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Defense Analysis Report

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SEAL

(b)(3):10
USC 424;(b)
(3):50 USC
3024(i)

17 October 2003

Iraq: Naturally Occurring Q Fever Poses Low Risk to Deployed Personnel

Human cases of Q fever occur among the local population in Iraq. The disease typically presents as a flu-like illness, with sudden onset of fever, chills, headache, cough, and malaise. Sheep and goats are the most common animal reservoirs.

(U) We estimate that risk to US forces is low since military personnel are not routinely involved in high-risk exposures such as birthing or slaughtering animals. However, if exposed to areas that may be highly contaminated with the Q fever pathogen, such as barnyards,

(U) Current Q Fever Cases in Iraq

(U) Human cases of Q fever occur among the local population in Iraq. To date, two cases of Q fever also have been reported in US forces deployed in support of Operation IRAQI FREEDOM this year. Although the causative agent, a rickettsial organism, is present among sheep, goats, and other animal reservoirs throughout the country, due to poor diagnostic and surveillance capabilities, the exact amount of circulating pathogen (the endemicity level) is unknown. However, studies in neighboring Iran in 1996 found up to 27 percent of randomly collected human serum samples were positive for Q fever, a significant level. We estimate similar levels of exposure in Iraq's indigenous populations.

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(U) What is Q Fever?

(U) **Causative agent.** Q fever is caused by a rickettsia, *Coxiella burnetti*. The organism is highly infectious - a single inhaled bacterium can cause illness.

(U) **Symptoms.** The severity and duration of symptoms can vary. Cases may be asymptomatic, or develop rare chronic cardiac diseases such as endocarditis; however, the most common clinical course is a self-limited acute febrile illness. After an incubation period of 1 to 6 weeks (normally 2-3 weeks) cases typically experience a sudden onset of fever as high as 41.1°C (106°F) lasting 5 to 10 days. Symptoms associated with the acute febrile illness may include retrobulbar headache, weakness, chills, malaise, cough, and severe sweats. If untreated, the fatality rate is normally less than 1 percent, but can be as high as 2.4 percent.

(U) **Transmission and typical routes of exposure.** Q fever is transmitted by inhalation of dust contaminated with bodily fluids or excreta of infected animals, direct aerosol from the infected animals, or consumption of unpasteurized infected milk. Human cases typically involve occupational exposures such as among veterinarians, meat workers, sheep (and occasionally dairy) workers, and farmers.

Epidemics have occurred among workers in stockyards, meat packing and rendering plants, laboratories, and medical and veterinary centers that use sheep (especially pregnant ewes) in research. However, individual cases may occur where no direct animal contact can be demonstrated. The organism can survive in the soil for long periods and is resistant to desiccation and many commonly used disinfectants.

(U) **Laboratory diagnosis.** Confirmation of infection is demonstrated by a rise in specific antibodies between acute and convalescent stages, using immunofluorescence, microagglutination, complement fixation, or enzyme-linked immunosorbent assay (ELISA) tests.

(U) **Prevention.** The primary means of prevention involves avoiding reservoir animals and higher risk activities such as slaughter of animals, exposure to birth products, and consumption of unpasteurized milk products. Milk products treated by ultra-high temperature pasteurization (UHT) from approved sources should be considered safe for consumption.

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(U) Estimate of Future Q Fever Risk among US Personnel Deployed in Iraq

(U) Without appropriate countermeasures, we estimate that a low number of personnel exposed to aerosols from infected animals or unpasteurized milk could develop symptomatic infection. Pasteurizing milk destroys the organism, but is variably practiced in urban Iraq and rarely practiced in rural areas.

personnel are exposed to highly contaminated areas such as barnyards. Because the infection may present as a difficult to diagnose, self-limited febrile illnesses, Q fever should be considered in the diagnosis for personnel who experience unexplained fever and related symptoms during or after deployment to Iraq.

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(b)(2)