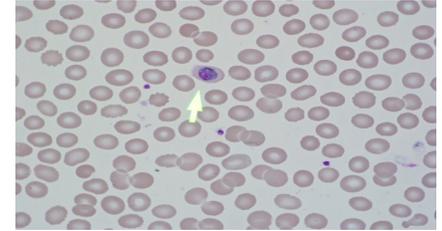




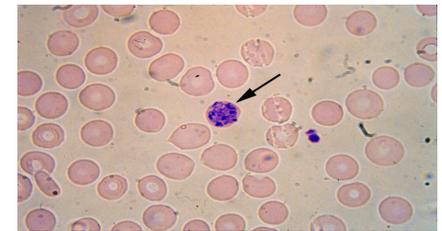
Malaria: Operation United Assistance Update

- Malaria in humans is caused by five species of parasites: *Plasmodium falciparum*, *P. malariae*, *P. vivax*, *P. ovale*, and *P. knowlesi*. Infected female *Anopheles* mosquitoes transmit the parasite to humans.
- Symptoms of malaria include fever, headache, muscle aches, nausea, and malaise. *P. falciparum* infections can be severe and result in kidney failure, seizures, or death.
 - ⇒ Illness due to *P. malariae* and *P. ovale* may develop months or years after exposure.
- To date, five cases of non-falciparum malaria have been diagnosed in personnel after their return from OUA deployment in Liberia.
 - ⇒ Three *P. malariae* cases and one *P. ovale* case have been identified; final speciation of one case is still pending at the time of this publication.
- Surveillance testing of mosquitoes collected from OUA has been negative for malaria.
- These few cases, none of which occurred during deployment, demonstrates success in achieving high levels of adherence to prevention measures during deployment. No changes to prevention measures are indicated; medical providers should consider malaria when evaluating febrile illnesses in personnel who deployed in support of OUA.

Plasmodium ovale



Plasmodium malariae



Tick-borne Diseases

- The DoD Human Tick Test Program conducts pathogen testing in ticks removed from patients in DoD healthcare facilities. Tick testing is species-specific; different tick species transmit different pathogens. Contact information can be found [here](#).
- Of 110 *Ixodes* ticks tested by the Human Tick Test Program, 37% (n=41) were positive for the Lyme disease pathogen *Borrelia burgdorferi*.
- 5/110 (4.5%) ticks tested positive for *Anaplasma phagocytophilum*, the causative agent of anaplasmosis.

Human Tick Test Program	<i>A. phagocytophilum</i>	<i>B. microti</i>	<i>B. burgdorferi</i>	<i>E. chaffeensis</i>	<i>E. ewingii</i>	<i>E. muris-like</i>	<i>R. parkeri</i>	<i>R. rickettsii</i>
YTD No. Positive (YTD No. Tested)	5 (110)	1 (110)	41 (110)	4 (339)	2 (339)	0 (110)	0 (0)	0 (70)

Note: CONUS data only.

DRSi Surveillance

- Since the beginning of this calendar year, 21 cases of Lyme disease have been reported in Army beneficiaries compared to 32 cases during the same time period in 2014.
 - ⇒ Of the 21 Lyme disease cases, 9 (43%) were AD, one of whom reported duty-related exposure.
- Two cases of Rocky Mountain Spotted Fever (RMSF) have also been reported since the beginning of 2015, both in active duty Soldiers.

Vector-borne Disease Prevention

- For both mosquito-borne and tick-borne diseases, prevention strategies include:
 - ⇒ Wearing the [permethrin-treated uniform](#)
 - ⇒ Applying insect repellent with 20-30% DEET or 20% picaridin to exposed skin
 - ⇒ Sleeping under permethrin-treated bednets
 - ⇒ Anti-malarial medications may also be required (see [posters](#) and [tip cards](#)).
- Standing water should be removed to prevent the formation of mosquito breeding grounds.
- Remove ticks from the body as soon as possible to help prevent disease transmission; attachment time required for transmission varies by disease. Also remove ticks from pets and gear.

Publication

- The Mid-Atlantic Tick Summit III, which was held in Maryland in 2014, is a gathering of researchers and experts who discuss and share information about ticks and tick-borne diseases. This [article](#) provides an overview of last year's summit and why these types of meetings are important.

Resources: [WHO Malaria](#) • [CDC Malaria](#) • [Human Tick Test Program](#) • [USAPHC Malaria Fact Sheet](#) • [Army Vector-borne Disease Reports](#) • [USAPHC](#)

Key: [CDC Centers for Disease Control and Prevention](#); [DRSi Disease Reporting System Internet](#); [AD Active Duty](#)

Contact us: [USAPHC Disease Epidemiology](#) or 410-417-2377