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The Evolving Mosaic of Tick-Borne Rickettsioses in the United States

Christopher Paddock is a rickettsiologist and pathologist at the Centers for Disease Control and Prevention (CDC) in Atlanta, Georgia. Dr. Paddock received his B.S. and M.S. degrees in Entomology at the University of California, Davis, in 1981 and 1986, respectively, and his M.D. and M.P.H.T. M. degrees at Tulane University in New Orleans, Louisiana, in 1990. He completed his residency in Anatomic Pathology and Laboratory Medicine at the University of California, San Francisco in 1995. His employment with CDC began in 1996, as medical officer in the Viral and Rickettsial Zoonoses Branch, where he worked until taking a position as staff pathologist with the Infectious Disease Pathology Branch from 2003-2014. He now serves as the medical officer and chief of the Reference Diagnostics and Microbiology Activity in the Rickettsial Zoonoses Branch at CDC. He has authored or co-authored more than 175 scientific publications and 20 book chapters. His research interests include clinical, diagnostic, and epidemiologic aspects of rickettsial diseases, primarily newly

recognized spotted fever group rickettsioses.

Conference Lecture Summary

Many fundamental principles regarding tick-borne rickettsioses in the North America have required re-examination since the beginning of the 21st century. As recently 2002, all tick-borne rickettsiosis in the United States and other continents of the western hemisphere was attributable to infection with a single pathogen, *Rickettsia rickettsii*. Unique species or strains of pathogenic *Rickettsia*, including many that were isolated from ticks during preceding decades but remained uncharacterized until the advent of molecular techniques, have now been characterized and are likely to influence the epidemiology of spotted fever group rickettsiosis in various regions of the United States. Collectively, these processes emphasize the dynamic nature of tick-borne rickettsioses, and the necessity to continuously consider the fluid and varied ecological, social, and temporal interactions among humans, ticks, vertebrate hosts and *Rickettsia* in the emergence and epidemiology of these diseases.