



# A Meta-Analysis of Surgical Volume and Outcomes for Emergency Obstetric Procedures in Brong-Ahafo Regional District Hospitals, Ghana, 2020

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## Abstract

Emergency obstetric care is critical for reducing maternal mortality. In Ghana, district hospitals are frontline providers, yet comprehensive data on surgical volume and outcomes for key procedures in these settings remain limited. The Brong-Ahafo Region, with its mix of urban and rural populations, presents a pertinent case for analysis. This meta-analysis aimed to quantify the annual surgical volume and synthesise reported clinical outcomes for major emergency obstetric procedures—specifically caesarean sections, laparotomies for ectopic pregnancies, and repairs of uterine ruptures—across district hospitals in the Brong-Ahafo Region. A systematic search was conducted across multiple electronic databases for relevant studies and institutional reports. Eligible studies provided quantitative data on procedure volume or clinical outcomes for the specified procedures in the region's district hospitals. Data were extracted and pooled using random-effects models where appropriate, with heterogeneity assessed via the  $I^2$  statistic. Eight studies met the inclusion criteria. The pooled analysis indicated a moderate positive correlation between higher hospital surgical volume and improved maternal outcomes. The overall complication rate across all procedures was 18.2% (95% CI: 14.1–22.3). Significant heterogeneity was observed among the included studies. District hospitals in the region handle a substantial volume of emergency obstetric surgery. While a volume-outcome relationship is suggested, the high complication rate underscores systemic challenges in service delivery. The heterogeneity in reporting highlights a need for standardised data collection. Health authorities should implement standardised monitoring and reporting systems for emergency obstetric care. Targeted investment in surgical capacity and training in lower-volume district hospitals is recommended. Further primary research using uniform outcome measures is required. maternal health, emergency obstetric care, surgical volume, outcomes, district hospitals, Ghana, meta-analysis This study provides a quantitative synthesis of surgical volume and outcomes for emergency obstetric procedures in a Ghanaian regional

context, highlighting systemic challenges and the need for improved data standardisation to inform health policy and resource allocation.

**Keywords:** *Meta-analysis, Emergency obstetric care, Surgical volume, District hospitals, Sub-Saharan Africa, Maternal mortality, Ghana*

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