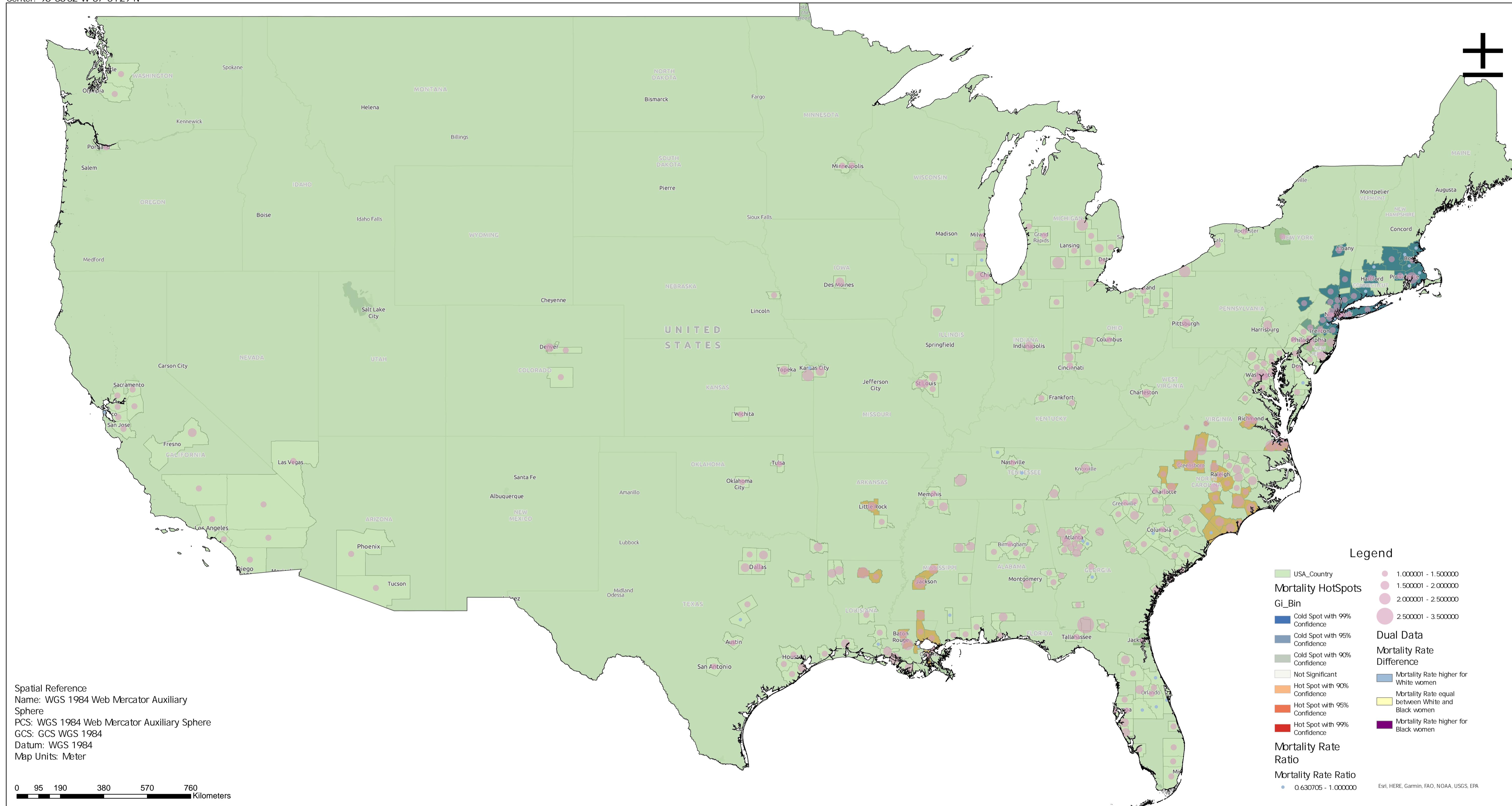


Racial Disparities in Breast Cancer Mortality Rates and Hotspot in United States of America

Credits: Henry Chen (500873296)

Center: 96°36'52"W 37°54'29"N



Description: Dataset was provided by ESRI ArcGIS Online Database (breast cancer owner: EsriTrainingSVC)

Introduction: In a cartographic analysis from 2019, the American Cancer Society (ACS) charted the incidence of breast cancer and corresponding fatality rates. The visual representation highlighted notable discrepancies in breast cancer mortality rates, particularly between Black and White women. A subsequent cartographic portrayal in a January 2021 article by the Breast Cancer Research Foundation depicted comparable rates of new breast cancer cases among White and Black women. However, the cartographic illustration revealed a stark reality: the mortality rate for Black women diagnosed with breast cancer soared 40 percent higher than that of their White counterparts. The intricate cartographic landscape reflected a multifaceted terrain, encompassing healthcare disparities, limited preventive measures, and the intricate interplay of social, economic, and behavioral factors. Despite a gradual convergence in the cartographic representation of breast cancer disparities, Black women persistently occupied the peak, depicting the highest proportion of cartographically charted deaths attributed to breast cancer.

Hotspot Analysis: Vibrant shades of orange and red delineate the hot spots, denoting clusters of counties where the breast cancer mortality rate surpasses that of White women specifically affecting Black women. Conversely, cool hues of blue pinpoint the cold spots, illustrating regions where Black and White women exhibit comparable breast cancer death rates. Within the mapped counties with available data on breast cancer mortality, a noteworthy analysis reveals concentrated hot spots, signifying disproportionately elevated mortality rates among Black women in contrast to their White counterparts. The South Central region of the United States emerges prominently as a hot spot, echoing patterns akin to those discerned in the Mortality Rate Ratio map. Notably, the cluster enveloping North Carolina and South Carolina, although less conspicuous in preceding maps, is now discernible with clarity. A distinctive cold spot cluster materializes in the Northeast on the map, indicating a reduced racial disparity in breast cancer mortality rates between Black and White women in this geographical expanse. The cartographic visualization serves as a powerful tool, unveiling spatial patterns that might not be readily apparent in numerical data alone.

Ratio: The depiction of breast cancer mortality rates unveils a nuanced narrative through the lens of rate ratios. The symbols etched on the map employ a symbology reminiscent of the Mortality Rate Difference layer, serving as a visual key to decipher the disparities in mortality experiences between Black and White women.

The map intricately delineates the rate ratio of average mortality rates for Black women in comparison to their White counterparts during the period spanning 2014 to 2018. Notably, the cartographic representation employs varying circle sizes to signify the magnitude of these ratios across counties in the United States.

In this visual tapestry, expansive circles emerge to denote counties where the breast cancer mortality rate among Black women surpasses that of White women. The larger the circle, the more pronounced the disparity. Conversely, values less than 1 are artfully portrayed in serene blue tones, indicating counties where the breast cancer mortality rate among White women equals or exceeds that of Black women. This spatial portrayal not only captures the geographical nuances but also provides a compelling visual narrative of the intricate disparities in breast cancer outcomes across the United States.

This map is created for educational purpose for Toronto Metropolitan University for the program of Master SA 8905 - Cartography & Geovisualization Fall2023 for Dr. Ian Williams
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