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Compliance with long-term malaria prophylaxis in British expatriates

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Summary *Background:* There were 219 million cases of malaria with 600,000 deaths in 2010. Current UK guidance recommends malaria chemoprophylaxis for travellers to malaria endemic areas. Despite proven efficacy, compliance amongst long-term travellers with prophylaxis and personal protective strategies is sub-optimal. This survey assesses compliance rates amongst Foreign and Commonwealth Office employees on placement in malaria endemic areas and establishes the rationale for their decisions.
Methods: A Survey Monkey questionnaire was circulated to Foreign and Commonwealth Office employees on long-term placement in endemic areas. This ascertained background knowledge of malaria, compliance with prevention strategies and the rationale for decisions made.
Results: The response rate was 56.5% (327 of 579); responses showed a good knowledge of malaria. 59% of respondents continued their prophylaxis for 0–3 months only. No pregnant women reported compliance of greater than 95%. More than half of the individuals with a compliance of <25% cited concerns about long term safety. 39.5% of respondents reported significant side-effects to chemoprophylaxis. 12.8% reported contracting malaria.
Conclusion: Despite being well informed, poor adherence was reported, especially amongst pregnant respondents. The majority of individuals ceased medication within three months. Concern regarding the safety of long-term medication was the major barrier. Suggestions are made regarding optimisation of compliance or alternative strategies.

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Background

Malaria is a mosquito borne disease, with the highest prevalence in some of the world's most economically disadvantaged countries. The 2012 World Malaria report estimates that in 2010, there were 219 million cases of malaria with 600,000 deaths [1]. Despite its inclusion in the Millennium Development goals, malaria continues to be a significant global public health concern.

Current UK guidance recommends appropriate malarial chemoprophylaxis (herein termed prophylaxis) for short and long-term visitors to endemic areas [2]. Visitors lack pre-existing immunity and are at greater risk of severe life-threatening disease following *Plasmodium falciparum* infection than endemic populations. Individuals born in an endemic area whose immunity has waned are also susceptible to severe disease [3]. Malaria prophylaxis is proven to prevent the disease when taken appropriately [4,5].

Current UK guidance defines individuals as long-term travellers if their duration of stay exceeds six months [2]. This group is extremely diverse with individuals ranging from volunteers or aid workers in remote areas with poor access to medical care, to those working for multinational agencies with access to advanced medical care. Optimal guidance for long-term travellers requiring malaria prophylaxis is constrained by the limited evidence base and must be tailored to the profile of the individual. There is extensive experience of the efficacy and safety profile of long-term chloroquine prophylaxis, but published experience of the long-term use of newer drugs such mefloquine and atovaquone/proguanil are limited to two and three years respectively [2,6,7]. Newer regimens are subject to licensing restrictions specifying a limited duration of therapy. This is based on the absence of long-term studies rather than specific evidence of harm. New long-term follow-up studies are unlikely due to the cost and lack of economic benefit for the pharmaceutical industry. Best practice is therefore most likely to continue to be based on existing evidence [8—10].

The British National Formulary states that in those requiring long-term prophylaxis, chloroquine and proguanil may be used for periods of over 5 years. Mefloquine is licensed for up to 1 year however, advice from the ACMP indicates that there is no evidence of harm in long term use if the drug is tolerated in the short term, and suggests that mefloquine can be used safely for up to three years. Doxycycline can be used for up to 2 years and beyond in the absence of significant side effects. In clinical trials atovaquone/proguanil has been used for an average duration of 27 days, however, both separate components have been used individually on a long term basis. The ACMP concludes that there is no evidence of harm in long-term use and suggests that it can be taken confidently for up to a year and beyond in the absence of significant side effects. The ACMP also states that all regimens may be used for longer if justified by the risk of malaria [2].

Alternative strategies to prescribing malaria prophylaxis outside their marketing authorisation include switching between regimens, prescription of emergency stand-by treatment, and the use of chloroquine in areas known to have resistance. Recent Public Health England (PHE) guidance supports extended durations of prophylaxis with non-chloroquine based regimens in long-term travellers after appropriate risk assessment [2]. Malaria prevention strategies are more challenging for long-term travellers than for short term visitors. Long-term compliance with prophylaxis and personal protective strategies are recognised to be sub-optimal in this group [11]. Some of the contributing factors to this complexity include concern about side effects of long-term prophylaxis, presence of counterfeit prophylactic drugs, and varied quality of access to medical care [8].

The UK Foreign and Commonwealth Office is one of the largest employers of British people abroad; deploying over 9000 staff and dependants to 160 countries for an average of 3—5 years [12]. This includes deployments to 28 posts in malaria endemic areas. The Foreign and Commonwealth Office maintains a duty of care to their staff wherever they are deployed in the world, and this duty of care includes malaria prevention. In 2011, the Foreign and Commonwealth Office updated their malaria guidance to staff and dependants, and re-emphasised the importance of the ABCD of malaria prevention (Avoidance of risk, Bite prevention, Chemoprophylaxis and early Diagnosis.) As part of their overseas health provision, all staff and dependants are provided with pre-travel advice on the risks of malaria, on preventive measures and prophylaxis based on the Advisory Committee on Malaria Prevention in UK Travellers (ACMP) guidelines, and the importance of seeking medical care if unwell. The risks of malaria are highlighted periodically during postings through a variety of ways (e.g. by clinicians based in Foreign and Commonwealth Office clinics overseas, communication from the Foreign and Commonwealth Office Health and Welfare department in the UK etc). The Foreign and Commonwealth Office guidelines recommend the use of malaria prophylaxis for the duration of any overseas deployment in malaria endemic areas. Anecdotally however, long-term compliance is thought to be poor. The aim of this review was to assess baseline compliance rates and establish the rationale for decisions about compliance made by this group of British expatriates and their dependants based in endemic areas.

Method

A self-administered questionnaire structured to survey participants' attitudes, background knowledge of malaria, health seeking behaviours and compliance with malaria prophylaxis recommendations was designed. In July 2012, Foreign and Commonwealth Office staff posted to malaria endemic areas (as defined by ACMP) were contacted via e-mail and asked to complete this questionnaire. The number of staff in each post was identified from human resources records. The full questionnaire is available at https://www.surveymonkey.com/s/8JVSCLT.

Questions were targeted to obtain information about malaria prevention strategies in their current posting. Some free text responses allowed additional information about previous placements. Reminder emails were circulated at 8 and 12 weeks. Responses were collated via 'SurveyMonkey'.

The questionnaire was distributed with a brief background as to the rationale of the review and details