the inception of the policy. Not to do so is to leave themselves open to the rejection of any future medical claim – even when there is only a tenuous link between the unregistered medical problem and a claim arising from a new health issue.

Travel Health Insurance

Insurance top-up cover for EHIC card

EHIC Plus (0845 055 5222, www.ehicplus.com) offered by the Medical Screening Company and underwritten by a Lloyd's syndicate, is a new top-up policy for holders of an EHIC.

If one becomes seriously ill in Europe it is best to go to a state hospital, present the EHIC and receive free emergency treatment.

Tourist hotels are often in league with private ambulances, which take customers to private clinics in the first instance.

Aggressive private clinics, especially in Spain, try to overcharge for substandard treatment. Most don't have intensive care facilities or paediatric departments. People should say they have only an EHIC and insist that they are taken to state hospital. Policy is intended to top up charges not covered by the EHIC.

Travel Insurance *continued*

Private ambulances, most outpatient treatment and medication and repatriation are covered. Because EHIC Plus does not have to pay out for private treatment, it accepts cover for a wider range of pre-existing health conditions, though the condition has to be "relatively stable".

How to get the right cover

Declare any information. Tell insurer anything that could affect plans or you may not be covered – for example, a pre-existing illness or if a close relative is seriously ill.

Read the small print

Check definitions – insurers exclude anyone but immediate family from their definition.

Get cover for adventure pursuits

Go for an annual policy if taking more than two or three trips a year. Buy online.

Get a European Health Insurance Card (EHIC), as it entitles you to some free or low-cost medical cover in many European countries.

Travel insurers may waive the excess (normally £50 to £100) if you use it to get medical treatment. You can get EHIC at www.ehic.org.uk, by calling 0845 606 2030 or by completing a form available at local post office.

– ADVICE SHEET –

Travel-related (and other vaccines) are safe for mother and infant

The only possible exception is yellow fever vaccine, necessary only for travel to defined areas in sub-Saharan Africa and tropical rain forests of South America. There is a theoretical risk of transmitting the vaccine virus via breast milk to the infant and harming it, but there is no evidence to support this possibility

Vaccines and medications received by mother for travel do not protect infant

Infants need to be protected with their own age-specific vaccines and medications. This is especially important where malaria risk exists.

Routine illnesses – including most travel-related ones – are NOT transmitted through breast milk

If as a nursing mother you have diarrhoea, increase your own fluid intake and nurse more frequently. If you have nausea or are vomiting also increase your fluid intake but drink only an ounce or two at a time. Wait 20 to 30 minutes between drinks. Consult health care professionals when in doubt.

Maternal use of sunscreens and insect repellents has no effect on infant.

British Travel Health Association Questionnaire

Your assistance is appreciated. **Please tick your answer.**

Membership Number…… **or Name if you prefer**……

1 Age Under 45 years…… Over 45 years…… **2** Gender. Male…… Female……

3 Which of the following do you consider the most important elements in determining *your management of the majority of general medical consultations?*

a) clinical experience.
b) Research evidence base
c) Personal medical education
d) Published professional guidelines.
e) Other…… please name……

Priorities items in order of importance by **numbering from 1-5**
a)…… b)…… c)…… d)…… e)……

4 If you undertake or were to participate in a **travel health related consultation what would your management be based on:**

Clinical experience……	mainly……	partly……	not at all……
Research evidence	mainly……	partly……	not at all……
Personal medical education	mainly……	partly……	not at all……
Professional guidelines	mainly……	partly……	not at all……
Travel health websites	mainly……	partly……	not at all……
Other (name)……	mainly……	partly……	not at all……

5 Priorities these items above in order of importance to you by numbering from 1-6
a)…… b)…… c)…… d)…… e)…… f)……

6 Do you read a peer reviewed scientific medical journal?
Weekly…… occasionally…… monthly…… not at all…… **7** Name the journal……

8 Which travel health associated journal do you read most frequently? ……

9 Does the **reading of a researched-based, peer reviewed medical article** change your future clinical management? sometimes…… often…… rarely…… never……

10 Have you **personally initiated clinical research *(not audit)*** in your practice in:
The last year…… five years…… 10 years…… never……

11 Do you read the BTHA Journal always…… most issues…… rarely…… never……

12 Do you read Travelwise always…… most issues…… rarely…… never……

13 Which sections do you read
Editorial…… features…… research…… news…… reviews……

14 Are you a doctor…… nurse…… pharmacist…… other (name)……

Thankyou for your participation

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