

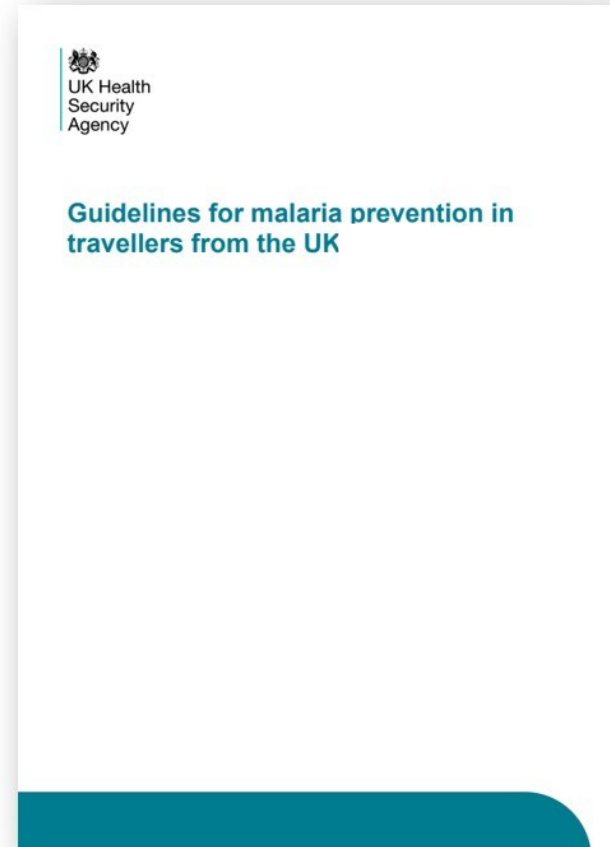
# **Mosquito bite avoidance advice for travellers.**



## **A practical guide**

# Important to read please

- This booklet has been designed by Jane Chiodini as a teaching aid. Use it with your traveller to enable a discussion about different aspects of insect bite avoidance and/or for them to read after a consultation
- The basis of the information is taken from the current UK Health Security Agency publication: *Guidelines for malaria prevention in travellers from the UK* see [www.gov.uk/government/publications/malaria-prevention-guidelines-for-travellers-from-the-uk](https://www.gov.uk/government/publications/malaria-prevention-guidelines-for-travellers-from-the-uk)
- For more details about the author go to [www.janechiodini.co.uk/about/](https://www.janechiodini.co.uk/about/)
- Not for commercial use. Please read the copyright and disclaimer information on the last page of this tool.



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



To prevent disease

To avoid discomfort and complications from bites

This information booklet has a particular slant on bite avoidance as part of malaria prevention advice, but the general information principles are relevant for ALL mosquito borne diseases.

# 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 Bitters



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

<b>Predominantly dusk to dawn*</b>	<b>Insect</b>
<b>Malaria</b>	<b>Anopheles spp.</b>
<b>Japanese Encephalitis</b>	<b>Culex spp.</b>
<b>West Nile Virus</b>	<b>Culex spp.</b>

<b>Daytime**</b>	<b>Insect</b>
<b>Yellow fever</b>	<b>Aedes spp.</b>
<b>Dengue</b>	<b>Aedes spp.</b>
<b>Zika virus</b>	<b>Aedes spp.</b>
<b>Chikungunya</b>	<b>Aedes spp.</b>

\* Whilst the main biting times are dusk until dawn, the risk can occur out of these time frames

\*\* Bite precautions should be maintained during daylight hours both indoors and outdoors

# Principles of bite prevention

## Protection of the individual

- Repellents
- Clothing
- Mosquito nets

## Protection of the environment

- Minimise breeding areas
- Sleeping areas – e.g.
  - Mosquito nets

**What is not helpful?**

See the next page!





# The Myths!

There is no scientific evidence that any of these products work



Bath oils and emollients



Vitamin B



Homoeopathic remedies

## 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



Savoury yeast extract products



Garlic or garlic capsules

# Mobile phone apps



The use of apps available on mobile phones to prevent mosquitoes biting is strongly discouraged.



# Bite prevention and alcohol

**Alcoholic drinks DO NOT protect against mosquito bites.**



- Indeed beer consumption is reported to increase human attractiveness to malaria mosquitoes
- Gin and tonic has no mosquito repellent properties and the amount of quinine in tonic water has no effect on malaria parasites



# 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 recommend 50% DEET-based insect repellents as a first choice.

- **DEET**

The guidance goes on to state, "if DEET is not tolerated (or is not available), an alternative preparation should be used.

Alternatives suggested are:

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

Consult the instructions for use for individual products. Re-application should be made when necessary, to ensure that mosquitoes are not biting, bearing in mind safe limits for the product concerned. If a product in the UK does not have one of the four active ingredients above, it should not be used. They have excellent mosquito repellent properties, though DEET is supported by the strongest evidence base and its extensive use worldwide over the last 50 years

# 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



## IMPORTANT:

- There is no further increase in duration of protections beyond a concentration of 50% DEET
- The interval between applications depends on this as well as the DEET formulation and concentration used
- Sweat off time varies with activity
- **Remember**, 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

# Use of DEET in pregnancy, breast feeding, children and babies



- Given the seriousness of malaria in pregnancy, DEET is recommended at a concentration of 50% as part of the malaria prevention regimen for pregnant women, including those in the first trimester
- DEET may be used at a concentration of up to 50% in breast feeding, and for infants and children over 2 months
- DEET is not recommended for infants below the age of 2 months



# New advice for 2022 regarding conflicting advice between products and guidelines

In some circumstances, the UK Malaria Guidance advice may differ from that in repellent manufacturers' product information. When this occurs, the recommendations in the guidelines (which are based on current expert advice) should be followed.

- **DEET is not recommended for infants below the age of 2 months**
- **If a particular DEET manufacturer's product information recommends a higher age cut off for use in children, the UK Malaria Guidance should be followed**





# 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 plastic glasses frames, plastic 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



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.**

# 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.”

Name of product	National guidance advice	Examples of products*
P-menthane 3,8 diol (Lemon eucalyptus)	Provides protection for several hours	MMosi-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, but is still an effective repellent.	Gurkha Protec IR3535® Jungle Formula (outdoor and camping)

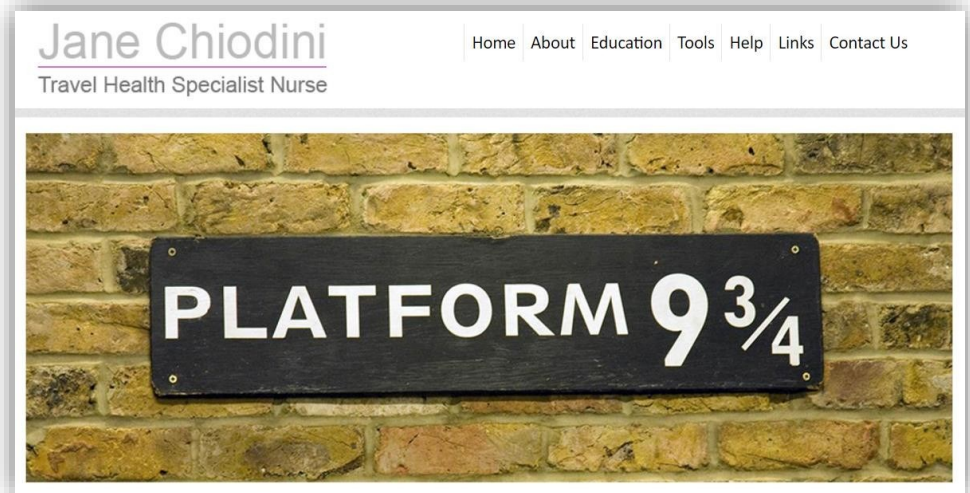
- Please note the above is not an exhaustive list, other products will be available.
- These products are NOT being recommended, but are given as examples
- Please always check the minimum age of use as these vary within the products.

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

\* Please note, the information about examples of products is added in this column to be helpful, but is not in the UK Malaria Guidelines

# 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/](http://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 or purchased pre-treated to reduce biting through clothing. This can provide a high level of bite prevention and is recommended.
- DEET can be useful as a repellent on cotton clothing only, but its duration of protection is shortened by its volatility.
- DEET preparations for use only on clothing are commercially available.

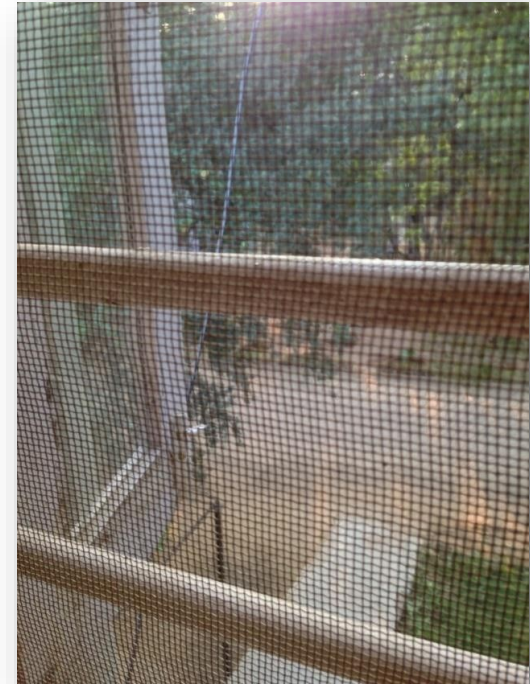


**Air conditioning** is the best option and will deter mosquitoes as they will not like a cold room. However, be cautious because some countries have frequent power cuts

# 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'. 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, but this is not recommended.



# Mosquito net styles



Mosquito nets come in all shapes and sizes, the key aspect is to use one that is IMPREGNATED which improves protection, because they help to prevent biting through the net on parts of the body touching the net, and prevent mosquitoes surviving long enough near to a net to find any tears in the net which may exist.



Most of the nets used are now available are long-lasting impregnated nets (LLINs). In these products the pyrethroid is incorporated into the material of the net itself or bound to it with a resin. They have an expected useful life of at least 3 years.

Standard impregnated nets would need to be re treated every 6-12 months. Follow the product instructions.

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, tucked under the mattress and taut, not drooping. Correctly used nets will 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, such as a safari lodge, it would be a good idea to check about their standards in advance.

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



# Managing reactions to bites

The NHS website has good information about managing reactions to bites at

[www.nhs.uk/Conditions/Bites-insect/Pages/Treatment.aspx](http://www.nhs.uk/Conditions/Bites-insect/Pages/Treatment.aspx)

This includes advice on

Cleansing

Cold compress

Analgesia



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 the NHS website 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](http://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](http://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.