


## New to Travel Course – Day 1

Monday 4<sup>th</sup> November 2019  
Written and taught by  
Jane Chiodini MSc RGM RM FFTM RCPS(Glasg)  
Queen's Nurse



Jane Chiodini  
Travel Health Specialist Nurse

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## About you

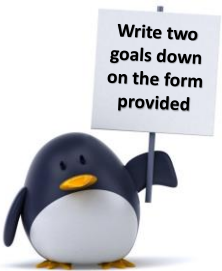


Where from?  
Your job?  
Your travel health experience?

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## What do you hope to achieve from this course?




Write two goals down on the form provided

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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/nov2019



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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



Bedfordshire

**UK GP Statistics 2017**<sup>1</sup>


9,800 practices

- 7,613 in England
- 958 in Scotland
- 454 in Wales
- 349 in Northern Ireland

51,000+ GPs

New data from NHS<sup>2</sup>

Digital reported 22,976 practice nurses working in primary care as of March 2018 with a full-time equivalent of 15,889



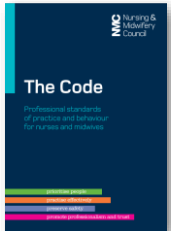


1. BMA Press Briefing – General Practice in the UK July 2017 (accessed January 2016)  
<https://www.bma.org.uk/media/files/pdf/news%20views%20analysis/press%20briefings/general-practice.pdf>  
<https://www.nursingpractice.com/full-time-practice-nurse-numbers-increase-more-2>

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






[http://www.gmc-uk.org/Good\\_medical\\_practice\\_English\\_1215.pdf\\_51527455.pdf](http://www.gmc-uk.org/Good_medical_practice_English_1215.pdf_51527455.pdf)  
<https://www.pharmacyregulation.org/page>  
[http://www.nmc-uk.org/Documents/Standards/The\\_code-M-20100006.pdf](http://www.nmc-uk.org/Documents/Standards/The_code-M-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

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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/pdf/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)

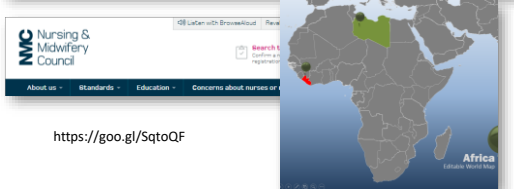
- Demonstrates good geographical knowledge
- Able to perform risk assessment effectively and understands how to interpret potential risk within a trip
- Knows where to 'go' for recommendations for travel advice, immunisations, malaria chemoprophylaxis
- Recognises limit of knowledge and knows when to 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

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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

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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?



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### Would you enjoy this?



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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/>

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### Information to be gathered

Traveller information	Traveller's itinerary
<ul style="list-style-type: none"> <li>Age and sex</li> <li>Medical history, past and present</li> <li>Current health status</li> <li>Medication</li> <li>Allergies to drugs and food</li> <li>Previous experience travelling</li> <li>Current interest and knowledge of health risks</li> <li>Previous vaccine history</li> <li>Any special needs</li> </ul>	<ul style="list-style-type: none"> <li>Destinations (s)</li> <li>Date of departure</li> <li>Duration of stay</li> <li>Mode of transport</li> <li>Purpose of trip and planned activities</li> <li>Quality of accommodation</li> <li>Financial budget</li> <li>Healthcare standards at destination</li> <li>Relevant comprehensive insurance provision</li> </ul>

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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?

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

<ul style="list-style-type: none"> <li>Medical preparation</li> <li>Journey risks</li> <li>Safety risks</li> <li>Environmental risks</li> <li>Food and water borne risks</li> </ul>	<ul style="list-style-type: none"> <li>Vector borne risks</li> <li>Air borne risks</li> <li>Sexual health and blood borne viral risks</li> <li>Skin health</li> <li>Psychological health</li> </ul>
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<https://travelhealthpro.org.uk/>

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### What does performing a risk assessment achieve?

It enables you to give:

<p>Appropriate travel health risk advice</p>	<p>Appropriate travel vaccines for travel plans</p>	<p>Appropriate malaria prevention advice</p>
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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

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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### 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

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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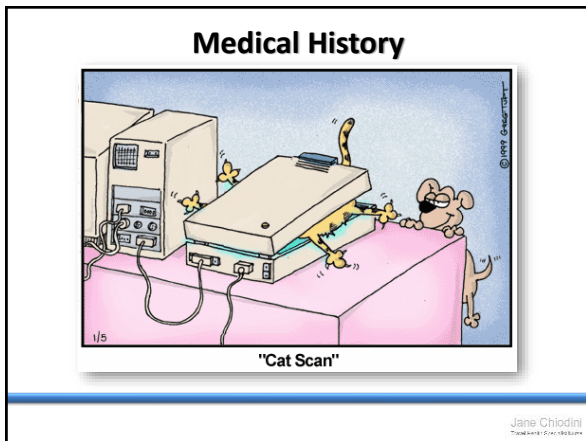
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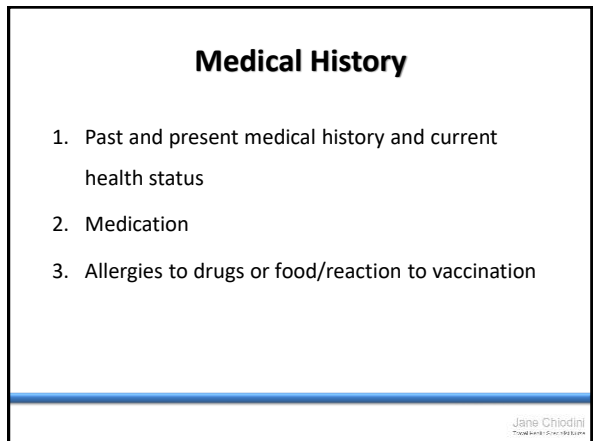
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## Why consider the medical history ?

**For example:**

- Specialist advice may be needed e.g. those with severe renal or liver disease & malaria chemoprophylaxis
- Recent surgery or long term medical problems such as respiratory disease may impact of travel and fitness to fly
- Immunosuppression – some live vaccines contra-indicated, other vaccines may be less effective
- Impact on travel insurance with many medical problems
- Elderly people on regular medication need to be aware of continuing regular administration
- Establishing true anaphylaxis


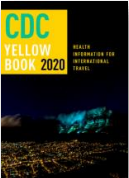
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## Implications of the questions we ask

Many sources to increase your knowledge and understanding of pre-travel risk assessment in more detail

The Yellow Book has a lot of information about medical history as do the National databases

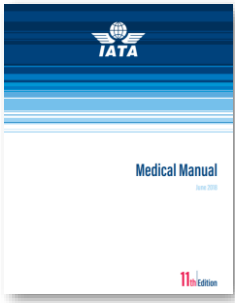
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## Fitness to fly

### The International Air Transport Association

- Is a trade association of the world's airlines. IATA supports airline activity and helps formulate policy and standards
- Its key priority is one of safety



http://www.iata.org/publications/Documents/medical-manual.pdf  
 https://www.iata.org/publications/Pages/medical-manual.aspx

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### Aircraft Operations



Diagnosis	Assessment by a doctor with aviation medicine experience	Accept	Comments
CNS disorders (Central Nervous System)			
TIA (Stroke)	4 days or less	24 hours if stable or improving, with a normal ECG. Passenger travelling in the field is under great stress and should receive appropriate oxygen.	If an uncomplicated recovery has been made, further escort is not required.
Cranial injury	28 days or less	24 hours if generally well.	
Cranial surgery	9 days or less	10 days, without loss of an and adequate general health.	
Cognitive impairment, Dementia	History of abnormal, persistent, aggressive or disturbed behaviour, discrimination, agitation or similar neurocognitive syndrome, significant anxiety	100% impairment, independent function and living in the community, no significant paranoid, aggressive behaviour, hallucinations, or agitation. No change in deterioration since recent flight.	Consider support of travel companion
Gastro-intestinal			
GI bleed	28 hours or less following a bleed	2-10 days	10 days can travel if endoscopic or other clear evidence is felt has contributed to risk to indicate bleeding has ceased of healing. See para 6.1.1.1.
Major abdominal surgery	9 days or less	2-10 days if uncomplicated recovery	e.g. bowel resection, open hysterectomy, renal surgery etc.
Acute abdomen	4 days or less	2-8 days if uncomplicated recovery	e.g. cholecystectomy (gall bladder removal), renal surgery.
Laparoscopic surgery (abdominal)	4 days or less	2-8 days if uncomplicated recovery	
Intensive therapy	28 hours or less	24 hours if generally well	

http://www.iata.org/publications/Documents/medical-manual.pdf

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## Article – link on your page

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## Travellers visiting friends and relatives (VFRs)




- Less likely to observe malaria chemoprophylaxis compliance
- Values and beliefs need to be explored

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

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## Previous vaccine history

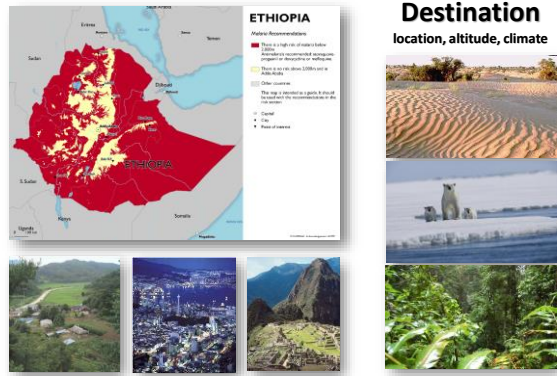


- In the absence of documentation, don't assume
- Ensure primary immunisations are up to date
- Give traveller a record of vaccines given

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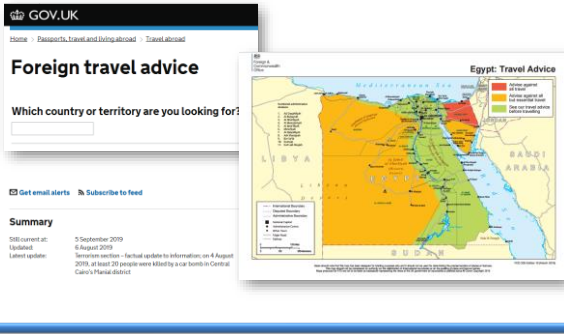
## Destination location, altitude, climate



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## Destination - political and economic situation



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## Departure date – season and timing




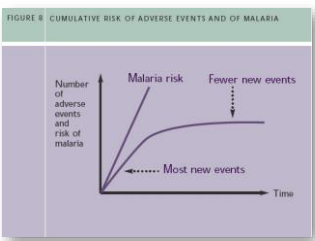
- Wet season – increases malaria risk
- Dry season – increases meningitis risk
- Last minute, still consider some vaccines e.g. hepatitis A

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## Length of stay

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


Compacency can creep in during a longer visit

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

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## Mode of transport



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### Risk of accidents



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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

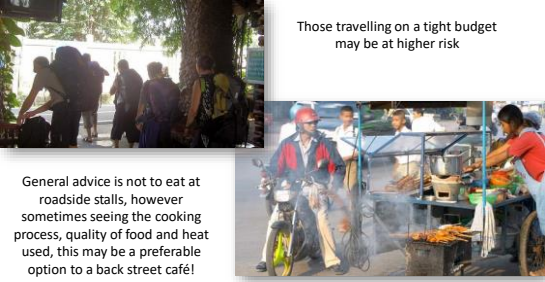


Top quality accommodation is not absolute assurance that there is no risk

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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?**

WHERE TO GO

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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

Ericsson CD. Prevention of Travelers Diarrhea in: Keystone J, Freedman D, Kazansky P, Connor B and Northdurft H. Eds. *Travel Medicine* 3rd Edition. Saunders, an imprint of Elsevier Inc; 2013. p. 191-196

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

Category	SAFE	PROBABLY SAFE	UNSAFE
<b>Beverages</b>	<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>
<b>Food</b>	<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>
<b>Setting</b>	Recommended restaurants	Local homes	Street vendors

Ericsson CD. Prevention of Travelers Diarrhea in: *Travel Medicine* 4th Edition, Eds. Keystone et al. Elsevier 2019

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Travel Health Specialist Nurse

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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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Travel and Health

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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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Travel and Health

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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/> Jane Chiodini  
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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 vaccines recommended for this trip and malaria chemoprophylaxis (if required): NaTHNaC: \_\_\_\_\_ TRAVAX: \_\_\_\_\_ Other: \_\_\_\_\_

Disease protection	Yes	Disease protection	Yes	Malaria Chemoprophylaxis Recommendation	Yes
BCG/Mantoux		Influenza		Atovaquone/proguanil	
Cholera		Meningitis ACWY		Chloroquine only	
Dip/tetanus/polio		MMR		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.medicines.org.uk/emc/](http://www.medicines.org.uk/emc/))

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 Jane Chiodini  
 Travel and Clinical Medicine

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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. smoking advice for a long haul flight; altitude advice; prevention of schistosomiasis, etc.

Source of advice used for further information: NaTHNaC TRAVAX Other

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

- Vaccine(s) patient declined following recommendation, 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

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**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, site, etc.)	Y / N
SMS vaccines 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)	Y / N

Form devised and created by Jane Chiodini © Updated May 2013

Jane Chiodini  
Travel Health Consultant

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Travel Health Training Ltd.  
August 30 at 4:05 PM

I posted this image twice back in 2018 - the template has now moved on thanks to the great talent of a new nurse who the surgery who has improved its use and also made it SNOMED ready! To read more please go to a new blog I've written at <http://bit.ly/2ZEsvq2> where you can also download it. And thank you so much for your help David Piercy - I really appreciate it!

**EMIS WEB travel health template**  
Do you have one?

**EMIS WEB SNOMED ready travel risk management template to download**

**Jane Chiodini's Blog**  
Friday, 30 August 2019

**Saving time recording your travel consultation!**

Back in the summer of 2018, I had an EMIS template that which allowed the use of my travel risk management form. Round at item no. 2 here. I put it out there for some of you to try and it generally received great feedback. The travel consultation is complex but sometimes writing up the information to provide evidence of all you covered and advised takes a long effort and significant time. However in my opinion this is essential but only as best practice but to also protect the practitioner.

<http://janechiodini.blogspot.com/2019/08/saving-time-recording-your-travel.html>

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Travel Health Consultant

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## Performing vaccination

Preparation of equipment and vaccines

Preparation of the patient

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Travel Health Consultant

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## 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

Vaccine Record

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

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Travel Health Consultant

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## 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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Travel Health Consultant

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Case Study Practice

Travel health case studies  
-  
Putting theory into practice

Access via 'your page' to practice the case studies

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Travel Health Consultant

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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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Travel and Infectious Medicine

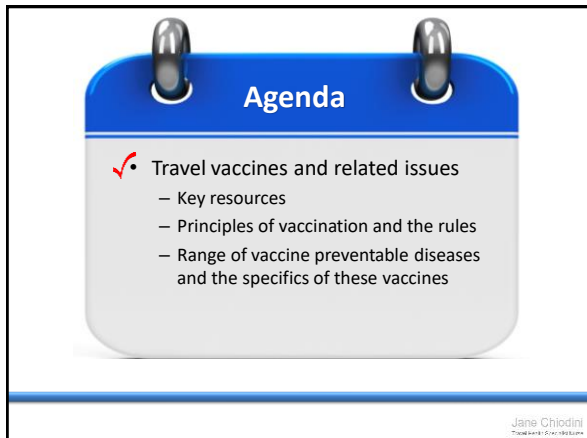
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## Vaccine preventable diseases and related issues



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### 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

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## Be aware of key UK resources for guidance

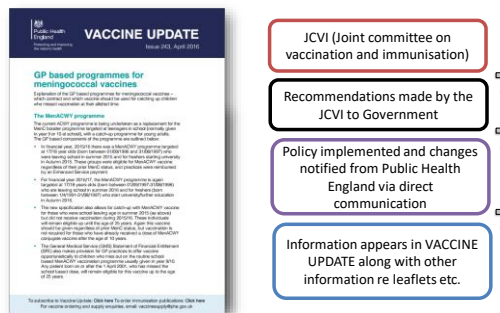


Yellow Book not online – may be in your workplace and some information is being placed on the NaTHNaC website

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## Key UK resources for guidance



**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)



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

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Thank you to Jane Chiodini

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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

Jane Chiodini  
Thank you to Jane Chiodini

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Available from 'TOOLS' item no. 8

Jane Chiodini  
Thank you to Jane Chiodini

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### Vaccines currently available to protect our travellers

Jane Chiodini  
Thank you to Jane Chiodini

113

### Diseases for consideration in this section?

**PART 1**  
 NHS vaccines (mostly) and provided in an NHS setting (hepatitis B and meningitis can be private)

- Tetanus, diphtheria and polio
- Hepatitis A
- Typhoid
- Cholera
- Hepatitis B
- Meningitis

**PART 2**  
 Always private, more specialist vaccines given by those more experienced

Covered on day 2

- Just touching on Yellow fever but separate training is required by NaTHNaC
- Rabies, Japanese B, tick-borne encephalitis

For more details regarding the charging of vaccines see FAQ no. 2 on my website  
<http://www.janechiodini.co.uk/news/faqs/faq-no-2/>

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Thank you to Jane Chiodini

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### Immunisation timeline

Historical vaccine developments and introduction of vaccines in the UK

Historical information on NHS Choices – an interesting read see:  
<http://www.nhs.uk/conditions/vaccinations/pages/the-history-of-vaccination.aspx>

Remember – this is item above accessed no. 14 to download from the 'Help' page at  
<https://www.janechiodini.co.uk/help/immunisation-resources/>

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Thank you to Jane Chiodini

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### Other useful resources

**Vaccination of individuals with uncertain or incomplete immunisation**

**A visual guide to vaccines used in the routine immunisation schedule**

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Trustee and Co-ordinator

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### UK and international immunisation schedules comparison tool

<https://www.gov.uk/government/publications/uk-and-international-immunisation-schedules-comparison-tool>

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Trustee and Co-ordinator

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Find them all via Immunisation resources in HELP

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Trustee and Co-ordinator

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### Important to understand the principles of immunology

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Trustee and Co-ordinator

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### Active Immunity

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Trustee and Co-ordinator

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### 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

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Trustee and Co-ordinator

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**Another useful video published in May 2018**

<https://www.ovg.ox.ac.uk/news/how-do-vaccines-work>

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Travavax & Travax

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### 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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Travavax & Travax

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### 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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Travavax & Travax

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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

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Travavax & Travax

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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
Poliomyelitis (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

**Time for Vaccines to become effective**

Table adapted from TRAVAX

<http://www.travax.nhs.uk/vaccination-practice/arranging-schedules/time-for-vaccines-to-become-effective/>

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Travavax & Travax

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### The rules of vaccination

Jane Chiodini  
Travel Health Specialist Nurse

**General rules regarding vaccination**

1. Administration of immunisation products is based on locally available immunisation schedules and the manufacturer's instructions. The manufacturer's instructions should be read and understood by the person administering the vaccine. The vaccine should be given at the correct dose, route and site.
2. If a vaccine is contraindicated, it should be avoided or postponed as far as possible. The reasons for this should be recorded in the patient's records.
3. If a vaccine is contraindicated, it should be avoided or postponed as far as possible. The reasons for this should be recorded in the patient's records.
4. If a vaccine is contraindicated, it should be avoided or postponed as far as possible. The reasons for this should be recorded in the patient's records.
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9. If a vaccine is contraindicated, it should be avoided or postponed as far as possible. The reasons for this should be recorded in the patient's records.
10. If a vaccine is contraindicated, it should be avoided or postponed as far as possible. The reasons for this should be recorded in the patient's records.

on 'your dedicated' page

Jane Chiodini  
Travavax & Travax


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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



Just2BChiodini  
From: 10/11/19 to: 10/11/19


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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

https://www.gov.uk/government/publications/immunisation-schedule-the-green-book-chapter-11


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From: 10/11/19 to: 10/11/19

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Michelle had a first hepatitis a vaccine 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.



https://www.gov.uk/government/publications/immunisation-schedule-the-green-book-chapter-11

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From: 10/11/19 to: 10/11/19

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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

Department of Health. Immunisation against infectious disease (3<sup>rd</sup> Edition) London: TSO, 2006 Ch.17, p154  
https://www.gov.uk/government/uploads/system/uploads/attachment\_data/file/247564/Green-Book-Chapter-17.pdf

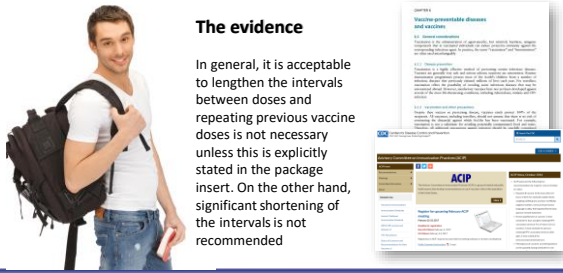
Just2BChiodini  
From: 10/11/19 to: 10/11/19

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Jon is backpacking around SE Asia for 6 months and is having a course of hepatitis B vaccine on a 0, 7 and 21 day schedule before he leaves. 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



https://www.gov.uk/government/uploads/system/uploads/attachment\_data/file/247515/Green-Book-Chapter-4.pdf

2. Department of Health. Immunisation against infectious disease (3<sup>rd</sup> Edition) London: TSO, 2006 Ch.4, p29  
https://www.gov.uk/government/uploads/system/uploads/attachment\_data/file/247515/Green-Book-Chapter-4.pdf

Just2BChiodini  
From: 10/11/19 to: 10/11/19

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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<sup>2</sup>

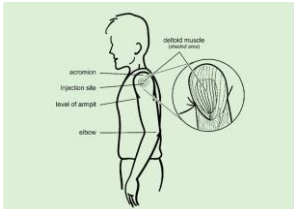


Figure 4.1 Preferred site for intramuscular and deep subcutaneous injections in older children and adults

https://www.gov.uk/government/uploads/system/uploads/attachment\_data/file/247515/Green-Book-Chapter-4.pdf

2. Department of Health. Immunisation against infectious disease (3<sup>rd</sup> Edition) London: TSO, 2006 Ch.4, p29  
https://www.gov.uk/government/uploads/system/uploads/attachment\_data/file/247515/Green-Book-Chapter-4.pdf

Just2BChiodini  
From: 10/11/19 to: 10/11/19

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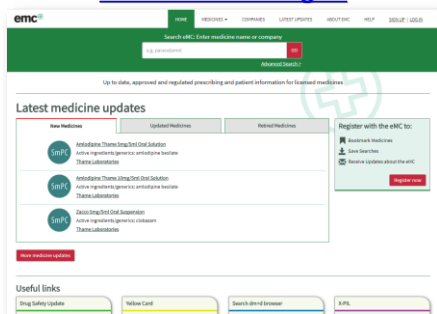
### Where do you obtain relevant vaccine information?

- 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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Travax & NaTHNaC

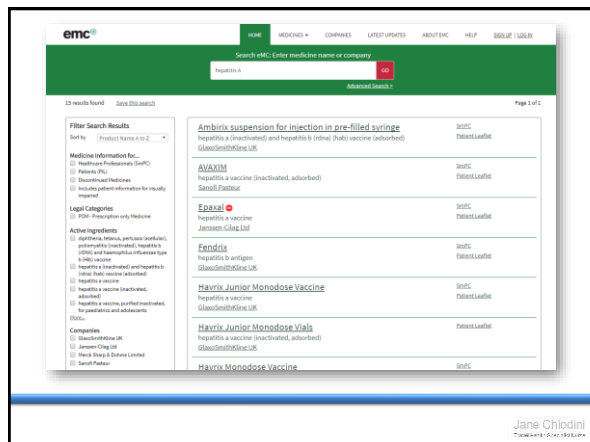
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### Electronic Medicines Compendium [www.medicines.org.uk](http://www.medicines.org.uk)



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Travax & NaTHNaC

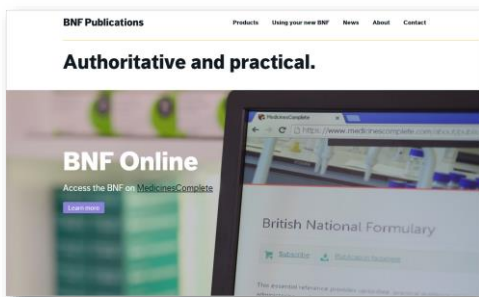
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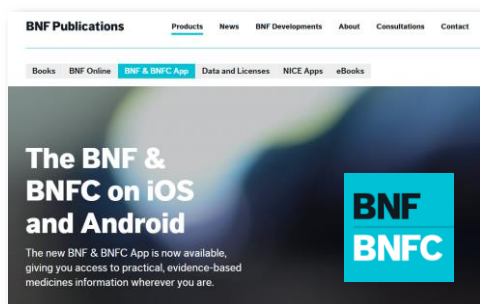
### [www.bnf.org](http://www.bnf.org)



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### BNF and BNFC apps are great!



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

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Travax & NaTHNaC

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### Document your learnings

Disease prevention	Caustic organisms	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				
Meningococcal Meningitis				
Yellow fever				
Rabies				
Japanese encephalitis				
Tick borne encephalitis				

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Travax & NaTHNaC

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## Tetanus, polio and diphtheria

Jane Chiodini  
Thank you to the NHS

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## Which disease is which?

Jane Chiodini  
Thank you to the NHS

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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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Thank you to the NHS

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

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Thank you to the NHS

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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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Thank you to the NHS

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## The routine immunisation schedule Route Autumn 2019

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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Thank you to the NHS

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

**Available vaccines<sup>[6]</sup>**

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

- High-dose - vaccines contain  $\geq 30$  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.cdc.gov/nczod/cv/ac/committees/quadrant/vac\\_advice.html](https://www.cdc.gov/nczod/cv/ac/committees/quadrant/vac_advice.html)  
[https://www.cdc.gov/nczod/cv/ac/committees/quadrant/vac\\_advice.html](https://www.cdc.gov/nczod/cv/ac/committees/quadrant/vac_advice.html)  
[https://www.cdc.gov/nczod/cv/ac/committees/quadrant/vac\\_advice.html](https://www.cdc.gov/nczod/cv/ac/committees/quadrant/vac_advice.html)

Jane Chiodini  
Travel Health Specialist Nurse

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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



Jane Chiodini  
Travel Health Specialist Nurse

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## Galapagos Islands off coast of Ecuador




Jane Chiodini  
Travel Health Specialist Nurse

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## 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 are ?

**Boostrix-IPV or Repevax**


Some very helpful resources on reverse of this chart

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

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## FAQ on tetanus



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Public Health England  
Preventing and Improving the Health of the Nation

**Tetanus**  
Guidance on the management of suspected tetanus cases and on the assessment and management of tetanus prone wounds

Published November 2018  
Updated November 2018

<https://www.gov.uk/government/publications/tetanus-immunoglobulin-recommendations-on-treatment-and-prophylaxis>

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**Read the guidance to see definitions**

6.2 Management of Tetanus Prone Wounds

Tetanus-prone wounds\* include:

- puncture-type injuries acquired in a contaminated environment and likely therefore to contain tetanus spores\* e.g. gardening injuries
- wounds containing foreign bodies such as wood splinters\*\*
- compound fractures
- wounds or burns with systemic sepsis
- certain animal bites and scratches\*\*

\*Note: individual risk assessment is required and this list is not exhaustive e.g. a puncture wound from discarded needle found in a park may be a tetanus-prone injury but a needlestick injury in a medical environment is not. \*\*Similarly, although smaller bites from domestic pets are generally puncture injuries, animal saliva should not contain tetanus spores unless the animal has been rooting in soil or lives in an agricultural setting.

High-risk tetanus-prone wounds include:

- Any of the above with either:
  - heavy contamination with material likely to contain tetanus spores e.g. soil, manure
  - wounds or burns that show extensive devitalised tissue
  - wounds or burns that require surgical intervention that hours are high risk even if the contamination was not it

And on page 9 of the Green Book tetanus chapter

Includes UK born after 1961 with history of accepting vaccines  
Immediate reinforcing dose of vaccine  
Immediate reinforcing dose of vaccine

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Jane Chiodini's Blog

Tuesday, 30 April 2019

**Tetanus vaccine: 5 doses?**

This isn't travel but because we have to also ensure patients are fully protected with the national immunisation schedule for tetanus I still think it's important.

**A little history**  
For many years I've said once you have had 5 doses of tetanus containing vaccine then you are protected for life within the UK. Information written in the Green Book chapter on tetanus published in 2005 and 2007 stated that if you then sustained a tetanus prone you would require treatment which would be tetanus-specific immunoglobulin but such documents are not available online any more.

The Patient info website on their page here states:  
The primary course of three injections gives good protection for a number of years. The fourth and fifth doses (boosters) maintain protection. After the fifth dose, immunity remains for life and you do not need any further boosters (apart from some travel situations).

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TRAVEL HEALTH PRO

COUNTRY INFORMATION LATEST NEWS OUTBREAK SURVEILLANCE IN UK

Home / Facebook / Poliomyelitis

**POLIOMYELITIS**  
Poliomyelitis (polio) is a potentially paralyzing viral infection that only occurs in humans.

Content Sections

- Overview
- Risk areas
- Risk for travellers
- Transmission
- Signs and symptoms
- Diagnosis and treatment
- Preventing polio
- Vaccine information
- Resources

Recent and ongoing Polio Problems more about this on day 2

Jane Chiodini  
Specialist in Infectious Diseases

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**Hepatitis A**

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Specialist in Infectious Diseases

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**Hepatitis A**

Hepatitis A, countries or areas at risk

The boundaries and names shown on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, or area or of its authority, or the delimitation of its frontiers. Countries shown in light grey are not included in the data base of the World Health Organization.


World Health Organization  
11, rue de la Charité, 13314 GENEVA, Switzerland  
Tel: +41 (0)22 791 2111 Fax: +41 (0)22 791 3111  
www.who.int

[http://gamapserv.who.int/maplibrary/Files/Maps/Global\\_HePA\\_1THRiskMap.png?ua=1](http://gamapserv.who.int/maplibrary/Files/Maps/Global_HePA_1THRiskMap.png?ua=1)

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### Hepatitis A disease



<http://phl.cdc.gov/phl/home.asp>


- 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

<https://www.gov.uk/government/publications/hepatitis-a-the-green-book-chapter-17>

Jane Chiodini  
Travel and Vaccination Specialist

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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/publications/hepatitis-a-the-green-book-chapter-17>

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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>		
• Hep A vaccine SPCs have different timings but note Ch. 4, 1 <sup>st</sup> paragraph in GB. Ideally, follow the summary of product characteristics but in late-presenting travellers, a course does not need to be restarted (DH 2013). Protection is expected for 25 years from the second dose – also see NaTHNaC info on Hepatitis A ** and detail below within the 'Key' section regarding GSK 'Havrix' vaccines***.		
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 (DH 2013). Protection is expected for 25 years from the second dose – also see NaTHNaC info on Hepatitis A ** and detail below within the 'Key' section regarding GSK 'Havrix' vaccines***.
VAQTA® Adult	18 years and over	
Avaxim®	16 years and over	
Havrix Junior Monodose®	1 - 15 years	
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 NaTHNaC document at [www.nathnac.org/pro/factsheets/hep\\_a.htm](http://www.nathnac.org/pro/factsheets/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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Travel and Vaccination Specialist

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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 hep A 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 hep A 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? **Yes**



<https://www.gov.uk/government/publications/hepatitis-a-the-green-book-chapter-17>

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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)
- Vaqta Adult – problem in 1990s when some batches thought not to give protection – instructed at that time to disregard doses given previously and re-vaccinate. Vaqta Adult now available again
- See **Nuggets of Knowledge – hepatitis A**

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### 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?



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Travel Health Specialist Nurse

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### 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?

Jane Chiodini  
Travel Health Specialist Nurse

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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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Travel Health Specialist Nurse

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Home About Education Tools News Links Contact Us

Hepatitis


The basic principles of a hepatitis A vaccine schedule

<https://www.janechiodini.co.uk/help/faq/>

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Travel Health Specialist Nurse

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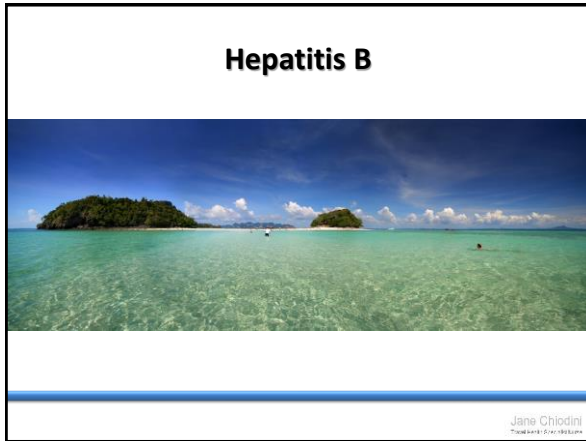
### Recommend you do this to consolidate knowledge – see on your page



Nuggets of Knowledge  
Hepatitis A vaccine

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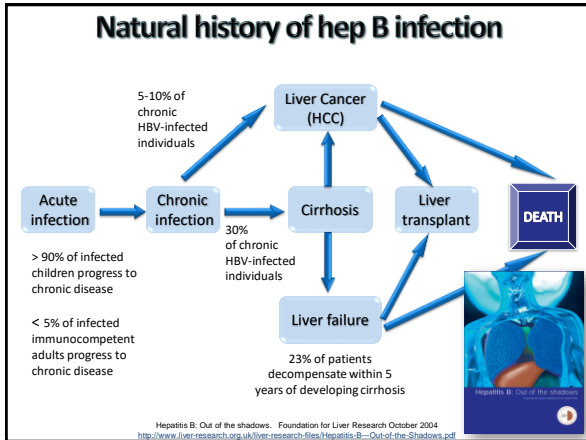
### WHO Factsheet – Hepatitis B updated July 2019

- 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>

Jane Chiodini  
Thank you to CDC/NIH/USA

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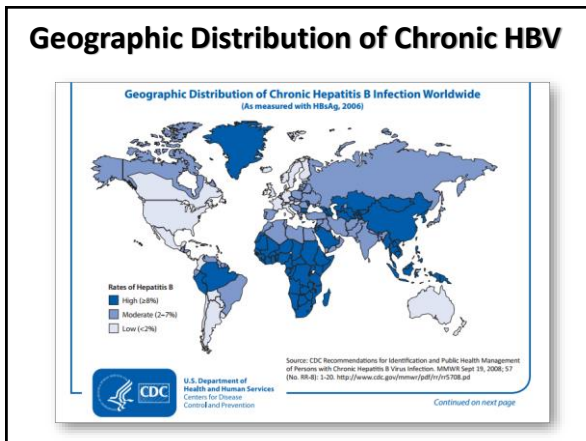
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### This Khmer woman died of hepatoma, four months after arriving in a refugee camp in Thailand

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

Jane Chiodini  
Thank you to CDC/NIH/USA

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### USA and European resources: see 'immunisation resources' and 'hepatitis B' in 'HELP'

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Thank you to CDC/NIH/USA

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### Transmission of hepatitis B

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### A more recent craze – corset piercing

<http://unusual-things.blogspot.com/2011/05/surgeon-blasts-latest-craze-in-body.html>

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Thousand Oaks, CA, USA

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### The commonest transmission route of hepatitis B?

[http://unicef-org.blogspot.com/uk/2010/10/unicef-executive-director-launches\\_31.html](http://unicef-org.blogspot.com/uk/2010/10/unicef-executive-director-launches_31.html)

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### Not travel related but important to understand

See page 14, chapter 18 of the Green Book

Age	Routine childhood programme	Babies born to hepatitis B infected mothers
Birth	1*	✓ Monovalent HepB
4 weeks	2*	✓ Monovalent HepB
8 weeks	✓ DTaP/IPV/Hib/HepB	✓ DTaP/IPV/Hib/HepB
12 weeks	✓ DTaP/IPV/Hib/HepB	✓ DTaP/IPV/Hib/HepB
16 weeks	✓ DTaP/IPV/Hib/HepB	✓ DTaP/IPV/Hib/HepB
3 years of age	3**	✓ Monovalent HepB
3 years and 4 months	4**	✓ Test for HBsAg

\* Give the recommended non-hepatitis B containing vaccines at per the routine schedule.  
 \*\* Give the recommended non-hepatitis B containing vaccines at per the routine schedule.

[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/215622/dh\\_132617.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/215622/dh_132617.pdf)  
<https://www.gov.uk/government/publications/hepatitis-b-antenatal-screening-and-newborn-immunisation-programme-best-practice-guidance>

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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 aid 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-endemism 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 – Hep B now in the childhood programme not included here	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 16. Note SmPCs do advise a 4 <sup>th</sup> dose but GB should be followed.
Engerix B® - 0, 1 and 6 months	Over 16 years	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.
Engerix B® - 0, 1, 2 months	Over 16 years	
Engerix B® - 0, 7, 21 days & 12 months	Over 18 years in SmPC – But also 16–18 years in Green Book	Testing for evidence of immunity post immunisation is not routinely recommended. See GB, Ch.18, Page 18
Engerix B® Paediatric 0, 1, 6 months	0 to 15 years	
Engerix B® Paediatric 0, 1, 2 months	0 to 15 years	
Engerix B® Option of two doses of 1 ml (20mcg) 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	
HBVaxPRO® 0, 1, and 6 months	16 years and over	
HBVaxPRO® 0, 1, 2 months	16 years and over	
HBVaxPRO® Paediatric 0, 1 & 6 months	0 – 15 years	
HBVaxPRO® Paediatric 0, 1, 2 months	0 – 15 years	

Two products, four presentations

Jane Chiodini  
Travellers' Clinic UK Ltd

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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.)

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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)

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Plan for phased re-introduction of hepatitis B vaccine for lower priority groups in 2018

## 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

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Travellers' Clinic UK Ltd

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### 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

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Travellers' Clinic UK Ltd

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

Start searching the eMC here

Pharmacodynamic properties

Pharmacodynamic group: Hepatitis B vaccine, ATC code: J07DC01  
Engerix B contains specific human antibodies against Hepatitis virus surface antigen (HBsAg) and protein to HBV infection.

Population	Schedule	Seroprotection rate
Healthy volunteers (0 to 60 including 15 years of age)	0, 1, 6 months	at least 71.00 %
	0, 1, 2, 12 months	at least 71.00 %
	0, 1, 2, 12 months	at least 71.00 %

The data in this table only generated with theoretical containing vaccine. The additional clinical studies conducted with the various formulations of Engerix B, which have not been licensed, are being made available and will be added to the summary of product characteristics (SPC) for the various formulations of Engerix B.

Jane Chiodini  
Travellers' Clinic UK Ltd

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### Hepatitis A vaccine antigen content within vaccines

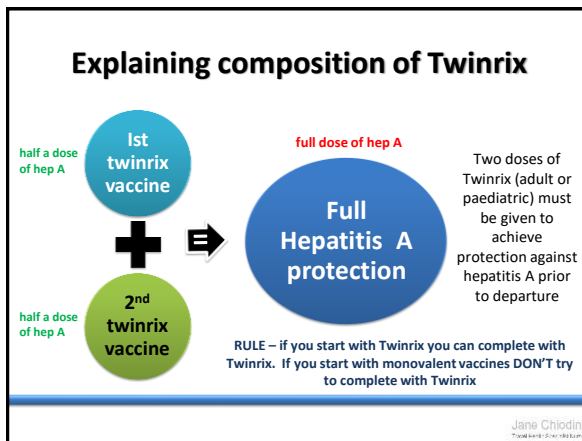
Adapted from table 1 of the Public Health England Hepatitis A vaccination in adults temporary recommendations \*

Hep A vaccine formulation	Trade name	Hep A vaccine antigen content	Adult dose Hep A antigen equivalent	Made by
Adult monovalent hep A	AVAXIM	160 U	Full dose	SP
	HAVRIX MONODOSE	1440 EU	Full dose	GSK
	VAQTA ADULT	50 U	Full dose	MSD
Paediatric monovalent hep A	HAVRIX JUNIOR MONODOSE	720 EU	Half dose	GSK
	VAQTA PEDIATRIC	25 U	Half dose	MSD
Adult combination hepatitis A/B	TWINRIX ADULT	720 EU	Half dose	GSK
Paediatric combination hepatitis A/B	TWINRIX PEDIATRIC	360 EU	Quarter dose	GSK
	AMBIRIX	720 EU	Half dose	GSK
Combination hepatitis A/typhoid	VIATIM	160 EU	Full dose	SP

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KEY  
SP – Sanofi Pasteur; GSK = GlaxoSmithKline; MSD = Merck Sharpe Dohme Ltd.  
<https://www.gov.uk/government/publications/hepatitis-a-infection-prevention-and-control-guidance>  
[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/626228/hepatitis\\_a\\_vaccination\\_recommendations.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/626228/hepatitis_a_vaccination_recommendations.pdf)

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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

Jane Chiodini  
The Health Education Unit

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### 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	160 U	Full dose	SP
	HAVRIX MONODOSE	1440 EU	Full dose	GSK
	VAQTA ADULT	50 U	Full dose	MSD
Paediatric monovalent hep A	HAVRIX JUNIOR MONODOSE	720 EU	Half dose	GSK
	VAQTA PEDIATRIC	25 U	Half dose	MSD
Adult combination hepatitis A/B	TWINRIX ADULT	720 EU	Half dose	GSK
Paediatric combination hepatitis A/B	TWINRIX PEDIATRIC	360 EU	Quarter dose	GSK
	AMBIRIX	720 EU	Half dose	GSK
Combination hepatitis A/typhoid	VIATIM	160 EU	Full dose	SP

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KEY  
SP – Sanofi Pasteur; GSK = GlaxoSmithKline; MSD = Merck Sharpe Dohme Ltd.  
<https://www.gov.uk/government/publications/hepatitis-a-infection-prevention-and-control-guidance>  
[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/626228/hepatitis\\_a\\_vaccination\\_recommendations.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/626228/hepatitis_a_vaccination_recommendations.pdf)

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### Combination hepatitis B vaccines used in the UK – from the Green Book

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

[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 Health Education Unit

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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

Public Health England  
Enteric fever (typhoid and paratyphoid) England, Wales and Northern Ireland: 2017

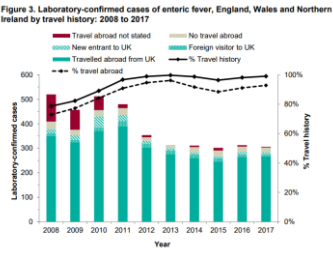


Figure 3. Laboratory-confirmed cases of enteric fever, England, Wales and Northern Ireland by travel history: 2008 to 2017

■ Travel abroad not stated    ■ No travel abroad  
■ New entrant to UK    ■ Foreign visitor to UK  
■ Travelled abroad from UK    ■ % Travel history  
— % travel abroad

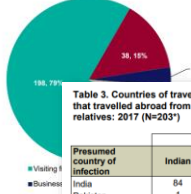
<https://www.gov.uk/government/publications/typhoid-and-paratyphoid-laboratory-confirmed-cases-in-england-wales-and-northern-ireland>

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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: 2017 (N=287)



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 to visit friends and relatives: 2017 (N=203)\*

Presumed country of infection	Ethnicity						Total
	Indian	Pakistani	Bangladeshi	Asian other	Black African	Other/mixed	
India	84	1	-	-	-	2	10
Pakistan	1	55	1	1	-	-	8
Bangladesh	-	-	20	-	-	-	1
Sub-Saharan Africa	-	-	-	-	5	-	1
Other Asia	1	-	-	4	2	5	1
<b>Total</b>	<b>86</b>	<b>56</b>	<b>21</b>	<b>5</b>	<b>7</b>	<b>7</b>	<b>21</b>


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

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## Two vaccines now for typhoid protection

TYPHOID vaccine		
Typhim VI® Single dose	2 years and over	3 years
Vivotif® (Ty21a) Oral vaccine on days 0, 2 & 4	5 years and over	3 years (Take with cold or luke warm drink 1 hr before meal, swallow 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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## Details from the Green Book

Dosage of injectable monovalent typhoid vaccines			
Vaccine product	Ages	Dose	Volume
Typhim VI	Two years and older**	25µg	0.5ml
Typherix (discontinued in 2018)	Two years and older*	25µg	0.5ml

Dosage of oral monovalent typhoid vaccine		
Vaccine product	Ages	Dose
Vivotif	Five years and older	Three capsules on days 0, 2 and 4

Dosage of combined typhoid and hepatitis A vaccines**			
Vaccine product	Ages	Dose typhoid	Dose HAV†
Hepatitis (discontinued in 2018)	15 years and older	25µg	1440 ELISA units
VIATIM	16 years and older	25µg	160 antigen units

\* Children between the ages of 12 months and two years should be immunised off-license if following a detailed risk assessment the risk of typhoid fever is considered high.  
 \*\* For booster doses of either typhoid or HAV, single antigen vaccines can be used  
 † HAV – hepatitis A vaccine

**Note**  
 Typherix and Hepatitis have now been discontinued – as now highlighted in the Green Book  
 Children between the ages of 12 months and two years should be immunised off-license if following a detailed risk assessment the risk of typhoid fever is considered high

[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/42512/Green\\_Book\\_Chapter\\_33\\_2013\\_192348.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/42512/Green_Book_Chapter_33_2013_192348.pdf)

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## Oral typhoid vaccine - Vivotif

- LIVE vaccine\*
- Use from 5 years of age
- 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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## Moved to Chapter 11 of the Green Book – in April 2019

Public Health England

Revised recommendations for the administration of 'No. 9 in one' live vaccine

For many years, Public Health England (PHE) has recommended a four-week minimum interval between the administration of these two vaccines. However, in April 2019, PHE updated its guidance to recommend a four-week minimum interval between the administration of these two vaccines. This update is based on the latest evidence from the literature and the results of a systematic review of the evidence published in 2018.

Following the latest evidence, PHE has updated its guidance to recommend a four-week minimum interval between the administration of these two vaccines. This update is based on the latest evidence from the literature and the results of a systematic review of the evidence published in 2018.

PHE is committed to providing the best possible advice to protect the public and to ensure that the vaccine is given as soon as possible after the first dose. This update is based on the latest evidence from the literature and the results of a systematic review of the evidence published in 2018.

PHE is committed to providing the best possible advice to protect the public and to ensure that the vaccine is given as soon as possible after the first dose. This update is based on the latest evidence from the literature and the results of a systematic review of the evidence published in 2018.

**Table 11.2 Recommended time intervals when giving more than one live attenuated vaccine**

Vaccine combinations	Recommendations
Yellow fever and MMR	A four week minimum interval should be observed between the administration of these two vaccines. Yellow fever and MMR should not be administered on the same day.
Vivotif (and zoster vaccine and MMR)	If these vaccines are not administered on the same day, then a four week minimum interval should be observed between vaccines.
Tuberculin skin testing (Mantoux) and MMR	MMR vaccination and tuberculin skin testing can be performed on the same day. However, if a tuberculin skin test has already been initiated, then MMR should be delayed until the skin test has been read, unless protection against measles is required urgently. If a child has had a recent MMR, and requires a tuberculin test, then a four week interval should be observed.

All currently used live vaccines (BCG, rotavirus, live attenuated influenza vaccine (LAIV), oral typhoid vaccine, yellow fever vaccine, zoster and MMR).

Co-administration of these two vaccines can lead to sub-optimal antibody responses to yellow fever, mumps and rubella antigens (Nascimento et al, 2011). Where protection is required rapidly then the vaccines should be given at any interval; an additional dose of MMR should be considered.

Withdawn April 2019

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## Oral typhoid - Vivotif®

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

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Travel Nurse - Green Book

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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/medicine/2432/PL/Vivotif/>

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Travel Nurse - Green Book

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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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Travel Nurse - Green Book

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## Prioritising typhoid vaccine if there is a shortage – who would you give it to?

- 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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Travel Nurse - Green Book

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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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Travel Health Pro

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

Why give combination vaccines?

COMBINED vaccines (and schedules)		
VIATIM® (Hepatitis A and typhoid) Single dose	16 years and over	6-12 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.

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Travel Health Pro

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**Food and water hygiene advice remain paramount**





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

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**Cholera**






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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://gamespover.who.int/magislibrary/>

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### Cholera is referred to in 'pandemics' – currently in the 7<sup>th</sup> Pandemic

Countries reporting cholera, 2010-2015

**Legend:**  
 Countries reporting cholera, 2015  
 Countries reporting cholera, 2010-2014

The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area of its jurisdiction, or concerning the delimitation of its frontiers or boundaries. Cities and towns not shown are not necessarily shown in this map for space-saving purposes only.

Data Source: World Health Organization  
 Map Production: Information Evidence and Research (IER)  
 World Health Organization  
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<http://gamapserver.who.int/maplibrary/>

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<http://globalhealth.unc.edu/blog/2011/06/haiti-diary-back-to-the-basics/>

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**Reuters**  
 Haitian cholera victims receive treatment inside a hospital run by Doctors Without Borders in Port-au-Prince. The death toll from Haiti's cholera epidemic has reached more than 900.

16 November 2010

<http://www.dailymail.co.uk/news/article-1330282/Anti-UN-riots-Haiti-leave-people-dead-locals-blame-cholera-outbreak-UN-peacekeepers.html>

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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-4-v2\\_0.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/263838/Green-Book-Chapter-4-v2_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?

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## Cholera Vaccine

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



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>

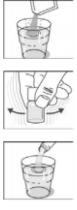
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## From the PiL

**Instructions:**


1. To prepare buffer solution dissolve the effervescent granules in a glass of cool water (approx. 150 ml). Do not use any other liquid.  
*Children 2-6 years: pour away half of the buffer solution.*
2. Shake the vaccine bottle (1 bottle = 1 dose).
3. Add the vaccine to the buffer solution. Mix well and drink the mixture. Drink the vaccine within 2 hours after mixing with the buffer solution. Avoid food and drink starting 1 hour before until 1 hour after the vaccination.






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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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## 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



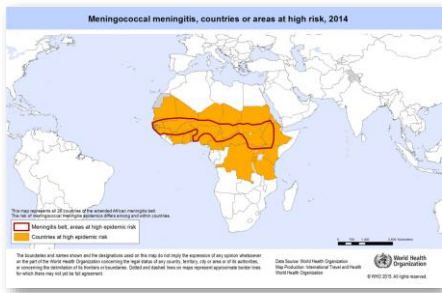
- The incubation period is from two to seven day

[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)

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Travel and Vaccination

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



[http://gamapserver.who.int/maplibrary/files/Maps/Global\\_MeningitisRisk\\_11thRiskMap.png](http://gamapserver.who.int/maplibrary/files/Maps/Global_MeningitisRisk_11thRiskMap.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 'rough' such as backpackers
- long-stay travellers who have close contact with the local population
- those with certain rare immune system problems (complement disorders) and those who do not have a functioning spleen

**From NaTHNaC** ←

**Who Should I 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. stadia, schools, dormitories, hospitals)
- Travellers visiting an area affected by an ongoing outbreak or epidemic
- Immunocompromised travellers (including asplenia) visiting endemic areas

→ **From TRAVAX**

[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/292994/Green\\_Book\\_Chapter\\_22\\_v2\\_5.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/292994/Green_Book_Chapter_22_v2_5.pdf)


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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://hsc.gsk.co.uk/content/dam/global/hcpportal/en\\_GB/therapyaareas/vaccines/pdfs/meningococcal-acwy-certificate.pdf](https://hsc.gsk.co.uk/content/dam/global/hcpportal/en_GB/therapyaareas/vaccines/pdfs/meningococcal-acwy-certificate.pdf)  
 and <https://drivetravaccines.medica.com/medica/2wicket/interfere-3-11>

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## The ACWY vaccines

<p><b>Menveo</b></p> <ul style="list-style-type: none"> <li>Conjugate vaccine</li> <li>Use from two years of age</li> <li>Available from GSK</li> <li>GSK data gives 5 years protection from administration</li> </ul>	<p><b>Nimenrix</b></p> <ul style="list-style-type: none"> <li>Conjugate vaccine</li> <li>Use from 6 weeks now*</li> <li>Just had black triangle removed</li> <li>Available from Pfizer</li> <li>Pfizer studies up to 60 months – refer to pharmacodynamics properties in the SPC</li> </ul>
--	---

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


[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/292994/Green\\_Book\\_Chapter\\_22\\_v2\\_5.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/292994/Green_Book_Chapter_22_v2_5.pdf)

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## 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.





<http://www.who.int/wer/2016/wer1626-27.pdf?ui=1>


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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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**Some of the resources on the 'Help' page with more being added**



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IMMUNISATION RESOURCES

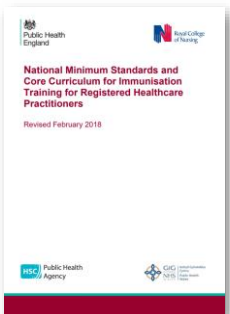
**For example, Immunisation Resources**



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**New immunisation training guidance**



Revised and updated version of the original standards published by the former HPA in 2005. Previously published as two separate documents, this revised document incorporates the Minimum Standards and the Core Curriculum in one document.

The joint RCN/PHE documents 'Supporting the delivery of immunisation education', and the 'Immunisation knowledge and skills competence assessment tool' previously published by the RCN have both now been incorporated into this version.

Practitioners may also require additional training depending on the vaccine(s) they give. **For example, those who give travel immunisations will require specific training on travel health – a generic immunisation course alone would not be sufficient.**

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At the current time, Nursing Associates and Physician's Associates can only work under a PSD (the legislation does not allow them to work under a PGD).

There is no mention in the document in relation to travel vaccines but there is reference to National Minimum Standards

Practitioners may also require additional training depending on the vaccine(s) they give. For example, those who give travel immunisations will require specific training on travel health – a generic immunisation course alone would not be sufficient.

<https://www.rcn.org.uk/professional-development/qualifications/2017-2015>  
<https://www.nmfs.org.uk/documents/ndocuments/immunisation-standards/nursing-associates-proficiency-statement.pdf>  
<https://www.nmfs.org.uk/documents/ndocuments/immunisation-standards/immunisation-standards-for-registered-healthcare-practitioners.pdf>

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### Intended to be free of charge for all

Access our e-learning programmes on the e-LfH Hub [Register / Log in](#)

**e-LfH**  
 e-Learning for Healthcare  
 Health Education England

Home Programmes About News Support Demo Contact us Search this website

Sections

## Immunisation

An interactive e-learning programme to support the training of healthcare professionals involved in advising on and/or delivering immunisations across the life course.

This programme is in partnership with...

<https://www.e-lfh.org.uk/programmes/immunisation/>

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## Yellow card

<https://yellowcard.mhra.gov.uk/downloadable-information/>

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## Licensed, Unlicensed and Off-label

[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/390117/PHE\\_9373\\_VU\\_223\\_Dec\\_2014\\_11.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/390117/PHE_9373_VU_223_Dec_2014_11.pdf)

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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

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 Trustee and Director

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## www.resus.org.uk

Annual training for CPR and anaphylaxis should be undertaken

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### Vaccine ordering, storage and handling




The perfect fridge!

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Travel Health Specialist Nurse

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### Prescribing for travel medicine

Legal requirement – covered on day 2




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

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




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

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### Consent




Chapter 2 in the 'Green Book'

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### 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

The screenshot shows the NMC website's 'Hearings and outcomes' section, which details the schedule and results of hearings and sanctions. A blue book titled 'The Code' is also displayed, representing the professional standards for nurses and midwives.

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

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### Medicine Management

#### Standards for medicines management

These standards were withdrawn on 29 January 2019

The Standards for medicines management (2007) and underpinning NMC Circulars (2008 and 05/2008) were withdrawn on 29 January 2019. We did this because it's not within our remit as a regulator to provide the type of clinical practice guidance. However, we recognise that it's important that all healthcare professionals can access accurate information on the safe and effective handling, management and administration of medicines. This page has guidance on where you may be able to find this information.

**Where to find information on medicines management**

- Professional guidance on the safe and correct handling of medicines - we've worked closely with the Royal Pharmaceutical Society (RPS) and their stakeholder partners on this guidance for all healthcare professionals covering areas such as the storage, transportation and disposal of medicines.
- Professional guidance on the administration of medicines in healthcare settings - this guidance, co-produced by the Royal Pharmaceutical Society (RPS) and Royal College of Nursing (RCN), provides principles-based guidance to ensure the safe administration of medicines by healthcare professionals.
- Advisory guidance on administration of medicines by nursing associates - Health Education England (HEE) guidance.

From the NMC

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### Resources for a travel service

A collage of various travel medicine resources, including brochures, posters, and informational materials. Categories include 'Teaching tools', 'Key reference for best practice', 'Some key tools to consider the best', 'Key forms for risk assessment and analysis for your travellers', and 'Some sites to have handy'.

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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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### Resources in Travel Health

An illustration of three white, stylized human figures standing together and holding a large globe of the Earth. The text 'Resources in Travel Health' is positioned to the left of the figures.

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### Resources from my website [www.janechiodini.co.uk](http://www.janechiodini.co.uk)

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Welcome

When I originally established my website I wanted to provide healthcare professionals with essential Travel Medicine information and resources. Thanks to improvements in technology and the range of resources available I'm happy to say there is now a wealth of accessible information. The aim now is to provide a "one stop shop" for information for travel health consultations. However I'm not sure what travel medicine is all about, click on the image below for a learning on the "Quick Links" section at the bottom of this homepage. This will take you to a short module entitled "What is Travel". This will explain more about the field of practice!

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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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**Key UK guidance resources**

Both available from the publications page on my website  
<http://www.janechiodini.co.uk/about/publications/>

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**Jane Chiodini's Blog**

History: 16 October 2019

**TravelHealthPro eBook**

For more, the articles are arranged into four thematic infectious disease, preparing for healthy travel, special risk, immunisation and other resources. When you enter the book, these four articles are featured on the front page and, below, on the relevant topic for the full list of resources and content for their individual section.

You can also subscribe to updates for the book, so that when any content is updated you'll be aware that it's happened. To receive the book and also to subscribe to the updates click HERE or click on the image below.

Blog Archive

- October 19
- September 19
- August 19
- July 19
- June 19
- May 19
- February 19
- January 19
- 2018 19
- 2017 19
- 2016 19
- 2015 19
- 2014 19

About Me

Jane Chiodini is a Travel Health Specialist Nurse (NaTHNaC) and has been involved in this field of practice for over 20 years. Her healthcare professionals around the world and her work with the public has led to her writing a Travel Health eBook.

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**Access via the 'New to Travel' page on my website**

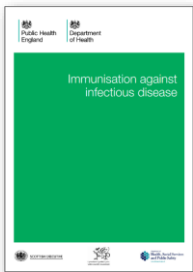
Please note, if using TRAVAX, you will still need a user name and password

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

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### Key UK resources

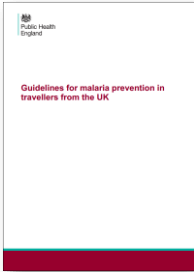


- Department of Health 'Green Book' published in 2006 but new cover and new publication date of 2013
- DO NOT USE PAPER COPY
- Use online version
  - Whole book
  - Individual chapters
  - Update patches

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### Key UK resources



- UK Malaria Guidelines found at [www.malaria-reference.co.uk](http://www.malaria-reference.co.uk)
- Also available from the malaria page on my website <http://www.janechiodini.co.uk/news/help/malaria/>

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### DH, PHE and MHRA all under one roof




<https://www.gov.uk/government/organisations/department-of-health>  
<https://www.gov.uk/government/organisations/public-health-england>

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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

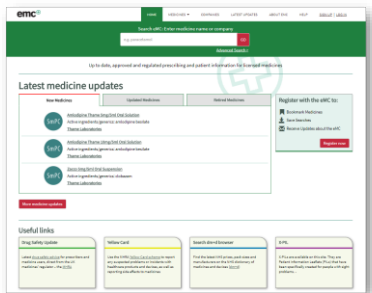
**MRL e mail service**  
Download risk assessment form from [www.malaria-reference.co.uk](http://www.malaria-reference.co.uk), complete and return by e mail

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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

National Minimum Standards and Core Curriculum for Immunisation Training for Registered Healthcare Practitioners

Revised February 2018



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

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## Finding additional destinations

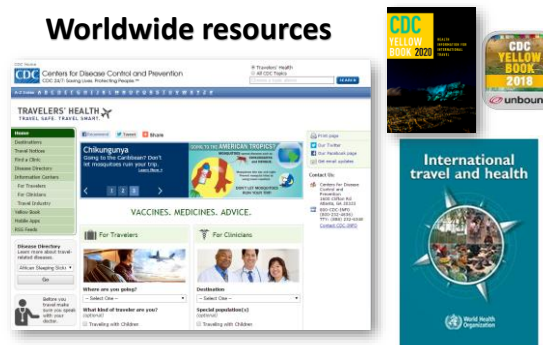
Google search [www.google.co.uk](http://www.google.co.uk)  
and/or google maps  
<http://maps.google.co.uk/>



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## Worldwide resources

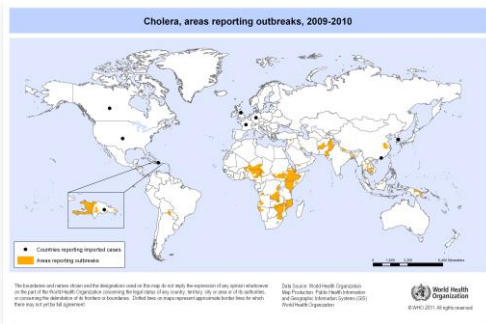


TRAVAX from Shoreland is not the same as UK TRAVAX

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



[http://gamapserv.who.int/maplibrary/Files/Maps/Global\\_CholeraCases\\_IJTRiskMap.png](http://gamapserv.who.int/maplibrary/Files/Maps/Global_CholeraCases_IJTRiskMap.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

- Substandard and falsified medical products may cause harm to patients and fail to treat the diseases for which they were intended.
- They lead to loss of confidence in medicines, healthcare providers and health systems.
- They affect every region of the world.
- Substandard and falsified medical products from all main therapeutic categories have been reported to WHO including medicines, vaccines and in vitro diagnostics.
- Anti-metabolites and antibiotics are amongst the most commonly reported substandard and falsified medical products.
- Both generic and innovator medicines can be falsified, ranging from very expensive products for cancer to very inexpensive products for treatment of pain.
- They can be found in illegal street markets, via unregulated websites through to pharmacies, clinics and hospitals.
- An estimated 1 in 10 medical products in low- and middle-income countries is substandard or falsified.
- Substandard and falsified medical products contribute to antimicrobial resistance and drug-resistant infections.

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## Finding travel clinics abroad [www.istm.org](http://www.istm.org)



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## Additional websites and resources on my website



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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 Monday 2<sup>nd</sup> December 2019**



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