The impact of Low Dose High Frequency (LDHF) training approach on health care provider capacity to prevent, detect and manage postpartum hemorrhage and neonatal asphyxia

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Kayla Britt
How do we build capacity of providers to improve maternal and newborn survival? What's the evidence?
Literature shows we need **LESS**...
- Off-site
- Single, lengthy training
- Passive learning
- Limited practice & feedback


And we need **MORE**...
- Onsite, shorter & more frequent interactive learning
- Practice & immediate feedback
Target limited # of providers from different facilities

- Off-site training
- Heavily lecture-based
- Limited opportunities for active learning
- Limited or no follow up

Traditional Training Approaches
Saving lives at birth

Helping Babies Breathe

Helping Mothers Survive

Bleeding After Birth

ACTION PLAN

Helping Babies Breathe

- Place baby on mother
- Clear airway
- Check breathing
- Cut cord
- Monitor mother
- Call for help
- Encourage breastfeeding
- Advanced care

Helping Mothers Survive

- Placenta out?
- Complete?
- Advanced care
- Uterus hard?
- Massage uterus
- Continue care
- Cleansing
- Keep warm
- A Grand Challenge for Development

SAVING LIVES AT BIRTH:
A GRAND CHALLENGE FOR DEVELOPMENT
Objectives

- **Increase provider practice on simulators** to consolidate learning

- **Improve facility readiness and provider competencies**

- **Improve routine care** & timely care for PPH and asphyxia

- **Decrease mortality** – early newborn/stillborn and PPH case fatality
Jhpiego’s “Low dose, high frequency” approach
Facility-based, hands on learning that offers manageable amounts of information/skills *(dose)* at appropriate intervals *(frequency)* to the entire team followed by short & repeated practice after learning.
Principles of LDHF

• Facility based & team focused
• Focused on competencies
• Simulation and case-based
• Appropriately spaced brief periods of learning
• Ongoing practice supported by peers
1-day training for each BAB & HBB followed by LDHF practice
Clinical Mentors

• Clinically active midwives
• 2 selected per facility
• Oriented in ½ day after LDHF training day
• Facilitate practice
• “Peer Practice Coordinators”
LDHF Practice

- 10-15 min/wk of hands-on practice
- Providers practiced:
  - 8 weeks for BAB
  - 8 weeks HBB
- 4 weeks of combined practice
- Facility based practice led by CM
Uganda

12 Districts

Western
- Ibanda
- Kanungu
- Kiryandongo
- Kisoro
- Rukungiri
- Sheema

Eastern
- Bukedea
- Kaberamaido
- Namutumba
- Ngora
- Serere
- Soroti

ALL 125 Health Facilities
**Study Design: 3**
Cluster Randomized Arms

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Study Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 day, facility based, simulation team training</td>
<td>1, 2, 3</td>
</tr>
<tr>
<td>Followed by LDHF practice:</td>
<td></td>
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<tr>
<td>• HMS - Bleeding after Birth -- uterotonic backfill</td>
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<tr>
<td>• HBS - Helping Babies Breathe – bag and mask</td>
<td></td>
</tr>
<tr>
<td>Clinical Mentor onsite</td>
<td>2, 3</td>
</tr>
<tr>
<td>Telephone support to Clinical Mentor from District Trainer</td>
<td>3</td>
</tr>
</tbody>
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Study Design

Multiple-intervention, non inferiority cluster randomized controlled trial

23 data collection instruments

• Facility Assessment – all 125
• Direct Clinical Observation – subset
• HMIS registers and supplemental register
• Knowledge and skills
• Practice logs
• Interviews
Direct Clinical Observation

- **Facilities sampled**: > 1 birth/day (n=42)

- **Time points**: Observations done at:
  - Baseline
  - Midline
  - Endline

We observed any birth whether by trained or untrained provider

- **Checklist** - tablet computers 361 items
  - prep for birth
  - labor and delivery complications
  - outcomes

- **1716 total observations**
Results
Knowledge & Skills

- Trained - 755 Providers
- Training day - all providers before and after
- 6 – 9 months post implementation - sampled 50% districts (47 facilities)
Overall Results

PPH ↓ 17%
Retained placenta ↓ 47%

Fresh stillbirth ↓ 34%
Newborn death ↓ 62%
Uterotonic Preparation and Delivery at Midline, by Training Status

- Prepares Uterotonic before birth:
  - Baseline: 70%
  - Midline Untrained: 80%
  - Midline Trained: 94%

- Uterotonic given within 1 min:
  - Baseline: 11%
  - Midline Untrained: 28%
  - Midline Trained: 46%

- Uterotonic given within 5 min:
  - Baseline: 67%
  - Midline Untrained: 91%
  - Midline Trained: 92%

* indicates p<0.05
Skills Testing

Providers Performing to Standard in For AMTSL - HMS

Pre
Post
6 months post

HMS - Full
HMS - Partial
HMS - Control
Providers Performing to Standard in Newborn Resuscitation - HBB

Skills Testing
Motivations and Barriers to Practice

Practice sessions were more likely to occur when providers:

- had a CM at their facility
- expressed desire to maintain skills and be prepared for emergencies
- received external recognition for practicing
- had a set schedule for practice

Challenges to consistent practice:

- short staffing and heavy workloads,
- perception that competency could be maintained through routine clinical care
Take home messages

• Facility & simulation based training/mentoring is feasible and resulted in gains in performance and health outcomes

• Practice is essential – some skills need more than others?

• Ongoing practice after training occurred more often where there were CMs

• More practice occurred when reminders for practice were given to CMs

• DCO showed greater gains in performance in the study arms with more practice

• A culture of change was apparent with untrained providers improving performance for some care tasks
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