Improving Newborn Care in Resource Poor Settings: Evaluation of a Combined Training and Quality Improvement Approach

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Introduction
Every year 2.8 million newborns die worldwide due to complications in the newborn period. Newborns with low birth weight (<2500 grams) are at greatest risk for death due to complications related to asphyxia, prematurity and infections. Outcomes for newborns in resource poor countries have seen little improvement over the last decade.

Essential Newborn Care (ENC): * A comprehensive strategy designed to improve the health of newborns through interventions before conception, during pregnancy, at and soon after birth, and in the postnatal period. *

The objectives of this study are to measure changes in newborn care quality in a rural Indian hospital following a combined training and quality improvement intervention.

Methods
This study took place at the C.A. Patel Hospital in Mota Fofalia, Gujarat, India between February 2014 and July 2016. Assessments of 10 newborn care quality measures were completed at baseline and at 6-month intervals. Previously validated quality measures for newborn care in resource poor settings were used and compliance was recorded through direct observation of care using a standardized data collection tool.

At training intervention, hospital staff received structured training in intrapartum, postpartum and low birth weight care according to best practice protocols and WHO guidelines. Training was based on the Helping Babies Breathe protocol for immediate newborn care and the Integrated Management of Maternal and Neonatal Care program.

Results
Since the implementation of staff training interventions, a total of 112 deliveries and 718 care encounters in 326 newborns were observed. The mean age was 2.75 days (range: 0 to 26 days) and mean birth weight was 2.549 ± 0.49 kg (range: 1.0 to 3.68 kg).

Discussion
- At baseline, provider performance for care quality in the immediate newborn period, postnatal care and LBW care was low (0%). Following the interventions, care quality improved in the majority of quality measures. Ongoing challenges with bag and mask ventilation during resuscitation, equipment use, and discharge for LBW babies still exist.
- Key findings:
  - Hands-on training of birth attendants is an effective way to transfer skill knowledge in this setting
  - Appropriate discharge of LBW babies when ready requires role models involved in newborn care
  - Feeding recordings peaked in February 2015, then plunged, and improved again. These improvements are a matter of system change and empowerment.
  - Helping Babies Breathe and Essential Newborn Care curriculum can easily be taught to many levels of healthcare workers with few resources
- Limits:
  - Number of bag and mask interventions are low

Conclusion
An approach utilizing a training and QI intervention improves care in most aspects for newborns in resource poor settings.

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- Essential newborn care course. WHO.

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