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Georgia Southern Investigates Kernel Density Based Mode Estimation

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The mode is a measure of the central tendency as well as the most probable value. Additionally, the mode is not influenced by the tail of the distribution. In the literature the properties and the application of mode estimation is only considered under simple random sampling (SRS). However, ranked set sampling (RSS) is a structural sampling method which improves the efficiency of parameter estimation in many circumstances and typically leads to a reduction in sample size. In this paper we investigate some of the asymptotic properties of kernel density based mode estimation using RSS. We demonstrate that kernel density based mode estimation using RSS is consistent and asymptotically normal with smaller variance than that under SRS. Improved performance of the mode estimation using RSS compared to SRS is supported through a simulation study. An illustration of the computational aspect using a Duchenne muscular dystrophy data set is provided.

"Notes on kernel density based mode estimation using more efficient sampling designs," was recently published in Computational Statistics.

Drs. Hani Samawi was the lead author and Haresh Rochani, JingJing Yin, and Robert Vogel, Department of Biostatistics Jiann-Ping Hsu College of Public Health Georgia Southern University were co-authors.
Georgia Southern Examines Operational and Financial Performance of Georgia’s Critical Access Hospitals

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Georgia’s Critical Access Hospitals (CAHs) face increasingly complex threats to financial sustainability, as demonstrated by the disproportionately high number of closures in comparison to other states in the nation.

Financial performance measures (including profitability, revenue, liquidity, debt, utilization, and productivity), site visits, key personnel interviews, and a revenue cycle management assessment were used to assess the strategic landscape of CAHs in Georgia, analyze financial and operational performance, and provide recommendations.

For CAHs in Georgia, financial and operating performance indicators, interviews, and assessments depict a challenging operating environment, but opportunities for improvement exist through implementation of a Lean Six Sigma program and improved benchmarking processes.

Georgia’s CAHs operate in a challenging environment, but operational improvement strategies (such as a Lean Six Sigma program) and benchmarking directed towards business processes, including revenue cycle management, provide opportunities for sustainability in the future.

“Operational and financial performance of Georgia’s Critical Access Hospitals,” was recently published in the Journal of the Georgia Public Health Association with Dr. Linda Kimsey, assistant professor of Health Policy and Management at the Jiann-Ping Hsu College of Public Health Georgia Southern University as the lead author. Drs. Bettye Apenteng, William A. Mase, Samuel Opoku, Charles Owens, and Stuart Tedders, and Ms. Angela Peden from the Jiann-Ping Hsu College of Public Health were co-authors.