Applying New Jersey's Risk Factors, Screening Rates to Louisiana Reverses Recent Colorectal Cancer Trends

Computer Model Shows Incidence, Mortality Would Drop Steeply

July 21, 2015–If Louisiana, which has some of the highest colon cancer incidence and mortality rates in the nation, had the same risk factors, screening uptake, and survival rates as New Jersey, incidence and mortality from the disease would not only drop, they would drop to levels below that of New Jersey, according to a new study. The study, appearing in *Cancer*, shows that removing differences in health behavior and survival would close a gap that has appeared over the past several decades.

Decades ago, colorectal cancer incidence and mortality rates were lowest in the Southern states and highest in the Northeast. Major improvements in prevention, early detection, and treatment led to large drops in incidence and mortality where that progress has been applied, including in the Northeast United States. Improvements have lagged in the Southern states, where these tools have not been applied as consistently. As a result, Northeastern states have shown more progress in reducing colorectal cancer incidence and mortality rates than Southern states, which has resulted in considerable disparities.

A new study by researchers at the American Cancer Society, the Department of Public Health in Erasmus, the Netherlands, the Louisiana Tumor Registry, Louisiana State University, and the New Jersey Department of Health quantified how the disparities in CRC rates between Louisiana (a Southern state) and New Jersey (a Northeastern state) would be affected if differences in risk factors, screening, and stage-specific CRC relative survival between the states were eliminated.

To find out, investigators used a microsimulation model to estimate what CRC incidence and mortality rates in Louisiana would be if the state had the same smoking and obesity prevalence, the same CRC screening rates, and the same survival rates observed in New Jersey.

They found applying new Jersey's profile to Louisiana resulted in the latter's incidence and mortality rates dropping to below those in New Jersey, essentially turning back the clock on recent trends.

Applying New Jersey's risk factors lowered the CRC incidence rate in Louisiana by 3.5%. Applying New Jersey's screening rates led to a 15.2% drop. Applying New Jersey's risk factors, screening, and survival to Louisiana reduced mortality by 3.0%, 10.8%, and 17.4%, respectively. With all trends combined, the modeled rates per 100,000 individuals in Louisiana became lower than the observed rates in New Jersey for both incidence (116.4 vs 130.0) and mortality (44.7 vs 55.8).

"Colorectal cancer incidence and mortality rates are now higher in Southern states than Northeastern states; this is opposite of the patterns observed before the early 1980s," said Dr. Jemal. "This study shows that removing differences in smoking and obesity prevalence, screening uptake, and survival would close the gap created over the past several decades, eliminating these observed disparities in colorectal incidence and mortality. The same would undoubtedly be true in other areas of the United States where colorectal cancer incidence and mortality is elevated."

The study showed screening had the biggest impact on incidence, with the potential to reduce rates of colorectal cancer by 15.2% in Louisiana. Eliminating differences in the prevalence of smoking and obesity between Louisiana and New Jersey had a relatively modest impact on incidence (3.5% reduction) and mortality (3.0% reduction).

"The disparities in CRC incidence and mortality rates between Louisiana and New Jersey could be eliminated if Louisiana could attain New Jersey's levels of risk factors, screening, and survival, conclude the authors. "Priority should be given to enabling Southern states to improve screening and survival rates."

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