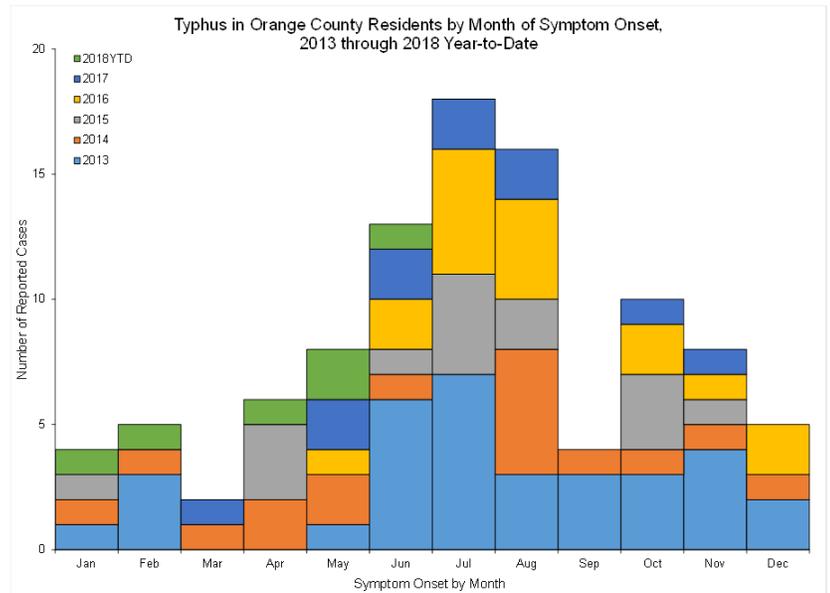


Endemic (Flea-Borne) Typhus Update

Overview

- **Flea-borne typhus is endemic in Orange County and cases may occur at any time. Incidence generally increases in the upcoming summer months in our area.**
- **Clinicians should consider typhus in patients with compatible symptoms and send testing.**
- **Typhus can be fatal. If typhus is suspected, empiric treatment should be considered pending test results.**
- **Report any suspect or confirmed cases of typhus to Epidemiology (phone 714-834-8180; fax 714-564-4050).**



Transmission

- Endemic (murine) typhus is caused by *Rickettsia typhi* or *R. felis* bacteria. Humans generally become infected through contact with infected fleas, most commonly when the infected flea feces is rubbed into a break in skin through scratching. Infected persons may not recall a flea bite. The incubation period is 6-14 days from exposure to onset of symptoms.

Presentation

- **Clinical manifestations are non-specific:**
 - Fever, chills, headache (can be severe), myalgias, malaise are common.
 - Rash – macular or maculopapular, typically starts several days (4-7) after initial symptoms.
 - Nausea, vomiting, abdominal pain, and cough may be present, along with hepatitis or pneumonia.
 - Thrombocytopenia, leukopenia (neutropenia), transaminitis (increased AST and ALT) are often found on laboratory testing.
- **Outcome:**
 - Most illnesses are self-limited and cases often recover by the time laboratory test results are available, rendering treatment at that time unnecessary (if recovered).
 - Some cases are severe, with aseptic meningitis, encephalitis, renal failure, respiratory failure as uncommon complications in untreated cases.
 - Death from typhus is rare (<2-4% of untreated cases worldwide).

Diagnosis

- **Serology:**
 - Send serum for *R. typhi* IgM and IgG and *R. rickettsii* IgM and IgG. Depending on the laboratory, these may also be ordered as Typhus IgM and IgG, and RMSF IgM and IgG, respectively.
 - There is no specific serology available for *R. felis*.
 - Rickettsial antibodies cross-react, so serology may be positive for *R. typhi*, *R. rickettsii* (the agent of Rocky Mountain Spotted Fever (RMSF)), or other rickettsial species.
 - Epidemiology may be able to assist with result interpretation based on the clinical presentation, exposure history, and laboratory results, if cross-reactivity among different rickettsial tests is reported.
 - **Antibody titers may be negative in the first week of illness, so repeat (convalescent) testing in patients with compatible symptoms may be needed.**
 - A four-fold rise in *R. typhi* IgG titers in paired acute and convalescent sera is diagnostic; a positive *R. typhi* IgM concurrent with a positive *R. typhi* IgG would also be considered a confirmed infection. A positive *R. typhi* IgM in the absence of a positive IgG would warrant convalescent testing as false positive *R. typhi* IgM are not uncommon.
- **Additional testing:** Polymerase chain reaction (PCR) detection of *Rickettsia* species nucleic acid is not readily available but may be arranged through Orange County Public Health if indicated on whole blood (5-10 cc in an EDTA purple top tube) taken during the acute illness.

Treatment

- Doxycycline is the treatment of choice.
- **If endemic typhus is strongly suspected, empiric treatment should be considered pending laboratory confirmation as testing turnaround may take several days and early treatment can prevent severe and fatal infections.**

Prevention

- There is no vaccine to prevent typhus.
- Prevention centers around avoiding contact with fleas:
 - Discourage opossums, stray cats, rodents, or other animals in the yard:
 - Eliminate outside food sources.
 - Remove vegetation, brush and debris in the yard.
 - Cover garbage containers.
 - Consult your veterinarian about flea control products for pets.
 - Keep cats indoors.

Resources

Communicable disease reporting, local human case updates and disease questions:

OCHCA Epidemiology 714-834-8180, www.ochealthinfo.com

Flea-borne typhus control and prevention:

Orange County Mosquito and Vector Control District 714-971-2421, www.ocvector.org

Animal health:

Orange County Animal Care Services 714-935-6848, www.ocpetinfo.com