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New to Travel Course – day 2

Monday 30th September 2019
Written and taught by
Jane Chiodini MSc RGM RM FFTM RCPS(Glasg)
Queen's Nurse

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1

www.janechiodini.co.uk/education/new-to-travel/sept2019

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Agenda

- Polio – part 2 and a little measles!
- How to keep up to date in the future
- Updates since last time and a Zika reminder
- Travel medicine operational issues
- Yellow fever, rabies, Japanese B encephalitis and tick borne encephalitis
- Malaria

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Oral polio last given in 2004

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WHO has a new website with excellent information

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Global Programme Eradication Initiative (GPEI)

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Polio guidance at the current time

As from 21st May 2019
If travelling to
Afghanistan, Nigeria, Indonesia, Pakistan, Papua New Guinea or **Somalia**
for longer than
4 weeks
then evidence of vaccination in the
past 12 months
may be required on
exit from the countries
OR vaccination (OPV) will be
administered at this point

May 2014 meetings began.
Held 3 monthly, 21st just taken place

This is for prevention of spread of the disease from the country, NOT for individual protection purposes

https://www.who.int/news-room/detail/01-03-2019-statement-of-the-twentieth-ihr-emergency-committee
https://travelhealthpro.org.uk/country/171/pakistan#Vaccine_recommendations
https://travelhealthpro.org.uk/news/286/polio-public-health-emergency-of-international-concern

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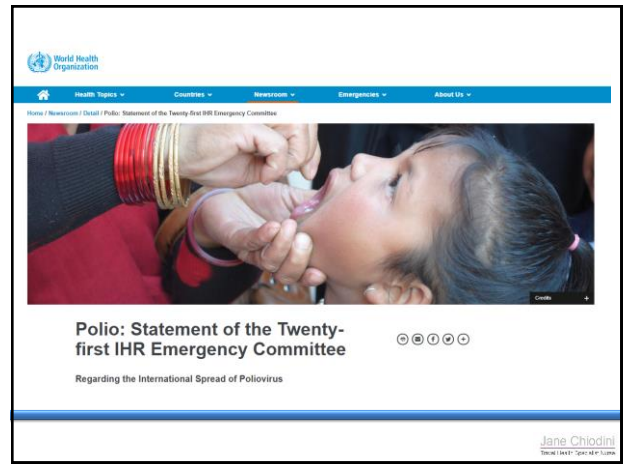
7



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Aisha and Sarah are going to work in a school in Pakistan for 6 weeks leaving in 4 weeks time.

Aisha
26 years old
Fit and well
Not pregnant
Is a VFR traveller
Staying in the family home
Revaxis given 2 years ago

How would you advise regarding polio vaccination?

- Sarah
- 22 years old
- Fit and well
- Not pregnant
- Is staying with Aisha
- She lives at home at the current time, her father is having chemotherapy for bowel cancer and is immunocompromised
- Revaxis at age 16

9

- Advise Aisha that because she is going to Pakistan for more than 4 weeks and she hasn't had a polio vaccine in the last 12 months she may be given an OPV on exit from the country – this would do her no harm.
- Living in England, she is not entitled to have a polio containing vaccine on the NHS prior to travelling (if in Scotland she could).
- Or she can go to a private clinic pre-departure and pay for a vaccine and ICVP.

- Give Sarah a polio containing vaccine on the NHS and complete an ICVP for her to carry with her and show the authorities is requested.
- In an NHS setting you can charge for the certificate but not the vaccine.

https://travelhealthpro.org.uk/country/171/pakistan#Vaccine_recommendations

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10

Who can have a polio vaccine on the NHS in England for an ICVP purpose?

- Those who have had not completed a primary course or not had a polio booster in the last 10 years as per routine advice
- Immunosuppressed, their household contacts or pregnant individuals
- Travellers to settings with extremely poor hygiene (e.g. refugee camps), or likely to be in close proximity with cases (e.g. healthcare workers), and/or visiting for 6 months or more, are advised to have a booster dose of polio-containing vaccine if they had not received vaccination in the past 12 months.

https://travelhealthpro.org.uk/country/171/pakistan#Vaccine_recommendations
https://connect3.communisis.com/NHS/Public/Catalogue.aspx

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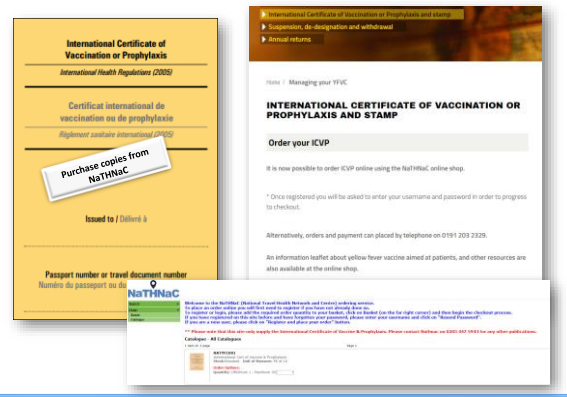
11



https://connect3.communisis.com/NHS/Public/Catalogue.aspx

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Completing the ICVP

https://travelhealthpro.org.uk/factsheet/17/polio-vaccination-certificate

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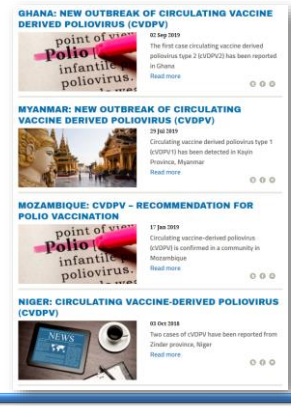
Circulating Vaccine Derived Polio Virus (cVDPV)



Travellers need to be up to date on their polio status.

Ensure you study the country specific information on polio with care on TravelHealthPro

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Measles – an ongoing problem

Latest update available

- Between January and June 2019, there have been 532 confirmed cases of measles in England
- Of these 68 cases were related to travel abroad
- High case numbers found in London

https://travelhealthpro.org.uk/search?r=measles&gc_src=
https://www.gov.uk/government/news/measles-outbreaks-across-england
https://www.gov.uk/government/publications/measles-mumps-and-rubella-lab-confirmed-cases-in-england-2019

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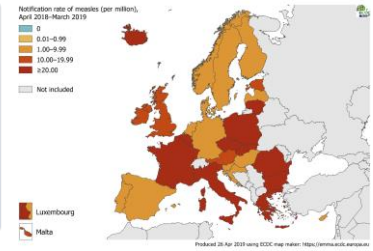
European measles data

Twenty-nine countries reported measles data for January 2019, with 881 cases reported by 19 countries and 10 countries reporting no cases. Germany did not report measles data for January 2019 (Figure 1). Overall, case numbers continued to increase compared with the previous two months. Romania, Italy, Poland and France had the highest case counts with 261, 165, 133 and 124 cases, respectively Notable increases were reported in Italy, Poland, France and Austria



https://atlas.ecdc.europa.eu/public/index.aspx
https://ecdc.europa.eu/en/publications-data/number-measles-cases-country-eueea-january-2019-n881
https://ecdc.europa.eu/en/publications-data/measles-notification-rate-million-population-country-eueea-1-april-2018-31-march

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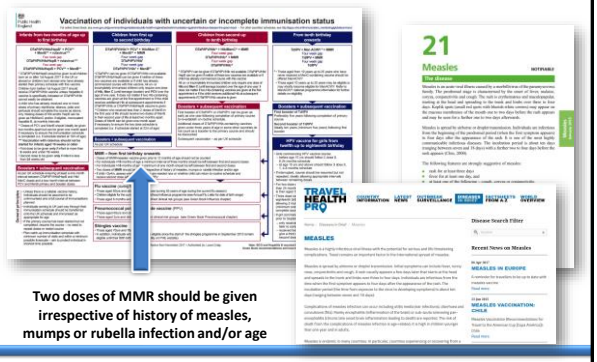
16

MMR – see these resources



Two doses of MMR should be given irrespective of history of measles, mumps or rubella infection and/or age

http://travelhealthpro.org.uk/disease/116/measles
https://www.gov.uk/government/publications/vaccination-of-individuals-with-uncertain-or-incomplete-immunisation-status

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From the June 2018 Vaccine Update

The World Health Organization (WHO) recommends that to prevent outbreaks of disease, 95% of people need to have received the MMR vaccine.

- Colleagues are reminded that patients over the age of three years and four months who do not have two recorded doses of MMR vaccine remain eligible.
- There is no upper age limit to offering MMR vaccine and practices should maximise opportunities to ensure that patients who are not protected are fully vaccinated.
- It should be noted that central MMR vaccine stock can be used to catch-up anyone of any age.

In addition, health care employers also have a responsibility to ensure that all their staff are up to date with their MMR vaccines. The Care Quality Commission has recently published a helpful guide on immunisation of healthcare staff for primary care colleagues at weblink 12.

Use every opportunity to check MMR status and catch-up anyone who is not up to date

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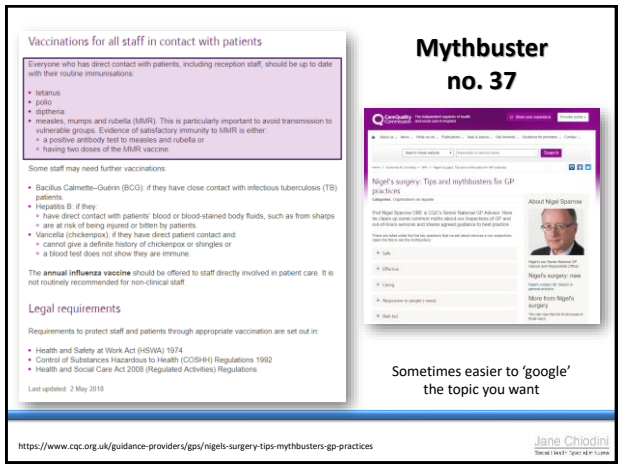

19

Available in English, Polish, Romanian and Somali – order from
https://www.orderline.dh.gov.uk/ecom_dh/public/home.jsf

21

22

Essential to keep up to date

Ways of keeping up to date – a recap

- Using an online database
- Subscribing to alert systems
- Reading journals
- Being familiar with national resources and knowing how to access them confidently

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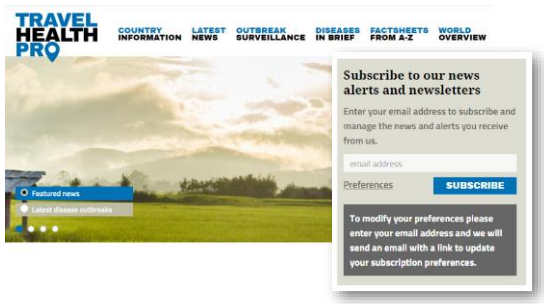
NaTHNaC for news and clinical updates



http://travelhealthpro.org.uk/latest-news/

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NaTHNaC on Facebook and Twitter

https://www.facebook.com/Nathnac

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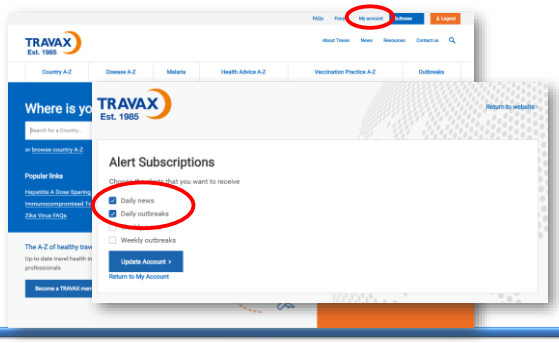
TRAVAX news and outbreaks and e mail alerts for both or either topics on a daily or weekly basis



www.travax.nhs.uk

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26

Subscribing to Green Book and Vaccine Update

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

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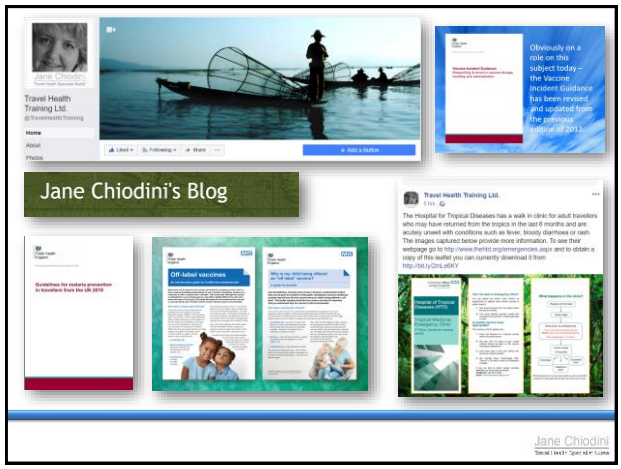
27



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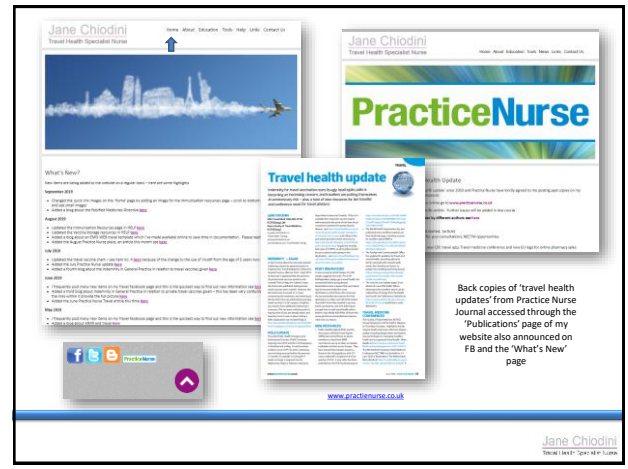
28



Back copies of 'travel health updates' from Practice Nurse Journal accessed through the 'Publications' page of my website also announced on FB and the 'What's New' page

www.practicenurse.co.uk

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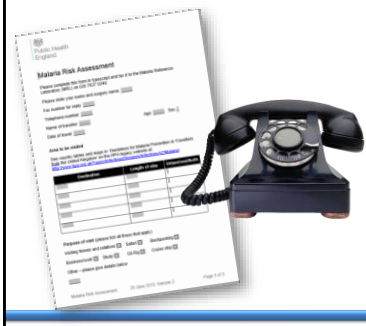
29

Working within National Guidelines and knowing one's limitations



Telephone helplines
NaTHNaC
0845 606712
Monday – Friday 9am to 11.45 am and 1pm to 3.45pm (closed Wednesday afternoons and bank holidays)
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, complete and return to 020 7636 0248

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Obtain from tools

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31

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The Royal College of Physicians and Surgeons of Glasgow

RCPSG founded in 1599

The College was founded on 29 November 1599 with the grant of a charter from King James VI of Scotland to Peter Lowe, Surgeon, Robert Hamilton, Physician and William Spang, Apothecary.

Prof. Jackie Taylor
First Female President in 419 year history

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32

ROYAL COLLEGE OF PHYSICIANS AND SURGEONS OF GLASGOW

COLLEGE | PHYSICIANS | SURGEONS | DENTISTRY | TRAVEL MEDICINE | PODIATRIC MEDICINE

Faculty of Travel Medicine formed in 2006

Purpose of the Faculty of Travel Medicine

- to provide leadership to Travel Medicine professionals
- to support our membership through education, training, continuous professional development, examinations and assessment
- to be a leading voice on health matters related to Travel in order to set the highest possible standards of health care and assure the safety of patients and travellers

5th Dean
1st Nurse
1st Female
1st Person working in travel medicine full time

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Affiliate Membership

If you are a professional with an interest in Travel Medicine but do not have a formal qualification, you can apply to become an Affiliate of the Faculty of Travel Medicine.

As an Affiliate, you will benefit from discounted admission to College **educational events** and have access to our comprehensive **library information services** as well as professional networks for peer support and career development.

Download Application Form

34

Membership benefit if you join as an Affiliate of the Faculty of Travel Medicine

Emporiatrics - September 2019

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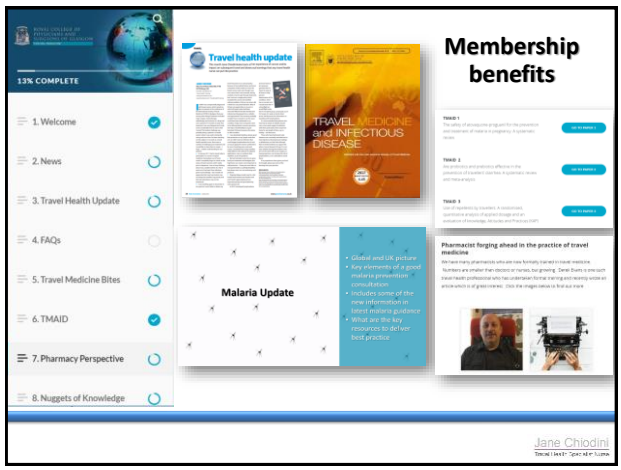
35



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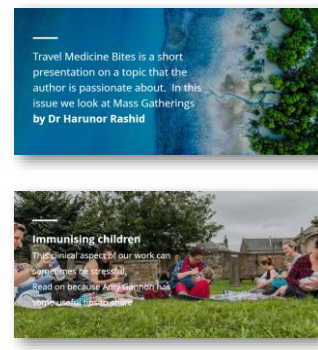
36



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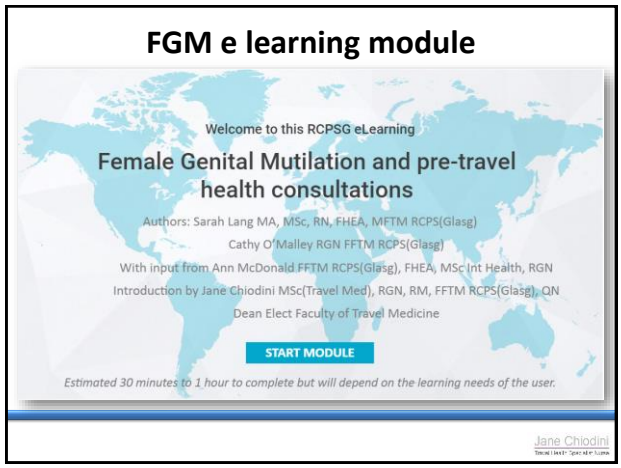

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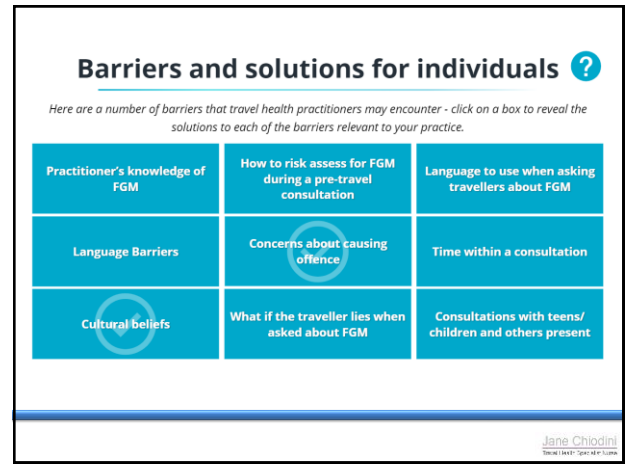

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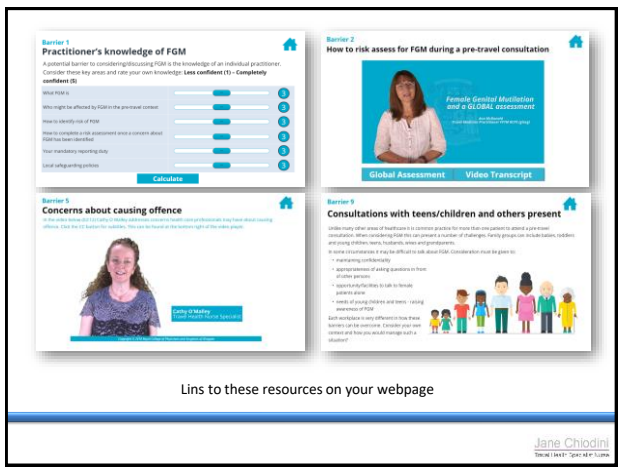

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43

44

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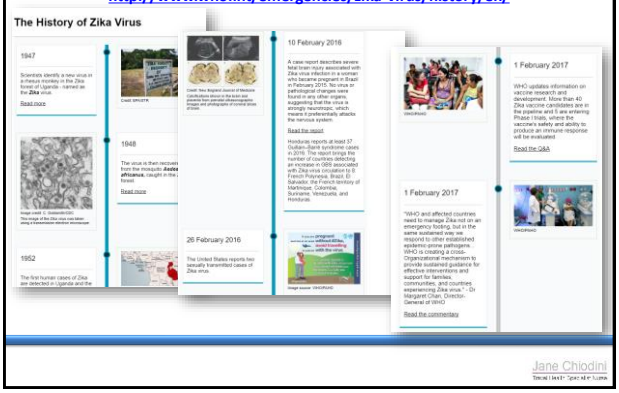
Timeline of Zika activity

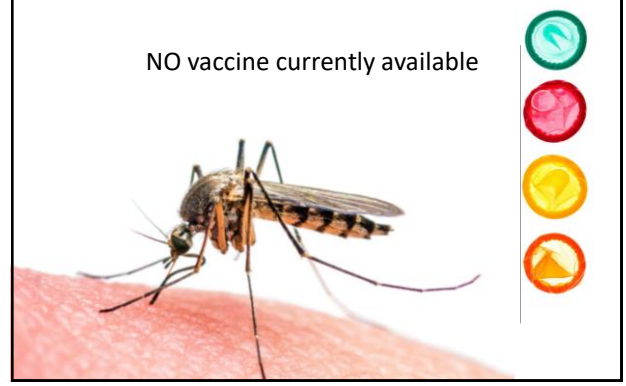
http://www.who.int/emergencies/zika-virus/history/en/



45

Prevention of ZIKV

NO vaccine currently available



46

Mosquito Control

- Aedes mosquitoes found in tropical and temperate climates
- Breed indoors and outdoors – eggs found in any container that holds water
- Virus remains in the insect lifelong
- Use of insecticides to clear indoor areas is problematic as they need to be safe, effective and environmentally friendly
- Efforts to control Aedes vector have proved unsuccessful

47

Transmission of Zika Virus (ZIKV)

UK guidance on the sexual transmission of ZIKV **infection** was revised in 2017 to focus messaging on pregnant women, their partners and, importantly, couples planning pregnancy.

Transmission usually male to female but can occur male to male and female to male

https://travelhealthpro.org.uk/news/4/zika-virus--update-and-advice-for-travellers
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48

Zika advice on NaTHNaC

49

Zika virus in India

Other risks

This country is considered to have a **moderate risk of Zika virus transmission**. **Pregnant women should consider postponing non-essential travel** until after the pregnancy. Details of specific affected areas within this country are not available but the mosquitoes that transmit ZIKV are unlikely to be found above 2,000m altitude.

Important news

Outbreaks

ZIKA VIRUS IN INDIA

30 May 2017 Gujarat, India

As of 26 May 2017, three laboratory-confirmed cases of Zika virus disease have been reported.

WHO - Read more

INDIA ADDED AS A MODERATE RISK AREA FOR ZIKA VIRUS TRANSMISSION

Zika virus advice for travellers to India updated, pregnant women should consider postponing non-essential travel until after the pregnancy Read more

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UK advice for the pregnant traveller

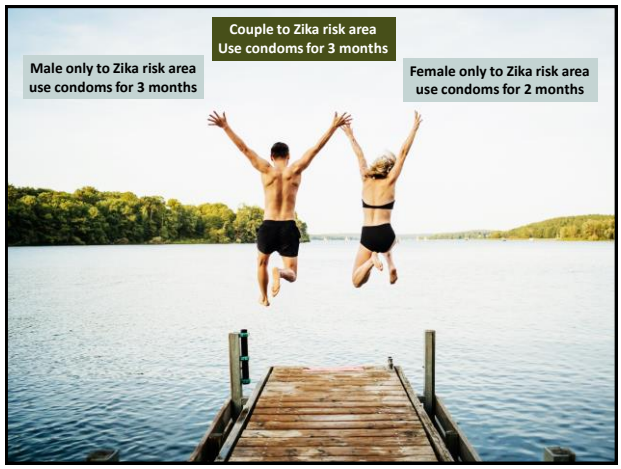
- Postpone non-essential travel to areas with current active ZIKV transmission designated as 'high risk' until after pregnancy.
- Consider postponing non-essential travel to areas with current active ZIKV transmission designated as 'moderate risk' until after pregnancy.
- Travel to an area with active ZIKV transmission cannot be postponed, make sure traveller is fully aware of the risks ZIKV may present.
- Scrupulous mosquito bite avoidance measures both during daytime and night time hours.
- Condom use advised during vaginal, anal and oral sex to reduce the risk of transmission during travel and duration of the pregnancy

51

DEET based products up to 50% content

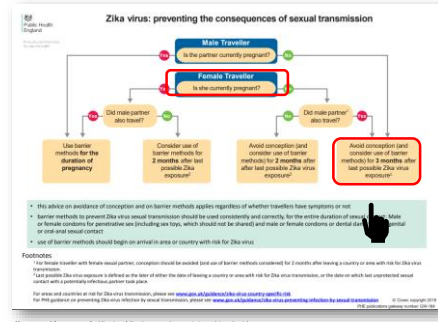
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/507350/Mosquito_advice_sheet_v2.pdf

52



53

Algorithm provides a pathway to determine what sexual transmission advice is needed for male and female travellers (February 2019)



Avoid conception (and consider use of barrier precautions) for 3 months after last possible Zika virus exposure

https://www.gov.uk/government/publications/zika-virus-sexual-transmission-advice-algorithm

54

- Couple have just returned from a two week holiday in Cuba
- They attend the surgery requesting a blood test to ensure they didn't get Zika while away
- Neither had any clinical symptoms

Can a Zika test be provided?

55

Some key advice for UK primary care

Tests to Rare and imported pathogens laboratory (RIPL), Porton.

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/574344/Zika_virus_guidance_for_primary_care.pdf
https://www.gov.uk/guidance/zika-virus-sample-testing-advice#history

56

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New page added for Zika in HELP

https://www.janechiodini.co.uk/help/zika/

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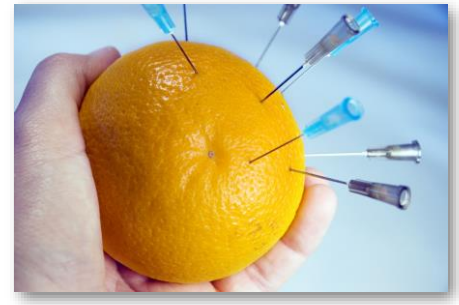
57

Prescribing travel vaccines



Difference between secondary and primary care and the private sector

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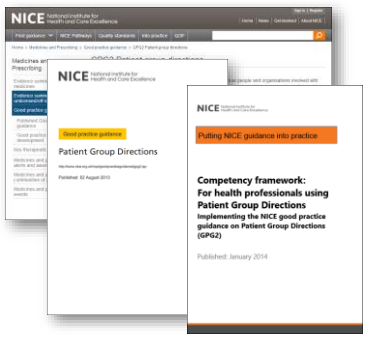
59

Legislation leading to the use of PGDs and PSDs changed in 2000



New documents on PGDs from NICE published August 2013 & January2014
See FAQ no.1 on my website

http://www.nice.org.uk/mpc/goodpracticeguidance/GPG2.jsp
http://www.nice.org.uk/media/C55/3E/GPG2Guidance_020813.pdf

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60

PGDs and PSDs

- **Patient Group Directions** – written instructions for the supply or administration of medicines to groups of patients who may not be individually identified before presentation for treatment
- **Patient Specific Directions** – written instruction from an independent prescriber to another HCP to supply and/or administer a medicine directly to a named patient or to several named patients

http://www.npc.nhs.uk/non_medical/resources/patient_group_directions.pdf

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www.janechiodini.co.uk/news/faqs/faq-1/

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So we had PGDs for the NHS vaccines but PSDs were used for the private vaccines

http://www.janechiodini.co.uk/news/faqs/faq-2/

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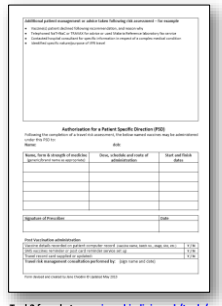
What must be on a PSD?

- Name of patient and/or other individual patient identifiers
- Name, form and strength of medicine (generic or brand name where appropriate)
- Route of administration
- Dose
- Frequency
- Start and finish dates.
- Signature of prescriber.



Tool 2 found at www.janechiodini.co.uk/tools/

http://www.mhra.gov.uk/Howweregulate/Medicines/Availabilityprescribingsellingandsupplyingofmedicines/Frequentlyraisedissues/PatientSpecificDirections/index.htm

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64

Prescribing a private travel vaccine in an NHS setting

In 2012 the Human Medicines Regulations came into force and within this an exemption was made for the provision of prescribing within private practice

Writing a PGD for a private travel vaccine now allowed

those involved should include

- A senior doctor who can also ratify the document
- A pharmacist

and I would suggest…..

- A healthcare professional who is highly experienced and qualified in travel medicine practice

www.janechiodini.co.uk/about/publications/travel-health-update/

www.janechiodini.co.uk/news/faqs/faq-1/

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65

Resources for PGDs/PSDs

www.sps.nhs.uk/ and search for PGDs

https://www.gov.uk/government/publications/patient-group-directions-pgds/patient-group-directions-who-can-use-them
https://www.networks.nhs.uk/nhs-networks/patient-group-directions
https://www.nice.org.uk/guidance/mpg2

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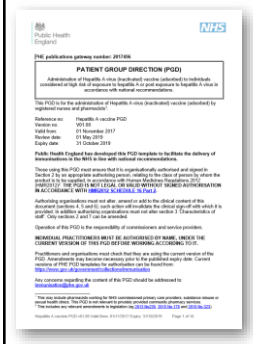
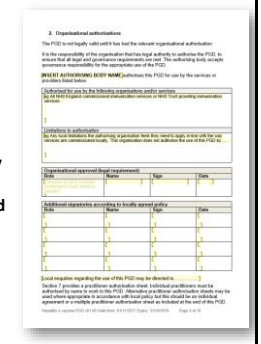
66

Which PGDs must you use?



Important to only use a version that has been signed locally – then you must read and only sign if happy to do so



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67

Stipulation of database to be used

4. Clinical condition or situation to which this PGD applies

Clinical condition or situation to which this PGD applies	Indicated for the active immunisation of individuals against *S. typhi* infection in accordance with national recommendations in Chapter 33 of Immunisation Against Infectious Disease: "The Green Book" and NaTHNaC recommendations for typhoid vaccination for travel.
Criteria for inclusion	Adults and children over 2 years old who: • intend to travel, where typhoid vaccination is currently recommended for travel by NaTHNaC (see the Travel Health Pro website for country-specific advice on typhoid vaccination) Children aged 12 months up to 2 years (off-label use) who: • intend to travel, where typhoid vaccination is currently recommended for travel by NaTHNaC and if the risk of typhoid fever is considered high (see the Travel Health Pro website for country-specific advice on typhoid vaccination)

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News and FAQs

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70

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Financial issues within travel health

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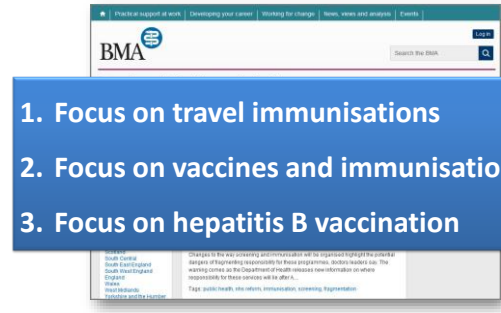
71

www.bma.org.uk
search on immunisation



1. Focus on travel immunisations
2. Focus on vaccines and immunisations
3. Focus on hepatitis B vaccination

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72

FAQ and links 8, 9 and 10 on my website

BMA hepatitis B immunisations

8. Focus on hepatitis B immunisations – scroll down to the bottom of the webpage to obtain PDF of the information

BMA travel immunisation

9. Focus on travel immunisation

BMA vaccines and immunisations

10. Focus on vaccines and immunisations

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73

Charging for travel vaccines in an NHS setting

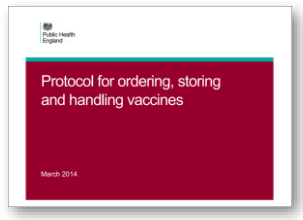
- **Vaccines that must always be given as part of NHS provision** (hepatitis A all doses, combination A+B all doses, typhoid, combination typhoid and hep A, polio and cholera)
- **Vaccines that cannot be given as an NHS service** (yellow fever, Japanese encephalitis, tick borne encephalitis and rabies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

Note: Cholera and oral typhoid vaccines <u>are now only</u> NHS vaccines in an NHS setting

http://bma.org.uk/practical-support-at-work/doctors-as-managers/managing-your-practice/focus-travel-immunisation

75

4. Did you find a vaccine storage protocol in your workplace?



Why is it important to keep vaccines safe?

http://immunisation.dh.gov.uk/green-book-chapters/chapter-3/
http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_120010

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76

77

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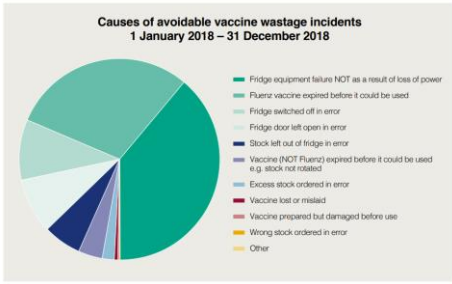
Vaccine wastage – time to check your fridges!

During 2018, vaccine wastage reported through ImmForm had a list price value of roughly **£6.3 million.** In terms of doses, about half of the reported vaccine wastage incidents were avoidable, but in terms of cost, these accounted for a massive **73% (£4.6 million)** of the value of reported wastage in 2018.

Causes of avoidable vaccine wastage incidents
1 January 2018 – 31 December 2018



https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/820795/PHE_vaccine_update_297_July_2019.pdf

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78

Green Book Chapter 3 – page 24/25

- The nominated persons are responsible for ensuring that there is good stock management and monitoring of stock. Any system should;
  - Keep track of orders
  - Keep track of expiry dates and
  - Keep running totals of vaccines, including wastage
- While more sophisticated stock information systems are available, as a minimum, a paper-based record or simple spread-sheet could be used for stock management and monitoring

https://www.gov.uk/government/publications/storage-distribution-and-disposal-of-vaccines-the-green-book-chapter-3

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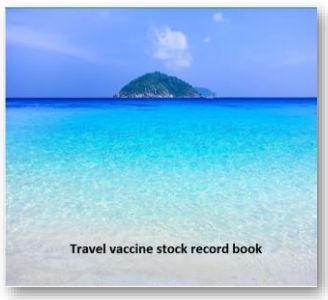
Vaccine stock management system



- Sophisticated systems on you computer e.g. one in SystmOne which detracts from the correct stock every time to enter details of a vaccine given
- Or you could use a simple spreadsheet in paper format (and scan in) or keep electronically

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80

Green Book Chapter 3 – page 29

At least one maximum-minimum thermometer that is independent of mains power should be used (as well as any integrated thermometer), so temperatures can be measured in the event of electricity loss. The max-min thermometer should be calibrated annually to confirm that it is giving accurate readings

https://www.gov.uk/government/publications/storage-distribution-and-disposal-of-vaccines-the-green-book-chapter-3

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81

Data Loggers available online from medical equipment suppliers

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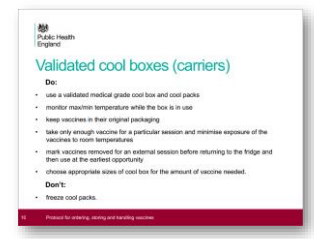
82

Insulated container



A validated carrier costs around £300

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Would a portable fridge be easier?

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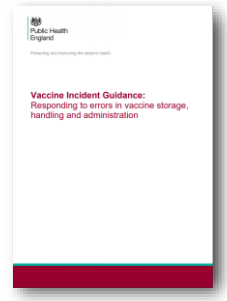
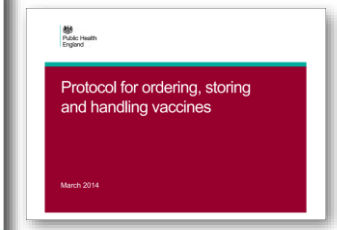
Documents to support vaccine ordering, storage & handling of vaccines





http://www.hpa.org.uk/webc/HPAwebFile/HPAweb_C/1267551139589
http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_120010

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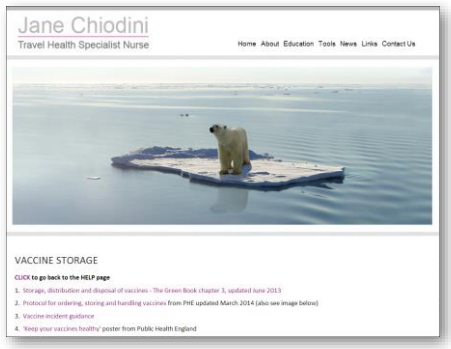
85



http://www.janechiodini.co.uk/news/help/vaccine-storage/

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86

Nursing Standard article

Access via http://www.janechiodini.co.uk/news/help/vaccine-storage/

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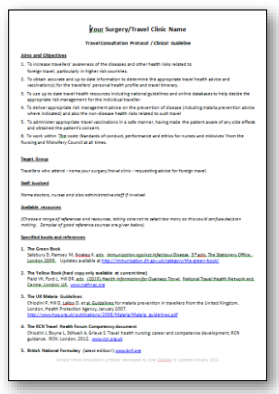
87

A travel health consultation protocol

See on your webpage



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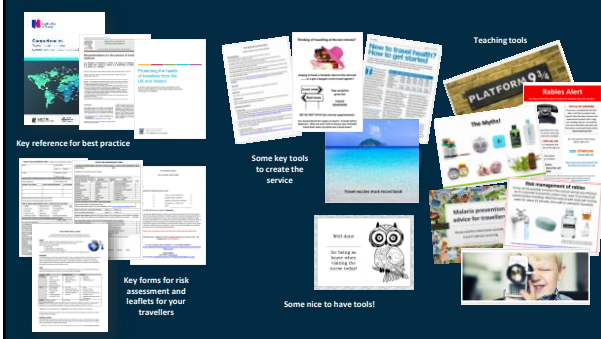
88

Resources for a travel service on one webpage



To be found at http://www.janechiodini.co.uk/tools/travel-service/

89

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Yellow Fever

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Yellow fever – a brief resume

- Yellow fever virus is transmitted through the bite of an infected mosquito during the daytime (most commonly the *Aedes aegypti* mosquito) so bite prevention is important
- Monkeys act as reservoirs in rural areas where transmission to humans can occur
- Yellow fever is not spread by direct human to human contact
- YF vaccine given for diseases prevention but also to obtain an International Certificate of Vaccination or Prophylaxis (ICVP)
- A surgery/travel clinic has to be a registered YF centre to administer the vaccine – this vaccine is private

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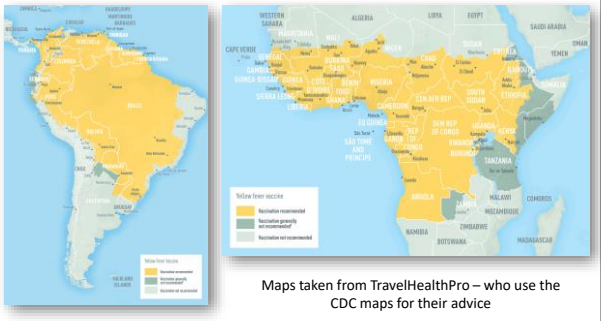
Yellow Fever areas



Maps taken from TravelHealthPro – who use the CDC maps for their advice

https://travelhealthpro.org.uk/factsheet/18/yellow-fever#undefined

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92

Yellow fever vaccine

- We only have one brand in the UK – Stamaril
- Licensed from 9 months of age
- Vaccine is only supplied to a registered yellow fever centre
- One dose provides lifetime protection (except in some groups – see later)
- The vaccine must be recorded on an International Certificate of Vaccine Prophylaxis (ICVP)

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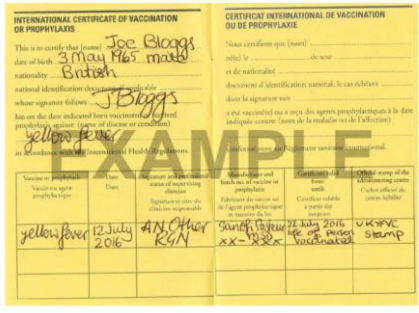
93

Example completed ICVP for yellow fever vaccination



Life of person vaccinated and **only write Sanofi Pasteur on the ICVP now**

*As of 1 January 2017 Stamaril ®(yellow fever vaccine) is a Sanofi Pasteur product

Make a note somewhere in the certificate that vaccination may be required again

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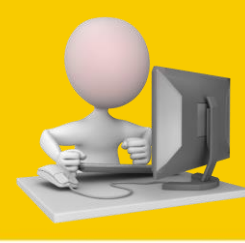
94



What if you're not a yellow fever clinic?

95

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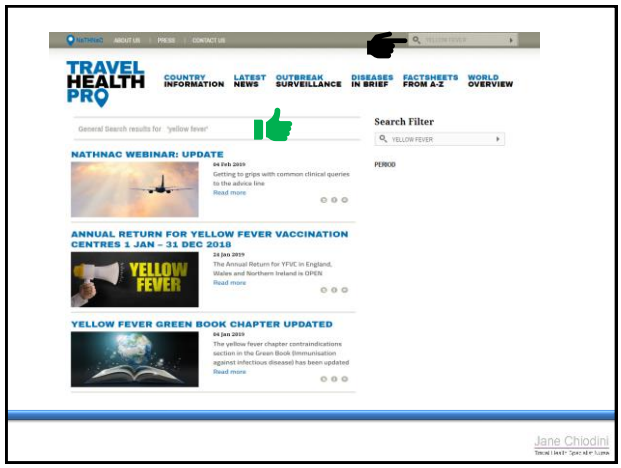

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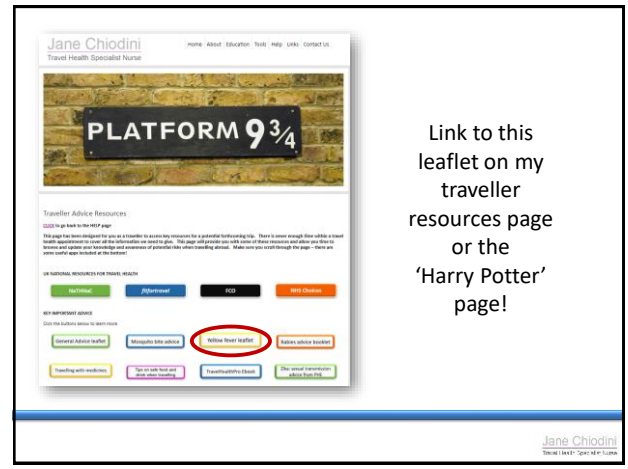
98



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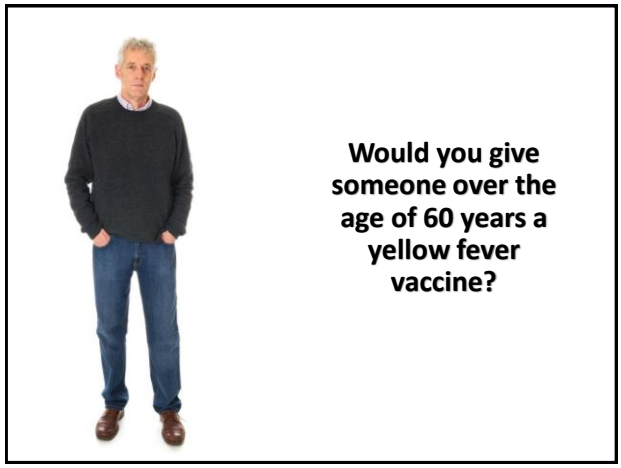

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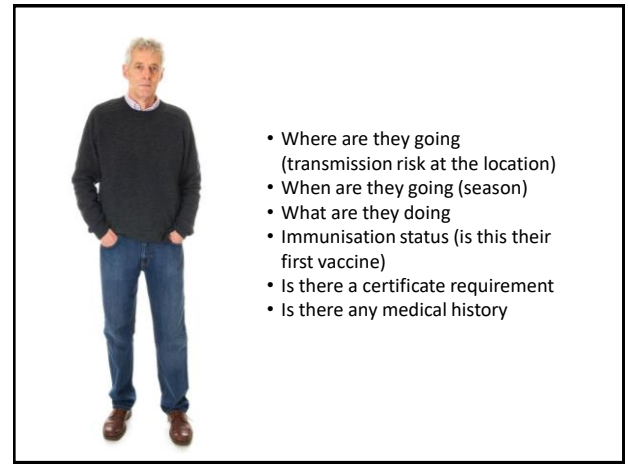

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Contraindications to YF vaccine

YF vaccine should not be given to the following groups **under any circumstances:**

- Infants aged under six months
- Persons with a confirmed anaphylactic reaction to a previous dose of YF vaccine
- Persons with a confirmed anaphylactic reaction to any of the components of the vaccine
- Persons with a confirmed anaphylactic reaction to egg
- Persons who are immunocompromised due to a congenital condition, disease process or treatment
- Persons with a history of thymus disorder or thymectomy* - more information to follow!

https://travelhealthpro.org.uk/factsheet/18/yellow-fever

102

From TravelHealthPro

- To date there is no evidence of increased risk of yellow fever vaccine–associated serious adverse events in people who have undergone incidental surgical removal of their thymus (e.g. during cardiac surgery) or have had indirect radiation therapy in the distant past.
- People who had incidental removal of their thymus after the age of one year may therefore receive a yellow fever vaccine following a detailed risk assessment.
- A cautious approach is recommended for those who had incidental removal of their thymus before the age of one year.
- In these cases further advice should be sought.

103

Caution in use of YF vaccine

For those with a febrile illness (fever) or who are acutely unwell, YF vaccination should be postponed until full recovery.

Where travel to YF risk areas is unavoidable, YF vaccination may be considered for the following groups:

- Breast feeding women
- Infants age six to eight months
- Individuals age 60 years and older
- HIV-infected individuals (with a CD4 count greater than 200 and a suppressed viral load, specialist advice should be sought)
- Pregnant women

Individual risk assessment should take into account the risk of the disease at the destination versus the potential for adverse events following YF vaccination (which may be greater where certain underlying medical conditions exist). Expert opinion may be advisable.

https://travelhealthpro.org.uk/factsheet/18/yellow-fever

104

Sally had a thymoma and had her thymus gland removed 10 years ago – would we give her a yellow fever vaccine?

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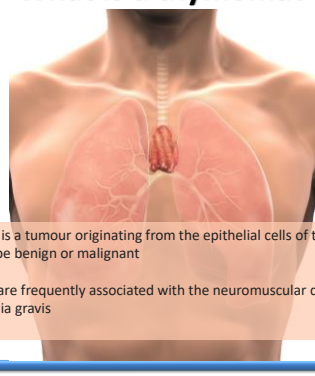
105

What is a thymoma?



- A **thymoma** is a tumour originating from the epithelial cells of the thymus that may be benign or malignant
- **Thymomas** are frequently associated with the neuromuscular disorder myasthenia gravis

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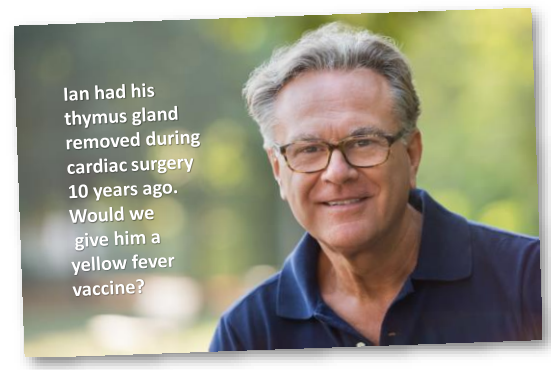
106



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YELLOW FEVER ZONE

BECOME A YFVC | MANAGING YOUR YFVC | CLINICAL INFORMATION | ZONE NEWS

	Yellow Fever Vaccine-Associated Neurologic Disease (YEL-AND)	Yellow Fever Vaccine-Associated Viscerotropic Disease (YEL-AVD)
Under 60 years of age	0.8 cases per 100,000 doses	0.3 cases per 100,000 doses
60 years and over		
70 and older		

Advancing age (i.e. aged over 60 years) is, therefore a risk factor when considering YF vaccination; vaccine can be offered after careful risk assessment.

108

YELLOW FEVER ZONE

BECOME A YFVC | MANAGING YOUR YFVC | CLINICAL INFORMATION | ZONE NEWS

	Yellow Fever Vaccine-Associated Neurologic Disease (YEL-AND)	Yellow Fever Vaccine-Associated Viscerotropic Disease (YEL-AVD)
Under 60 years of age	0.8 cases per 100,000 doses	0.3 cases per 100,000 doses
60 years and over	2.2 cases per 100,000 doses	1.2 cases per 100,000 doses
70 and older		

Advancing age (i.e. aged over 60 years) is, therefore a risk factor when considering YF vaccination; vaccine can be offered after careful risk assessment.

109

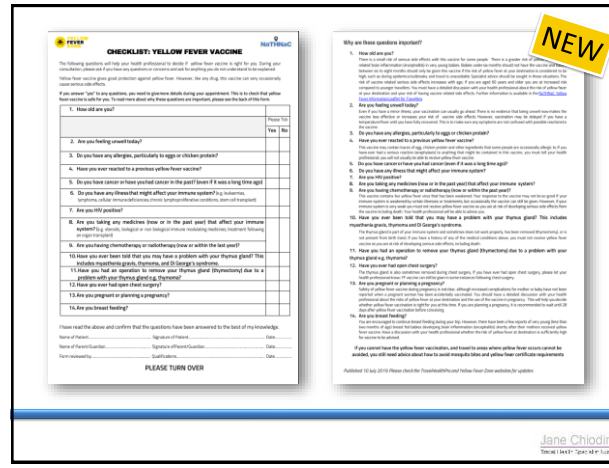
YELLOW FEVER ZONE

BECOME A YFVC | MANAGING YOUR YFVC | CLINICAL INFORMATION | ZONE NEWS

	Yellow Fever Vaccine-Associated Neurologic Disease (YEL-AND)	Yellow Fever Vaccine-Associated Viscerotropic Disease (YEL-AVD)
Under 60 years of age	0.8 cases per 100,000 doses	0.3 cases per 100,000 doses
60 years and over	2.2 cases per 100,000 doses	1.2 cases per 100,000 doses
70 and older		higher for those who are 70 years and older

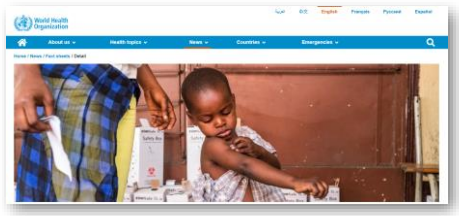
Advancing age (i.e. aged over 60 years) is, therefore a risk factor when considering YF vaccination; vaccine can be offered after careful risk assessment.

110



111

WHO Fact sheet on Yellow fever



Yellow fever is prevented by an extremely effective vaccine, which is safe and affordable. A single dose of yellow fever vaccine is sufficient to confer sustained immunity and life-long protection against yellow fever disease. A booster dose of the vaccine is not needed. The vaccine provides effective immunity within 10 days for 80-100% of people vaccinated, and within 30 days for more than 99% of people vaccinated

http://www.who.int/en/news-room/fact-sheets/detail/yellow-fever

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112

Length of protection & giving more vaccine

Reinforcing immunisation should be offered to a small subset of individuals at continued risk who may not have developed long term protection from their initial yellow fever vaccination. This includes those who received their initial yellow fever:

- when aged less than two years old
- during pregnancy
- whilst infected with HIV
- when immune suppressed
- before undergoing a bone marrow transplant

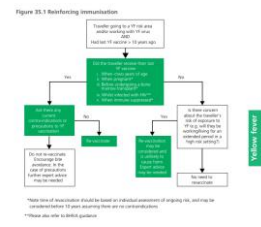

Chart on page 4
Green book chapter updated June 2018

In certain situations where there is concern about a traveller's risk of exposure to yellow fever (e.g. working/living for an extended period in a high risk setting) a booster dose of YF vaccine can be considered – expert advice can be sought

http://www.who.int/mediacentre/factsheets/fs100/en/
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/306941/Green_Book_Chapter_35_v3_3.pdf

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113

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Millie is 18 months old (fit and well) and travelling to French Guiana for a 3 week visit. Does she need yellow fever vaccine and what would you write on her certificate?

114

Millie needs vaccine for protection, but also there is now a requirement for all travellers to have a YFVC aged 1 year and over

http://www.who.int/ith/yf-vaccination-30April2018.png?ua=1
https://travelhealthpro.org.uk/news/346/change-to-yellow-fever-vaccination-certificate-requirement-for-french-guiana

115

Dedicated pages on TravelHealthPro for Yellow Fever

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119

Training Portal

YFVCs in Scotland must follow guidance from Health Protection Scotland

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120

NaTHNaC online training

- Online training is for existing YFVCs
- 28 days to complete
- Prices £115 online training and £210 for F2F one day training

From the Yellow Fever Vaccination Centre Code of Practice
The Responsible Supervising Clinician (RSC) **shall recommend** that all health workers responsible for the administration of yellow fever (YF) vaccine have successfully completed classroom or online YF training and training completion test according to Conditions of Designation 4 to 7.

NaTHNaC yellow fever training (either online or classroom) is required of at least one health professional, working at the YFVC or multiple YFVCs, every 2 years. However, we recommend (i.e. this is preferred but optional) all those responsible for administering the vaccine to complete training for their own accountability and good practice.

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121

New inclusions in RCN Competency document - 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

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

122

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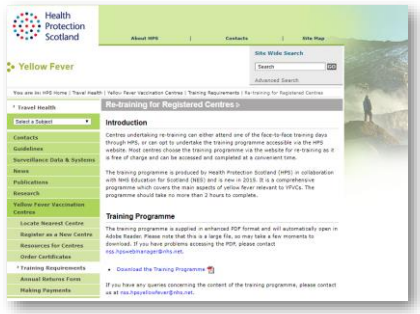
YF training from Scotland – for knowledge but cannot fulfil the NaTHNaC requirements.



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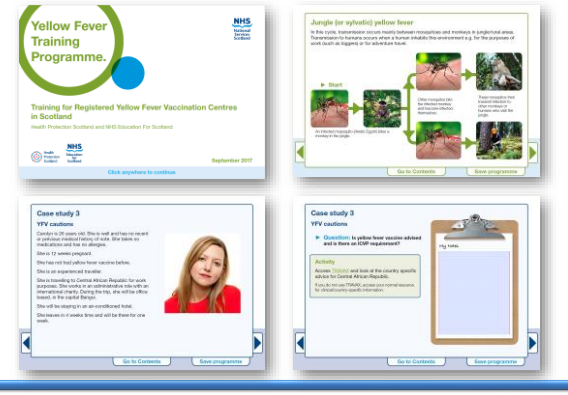
123



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124

Administration of more than one live vaccine guidance - moved to Chapter 11 of the Green Book – in April 2019

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 period should be observed between the administration of these two vaccines. Yellow Fever and MMR should not be administered on the same day.[1]
Varicella (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.[2]
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.[3]
All currently used live vaccines (BCG, rotavirus, live attenuated influenza vaccine (LAIV), oral typhoid vaccine, yellow fever, varicella, zoster and MMR).	Apart from those combinations listed above, these vaccines can be administered at any time before or after each other. This includes tuberculin (Mantoux) skin testing.[4]

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.

https://www.gov.uk/government/publications/revised-recommendations-for-administering-more-than-1-live-vaccine
https://www.gov.uk/government/publications/immunisation-schedule-the-green-book-chapter-11

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125

Rabies

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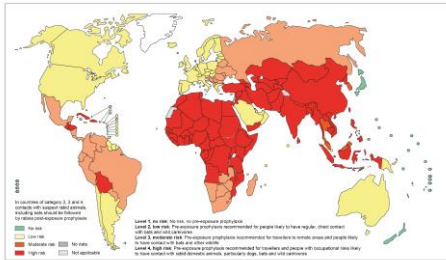
126

Global distribution of rabies

Distribution of risk levels for humans contacting rabies, worldwide, 2018



https://www.who.int/ith/rabies2018.png?ua=1

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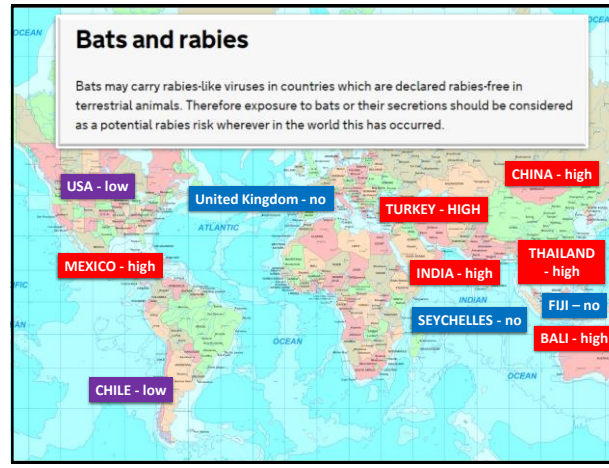
127

Bats and rabies

Bats may carry rabies-like viruses in countries which are declared rabies-free in terrestrial animals. Therefore exposure to bats or their secretions should be considered as a potential rabies risk wherever in the world this has occurred.



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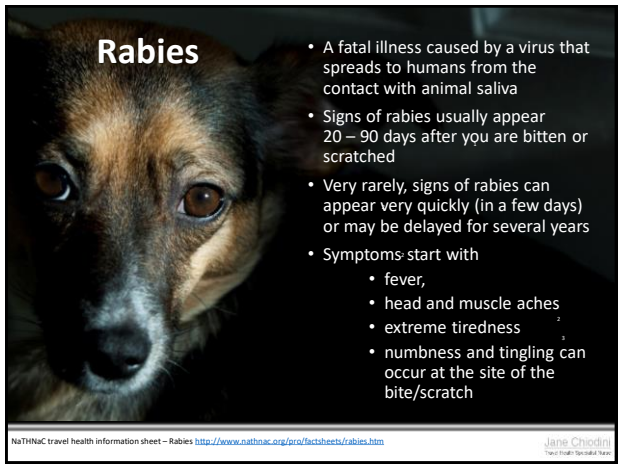

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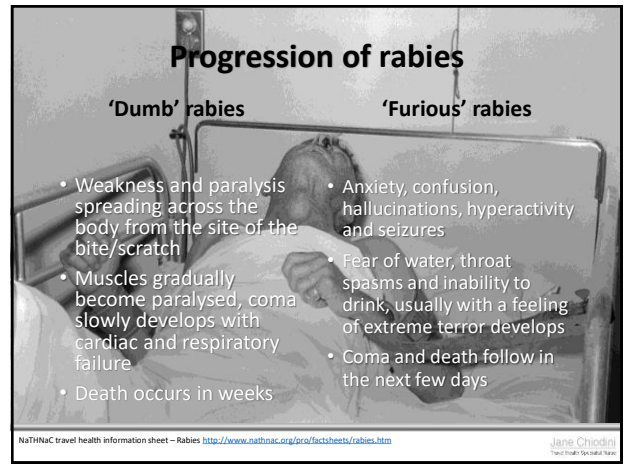

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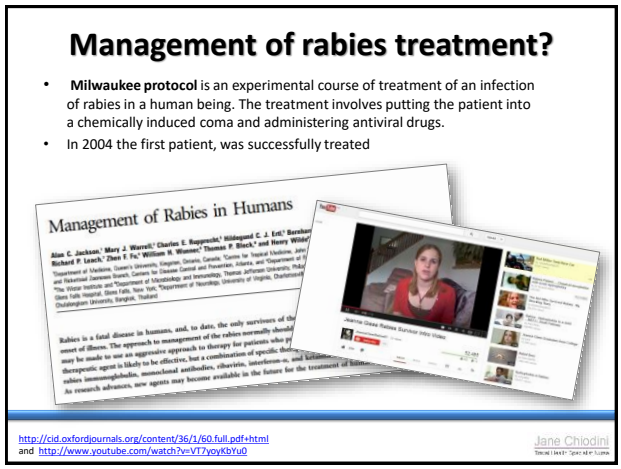

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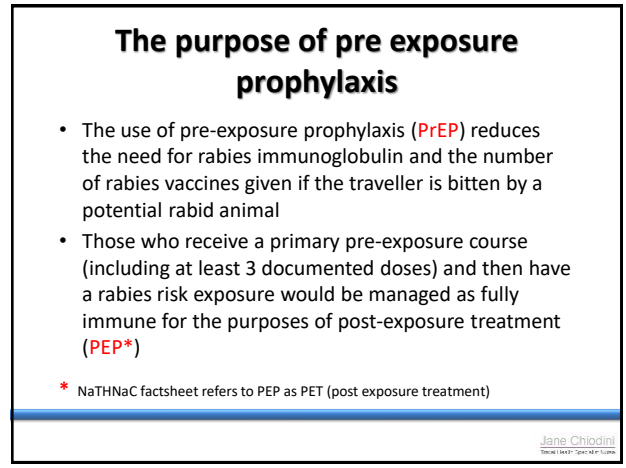

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Advising rabies vaccine to your travellers

What are the issues?

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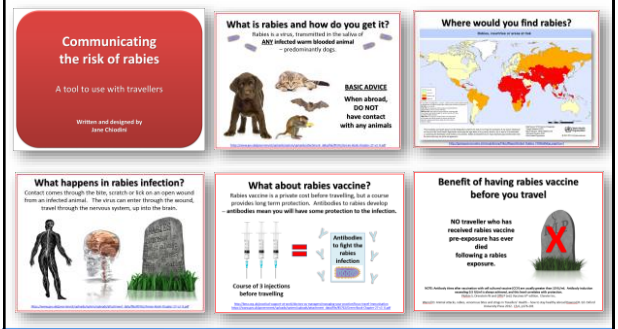
A rabies communication tool



In display booklet and video format

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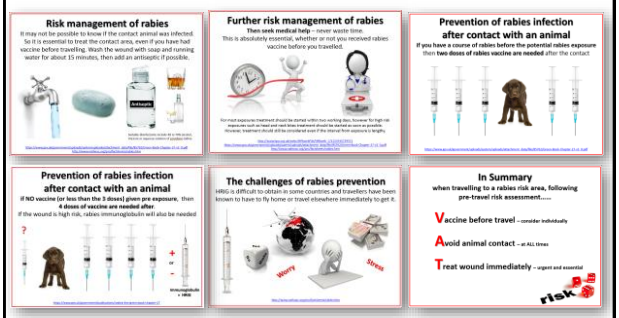
A rabies communication tool



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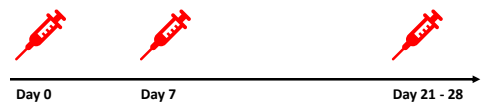
137

How many doses of vaccine and what is the schedule?

In the UK we have always chosen to give 3 doses of rabies vaccine (2.5 IU; one vial) and this continues as the **preferred schedule** for travellers on:



Vaccines available in the UK are interchangeable – Rabies Vaccine BP and Rabipur®

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138

Which route?

- The JCVI recommends the intramuscular route rather than the intradermal route (except for those with bleeding disorders)
- However it also says while IM is preferred, suitably qualified and experienced healthcare professionals may give the vaccine via the intradermal route for pre-exposure prophylaxis. This will be 'off label' use and is on the prescriber's own responsibility as this route is not covered by the manufacturer's Product Licence
- See page 4 of the Green Book

https://www.gov.uk/government/publications/rabies-the-green-book-chapter-27

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139

Vaccine manufacturers are strongly encouraged to submit a license variation application to national regulatory authorities for inclusion of ID administration and WHO-recommended schedules as an approved use on the label.

Training is certainly required for an intradermal injection technique

http://apps.who.int/iris/bitstream/handle/10665/272371/WER9316.pdf?ua=1
http://novosanis.com/intradermal-injection

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New delivery techniques

vax-ID™ drug delivery device for intradermal injection

novosanis

VAX-ID™ is a patented and award-winning easy to use **platform of non-prefilled and prefilled devices** suited for accurate injection and drug delivery in the dermis, the skin layer underneath the epidermis or upper layer of the skin. Intradermal injection allows for an improved immune response. The unique injection system allows for painless injection. VAX-ID™ can be used for both prophylactic and therapeutic intradermal vaccination as well as for anti-allergic drugs and other substances suited for injection in the skin. The VAX-ID™ platform is currently in development stage and the devices allow for injection of different volumes, use of different needle thicknesses and lengths depending on the application. Also a 2-chamber variant suited for lyophilized products is being developed.
CE marking is expected end 2017.

NL 2010649 patent granted
BE 1021643 patent granted
PCT/EP2013/057990 patent pending

http://novosanis.com/intradermal-injection

https://youtu.be/86SoWYkOuQE

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141

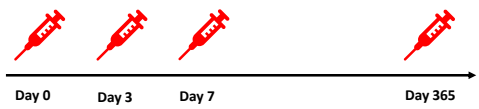
Sam is going cycling and backpacking around India for 2 months and leaves in 10 days time!

What protection can you give him?

142

A new schedule for use in the UK

Use if the traveller does not have time to complete the course on days 0, 7 and 21-28 day schedule



The SmPC for Rabies Vaccine BP does not include the accelerated 0, 3, 7 and 365 day schedule, and the SmPC for this accelerated schedule for Rabipur states to be used in the 18-65 year old age group. HOWEVER, the NaTHNaC fact sheet (table 1) indicates this new accelerated schedule can be used with either vaccine and in any age group

https://www.gov.uk/government/publications/rabies-the-green-book-chapter-27
https://www.gov.uk/government/publications/vaccine-update-issue-282-august-2018-rabies-special-edition
https://travelhealthpro.org.uk/factsheet/20/rabies

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143

Booster doses

- Both the Green Book and Vaccine Update say many travellers may not require a booster dose
- The emphasis for the need of a booster depends on doing a risk assessment which will include the activities being undertaken, the rabies risk in the country being visited and the ability to access post-exposure medical care
- The Vaccine Update explains further that the purpose of a booster is to ensure the individual is fully primed for a longer period of time to allow sufficient time to access post-exposure medical care in remote areas

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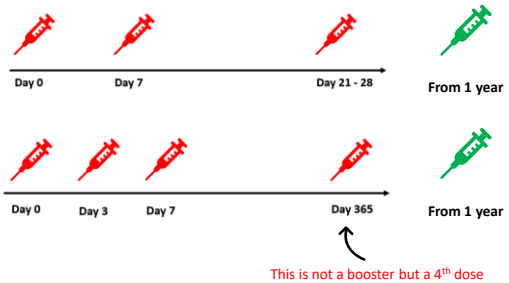
144

Booster doses



This is not a booster but a 4th dose

The Vaccine Update says the booster may be most effective if offered 5 years or more after the primary pre-exposure course

ONLY ONE BOOSTER is needed in the patient's lifetime when given to a traveller

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To boost or not – that is the risk assessment!

146

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Rabies vaccine for occupational risk

Only given as an NHS provision to bat handlers where no formal employer can be identified

147

Post exposure treatment (PEP)

1. A composite rabies risk assessment protocol is introduced for post-exposure treatment, bringing together country and animal risks into a single risk rating, to recognise the increased rabies risk from some animal species in certain countries
2. Reduction from 5 to 4 doses of vaccine for post-exposure treatment in immunocompetent individuals
3. An emphasis on infiltration of human rabies immunoglobulin (HRIG) at the site of the exposure, rather than being given intramuscularly
4. New guidance for the management of immunosuppressed individuals - found on page 17 of the guidance - see first button link below.

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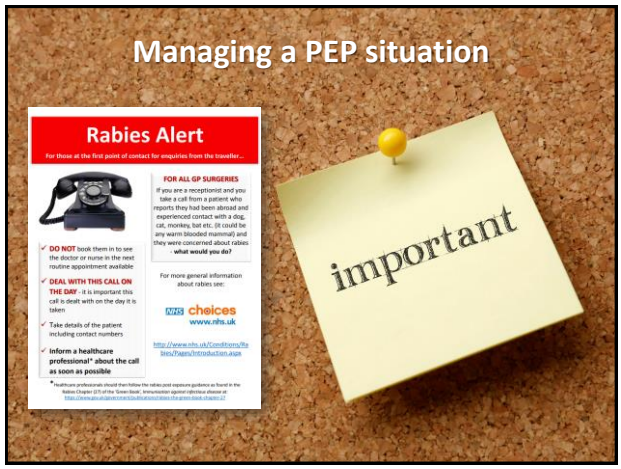
148

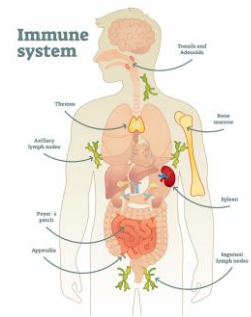
Managing a PEP situation



149

Rabies and the immunocompromised

- Need a full course pre exposure but vaccine may not work too well
- If have a significant exposure then will be offered a longer course PEP (days 0, 3, 7, 14 and 28) as well as HRIG
- Antibody testing is also recommended to confirm response to the post-exposure treatment e.g. at day 14 and after completion of the course
- If a severely immunosuppressed person is planning activities that increases their risk to rabies exposure they should be counselled about the risks and that there is a chance that they many not respond effectively to PEP
- See the Green Book Ch. 6, 7 and 27, the Vaccine Update Special Edition and Annex 1 of the PHE Guidelines on managing rabies post exposure and NaTHNaC factsheets



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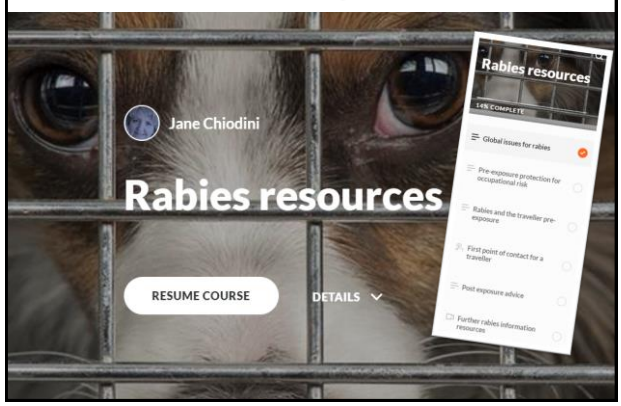
Free e learning resource



151

Booklet now in 'Tools' no. 20

Rabies prevention advice for travellers

Written and designed by Jane Chiodini

www.janechiodini.co.uk

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152

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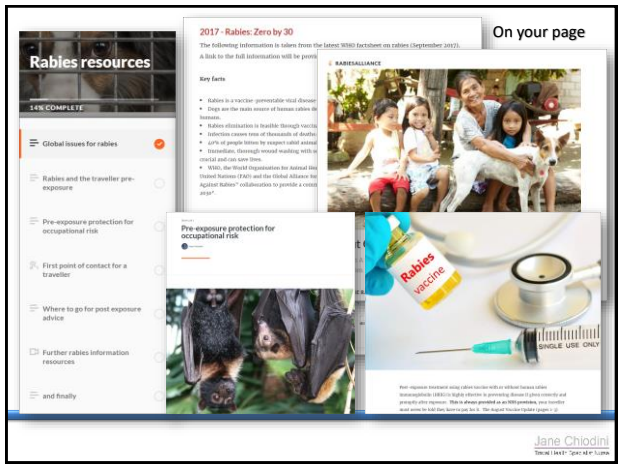
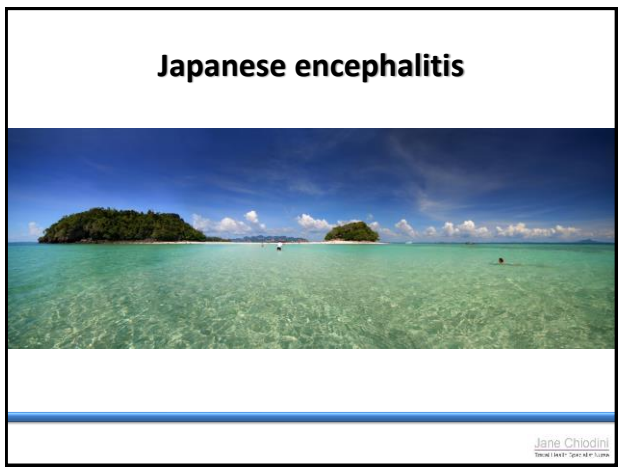


On your page

153

154



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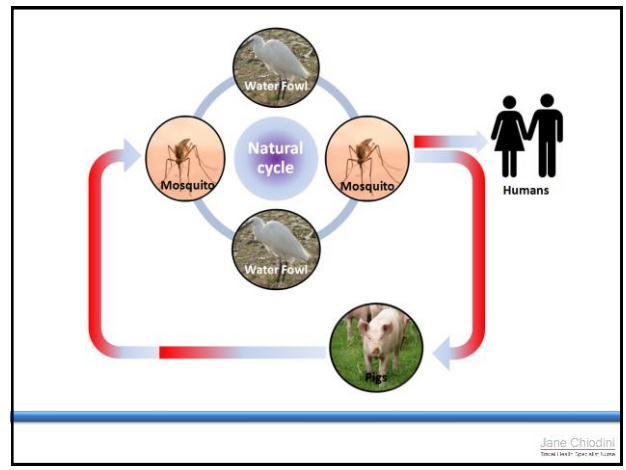

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Japanese encephaltitis

- Japanese encephalitis is a mosquito-borne flavivirus infection of the central nervous system
- Japanese encephalitis virus is harboured by pigs/birds and transmitted to humans through the bite of infected *Culex* mosquitoes.
- No human to human transmission occurs.
- *Culex* mosquitoes breed in rice paddies, preferentially feeding on animals/birds.
- *Culex* mosquitoes feed outside in the hours around dusk
- 30-50,000 cases reported from endemic regions annually with 10-15,000 deaths per annum.
- 40 clinical cases reported in travellers over 30 year period

http://www.travax.nhs.uk/diseases/vaccine-preventable/japanese-encephalitis.aspx

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Some facts about Japanese Encephalitis

- Incubation: 5-15 days.
- Illness: 10-14 days.
- Convalescence: 4-6 weeks

Signs and symptoms

- Fever.
- Headache.
- Convulsions.
- Encephalitis.
- Meningitis.
- Cranial nerve paralysis.

Treatment

- Treatment is supportive.
- There is no effective antiviral therapy

Risk of severe illness

- The majority of infections are asymptomatic.
- Approximately 1:200-500 of those infected have clinical disease.
- This ratio is higher in young children and mortality rate may be 30%.
- Symptomatic individuals have a high case fatality rate (25-30%) and there is a high rate of permanent neurological sequelae in survivors (30%).

http://www.travax.nhs.uk/diseases/vaccine-preventable/japanese-encephalitis.aspx

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160

NaTHNaC factsheet – the risk

A leading British conservationist is in a coma after being bitten by a mosquito carrying a deadly disease while on a trip to China.

Dr Sophie Williams, 35, is on a life-support machine after contracting Japanese encephalitis - a viral brain disease found in South East Asia and the Far East.

Dr Williams, a lecturer at Bangor University, North Wales, has been in a critical condition in a Bangkok hospital for nearly five weeks and her family describe her condition as 'life threatening'.

Two in three sufferers of the terrifying disease either die or are left with permanent brain damage.

Dr Sophie Williams (pictured in China) is being transferred to a UK hospital after contracting the deadly Japanese encephalitis disease

The risk of contracting Japanese encephalitis for most travellers is very low, especially for short term travellers visiting urban areas. Individuals are at increased risk if they visit areas where Japanese encephalitis is known to occur, particularly during periods of increased transmission. Staying near rice fields or pig farms for one month or longer increases risk.

The overall incidence of JE among persons from non-endemic countries travelling to Asia is estimated to be less than one case per one million travellers

https://travelhealthpro.org.uk/factsheet/55/japanese-encephalitis
http://www.dailymail.co.uk/news/article-3184896/British-conservationist-falls-coma-bitten-MOSQUITO-trip-China.html

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161

Addition to the Ixiaro schedule – primary course

Schedule	Timing	Age group
Standard (from SmPC)	Days 0 and 28	2 months upwards

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Addition to the Ixiaro schedule – primary course

Schedule	Timing	Age group
Standard (from SmPC)	Days 0 and 28	2 months upwards
Rapid (from SmPC)	Days 0 and 7	18-64 years

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163

Addition to the Ixiaro schedule – primary course

Schedule	Timing	Age group
Standard (from SmPC)	Days 0 and 28	2 months upwards
Rapid (from SmPC)	Days 0 and 7	18-64 years
Rapid (off license)	Days 0 and 7	In children from 2 months and adults over 65 years when genuinely no time to complete standard schedule

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Addition to the Ixiaro schedule – primary course

Schedule	Timing	Age group
Standard (from SmPC)	Days 0 and 28	2 months upwards
Rapid (from SmPC)	Days 0 and 7	18-64 years
Rapid (off license)	Days 0 and 7	In children from 2 months and adults over 65 years when genuinely no time to complete standard schedule
Primary immunisation should ideally be completed at least one week prior to JEV exposure		

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165

Booster for JEV

- For all ages groups at ongoing risk, a single first booster dose of IXIARO® 12 months after primary immunisation is recommended
- Others should be offered a first booster dose at 12-24 months following the primary course, prior to re-exposure to JE virus.

How long does the booster last?

https://travelhealthpro.org.uk/factsheet/55/japanese-encephalitis

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166

Had a 3rd dose (which is a booster) so when would you give another booster?

- Over 65 years – length of protection unknown
- Children – protection beyond 2 years is unknown
- Adults – 2nd booster at 10 years if at risk

167

From the NaTHNaC factsheet

IXIARO® is available in a small number of Asian countries currently. Therefore, travellers may not be able to complete their vaccination course overseas with this vaccine. It is recommended that vaccinees who received the first dose of IXIARO® complete the primary two-dose vaccination course with IXIARO®.

https://travelhealthpro.org.uk/factsheet/55/japanese-encephalitis

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Tick-borne encephalitis

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Tick-borne encephalitis (TBE)

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Endemicity of TBE

http://www.nathnac.org/pro/factsheets/tick_borne.htm

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Transmission of TBE

- Tick is both a vector (saliva) and a reservoir of the virus can also be transmitted through infected unpasteurised dairy products.
- Virus maintained in nature by small & large animals e.g. mice, voles, sheep, goats, cattle and also some birds
- Location – forests, woods, grasslands, riverside meadows, shrubbery etc.
- Tick activity depends on weather factors – temperature, soil moisture, and humidity
- Higher risk in central Europe: May/June Sept/Oct
- Rarely found above 1,000 – 1,400 metres

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Signs and symptoms – depends on strain

Western

Biphasic illness

- Initial flu-like illness 1 - 8 days.
- Asymptomatic period 2 - 10 days.
- Second phase in 20 - 30%: high fever, headache, signs of inflammation of meninges, brain parenchyma, spinal cord or nerve roots

Siberian/Far Eastern

Monophasic illness

- ~ 80% cases no neurological involvement.
- 20% severe meningoencephalitis.
- Chronic forms in 1 - 2%, either long term neurological/neuropsychiatric sequelae or persistent epilepsy.

http://www.travax.nhs.uk/diseases/vaccine-preventable/tick-borne-encephalitis.aspx

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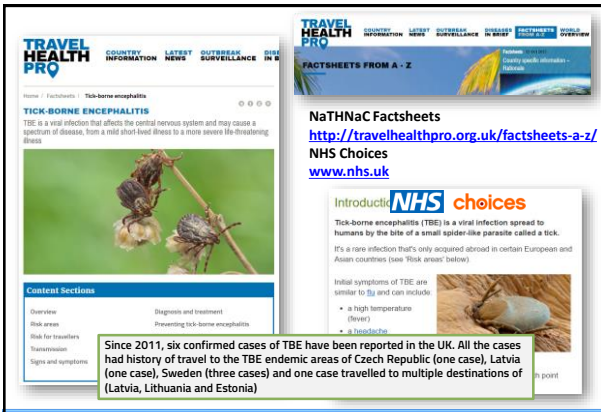
173



NaTHNaC Factsheets
http://travelhealthpro.org.uk/factsheets-a-z/
NHS Choices
www.nhs.uk

Since 2011, six confirmed cases of TBE have been reported in the UK. All the cases had history of travel to the TBE endemic areas of Czech Republic (one case), Latvia (one case), Sweden (three cases) and one case travelled to multiple destinations of (Latvia, Lithuania and Estonia)

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Prevention - Personal protection & Vaccination

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Removal of a tick

Pointy tweezers best for removing ticks

https://www.youtube.com/watch?v=DwotB38WrRY

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TicoVac schedule

Dose 1 — Dose 2 — Dose 3

Day 0 — 1 – 3 months — 5 – 12 months After 2nd dose

For rapid schedule second dose may be given 2 weeks after the first dose
See 'Green Book'

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177

TicoVac booster

Persons from 16 to 60 years of age

- The first booster dose should be given 3 years after the third dose
- Sequential booster doses should be given every 5 years after the last booster dose

Persons above 60 years of age

- In general, in individuals over 60 years of age the booster intervals should not exceed three years.

http://www.medicines.org.uk/emc/medicine/30324

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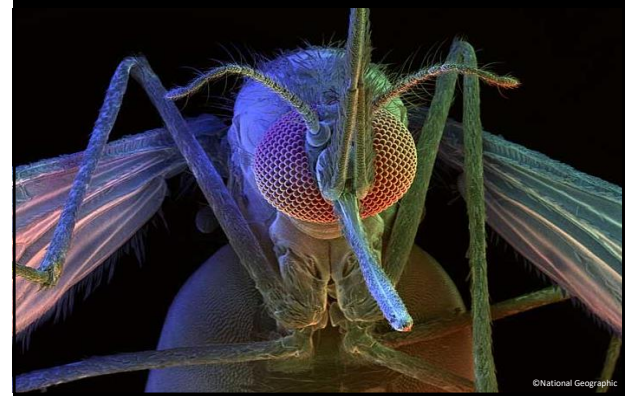
178

179

An Introduction to Malaria



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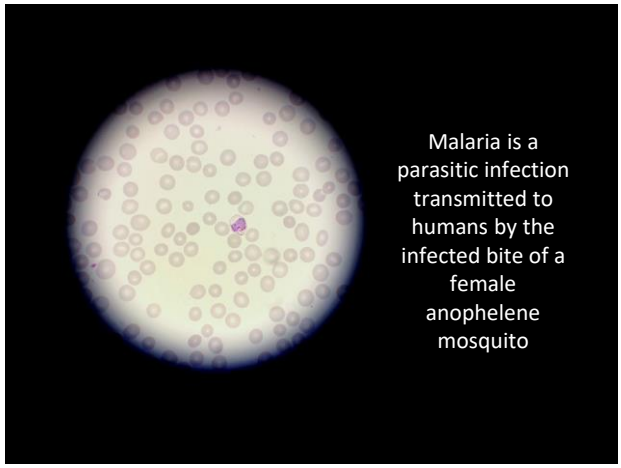

Malaria is a parasitic infection transmitted to humans by the infected bite of a female anophelene mosquito

187

Malaria – the key facts

Malaria is preventable and curable

- In 2017, there were an estimated 219 million cases of malaria worldwide and an estimated 435,000 deaths in 90 countries
- An estimated 285,000 African children died before their fifth birthday due to malaria.
- The WHO African Region carries a disproportionately high share of the global malaria burden. In 2017, the region was home to 92% of malaria cases and 93% of malaria deaths.
- Increased malaria prevention and control measures are dramatically reducing the malaria burden in many places
- Non-immune travellers from malaria-free areas are very vulnerable to the disease when they get infected

http://www.who.int/malaria/publications/world-malaria-report-2017/report/en/

WHO Malaria Fact sheet – Updated November 2018
http://www.who.int/mediacentre/factsheets/fs094/en/

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188

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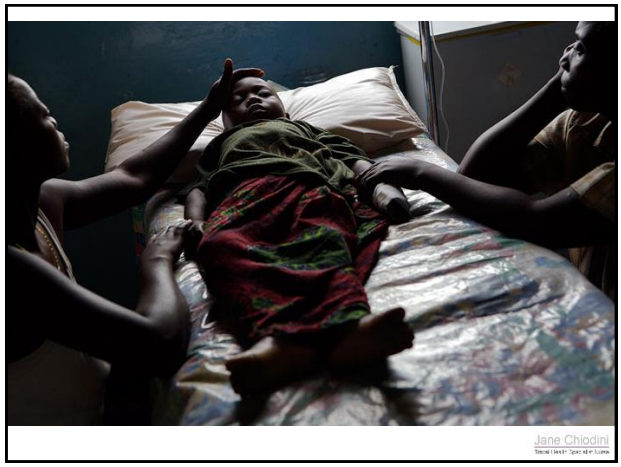
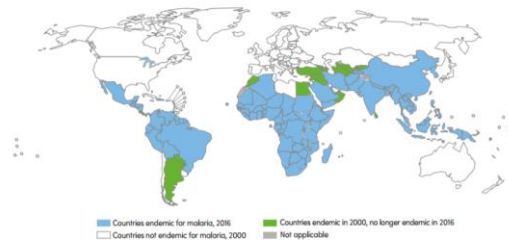


189

Where is malaria found?

Figure 1.1 Countries endemic for malaria in 2000 and 2016. Countries with 3 consecutive years of zero indigenous cases are considered to have eliminated malaria. No country in the WHO European region reported indigenous cases in 2015 but Tajikistan has not yet had 3 consecutive years of zero indigenous cases, its last case being reported in July 2014. Source: WHO database



http://apps.who.int/iris/bitstream/10665/252038/1/9789241511711-eng.pdf?ua=1

190

Every case of malaria in a traveller represents a failure:

F A I L U R E

- of public health and the travel industry to promote awareness of the risk
- of the traveller to seek pre-travel health advice
- of the health care provider to provide appropriate advice
- of the traveller to adhere to appropriate recommendations for preventing infection

Keystone J, Kozarsky P. in Schlagenhauf-Lawlor P. Travelers' Malaria 2nd Edn. Ch 26: 288-393

191

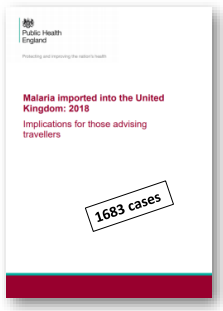
Four main species of malaria that cause human disease

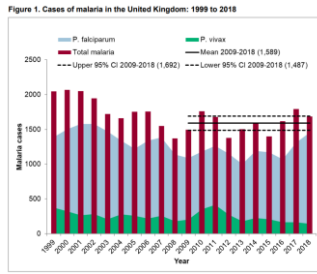
- *Plasmodium falciparum*
- *Plasmodium vivax*
- *Plasmodium ovale*
- *Plasmodium malariae*

- *Plasmodium knowlesi*

192

The situation with UK travellers

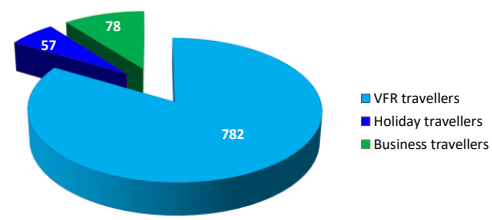




https://www.gov.uk/government/publications/malaria-in-the-uk-annual-report
https://ecdc.europa.eu/en/publications-data/malaria-annual-epidemiological-report-2016-2014-data
https://www.cdc.gov/mmwr/volumes/67/ss/ss6707a1.htm

193

Who is getting malaria?
..... UK Malaria Cases 2018



https://www.gov.uk/government/publications/malaria-in-the-uk-annual-report

194

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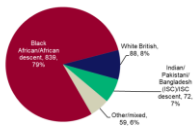
Which region of the UK has the highest number of cases of imported malaria?

Geographical area (PHE Centre)	2018	2017	% change
London	816	922	-11%
West Midlands	161	161	0%
South East	120	155	-23%
North West	137	128	7%
East of England	134	114	18%
Yorkshire and Humber	89	79	13%
South West	52	73	-29%
East Midlands	55	50	10%
North East	33	26	27%
England – total	1,597	1,708	-6%
Scotland	52	50	4%
Wales	23	24	-4%
Northern Ireland	11	10	10%
UK total	1,683	1,792	-6%

Ethnicity for malaria cases

Figure 4. Ethnicity for malaria cases that travelled abroad from the UK: 2018 (N=1,058)



Public Health England

Malaria imported into the United Kingdom: 2018

Implications for those advising travellers

https://www.gov.uk/government/publications/malaria-in-the-uk-annual-report

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The highest risk countries for malaria in UK travellers?

Country of travel	*P.falciparum*	*P.vivax*	*P.ovale*	*P.malariae*	Mixed	**Total 2018**	Total 2017
Nigeria	383	1	32	10	3	**429**	**470**
Sierra Leone	108	-	6	3	1	**118**	**123**
Ghana	101	-	6	1	-	**108**	**113**
Cote d'Ivoire	53	-	4	-	-	**57**	**56**
Cameroon	38	-	2	1	-	**41**	**45**
Pakistan	-	39	-	-	-	**39**	**53**
Sudan	27	1	-	-	-	**28**	**14**
Uganda	23	-	-	1	-	**24**	**50**
Guinea	17	-	2	1	-	**20**	**13**
Kenya	14	-	1	2	-	**17**	**27**
15 more areas listed in the table including:							
South America	-	2	-	-	-	**2**	**6**

- For *P. falciparum* malaria we usually use choice of: mefloquine, doxycycline or atovaquone+proguanil (all private prescription drugs)

For *P. vivax* then chloroquine proguanil is still adequate but if people can't or won't take it you can then advise the private prescription drugs

https://www.gov.uk/government/publications/malaria-in-the-uk-annual-report

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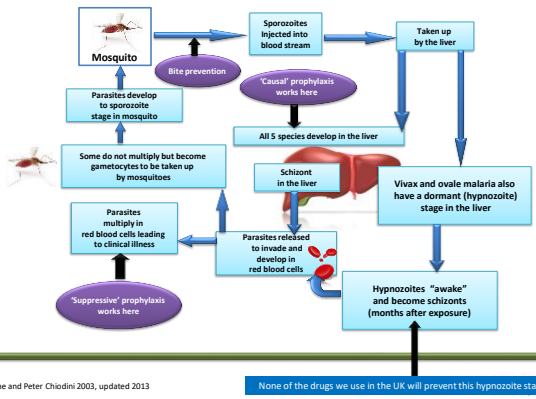
Malaria lifecycle in a human



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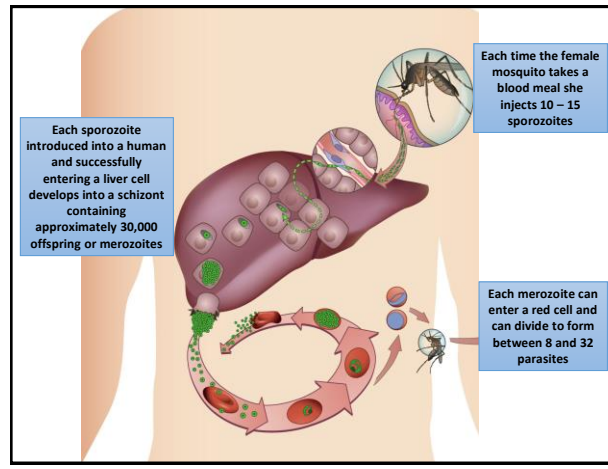
None of the drugs we use in the UK will prevent this hypnozoite stage

197



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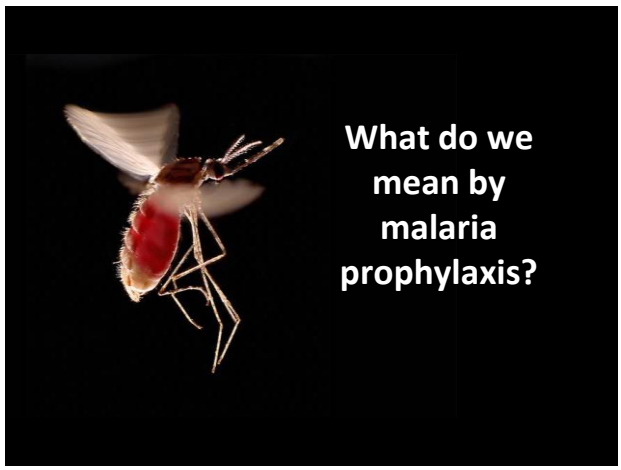
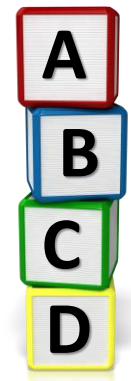


What do we mean by malaria prophylaxis?

199



- **A**wareness of risk
- **B**ite prevention
- **C**hemoprophylaxis
- **D**iagnosis and prompt treatment

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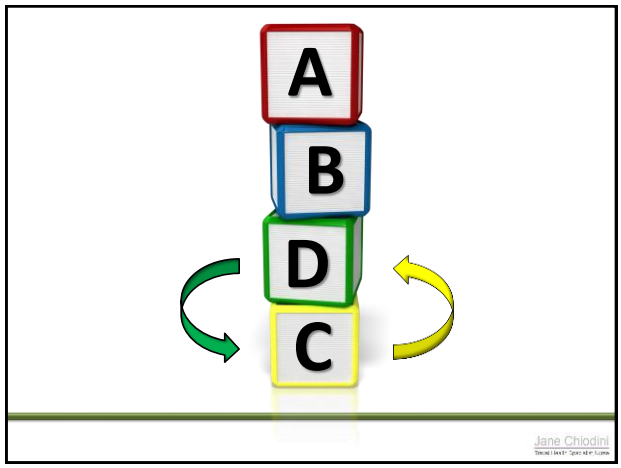
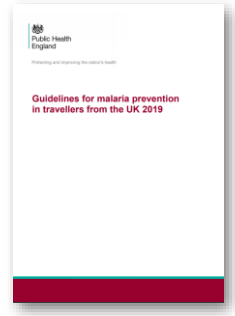


201

UK Guidance



- Panel of experts appointed by the PHE Advisory Committee of Malaria Prevention (ACMP)
- Includes people from NaTHNaC, TRAVAX, the Malaria Reference Laboratory, Liverpool School of Tropical Medicine, BNF, General Practice, Pharmacist, Entomologist

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202

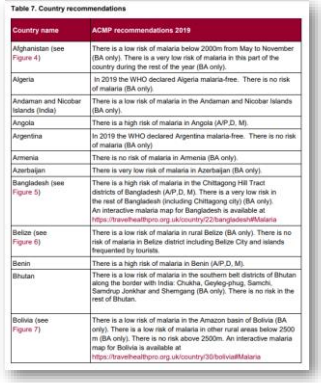

Table 7. Country recommendations

Country name	ACMP recommendations 2019
Afghanistan (see Figure 4)	There is a low risk of malaria below 2000m from May to November (BA only). There is a very low risk of malaria in this part of the country during the rest of the year (BA only).
Algeria	In 2019 the WHO declared Algeria malaria-free. There is no risk of malaria (BA only).
Andaman and Nicobar Islands (India)	There is a low risk of malaria in the Andaman and Nicobar Islands (BA only).
Angola	There is a high risk of malaria in Angola (A/P.D. M).
Argentina	In 2019 the WHO declared Argentina malaria-free. There is no risk of malaria (BA only)
Armenia	There is no risk of malaria in Armenia (BA only).
Azerbaijan	There is very low risk of malaria in Azerbaijan (BA only).
Bangladesh (see Figure 5)	There is a high risk of malaria in the Chittagong Hill Tract districts of Bangladesh (A/P.D. M). There is a very low risk in the rest of Bangladesh (including Chittagong city) (BA only). An interactive malaria map for Bangladesh is available at https://travelhealthpro.org.uk/country/22/bangladesh#Malaria
Belize (see Figure 6)	There is a low risk of malaria in rural Belize (BA only). There is no risk of malaria in Belize district including Belize City and islands frequented by tourists.
Benin	There is a high risk of malaria in Benin (A/P.D. M).
Bhutan	There is a low risk of malaria in the southern belt districts of Bhutan along the border with India: Chukha, Geyleg-phug, Samchi, Samdrup Jonkhar and Shemgang (BA only). There is no risk in the rest of Bhutan.
Bolivia (see Figure 7)	There is a low risk of malaria in the Amazon basin of Bolivia (BA only). There is a low risk of malaria in other rural areas below 2500 m (BA only). There is no risk above 2500m. An interactive malaria map for Bolivia is available at https://travelhealthpro.org.uk/country/30/bolivia#Malaria

Countries are listed alphabetically pages 41 - 51

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203

Go to databases to find the recommendation

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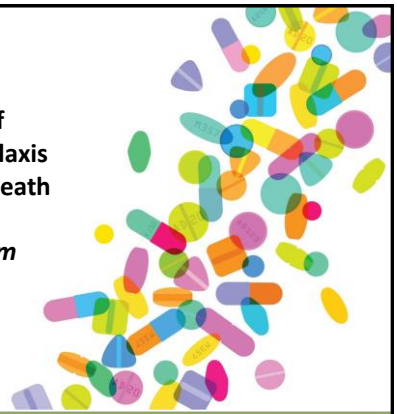
204

The aim of chemoprophylaxis is to prevent death from *p.falciparum* malaria



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Disparity between databases remains for some countries

atovaquone/proguanil OR doxycycline OR mefloquine is advised

awareness of risk and bite avoidance recommended

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214

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Which site should you use?

statement from page 12 of the guidelines

- We recommend health professionals stick to using one resource for country specific malaria recommendations to optimise consistency of advice
- Whilst we recognise that other sources of advice are available, healthcare professionals working in England, Wales or Northern Ireland are advised to use the ACMP guidelines as their preferred source of guidance for malaria prevention.
- They are also available on the NaTHNaC website; https://travelhealthpro.org.uk
- Separate guidance is produced in Scotland for Scottish health professionals by the Scottish Malaria Advisory Group (SMAG)

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215

Special risk groups

- In low risk areas, antimalarials may be considered in **exceptional circumstances** for travellers who are at higher risk of malaria (such as long term travellers visiting friends and relatives), or of severe complications from malaria (such as elderly - over 70yrs, the immunosuppressed, those with complex co-morbidities, pregnant women, infants and young children).
- In these circumstances you may wish to seek specialist advice, although (**name of drugs**) would be suitable options

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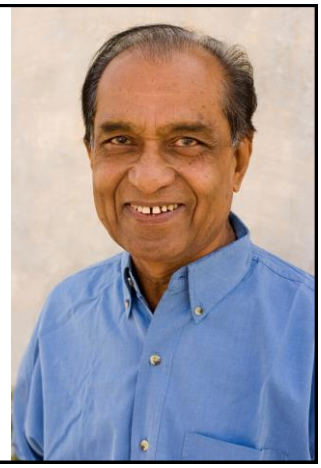
216

Case study

70 year old man with diabetes and CHD travelling as a VFR to stay in his home back in Pakistan (Lahore) for six months. How would you advise him?



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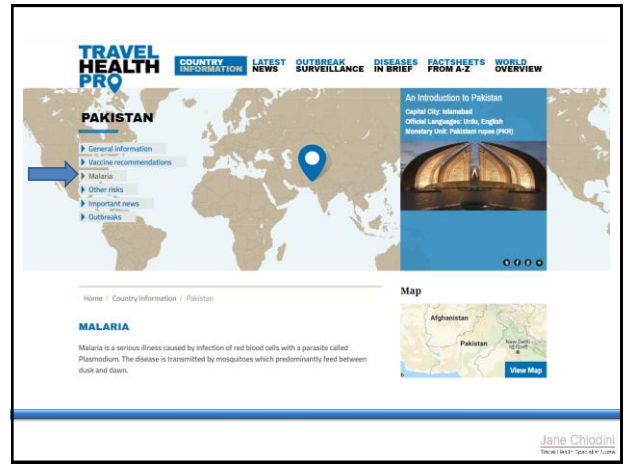

218

Advice from TravelHealthPro

https://travelhealthpro.org.uk/country/171/pakistan#Malaria

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Case study

25 year old lawyer taking in one year gap break and will be staying for the first two months in Colombia. She had her spleen removed in a car accident three years ago. How would you advise her?

220

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Special risk groups

- Travellers with an absent or poorly functioning spleen should be dissuaded from travel to any area with risk of malaria, but where travel is essential, awareness, rigorous bite avoidance and antimalarials should be advised.
- In these circumstances you may wish to seek specialist advice, although (**name of drugs**) would be suitable options

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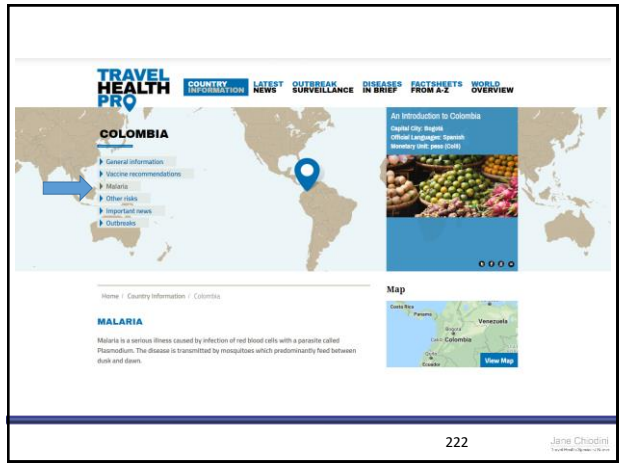
221



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Advice from TravelHealthPro

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www.janechiodini.co.uk/tools/videos/

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A = Awareness of Risk

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First measure - dispelling the myths!

- You cannot get malaria from dirty food and drinks
- Malaria is not sexually transmitted
- There is NO vaccine to protect against malaria
- Homoeopathic and herbal remedies are not effective in preventing or treating malaria
- Electric buzzers do not work
- There is no evidence that bath oils, garlic capsules, vitamin B12, yeast extracts are effective in bite prevention

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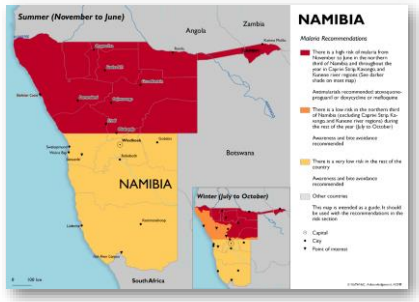
Using malaria maps to illustrate risk – take your travellers to TravelHealthPro now



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227

Key messages for awareness of risk

- Malaria is a very serious infection spread between dusk and dawn by biting mosquito
- This disease **can and does kill** travellers
- Risk increases with certain health conditions, including pregnancy and young children
- VFRs do not have long term immunity

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B = Bite prevention

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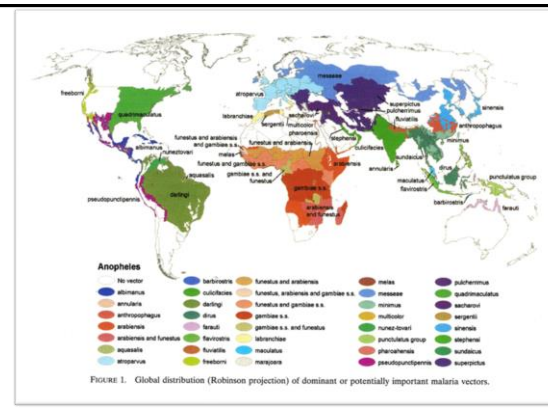

FIGURE 1. Global distribution (Robinson projection) of dominant or potentially important malaria vectors.

http://www.medicalecology.org/diseases/malaria/malaria.htm

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230

Mosquito attractants

- Host seeking behaviour of mosquitoes has been perfected over centuries of evolution
- Mosquitoes identify their hosts by use of a variety of cues, the most important being olfactory
- Identified olfactory cues are carbon dioxide, sweat and volatile skin products
- Beer consumption increases human attractiveness to malaria mosquitoes [1]
- Mosquitoes are attracted to sweaty human feet [2]

1. Lefèvre et al. (2010) Beer Consumption Increases Human Attractiveness to Malaria Mosquitoes. PLoS ONE 5(3): e9546. doi:10.137/journal.pone.0009546
2. Kline DL. Olfactory responses and field attraction of mosquitoes to volatiles from Limburger cheese and human foot odor. J Vector Ecol. 1998 Dec;23(2):186-94. PubMed PMID: 9879074.

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Sex and Gender Differences in Travel Associated Disease

- Men produce more of the olfactory cues than women (carbon dioxide, sweat and volatile skin products)
- Repellents are water soluble and those who sweat profusely (mainly men) need to apply repellents more frequently
- In regard to travellers' malaria, men take more risks in their behaviour, and poorer adherence to personal protection measures against bite prevention and chemoprophylaxis
- Malaria infection in men is more severe, mortality higher

Schlagenhauf et al CID 2010: 50 (15 March)

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To prevent yourself from being bitten, always travel with someone more attractive than yourself!

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Key messages for bite prevention

- When the mosquito bites
- What to use and correct application – UK malaria guidance primarily advises DEET based repellents, up to 50% content in anyone from 2 months of age including pregnant and breast feeding women
- If a mosquito net is advised, must be one that is impregnated
- Dispel the myths

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234

235

Important to read please

- This booklet has been designed by Jane Chiodini as a teaching aid to use with a traveller to enable a discussion regarding the different aspects of insect bite avoidance measures and/or for them to read after a consultation
- The basis of the information is taken from the current Public Health England publication: *Guidelines for malaria prevention in travellers from the UK* see www.gov.uk/government/publications/malaria-prevention-guidelines-for-travellers-from-the-uk
- For more details of the author go to www.janechiodini.co.uk/about/
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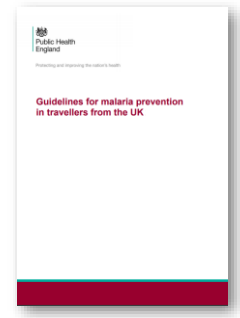

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236

Why is it important to prevent insects biting particularly in a tropical country?

To prevent disease

To avoid discomfort and complications from bites

237

Insect borne diseases – a potential risk to travellers abroad

West Nile Virus

Japanese Encephalitis

Yellow fever

Dengue

Malaria

Zika virus

Leishmaniasis

Chikungunya

Filariasis

These are just some of the diseases – but **none** are present in the United Kingdom

238

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Day and Night Time Biters

Check out which times of the day are a risk for the different diseases below

Predominantly dusk to dawn	Insect
Malaria	Anopheles spp.
Japanese Encephalitis	Culex spp.
West Nile Virus	Culex spp.

Daytime	Insect
Yellow fever	Aedes spp.
Dengue	Aedes spp.
Zika virus	Aedes spp.
Chikungunya	Aedes spp.

239

Principles of bite prevention

240

The Myths!

There is no scientific evidence that any of these products work

Homoeopathic remedies

Garlic or garlic capsules

Other items
- Tea tree oil
- Electronic buzzers (emitting high frequency sound waves) are completely ineffective as mosquito repellents. Companies selling them have been prosecuted and fined under the UK Trades Descriptions Act
- Phone apps to kill mosquitoes

241

Insect repellents

These are the products recommended within the Public Health England 'Guidelines for malaria prevention in travellers from the UK' for anyone over the age of 2 months, including pregnant and breast feeding women. They foremost recommend DEET-based insect repellents as concentrations over 20% give a longer duration of protection than currently available formulations of other agents.

- DEET

  They go on to state, "if DEET is not tolerated (or is not available), an alternative preparation should be used, but **few are as effective as DEET.**"

  Alternatives include:
- p-methane 3,8 diol (lemon eucalyptus)
- Icaridin
- 3-ethlyaminopropionate (IR3535)

242

Examples of products up to 50% content DEET

(tropical range)

Name of 50% content DEET product Many of them will be available in sprays, creams and roll-ons
• Boots REPEL and Boots REPEL once
• Care Plus
• Jungle Formula extra strength range
• Lifesystem EXPEDITION range
• PYRAMID TREK Ultra

Please note: the above is not an exhaustive list, other products will be available. These products are NOT being recommended, but are given as examples

243

Length of protection of DEET

Strength of DEET	Length of protection
20%	1 to 3 hours
30%	Up to 6 hours
50%	Up to 12 hours
Beyond 50%	No further increase in duration of protection

IMPORTANT: in a hot and humid climate, you may sweat off the repellent more quickly so make sure you reapply more often to compensate for this.

244

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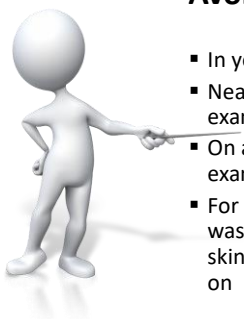
Avoid getting DEET



- In your eyes
- Near mucous membranes (for example, in your mouth)
- On any open wound (for example, on broken skin)
- For breast feeding mothers, wash the feeding area of your skin before latching your baby on

245

DEET is a plasticizer

- This means it can damage plastic objects by making them sticky and dissolving them slowly, such as glasses frames, some jewellery, nail varnish
- DEET can also slowly rot materials such as leather watch straps

246

Practical tips

- Put the DEET product on your finger tips to then carefully apply onto your lower face, avoiding the eye area. Do not apply on your forehead in case sweat drips into your eyes
- Always wash the palms of your hands after applying DEET, or if not possible, spread the product onto your skin by applying it with the back of your hand
- Wash area(s) of skin where DEET was applied to remove any residual before retiring to bed

Suggestion! Go to http://www.janechiodini.co.uk/tools/videos/ and look at video no. 5 for a demonstration of application of a repellent

247

Practical tips

- A roll-on containing DEET makes it easier to top up protection when outdoors without getting it on your hands
- Wrap your DEET products in something like a towel when travelling to protect other items from accidental spillage in your baggage
- Remember the product may well have an expiry date

248

General rules with insect repellent and application of sun protection

then ➡

Use a 30 to 50 SPF factor cream
as DEET can reduce the effectiveness of sun protection.

Sunscreen is not required from dusk to dawn.

249

General rules with insect repellent and swimming

then ➡

Always reapply suncream if required and then repellent after swimming

250

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Alternative repellents

"if DEET is not tolerated (or is not available), an alternative preparation should be used, but **few are as effective as DEET.**"

Name of product	National guidance advice	Examples of products
P-menthane 3,8 diol (Lemon eucalyptus)	gives about same protection afforded by 15% DEET	Mosi-guard Natural Care PLUS
Icaridin (picaridin)	use of at least 20% preparations	Autan tropical Moskito guard
3-ethlyaminopropionate (IR3535)	has a shorter duration of protection than DEET	Avon Bug Guard Plus

- Please note the above is not an exhaustive list, other products will be available.
- These products are NOT being recommended, but are given as examples
- Please always check the minimum age of use as these vary within the products.

The guidelines note that while oil of citronella-based products do have repellent properties, they provide short-lived protection and are not recommended. Citronella has been withdrawn in Europe

251

Where can you obtain them?

- Chemist shops
- Outdoor adventure shops
- Online – for a selection of resources, see the inside back cover of this booklet

Webpage of traveller advice resources

www.janechiodini.co.uk/help/tar/

252

Clothing

Cover up with loose-fitting clothing, long sleeves, long trousers and socks if out of doors after sunset to minimise accessibility to skin for biting mosquitoes.
There is no evidence that the colour of clothing is relevant to mosquitoes.

- Clothing can be sprayed or impregnated with an insecticide e.g. permethrin
- DEET can be useful as a repellent on cotton clothing only, but its duration of protection is shortened by its volatility
- Products to protect clothing can be bought commercially e.g. Lifesystems EX4 antimosquito for fabrics or Pyramid fabric spray
- Clothing can be purchased already treated and new technology giving slightly longer term protection. Products include Cragghopper's NosiLife and Rohan's Bite Guard™ technology

253

Room protection

Air conditioning is the best option and will deter mosquitoes as they will not like a cold room. However, be cautious because some countries have frequent power cuts

A room fan causes air disturbance but doesn't actually deter the mosquitoes

If the room is protected with a fine mesh netting screen, close this screen on any doors and windows early evening to stop mosquitoes entering the bedroom

If a room is not air conditioned or screened you need to use a mosquito net. If the room is only screened in a high risk malarious destination, a mosquito net should be considered.

254

Vapourisers, coils and knockdown sprays

Spray the room when arriving back after a day out, to kill any insects that may have entered during the day.

These sprays contain permethrin or other synthetic pyrethroids and are easily purchased in supermarkets

If there is power in the room, use a proprietary vapouriser as illustrated above. Either of these will emit a vapour that will kill insects. The one on the right uses tablets called 'mosquito mats'. Use a fresh one each night. The reservoir of fluid on the left will last for longer and contains an insecticide.

Left is a mosquito coil, these should only really be used outdoors. Burning of the coil emits an insecticide which repels or kills the mosquitoes. Where there is no power however, locals sometimes use them indoors.

255

Mosquito bed net styles

Mosquito nets come in all shapes and sizes, the key aspect is to use one that is IMPREGNATED which improves protection, so the mosquito doesn't bite through the holes of the net. Longer lasting ones are now available and last for about 3 years.

If using a standard net, it will be impregnated with a pyrethroid where protection starts from the time the net is opened. It should be retreated every 6-12 months to remain effective. Kits can be purchased to retreat a net as time progresses. Length of protection is also dependent on how often the net is washed and handled.

The type of room and ease of hanging a net needs to be taken into account.

Repacking a net back into a bag can sometimes be a challenge!

256

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Accessories and tips

The net should be free of tears and tucked under the mattress to prevent insects and other creatures entering the sleeping area.

Check the net has no holes but carry a small sewing kit just incase a tear occurs so it can be repaired immediately

Hanging kits can be purchased to aid hanging up the net

If staying in a venue that supplies the net, e.g. a safari lodge, it would be a good idea to enquire about their standards in advance.

As a precaution, if travelling to a high risk malarious area and the traveller is pregnant or a young child, it would seem sensible to travel with an impregnated mosquito net, so all eventualities are covered.

257

Managing reactions to bites

NHS Choices has good information about managing reactions to bites at
www.nhs.uk/Conditions/Bites-insect/Pages/Treatment.aspx

This includes advice on

Cleansing | Cold compress | Analgaesia

The bite sites may be itchy, but should not be scratched and the website recommends asking your pharmacist about over-the-counter treatments, including crotamiton cream or lotion, hydrocortisone cream or ointment and antihistamine tablets to help, but to seek medical advice if symptoms worsen, for example the area becomes infected.

258

For further information

If viewing online, click on the blue links below for more information

- Look at the latest UK malaria guidelines document
- Look at NHS choices for insect bite management
- More information from NaTHNaC
- More information from fitfortravel and further details
- A copy of this booklet on the website in the Traveller Advice Resources page
- Providers of bite prevention equipment and products available within my general advice leaflet –page 5 item no. 7

This booklet is accessed via my website, but for ease the disclaimer and copyright are repeated below

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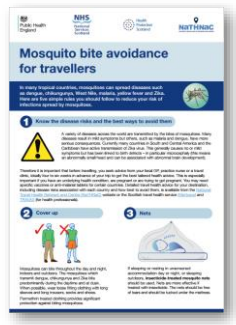
259

260

Resources



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See this clip from your webpage

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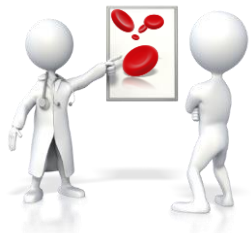
D = Diagnosis



Prompt action for diagnosis and treatment are ESSENTIAL

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Key messages for diagnosis

- Look out for symptoms of malaria particularly in the first three months but up to one year after your return
- Malaria is very serious
- You can die from this disease
- Essential you seek medical help immediately
- Malaria presents like a flu like illness, sometimes with diarrhoea and cough – report that you have been abroad
- **This is one time when you must never think "I don't like to bother the doctor!"**

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Misdiagnosis led to malaria death

Mattie thought she didn't need malaria pills... but within a week of a trip to Africa she was dead

By LUCY ELKINS
Last updated at 8:56 AM on 1st June 2010

Beautiful and clever, she was also physically strong and full of life. She was studying philosophy at Cardiff University and everyone who knew her felt sure a glittering future beckoned.

Yet she never got to fulfil that promise. In 2005, after a trip to see her father in Uganda, Mattie became ill with what everyone, including her GP, thought was flu.

Tragic consequences: Mattie Cooper's life was cut short needlessly when she died from malaria

The Coroner said
"Malaria was not diagnosed because health professionals did not elicit the information she had been in a high-risk malarial area, or they elicited the information but did not recognise the significance of this."

http://news.bbc.co.uk/1/hi/wales/6248631.stm

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Suspected malaria is a medical emergency

- Consider malaria in every ill patient who has returned from the tropics in the previous year, especially in the previous three months.
- Fever on return from the tropics should be considered to be malaria until proven otherwise.
- Malaria cannot be diagnosed with certainty by clinical criteria alone. Suspected cases should be investigated by obtaining a blood film diagnosis as a matter of urgency.
- There is no need to wait for fever spikes before taking blood; this only delays diagnosis and the fever pattern seldom conforms to text book periodicity, especially in the case of Plasmodium falciparum.

Chiodini PL, Patel D and Whitty CJM. Guidelines for malaria prevention in travellers from the United Kingdom, 2019. London: Public Health England; August 2019

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Blood tests and how to request them in the UK

- An EDTA-anticoagulated venous blood sample should be taken
- The sample should be received in the laboratory within one hour of being taken as falciparum malaria may increase in severity over a few hours and the morphology of malaria parasites in EDTA deteriorates over time, rendering accurate laboratory diagnosis more difficult

Chiodini PL, Patel D and Whitty CJM. Guidelines for malaria prevention in travellers from the United Kingdom, 2019. London: Public Health England; August 2019

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C = Chemoprophylaxis and Compliance

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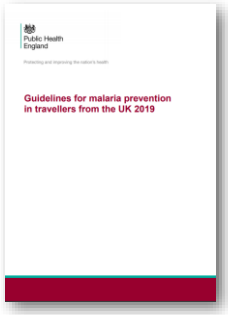
UK Malaria Guidelines say



Discuss the choice of chemoprophylaxis regimens and their individual advantages and disadvantages, including costs

Chiodini PL, Patel D and Whitty CJM. Guidelines for malaria prevention in travellers from the United Kingdom, 2019. London: Public Health England; August 2019

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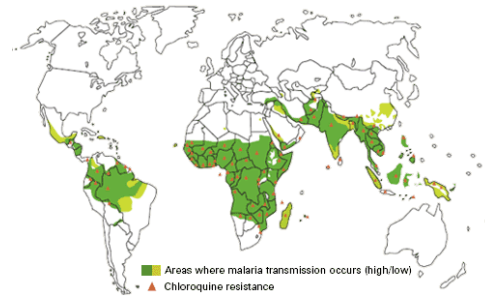
Malaria drug resistance



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Choice of Chemoprophylaxis in the UK

Drug	Price per tablet
Atovaquone + Proguanil	Malarone £1.95, Generic £1.45
Doxycycline	19p
Mefloquine	£2.72
C+P	£19.44 (7 week course)

Atovaquone + proguanil, doxycycline and mefloquine are prescription only drugs (usually private)
Chloroquine + proguanil is an OTC drug

http://www.travelpharm.com/malaria-prevention-c165

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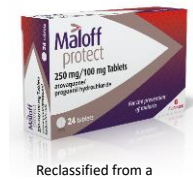
271

Maloff Protect



Reclassified from a Prescription Only Medicine (POM) to a Pharmacy (P) medicine

Prices vary online £60 - £70

Risk minimisation materials on the eMC

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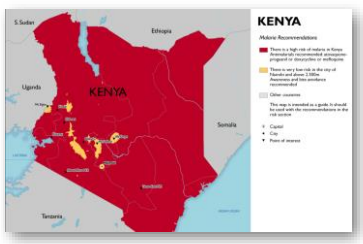
How do you know which drugs to advise?



Example of Kenya
There us a high risk of malaria in Kenya (A/P, D, M). There is very low risk in the city of Nairobi and in the highlands above 2500m (BA only)

Key
CQ = Chloroquine
M = Mefloquine
A/P = Atovaquone/proguanil
D = Doxycycline
BA = Bite avoidance

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Tailoring the advice

Deciding together the most appropriate chemoprophylactic drug to the individual need, thus encouraging adherence

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Key messages for chemoprophylaxis

- Persuading them to understand importance of taking **and** completing the course of chemoprophylaxis
- Emphasise that whilst no regimen is 100% effective, the combination of prevention measures advised will give significant protection against malaria
- Helping them to choose the tablets that suit them the best to enable this adherence to happen which includes a discussion of potential side effects and cost
- Using opportunities to get the message across especially with VFR travellers
- Providing written information

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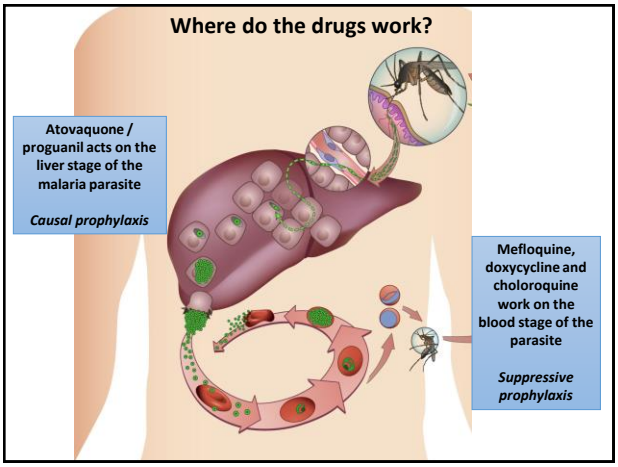
Where do the drugs work?



276

Timing of chemoprophylaxis

Drug	Timing BEFORE and AFTER stay in risk area
Chloroquine + proguanil	1 week before and 4 weeks after
Mefloquine	2-3 weeks before and 4 weeks after
Doxycycline	1-2 days before and 4 weeks after
Atovaquone + proguanil	1-2 days before and 1 week after

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How to advise

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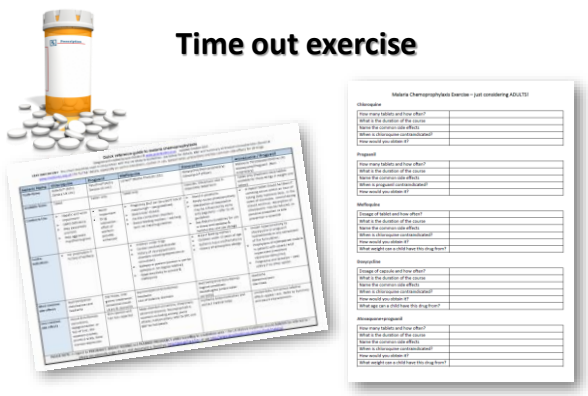
Time out exercise



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Chloroquine

- How many tablets and how often do you take them?
- What is the duration of the course?
- Name the common side effects
- When is chloroquine contraindicated?
- How would you obtain it?

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Proguanil

- How many tablets and how often do you take them?
- What is the duration of the course?
- Name the common side effects
- When is proguanil contraindicated?
- How would you obtain it?

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Chloroquine and proguanil

- Used in combination except for a very few places where there isn't yet chloroquine resistance e.g. Dominican Republic where you could give chloroquine and if not suitable then proguanil……
- Occasions when people can't take or don't want to take these drugs then prescription only can be used, they are just stronger than is really required but will be effective

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Mefloquine

- Dosage of tablet and how often?
- What is the duration of the course?
- Name the common side effects
- When is mefloquine contraindicated?
- How would you obtain it?
- What weight can a child have this drug from?

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Doxycycline

- Dosage of tablet and how often?
- What is the duration of the course?
- Name the common side effects
- When is doxycycline contraindicated?
- How would you obtain it?
- What age can a child have this drug from?

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Atovaquone/proguanil

- Dosage of tablet and how often?
- What is the duration of the course?
- Name the common side effects
- When is atovaquone/proguanil contraindicated?
- How would you obtain it?
- What weight can a child have this drug from?

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How to go about decision making

Tom and Ben are 21 year olds travelling for a 3 week trip to Cape Town, South Africa with his local rugby team for a tour of matches .

For the last four days of the trip they will fly up to the Kruger National Park to spend some pleasure time. They leave in 1 month (during the month of October)

Both are well, but Ben has epilepsy managed on carbamazepine

What would you do first to decide the advice?

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Go to the TravelHealthPro database

Risk Areas

- **All travellers should take bite avoidance measures throughout the year in all risk areas.** Transmission of malaria occurs typically between the months of September and May.
- There is a risk of malaria in the low altitude areas of Mpumalanga and Limpopo particularly those bordering Mozambique, Swaziland (Estwatini) and Zimbabwe; this includes the Kruger National Park: **atovaquone/proguanil** OR **doxycycline** OR **mefloquine** recommended during the transmission season, September to May (see map provided by Department of Health, Republic of South Africa – marked as 'moderate risk').
- There is a low risk of malaria in northeast KwaZulu-Natal and in designated areas of Mpumalanga, Limpopo (see map – marked as 'low risk'): **awareness of risk** and **bite avoidance** recommended.
- There is a very low risk of malaria in North West Province (adjacent to Molopo river) and Northern Cape Province (adjacent to Orange river): **awareness of risk** and **bite avoidance** recommended.

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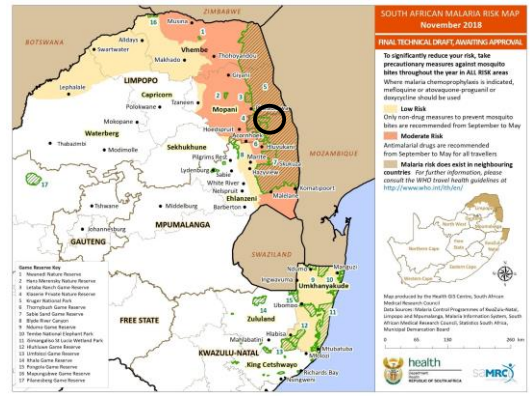
298



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Then need to discuss options with traveller - Tom

- Mefloquine – once a week, enough time to take it before departure, mid road cost, any CI to taking? Take 4 weeks after trip
- Doxycycline – Daily medication, much more cost effective, advise re side effects, take 2 days before and 4 weeks after leaving area
- Atovaquone/proguanil – take 1-2 days before and 1 week after. More expensive but shorter duration for a short trip
- key aspects listed above, but more thorough review required

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Then need to discuss options with traveller - Ben

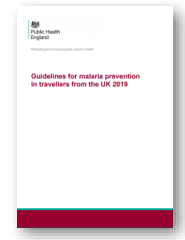
6.5 Epilepsy

Note: a history of febrile convulsions only does NOT contraindicate use of any of the currently available malaria chemoprophylactic drugs. The following advice applies to travellers with epilepsy where restrictions DO apply.

In epilepsy:

- doxycycline or atovaquone/proguanil can be used
- chloroquine: unsuitable.
- mefloquine: unsuitable.

Doxycycline
Half-life may be reduced by phenytoin, carbamazepine, and barbiturates. Try to advise another antimalarial. If not possible or acceptable to the traveller, increase the dose of doxycycline to 100mg twice daily and counsel regarding measures to minimise the risk of adverse events.



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301

Follow on advice

- Decide on chosen chemoprophylaxis
- Ensure give advice on correct administration and how to obtain them
- Arrange for a private prescription to be written up
- Discuss ABCD and provide written advice

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How to obtain malaria tablets

Prescription only malaria chemoprophylaxis is obtained on a private prescription from

- a GP surgery
- a travel clinic

Or it can be sold directly after a risk assessment

- by a surgery prescribing it then dispensing – same as a private travel clinic
- by a pharmacy prescribing and selling it
- by a pharmacy providing it under a Patient Group Direction
- by an online provider prescribing and supplying by post
- and a pharmacy also selling as a P medicine

Ensure the online provider has the MHRA authorising logo on the site which is compulsory. They may also have the General Pharmaceutical Council (GPhC) logo

Click to verify if this website is operating legally

Registered Pharmacy

See http://medicine-sellerregister.mhra.gov.uk/
and https://www.pharmacyregulation.org/registration/internet-pharmacy for more details

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New tools to help your travellers

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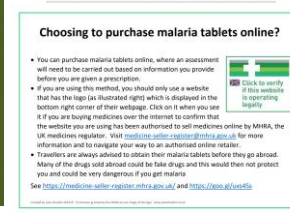
Find the leaflets in tools no. 25



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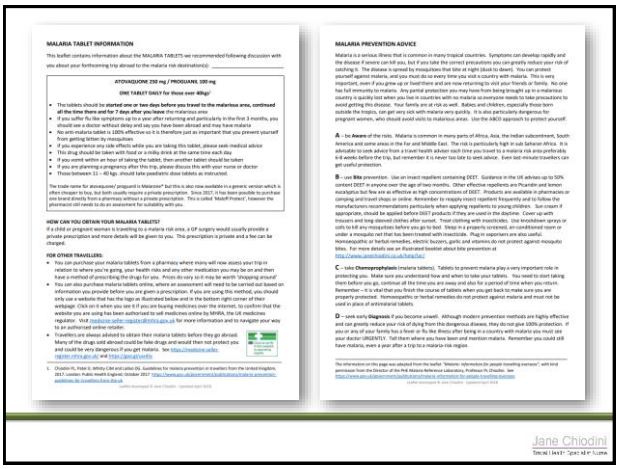

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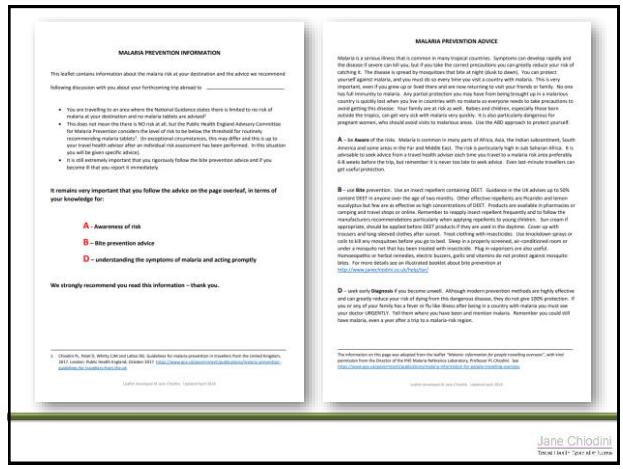

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307

Working out chemoprophylaxis for children

308

Calculating doses of malaria drugs

Note: Weight is a better guide than age for children, so weight should be used for the purpose of children's dosage calculation including children who are over - or underweight.

Further important notes:

- doxycycline is unsuitable for children under 12 years irrespective of their weight.

Caution: In other countries tablet strength may vary.

- atovaquone/proguanil paediatric dosage is given in Table 6

Chiodini PL, Patel D and Whitty CJM. Guidelines for malaria prevention in travellers from the United Kingdom, 2019. London: Public Health England; August 2019

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Pages 37 and 38 of UK Malaria Guidelines

Table 4 Doses of prophylactic antimalarials for children[1]

Weight in kilograms	Drug and tablet size: Chloroquine base 155mg	Proguanil	Mefloquine	Doxycycline
Under 6.0	0.125 dose ¼ tablet			
6.0 to 9.9	0.25 dose ½ tablet			
10.0 to 15.9	0.375 dose			
16.0 to 24.9				
25.0 to 44.9				
45 and over				

Table 5: Table of doses by spoon or syringe[2] **measures for chloroquine syrup**

Weight in kilograms	Number of 5ml measures (there is often a half size measure at the other end of the spoon)	Proportion of adult dose
Under 4.5	0.5 (2.5 ml)	0.08
4.5–7.9	1.0 (5.0 ml)	0.16

Table 6: Table of paediatric dose of atovaquone/proguanil

Weight in kg	Proportion of adult dose	Number of paediatric tablets
5 to 7.9	0.125	½ paediatric
8 to 9.9	0.188	¾ paediatric
10 to 19.9	0.25	1 paediatric
20 to 29.9	0.50	2 paediatric
30 to 39.9	0.75	3 paediatric
40 and over	1.00	4 paediatric or 1 adult

NB: SPC for atovaquone/proguanil is from 11kgs in weight but in Malaria Guidelines from 5kgs in weight

Chiodini PL, Patel D, Whitty CJM and Lalloo DG. Guidelines for malaria prevention in travellers from the United Kingdom, 2017. London: Public Health England; October 2017

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310

From NaTHNaC

Children's antimalarial dosage tables

Childs Weight in Kg	Chloroquine 155mg	Proguanil 100mg	Doxycycline 100mg	Mefloquine 250mg
Under 6.0	¼ tablet	¼ tablet	Not recommended	See footnote*
6.0 to 9.9	¼ tablet	¼ tablet	Not recommended	¼ tablet
10.0 to 15.9	½ tablet	½ tablet	Not recommended	½ tablet
16.0 to 24.9	One tablet	One tablet	Not recommended	½ tablet
25.0 to 44.9	1 ½ tablets	1 ½ tablets	Adult dose from 12 years one tablet**	½ tablet
45kg and over	Adult dose two tablets	Adult dose two tablets	Adult dose one tablet	Adult dose one tablet
Taken	Weekly from 1 week before entering risk area until 4 weeks after leaving risk area	Daily from 1 week before entering risk area until 4 weeks after leaving risk area	Daily from 1 – 2 days before entering risk area until 4 weeks after leaving risk area	Weekly from 2 – 3 weeks before entering risk area until 4 weeks after leaving risk area

*The SPC for mefloquine states that it can be used for those weighing more than 5kg. Therefore mefloquine ¼ tablet may be advised for children weighing 5 to 9.9kg.
**Doxycycline is unsuitable for children under 12 years irrespective of their weight.

Cautions Ensure the drug selected is recommended for the destination, chloroquine and proguanil are not effective in areas with significant drug resistant malaria
See below for Atovaquone / Proguanil combination preparation

Childs Weight in Kg	Atovaquone 62.5mg / Proguanil 25mg (Paediatric tablet)
5 to 7.9	½ paediatric tablet*
8 to 9.9	¾ paediatric tablet*
10 to 19.9	1 paediatric tablet*
20 to 29.9	2 paediatric tablets
30 to 39.9	3 paediatric tablets
40 or over	4 paediatric tablets or 1 adult tablet
Taken	Daily from 1 – 2 before entering risk area until 7 days after leaving risk area

*Paediatric atovaquone / proguanil is licensed for children from 11kg in weight. Public Health England's (PHE) Advisory Committee on Malaria Prevention (ACMP) guidelines allow use from 5kg

Cautions Note that in other countries, tablet strength may vary.
These dosage recommendations are taken from the PHEs ACMP guidelines for malaria prevention in travellers from the UK
The recommendations may differ slightly to the advice provided in the drug manufacturer's patient information leaflet
Always store tablets out of children's reach; some of these medicines are toxic in overdosage

http://travelhealthpro.org.uk/wp-content/uploads/2015/08/Childrens-antimalarial-dosage-tables.pdf

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311

Administering chemoprophlyaxis

Whilst it is preferable to avoid breaking and crushing tablets, the appropriate dose of proguanil or mefloquine or atovaquone-proguanil combination preparation may be broken if dosing requires it and the drugs crushed if necessary and mixed with jam, honey, pasteurised yoghurt or similar food to aid administration to young children. Tablet-cutters can be purchased from some pharmacies or travel shops. If further advice is required a dispensing pharmacist should be consulted.

Chiodini PL, Patel D, Whitty CJM and Lalloo DG. Guidelines for malaria prevention in travellers from the United Kingdom, 2015. London: Public Health England; September 2015

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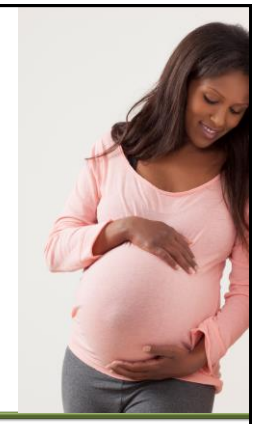
312

Asha is seeking advice for travel to Ghana for a four week trip to stay with relatives in the family home in a rural area outside the capital city of Accra.

- How many weeks pregnant is she?
- How essential is this trip – can it be postponed
- Has she been before and what are her beliefs on malaria prevention advice

How would you proceed?

- Look at the advice for Ghana on TravelHealthPro
- Look at the UK Malaria Guidelines – pages 54-56
- See NaTHNaC factsheet



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313

Some of the information in the malaria guidelines for pregnancy and chemoprophylaxis but please read full detail

Mefloquine
Caution in first trimester, but can be used in all trimesters for travellers to high risk areas. It seems unlikely that mefloquine is associated with adverse foetal outcomes. Given the potential severity of falciparum malaria in a pregnant woman, its use is also justified in the first trimester in areas of high risk of acquiring falciparum malaria such as sub-Saharan Africa

Doxycycline
Contraindicated in pregnancy. However, under special circumstances, if required before 15 weeks' gestation it should not be withheld if other options are unsuitable. The course of doxycycline, including the 4 weeks after travel, must be completed before 15 weeks' gestation.

Atovaquone/proguanil
Lack of evidence on safety in pregnancy. Animal studies showed no evidence for teratogenicity of the combination. The individual components have shown no effects on parturition or pre- and post-natal development (Malarone SPC). ACMP advises against the use of atovaquone/proguanil for antimalarial chemoprophylaxis in pregnancy. However, if there are no other appropriate options, its use may be considered in the second and third trimesters after careful risk assessment.

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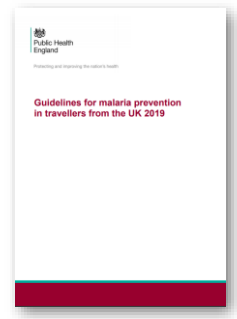
314

Pregnancy – look at guidelines and NaTHNaC



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Standby Emergency Treatment

PROS

- Fake antimalarials "out there"
- Useful where no adequate medical services (diagnosis and treatment)

CONS

- Much drug unused
- Instructions on seeking help within 24 hours may not be followed
- The illness may not be malaria, delaying diagnosis of other serious conditions

Schlagenhauf P, Petersen E. Standby emergency treatment of malaria in travelers: experience to date and new developments.
Expert Rev Anti Infect Ther. 2012 May;10(5):537-46. http://www.ncbi.nlm.nih.gov/pubmed/22702318

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316

Malaria Matters e learning course

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317

Covers the entire malaria guideline document – free access

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318

In conclusion

- Advisers must be knowledgeable
- Advice must centre on ABCD
- Be realistic and patient centred
- Sufficient time is crucial
- Good communication skills are essential

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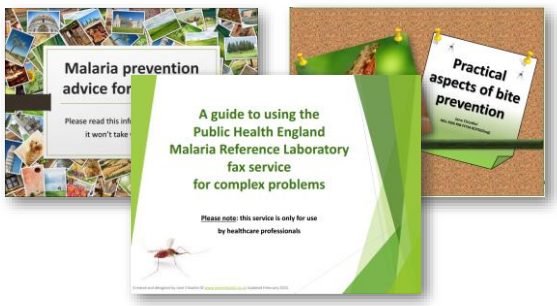
319

Further resources to help you



See the malaria and multi-destinations e learning for more on these items

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www.janechiodini.co.uk/news/help/malaria/

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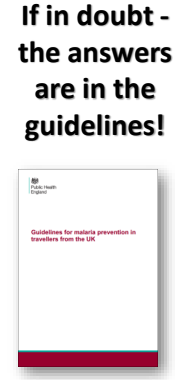
If in doubt - the answers are in the guidelines!



Jane Chiodini
Travel Health Specialist Nurse

322

If you think you're too small to make a difference, you've never been in bed with a mosquito

Anon

Image photo credit James Gathany

323

Completing the puzzle! How can I help you?

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Dealing with more complex patients

- Work within your competence but as you progress, knowledge will increase and you will be ready to tackle more complex patients and their care!
- Practice makes perfect…….

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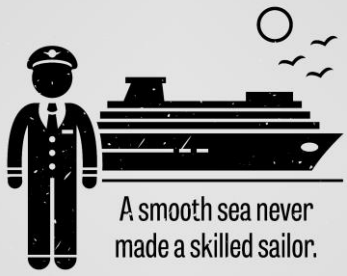
325



326

Going forward page for more training

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327

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328