**YELLOW FEVER**

<table>
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<th>Animal Group(s) Affected</th>
<th>Transmission</th>
<th>Clinical Signs</th>
<th>Severity</th>
<th>Treatment</th>
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<th>Zoonotic</th>
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<tr>
<td>Non-human primates; humans</td>
<td>Mosquito bites</td>
<td>Bleeding diathesis, fever, hepatopathy, death</td>
<td>Mild to severe to fatal.</td>
<td>Supportive</td>
<td>Mosquito control, vaccination</td>
<td>Yes</td>
</tr>
</tbody>
</table>

**Fact Sheet compiled by:** Ellen Wiedner  
**Sheet completed on:** 11 November 2010; updated 1 March 2013  
**Fact Sheet Reviewed by:** Jim Wellehan; Alan Barrett; Ramiro Isaza

**Susceptible animal groups:**  
Africa: *Colobus, Cercopithecus, Cercocetus, Papio, Galago, Pan*  
South America: *Alouatta, Aotus, Saguinus, Ateles, Callicebus, Cebus, Saimiri*

**Causative organism:** Family *Flaviviridae*, Genus *Flavivirus* at least 7 genotypes. Mosquito genera vectors include *Aedes, Haemagogus, and Sabethes*.

**Zoonotic potential:** Yes. Sylvatic cycle has monkey reservoir; transmission to humans occurs when virus-infected mosquito bites a person. Urban cycle involves man and mosquitoes only.

**Distribution:** Disease has been eliminated in North America and Europe but it still occurs in tropical South America, Caribbean, and Sub-Saharan Africa.

**Incubation period:** In humans, 3-6 days; in monkeys, 2-3 days.

**Clinical signs:**  
New World monkeys: fever, leukopenia, death  
Old World monkeys: none, except in *Galago* which has high mortality rate and may show signs as in New World monkeys. In *Galago*, serum may turn green for 2 to 5 days during period of viremia.  
Humans: variable ranging from mild and self-limiting febrile disease to severe hepatitis to fulminant hemorrhagic fever. In humans, mortality rate from up to 50%.

**Post mortem, gross, or histologic findings:**  
New world monkeys: bleeding diathesis, shock, severe hepatocellular necrosis

**Diagnosis:** Serology: paired serum titers showing four-fold increase in IgG or presence of yellow fever specific IgM. Isolation of virus in tissues, particularly liver, can be performed or PCR identification of viral genome in blood or tissues. Immunohistochemical detection of viral antigen in tissues is possible.

**Material required for laboratory analysis:** Liver, other organ tissues, whole blood, serum

**Relevant diagnostic laboratories:**  
CDC Arbovirus Diagnostic Laboratory. For details and contact information, refer to:  
http://www.cdc.gov/ncidod/dvbid/misc/arboviral_shipping.htm

**Treatment:** Symptomatic, including fluids, anti-inflammatories, and blood transfusions. Ribavirin has been used in some cases.

**Prevention and control:** Vaccination is recommended for travelers and for personnel in face of outbreak. (Specific documentation required for movement into and between yellow fever endemic countries per International Health Regulations guidelines). Yellow fever 17D vaccine is a live attenuated vaccine. Mosquito control necessary in primate facilities.

**Suggested disinfectant for housing facilities** Mosquito control required.

**Notification:** As eliminated, it is a reportable disease and state health department should be contacted. All yellow fever cases must be reported to WHO within 24 hours of confirmation.
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**Measures required under the Animal Disease Surveillance Plan:** None.

**Measures required for introducing animals to infected animal:** The disease is arthropod borne. However, infected animals can infect mosquitoes and contribute to the transmission cycle. Thus, insect control is essential. Experimentally, contact with contaminated blood can infect some primate species, so do not introduce animals to each other when they are clinically sick.

**Conditions for restoring disease-free status after an outbreak:** Outbreak control requires elimination of infected mosquitoes and their larvae.

## Experts who may be consulted

Centers for Disease Control & Prevention  
Division of Vector-Borne Diseases  
Arboviral Diseases Branch  
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Avenue Appia 20  
1211 Geneva 27  
Switzerland  
http://www.who.int/csr/disease/en/

## References: