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INTEGRATING EVIDENCE- BASED MIDWIFERY PRACTICES TO IMPROVE MATERNAL AND NEONATAL OUTCOMES IN RESOURCE-LIMITED SETTINGS

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Abstract

Maternal and neonatal mortality remain unacceptably high in many low- and middle-income countries (LMICs), driven by preventable causes such as hemorrhage, hypertensive disorders, sepsis, prematurity, and intrapartum complications. Evidence-based midwifery (EBM) offers a pragmatic pathway to close these gaps by standardizing clinical decision-making, optimizing respectful, woman-centered care, and strengthening linkages between communities and health facilities. This paper synthesizes core EBM interventions relevant to resource-limited settings—active management of the third stage of labor (AMTSL), partograph-guided labor, antenatal corticosteroids for threatened preterm birth, magnesium sulfate for severe pre- eclampsia/eclampsia, infection prevention bundles, essential newborn care with early breastfeeding and skin-to-skin contact, and low-dose, high-frequency onsite simulation. Using a mixed-methods design (service data from six district facilities, two explanatory case studies, and provider/mother questionnaires), we examine feasibility, fidelity, and outcomes over 12 months. Implementation was associated with reductions in postpartum hemorrhage (PPH) by 27%, intrapartum stillbirth by 21%, and early neonatal hypothermia by 34%, alongside improved respectful care scores and timely referral. The analysishighlights enablers (task-sharing, job aids, audit-and-feedback) and barriers (stock-outs, staff turnover, documentation burden). We propose a practical EBM implementation blueprint emphasizing context adaptation, data use for action, and midwife-led quality improvement collaboratives to sustain gains.

Keywords: *Evidence-based midwifery; maternal health; neonatal outcomes; resource-limited settings; AMTSL; partograph; kangaroo mother care; respectful maternity care; quality improvement; task-sharing*.

INTRODUCTION

Despite global progress, the ―too little, too late‖ paradox persists where high- risk pregnancies present late and facilities are under-resourced. Conversely, ―too much, too soon‖—unnecessary interventions—also occurs, increasing harm and costs [1-4]. Evidence-based midwifery threads a middle path: apply interventions with proven benefit, avoid low-value care, and anchor decisions in women's preferences and local feasibility. Midwives—often the largest skilled cadre attending births in LMICs—are uniquely positioned to deliver high- impact practices: timely risk screening, continuity of care, physiologic labor support, judicious use of interventions, and early newborn stabilization [5]. However, translation barriers include inconsistent training, commodity shortages (oxytocin, $MgSO_4$, chlorhexidine), weak referral networks, and limited use of routine data.

This study addresses three questions: (1) Which EBM interventions are most feasible to implement at primary and district-level facilities? (2) What is their association with priority outcomes (PPH, intrapartum stillbirths, neonatal hypothermia, early breastfeeding)? (3) Which

implementation strategies enhance fidelity and sustainability in resource-limited settings?

METHODOLOGY

Design

Mixed methods over 12 months in six district facilities (catchment ~1.1 million) [6-9].

Quantitative component.

Interrupted time series of routine delivery registers and newborn care logs; outcomes measured monthly [10]: PPH ≥1000 mL, intrapartum stillbirth rate (per 1000 births), early neonatal hypothermia (<36.5°C within 1 h), early initiation of breastfeeding (within 1 h), and timely referral (<2 h) for obstetric emergencies [11-13].

Interventions.

1. AMTSL with prophylactic oxytocin and controlled cord traction;
2. Partograph use and escalation triggers;
3. Antenatal corticosteroids (24–34 weeks with imminent preterm birth);
4. $MgSO_4$ loading/maintenance for severe pre-eclampsia/eclampsia;
5. Infection prevention (hand hygiene, clean birth kits, chlorhexidine cord care);
6. Essential newborn care (thermal care, early skin-to-skin, breastfeeding support);
7. Kangaroo Mother Care (KMC) for stable LBW infants;
8. Low-dose, high-frequency simulation (PPH, neonatal resuscitation);
9. Respectful Maternity Care (RMC) charter orientation and feedback. Implementation strategies. Midwife champions, job aids, drug/commodity dashboards, monthly audit-and-feedback, WhatsApp clinical support, and escalation pathways [14-18].

Qualitative component. Two embedded case studies (rural health center; district hospital), 24 semi-structured interviews (midwives, mothers, managers) [19].

Questionnaires. Two structured tools: Provider EBM Readiness (n=88) and Mother Experience & Satisfaction (n=210).

Analysis. Descriptive statistics; segmented regression for level/trend changes; χ^2 for proportions; framework analysis for qualitative themes. Ethics approvals obtained; de-identified data used [20, 21].

Case Studies

Case Study 1 – Rural Health Center (Births/year ~1200).

Baseline challenges: erratic oxytocin cold chain, partograph underuse (<25%), delayed referral. After appointing a midwife champion, introducing a laminated AMTSL checklist and cooler-box storage, oxytocin availability rose to >95%, partograph completion to 78%, and median decision-to-referral time dropped from 4.6 h to 1.9 h. PPH ≥1000 mL decreased from 3.8% to 2.6% over 9 months, and early breastfeeding within 1 h rose from 58% to 81%. Midwives reported higher confidence performing bimanual compression and administering tranexamic acid per protocol [22].

Case Study 2 – District Hospital (Births/year ~4800). Frequent night-shift admissions, crowding, and neonatal hypothermia on arrival to the ward. A ―warm chain‖ bundle (pre-warmed wraps, hats, immediate drying, delay weighing, early skin-to-skin) plus bedside temperature audits reduced hypothermia from 42% to 24% in 6 months [23-27]. Establishing a KMC corner with mother-to-mother support raised KMC uptake among eligible LBW infants from 31% to 67%, with average daily KMC duration increasing from 4.1 h to 10.6 h. A respectful care initiative (privacy screens, birth companion policy, feedback board) was associated with improved satisfaction scores and fewer informal payments [28].

Data Analysis

Table 1: Evidence-Based Midwifery Practices, Feasibility, and Effects.

Practice (EBM)	Core resources	Feasibility (primary level)	Fidelity at 12 mo (%)	Primary effect size (absolute change)
AMTSL (oxytocin 10 IU)	Cold chain, syringes, job aid	High (with cooler)	88	−27% PPH ≥1000mL
Partograph with triggers	Paper forms/EMR, coaching	Moderate	76	−21% intrapartum stillbirth
$MgSO_4$ for severe PE/E	Drug, BP/urine protein, protocol	Moderate	72	+18% timely controlof seizures; −15% referrals delayed
Antenatal corticosteroids	Dexamethasone, GA assessment	Moderate	64	−12% early neonatal respiratory distress (proxy)
Infection prevention bundle	HH supplies, chlorhexidine	High	90	−19% puerperal sepsis

Essential newborn care	Warm chain, skin- to-skin	High	92	−34% early hypothermia; +22% early breastfeeding
KMC for stable LBW	Chairs/wraps, logs	High	81	−14% NICU transfers for stable LBW
Simulation + drills	Low-dose/high-freq kits	Moderate	70	+24% team response scores
RMC & birth companion	Policy, privacy screens	High	86	+27% satisfaction;−18% reports of disrespect

Table 2: Aggregate Outcomes Pre- vs Post-Implementation (6 Facilities).

Outcome	Baseline (months 1–3)	Post (months 10–12)	Relative change
PPH ≥1000 mL	3.3%(n=431/13,065)	2.4%(n=315/13,021)	−27%
Intrapartum stillbirths/1000 births	12.4	9.8	−21%
Early neonatal hypothermia (<36.5°C)	38%	25%	−34%
Early breastfeeding within 1 h	61%	74%	+21%
Timely referral within 2h	49%	63%	+29%

Notes: Routine data quality checks performed; segmented regression suggested significant level change for PPH and hypothermia ($p<0.05$), trend improvement for early breastfeeding ($p=0.06$).

Questionnaire Tables

Table 3: Provider Readiness Summary (Likert ≥4 treated as ―positive‖).

Domain	Positive (%)
AMTSL competence	84
$MgSO_4$ protocol confidence	78
Correct partograph use	73
Teamwork after drills	72
RMC behaviors adoption	81

Table 4: Mother-Reported Experience Indicators

Indicator	Yes (%)
Birth companion present	76
Informed consent perceived	83
Early breastfeeding support	71
Privacy maintained	79
Any disrespect experienced (lower is better)	9

DISCUSSION

Findings align with global evidence that a small bundle of high-value midwifery practices yields disproportionate benefit when reliably implemented [29]. AMTSLremains foundational for PPH prevention, yet fidelity hinges on commodity management (cold chain, task reminders). Partograph-guided escalation reduces delays, but documentation fatigue and staff rotations undermine use—addressed here through coaching and simplified trigger stickers [30]. The warm chain and immediate skin-to-skin are low-cost, high-impact measures that improved both thermal stability and breastfeeding initiation [31].

Implementation lessons: (1) Midwife champions accelerate adoption and troubleshoot local barriers; (2) Low-dose, high-frequency drills embed skills more effectively than annual trainings; (3) Audit-and-feedback using simple dashboards motivates teams; (4) Respectful care is not ancillary—women's trust influences early presentation, adherence, and breastfeeding success; (5) Supply reliability (oxytocin, $MgSO_4$, chlorhexidine) is a prerequisite; micro- cold-chain solutions and visual stock trackers helped [32, 33]. Limitations include reliance on routine data with potential misclassification, absence of randomized allocation, and confounding from concurrent system changes (e.g., ambulance availability). Nevertheless, consistency across sites, effect directions, and qualitative confirmations strengthen plausibility [34].

Practical Implementation Blueprint

1. Select a core bundle (AMTSL, partograph triggers, $MgSO_4$, warm chain, RMC).
2. Enable commodities (mini cold chain, locked supply par levels, weekly checks).
3. Standardize processes with job aids, wall charts, and escalation cards.
4. Build competence via bedside coaching and simulation every 2–3 weeks.

5. Measure what matters (PPH, stillbirths, hypothermia, breastfeeding, respectful care) on a one-page dashboard.
6. Run monthly huddles to review data, celebrate wins, and remove barriers.
7. Protect time for mentors and align with district referral protocols.
8. Sustain through integrating indicators into supervision and pre-service education.

CONCLUSION

In resource-limited settings, integrating an essential package of evidence-based midwifery practices—supported by pragmatic implementation strategies—can measurably improve maternal and neonatal outcomes. Our program demonstrated substantial reductions in PPH, intrapartum stillbirth, and neonatal hypothermia, with parallel gains in early breastfeeding and respectful care. Scaling requires attention to commodities, continuous skills reinforcement, data use for action, and midwife leadership. Embedding these elements within district quality collaboratives offers a feasible path to sustained impact and progress toward national mortality targets.

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