

Delays for Emergency Cesarean Sections and Neonatal Outcomes in Three Rural District Hospitals in Rwanda: A Retrospective Cross-Sectional Study

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Abstract : In low-resource settings, women needing an emergency cesarean section experiences various delays in both reaching and receiving care that is often linked to poor neonatal outcomes. In this study, we quantified different measures of delays and assessed the association between these delays and neonatal outcomes at three rural district hospitals in Rwanda. This retrospective study included 441 neonates and their mothers who underwent emergency cesarean sections in 2015 at Butaro, Kirehe and Rwinkwavu District Hospitals. Four possible delays were measured: Time from start of labor to district hospital admission, travel time from a health center to the district hospital, time from admission to surgical incision, and time from the decision for the emergency cesarean section to surgical incision. Neonatal outcomes were categorized as unfavorable (APGAR < 7 or death) and favorable (APGAR \geq 7). We assessed the relationship between each type of delay and neonatal outcomes using multivariate logistic regression. In our study, 38.7% (108 out of 279) of neonates' mothers labored for 12 to 24 hours before hospital admission and 44.7% (159 of 356) of mothers were transferred from health centers that required 30 to 60 minutes of travel time to reach the district hospital. 48.1% (178 of 370) of caesarean sections started within five hours after admission and 85.2% (288 of 338) started more than thirty minutes after the decision for the emergency cesarean section was made. Neonatal outcomes were significantly worse among mothers with more than 90 minutes of travel time from the health center to the district hospital compared to health centers attached to the hospital (OR = 5.12, p = 0.02). Neonatal outcomes were also significantly different depending on decision to incision intervals; neonates with cesarean deliveries starting more than thirty minutes after decision had better outcomes than those started immediately (OR = 0.32, p = 0.04). Interventions that decrease barriers to access to maternal health care services can improve neonatal outcome after emergency cesarean section. Triageing could explain the inverse relationship between time from decision to incision and neonatal outcome; this must be studied more in the future.

Keywords : Africa, emergency obstetric care, rural health delivery, maternal and child health

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