Evaluation of a clean delivery kit intervention in preventing umbilical cord infection in Monrovia, Liberia

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ABSTRACT

Liberia is an under-resourced West African country that has endured numerous public health challenges and civil unrests. The civil wars fought in varying intervals, (1992-2003), coupled with the recent Ebola crisis (2014-2016), have impacted the country’s maternal child health infrastructure. Since the Ebola crisis, healthcare workers have resorted their voices in regard to suffering perinatal outcomes. The purposes of this project were to evaluate the clean delivery kit intervention supported by aseptic practices, initiation of tetanus immunization, and health education aimed at the prevention of umbilical cord infections in Liberian newborns. The project was conducted in partnership with the University of Liberia School of Nursing-Midwifery, UNICEF, and the Liberia Ministry of Health. The study sought to determine the significance in the rate of umbilical cord infection among infants (0-28 days of life), who have been exposed to aseptic umbilical cord care and tetanus immunization compared to those who had not. Secondly, the perceptions of midwives regarding the common practices in newborn care, barriers in effective newborn care delivery, feasibility in the use of a disposable birth kit, follow up care, and the characteristics associated with umbilical cord infection in metropolitan and rural regions were also explored. Sixty infant and mother couples who have received a tetanus cord immunization were recruited from 2 clinics (West Point clinic and Slipway clinic), and a hospital (Redemption Hospital) serving under-resourced areas of Monrovia, Liberia. The sixty infants with vaccinations and aseptic birth practices were compared to 60 infants and mother couples who received standard delivery care in Liberia. The research study was a mixed method parallel convergent design. The sites of participation were selected due to their proximity to the Ebola crisis headquarters, as were the participants. The participating clinic and hospital sites are located in the Montserrado district, the northwestern region of Liberia. West Point clinic is housed in Freetown. Freetown is central to Liberia’s shipping port which was impacted by Ebola with the fishing community of Aberdeen in Freetown (in January and February of 2015). Slipway clinic resides in the Montserrado district in the northwestern region of Liberia. West point clinic is housed in Freetown. Freetown is central to Liberia’s shipping port which was impacted by Ebola with the fishing community of Aberdeen in Freetown (in January and February of 2015). Slipway clinic resides in the Montserrado district in the northwestern region of Liberia. West point clinic is housed in Freetown. Freetown is central to Liberia’s shipping port which was impacted by Ebola with the fishing community of Aberdeen in Freetown (in January and February of 2015). Slipway clinic resides in the Montserrado district in the northwestern region of Liberia. The hospital recently began its clinical operations after ceasing its operation during the Ebola outbreak and persistent civil wars. The infants of the participating mothers were followed and assessed for umbilical care in Liberian newborns in areas impacted most from the Ebola crisis. The project was conducted in partnership with the University of Liberia School of Nurse Midwifery, UNICEF, and the Liberia Ministry of Health.

PARTICIPATING SITES

West Point Clinic, Slipway Clinic and Redemption Hospital are located within the Montserrado District of Liberia. These sites were selected due to the impact the Ebola crisis had on maternal child health.

PROJECT PURPOSE

The purposes of this project were to evaluate a clean delivery kit intervention supported by aseptic practices, initiation of tetanus immunization, and health education aimed at the prevention of umbilical cord infections in Liberian newborns in areas impacted most from the Ebola crisis. The project was conducted in partnership with the University of Liberia School of Nurse Midwifery, UNICEF, and the Liberia Ministry of Health.

METHODS AND MATERIALS

-120 (60) women/infant couples were recruited to participate from 2 health clinics and one hospital, in a longitudinal study of 28 days. Each laboring mother was given a birth kit upon her consented admission to either clinic/hospital site and verbal/written consent to the study.

-Participant couples were followed from birth to 28 days at 12 interval assessment points (days 2, 3, 4, 8, 10, 12, 14, 16, 18, 22, and 24). Documentation for the presence of swelling, redness, and pus at the umbilical cord site and temperature was noted on the data collection sheet on the specified days.

-Chart reviews were completed at each site to obtain comparison group data. Women were matched on age, and at the study’s beginning date, the ten most recent women were matched on age and entered in the comparison group.

-As to ensure accuracy, an educational program containing digital photo algorithms (inclusive of 50 photos) that detail the distinct stages of neonatal umbilical cord infection and omphalitis was provided to all midwives, local health workers, students and mothers at the participating and surrounding clinics, hospitals, and villages as an educational resource.

STUDY OBJECTIVES

Evaluating a clean delivery kit intervention in Monrovia, Liberia

A study which aims to uncover underlying causes of neonatal sepsis and umbilical cord infections related to birth aspesis and neonatal follow-up within the first 28 days of life Findings will help direct the development of interventions to address infections related to birth aspesis, tetanus vaccination and the signs of umbilical cord infections in newborns.

Collaboration with the University of Liberia School of Midwifery will enhance the likelihood of successful and accepted interventions on the community level.

CONCLUSIONS

Insufficient funding, poor access to rural areas, limited surveillance, and low prioritization of tetanus prevention are common barriers in under-resourced countries such as Liberia. There is an existing gap in the literature regarding the effectiveness of the use of disposable birth kits in preventing umbilical cord infections within the Liberian neonatal population; (specifically post Ebola crisis).

Keywords: Intervention, Mother-child relations, Pregnancy