Malaria prevention: adults

Mefloquine hit the headlines in 2015, and not in a good way. In August, MP Johnny Mercer called on the government to halt prescribing of mefloquine to service personnel until more was known about its safety. He cited official records showing 263 (13%) of the 1892 military personnel who took mefloquine in 2014 had sought medical treatment for its side-effects and that, since 2008, 994 British service personnel needed treatment in mental health clinics or psychiatric hospital after taking it. Controversy surrounding mefloquine is not new: reports of side-effects of hallucinations and psychoses came within just months of its license in prophylaxis in the 1980s (Lancet 1989;2:282).

Yet mefloquine is still widely available, and does have a place in preventing disease. Indeed, it remains included on the WHO Essential Medicines list for 2015 (WHO, 2015).

Risk assessment can help you identify those who should not be prescribed mefloquine and ensure that you prescribe or recommend safely and appropriately.

The PHE Advisory Committee on Malaria Prevention (ACMP) annually, in September, produce updated guidelines for malaria prophylaxis. Here goes with a summary of the current advice from PHE 2015 … but let’s first of all look at what DOESN’T work!

ACMP strongly advise against the following, because none has convincing evidence:

- Herbal remedies, tea tree oil or bath oils
- Homeopathy – in fact, the Faculty of Homoeopathy itself advises against homeopathy’s use here.
- Electronic buzzers.
- Eating vitamin B1, vitamin B12, garlic or yeast extract spread (that’s Marmite to you and me).
- Wearing brightly-coloured clothes – though they do no harm, so carry on wearing them!!

Bite prevention

Bite prevention, sounds obvious doesn’t it! ACMP advise effective bite prevention as the first line of defence against malarial infection.

- Highest risk of being bitten is from dusk to dawn so protection in bed is especially important.
- Remember species of mosquito transmitting yellow fever and dengue fever also bite in daylight hours.
- **Insect repellents**, DEET-based at >20% concentrations, are recommended. Duration of protection increases with concentration: 1–3h for 20%, up to 6h for 30%, up to 12h for 50% DEET.
- **DEET and sunscreen**. Several studies show DEET to decrease protection from SPF15 sunscreen. Sunscreen has not been shown to decrease the effectiveness of DEET when using >33% concentrations. New advice from PHE for 2015 is that sunscreen rated at 30–50 SPF should be applied first, then DEET on top.
- Picaridin >20% compares to DEET in effectiveness.
- Lemon eucalyptus oil gives around the same protection as DEET 15%.
- Oil of citronella gives only mild, short-lived protection and is not recommended.

ACMP advice on use of DEET for protection from mosquito bites:

- DEET is suitable for all individuals over the age of 2m (unless allergic).
- 50% DEET has the longest duration of action; lower concentrations are less effective.
- 50% DEET has been shown to be safe in pregnant women and small children.
- DEET can damage plastic watch straps, spectacles (including sunglasses) and plastic jewellery.

Night time precautions:

- If sleeping outdoors, insecticide-impregnated mosquito nets, tucked in securely, give 50% prevention – replace every 6m.
- The guidelines advise long sleeves, long trousers, plus socks, if outdoors – leave those high heels and strappy dresses in your suitcase!
- Air conditioning and ceiling fans can help reduce mosquito biting.
- Screen doors and windows with fine mesh netting if possible.
- Spray your room before dusk with an insecticide to zap napping mosquitoes.
- If electricity is available, use a liquid reservoir device containing insecticide.
- Burning mosquito coils indoors is not recommended, for fire safety reasons.

Chemoprophylaxis – choosing the right antimalarial

- Risk assessment before prescribing. You’ll need to take into account possible risks that the patient’s medical history presents, including allergies and mental health history (important in assessing risk, if considering prescribing or recommending mefloquine), before considering which drug to recommend or prescribe.
- In your practice, you may already have a protocol for risk assessment of malarial prophylaxis. If not, PHE offer us a really
helpful downloadable risk assessment template. You can either use it as it is, or adapt it to your practice’s (and your patient’s) needs. The same template can be faxed direct to the Malaria Reference Laboratory (MRL) for specific advice on about complex patient issues – they say they will reply to your request within 3d.

- I have provided the fax number of the PHE MRL, and a web link to the risk assessment tool, in the Practical tools box at the end of this topic.
- Which country, which drug? Travel Health Pro, perhaps more familiar to you as NaTHNaC, offer country-specific information about the right antimalarial for the places your patient is planning to visit. The site doesn’t stop there, offering plenty of practical travel advice by country to help patients travel safely.
- Travel Health Pro doesn’t advise on side-effects, or contraindications, so you’ll need to use your BNF, or BNF.org, for that.
- Advise about adherence. Encourage travellers to buy their antimalarial drugs in the UK, because fake drugs are known to be traded both in the tropics and online. It is vitally important to continue with prophylactic medication for a full month after returning – parasites can take up to a month to emerge from the liver. Proguanil is an exception, which only requires 7d continuation because its action is at the pre-erythrocytic stages of malarial parasite development.

### Malaria prevention

- Avoiding getting bitten is the best way of preventing malaria!
- Use insect repellents, preferably DEET-based at >20% concentrations.
- DEET dilutes sunscreen. Apply SPF30–50 sunscreen first, then DEET at >20% concentration.
- Risk assess before you prescribe or recommend antimalarials.
- Use Travel Health Pro for advice for your patients each and every time.
- Antimalarial drugs don’t work if you don’t take them properly – make sure your patients undertake the regime, and understand the importance of continuing after their return from travel.

### Professional development

- To consult the full text of PHE September 2015 guidance on malarial prophylaxis:
- If you enjoy video games and are keen to understand more about the life-cycle of malaria and mosquitoes, those clever types at the Nuffield Department of Medicine at Oxford University have devised an app-based game in which you are a mosquito trying to reproduce and infect a person: ’The Life Cycle of Malaria’ app is free of charge from Google Play, sorry no iPhone/iPad version! [https://play.google.com/store/apps/details?id=ox.ac.uk.ndm.MalariaInteractive&hl=en](https://play.google.com/store/apps/details?id=ox.ac.uk.ndm.MalariaInteractive&hl=en)

### Practical tools

- Find the appropriate antimalarial for the specific country(ies) your patients are travelling to at Travel Health Pro (previously known as NaTHNaC): [http://travelhealthpro.org.uk/country-information/](http://travelhealthpro.org.uk/country-information/)
- For queries needing specialist advice about a complicated patient, PHE offer a risk assessment template document that can be faxed to the Malaria Reference Laboratory at fax. no. 0207 637 0248. You may also find it helpful to download this document for use in travel clinic appointments: [www.gov.uk/government/publications/malaria-risk-assessment-form](http://www.gov.uk/government/publications/malaria-risk-assessment-form)

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*We make every effort to ensure the information in these pages is accurate and correct at the date of publication, but it is of necessity of a brief and general nature, and this should not replace your own good clinical judgement, or be regarded as a substitute for taking professional advice in appropriate circumstances. In particular check drug doses, side effects and interactions with the British National Formulary. Save insofar as any such liability cannot be excluded at law, we do not accept any liability for loss of any type caused by reliance on the information in these pages.*

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