UPDATE: WEST NILE VIRUS INFECTION IN HUMANS - TEXT MINING AND TRENDS FROM 2003-2008 IN MISSISSIPPI AND ITS NEIGHBORING STATES

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Abstract: West Nile Virus (WNV) is a single stranded, RNA flavivirus carried by birds and transmitted to humans by Culex mosquitoes. In North America, this zoonotic disease was first discovered in New York in 1999 and now the dominant vector-borne disease in the continent. WNV infection is a seasonal epidemic that occurs mostly in summer months and continues through the fall. Human infections range from asymptomatic, to encephalitis or ultimately death. In our previous study, we noticed that after Hurricane Katrina, the incidence of West Nile Neuroinvasive Disease (WNND) sharply increased in the hurricane-affected regions of Louisiana and Mississippi. Our objective was to continue to analyze the trends of the number of human infections in Mississippi and its neighboring states of Alabama, Arkansas, Louisiana and Tennessee. In addition, we were interested in developing an Internet resource for text mining PubMed citations on West Nile Virus. As before, we obtained data from the Center for Disease Control and Prevention on the number of cases that were reported for each state for the year 2008. During 2008, Mississippi and its surrounding States experienced approximately a 60% decrease (422 to 160) in the total cases of human WNV infections and reported a 75% (28 to 4) decrease in fatalities since 2006. In the Southeastern region, for the past three years Mississippi continues to report the highest number of infection cases. Even though Mississippi has reported a significant decrease in the number of human infections of West Nile Virus, it continues to rank third highest in the overall incidence of human infection of West Nile Virus in the United States. We have successfully developed a Textpresso-powered Text Mining internet resource at http://compbio.jsums.edu/textpresso/wnv to search PubMed citations on West Nile Virus. In the future we plan to develop a visual analytic resource that will combine text mining and county-level information on trends of WNV human infections in the United States.

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