YELLOW FEVER

Disease Overview

Yellow Fever is by a virus (Flavivirus) that is transmitted by the bite of an infected mosquito. It is endemic in Africa, Central and South America. The virus is transmitted by *Aedes* species and other species of mosquitoes. Encourage immunization for travelers to endemic areas.

Symptoms

The majority of infections are asymptomatic. Clinical disease varies from mild febrile disease to severe illness. Symptoms include sudden onset of fever, chills, body and muscle aches, nausea and vomiting. Most patients recover at this stage.

In severe cases, there is progression to serious illness including jaundice, hemorrhagic symptoms and organ failure. Death can occur.

Reservoir

Humans are a reservoir in the urban cycle in urban areas. In forested or jungle areas, vertebrates other than humans for example primates are the reservoir.

Modes of Transmission

Bites from infected *Aedes* mosquitoes in the urban cycle; several mosquitoes species involved in the transmission are found in the jungle.

Incubation period

From 3 – 6 days.

Period of communicability

Not transmissible person to person.

Risk Factors

Increased risk for acquiring/severe illness:

- Unvaccinated travellers to endemic areas.
- Non-use of mosquito bite prevention measures in endemic areas

Surveillance Case Definition

Confirmed case

Clinical illness with laboratory confirmation of infection:

- isolation of yellow fever virus
  OR
- detection of yellow fever viral antigen in body fluids or tissue
  OR

- detection of yellow fever nucleic acid in body fluids or tissue
  OR
- a significant (i.e. fourfold or greater) rise in antibody titre to the yellow fever virus in the absence of yellow fever vaccination
  OR
- a single elevated yellow fever IgM antibody titre in the absence of yellow fever vaccination within the previous two months

Probable case

Clinical illness with laboratory evidence of infection:

- a stable elevated antibody titre to yellow fever virus with no other known cause
- cross-reactive serologic reactions to other flaviviruses must be excluded, and the patient must not have a history of yellow fever vaccination

Diagnosis and Laboratory Guidelines

Antibodies directed towards members of the flavivirus genus (dengue, West Nile virus, yellow fever) can cross react significantly in some serological assays.

Serological detection of IgG and/or IgM antibodies by ELISA testing is available at regional laboratories. Due to the cross-reactive nature of flavivirus antibody, the detection of flavivirus IgG in a single sera indicates a past or present exposure to this agent, or a related agent from the same virus genus. The presence of flavivirus specific IgM in a single serum sample is consistent with an acute infection to this agent or a related flavivirus. A 4 fold rise or greater in neutralizing antibody titre, or an IgG or IgM seroconversion in paired sera, is required to document a "confirmed case" of infection with associated illness. There is increasing evidence for IgM persistence in blood/serum for up to a year or more after arbovirus exposure. Thus, detection of IgM by itself may not always be a confirmation of acute infection.

The National Microbiology Laboratory does ELISA and hemagllutination inhibition tests (HAI) (turnaround time is 14 days). Confirmatory testing is done at the National Microbiology Laboratory. Samples that are reactive (HAI or ELISA) are then tested for the presence of neutralizing antibodies by the Plaque Reduction Neutralization Test (PRNT). The PRNT is a more specific assay and can be used to document the presence of serum antibodies specific for a particular flavivirus. Note: if the patient has experienced more than one flavivirus infection, cross-reactive results could in fact yield uninterpretable results with this assay despite increased specificity. PRNT is not a routine test and turnaround time is 14 calendar days after the completion screening testing (IFA or ELISA).

Reporting

Per Policy 2.2 Disease and Event notification to OCMOH and Disease and Event Reporting section

- CD Urgent Notification.
- Routine surveillance (RDSS) for all confirmed cases.

Case Management

Education

Case or relevant caregiver should be informed about:

- Nature of infection, length of communicable period, mode of transmission and disease ecology
- Mosquito bite prevention
- Need for prompt diagnosis and treatment of a febrile illness during and after travel to an endemic area

Investigation

Obtain symptom history and onset, travel and immigration history and mosquito exposure.

Exclusion/Social Distancing

Not applicable.

Treatment

Treatment is supportive, drugs are available.

Immunization

Not applicable for case management. Immunity is lifelong following infection.

Contact Management

Education

Family members probably travel together, may have similar environmental exposures, and so could benefit from prevention advice including need for rapid diagnosis and treatment if they become symptomatic. Consider group travel (for example missions and school groups)

Investigation

Contacts of cases are not at risk as there is not person-to-person transmission, except in situations of possible blood transfusions or injections.

Exclusion/Social Distancing

Not applicable.

Prophylaxis

Not applicable.

Outbreak Management

Activate the local outbreak plan when an outbreak is declared.