**2003 to 2012 mortality-to-incidence ratios for breast, colorectal, and cervical cancer in core Delta counties compared to non-Delta Mississippi counties**

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**Objectives**: To compare the mortality-to-incidence ratio (MIR) for three malignancies – breast, colorectal, and cervical cancer – as a surrogate for health care disparities among core Mississippi Delta counties when compared to non-Delta counties in the state.

**Methods**: Data were obtained from the online Mississippi Cancer Registry for age-adjusted rates of incidence and mortality for breast, colorectal, and cervical cancer by Mississippi county from 2003-2012. MIR was calculated by dividing each county’s age-adjusted mortality rate by its age-adjusted incidence rate. Core Delta and non-Delta counties (excluding buffer counties as defined by the Mississippi Cancer Registry) were compared. To determine if any detected difference could be associated with the Mississippi Delta’s ruralness, the MIR of Delta counties was also compared to Mississippi counties classified as “Rural” by the Mississippi Cancer Registry. All comparisons involved a two-sided student T-test and assumed unequal variance between the two samples.

**Results**:

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| **Per 100,000** | Delta | | | Non-Delta | | |
| Cancer | Cervical | Breast | Colorectal | Cervical | Breast | Colorectal |
| Age-Adjusted Incidence Rates | 13.40 (11.38-15.67) | 104.86 (99.21-110.74) | 65.98 (62.64-69.44) | 9.13  (8.60-9.69) | 113.75 (111.94-115.58) | 88.50 (87.33-89.68) |
| Age-Adjusted Mortality Rates | 6.59  (5.23-8.20) | 32.18 (29.13-35.48) | 30.04 (27.81- 32.41) | 3.31  (3.00-3.64) | 23.83 (23.02-24.67) | 19.00 (18.46-19.55) |

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| **Delta vs. Non-Delta Counties, p-values of t-test** | Cervical Cancer | Breast Cancer | Colorectal Cancer |
| Age-Adjusted Incidence Rates | 0.01 | 0.87 | 1.60E-04 |
| Age-Adjusted Mortality Rates | 6.59E-05 | 0.01 | 6.07E-06 |
| Mortality-to-Incidence Ratio | 0.24 | 0.03 | 0.01 |

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| --- | --- | --- | --- |
| **Delta vs. Rural Counties, p-values of t-test** | Cervical Cancer | Breast Cancer | Colorectal Cancer |
| Mortality-to-Incidence Ratio | 0.33 | 0.09 | 0.02 |

**Conclusion**: In Mississippi from 2003 to 2012, the MIR was statistically different for breast and colorectal cancer between Delta and non-Delta counties. When comparing counties in the core Delta to Rural counties in the state, only the colorectal cancer MIR remained statistically different. New and specific methods of colorectal cancer management needed in the Delta.