

# New to Travel Course – Day 1

Friday 24<sup>th</sup> May 2019  
Written and taught by  
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Queen's Nurse



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# About you

**Where from?**


**Your job?**

**Your travel health experience?**

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# What do you hope to achieve from this course?



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# What are my goals

**1. Today** - I want you to understand the basic principles of a risk assessment, the diseases and vaccines and the resources to help put safe service together


**2. By the end of the two days** I'd like you to go away feeling more 'in control' for travel health, hopefully enthused about the subject and to potentially enjoy it in the future!

**Competence comes with time and experience!**

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# [www.janechiodini.co.uk/education/new-to-travel/may19/](http://www.janechiodini.co.uk/education/new-to-travel/may19/)



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# Agenda

- Introduction to travel medicine
- Travel risk assessment
- Travel vaccines and related issues
- Travel medicine operational issues
- Recap on resources

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### Recap of the subject onlinelearning




<http://www.janechiodini.co.uk/education/online-learning/>

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### An introduction to travel medicine – the key issues

- The travelling public needs to be well informed not only about their destinations and all of the cultural richness, but also **aware of the potential risks during their journey**
- Equally there needs to be a nucleus of GPs, practice nurses and other trained health professionals who are **knowledgeable about the risks on a country by country basis and who are confident about advising their patients** about each of the measures necessary to keep them healthy while travelling



Field VE, Ford L, Hill DR, eds. Health Information for Overseas Travel, National Travel Health Network and Centre, London, UK, 2010.

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### Who provides travel health advice?

- In other countries its traditionally the doctor who sees the traveller and performs the risk assessment, passing them on to the nurse to administer the vaccines and give some advice
- More recently pharmacists have become involved in travel medicine, especially in Canada and the UK
- In the UK, nurses have been undertaking all aspects of travel health since the early 1990s, from risk assessment to administration of vaccines and providing risk management advice. In some cases, nurses who have obtained a non medical prescribing qualification are not only prescribing but in some circumstances setting up and owning their own travel clinics



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### Why is the practice of travel medicine different in the UK?

- National Health Service provides some travel vaccines free of charge – service provided in the majority of primary care settings as GPs are financially rewarded for the service
- Pressure on GPs with their workload so historically, they passed travel health on to the nurses, but now pharmacists are getting very involved as well, with private clinics are growing dramatically
- Some surgeries are ceasing the provision of a travel service – however, they are NOT allowed to do this unless they surrender the provision of the global sum which they receive for immunisation services

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### [www.janechiodini.co.uk/news/faqs/faq-2/](http://www.janechiodini.co.uk/news/faqs/faq-2/)



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### Charging for travel vaccines in an NHS setting – covered in day 2

- **Vaccines that must always be given as part of NHS provision** (hepatitis A all doses, combination A+B all doses, typhoid, combination typhoid and hep A, polio and cholera)
- **Vaccines that cannot be given as an NHS service** (yellow fever, Japanese encephalitis, tick borne encephalitis and rabies for travel and more recently ACWY for travel – but see FAQ page)
- **Vaccines that can be given as NHS or private service** (hepatitis B)

Note: Cholera and oral typhoid vaccines are now only NHS vaccines in an NHS setting

see <http://www.janechiodini.co.uk/news/faqs/faq-no-2/>

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### General Practice in the UK



**UK GP Statistics 2014** <sup>1</sup>

9,800 practices

- 7,962 in England
- 988 in Scotland
- 470 in Wales
- 363 in Northern Ireland

43,000+ GPs

**General Practice Nursing in 2013** <sup>2</sup>

14,943 full-time equivalent GP practice nurses

1. BMA Press Briefing – General Practice in the UK July 2014 (accessed January 2016)  
<http://www.bma.org.uk/search?query=press%20briefing%20general%20practice%20in%20the%20uk>

2. <http://www.pulsetoday.co.uk/hot-topics/practice-news/gp-practice-nurse-numbers-grow-by-17/20006656/fullarticle>

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### Governance for health care professionals – working within ‘our codes’




[http://www.gmc-uk.org/Good\\_medical\\_practice\\_English\\_1215.pdf\\_51527435.pdf](http://www.gmc-uk.org/Good_medical_practice_English_1215.pdf_51527435.pdf)

<https://www.pharmacyregulation.org/gpe>

<http://www.nmc-uk.org/Documents/Standards/The-code-A4-20100006.pdf>

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### A key document for those undertaking travel medicine



**Includes .....**

- History of travel medicine
- Details about the provision of a travel service
- Risk assessment
- Competencies
- Forms
- Resources

Royal College of Nursing (2018) Competencies: Travel health nursing - career and competence development, London: RCN.

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### New inclusions - Page 9

A statement is included for those who run Yellow Fever Vaccination Centres in the UK acknowledging that whilst YF training is not mandatory for all individuals administering the vaccine, both NaTHNaC and Health Protection Scotland (HPS) recommend:

**all those responsible for administering YF vaccine complete the training for their own accountability and good practice**

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### Three levels of nurses

Competent nurse	Experienced / proficient nurse	Senior practitioner / expert nurse
See slides to follow outlining expectations	Fulfils points of competent nurse as well	Fulfils points of competent and experienced nurse as well

While there is a strong focus on the work of a registered nurse, the field of travel medicine is truly multidisciplinary and much of the information provided in this publication is equally applicable to other registered health care professionals including **doctors** and **pharmacists** who provide travel health

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**For doctors, pharmacists and nurses specialising in travel medicine**

Go to <http://www.janechiodini.co.uk/about/publications/>


<http://download.journals.elsevierhealth.com/pdfs/journals/1477-8939/PIIS1477893912000671.pdf>

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### Core competence for the *Competent Nurse* (or practitioner) in a travel health consultation (pages 21/23)

- Demonstrates good geographical knowledge
- Able to perform risk assessment effectively and understands how to interpret potential risk within a trip
- Knows where to 'go' for recommendations for travel advice, immunisations, malaria chemoprophylaxis
- Recognises limit of knowledge and knows when to refer appropriately
- Has good knowledge of common travel related illnesses e.g. TD, hepatitis, typhoid, malaria

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### Search on 'travel health' at [www.nmc.org.uk/](http://www.nmc.org.uk/)

i) Documented in the patient record that the patient was going to 'Lybia' (sic.) (a reference to Libya, a low risk travel destination for contracting malaria) when in fact the patient was travelling to Liberia (a high risk travel destination for contracting malaria).



<https://goo.gl/SqtoQF>

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### Core competence continued

**Able to provide individual advice to the traveller**

- ✓ Accident prevention
- ✓ Safe food, water and personal hygiene
- ✓ Prevention of blood-borne infections and sexually transmitted diseases
- ✓ General insect bite prevention
- ✓ Prevention of animal bites, particularly rabies including wound management
- ✓ Prevention of sun and heat complications
- ✓ Personal safety and security
- ✓ Malaria awareness, ABCD advice



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### Core competence continued

- Communicates information effectively
- Prioritises in a situation when traveller is on a limited budget
- Assesses anxieties and acts appropriately
- Demonstrates an excellent vaccine administration technique
- Completes patient and administrative records after vaccination

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### Education and Training – page 23

- Demonstrates evidence of learning to apply skills and knowledge in the field of travel medicine. For example, minimum of 15 hours of relevant learning plus mentorship in clinical skills before undertaking a travel consultation alone
- Ensures travel health knowledge is always up to date
- Attends an annual travel health update study session/conference at a local, national or international event

Royal College of Nursing (2018) Competencies: Travel health nursing - career and competence development, London: RCN.



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### Agenda

- ✓ Introduction to travel medicine
  - Travel risk assessment
  - Travel vaccines and related issues
  - Travel medicine operational issues
  - Recap on resources

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# Risk Assessment & Management in Travel Health



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## Aims and Objectives of this session

- To understand what risk assessment is
- To appreciate the elements of the risk assessment process
- To have a good understanding of the required knowledge and resources needed to perform a risk assessment
- To be able to apply these skills at the end of the course

Royal College of Nursing (2018) Competencies: Travel health nursing - career and competence development, London: RCN.


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# Risk assessment

No travel health consultation should take place without conducting a travel risk assessment and documenting the information.

The assessment forms the basis of all subsequent decisions, advice given, vaccines administered and the malaria prophylaxis advice that is offered.

**This takes time to perform correctly, and for best practice practitioners should leave sufficient time.**



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# Time is the major constraint

From the RCN Guidance – page 18

The main consideration is to allocate sufficient time to perform the risk assessment. It would be **unsafe to only allow 10 - 15 minutes** for a new travel appointment.

A **20-minute consultation appointment per person should be allowed** to exercise best practice. Travellers with more complex needs such as backpackers or individuals requiring malaria prevention advice relevant to their destination - **may need even longer** consultation time.

The Nursing and Midwifery Council ‘Code’ is about being professional, about being accountable and about being able to justify your decisions; employers need to respect the complexity of a travel consultation and appreciate that sufficient time must be allowed for nurses to abide by the Code.

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# What is risk?



Royal College of Nursing (2018) Competencies: Travel health nursing - career and competence development, London: RCN.

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# Would you enjoy this?



Royal College of Nursing (2018) Competencies: Travel health nursing - career and competence development, London: RCN.

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### The best way to manage/conduct a risk assessment – one option



Travel risk assessment form completed prior to appointment by traveller




Travel risk assessment form reviewed by travel health adviser



Management of the travel risks discussed with the traveller by the travel health adviser and conclusions reached

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### Example of risk assessment form for information recording



Available to download from my 'Tools' page – item no. 1 <http://www.janechiodini.co.uk/tools/>

Royal College of Nursing (2018) Competencies: Travel health nursing – career and competence development, London: RCN.

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### Information to be gathered

#### Traveller information


- Age and sex
- Medical history, past and present
- Current health status
- Medication
- Allergies to drugs and food
- Previous experience travelling
- Current interest and knowledge of health risks
- Previous vaccine history
- Any special needs

#### Traveller's itinerary

- Destinations (s)
- Date of departure
- Duration of stay
- Mode of transport
- Purpose of trip and planned activities
- Quality of accommodation
- Financial budget
- Healthcare standards at destination
- Relevant comprehensive insurance provision

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### Risk assessment exercise



- Beckham is 10 years old and is travelling to Angola in the summer holidays to stay with his grandparents for 8 weeks
- What are the issues and risks when assessing this traveller?

VFR traveller

Child – limited awareness of danger, more susceptible of infection

May be staying in a village in a rural location and ACT like the locals

Fairly recent outbreak of yellow fever

High risk destination for malaria

High risk country for diseases such as hepatitis A, typhoid, ?cholera, hepatitis B, yellow fever, rabies, TD

What if Beckham had been a girl, is there anything else you might consider?

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### Risk management

Having performed a risk assessment the risks identified are managed by individualised advice

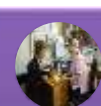
- Medical preparation
- Journey risks
- Safety risks
- Environmental risks
- Food and water borne risks

- Vector borne risks
- Air borne risks
- Sexual health and blood borne viral risks
- Skin health
- Psychological health


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### What does performing a risk assessment achieve?


It enables you to give:



Appropriate travel health risk advice



Appropriate travel vaccines for travel plans



Appropriate malaria prevention advice

To perform and provide evidence of best practice

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### But what is risk assessment all about?



A very individual process also influenced by the traveller's personal perception of risk

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### Booking process and patient expectations

#### How is the trip booked?

- Travel agent
- Online travel site
- Self organised trips



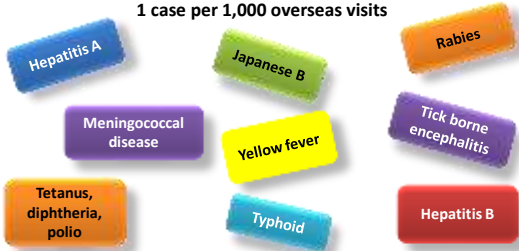
#### Patient issues

- Visiting the travel clinic for advice in good time!
- Often annoyance at the risk assessment process
- Focus on the injections with limited understanding of other risks

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### Vaccine preventable health risks to travellers abroad ?

In reality, the diseases below are uncommon in travellers, usually occurring less than 1 case per 1,000 overseas visits



Field VF, Ford L, Hill DR, eds. Health Information for Overseas Travel, National Travel Health Network and Centre, London, UK, 2010.

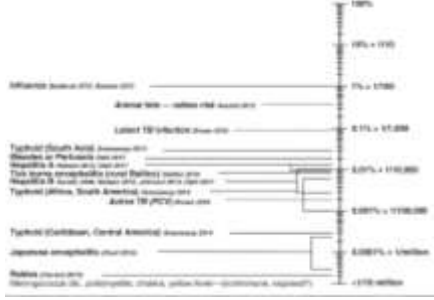
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### The role of vaccination

Nevertheless, vaccination is one of the most important public health interventions for global infectious disease control and offers protection for travellers at risk of exposure



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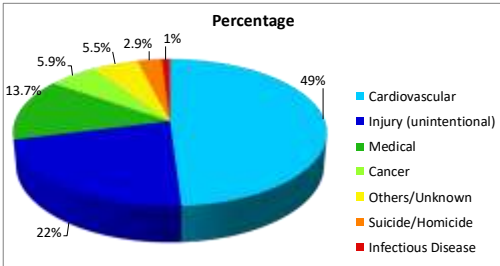


Estimated incidence per month of vaccine preventable diseases in lower-income countries among non immune Western travellers

Epidemiology: Morbidity and Mortality in Travelers in Travel Medicine 4th Edition, Eds. Keystone et al. Elsevier 2019

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### Cause of mortality in travellers



Cause	Percentage
Cardiovascular	49%
Injury (unintentional)	22%
Medical	13.7%
Cancer	5.9%
Others/Unknown	5.5%
Suicide/Homicide	2.9%
Infectious Disease	1%

Hargarten SW et al. Ann Emergency Med 20:622-626, 1991  
This slide was adapted from the ISTM slide set – Introduction to travel medicine 2nd Ed. [www.istm.org](http://www.istm.org)

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Implications of the questions we ask

Many sources to increase your knowledge and understanding of pre-travel risk assessment in more detail – including on national databases and international resources



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The following slides provide some examples .....  
but please refer to the resources on previous slide for more information.

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Age and Sex



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Babies and small children

- Increased risk of other hazards e.g. accidents, encounters with animals – need for rabies post exposure
- Small, mobile, inquisitive toddlers, limited hygiene awareness
- Risk of illness more severe – e.g travellers’ diarrhoea, malaria – requiring medical treatment abroad
- Restrictions on some choices of vaccines and malaria chemoprophylaxis

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Older travellers

- Immune systems reduced – infection risk increased
- Senses reduced
- PMH more common
- Immunisation status
- Specific problems e.g. yellow fever vaccine



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Female travellers

- Security risk
- Travelling during pregnancy / breast feeding
- Managing contraception
- Coping with menstruation



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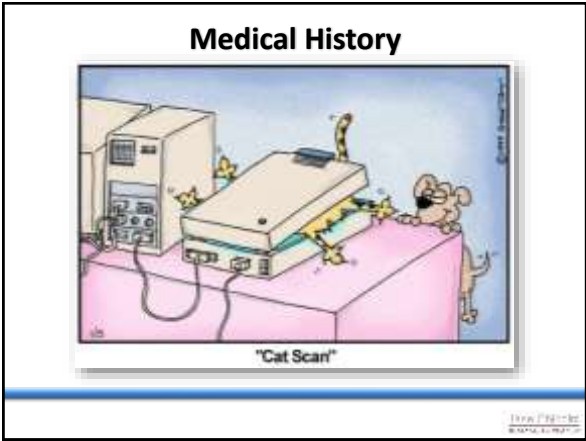
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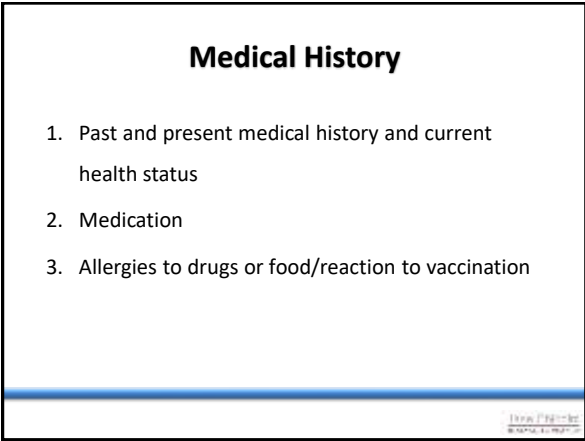
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**ETHIOPIA**  
 1000 Kilometers  
 1000 Miles

- 1. Addis Ababa (capital)
- 2. Dire Dawa
- 3. Gondar
- 4. Harar
- 5. Mekele
- 6. Asmara
- 7. Bahr Dar
- 8. Bahar Dar
- 9. Bahar Dar
- 10. Bahar Dar
- 11. Bahar Dar
- 12. Bahar Dar
- 13. Bahar Dar
- 14. Bahar Dar
- 15. Bahar Dar
- 16. Bahar Dar
- 17. Bahar Dar
- 18. Bahar Dar
- 19. Bahar Dar
- 20. Bahar Dar

## Destination

location, altitude, climate






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# Destination - political and economic situation

GOV.UK

Home Search GOV.UK Sign in

## Foreign travel advice

Which country or territory are you looking for?

March 2016

Egypt: Travel Advice

Do not travel  
Reconsider travel  
Exercise normal precautions  
No special precautions

GOV.UK

<https://www.gov.uk/foreign-travel-advice>

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## Departure date – season and timing



- Wet season – increases malaria risk
- Dry season – increases meningitis risk
- Last minute, still consider some vaccines e.g. hepatitis A

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# Length of stay

Complacency can creep in during a longer visit

A 3 month visit carries a malaria risk around 6 times greater than a 2 week visit\*

FIGURE 8. CUMULATIVE RISK VS. VISIT DURATION AND 100% MALARIA PROTECTION


The graph illustrates the cumulative risk of malaria over time. The y-axis represents the 'Number of additional deaths and cases averted' and the x-axis represents 'Time'. Three curves are shown: 'Malaria risk' (steepest), 'Malaria risk averted' (flattest), and 'Malaria risk averted' (intermediate). A dashed line indicates 'Malaria risk averted'.

\* Chiodini PL, Patel D, Whitty CJM and Laloo DG. Guidelines for malaria prevention in travellers from the United Kingdom. London: Public Health England; November 2018

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# Mode of transport



A 3D rendering of various modes of transport arranged around a central globe. The globe is blue and white, representing Earth. To the left is a large white cargo ship. In front of the globe is a blue and white truck. To the right is a white and blue high-speed train. Above the globe is a blue and white airplane. The entire scene is set on a reflective white surface, creating a clean, modern look.

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## Risk of accidents

A photograph showing a severe traffic congestion on a multi-lane highway. The road is packed with various vehicles, including cars, trucks, and buses, all moving slowly or stopped. The density of the traffic increases towards the horizon, where a large truck is visible. The scene illustrates the potential for accidents due to limited visibility and space in such conditions.

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### Purpose of trip and planned activities



People often seek adventure and take risks abroad they wouldn't consider when 'back home'.  
People vary in their perception of risk

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### Quality of accommodation



Top quality accommodation is not absolute assurance that there is no risk

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### Financial budget



Those travelling on a tight budget may be at higher risk

General advice is not to eat at roadside stalls, however sometimes seeing the cooking process, quality of food and heat used, this may be a preferable option to a back street café!

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### Health standards at the destination



- What are the healthcare standards like?
- The reuse of needles and syringes can be a common practice in some resource poor countries
- Carry a sterile medical kit
- Has adequate insurance been purchased?

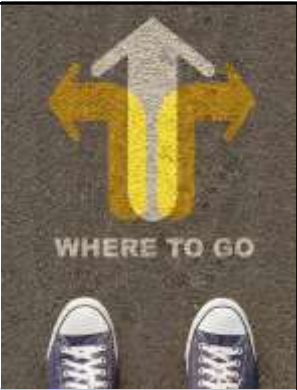
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### Collected the risk assessment information – then what?



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### Do you know which resources we would use to make decisions?



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Be aware of key UK resources for guidance



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UK National databases - [www.travax.nhs.uk](http://www.travax.nhs.uk) and for the public - [www.fitfortravel.nhs.uk](http://www.fitfortravel.nhs.uk)



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<https://travelhealthpro.org.uk/>



From NaTHNaC for healthcare professionals and the general public

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Access via your page and the 'New to Travel' page on my website

Please note, if using TRAVAX, you will still need a user name and password

<http://www.janechiodini.co.uk/tools/new-to-travel/>

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- Taking into consideration any patient specific factors (e.g. medical history, how high risk the destination is etc.) review the vaccines advised and decide what is needed – based also on previous vaccine history
- If a malarious area, also decide risk and identify appropriate chemoprophylaxis
- Consider advice required to manage the risks identified

Review the country specific information on a national database e.g. TravelHealthPro or TRAVAX



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Communicating the risk and providing advice

- Providing information about vaccines sufficient to provide adequate information to obtain informed consent
- Discussion of what is necessary and desirable – taking time and cost into the equation
- Advising on malaria prevention advice and deciding with patient the most suitable chemoprophylaxis
- Delivering other appropriate travel health advice – some will need to be in written format

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Advice leaflet that can be adapted for your use –



See item no. 4 at <http://www.janechiodini.co.uk/tools/> - written in Word format for you to adapt

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Food, water and personal hygiene advice

- Always wash hands before eating or preparing food
- Boiled water, bottled water - this includes ice cubes in drinks and water for cleaning your teeth
- Only eat well cooked fresh food
- Avoid leftovers and reheated food
- Ensure meat is thoroughly cooked
- Eat cooked vegetables, avoid salads
- Only eat fruit you can peel
- Never drink unpasteurised milk and avoid ice cream
- Shellfish is a high risk food

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- Studies have shown that the “Cook it, peel it, boil it or forget it” directive is not followed by many travellers and that conflicting results have been shown in the value of such strict advice
- New thinking in travel medicine is that food and drink can be placed into three categories
  - Safe
  - Probably safe
  - Unsafe
- There is no vaccine available for travellers’ diarrhoea

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Food and beverage recommendations for travellers (this poster is on your page)

Category	SAFE	PROBABLY SAFE	UNSAFE
Beverages	<ul style="list-style-type: none"><li>• Carbonated soft drinks</li><li>• Carbonated water</li><li>• Boiled water</li><li>• Purified water (iodine or chlorine)</li></ul>	<ul style="list-style-type: none"><li>• Fresh citrus juices</li><li>• Bottled water</li><li>• Packaged (machine-made) ice</li></ul>	<ul style="list-style-type: none"><li>• Tap water</li><li>• Chipped ice</li><li>• Unpasteurized milk</li></ul>
Food	<ul style="list-style-type: none"><li>• Hot, thoroughly grilled, boiled</li><li>• Processed and packaged</li><li>• Cooked vegetables and peeled fruits</li></ul>	<ul style="list-style-type: none"><li>• Dry items</li><li>• Hyperosmolar items (such as jam and syrup)</li><li>• Washed vegetables and fruits</li></ul>	<ul style="list-style-type: none"><li>• Salads</li><li>• Sauces and ‘salsa’</li><li>• Uncooked seafood</li><li>• Raw or poorly cooked meats</li><li>• Unpeeled fruits</li><li>• Unpasteurized dairy products</li><li>• Cold desserts</li></ul>
Setting	Recommended restaurants	Local homes	Street vendors

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Food water and personal hygiene advice... (this poster is on your page)



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Travellers’ diarrhoea advice

- **High risk areas** include North Africa, sub-Saharan Africa, the Indian Subcontinent, S.E. Asia, South America, Mexico and the Middle East
- **Medium risk areas** include the northern Mediterranean, Canary Islands and the Caribbean Islands
- **Low risk areas** include North America, Western Europe and Australia

Management

- Rehydration
- Anti diarrhoeal tablets
- Standby emergency treatment could be an option for some

Contact medical help if the affected person has:-

- A temperature
- Blood in the diarrhoea
- Diarrhoea for more than 48 hours (or 24 hours in children)
- Becomes confused

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**Prevention advice for hepatitis B, C and HIV infection**

- Only accept a blood transfusion when essential
- If travelling to a resource poor country, take a sterile medical kit
- Avoid high risk procedures e.g. ear and body piercing, tattooing & acupuncture
- Avoid casual sex, especially without using condoms

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**Malaria prevention advice - the ABCD rules !**



Photo credit: James Gathany

More information on malaria on day 2 of this course

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**Rabies advice**

1. Do not touch any animal, even dogs and cats
2. If you are licked on broken skin, scratched or bitten in a country which has rabies, wash the wound thoroughly with soap and running water for 15 minutes then apply antiseptic.
3. Seek medical advice IMMEDIATELY, even if you have been previously immunised.

More information on rabies on day 2 of this course

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**Prevention of accidents advice**

- Avoid alcohol and food before swimming
- Never dive into water where the depth is uncertain
- Only swim in safe water, check currents, sharks, jellyfish etc.
- Avoid alcohol when driving, especially at night
- Avoid hiring motorcycles and mopeds
- If hiring a car, rent a large one if possible, ensure the tyres, brakes and seat belts are in good condition
- Use reliable taxi firms, know where emergency facilities are

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**Risk management and the importance of documentation**



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**Risk management form helps to 'record' best practice within the travel consultation**



Form can be found in 'Tools' – item no. 2 <http://www.janechiodini.co.uk/tools/>

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FOR HEALTH PROFESSIONAL USE ONLY IN CONJUNCTION with TRAVEL RISK ASSESSMENT FORM A

Patient Name: \_\_\_\_\_ dob: \_\_\_\_\_

Childhood immunisation history checked: \_\_\_\_\_ Additional information: \_\_\_\_\_

National database consulted for travel vaccine recommendations for this trip and malaria chemoprophylaxis (if required): NaTHNaC TRAVAX Other

Disease protection	Yes	Disease protection	Yes	Malaria Chemoprophylaxis Recommendation	Yes
ECG/Malaria		Influenza		Atovaquone/proguanil	
Cholera		Meningitis ACWY		Chloroquine only	
Diphtheria/tetanus		MMW		Chloroquine and proguanil	
Hepatitis A		Rabies		Doxycycline	
Hepatitis B		TBE		Mefloquine	
Hepatitis A+B		Typhoid		Proguanil only	
Hepatitis A + Typhoid		Yellow fever		Emergency standby	
Japanese Encephalitis		Other		Weight of child:	

Vaccine and General Travel Advice required/provided

Potential side effects of vaccines discussed (including giving copy of the Patient Information Leaflet (PIL) from the vaccine packaging or obtainable from [www.nps.uk.org.uk/ncsc/](http://www.nps.uk.org.uk/ncsc/))

Patient consent for vaccination obtained: verbal ☐ written ☐

Post vaccination advice given: verbal ☐ written ☐

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Advice leaflet with additional resources  
– sample leaflet available on my website

See item no. 4 at <http://www.janechiodini.co.uk/tools/> - written in Word format for you to adapt

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General travel advice leaflet given (all topics below in the surgery advice leaflet) and patient asked to read entire leaflet due to insufficient time to advise verbally on every topic: Yes / No

Items ticked below indicate topics discussed specifically within the consultation:

Prevention of accidents	Mosquito bite prevention
Personal safety and security	Malaria prevention advice
Food and water borne risks	Medical preparation
Travellers' diarrhoea advice	Sun and heat advice
Sexual health & blood borne virus risk	Journey/transport advice
Rabies specific advice	Insurance advice

Other specific specialised advice / information given on:  
e.g. stretching advice for a long haul flight; altitude advice; prevention of schistosomiasis etc:

Source of advice used for further information: NaTHNaC TRAVAX Other

94

Additional patient management or advice taken following risk assessment – for example

- Vaccinated patient declined following recommendations, and reason why
- Telephoned NaTHNaC or TRAVAX for advice or used Malaria Reference Laboratory fax service
- Contacted hospital consultant for specific information in respect of a complex medical condition
- Identified specific nature/purpose of VFR travel

95

Authorisation for a Patient Specific Direction (PSD)

Following the completion of a travel risk assessment, the below named vaccines may be administered under this PSD to:

Name: \_\_\_\_\_ dob: \_\_\_\_\_

Name, form & strength of medicine (generic/brand name as appropriate)	Dose, schedule and route of administration	Start and finish dates

Signature of Prescriber \_\_\_\_\_ Date \_\_\_\_\_

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The template of this form could be adapted to use within a computer system, e.g. EMIS or Systm One

If using paper copy of the form, then scan in after completion

Post Vaccination administration

Vaccine details recorded on patient computer record (vaccine name, batch no., stage etc, etc.) Y / N

SMS vaccine reminder or post card reminder service set up Y / N

Travel record card supplied or updated Y / N


Travel risk management consultation performed by: (sign name and date)

Form devised and created by Jane Chiodini © Updated May 2013

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### Performing vaccination

Preparation of equipment and vaccines




Preparation of the patient

98

### Documenting the vaccinations

- Record of vaccines used must include the name of the drug, batch number, expiry date, site of administration and names of the administrator
- Ideally provide a written record of vaccinations given to the traveller



Variety of options now available, e.g. online, app format

99

### Conclusion

- No travel health consultation should take place without conducting a travel risk assessment and documenting all the information
- The assessment forms the basis of all subsequent decisions, advice given, vaccines administered and malaria prophylaxis advice that is offered
- Risk assessment and management takes time to perform correctly, and for best practice practitioners should leave sufficient time
- Good documentation is essential

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Access via 'your page' to practice the case studies


101

### Agenda

- ✓ Introduction to travel medicine
- ✓ Travel risk assessment
  - Travel vaccines and related issues
  - Travel medicine operational issues
- Recap on resources

102

### Vaccine preventable diseases and related issues



103

Agenda

✓

Travel vaccines and related issues

– Key resources

– Principles of vaccination and the rules

– Range of vaccine preventable diseases and the specifics of these vaccines

104

Be aware of key UK resources for guidance

Yellow Book

Guidelines for vaccine preventable diseases

Yellow Book not online – may be in your workplace and some information is being placed on the NaTHNaC website

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Key UK resources for guidance

VACCINE UPDATE

UK based programme for the development of a strategy

JCVI (Joint committee on vaccination and immunisation)

Recommendations made by the JCVI to Government

Policy implemented and changes notified from Public Health England via direct communication

Information appears in VACCINE UPDATE along with other information re leaflets etc.

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UK National databases - [www.travax.nhs.uk](http://www.travax.nhs.uk) and for the public - [www.fitfortravel.nhs.uk](http://www.fitfortravel.nhs.uk)

TRAVAX

Where is your traveller going?

fitfortravel

Traveller Health

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UK National databases - [www.nathnac.org](http://www.nathnac.org)

TRAVEL HEALTH PRO

TRAVEL HEALTH PRO

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Working within National Guidelines and knowing one's limitations

Telephone helplines

NaTHNaC

0845 602 6712

Monday – Friday 9am to 11.00 am and 1pm to 2pm x 2

Closed Monday and Friday at 2pm and other days at 3.30pm

TRAVAX

0141 300 1130

Mon. & Wed. 2 to 4pm

Friday 9.30 to 11.30am

MRL e mail service

Download risk assessment form from [www.malaria-reference.co.uk](http://www.malaria-reference.co.uk), complete and e mail [phe.malproph@nhs.net](mailto:phe.malproph@nhs.net)

E mail service – see malaria page, to be discussed next time

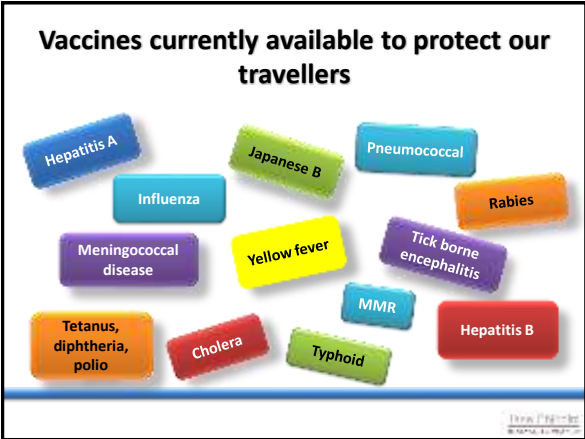
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Copyright Jane Chiodini 2019. For personal use only, not to be distributed in any format please.

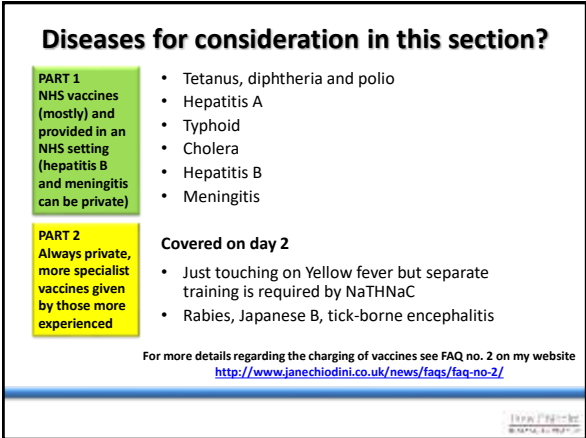
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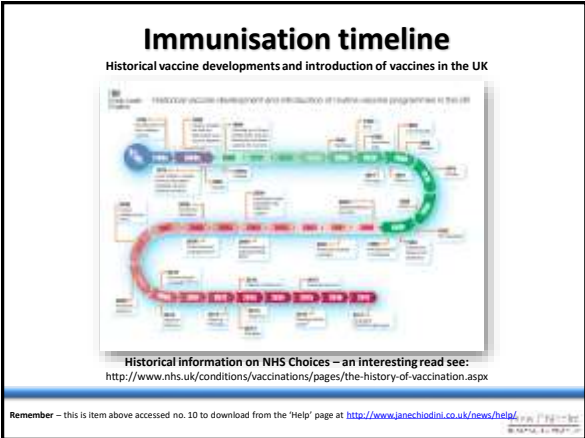
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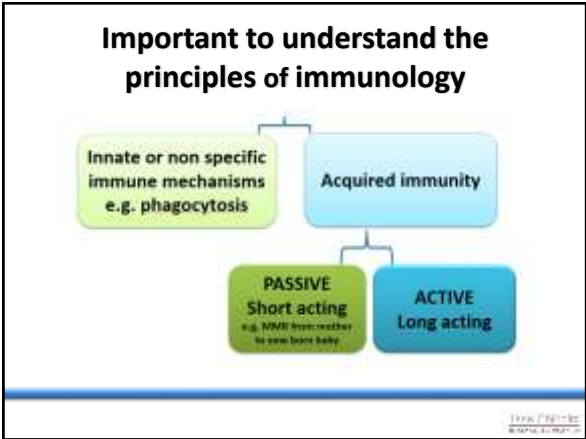
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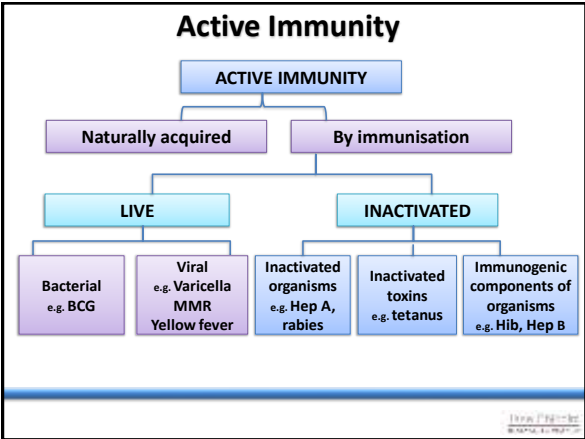
112



113



114



115



Helpful videos for immunology and FAQs  
<http://immunologyanimation.hpa.org.uk>  
and chapter 1 of the 'Green Book'  
access via the 'your dedicated page' on my website



116



Another  
useful video  
published in  
May 2018

117

**Do you know what factors might effect the immune response to a vaccine?**


Age

Medical history

- Very young children (especially under 2 years) have difficulty developing an immune response to polysaccharide only vaccines, and conjugated vaccines are used where possible
- Immunocompromised individuals usually cannot receive live attenuated vaccines. Inactivated vaccines are usually safe, but their immune response may be inadequate

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**When might there be a contraindication to vaccinate?**




- In general, a vaccine is absolutely contraindicated if a person has a confirmed anaphylactic reaction to a previous dose of the vaccine or product contained in the vaccine
- Pregnant women present a special risk group where, if the disease exposure is considered high during travel, most vaccine can be offered, although caution should be used with live vaccines
- All centres administering vaccines must be adequately prepared to deal with anaphylaxis

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**Knowledge of the route we give vaccines and how soon they start to work is needed**

- Most vaccines given by IM or SC route except BCG and oral vaccines (cholera and live typhoid)
- An active immune response to vaccines begins within a few days of administration and peaks in approximately 10-14 days
- Primary vaccine courses need 2 or 3 doses to complete the series



120

**Time for Vaccines to become effective**


Table adapted from TRAVAX

Vaccine	Time until effective
BCG	6 weeks
Diphtheria	1-2 weeks after 3 <sup>rd</sup> dose
Hepatitis A (active)	2 weeks for optimum protection (the average incubation period for the disease is 28 days so it is often still useful to give the vaccine even at short notice prior to travel)
Hepatitis A Immunoglobulin (passive)	Immediate
Hepatitis B	1 month after the 3 <sup>rd</sup> dose
Japanese encephalitis	7 days after the 2 <sup>nd</sup> dose, IXIARO® (Novartis) 1-2 weeks after the 2 <sup>nd</sup> dose, Green Cross vaccine (MASTA)
Measles/Mumps/Rubella (MMR)	2 weeks
Meningococcal vaccines (including ACW135Y)	2 weeks
Polio (inactivated)	1-2 weeks after 3 doses
Rabies	1-2 weeks (after the 3 <sup>rd</sup> dose)
Tetanus	1-2 weeks after the 3 <sup>rd</sup> dose
Tick-borne encephalitis	2 weeks after the 2 <sup>nd</sup> dose
Typhoid injectable	1-2 weeks
Yellow fever	10 days

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### The rules of vaccination



on 'your dedicated' page


122

Peter thinks he has had 2 doses of hepatitis A vaccine in the past, but nothing is documented. He's going to travel to do some research work in a hospital in India – what would you do?

In the absence of documentation you cannot

**ASSUME**

the patient has been vaccinated, therefore further vaccines for protection should be given




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### The evidence

For a variety of reasons, some individuals may not have been immunised or their immunisation history may be unknown.

If children and adults coming to the UK are not known to have been completely immunised, they should be assumed to be unimmunised and a full course of required immunisations should be planned.

Where a child born in the UK presents with an inadequate immunisation history, every effort should be made to clarify what immunisations they may have had. A child who has not completed the routine childhood programme should have the outstanding doses as described in the relevant chapters of the Green Book.




Page 6  
REALLY IMPORTANT  
to read this chapter

124

Michelle had a first Havrix Junior Monodose at the age of one but never returned to complete the course, how would you proceed?

**The evidence – chapter 11 again**

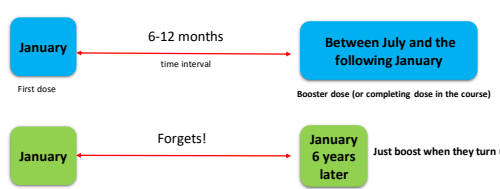
Immunological memory from priming dose(s) are likely to be maintained in healthy individuals, increasing that interval will usually lead to a more pronounced response to the later dose. **Therefore, where any course of immunisation is interrupted, there is normally no need to start the course again - it should simply be resumed and completed as soon as possible.** Where vaccination was commenced some time previously however, the product received may have changed and the relevant chapter should therefore be consulted.



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### The rules of vaccines

If a course goes off schedule and there is quite a long time interval, there is no need to re start the course, just pick up where it was left off and continue the course



ALWAYS USE AN AGE APPROPRIATE VACCINE

126

Jon is backpacking around SE Asia for 6 months and is having a course of rabies vaccine. He had his day 0 dose today but won't be around for the day 7 dose and asks if he can attend in 5 days instead for his second dose. What would you advise ?

**The evidence**

In general, it is acceptable to lengthen the intervals between doses and repeating previous vaccine doses is not necessary unless this is explicitly stated in the package insert. On the other hand, significant shortening of the intervals is not recommended



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Site of injection and number that can be given at one time?

- If two or more injections need to be administered at the same time, they should be given in separate sites, preferably in a different limb. If more than one injection is to be given in the same limb, they should be administered at least 2.5cm apart
- Immunisations should not be given into the buttock, due to the risk of sciatic nerve damage and the possibility of injecting the vaccine into fat rather than muscle

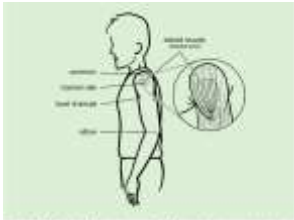


Figure 6.1 Preferred sites for intramuscular and deep subcutaneous injections in older children and adults

UK Department of Health. Immunisation against infectious disease (1st Edition) London: HCO/2006 Ch4, p29  
[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/147315/Green\\_Book\\_Chapter-4.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/147315/Green_Book_Chapter-4.pdf)  
2. Department of Health. Immunisation against infectious disease (2nd Edition) London: HCO, 2006 Ch4, p29  
[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/147315/Green\\_Book\\_Chapter-4.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/147315/Green_Book_Chapter-4.pdf)

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Where do you obtain relevant vaccine information?

- Green Book – for diseases and vaccines, online
- The National Databases (NaTHNaC and TRAVAX)
- Patient Group Directions - in your workplace
- Electronic Medicines Compendium - online
- British National Formulary – book or online
- Pharmaceutical companies - online

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Electronic Medicines Compendium  
[www.medicines.org.uk](http://www.medicines.org.uk)



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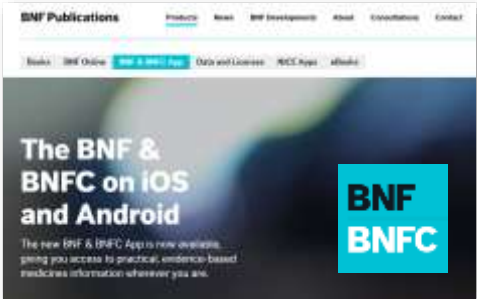
131

[www.bnf.org](http://www.bnf.org)



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BNF and BNFC apps are great!



<https://www.bnf.org/products/bnfbnfcapp/>

133

### Document your learnings

Disease protection	Vaccination regimen	Mode of transmission..... prevention advice required	No. of vaccines in the course	Length of protection
Tetanus, polio and diphtheria				
Hepatitis A				
Typhoid				
Cholera				
Hepatitis B				
Measles/mumps/rubella				
Tuberculosis				
Polio				
Human rabies				
Yellow fever				

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### Tetanus, polio and diphtheria

135

### Which disease is which?

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### Learning more from Green Book chapters, but also [www.nhs.uk](http://www.nhs.uk)

Disease	Organism	Mode of transmission
Tetanus	toxoid	Spores in the environment
Diphtheria	bacterium	Droplet infection
Polio	virus	Faecal oral and saliva

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### but also [www.nhs.uk](http://www.nhs.uk)

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### Tetanus, diphtheria and inactivated polio vaccine in the immunisation schedule

Schedule above of 5 doses make the primary course in the UK.  
Booster given if any of the three diseases are a risk at the destination, then an additional dose is provided on the NHS in an NHS setting.

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Tetanus, polio and diphtheria disease protection is not available in monovalent vaccines, only as one combined vaccine but in different products within the routine immunisation schedule

Infanrix hexa	DTaP/IPV/Hib/Hep B
Infanrix IPV	(DTaP/IPV)
Repevax	(DTaP/IPV)
Revaxis	(Td/IPV)

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### Acronyms for vaccines and values of diphtheria content – D and d

Available vaccines<sup>101</sup>

Diphtheria vaccines are available in two strengths according to dose of toxoid:

- High-dose - vaccines contain 820 IU of diphtheria toxoid and are used to achieve satisfactory primary immunisation of children - as in diphtheria/tetanus/acellular pertussis (DTaP) vaccine (capital D = high-dose)
- Low-dose - vaccines contain approximately 2 IU of toxoid and are used for primary immunisation of those aged over 10 years and for subsequent boosters (lower case d signifies low dose as in dTaP).


<https://www.ukhpa.gov.uk/about-us/communications/consultations/consultation-on-the-use-of-diphtheria-vaccines>

<https://www.who.int/biologicals/vaccines/pertussis/en/>

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### Would this traveller need Td/IPV?

- Lucy is 19 years old and is going on a two week holiday in the Galapagos Islands
- She is up to date on all her scheduled national programme immunisations
- She hasn't travelled abroad before
- No PMH, she is on the OCP only



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### Galapagos Islands off coast of Ecuador



143


### Would this traveller need Td/IPV?

- James is 26 years old
- he's taking a one year career break back packing around the world
- He last had a tetanus vaccine as a school booster 9½ years ago at the age of 16



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### Keeping an eye on other groups



dTaP/IPV vaccine given between gestational weeks 20\* and 32 rather than from week 28

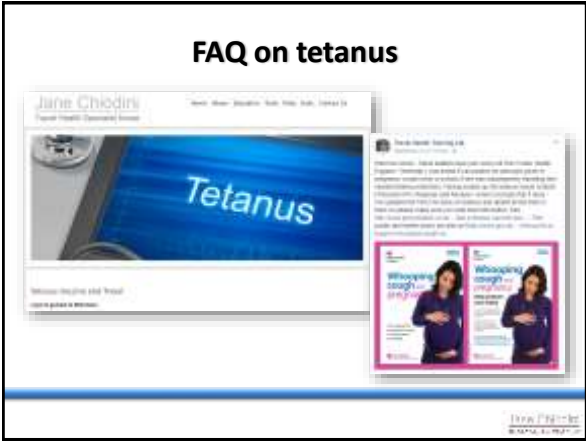
\*Can be given from 16 weeks but usually offered after the anomaly scan

Examples ?

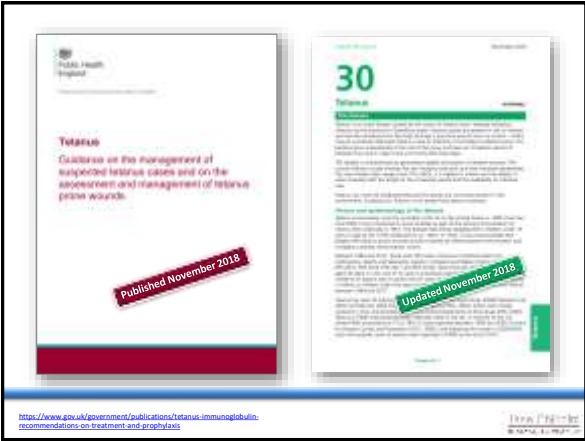
**Boostrix-IPV or Repevax**

To find out more about whole cell pertussis and acellular pertussis see <http://www.who.int/biologicals/vaccines/pertussis/en/>

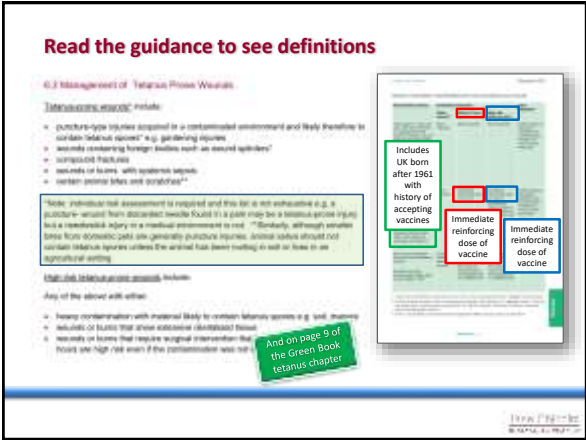
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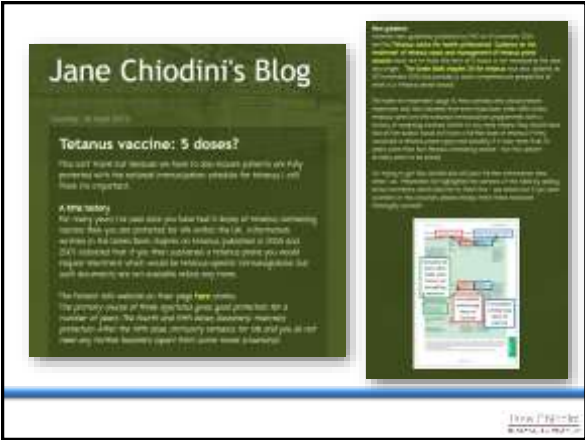
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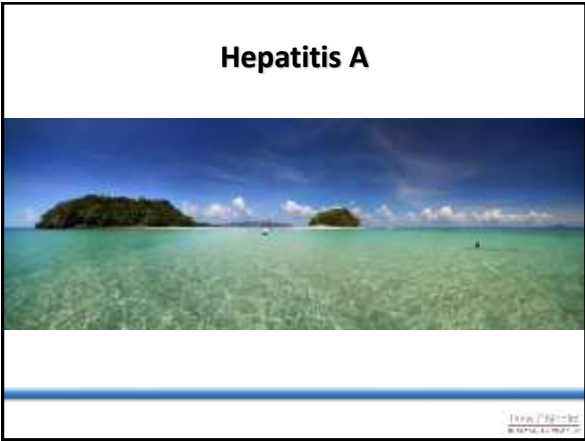
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151



### Hepatitis A

http://maps.who.int/maplibrary/Files/Maps/Global\_HepA\_THRiskMap.png?ua=1

152

- Viral infection
- Transmitted via contaminated food and water
- Those at higher risk – VFRs, long term travellers, those exposed to conditions of poor sanitation
- Incubation averages 28 - 30 days (range 15 to 50 days)
- Often asymptomatic in young children
- Abrupt onset of malaise, anorexia, nausea, fever followed by jaundice
- Fulminant hepatitis is more likely in those with pre-existing liver disease and in older individuals
- The overall case fatality ratio is low but is greater in older patients and those with pre-existing liver disease

### Hepatitis A disease

http://phil.cdc.gov/phil/home.asp

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### Hepatitis A schedule – what the Green Book says

- The duration of protection from a completed course of vaccine can be expected to be at least 25 years and probably indefinite.
- However, PHE recommend that until further evidence is available on persistence of protective immunity, a booster dose at 25 years is indicated for those at ongoing risk of hepatitis A.

Hepatitis A vaccines can be used interchangeably: Chapter 4, page 145 of the Green Book

https://www.gov.uk/government/uploads/system/uploads/attachment\_data/file/147954/Green-Book-Chapter-17.pdf

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### Five hepatitis A monovalent vaccines

VACCINE NAME	AGE GROUPS	WHEN TO BOOST- general principles and comments
<b>HEPATITIS A vaccine (and schedules)</b>		
VAQTA® Paediatric	1 – 17 years	Ideally, follow the summary of product characteristics but in late-presenting travellers, a course does not need to be restarted (SPH 2013). Protection is expected for 25 years from the second dose – also see the NTHNaC document at <a href="http://www.nathnac.org/ro/factsheet/hep_a.htm">www.nathnac.org/ro/factsheet/hep_a.htm</a>
VAQTA® Adult	18 years and over	
Avaxim®	16 years and over	
Havrix Junior Monodose®	1 – 25 years	NTHNaC info on Hepatitis A ** and detail below within the 'Key' section regarding SGA 'Mavrix' vaccine***
Havrix Monodose®	16 years and over	

**KEY**

\* Within the Summary of Product Characteristics (SPC)

\*\* The Green Book (2013) refers to all hep A products, so the 25 year protection also applies to the combined products and paediatric hepatitis A vaccines. Until further evidence is available on persistence of protective immunity, a further booster at 25 years is indicated for those at ongoing risk. See the Green Book chapter (page 154) and NTHNaC document at [www.nathnac.org/ro/factsheet/hep\\_a.htm](http://www.nathnac.org/ro/factsheet/hep_a.htm)

\*\*\* SPC for Havrix Monodose & Havrix Junior Monodose April 2012 states "Current recommendations do not support the need for further booster vaccination among immunocompetent subjects after 2 dose course"

See item no. 3 at <http://www.janechiodini.co.uk/tools/>

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### Over to you!

- 1 What is the ideal schedule for a course of hepatitis A vaccine?
- 2 What do you do if the patient doesn't return for their booster on time?
- 3 How long does a completed course of hepatitis A vaccine last?
- 4 Is the time of the protection taken from the first dose or booster dose of hepatitis A vaccine?
- 5 Are hepatitis A vaccines interchangeable?
- 6 If you gave a child a first hepatitis A vaccine and they return as an adult and a booster is required – which vaccine is best?
- 7 If a patient has a past medical history of confirmed hepatitis A infection, would you need to vaccinate them?
- 8 Could you give hepatitis A vaccine on the day of departure of a trip?
- 9 If a patient had HNIG recorded in their notes would you proceed on hep A protection?

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### Over to you!

- 1 What is the ideal schedule for a course of hepatitis A vaccine? **0 and 6-12 months**
- 2 What do you do if the patient doesn't return for their booster on time? **Just boost when they turn up**
- 3 How long does a completed course of hepatitis A vaccine last? **25 years**
- 4 Is the time of the protection taken from the first dose or booster dose of hepatitis A vaccine? **25 years from the booster dose**
- 5 Are hepatitis A vaccines interchangeable? **Yes**
- 6 If you gave a child a first hepatitis A vaccine and they return as an adult and a booster is required – which vaccine is best? **Boosting with an adult dose**
- 7 If a patient has a past medical history of confirmed hepatitis A infection, would you need to vaccinate them? **No**
- 8 Could you give hepatitis A vaccine on the day of departure of a trip? **Yes**
- 9 If a patient had HNIG recorded in their notes would you proceed on hep A protection? **Start a course of hep A vaccine**

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Some historical hepatitis A protection/vaccine information

Immunoglobulin given in 1980s and early 1990s but discontinued due risk of CJD from UK sourced blood products



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Some historical hepatitis A protection and vaccine information

- Immunoglobulin given in 1980s and early 1990s but discontinued due risk of CJD from UK sourced blood products
- Hepatitis A vaccine introduced in 1992 – Havrix – had to give two doses prior to travel as it had 720 ELISA units of hepatitis A (three doses in total course)
- Havrix Monodose available from 1994 which had 1440 ELISA units of hepatitis A and only one dose required prior to travel (two doses in total course)
- Vagta Adult – problem in 1990s when some batches thought not to give protection – instructed at that time to disregard doses given previously and re-vaccinate. Vagta Adult now available again
- See **Nuggets of Knowledge – hepatitis A**

159

Would this traveller need hep A vaccine?

- Lucy is 19 years old and is going on a two week holiday in the Galapagos Islands
- She is up to date on all her scheduled national programme immunisations
- She hasn't travelled abroad before
- No PMH, she is on the OCP only
- Which vaccine schedule would you give?



160

Would this traveller need hep A vaccine ?

- James is 26 years old
- he's taking a one year career break back packing around the world
- He last had a tetanus vaccine as a school booster 9½ years ago at the age of 16
- He tells you he had one dose of hep A vaccine when he was 12 years old but there is no record of it in the notes
- How would you proceed?



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Tip



Hepatitis A vaccine provides some of the most frequently asked questions therefore NaTHNaC and TRAVAX both have very helpful documents to help – it's a good idea to be aware of them

- <http://travelhealthpro.org.uk/hepatitis-a/>
- <http://www.travax.nhs.uk/diseases/vaccine-preventable/hepatitis-a/hepatitis-a-faqs.aspx>

FAQ on Hep A from TRAVAX

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Recommend you do this to consolidate knowledge – see on your page



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Hepatitis B



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WHO Factsheet – Hepatitis B updated July 2018

- Hepatitis B is a viral infection that attacks the liver and can cause both acute and chronic disease.
- The virus is transmitted through contact with the blood or other body fluids of an infected person.
- An estimated 257 million people are living with hepatitis B virus infection (defined as hepatitis B surface antigen positive).
- In 2015, hepatitis B resulted in 887 000 deaths, mostly from complications (including cirrhosis and hepatocellular carcinoma).
- Hepatitis B is an important occupational hazard for health workers.
- However, it can be prevented by currently available safe and effective vaccine.

<http://www.who.int/en/news-room/fact-sheets/detail/hepatitis-b>

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GLOBAL HEPATITIS REPORT, 2017



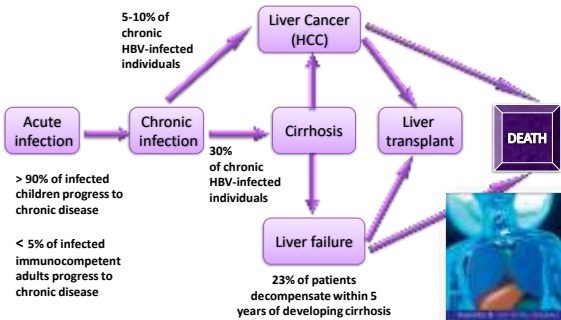
Viral hepatitis caused 1.34 million deaths in 2015, a number comparable to deaths caused by tuberculosis and HIV. But while mortality from tuberculosis and HIV has been declining, deaths from hepatitis are on the increase.

Globally, in 2015, an estimated 257 million people were living with chronic HBV infection, and 71 million people with chronic HCV infection.

Unsafe injections decreased from 39% in 2008 to 5% in 2010 worldwide. However, in the Eastern Mediterranean and South-East Asia regions, needles and syringes were frequently reused without being sterilised.

167

Natural history of hep B infection



Hepatitis B: Out of the shadows. Foundation for Liver Research October 2004  
<http://www.liver-research.org.uk/liver-research-files/Hepatitis-B-Out-of-the-Shadows.pdf>

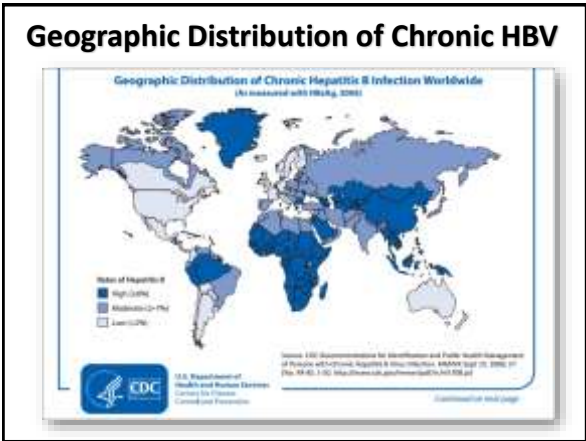
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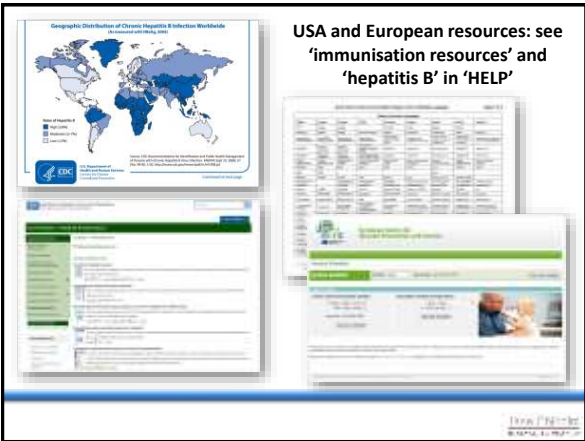
This Khmer woman died of hepatoma, four months after arriving in a refugee camp in Thailand

<http://www.vaccineinformation.org/hepb/photos.asp> or  
<http://www.immunize.org/photos/hepatitis-b-photos.asp>

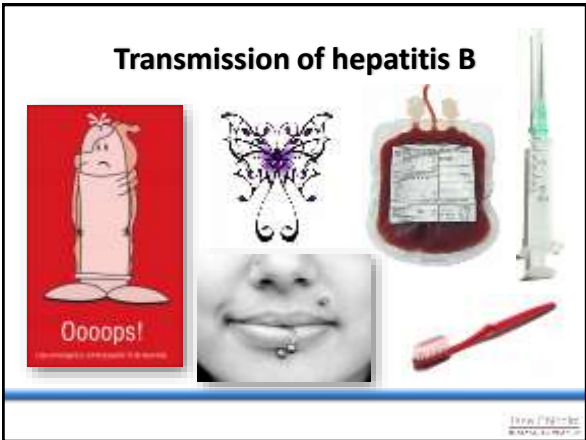
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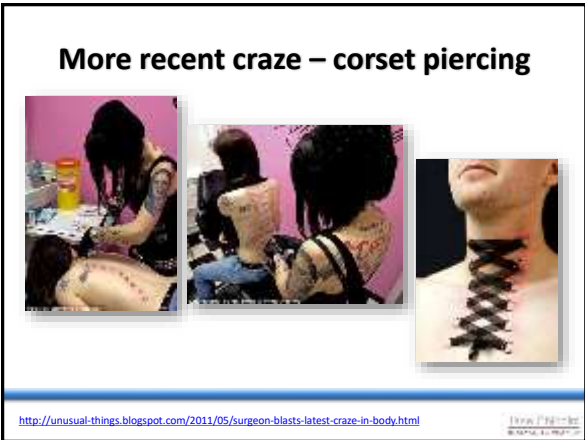
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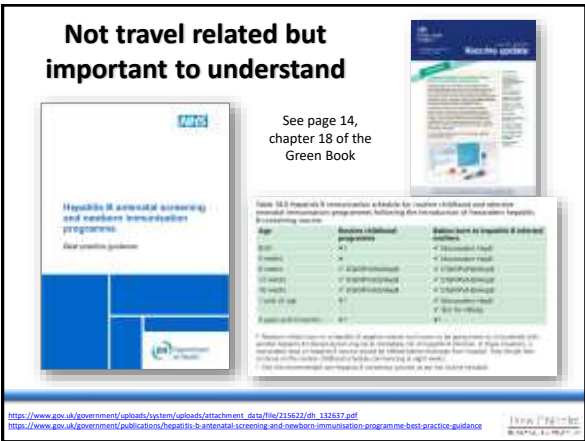
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### Green Book recommendations for hepatitis B vaccine

- Injecting drug users
- Individuals who change sexual partners frequently, particularly MSM and commercial sex workers
- Close family contacts of a case or carrier
- Families adopting children from countries with a high or intermediate prevalence of hepatitis B
- Foster carers

- Individuals receiving regular blood or blood products and their carers
- Patients with chronic renal failure
- Patients with chronic liver disease
- Inmates of custodial institutions
- Individuals in residential accommodation for those with learning difficulties

[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/148308/Green-Book-Chapter-18.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/148308/Green-Book-Chapter-18.pdf)

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### The Green Book information regarding travellers

People travelling to or going to reside in areas of high or intermediate prevalence

Travellers to areas of high or intermediate prevalence who place themselves at risk when abroad should be offered immunisation. The behaviours that place them at risk will include sexual activity, injecting drug use, undertaking relief and work and/or participating in contact sports. Travellers are also at risk of acquiring infection as a result of medical or dental procedures carried out in countries where unsafe therapeutic injections (e.g. the re-use of contaminated needles and syringes without sterilisation) are a risk factor for hepatitis B (Kane et al., 1999; Simonsen et al., 1999). Individuals at high risk of requiring medical or dental procedures in such countries should therefore be immunised, including:

- those who plan to remain in areas of high or intermediate prevalence for lengthy periods
- children and others who may require medical care while travelling to visit families or relatives in high or moderate-endemicity countries
- people with chronic medical conditions who may require hospitalisation while overseas (e.g. dialysis)
- those travelling for medical care

NB. The Green Book is nothing to do with whether the traveller should pay for vaccine or not

[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/148308/Green-Book-Chapter-18.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/148308/Green-Book-Chapter-18.pdf)

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### Schedules for hepatitis B vaccine

HEPATITIS B vaccine (and schedules) (important – Page 8 now in the childhood programme risk included here)		
Engerix B® 0, 1 and 6 months	Over 16 years	Note: 0, 1, 2 month schedule Green Book doesn't advise 4 <sup>th</sup> dose at 12 months unless they remain at continued high risk, see Ch 18 Page 18. Note: Infants do advise a 4 <sup>th</sup> dose but this should be followed. Update to policy in the Green Book in June 2017 for hepatitis B for all (which would include travellers) states those who have received a primary course do not require a reinforcing dose of Hep B containing vaccine except health care workers (boost once at 5 years), patients with renal failure and at time of significant exposure. Please read Ch. 18 page 13 of Green Book for detail. Testing for evidence of immunity post immunisation is not routinely recommended. See GB: Ch 18, Page 18
Engerix B® 0, 1, 3 months	Over 16 years	
Engerix B® 0, 1, 3, 25 days & 12 months	Over 16 years or 16yPC, but also 16–18 years in Green Book	
Engerix B® Fancetrix 0, 1, 6 months	0 to 15 years	
Engerix B® Fancetrix 0, 1, 3 months	0 to 15 years	
Engerix B® Optax of two doses of 1 ml (0.05ml) for low compliance adolescents given 6 months apart when the risk of hepatitis B is low and completion of course can be assured before risk is high	11–15 years	
HiVaxPRO® 0, 1, and 6 months	16 years and over	
HiVaxPRO® 0, 1, 3 months	16 years and over	
HiVaxPRO® Fancetrix 0, 1 & 6 months	0–25 years	
HiVaxPRO® Fancetrix 0, 3, 2 months	0–25 years	

Two products, four presentations

[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/148308/Greenbook\\_chapter\\_18.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/148308/Greenbook_chapter_18.pdf)

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### Which schedule?

Hepatitis B Green Book chapter page 12

Pre-exposure immunisation schedule for **high risk individuals**

- For pre-exposure prophylaxis in most adult and childhood risk groups, an accelerated schedule should be used, with vaccine given at zero, one and two months.
- Higher completion rates are achieved with the accelerated schedule (at zero, one and two months) in groups where compliance is difficult (e.g. in people who inject drugs [PWID] and genitourinary medicine clinic attenders) (Asboe et al., 1996).
- This improved compliance is likely to offset the slightly reduced immunogenicity when compared with the zero-, one- and six-month schedule, and similar response rates can be achieved by the opportunistic use of a fourth dose after 12 months.
- An alternative schedule at zero, one and six months should only be used where rapid protection is not required and there is a high likelihood of compliance.
- If the primary course is interrupted it should be resumed but not repeated.)

[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/148308/Green-Book-Chapter-18.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/148308/Green-Book-Chapter-18.pdf)

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### What about hepatitis B boosters?

Hepatitis B Green Book chapter page 13

Reinforcing doses for those who have received pre-exposure immunisation

The current UK recommendation is that those who have received a primary course of immunisation, including children vaccinated according to the routine childhood schedule and individuals at high risk of exposure, **do not require a reinforcing dose of Hep B-containing vaccine**, except in the following categories:

- healthcare workers (including students and trainees), who should be offered a single booster dose of vaccine, once only, around five years after primary immunisation
- patients with renal failure
- at the time of a significant exposure (see the chapter for more detail)

[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/148308/Greenbook\\_chapter\\_18.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/148308/Greenbook_chapter_18.pdf)

180

### Statement in this guidance Feb 2018

– not yet in the Green Book

Booster doses in healthcare workers


On the advice of the Joint Committee on Vaccination and Immunisation (JCVI), boosters (priority group 5) will no longer be routinely required in healthy, immunocompetent adults who have completed a primary course of vaccine, including healthcare workers who are known responders.

See page 8

[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/148308/Plan\\_for\\_phased\\_re-introduction\\_of\\_hepatitis\\_b\\_vaccine\\_for\\_lower\\_priority\\_groups\\_2018.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/148308/Plan_for_phased_re-introduction_of_hepatitis_b_vaccine_for_lower_priority_groups_2018.pdf)

181



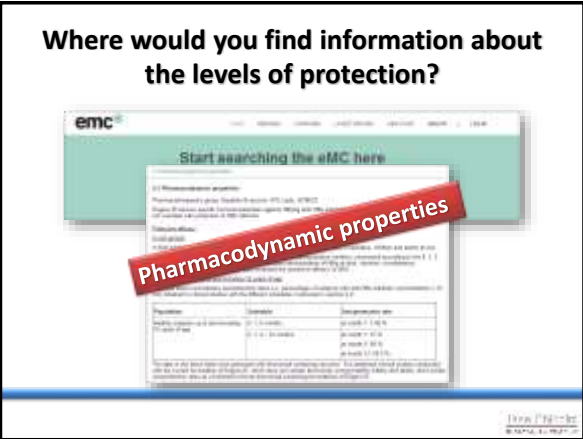


### In summary for hepatitis B vaccine given for travel purposes

- Use 0, 1 and 2 month schedule in preference to 0, 1 and 6 month when more rapid protection is needed
- If insufficient time before travel, use a 0, 7, 21 day and then reinforce at 12 months
- No longer boost at 5 years for travel
- Blood test not routinely performed for seroprotection in travellers

182

### Where would you find information about the levels of protection?



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### Understanding Twinrix

#### Hepatitis A content

- **Havrix Monodose** – content of **1440** elisa units of hepatitis A
- **Havrix Junior Monodose** – content of **720** Elisa units of hepatitis A
- **Twinrix Adult** – content of **720** Elisa units of hep A plus an adult dose of hep B
- **Twinrix paediatric** – content of **360** elisa units of hepatitis A plus paediatric dose of hep B

Red = full dose   Green = half dose   Blue = quarter of a dose

184

### Hepatitis A vaccine antigen content within vaccines

Adapted from table 1 of the Public Health England  
Hepatitis A vaccination in adults temporary recommendations \*

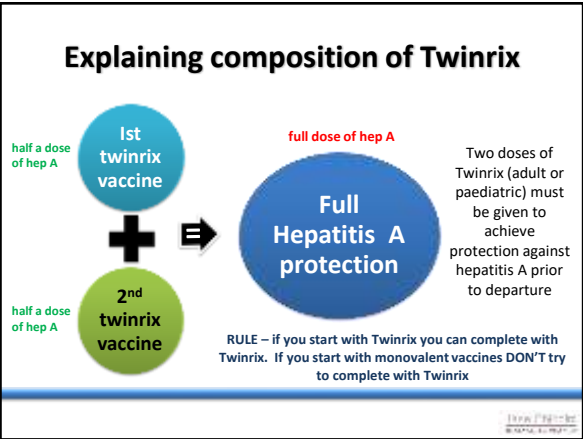
Hep A vaccine formulation	Trade name	Hep. A vaccine antigen content	Adult dose Hep A antigen equivalent	Made by
Adult monovalent hep A	AVAXIM	180 EU	Full dose	SP
	HAVRIX MONODOSE	1440 EU	Full dose	OSK
	SPRIX ADULT	180 EU	Full dose	MSD
Paediatric monovalent hep A	HAVRIX JUNIOR MONODOSE	720 EU	Half dose	OSK
	VAXIA PAEDIATRIC	35 EU	Half dose	MSD
Adult combination hepatitis A/B	TWINRIX ADULT	720 EU	Half dose	OSK
Paediatric combination hepatitis A/B	TWINRIX PAEDIATRIC	360 EU	Quarter dose	OSK
	AMBIRIX	720 EU	Half dose	OSK
Combination hepatitis A/typhoid	VAXIA	180 EU	Full dose	SP

SP – Sanofi Pasteur; OSK – GlaxoSmithKline; MSD – Merck (Sharp & Dohme) Ltd

*Made into a poster and now on your webpage*

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### Explaining composition of Twinrix



Two doses of Twinrix (adult or paediatric) must be given to achieve protection against hepatitis A prior to departure

RULE – if you start with Twinrix you can complete with Twinrix. If you start with monovalent vaccines DON'T try to complete with Twinrix

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### Combination A and B vaccines schedules


- Twinrix adult**
  - 0, 1 & 6 months from 16 years
  - 0, 7, 21 days & 12 mths (18yrs)
- Twinrix paediatric**
  - 0, 1 & 6 months
  - Use in 1 – 15 year age group
- Ambirix**
  - 0 and 6 - 12 months
  - Use in 1 to 15 years

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### Understanding content of Twinrix and Ambirix

- **Havrix Monodose** – content of **1440** elisa units of hepatitis A
- **Havrix Junior Monodose** – content of **720** Elisa units of hepatitis A
- **Twinrix Adult** – content of **720** Elisa units of hep A plus an adult dose of hep B
- **Twinrix paediatric** – content of **360** elisa units of hepatitis A plus paediatric dose of hep B

**Ambirix** – content of **720** elisa units of hepatitis A plus a full dose of hep B




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### Combination hepatitis B vaccines used in the UK


Table 18.2 Dosage of combined hepatitis A and hepatitis B vaccines by age (from the Green Book)

Vaccine product	Ages	Dose HAV	Dose HBV	Volume
Twinrix Adult® Hepatitis A (inactivated) and hepatitis B (rDNA) (HAB) vaccine (adsorbed)	16 years or over	720 ELISA units	20µg	1.0ml
Twinrix Paediatric® Hepatitis A (inactivated) and hepatitis B (rDNA) (HAB) vaccine (adsorbed)	1 – 15 years	360 ELISA units	10µg	0.5ml
Ambirix® Hepatitis A (inactivated) and hepatitis B (rDNA) (HAB) vaccine (adsorbed)	1 – 15 years	720 ELISA units	20µg	1.0ml



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
### Tip



In practice we give hepatitis B for lifestyle risks and travel, but not usually occupational risk. Hepatitis B is a large topic – it would be useful to read the Green Book chapter on this topic at [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/148308/Green-Book-Chapter-18.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/148308/Green-Book-Chapter-18.pdf)

And the BMA guidance document at <http://bma.org.uk/practical-support-at-work/doctors-as-managers/managing-your-practice/focus-hepatitis-b-immunisations>

See the hepatitis B document on **your dedicated page !**



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### Typhoid







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### Enteric fevers – typhoid & paratyphoid

- Gram-negative bacterial infection
- Transmission by faecal-oral route, water borne and human to human
- Those at higher risk include VFRs, young children, long term travellers and those exposed to conditions of poor sanitation – mainly in Asia
- Incubation 7 to 14 days
- Fever, chills, headache, malaise, weakness, anorexia, abdominal pain, diarrhoea
- Complications in 10% -15%: intestinal perforation, bacteraemia, meningitis
- Chronic carrier status in <3% infected persons

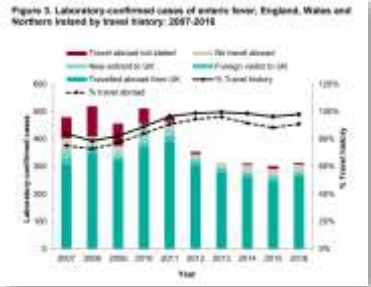





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### Data from PHE

Figure 3. Laboratory confirmed cases of enteric fever, England, Wales and Northern Ireland by travel history: 2007-2018



<https://www.gov.uk/government/publications/typhoid-and-paratyphoid-laboratory-confirmed-cases-in-england-wales-and-northern-ireland>



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### Reason for travel and destination

Figure 4. Reason for travel for laboratory-confirmed cases of enteric fever that travelled abroad from England, Wales and Northern Ireland: 2016 (n=185)

India, Pakistan and Bangladesh were the highest risk country for travellers returning with enteric fever

Table 3. Countries of travel and ethnicity for laboratory-confirmed cases of enteric fever that travelled abroad from England, Wales and Northern Ireland by visit (n=185)

Country of origin	Ethnicity						Total
	White	Black	Asian	Other	Unknown	Not stated	
England	15	0	0	0	0	0	15
Wales	0	0	0	0	0	0	0
Northern Ireland	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0
Total	15	0	0	0	0	0	15

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### Details from the Green Book

Vaccine product	Age	Dose	Volume
Typhim Vi	Two years and older	25µg	0.5ml
Typhistor	Two years and older	25µg	0.5ml

Dosage of oral monovalent typhoid vaccine

Vaccine product	Age	Dose
Vivotif	Six years and older	Three capsules on days 0, 2 and 4

Dosage of combined typhoid and hepatitis A vaccines\*

Vaccine product	Age	Dose typhoid	Dose HAV1	Volume
Hepatitis	15 years and older	25µg	140 IU/0.5ml	1ml
WATM	16 years and older	25µg	100 antigen units	1ml

\* For booster doses of either typhoid or HAV1, single antigen vaccines can be used  
1 HAV1 = hepatitis A vaccine

License has just changed to 5 years

Note  
Typhix and Hepatix have now been discontinued – Green Book not yet updated

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### Two vaccines for typhoid protection

No vaccine is available against paratyphoid

TYPHOID vaccine	2 years and over	5 years
Typhim Vi Single dose	3 years and over (5 years on SPC, not in the Green Book yet)	5 years (Take with oral or luke warm drink 1 hr before meal, vaccine capsule whole)

Injectable typhoid protection is a polysaccharide vaccine and so just one dose makes up 'the course'. After this time period if further typhoid protection is needed a new dose is given.

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### Oral typhoid - Vivotif

[www.medicines.org.uk](http://www.medicines.org.uk)

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### Oral typhoid vaccine - Vivotif

- LIVE vaccine\*
- Use from 6 years of age in Green Book (but 5 years on the SPC)
- Three doses on days 0, 2 & 4 (Green Book)

Administration

- The capsule should be taken approximately one hour before a meal with a cold or lukewarm drink (temperature not to exceed body temperature, e.g. 37°C)
- The vaccine capsule should not be chewed and should be swallowed as soon as possible after placing in the mouth

\* can be administered at any time before or after other live vaccines.

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### Interactions with other medication from the SmPC

- Antibiotics – Vivotif may not work if it is taken while you are also taking antibiotics. Take Vivotif no earlier than 3 days after the last dose of an antibiotic
- Medicines to prevent malaria – do not start these until 3 days after the last dose of Vivotif
- Yellow fever vaccine can be given while taking Vivotif

Vivotif® Patient Information Leaflet <http://www.medicines.org.uk/EMC/medicines/24326/Vivotif/>

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### Charging and administration

- Oral typhoid vaccine is an NHS provision in an NHS setting
1. You could buy this vaccine in and bring the patient in for all three doses
  2. You could administer the vaccine to the patient for the first dose and given them the other two doses to take home to self administer but the vaccine must be stored at 2 – 8°C
  3. You could supply the vaccine on an FP10 and allow the patient to self administer
- You need to ensure that your traveller understands the importance of, and can assure the cold chain in points 2 and 3 above.

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### Who would need typhoid vaccine if there is a shortage?

- Family of four going to an all inclusive break for a 10 days Cancun
- 40 year old couple travelling to stay in 4 star hotel in Bangkok for two weeks
- 26 year old man going to stay in Bangkok in a guest house/hostel type accommodation and he has type 1 diabetes
- Parents and their children of 7, 5 and 2 years travelling to Pakistan for 3 weeks to see family

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### Tip



NaTHNaC and TRAVAX have both written information documents on typhoid as well

<http://travelhealthpro.org.uk/typhoid-and-paratyphoid/>  
<http://www.travax.nhs.uk/diseases/vaccine-preventable/typhoid/typhoid-faqs.aspx>

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### Hepatitis A + Typhoid available as a combined vaccine

Why give combination vaccines?

COMBINED vaccines (and schedules)		
VAXIMP® hepatitis A and typhoid single dose	10 years and over	4-12 months for hepatitis A component (then hepatitis A booster given as a monovalent vaccine) and 3 years for the typhoid component

The combination hepatitis A and typhoid vaccine can be given with the hep A protection provided as either the first dose or reinforcing or booster dose of hep A vaccine as long as there is the three year interval to fulfill the typhoid requirement of the vaccine.

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### Does this traveller need typhoid vaccine ?

Anu is travelling to Mumbai to see relatives for a 4 week stay – she is 22 years old. She had a 1<sup>st</sup> dose hepatitis A vaccine at the age of 14 years. Would she need a typhoid vaccine and which one would you give if so?



Anu needs a booster dose of hepatitis A vaccine and she needs a typhoid vaccine so it would be very appropriate in this situation to give her a combined hepatitis A and typhoid vaccine.

204



Food and water hygiene advice remain paramount

<https://travelhealthpro.org.uk/news/349/extensively-drug-resistant-typhoid-fever-in-pakistan>

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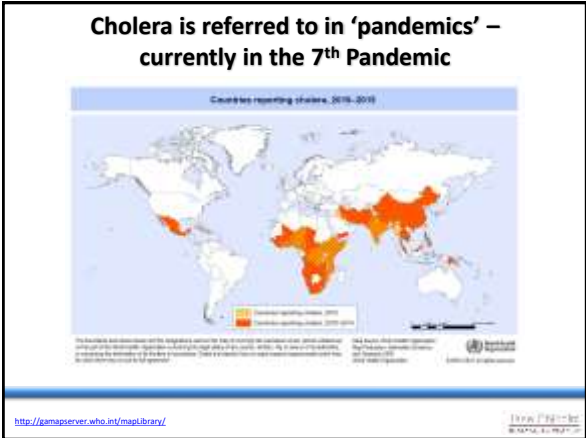
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### Cholera

Disease	Organism	Mode of transmission
Cholera	Bacterial infection	Mainly water-borne through ingestion of faecally contaminated water or shellfish and other foods. Person-to-person spread may occur through the faecal-oral route

<http://gamapserver.who.int/maplibrary/>

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### Cholera

- Acute intestinal infection
- Causal bacterium - *Vibrio cholerae*
- Transmitted faecal orally
- 90% cases are mild to moderate
- 10% cases very severe – leading to profuse diarrhoea, vomiting, circulatory collapse and shock
- Mortality rate can be over 50% in untreated cases, unless rapid rehydration therapy is given promptly
- Chronic carriage is rare
- Organism survives for up to 2 weeks in fresh water and 8 weeks in salt water
- Transmission normally through infected drinking water

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### Management of cholera

- Fluid replacement
- Prompt action improves outcome
- IV fluids in severe cases or when vomiting
- Rapid rehydration until signs improve
- NG tube used if IV not possible
- Antibiotic therapy in severe cases



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### Cholera recommendations for administration

#### Advice from the Green Book

- Immunisation against cholera can be considered, following a full risk assessment, for the following categories of traveller:
  - relief or disaster aid workers
  - persons with remote itineraries in areas where cholera epidemics are occurring and there is limited access to medical care
  - **travellers to potential cholera risk areas, for whom vaccination is considered potentially beneficial.**

[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/263838/Green-Book-Chapter-14v2\\_0.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/263838/Green-Book-Chapter-14v2_0.pdf)

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### Cholera vaccine fact finding


- What is the youngest age at which give cholera vaccine can be prescribed?
- How many doses would you give a child?
- How many doses would you give an adult?
- What is the minimum and maximum time interval between doses?
- How long does cholera vaccine last?

<https://www.medicines.org.uk/emc/medicine/31272>

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### Cholera Vaccine

CHOLERA vaccine		
Dukoral® Oral vaccine. 2 doses, minimum 2 wks apart and maximum 6 weeks apart, from birth of age. 3 doses, in 2 – 4 year olds	2 years and over	3 yrs in age 5 to adult 6 months in 2 – 4 year olds ... repeat 1 hr before & after vaccine

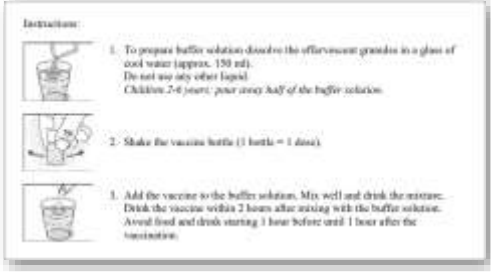


Food and drink should be avoided 1 hour before and 1 hour after vaccination. Oral administration of other medicinal products should be avoided within 1 hour before and 1 hour after administration of Dukoral.

<https://www.medicines.org.uk/emc/medicine/31272>

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### From the PiL



<https://www.medicines.org.uk/emc/medicine/31272>

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### Charging and administration

Cholera vaccine is an NHS provision in an NHS setting





1. You could buy this vaccine in and bring the patient in for subsequent doses
2. You could administer the vaccine to the patient for the first dose and given them the 2<sup>nd</sup> dose to take home to self administer but the vaccine must be stored at 2 – 8°C
3. You could supply the vaccine on an FP10 and allow the patient to self administer


You need to ensure that your traveller understands the importance of, and can assure the cold chain in points 2 and 3 above.

<https://www.medicines.org.uk/emc/medicine/31272>

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For further information to learn more about these diseases, look at the Green Book (online) NaTHNaC and TRAVAX





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### Meningococcal meningitis



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### Meningococcal Meningitis


- Meningococcal disease is a rare, but potentially devastating infection
- Caused by the bacteria *Neisseria meningitidis* of which there are 6 disease-causing strains called serogroups (A, B, C, W, Y and X)
- Approximately 10 percent of the general population of the UK are thought to carry *N. meningitidis* in the lining of the nose and throat
- Spread between individuals occurs through coughing, sneezing, kissing or during close contact with a carrier
- Carriers do not have symptoms, but can develop disease when bacteria invade the bloodstream from the nasopharynx
- Invasive disease is a rare but serious outcome usually presenting as septicaemia or meningitis

<http://travelhealthpro.org.uk/diseases/meningococcalmeningitis/>

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### Meningococcal Meningitis

- Less commonly, individuals may present with pneumonia, myocarditis, endocarditis, pericarditis, arthritis, conjunctivitis, urethritis, pharyngitis and cervicitis




- The incubation period is from two to seven days

[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/223749/Green\\_Book\\_Chapter\\_22\\_v2\\_3.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/223749/Green_Book_Chapter_22_v2_3.pdf)

221

### Meningococcal meningitis vaccine given to travellers going to meningitis belt in Africa



[http://mapserver.who.int/maplibrary/files/Maps/Global\\_MeningitisRisk\\_110806Map.png](http://mapserver.who.int/maplibrary/files/Maps/Global_MeningitisRisk_110806Map.png)  
<http://wwwnc.cdc.gov/travel/yellowbook/2016/infectious-diseases-related-to-travel/meningococcal-disease>

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### Vaccine recommendation for travellers to the meningitis belt

**Meningococcal disease vaccination**

Vaccination is recommended for those whose activities or medical condition put them at increased risk including:


- Healthcare workers
- Those visiting friends and relatives
- Those who live or travel through rural or border regions
- Long-stay travellers who have close contact with the local population
- Those with certain immunosuppressive problems (splenectomy, asplenia) and those who do not have a functioning spleen

**Who Should Vaccinate for Meningococcal Meningitis?**


Consider vaccinating:

- Travellers who are likely to have close, prolonged contact with the local population
- Long stay travellers
- Those visiting friends and relatives
- Those who will be exposed to crowded areas (e.g. schools, sports, mass events, festivals)
- Travellers visiting an area affected by an ongoing outbreak or epidemic
- Immunosuppressed travellers (including splenectomy and long systemic steroid use)

From NaTHNaC



From TRAVAX



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### and travellers going on a pilgrimage to Umrah and Hajj

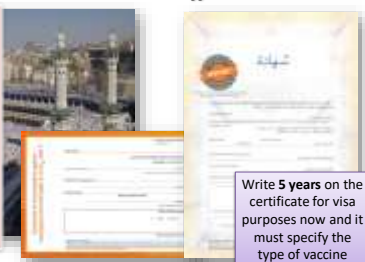
The KSA Ministry of Health (MoH) currently recommends that, as a precautionary measure, pregnant women and young children, should postpone the performance of the Hajj and Umrah.

Those with severe medical conditions such as terminal cancers, advanced cardiac, respiratory, liver, kidney diseases or senility are exempt from these religious duties

Write 5 years on the certificate for visa purposes now and it must specify the type of vaccine

**Note** – information given that vaccine must be given minimum of 10 days prior to entry into the country

Certificates available at:  
[https://hsa.gov.uk/content/dam/globel/hsportal/en\\_GB/theravareas/vaccines/pdf/meningococcal-acwy-certificate.pdf](https://hsa.gov.uk/content/dam/globel/hsportal/en_GB/theravareas/vaccines/pdf/meningococcal-acwy-certificate.pdf)  
and <https://pfizer.com/media/7wicket/interfaces/...>



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### The ACWY vaccines

#### Menveo

- Conjugate vaccine
- Use from two years of age
- Available from GSK
- GSK data gives 5 years protection from administration

#### Nimenrix

- Conjugate vaccine
- Use from 6 weeks now\*
- Just had black triangle removed
- Available from Pfizer
- Pfizer studies up to 60 months – refer to pharmacodynamics properties in the SPC


\* If needing to give, please check the Green Book, the SPC and TravelHealthPro

[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/302904/Green\\_Book\\_CBPgr\\_22\\_v2\\_5.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/302904/Green_Book_CBPgr_22_v2_5.pdf)

225

### When would you boost - it's been very confusing!



- The Joint Committee on Vaccination and Immunisation (JCVI) Committee reviewed information on length of protection following ACWY conjugate vaccination. Antibody against serogroup A disease was the first to wane, and this meant boosting was important for travel, but less important for the routine Men ACWY programme in the UK.
- For travellers at continued risk, the Committee agreed that boosting **every five years** would be a sensible approach until data became available.




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For further information to learn more about these diseases, look at the Green Book (online) NaTHNaC and TRAVAX

**Tip**





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### Agenda

- ✓ Introduction to travel medicine
- ✓ Travel risk assessment
- ✓ Travel vaccines and related issues
  - Travel medicine operational issues
  - Recap on resources



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### Immunisation Training



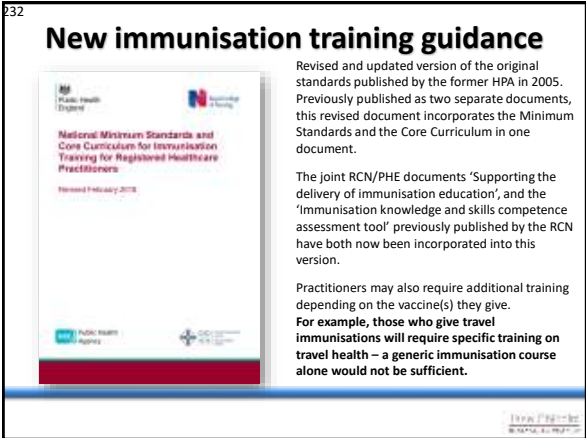
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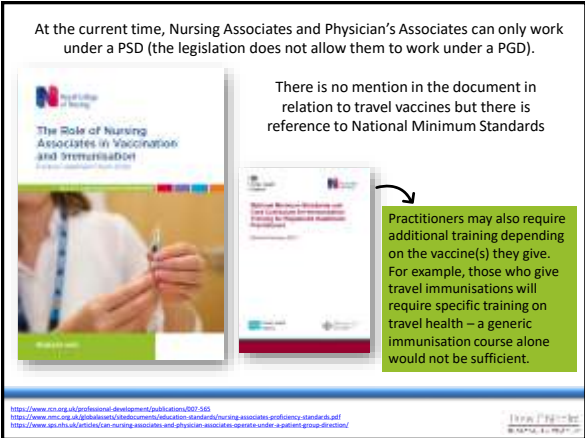
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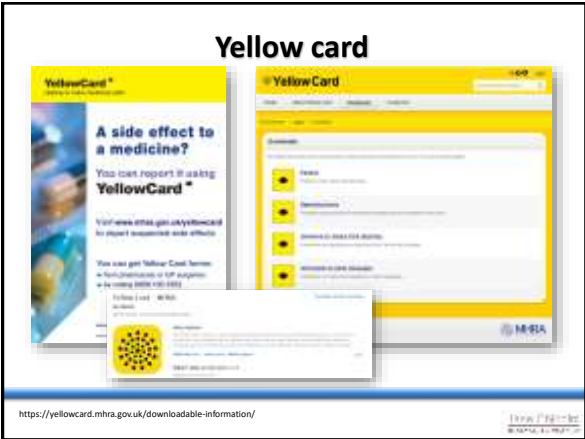
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**Immunisation training includes...**

- CPR and anaphylaxis
- Consent
- Prescribing
- Administration
- Documentation
- Vaccine storage – protocol
- Finance

Not part of the National Standards, but topics covered briefly on day 2

237

**www.resus.org.uk**

Annual training for CPR and anaphylaxis should be undertaken

238

**Vaccine ordering, storage and handling**

The perfect fridge!

239

**Prescribing for travel medicine**  
Legal requirement – covered on day 2

<https://www.nice.org.uk/guidance/mpg2>


240

**FAQs (under News) for information on prescribing**

<http://www.janechiodini.co.uk/news/faqs/faq-no-1/>

241

### Consent




Chapter 2 in the 'Green Book'

242

### Administration

- Cleansing the skin
- Size of needles
- Preparing the vaccine
- Post vaccination waiting time ?




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### Equipment



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### Importance of Documentation – working within your code



<http://www.nmc-uk.org/>

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### Resources for a travel service



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### Agenda

- ✓ Introduction to travel medicine
- ✓ Travel risk assessment
- ✓ Travel vaccines and related issues
- ✓ Travel medicine operational issues
- Recap on resources

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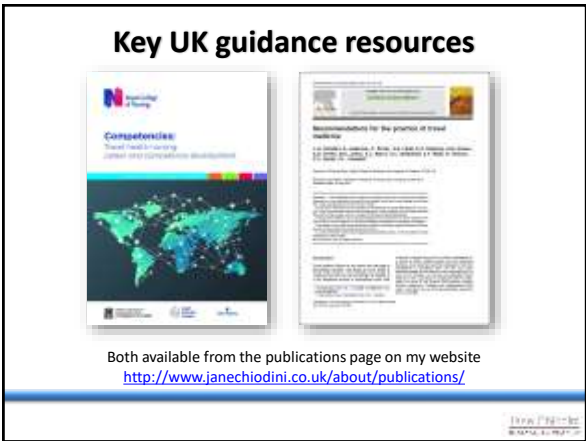
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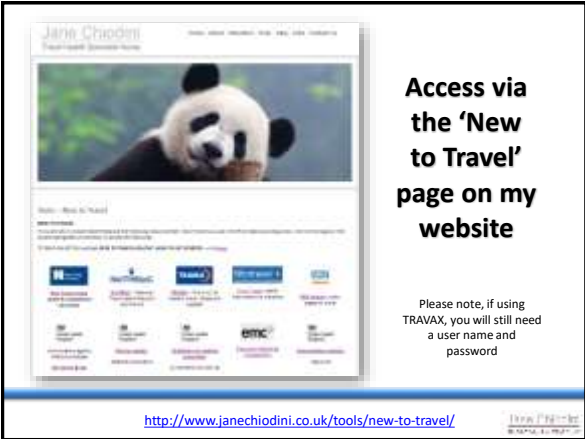


253

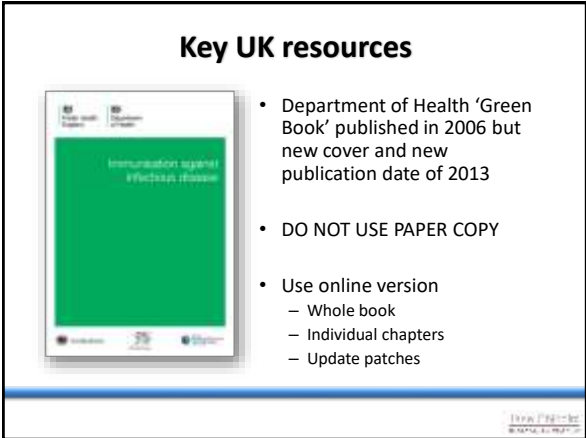




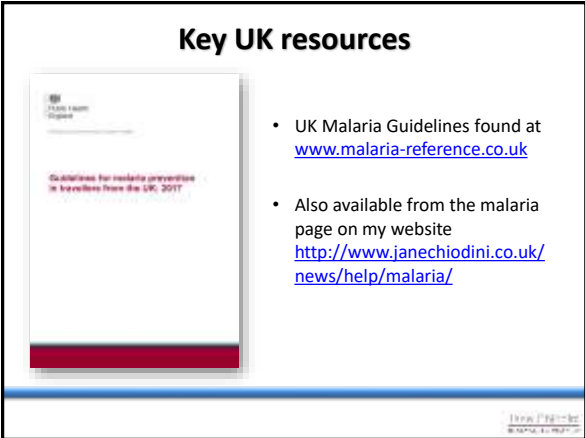
254



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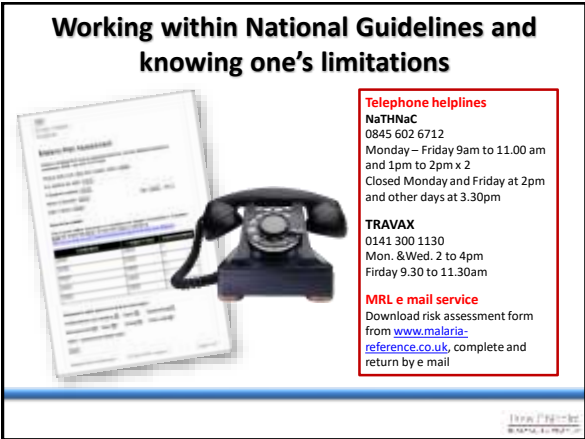
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Electronic Medicines Compendium  
[www.medicines.org.uk](http://www.medicines.org.uk) – provides SmPCs and PILs



Don't forget the protected login area to store your own choices

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Immunisation training



<https://www.janechiodini.co.uk/help/immunisation-resources/>

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Finding additional destinations

Google search [www.google.co.uk](http://www.google.co.uk)  
and/or google maps  
<http://maps.google.co.uk/>



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Worldwide resources



TRAVAX from Shoreland is not the same as UK TRAVAX

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Other useful maps also at [www.who.int/ith](http://www.who.int/ith)



[http://gamapserver.who.int/maplibrary/Files/Maps/Global\\_CholeraCases\\_ITHRiskMap.png](http://gamapserver.who.int/maplibrary/Files/Maps/Global_CholeraCases_ITHRiskMap.png)

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World Health Organization  
[www.who.int](http://www.who.int)



or Google title of the WHO Factsheet required

an extremely useful website with so much information e.g.

Substandard and falsified medical products

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**Interim work between the two study days**  
**listed on your webpage**

- Play the vaccine videos to recap on this aspect
- Look around my website
- Find out what travel PGDs you have at work
- See if you have a vaccine storage protocol at work
- Do the practice case study e learning on your page if you have time left
- Remember you can go into the e learning to reflect on today's presentation if you wish – but only available for a limited time.

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**Don't forget to view the tasks suggested if you can for the interim period.**  
**See you on Friday 14<sup>th</sup> June 2019**



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