# THE AGA KHAN UNIVERSITY

# Knowledge, Understanding and Utilisation of High-impact Low-cost Evidenced-based Interventions for Preterm Care in Rural Kenya

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# Introduction

- Approximately 25% of 4 million neonatal deaths globally are due to prematurity (WHO 2015; Gondwe et al 2017)

- A majority of the preterm babies deaths occurs within the the first week of life (Penfold et al  2013)

- 60% of the preterm births occur in sub-Saharan Africa (Baker et al 2017)

- Preterm birth rate in Kenya is 12.3% with some rural counties having higher rates (KDHS, 2014)

# Introduction

- International consensus exists on effectiveness of high-impact low-cost evidence-based interventions to improve preterm outcomes (WHO 2016)

- Kenya has adopted and contextualised the following preterm care guidelines:
  - Immediate and exclusive **breastfeeding**
  - **Thermal protection** of the new-born: a practical guide
  - **Kangaroo Mother Care**: Clinical Implementation Guidelines
  - Basic paediatric protocols **(Resuscitation)**
  - Use of chlorhexidine for new-born **umbilical cord care**

- Despite development of these guidelines, there is paucity of literature on availability and effective implementation by health professionals

**Kangaroo Mother Care**
Clinical Implementation Guidelines 2016

March 2016

REPUBLIC OF KENYA

**MINISTRY OF HEALTH**

# BASIC PAEDIATRIC PROTOCOLS

*for ages up to 5 years*
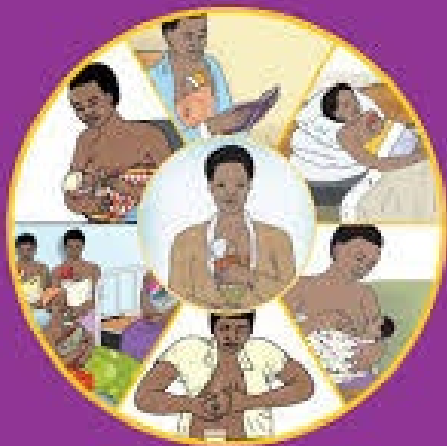
**January 2016**
*4th Edition*

MINISTRY OF HEALTH

A guideline for the use of Chlorhexidine for newborn umbilical cord care in Kenya

April 2016

# Purpose

- To determine nurses and midwives' knowledge, understanding and use of policies and guidelines on preterm care in Kilifi County, Kenya

- To assess the factors associated with the implementation of policies and guidelines on preterm care in Kilifi County, Kenya

# Methods

- **Design**:
  - Cross-sectional design

- **Sample**:
  - 102 participants
  - **Targeted**: 146 health professionals in the 16 public health facilities in the county

- **Data Collection**:
  - Pretested questionnaire with vignettes
  - Data collected between December 2017 and February 2018

- **Data Analysis:**
  - **Descriptive statistics**: describe participants characteristics, knowledge and implementations
  - **Pearson's Chi Square:** Association between guidelines implementation and participants characteristics
  - **Univariate and multivariable logistic regression**: factors associated with implementation
  - SPSS version 23

- **Ethics**:
  - AKU Ethics Review Committee
  - NACOSTI
  - Written informed consent from participants

# Participants' Characteristics

| Variable | | Frequency n (%) |
|---|---|---|
| **Health facilities (N=16)** | Sub-County Hospital | 33 (32.4) |
| | Health Centres | 67 (65.7) |
| | Dispensaries | 2 (2.0) |
| **Sex (N=102)** | Female | 71 (69.6) |
| | Male | 31 (30.4) |
| **Professional qualification (N=102)** | Registered nurse/ midwife | 51 (50.0) |
| | Registered nurse | 27 (26.5) |
| | Registered midwife | 3 (2.9) |
| | Enrolled nurse/ Midwife | 21 (20.6) |
| **In-service training on newborn care (N=102)** | Yes | 76 (74.5) |
| | No | 26 (25.5) |
| **Age** | | **Mean:** 36 years **(SD:** 9 years**); Range:** 24–58 years |
| **Worked experience** | | **Mean:** 12 years (**SD:** 10 years); **Range:** 1–36 years |

# Implementation of Evidenced Based Interventions for Care of Preterm by Nurses and Midwives

| Guidelines | Component | Implemented (N=102), n (%) | | |
|---|---|---|---|---|
| | | **Yes** | **No** | **Don't know** |
| **Resuscitation** | Administration of oxygen | 76 (74.5) | 20 (19.6) | 6 (5.9) |
| | Use of bag and mask | 59 (77.5) | 35 (14.7) | 8 (7.8) |
| | Chest compression | 51 (69.6) | 44 (23.5) | 7 (6.9) |
| | Intubation | 19 (18.6) | 67 (65.7) | 16 (15.7) |
| **Warmth Provision** | Immediate drying of a preterm baby | 70 (78.4) | 27 (16.7) | 5 (4.9) |
| | Wrapping of the baby including the head | 53 (71.6) | 39 (18.6) | 10 (9.8) |
| | Incubator/radiant heater/heated cot | 63 (61.8) | 25 (24.5) | 14 (13.7) |
| | Kangaroo mother care | 57 (55.9) | 29 (28.4) | 16 (15.7) |
| | Delayed bathing | 54 (52.9) | 26 (25.5) | 22 (21.6) |
| **Feeding** | Feeding in 1 hour of birth | 65 (63.7 | 21 (20.6) | 16 (15.7) |
| | Exclusive breastfeeding | 60 (58.8) | 15 (14.7) | 27 (26.5) |
| **Cord care** | Use of chlorhexidine for cord care | 37 (36.3) | 43 (42.2) | 22 (21.6) |

# Assessing Practice

- **Priority action 34 weeks old preterm baby born in clear liquor doesn't cry immediately after delivery**
  - **Ideal**: Dry and rub the baby gently (n=18, 17.6%)
  - **Common Practice**: Suction (n=23, 22.5%)
  - **Others:** Ventilate with bag & mask (n=23, 22.5%)
  - **Don't know:** (n=21, 20.6%)

- **When to clamp cord after birth of a stable, preterm baby**
  - **Ideal:** After 1-3 minutes (n=30, 29.4%)
  - **Common Practice**: Soon after delivery (n=53, 52%)
  - **Others :** After 30 seconds (n=13, 12.7%)

# Assessing Practice

- **Priority action when a 30 weeks preterm baby is unable to breastfeed within 1 hr of birth**
  - **Ideal**:
    - Give expressed breast milk (n=13,12.7%)
    - Give glucose (n=16, 15.7%)
  - **Common Practice**: Wait for some hours then try again (n=37, 36.3%)
  - **Don't Know** (n=18, 17.6%)

- **When to give first bath to a 36 weeks old stable preterm baby**
  - **Ideal**: After 24 Hours (n=48, 47%)
  - **Common Practice**: Soon after birth (n=31, 30%)
  - **Others:** Don't Know (n=14, 13.7%)

# Assessing Practice

- **Best practice for cord care to prevent infection**
  - **Ideal**: Apply chlorhexidine cream/ointment (n=33, 32.4%)
  - **Common Practice**:
    - Clean with saline water (n=27, 26.5%)
    - Leave it alone to dry (n=21, 20.6%)
    - Apply surgical spirit (n=17, 16.7%)

# Guidelines Implementation by Participants' Characteristics

| Variable | | Guidelines Implementation | | | P-value |
|---|---|---|---|---|---|
| | | Yes (n=75), n (%) | No (n=27), n (%) | Total (N=102), n (%) | |
| **Health facility** | Sub-county | 23 (69.7) | 10 (30.3) | 33 (32.3) | 0.603 |
| | Health centre | 50 (74.6) | 17 (25.4) | 67 (65.7) | |
| | Dispensary | 0 (0.0) | 2 (100) | 2 (2.0) | |
| **Gender** | Female | 57 (80.3) | 14 (19.7) | 71 (69.6) | **0.019** |
| | Male | 18 (58.1) | 13 (41.9) | 31 (30.4) | |
| **Professional qualification** | Registered nurse | 59 (72.8) | 22 (27.2) | 81 (79.4) | 0.756 |
| | Enrolled nurse | 16 (76.2) | 5 (23.8) | 21 (20.6) | |
| **Level of education** | Certification | 15 (71.4) | 6 (28.6) | 21 (20.6) | |
| | Diploma | 58 (73.4) | 21 (26.6) | 79 (77.4) | 0.681 |
| | Degree | 0 (0.0) | 2 (100) | 2 (2.0) | |
| **In-service newborn training** | Yes | 57 (75.0) | 19 (25.0) | 76 (74.5) | 0.565 |
| | No | 18 (69.2) | 8 (30.8) | 26 (25.5) | |
| | Mean ± SD age | 35.9 ± 8.4 | 37.7 ± 9.3 | 36.4 ± 8.6 | 0.333 |
| | Mean ± SD years of experience | 10.5 ± 8.6 | 14.3 ± 11.6 | 11.5 ± 9.6 | 0.079 |
| **Score for knowledge and practice** | Poor | 10 (45.4) | 12 (54.6) | 22 (21.6) | |
| | Moderate | 37 (80.4) | 9 (19.6) | 46 (45.1) | **0.003** |
| | Good | 28 (82.4) | 6 (17.6) | 34 (33.3) | |

# Factors associated with the Implementation of Guidelines

| Factors | Odds Ratio | 95% CI | p-value |
|---|---|---|---|
| **Gender** | | | |
| Male (*Female - Reference*) | 0.28 | **0.09–0.82** | **0.021** |
| **Years of experience** | 0.93 | 0.85–1.02 | 0.128 |
| **Age** | 1.04 | 0.94–1.14 | 0.478 |
| **Professional qualifications** | | | |
| Registered nurse | Reference | | |
| Enrolled nurse | 2.18 | 0.49–9.64 | 0.305 |
| **In-service new-born training** | | | |
| **No (***Yes - Reference***)** | 0.55 | 0.17–1.76 | 0.316 |
| **Health facility** | | | |
| Sub-county | Reference | | |
| Health centre and dispensary | 1.77 | 0.61–5.13 | 0.296 |
| **Knowledge and practice score** | | | |
| Poor | Reference | | |
| Average | 5.13 | **1.52–17.29** | **0.008** |
| Good | 5.05 | **1.32–19.35** | **0.018** |

# Summary of Key Findings

- **Availability**:
  - Guidelines on preterm care exists in most health facilities

- **Implementation**:
  - Gaps exist in implementation of the guidelines
  - Some components of guidelines were not being implemented
  - Outdated guidelines are still in use in some facilities

- **Understanding**:
  - There is association between knowledge and practice and guideline implementation
  - Three-quarters of nurses and midwives have received in-service training on newborn care

# Discussion

- Gaps exist in implementation of the guidelines

- Consistent with a study on care of preterm babies in SSA that showed:

  - practices are sometimes not consistent with the up-to-date scientific evidence (Zeitlin et al  2016)

  - Some interventions being used are not evidence-based (Zeitlin et al  2016)

- Discrepancies may occur between research evidence and clinical practice leading to inappropriate use of interventions not supported by evidence (Stokes et al  2016)

# Discussion

- There was association between knowledge and practice and guideline implementation

- In-service training

  Consistent with our, evidence of benefits exist regarding training of professionals and correct practice (Opiyo & English 2010)

- Availability of guidelines

  Similarly, Baker et al (2015) found that availing guidelines to health care providers improves

# Conclusion

- Correct use of evidence-based practice is critical to improve the health outcome of preterm babies

- Dissimilarities in the implementation of evidence-based care represents a failure in correct implementation of interventions to improve preterm care

- This could negatively impact the gains in reducing neonatal morbidity and mortality in Kenya, hampering achievements of SDGs (SDG 3)

# Recommendations

- Guidelines should be consistently provided and disseminated to health professionals

- Regular updates on the evidenced-based interventions on preterm care should be provided to health professionals

- Regular evaluation of the implementation of the guidelines

- Need for research on effectiveness of some of the interventions on preterm care in practice in Kenya

# References

1. Baker, R, Camosso-Stefinovic, J, Gillies, C, Shaw, EJ, Cheater, F, Flottorp, S, Robertson, N, Wensing, M, Fiander, M, Eccles, MP, Godycki-Cwirko, M, Van Lieshout, J & Jäger, C 2015. Tailored interventions to address determinants of practice. *Cochrane Database of Systematic Reviews*, 144-150.

2. Belizán, M, Bergh, A-M, Cilliers, C, Pattinson, RC & Voce, A 2011. Stages of change: A qualitative study on the implementation of a perinatal audit programme in South Africa. *BMC Health Services Research,* 11, 243.

3. World Health Organization, 2015. WHO recommendations on interventions to improve preterm birth outcomes.

4. Zeitlin, J, Manktelow, BN, Piedvache, A, Cuttini, M, Boyle, E, Van Heijst, A, Gadzinowski, J, Van Reempts, P, Huusom, L, Weber, T, Schmidt, S, Barros, H, Dillalo, D, Toome, L, Norman, M, Blondel, B, Bonet, M, Draper, ES & Maier, RF. 2016. Use of evidence based practices to improve survival without severe morbidity for very preterm infants: Results from the EPICE population based cohort. *BMJ,* 354:i2976.

5. Opiyo, N & English, M. 2010. In-service training for health professionals to improve care of the seriously ill newborn or child in low and middle-income countries (Review). *The Cochrane database of systematic reviews*:122-126

6. Shannon-Baker, P. 2016. Making paradigms meaningful in mixed methods research. *Journal of Mixed Methods Research,* 10:319-334

# Thank you

**Questions/clarifications**