

# Malaria

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## Condition

Malaria (*Plasmodium falciparum*, *vivax*, *ovale*)

There are three risk factors for malaria, for which each donor should be screened. Click on risk factor for guidance:

[Donor has lived in a malaria risk area for 6 or more continuous months at any time of life](#)

[Donor has been in a malaria risk area - for any amount of time - within the last 3 years](#)

[Donor has past history of malaria](#) (and/or history of unexplained febrile illness following travel to a malarial area)

## Justification for guidance

Malaria is a human infection caused by *Plasmodium* parasites of at least five species – *P. falciparum*, *P. vivax*, *P. ovale*, *P. malariae* and *P. knowlesi*. The organism infects red cells, and is known to be transmissible through red cell-containing blood products. Instances where an asymptomatic blood donor has transmitted malaria to a recipient have generally resulted from a condition known as “semi-immunity”, whereby a person with long-term exposure to malaria risk – particularly residence in a risk area during early childhood – may be capable of acquiring active infection in the absence of symptoms. Another theoretical concern is the possibility that symptoms of malaria infection may be masked by the use of prophylactic anti-malarial therapy.

Blood donor eligibility guidelines in Europe, Australia and New Zealand now consider semi-immunity to be a risk for donors who have resided in a malaria risk area at any time of life – not just early childhood. Accordingly, blood donors in those regions are now asked if they have ever spent 6 or more continuous months in malaria risk areas. Therefore, we propose that prospective HSC donors who have ever resided in a malaria risk area (for 6 continuous months or more) should be tested for malaria antibodies, or at least considered to be at risk of malaria semi-immunity.

Prospective HSC donors who report travel to a malaria risk area within the last 3 years should be tested for malaria antibodies, irrespective of whether they had a fever within the first 6 months, to exclude the risk of sub-clinical malaria infection. This proposal differs from the current criteria, which accept such a donor without testing after 6 months, as long as no febrile episodes are reported during or after their travel exposure. The rationale for tightening these criteria is that a history of fever may be absent in travellers with asymptomatic malaria infection, yet is also a common symptom of other infections. In any case, testing these donors out to 3 years will cover the risk period defined by the current criteria irrespective of fever history, while the question capturing malaria history could easily be modified to also capture “unexplained” fever following travel to a risk area.

Conversely, we propose that the current criteria for prospective HSC donors with a history of malaria infection could be relaxed in line with blood donor guidelines in Europe/Australia/New Zealand. Those guidelines derive from the Council of Europe Guide to the preparation, use and quality assurance of blood and blood products (the CoE Guide), and allow the acceptance of a blood donor as little as 4 months after cessation of successful therapy, subject to a negative antibody test.

Finally, the current criteria assume a possible “serological window period” of 6 months for the development of malaria antibodies following exposure. The CoE blood donor Guide assumes a window period of 4 months, while the true window period is probably even shorter. In the context of HSC donation, where the prospective donor may be the only potential match for the patient, we propose that each malaria antibody result simply be reported to the treating Dr in conjunction with the reported risk factor and the interval between last exposure/treatment cessation and testing, noting the likely window period for malaria antibody testing.

## References

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## Notes

Australia: An additional precaution in our Blood Service, which to our knowledge is specific to this country, is that blood donors at high risk of *P. vivax* infection are ineligible for clearance by antibody testing within 3 years of exposure. In a local context, this is defined as travel to Papua New Guinea (PNG) – a country with a very high risk of vivax malaria in all inhabited areas, yet is a relatively popular travel destination for Australians due to its proximity and historical significance. This precaution was prompted by two cases where a recent visitor to PNG donated blood and tested negative for malaria antibodies, despite later developing relapsing vivax malaria. In a HSCT context the ABMDR has not extended this precaution to HSC donors, as our malaria protocol simply requires testing of any donor reporting a malaria risk, with the results then reported. Accordingly, our suggested WMDA criteria do not require an analogous precaution either.