Embargoed until Monday, April 24th at 4:50pm ET

Date: Monday, April 24, 2017
Time: 4:50 – 5:10 PM
Concurrent Session D1: Zoonotic Diseases Room: Frieden Plenary
Moderators: Casey Barton Behrevesh and Brett Peterson

Title: Northern Trajectory of Human Tularemia — United States, 1965–2013

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Background: Tularemia is an uncommon but debilitating arthropod-borne zoonosis caused by *Francicella tularensis*. Although human infection occurs sporadically throughout the continental United States, historically, cases have been concentrated in the south central states of Louisiana, Arkansas, and Missouri. We used two methods to assess changes in the geographic distribution of human tularemia cases reported to CDC through the Nationally Notifiable Diseases Surveillance System during 1965–2013.

Methods: Reported cases were geocoded to centroids for the county of patient residence. A linear model was fit comparing latitude and longitude of all cases by year, adjusted for population using annual, county-level U.S. Census estimates. To further evaluate geographic trend, a spatial scan cluster detection method based on log likelihood ratio [LLR] tests was used to identify the location of the highest risk spatial cluster of cases for each of nine 5-year intervals.

Results: During 1965–2013, mean latitude of human tularemia cases in the lower 48 states moved northward 444 km, from 37°N to 41°N (P <.0001), with no change in mean longitude (P =.5). Overall, spatial scan methods identified an area 668 km in diameter centered over northwestern Arkansas as the area of greatest risk (LLR: 6663; P <.0001). When evaluated in 5-year intervals, the centroid for this cluster moved from 35°N in 1965–1969 to 39°N in 2005–2009, also a change of 444 km.

Conclusions: The distribution of human tularemia cases in the United States has moved progressively northward since 1965. This trajectory suggests areas of likely emergence where educational efforts may be most needed. The trend is independent of changes in population and may reflect shifts in environmental factors or arthropod vector abundance.