



Guidance for Malaria Diagnosis in Patients Suspected of Ebola Infection in the United States

Patients suspected of having malaria infection should urgently be evaluated through microscopic examination of thick and thin blood smears, adhering to OSHA's bloodborne pathogens standard. Thick blood smears are more sensitive in detecting malaria parasites because the blood is more concentrated allowing for a greater volume of blood to be examined. Thin smears aid in parasite species identification and quantification. Blood films need to be read immediately; off-hours, qualified personnel who can perform this function should be on call. Laboratories unable to provide immediate smear microscopy should maintain a supply of malaria antigen detection kits to assist with the initial diagnosis of malaria, which subsequently can be confirmed by microscopy or PCR. While it is possible that some viruses, including Ebola virus, may not be inactivated by the thick smear preparation process, laboratory staff can safely perform testing by adhering to the OSHA bloodborne pathogens standard including wearing gloves to prevent exposures to all bloodborne pathogens.

Although current recommendations for making malaria smears remain the standard, some laboratories may choose to take additional steps to inactivate viruses including Ebola virus by making the following modifications to their malaria slide preparation procedures:

For thick smears:

1. There is no pre-hemolysis in water and no fixation.
2. The working Giemsa stain should be prepared with 2 ml of 5% Triton X-100 per 40 ml. The thick smear slides are first placed into this solution for 45 minutes.
3. The working Giemsa buffer should be prepared with 2 drops of 5% Triton X-100 per 40 ml. The stained slides should be washed as normal for 5 minutes in this buffer.

For thin smears:

1. Fix thin smears for 15 to 30 minutes in 100% methanol.
2. The working Giemsa stain should be prepared with 2 drops of 5% Triton X-100 per 40 ml. The dry thin smear slides should be placed into this solution for 45 minutes.
3. The working Giemsa buffer should be prepared with 2 drops of 5% Triton X-100 per 40 ml. The stained slides should be washed as normal for 5 minutes in this buffer.

The thick smears and the thin smears must be treated and stained differently so they cannot be on the same slide.

For additional information: http://www.cdc.gov/malaria/diagnosis_treatment/index.html
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- Health care providers needing assistance with diagnosis or management of suspected cases of malaria should call the CDC Malaria Hotline: 770-488-7788 or (toll free) 855-856-4713 M–F, 9am–5pm ET
- Emergency consultation after hours: call 770-488-7100 and request to speak with a CDC Malaria Branch clinician

- Email: malaria@cdc.gov (<mailto:malaria@cdc.gov>)

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