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Detecting an Association between Socioeconomic Status and Late Stage Breast Cancer using Spatial Analysis and Area-Based Measures

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Abstract

Objectives: To assess the relationship between socioeconomic status (SES) and late stage breast cancer using the cluster detection software *SaTScan* and US Census derived area-based socioeconomic measures.

Methods: Florida's 18,683 women diagnosed with late stage breast cancer (regional or distant stage) between 1998-2002 as identified by Florida's population-based, statewide, incidence registry were analyzed by *SaTScan* in order to identify areas of higher than expected incidence. The relationship between SES and late stage breast cancer was assessed at the neighborhood (block group) level by combining the *SaTScan* results with area-based SES data.

Results: SaTScan identified 767 of Florida's 9,112 block groups that had higher than expected incidence of late stage breast cancer. After controlling for patient level insurance status, county level mammography prevalence and urban/rural residence in the logistic regression model, women living in neighborhoods of severe and near poverty were respectively 3.0 and 1.6 times more likely to live in areas of higher than expected incidence of late stage breast cancer when compared with women living in non-poverty. Additionally, areas in the lowest quartile of mammography usage were almost 7 times more likely to have higher than expected incidence than areas in the higher quartiles.

Conclusions: In addition to confirming the importance of mammography, results from the present study suggest that *where* you live plays an important role in defining the risk of presenting with late stage breast cancer. Additional research is urgently needed in order to understand this risk, and to leverage the strengths and resources present in all communities in order to lower the late stage breast cancer burden.