WEST NILE DISEASE: PREDICTING DEMOGRAPHIC & GEOGRAPHIC FACTORS

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THE PROBLEM

Looking at demographic (age, gender, weight) and geographic data (location of registered infection site) to see what factors are likely to predict the emersion of West Nile (*or else Encephalitis*) as well as mortality rate. Data will look at cases throughout the United States between 2006-Present to determine if there is a correlation between demographic and/or geographic location and West Nile/ Encephalitis prediction.

THE DATA

- NNDSS – data for notifiable diseases that go frequently unreported (Data.gov):
  - *2016*
  - *2015* & *2015 HealthData.gov*
  - *2014*
- West Nile Virus Cases (2006-Present) (Data.Gov)
  - *Listed West Nile as a notifiable disease that frequently goes un-reported*
- CDC: US Mortality Cases 1999-2009 (Data.Gov)
- CDC: US Mortality Causes of Death 1979-present (Data.Gov)
- Infectious Disease Cases in CA 2001-2014 (Data.gov)
- West Nile Virus – mosquito tests (HeathData.gov)

Further research: Compare to possible health factors using the CDC National Health & Nutrition Examination Survey: http://wwwn.cdc.gov/nchs/nhanes/search/default.aspx

ADDITIONAL SOURCES

- CDC Article re. West Nile in NY 1999: http://www.cdc.gov/mmwr/pdf/wk/mm4838.pdf
- CDC article re. West Nile in US: http://www.cdc.gov/westnile/resources/pdfs/wnvguidelines.pdf
- Article 2010 (says places where it's more likely to occur in US)" http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6030a1.htm?s_cid=mm6030a1_w

THE HYPOTHESIS

Time of year and geographic location will predict the likelihood of West Nile appearing in certain regions in the United States. Demographic factors, such as age and gender, will predict the likelihood of fatality.

Limitation/Further Research Suggested: Although many cases of West Nile have been reported through mosquito testing, not all humans are affected. To further expand would be to see what demographic features predict the rate at which humans are infected vs. those who are not.

FURTHER RESEARCH

- Correlation between weather patterns – heavy rainfall vs. droughts – will predict the occurrence / reported incidences of West Nile in certain locations of the US.
- Correlation between prior childhood diseases and/or immunizations will predict the rate at which West Nile is fatal or harmless to those infected.