



Practical aspects of bite prevention

Jane Chiodini
MSc RGN RM FFTM RCPS(Glasg)

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/
- Not for commercial use. Please read the copyright and disclaimer information on the back inside page of this tool.

© Jane Chiodini. Version 1.3 Updated November 2017.
www.janechiodini.co.uk



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

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



To prevent disease

To avoid discomfort and complications from bites

Insect borne diseases – a potential risk to travellers abroad



West Nile
Virus



Japanese
Encephalitis



Yellow
fever



Dengue



Malaria



Zika
virus



Leishmaniasis



Chikungunya

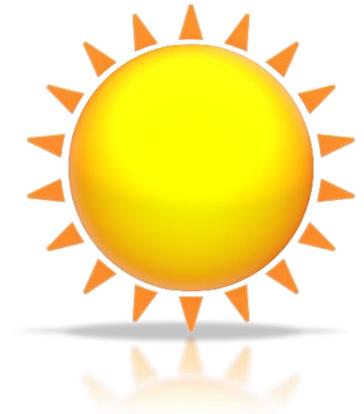


Filariasis

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



Day and Night Time Biter



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.

Principles of bite prevention

Protection of the individual

- Repellents
- Clothing
- Mosquito nets

Protection of the environment

- Minimise breeding areas
- Sleeping areas – for example
 - Mosquito nets
 - Vapourisers etc.

What is not helpful?

See the next page!



The Myths!

There is no scientific evidence that any of these products work



Vitamin B



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

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 high concentrations of DEET.**"

Alternatives include:

- p-methane 3,8 diol (lemon eucalyptus)
- Icaridin
- 3-ethylaminopropionate (IR3535)

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

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.

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

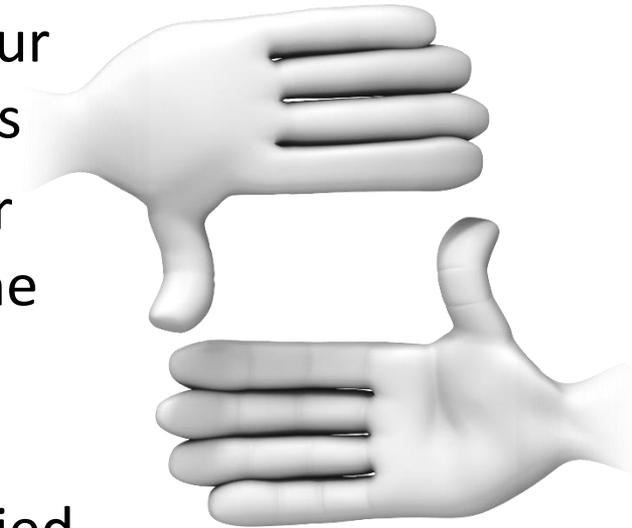
DEET is a plasticizer

- 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



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



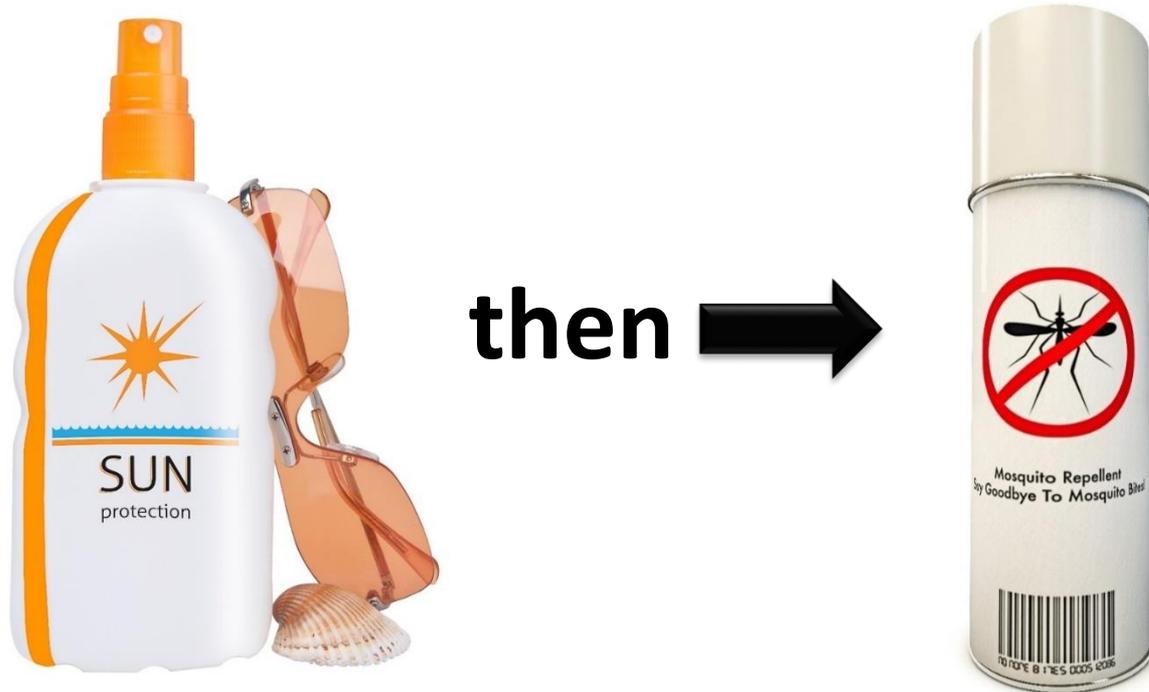
Suggestion! Go to <http://www.janechiodini.co.uk/tools/videos/> and look at video no. 5 for a demonstration of application of a repellent

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



General rules with insect repellent and application of sun protection



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.

General rules with insect repellent and swimming



then →



Always reapply sunscreen if required and then repellent after swimming

Alternative repellents

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

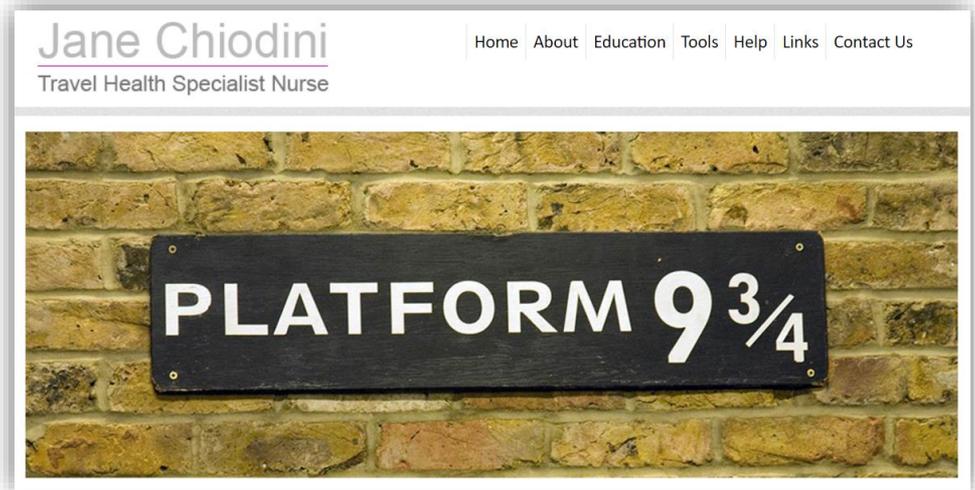
Name of product	National guidance advice	Examples of products
P-menthane 3,8 diol (Lemon eucalyptus)	gives about same protection afforded by 15% DEET	Mosi-guard Natural Care PLUS
Icaridin (picaridin)	use of at least 20% preparations	Autan tropical Mosquito guard
3-ethylaminopropionate (IR3535)	has a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

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/

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 with new technology giving slightly longer term protection. Products include Cragghopper's NosiLife and Rohan's Bite Guard™ technology



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

Room protection



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.

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.

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!



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 in case 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.



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.

For further 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

Disclaimer information from www.janechiodini.co.uk

Travel Health Training Ltd. has taken every care to ensure the information contained within booklet is accurate, complete and kept up to date at the time of publication. As medical knowledge and guidance constantly change, Travel Health Training Ltd. cannot guarantee that all of the information is accurate and consistent with Current National guidance.

If using these materials, it is your responsibility to use them in conjunction with up to date reference sources.

Copyright information from www.janechiodini.co.uk

The content of this web site constitutes a database which has been created by Travel Health Training Limited. The written consent of a director of Travel Health Training Limited is required to extract or re-utilise all or a substantial part of the database. Registered Nurses, Medical practitioners or employees of such practitioners do not require such written consent provided that any such extraction or re-utilisation is limited to non commercial activities.



Photo credit: James Gathany

Practical aspects of bite prevention

Jane Chiodini
MSc RGN RM FFTM RCPS(Glasg)

The notepad is white with a black border and is pinned to a corkboard with four yellow pushpins. It features two small mosquito icons at the top. The text is in a bold, sans-serif font.

Hoping you have a good and bite free trip!