

Rickettsia can be  
used as a weapon  
because



**ASSIGN  
BUSTER**

*Rickettsia prowazekii* is gram-negative coccobacillus bacteria belonging to the Genus *Rickettsia*. It is the agent causing epidemic typhus, or louse born typhus. Lice are the vectors of the bacteria, and are strictly human parasites (3).

Epidemic typhus is spread through contact with body lice infected with *rickettsia prowazekii*. Within two weeks of contact with infected body lice, individuals typically begin exhibiting symptoms. Symptoms include: fever, chills, headache, rapid breathing, muscle aches, rash, cough, nausea, vomiting, and/or confusion. Certain individuals can remain infected, without any symptoms, for up to years after they first exhibit initial symptoms. Occasionally, these individuals can relapse in disease, up to months or years following their first bout of illness.

This relapse is called Brill-Zinsser disease. It normally occurs because the body's immune system has been weakened due to medication, advanced age, or other illness. Brill-Zinsser disease exhibits symptoms much like the original disease, but typically much milder (4). Epidemic typhus is diagnosed based on clinical features and symptoms present, a biopsy of any present rashes with fluorescent antibody staining (which detects the organism), serologic testing, and a polymerase chain reaction. The treatment for epidemic typhus primarily involves administering doxycycline, or in some cases chloramphenicol. These antibiotics are most effective when given shortly after symptoms appear (2). If treated early, most individuals recover quickly.

There is no vaccine to prevent epidemic typhus. However, improved sanitary conditions, insecticides, and antibiotics have been extremely effective in decreasing the incidence of the disease (2). Furthermore, leading health organizations recommend several hygienic and preventative practices to prevent the spread of epidemic typhus. Individuals should avoid overcrowded areas and areas where people cannot change clothes or bathe on a regular basis.

Lice may be prevalent in these areas. If lice are suspected on bedding or clothing, they should be treated with permethrin which kills lice and offers long-lasting protection from lice infestation (4). Additionally, because of the presence of lice around the globe, *Rickettsia prowazekii* is considered an agent of bioterrorism.

It can be used as a weapon because of many key traits. It is environmentally stable, small in size, uses aerosol transmission, has a low infectious dose, and high morbidity and mortality if not treated quickly or correctly (1).