



STANDARD OPERATIVE PROCEDURE

Diagnosis and Management of Rickettsia Infections

Department of Health

Special Region (1)

Union of Myanmar

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Introduction

Rickettsia infections are a group of acute febrile illnesses caused by obligate intracellular, gram-negative bacteria transmitted to humans via arthropod vectors (Johnston et al., 2023; Kumar et al., 2025). In Myanmar, scrub typhus is the most prevalent rickettsial infection, with an estimated annual incidence of 211 cases per 100,000 persons in the Yangon Region and high seroprevalence—up to 59% in some rural areas—highlighting their public health importance (Lin et al., 2025; Aye et al., 2020). Early recognition and prompt treatment remain essential to reduce complications and mortality from these endemic, treatable diseases (Johnston et al., 2023; Kumar et al., 2025).

Clinical Features of Rickettsia Infections

Rickettsia infections typically begin 4–10 days after exposure and present with sudden-onset fever, headache, and a variable rash (maculopapular or petechial), which may appear 2–5 days after fever onset.

Other common features include myalgia, malaise, lymphadenopathy, eschar (especially in scrub typhus and spotted fever), and sometimes gastrointestinal symptoms such as nausea, vomiting, and abdominal pain.

Severe cases can progress to encephalitis, renal failure, shock, digital gangrene, and multiorgan dysfunction, particularly if diagnosis and treatment are delayed. Central nervous system symptoms (confusion, nuchal rigidity), respiratory compromise, and oedema may also occur in late or severe disease (Johnston et al., 2023; CDC, 2025; Medscape, 2023).

The prevalence of eschar varies with species: for *Orientia tsutsugamushi* (scrub typhus), eschar is reported in approximately 58% of cases globally—ranging from 79% in East Asia, 41% in Southeast Asia, and about 33% in South Asia—while for *Rickettsia typhi* (murine typhus) it is rare (<5%) (CDC, 2023; Medscape, 2023; BMJ Case Reports, 2024; AJTMH, 2022).

Diagnosis

Diagnosis of rickettsia infection is primarily clinical—based on fever, headache, rash, eschar, and exposure history—but confirmation often requires laboratory tests.

ICT (rapid point-of-care) tests for IgM/IgG are quick and easy but have variable sensitivity (39–94%) and generally high specificity (86–100%).

ELISA and IFA offer greater reliability, and PCR is the most sensitive for early cases, though less widely available.

Clinical judgement remains critical—serological tests may be negative early, so empirical treatment should not be delayed if suspicion is high (CDC, 2025; Johnston et al., 2023; Blacksell et al., 2010; Acharya et al., 2025; Kala et al., 2020).

Treatment

The first-line treatment for most rickettsial infections is doxycycline. Start treatment as soon as rickettsial disease is suspected.

First-Line Therapy

- **Doxycycline:**

Adults: 100 mg orally (or IV) every 12 hours

Duration: At least 5–7 days and continue at least 3 days after the fever subsides and until clinical improvement (usually 5–10 days in total) (CDC, 2025).

Alternatives

- **Azithromycin:**

10 mg/kg (maximum 500 mg) once daily for 3–5 days, may be used in cases of doxycycline resistance or for pregnant women (South African National Essential Medicine List, 2024).

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