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Insect repellents more important than ever as tropical tourism increases

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Holidaymakers are being urged to use insect repellent to protect themselves against bites and the diseases they can spread, as trends show travel to tropical countries is rising among Britons.

With the World Cup starting in Brazil next week and holiday season about to get under way, scientists from repellent testing facility arctec at the London School of Hygiene & Tropical Medicine today launch Bug Off - the first ever Insect Repellent Awareness Day to highlight the issue.

They recommend applying repellents containing 20-50% DEET to the skin when in countries with diseases spread by insects, such as malaria and dengue fever. Although medicine and vaccines can prevent some diseases, they don't prevent them all: in those cases, stopping the bite in the first place is the best line of defence.

People have expressed concerns about the safety of DEET which led to a number of investigations. However, the scientists behind Bug Off have carried out a review of published studies and conclude that there is insufficient evidence to show that DEET is unsafe. They also conclude that the benefits of avoiding disease-spreading insect bites outweigh any theoretical risks associated with applying DEET to the skin. The review is published today in the open access journal *Parasites and Vectors*.

In their analysis of animal research and other safety assessments carried out previously, the School researchers conclude that there is no evidence

of association between severe adverse events and recommended DEET use.

They also looked at case reports of people suffering encephalopathy (brain condition) following exposure to DEET in the 1980s. The researchers state that, even when allowing for underreporting, "the incidence of 14 reported cases of DEET-associated encephalopathy since 1957 is small when considered against the context of an estimated 200 million applications of DEET worldwide each year".

According to separate analysis by experts from the School of overseas travel, the number of visits by Britons to tropical countries went up by two million between 2002 and 2012 (4.02m to 6.03m).

This situation means even more people need to be able to access the correct facts and advice about insect bite risks and prevention – whether it is students spending a gap year in Africa or tourists going on a two-week holiday.

Brazil, for example, has dengue fever - a viral infection that is transmitted to humans by Aedes mosquitoes which can cause life-threatening illness. As there is no cure and no vaccine against the disease, repellents are the number one protection. It is winter in Brazil at the moment which means the risk is lower in most areas but football fans travelling to the country are still advised to apply effective repellent frequently.

Insect Repellent Awareness Day aims to dispel myths and misconceptions about how to repel mosquitoes and other biting insects which can leave people at risk of harm to their health. The Bug Off campaign also involves an educational outreach programme, including school visits and a poster competition which opens today.

Key facts on insect repellents:

- If you are travelling to countries with diseases spread by insects then using insect repellents containing DEET is recommended.
- DEET – a repellent applied to the skin to repel biting insects - should not be confused with DDT, which is an insecticide designed to kill insects.
- There is no evidence that changes in diet, for example eating marmite or garlic, will prevent biting.
- Repellents wear off in time and need to be reapplied, especially in warm climates and during activities that involve a lot of movement.
- Preventing biting is not only important against disease, but nuisance biting even in the UK can lead to infections due to scratching.

Dr James Logan, Senior Lecturer in Medical Entomology at the London School of Hygiene & Tropical Medicine and Director of arctec, said: "Biting arthropods can transmit a whole range of diseases to humans and it is vital to protect ourselves. Vaccines and treatments are available for some diseases but not all and so the best way to keep as safe as possible is to use an insect repellent containing DEET and reapply it regularly.

"We want people to enjoy their holidays and tropical trips – we don't want them ruined by illness so we want to do all we can to help inform and educate people about the facts rather than the many myths surrounding this issue.

"Our work involves researching how, why and when insects transmit disease and we also teach courses on all aspects of biting insects, vector-borne diseases and travel health.

"We hope Insect Repellent Awareness Day will cause people to stop and

think this summer and pack their repellents. This year we will be working with schools and young children and we hope the campaign will grow in the future."

Dr Ron Behrens, Consultant in Travel Medicine and Senior Lecturer at the London School of Hygiene & Tropical Medicine, said: "Travellers often underestimate the need for and application of repellents.

"I always encourage them to take along enough supplies of repellent and always carry a bottle with them when out and about to maintain protection throughout the day and evening.

"If bites do happen, make sure they don't become infected by applying an antiseptic and try to avoid scratching them."

More information: Vanessa Chen-Hussey, Ron Behrens, James Logan. Assessment of methods used to determine the safety of the topical insect repellent N,N-diethyl-m-toluamide (DEET). Parasites and Vectors. 7: 173. DOI: 10.1186/1756-3305-7-173 . www.parasitesandvectors.com/content/7/1/173

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