Introduction

Malaria still represents a global health burden; according to the World Health Organization, half of the world’s population are at risk from malaria. Vanuatu is an archipelago of 83 islands situated in the South-west Pacific where Plasmodium vivax and falciparum malaria species are endemic. It has a total population of 221,000. Despite the efforts of the National Vector Borne Diseases Control Programme, which reduced malaria morbidity and mortality in Vanuatu significantly in the 1990s, the incidence of malaria has been increasing again recently. Annual parasite incidence (API) decreased from 196 per 1000 in 1990 to 28 per 1000 in 1999; however, in 2003, the incidence of malaria had risen to the same level as it was in 1992, with an API of 74 per 1000, 756 reported severe malaria cases and six malaria-related deaths. It is likely that the actual figure was three times higher due to lack of coverage of diagnostic services in hospitals.

Insecticide-treated nets (ITNs) are one of the most effective methods of malaria prevention. Currently, external funding to the Malaria Control Programme from the Global Fund and Australian Government is being implemented in Vanuatu to decrease the incidence of malaria by increasing the coverage of diagnostic services to hospitals and healthcare centres, and ITNs within the community. ITNs are distributed to communities by specialized ‘malaria teams’ consisting of health workers who also provide general advice on malaria prevention. Previously, there was a nominal charge for ITNs; however, from 2009, the Government plans to distribute ITNs free of charge. Prior to 2007, permethrin-impregnated ITNs were distributed which needed to be retreated every year. Since 2007, only long-lasting ITNs have been distributed, which need to be replaced every 5 years. As yet, there are no data documenting the level of provision and coverage of these services in Vanuatu, although the provision of ITNs was estimated to be less than 20% in 2005.

The aims of the current study were two-fold: firstly, to explore public awareness of the symptoms and potential complications of malaria; and secondly, to explore the prevalence of use of different malaria prevention methods and reasons for non-use in Vanuatu. This would enable the identification of barriers to use of malaria preventative methods and gaps in knowledge in order to guide future national malaria prevention campaigns in Vanuatu.

Semi-structured interviews were used to gather qualitative and quantitative data on public awareness and knowledge of malaria, use of malaria prevention measures and reasons for non-use. The study was undertaken in conjunction with the National Malaria Control Programme in Vanuatu and the Department of General Practice and Primary Care, King’s College London School of Medicine. Permission to complete the research was granted by Vila Central Hospital ethics committee, and each respondent gave informed verbal consent. Respondents were recruited opportunistically from Vila Central Hospital and Paunangisu Health Centre in Efate, Vanuatu. A total of 202 people participated (63 males and 139 females, age range 15–79 years, mean age 34 years). The majority of respondents were...
from the island of Efate; however, there were a minority from other islands (including Ambrym, Tongoa, Santo, Tanna, Pentecost, Malekula), but numbers were too small to draw comparisons between the different islands. Interviews took place during July and August 2008 within Vila Central Hospital and Paunangisu Health Centre, and each interview lasted for approximately 10–15 min.

Public awareness of malaria

All respondents were aware that malaria was transmitted by mosquitoes and that the main method of preventing transmission was to prevent mosquito bites. Sixty-seven percent of respondents knew two or more symptoms of malaria, and 33% knew one symptom or no symptoms. Overall, most respondents (91%) knew that malaria was treatable and that this required taking tablets and/or a short stay in hospital. The majority of participants (87%) believed that malaria could be fatal. There was no difference between male and female participants’ awareness of symptoms or fatality. Most participants had either suffered from malaria at least once in the past or knew somebody that had suffered from it. Of those who had been infected themselves, most had sought help at either the hospital, health centre or aid posts, and had been treated successfully. The majority of participants were aware that it was possible to get a ‘blood test’ (finger prick test) to determine if they had malaria, and most respondents had sought a malaria blood test at least once in the past when they had been ill and believed that they may have had malaria.

The most commonly reported source of knowledge about malaria prevention was health workers (54% of respondents); however, 14% of participants claimed that they had not received information about malaria prevention methods from any source.

Prevalence of use of malaria prevention methods and reasons for non-use

In addition to the anticipated use of conventional methods of mosquito bite prevention, such as ITNs, insecticide sprays and fitting of mesh screens on windows, it was discovered that many people also used insecticide-containing mosquito coils. Additional methods that had not been anticipated were good sanitation within the household to prevent mosquito breeding (i.e. clearing rubbish and containers of stagnant water), and using smoke (by burning a fire within the house) to deter mosquitoes, as advised by local healthcare teams. The majority of participants (87%) believed that malaria could be fatal. There was no difference between male and female participants’ awareness of symptoms or fatality. Most participants had either suffered from malaria at least once in the past or knew somebody that had suffered from it. Of those who had been infected themselves, most had sought help at either the hospital, health centre or aid posts, and had been treated successfully. The majority of participants were aware that it was possible to get a ‘blood test’ (finger prick test) to determine if they had malaria, and most respondents had sought a malaria blood test at least once in the past when they had been ill and believed that they may have had malaria.

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Most participants (98%) used at least one method of malaria prevention. The most commonly used method was burning of insecticide-containing coils (used by approximately 70% of respondents). However, only 50% of respondents used ITNs (see Fig. 1). The most common reasons given for non-use of ITNs were the belief that there were no mosquitoes and therefore there was a low risk of catching malaria, and that ITNs were too uncomfortable to sleep in as they were ‘too hot’ and subjects were ‘unable to breathe’ when sleeping under a net. Eleven percent of respondents did not have an ITN due to lack of distribution. Women used ITNs more frequently than men (59% of ITN users were women and 41% were men). Respondents who lived in the capital, Port Vila, were less likely to own or use an ITN and more frequently attributed their non-use of an ITN to lack of net distribution or the belief that there was a low density of mosquitoes in Port Vila.

The main findings of this study were that although the majority of respondents used at least one method to prevent mosquito bites, only 50% were using ITNs. The main reasons for not using ITNs were discomfort and the belief that there was a low mosquito density; however, it appeared that distribution of nets had not been universal as a large proportion of respondents reported lack of distribution as a reason for non-use of ITNs.

Despite the relatively poor uptake of ITNs, however, most respondents had a relatively good awareness of malaria symptomology and fatality. Many participants were aware of the potential serious complication of cerebral malaria, and that if malaria was not treated properly, there was the possibility of relapse (with P. vivax strains). The data indicate that the majority of respondents had been informed about malaria through national campaigns that involved teaching at school, radio broadcasts or by verbal advice from healthcare workers at hospitals/health centres or those specifically involved in one of the malaria prevention teams. Although this study did not fully explore the information that had been conveyed through these mediums, recurrent themes were that subjects had been informed that they should sleep under ITNs, keep their houses clean and free of containers of stagnant water in order to prevent mosquito breeding, and seek help if they developed symptoms of malaria such as fever or headache. It is possible that the awareness of symptoms and the fact that treatment could be accessed easily could actually be a factor undermining preventative measures.

One area that needs further investigation is the effort being invested in promoting the use of other, less effective, preventative measures, since the preferred method for prevention of mosquito bites, in terms of number of users, was burning insecticide-containing coils. A systematic review
concluded that although there may be some evidence that coils have ‘anti-mosquito’ efficacy, there is no evidence that they prevent malaria acquisition. Similarly, although there is some anecdotal evidence from developing countries that smoke from domestic fuel can prevent mosquito bites, a recent review concluded that there was no evidence that smoke provided any protection from mosquito bites or malaria transmission. Although there is value in good household sanitation to prevent mosquito breeding within the house, this alone is unlikely to be a sufficient method of malaria prevention. In summary, despite relatively good public awareness of the symptoms and fatality of malaria, improvement in the distribution and uptake of ITNs is something that needs to be addressed by the Malaria Control Programme in Vanuatu. In addition, it is paramount that correct and adequate information is communicated via malaria teams in order to facilitate uptake of effective malaria preventative methods.

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Ethical approval

Local Ethical Committee in Vanuatu. Informed consent was obtained from each participant in accordance with the Declaration of Helsinki.

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Competing interests

None declared.

References