

Relapsing vivax malaria

Scott J Kitchener,* Isaac Seidl†

*Officer Commanding, Clinical Field Section, Army Malaria Institute, Gallipoli Barracks, Enoggera, QLD <scott.kitchener@tropmed.org>; †Regimental Medical Officer, 5th/7th Battalion, Royal Australian Regiment, Robertson Barracks, Northern Territory, NT.

TO THE EDITOR: The Australian Defence Force (ADF) has sustained many cases of malaria following service in East Timor.¹ To reliably prevent relapse of malaria caused by the Chesson strain of *Plasmodium vivax* present in this region, larger doses of primaquine are required² (up to 6 mg/kg total dose,³ compared with > 3.5 mg/kg to prevent relapse of sub-Saharan vivax malaria⁴). The ADF uses 1500 mg chloroquine (total base) followed by 315 mg primaquine (total base) for the treatment of vivax malaria, which, in Australia, is commonly treated either without primaquine or with inadequate dosages of either chloroquine or primaquine.⁵

A fit, 65 kg male soldier who deployed to East Timor from October 1999 to May 2000 experienced one episode of vivax malaria during his deployment and a further four episodes on return to Australia (Box). Having had malaria in East Timor, he complied closely with postexposure prophylaxis with primaquine and tolerated his dose (7.5 mg three times daily with meals) well for the required 14 days (315 mg total). He was seronegative for HIV, hepatitis C, and dengue IgG and IgM, and was not glucose-6-phosphate dehydrogenase deficient.

The Table shows that our patient had a parasite that was apparently responsive to

chloroquine, although it did not respond as readily in the last episode.

In his first episodes of malaria on return from East Timor, he received the recommended dose of primaquine, but developed recurrences in the absence of further exposure to malaria. These relapses presumably indicate an inadequate response to the primaquine. The total dose of primaquine used for postexposure prophylaxis and treatment of the first episodes in Australia was about 4.8 mg/kg. He has subsequently received a treatment of 6 mg/kg total primaquine (see Table, Episode 5). This follows extended suppression with chloroquine before and doxycycline during a three-month deployment to Malaysia. There has been no further relapse six months after treatment.

Chesson-strain vivax malaria is known to be difficult to treat and in which to prevent further relapse. Adequate primaquine to treat vivax malaria from other areas is not adequate for that contracted to the immediate north of Australia. Relapsing vivax malaria from East Timor may require a dose of 6 mg/kg of primaquine to prevent further relapse.

1. Kitchener SJ, Auliff AM, Rieckmann KH. Malaria in the Australian Defence Force during and after participation in the International Force in East Timor (INTERFET). *Med J Aust* 2000; 173: 583-585.

2. Ehrman FC, Ellis JM, Young MD. *Plasmodium vivax* Chesson Strain. *Science* 1945; 101: 377.

3. Clyde DF, McCarthy VC. Brief communications. Radical cure of Chesson strain vivax malaria in man by 7, not 14 days of treatment with primaquine. *Am J Trop Med Hyg* 1977; 26: 562-563.

4. Schwartz E, Regev-Yochay G, Kurnik D. Short report: a consideration of primaquine dose adjustment for radical cure of *Plasmodium vivax* malaria. *Am J Trop Med Hyg* 2000; 62: 393-395.

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Household infrastructure in Aboriginal communities and the implications for health improvement

Paul J Torzillo,* Paul Pholeross†

*Senior Physician, Room 420, Royal Prince Alfred Medical Centre, 100 Carillon Road, Newtown, NSW 2042 <pault@med.usyd.edu.au>; †Architect, Sydney, NSW.

TO THE EDITOR: We were disappointed with the article by Bailie and Runcie on household infrastructure in Aboriginal communities.² It has major methodological and ethical problems that, in our view, should have precluded its publication.

The data were not collected by a process which allows meaningful scientific analysis. In determining the state of health hardware, the authors did not outline the testing methods or how functioning of different items was assessed. No standardised procedure is evident within the process, no formalised training of those conducting the assessment is indicated, and there is no evidence that supervision or auditing of consistency was performed. In fact, these problems are acknowledged by the authors in a publication on the same project, in which they state: "There was no protocol for a number of steps in the data collection process. There was no protocol for what type of information was gathered by interviewing residents, nor for which resident was the most appropriate interviewee."

"The way data was collected varied between field officers, and the way an individual officer collected data varied between houses. Firstly, the items might be observed. Secondly, but not always, items may be tested for functionality (eg, by turning a tap on). Whether items were physically tested sometimes depended on how "clean" the house was. If it was clean, then the items were sometimes assumed to be functioning..."³

No amount of analysis can correct for such inadequacy in primary data. The authors dismiss this problem by referring to consistent patterns of data across different communities. This in no way addresses the problem of identifying the true level of hardware functioning. It simply suggests that measurement omission or error was widespread.

Even if the items tested did not require maintenance, this does not indicate that they were functioning adequately, as no defined and standardised tests were applied (see Appendix B, page 38, in reference 2).³

Parasite density and treatment during the patient's episodes of malaria

Episode	Date of diagnosis	Parasite density	Treatment
1	1 April 2000	Positive on immunochromatographic test*	Chloroquine 1500 mg, continued doxycycline 100 mg daily, primaquine 315 mg from 2 May
2	17 July 2000	23 000/μL	Chloroquine 1500 mg, then primaquine 315 mg
	20 July 2000	No parasites seen	
3	26 Sep. 2000	8607/μL	Chloroquine 1500 mg, then primaquine 315 mg
	29 Sep. 2000	No parasites seen	
4	11 Dec. 2000	11 400/μL	Chloroquine 1500 mg, then weekly for two months†
	14 Dec. 2000	No parasites seen	
5	3 April 2001	Occasional trophozoites on thick and thin film	Chloroquine 1500 mg, then weekly for one month; doxycycline for three months, then primaquine 420 mg
	6 April 2001	Occasional trophozoites only on thick film	

*Immunochromatographic test used in the field.

†Patient ceased treatment.

The article's ethical problems are masked by discussion about community confidentiality. The authors described an audit and assessment of health hardware without any attempt at intervention and improvement. This is in a setting where a method that links assessment and intervention has not only been established, but is now performed by different groups across a wide range of communities. In fact, this process is referenced by the authors.³

The article by Bailie and Runcie reinforces what is widely known — that Aboriginal housing is generally poor. There can be only two reasons for trying to assess the actual state of Aboriginal housing and health hardware. The first is to enable intervention to rectify the problem at the same time. The second is to enable future housing and infrastructure programs conducted by government to be technically targeted and subsequently assessed to determine whether improvement really is occurring. Unless the baseline status is accurately and reproducibly determined, then we will have no way of knowing whether such programs are actually making a difference.

Competing interests: The authors are directors in a company, HealthHabitat, which licenses a method for assessing and fixing houses in Aboriginal communities.

1. Bailie RS, Runcie MJ. Household infrastructure in Aboriginal communities and the implications for health improvement. *Med J Aust* 2001; 175: 363-366.
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Ross S Bailie

Associate Professor of Public Health, Menzies School of Health, and Flinders University, Northern Territory Clinical School, PO Box 41096, Casuarina, NT 0811. ross.bailie@menzies.edu.au

IN REPLY: A primary objective of our evaluation¹ was to identify methodological deficiencies for the purpose of improving data quality in subsequent surveys. These deficiencies, described in detail in our evaluation report and referred to by Torzillo and Pholeros, are also described in our *Medical Journal of Australia* article.²

Our assessment (reinforced by reference to subsequent survey findings) was that the data were of sufficient quality to be useful for the purpose for which they were collected — to guide and monitor a

substantial maintenance and building program. Torzillo and Pholeros appear to have missed this point. Their analogy with a clinical therapeutic trial where the survey is equated with a placebo is absurd, all the more so for the reference to the HealthHabitat work as being “an effective agent [that] is already licensed”. This “effective agent” has, to my knowledge, never been subjected to external evaluation or peer review — some licensing process!

With regard to ethics, a fundamental aim of the survey was to identify areas of greatest need, and allow the allocation of resources on an equitable basis to improve Aboriginal housing standards across the Northern Territory. In an environment of massive need and limited resources, this is arguably a more ethical approach than that of HealthHabitat, where, in 2001, intensive input was delivered to only four out of hundreds of Aboriginal communities in the NT.

1. Runcie M, Bailie R. Evaluation of environmental health survey data – Indigenous housing. Darwin, Northern Territory: Menzies School of Health Research, July 2000.
2. Bailie RS, Runcie MJ. Household infrastructure in Aboriginal communities and the implications for health improvement. *Med J Aust* 2001; 175: 363-366. □

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