Malaria can be a rapidly fatal disease, particularly when due to *Plasmodium falciparum*, and less commonly *P. vivax* and *P. knowlesi*, and testing must be performed on a STAT basis. If testing is not available at the local laboratory, then arrangements must be made with another nearby laboratory that can provide immediate testing. A single negative test does not rule-out malaria. Consider repeat testing every 12 to 24 hours for a total of 3 evaluations if clinically indicated. Other laboratory tests (ie, complete blood count with differential, electrolyte panel, blood glucose, bilirubin, urinalysis, blood cultures) may be indicated to assess the severity of malaria and evaluate other potential causes of the patient's illness.

1 Malaria suspected based on clinical findings and exposure history

Immediately perform 1 or more of the following tests at local lab on a STAT basis

- Rapid diagnostic test (ie, lateral flow immunochromatographic assay)
  - Report preliminary (positive or negative) result to clinical team and indicate confirmatory test will follow
  - Perform confirmatory testing by microscopic examination of blood films within 12-24 hours after rapid test
  - NAAT can also be used for confirmation if available

- Gold Standard
  - Microscopic examination of blood films
  - Examination of both thick and thin blood films is the gold standard for malaria diagnosis

Optional, but subject to local availability

- Nucleic acid amplification test (NAAT) (eg, PCR) if available on a STAT basis at a local laboratory

POSITIVE

Order additional testing if needed to:
- Confirm the diagnosis
- Identify the infecting species
- Determine the percentage of parasitemia

NEGATIVE

Consider repeat testing every 12-24 hours for a total of 3 evaluations to exclude malaria from the differential diagnosis

Routine confirmatory testing

MAL / Rapid Malaria/Babesia Smear
Order for:
- Confirming the diagnosis
- Determining percentage of parasitemia
- When mixed infection with more than 1 *Plasmodium* species is suspected

LMALP / Malaria PCR with Parasitemia Reflex
OR
LCMAL / Malaria, Molecular Detection, PCR Only
Order for:
- Suspected cases with low parasite load
- Cases with poor morphology due to receipt of prior antimalarial therapy or prolonged sample exposure to EDTA

Percent parasitemia is calculated using the thin blood film. Positive results by the LMALP automatically reflex to calculation of percent parasitemia.

POSITIVE

Rapid results ~15 minutes; requires confirmation test

NEGATIVE

Optional, but subject to local availability

Gold Standard

- Microscopic examination of blood films
- Examination of both thick and thin blood films is the gold standard for malaria diagnosis

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2 Rapid screening tests such as lateral flow immunochromatographic assays generally provide sensitive detection of high levels of *P. falciparum* and *P. vivax* infection (ie, 2,000 parasites/mcL), but lack sufficient sensitivity for detecting low levels of parasitemia (ie, ≤200 parasites/mcL) and other *Plasmodium* species.