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## MURINE TYPHUS AND OTHER FLEA-BORNE RICKETTSIOSES: HISTORY, MOLECULAR EPIDEMIOLOGY AND PUBLIC HEALTH CONSEQUENCES

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Murine typhus is a re-emerging rickettsial disease with a wide-prevalence, most typically in temperate to tropical seaboard regions. The disease manifests as a febrile illness with an acute onset and mild to severe morbidity, including severe encephalitis and fatalities. Its classic form is associated with a rat flea and rat cycle, although other ectoparasites and animal species are involved in the circulation of the etiologic agent, *Rickettsia typhi*. The disease was first described in 1913 in Atlanta, GA, and its distribution was progressively widened. Broad application of pesticides and rodenticides was thought to bring the disease under control for several decades in the USA. Use of molecular approaches to ecological studies and clinical diagnosis in the last 20 years revealed continued circulation of *R. typhi* in different endemic locales, but also provided evidence for at least two other flea-borne rickettsial agents, *Rickettsia felis* and *Rickettsia asemboensis*; they are frequently found in fleas and animals formerly thought to be less typical vectors and reservoirs of murine typhus. These findings raised significant concerns and a need for reevaluation of approaches to diagnosis of flea-transmitted rickettsial diseases, better understanding of the ecology and epidemiology of flea-borne rickettsial agents and reassessment of methods used for flea control. This presentation will review the most recent findings related to these issues and discuss the public health implications of the presence of these rickettsial pathogens in areas affected by malaria and dengue. Because these diseases can present with symptoms of many other infections, it is important to include epidemiological considerations when treating patients with febrile illness of unknown etiology.

### Biography

Eremeeva received her MD in biochemistry from the Russian National Research Medical University, her PhD in microbiology from the Gamaleya Research Institute, Moscow, Russia and her ScD in microbiology and cellular biology from the University of the Mediterranean, Marseilles France. Her postdoctoral studies were at the University of Maryland, School of Medicine, Baltimore, USA. She is an Associate Professor and Director of the Core Laboratory at the Jiann-Ping Hsu College of Public Health of the Georgia Southern University. She has published more than 100 peer-reviewed articles, book chapters and conference papers on different aspects of rickettsiae and rickettsial diseases including discovery of emerging pathogens and descriptions of new rickettsioses.

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