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Methodological evaluation of in-hospital mortality as an indicator of treatment effectiveness

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Using in-hospital mortality as an outcome for comparing treatment in a trauma population is misleading and may put patients at risk. Researchers in many medical specialties, including surgery, often utilize this measure as a marker of treatment equivalence. However, mortality does not always relate to quality of care, and treatment equivalence is only one aspect associated with patient outcomes. Perhaps a more important factor is treatment efficacy. Complex factors influence whether a treatment is effective. Patient status prior to trauma (age, BMI, co-morbidities, access to care), nature of trauma (mechanism of injury, injury severity), time to treatment, medical intervention (hospital and physician type, procedures), quality of care (length of stay, hospital acquired complications, radiation exposure), and post-intervention care (access), all contribute to treatment outcome (mortality and/or quality of life). Further, a measure of time from trauma event to a mortality outcome, specifically in-hospital, demonstrates why using trauma-related deaths could be biased. For example, the in-hospital and 30-day rates of mortality may differ substantially and favor hospitals with shorter lengths of stay. Our current research interests include evaluating methodological issues associated with treatment comparison that include measures of efficacy, along with statistical measures of equivalence. We critically appraised unpublished and published articles that suggested trauma centers were equivalent based on in-hospital mortality. Findings included: issues with statistical methodologies and misinterpretations of results and lack of quality indicator evaluation. Subsequently, we are conducting a systematic review and meta-analysis of recent literature related to pediatric trauma outcomes. This work will contribute to best practice research methodology for evaluating trauma care. Specifically, we will discuss alternative measures and methods for determining treatment efficacy that may reduce risk to patients.

Biography

Rosalee Zackula is a Statistician with expertise in research design, measurement, and data analysis. She is a Senior Research Analyst in the Office of Research at the University of Kansas School of Medicine-Wichita. As a Research Consultant, she works across all departments to design and conduct research with Anesthesiology, Family and Community Medicine, Obstetrics and Gynecology, Preventive Medicine, Psychiatry, Radiology, and Surgery.

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