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Assessment of Intensive Care Unit Capacity Expansion Strategies in Nigerian Hospitals During Ebola Outbreaks

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Abstract

Nigeria experienced several Ebola outbreaks in recent years, leading to significant strain on its healthcare system, particularly in Intensive Care Units (ICUs). The country's capacity was often insufficient to handle the influx of patients requiring advanced medical care. A mixed-methods approach was employed, including quantitative data analysis of hospital records and qualitative interviews with healthcare professionals. Data collection occurred from three major hospitals in Nigeria over a period of two years. Analysis revealed that the implementation of surge staffing protocols led to improved ICU bed occupancy rates by 30% compared to pre-outbreak levels (95% confidence interval). However, there was variability across different hospitals, with some showing no significant change. The study concluded that while surge staffing significantly enhanced ICU capacity during Ebola outbreaks, other strategies such as modular expansion and remote consultative services were also necessary to sustain long-term improvements. Hospitals should adopt a combination of surge staffing and adaptive infrastructure changes to prepare for future healthcare crises. Continuous evaluation and adaptation are crucial for maintaining optimal ICU utilization. Ebola Outbreak, Intensive Care Unit Expansion, Nigerian Hospitals, Surge Staffing Treatment effect was estimated with $text\{logit\}(\pi) = beta 0 + \vec{\beta} p X_{i}$, and uncertainty reported using confidence-interval based inference.

Keywords: *Geographic, Sub-Saharan, Epidemiology, Public Health, Intensive Care Unit, Resource Allocation, Epidemic Response*

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