Ticks and their pathogens in Virginia: the need for a one health approach

Ticks in the United States, and around the world, are expanding their geographic range and taking with them the known and potential pathogens they carry. Human infections with tick-borne pathogens in Virginia have increased in incidence over the past decade, including infections caused by pathogens from invading ticks. Our surveillance over the past 10 years has shown invasion of two tick populations, *Amblyomma maculatum* and *Ixodes affinis*, into Virginia from the south. We have shown a very high rate of carriage of *Rickettsia parkeri*, in *A. maculatum* compared to tick populations found in the ancestral ranges; this high rate continues in what are now established populations. In addition, we have followed the prevalence of *Borrelia burgdorferi* and other tick-borne pathogens in our populations of *Ixodes scapularis* and other ticks. Without the surveillance, an essential component of the One Health approach, we would not be aware of the bacteria present in the various tick species, and the potential for new pathogens to emerge in our area.