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August 6, 2021

Dear Clinicians and Providers:

**SUBJECT: FLEA-BORNE TYPHUS IN MONROVIA, LOS ANGELES COUNTY**

**Key Messages**

- An increased number of endemic flea-borne typhus cases have been identified in Monrovia.
- Clinicians should consider flea-borne typhus in patients with febrile illness of unknown etiology (see clinical presentation below).
- Flea-borne typhus is not person-to-person transmissible, use standard contact precautions for patients.

**Situation**

Los Angeles County Department of Public Health (LAC DPH) has identified six cases of flea-borne typhus associated with the city and unincorporated area of Monrovia. Cases range in age between 8-74 years and reported symptom onset between February to June 2021. Three cases were hospitalized, and all cases have recovered.

LAC DPH is working to identify and reduce the environmental risk for exposure to flea-borne typhus in the area. However, as there has been an increase in flea-borne typhus cases from this area, DPH encourages physicians to suspect and test for the flea-borne typhus and discuss prevention with patients.

## Background

Flea-borne typhus, also known as murine or endemic typhus, is a disease transmitted by fleas infected with bacteria *Rickettsia typhi* or *Rickettsia felis*. Flea-borne typhus is endemic in LAC with cases detected each year. In recent years, the average number of cases reported to LAC DPH has doubled to over 80 cases per year. Although some areas of LAC record more cases than others, the risk of exposure is present in all areas of the county. Most cases occur in the summer and fall months.

In LAC, the primary animals known to carry infected fleas include rats, feral cats, and opossums. Persons with significant exposure to these animals are at risk of acquiring flea-borne typhus. Pet dogs and cats that are allowed outside may encounter infected fleas and could carry them to humans. Infected animals are not known to get sick from flea-borne typhus.

Diagnosis requires a high degree of clinical suspicion as flea-borne typhus typically presents as a non-specific febrile illness and early diagnostic tests are unreliable. History of exposure to fleas is not helpful in diagnosing patients as most typhus patients do not recall flea bites. Severe complications can occur resulting in lengthy hospitalizations and rarely death.

## Actions Requested of Providers

- Suspect flea-borne typhus in patients with a non-specific febrile illness with headache, myalgia, rash, and laboratory abnormalities including leukopenia, thrombocytopenia, and elevation of hepatic transaminases, without alternate identifiable etiology.
- Discuss prevention of flea-borne typhus as part of routine care to decrease risk of exposure and illness.

## Clinical Presentation

Flea-borne typhus may be a mild, self-limited illness, or can present as severe disease requiring hospitalization. Symptoms occur 7 to 14 days after exposure, and typically include abrupt onset of fever, headache, chills, myalgia, abdominal pain, or vomiting. A maculopapular rash may appear after one week but may also be absent altogether. Severe cases may result in renal, respiratory, ophthalmologic, cardiac, or neurologic dysfunction. Common laboratory abnormalities include leukopenia, thrombocytopenia and elevation of hepatic transaminases. Adults with advanced age or G6PD deficiency are at greatest risk for severe disease.

## Diagnosis

As symptoms are non-specific and laboratory testing is unreliable in acute phases of infection, treatment decisions should be based on clinical presentation and exposure history. Treatment for patients with suspected flea-borne typhus should not be delayed pending diagnostic tests.

Laboratory diagnosis can be conducted through serologic testing for *R.typhi* IgG and IgM antibodies. As there can be cross-reactivity with other rickettsiae, LAC DPH also recommends testing for antibodies against *R. rickettsii*, the causative agent of Rocky Mountain Spotted Fever. Serology performed on samples collected within the first week of symptom onset can often be

false-negative. Confirmation of *R. typhi* diagnosis requires paired serology of acute and convalescent samples (drawn two weeks later) demonstrating a four-fold increase in IgG titers. However, as not all patients return for additional testing, a probable diagnosis can be made with a single positive sample plus supportive clinical and laboratory data.

Serological tests for *R. typhi* and *R. rickettsii* are available at most commercial laboratories. Testing is also available at LAC DPH Public Health Laboratory (PHL) as part of a Rickettsial Antibody Panel. For more information on submitting specimens to PHL, see the laboratory testing guidelines on the LAC DPH Flea-Borne Typhus Testing [webpage](http://www.publichealth.lacounty.gov/acd/TyphusTesting.htm). (<http://www.publichealth.lacounty.gov/acd/TyphusTesting.htm>)

### **Treatment**

Flea-borne typhus is readily treated with antibiotics. Doxycycline is the treatment of choice; the dose of doxycycline for adults is 100 mg orally BID. Although optimal treatment duration has not been established, patients should be treated for at least 48 hours after fever subsides or for seven days, whichever is longer. Treat suspect cases promptly; do not wait for laboratory confirmation.

### **Prevention**

Counsel patients on how to reduce exposure to infected fleas on rats, cats, opossums including the following:

- Store trash and other food sources in secured bins and/or clear it away from places of residence to avoid attracting animals.
- Discourage wild animals from nesting around your home by closing up crawl spaces and attics and trimming or removing vegetation around buildings.
- Avoid petting or feeding stray animals.
- Use flea control products for domestic pets.
- When outside, consider using EPA-registered insect repellents.

Visit the LAC DPH Flea-Borne Typhus [webpage](http://www.publichealth.lacounty.gov/acd/vectortyphus.htm) (<http://www.publichealth.lacounty.gov/acd/vectortyphus.htm>) for FAQ, flea prevention guidance, and other patient resources.

### **Transmission and Infection Control**

Person-to-person transmission does not occur. Humans are a dead-end host for flea-borne typhus. Standard precautions are indicated. Patients should contact their local animal control agency to report feral cats and opossums.

## Reporting

### *Los Angeles County DPH Acute Communicable Disease Control Program*

- Weekdays 8:30 AM – 5:00 PM: call 888-397-3993. For consultation: call 213-240-7941.
- After hours: call 213-974-1234 and ask for the physician on call.

## Additional Resources

- Los Angeles County Department of Public Health Flea-borne Typhus webpage  
[www.publichealth.lacounty.gov/acd/VectorTyphus.htm](http://www.publichealth.lacounty.gov/acd/VectorTyphus.htm)
- **California Department of Public Health Flea-borne Typhus webpage**  
[www.cdph.ca.gov/Programs/CID/DCDC/Pages/Typhus.aspx](http://www.cdph.ca.gov/Programs/CID/DCDC/Pages/Typhus.aspx)
- **Centers for Disease Control and Prevention Murine Typhus webpage**  
[www.cdc.gov/typhus/murine/](http://www.cdc.gov/typhus/murine/)

If you have any questions or need additional information, please contact the LAC DPH ACDC at (213) 240-7941.

Thank you for your cooperation.

Sincerely,



Sharon Balter, M.D.  
Director, Communicable Disease Control & Prevention

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c: Umme-Aiman Halai, M.D., M.P.H.