Helping Babies Survive

educational programs to improve neonatal survival

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Helping Babies Survive more than just a workshop

• Content, educational design, innovative models and equipment
• Ongoing practice for mastery of skills
• Facility-based improvement activities to change behavior and outcomes
Helping Babies Survive
addressing 3 major causes of neonatal mortality

Severe Infections

- Severe infections 23%
- Pneumonia 11%
- Sepsis/meningitis 13%
- Tetanus 2%

Intrapartum-related complications 23%

Complications from preterm birth 35%


3.8 million neonatal deaths and 3.2 million stillbirths per year worldwide
Helping Babies Breathe

ACTION PLAN

Helping Babies Breathe

Prepare for birth

Birth

If meconium, clear airway
Dry thoroughly

Cry

Not crying

Clear airway
Stimulate
Breathing?

Breathing well

Not breathing

Cut cord

Breathing

Ventilate

Not breathing

Call for help

Monitor
with mother

Not breathing

Heart rate?

Normal

Continue ventilation
Advanced care

Prepare for birth

Suction device
Nasal cannula
Ventilation bag-mask
Diaphragmatic
Your black watch

Slow
Helping Babies Breathe

**materials**

- Action Plan
- Facilitator Flip Chart
- Learner Workbook
- Neonatal Simulator
- Bag and Mask
- Suction Device
Educational design: key principles

- Effectiveness of basic steps, not intensive care
- Graphic Action Plan and learning materials
- Purpose-built neonatal simulator for skill-building and practice
- Empowerment of birth attendants to change performance and outcomes
Educational design: practice in pairs
Educational design: case scenario exercises
Educational design: in-facility training
Essential Care for Every Baby

materials
1. Background knowledge
Breast milk and colostrum provide nutrition that is easy to digest and contain antibodies that protect against infection. Babies should receive only breast milk for the first 6 months. Babies who receive other food or liquids before 6 months of age are more likely to develop diarrhea. Advise women about breastfeeding during antenatal visits and discuss it again before birth occurs.

Starting breastfeeding soon after birth helps mothers provide enough milk later. It also helps the uterus contract and reduces maternal bleeding.

Some babies may not breastfeed well soon after birth, but it is important to encourage breastfeeding during this time. To encourage early breastfeeding, keep mother and baby together unless a problem separates them. Babies are often alert immediately after birth and will move toward the mother’s breast but may not suck.

Signs of readiness to feed include:
1) eyes open
2) the baby’s head slightly back
3) tongue down and forward
4) mouth open
5) licking movements

Teach mothers how to recognize these signs.

2. Review key knowledge
Fill in the missing words:
Breast milk and colostrum provide nutrition that is easily digestible, and contain __________ that protect against infection. Babies should receive only breast milk for the first ___ months. Babies who receive food or liquids other than breast milk are more likely to develop __________. Starting breastfeeding soon after birth helps mothers produce more milk later on, helps the uterus __________, and reduces maternal __________.

Signs that the baby is ready to feed include: the baby’s ___ is slightly back; the ___ is down and forward; the mouth is open wide; the baby makes _________ movements.

3. Practice key skills
Role One
Play the role of a mother who has just delivered. Collect a manikin or doll with a head covering and a blanket for the baby.

Role Two
Play the role of the provider.
Demonstrate and assist the mother with:
- Positioning herself comfortably
- Positioning the baby skin-to-skin near the breasts
- Covering the baby’s body and head
- Monitoring breathing and temperature
- Recognizing signs of readiness to breastfeed

Change roles and repeat the exercise.

Discuss similarities and differences between the role play and your clinical practice.

To improve care in your facility:
How can you make it easier for mothers to begin breastfeeding soon after birth?

Discuss the answers to this question with other providers and leaders in your facility. The following questions may help you understand what prevents you from performing this action as recommended.

Suggested questions to identify potential problems:
- Do mothers receive counseling about breastfeeding before delivery?
- Are mothers and babies separated after delivery?
- Do all birth attendants understand the importance of early breastfeeding?
Exercise:
Essential care during the first 90 minutes

Continue skin-to-skin care and monitor breathing. Initiate breastfeeding
Provide treatments to prevent disease
Assess and Classify
Essential Care for Every Baby

Parent Guide

Danger Signs

Seek health care immediately!

- Not feeding
- Too hot or too cold
- Chest indrawing or fast breathing
- No movement
- Convulsions
- Yellow palms or soles of feet

Help your baby survive

NOTES

- Baby's birth weight: 
- Date and location of next follow-up appointment:
- Clinic:
- Health worker contact:

OBSERVATIONS AND ADVICE

Other notes:
Essential Care for Every Baby

Breast model – breastfeeding, expression, skin-to-skin care
Ethiopia Field Testing with WHO – Addis Abbaba, May 2014
Essential Care for Small Babies

Action Plan
Essential Care for Small Babies

Provider Guide – review and quality improvement

**Review Key Knowledge**

Continuous skin-to-skin care is the preferred method to maintain normal temperature of babies less than 2000 grams and any baby who is cold despite wrapping.

Continuous (>20 hours per day) skin-to-skin care can be provided
- To well small babies including those fed by cup or nasogastric tube
- By the mother or a family member
- During most activities including sleep

When mother must temporarily interrupt skin-to-skin care
- Encourage a family member to place the baby skin-to-skin or
- Wrap the baby snugly

**Support and counsel the mother to**
- Develop confidence in positioning and caring for her baby skin-to-skin
- Assess her baby
- Engage in self-care
- Receive help from family members

Assess a baby during continuous skin-to-skin care and teach the mother to observe and report concerns about
- Activity – normal vs low or convulsions
- Breathing - comfortable vs fast, chest indrawing or pauses > 20 seconds (apnea)
- Color – pink vs blue, pale, or yellow
- Temperature – normal vs hot or cold

**Review Key Skills**

Work in pairs to play the roles of the mother and the provider.

Assist mother in positioning her baby skin-to-skin.

Teach mother to observe
- Activity
- Breathing
- Color
- Temperature

Show mother how to record feedings and wet or dirty diapers on a simple form.

Ask mother if she has questions about the baby’s care.

Change roles and repeat practice.

**What to monitor:**
- Do all babies < 2000 grams receive continuous skin-to-skin care?
- How often does continuous skin-to-skin care alone maintain normal temperature for babies < 2000 grams?

**To improve care in your facility:**
- Is there a place for mothers to provide continuous skin-to-skin for many days or weeks?
- Who teaches mothers how to monitor their babies during continuous skin-to-skin care?
Essential Care for Small Babies

*Preterm simulator*

**Weight 1.6 kg**
**Realistic size and proportions for preterm baby**
**Supports training in**
- proper breastfeeding positioning and attachment
- correct nasogastric tube placement
- spoon, cup and nasogastric tube feeding
- continuous skin-to-skin care
Helping Babies Survive

addressing 3 major causes of neonatal mortality

- **HBB:** Basic resuscitation
  - Intrapartum-related complications 23%
  - Complications from preterm birth 35%
  - Severe infections 23%
  - Other 6%
  - Diarrhoea 2%
  - Pneumonia 11%
  - Congenital 9%

- **ECEB:**
  - Hygiene, cord care
  - Skin-to-skin contact
  - Exclusive breastfeeding
  - Recognition of danger signs, antibiotic treatment

- **ECSB:**
  - Continuous skin-to-skin care
  - Alternative feeding methods
  - Hygiene
  - Recognition of problems

The Formula for Survival

patient survival is the result of three equally important factors

Medical Science \times Educational Efficiency \times Local Implementation = Survival

Søreide E et al. Resuscitation 2013;84:1487-93
Confronting the challenges of change

• After training, providers want to make change
  – but an individual cannot make change alone

• Change means taking risks
  – keeping old practices is safe – avoids criticism and possible failure

• There are many things that need change
  – confronting them all is overwhelming
HBB: Change in skills but not clinical practice

*observations at Haydom Hospital, Tanzania*

April 2010 HBB training

<table>
<thead>
<tr>
<th></th>
<th>Sept 2009</th>
<th>Nov 2010</th>
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<tbody>
<tr>
<td><strong>Scenario</strong></td>
<td>N= 39</td>
<td>N=27</td>
</tr>
<tr>
<td>(video analysis)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Routine care (% pass)</td>
<td>41</td>
<td>74*</td>
</tr>
<tr>
<td>Bag-mask (% pass)</td>
<td>18</td>
<td>74^</td>
</tr>
<tr>
<td><strong>Delivery room</strong></td>
<td>N=2745</td>
<td>N=3116</td>
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<tr>
<td>(observation)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stimulation (%)</td>
<td>17.7</td>
<td>14.1*</td>
</tr>
<tr>
<td>BMV (%)</td>
<td>8.4</td>
<td>7.5</td>
</tr>
<tr>
<td>Time to BMV (sec)</td>
<td>76±54</td>
<td>89±76*</td>
</tr>
</tbody>
</table>

* *p*<0.05
^ *p*<0.0001

Ersdal HL et al. Resuscitation 2013; 84:1422
Facility-based training, mentored practice

- Routinized practice of skills
- Simulators in the delivery room
- Midwife “champion” at each delivery site
## Impact of low-dose, high-frequency practice

**Haydom Hospital, Tanzania**

### April 2010 HBB training

<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>Fresh stillbirth (per 1000 live births)</td>
<td></td>
<td></td>
<td>16.0</td>
<td>14.4*</td>
</tr>
<tr>
<td>Death &lt; 24 hours (per 1000 live births)</td>
<td></td>
<td></td>
<td>11.1</td>
<td>7.2*</td>
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<tr>
<td><strong>Delivery room (obs)</strong></td>
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<td>N=3116</td>
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<td>Stimulation (%)</td>
<td>17.7</td>
<td>14.1*</td>
<td>14.4</td>
<td>16.0 *</td>
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<tr>
<td>BMV (%)</td>
<td>8.4</td>
<td>7.5</td>
<td>7.2</td>
<td>5.7 +</td>
</tr>
<tr>
<td>Time to BMV (%)</td>
<td>76±54</td>
<td>89±76*</td>
<td>89±72</td>
<td>97±74</td>
</tr>
</tbody>
</table>

*  \( p < 0.05 \)

+  \( p = 0.03 \)

Ersdal HL et al. Resuscitation 2013; 84:1422
Tanzania: change in survival

**FIGURE 2**
Impact of HBB training on ENM within 24 hours (filled squares) and rates of FSB (filled circles) before implementation (N=8124; mean number of births per hospital n=820, range 362–2214) and at 1 year and 2 years after implementation (N=78500; mean number of births per hospital n=9218, range 2450–16488). * = P < .0001, ** = P = .001.

Nepal: HBB as a framework for quality improvement

- Identify objective for implementing HBB
- Develop measurement system to assess change (performance, mortality)
- Collect and analyze data
- Meet weekly to review progress and challenges

Ashish KC et al. BMC Pediatrics 2012; 12:159
Are all babies dried thoroughly immediately after birth?

Do all babies have the airway cleared for visible secretions or obstruction only?

Do all babies who do not breathe after stimulation receive bag and mask ventilation by 1 minute?

Are all babies placed skin-to-skin with the mother after drying?

Is umbilical cord clamping delayed for at least 1 minute?

Is equipment prepared and checked before every delivery?
Nepal: HBB as a framework for outcomes

pre-HBB N=9630

86% 14% 95% 5%

41% received suction, stim, O2

none ventilated by 1 min

post-HBB N=1385

95% 5%

18% received suction, stim, O2
Honduras: observation and improvement cycles impact clinical performance

<table>
<thead>
<tr>
<th></th>
<th>Pre-HBB (N=14)</th>
<th>Post -HBB (N=65)</th>
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<tbody>
<tr>
<td>Drying/stimulation of non-breathing baby</td>
<td>30 %</td>
<td>94 % *</td>
</tr>
<tr>
<td>Unnecessary suction</td>
<td>42</td>
<td>15 +</td>
</tr>
<tr>
<td>Delayed cord clamping</td>
<td>86</td>
<td>97</td>
</tr>
<tr>
<td>Skin-to-skin care</td>
<td>44</td>
<td>79 +</td>
</tr>
<tr>
<td>Breastfeeding before 30 min</td>
<td>50</td>
<td>72</td>
</tr>
</tbody>
</table>

* p <0.01  + p < 0.05

Kamath-Rayne BD et al. PAS 2014
Improving care of mothers and babies

- Facilitator Flipchart – introduction to improvement for every provider
- Provider Guide – questions to improve care in your facility and what to monitor (process and outcome)
- Improvement Workbook – team exercises and guide through the improvement cycle
Key lessons from Helping Babies Survive

• Simplicity and clarity open the door for change
• Facility-based skills training initiates change
• Mentoring and empowerment of health workers solidifies change
  – Practice in pairs, in situ practice, LDHF refreshers, mentoring
• Catalytic role of HBS spreads change
  – Focusing attention on babies (and their mothers)
  – Demystifying interventions (resuscitation, thermal care)
  – Demystifying a process (quality improvement)
• Monitoring, data collection and utilization of data document and support continued change
Helping Babies Breathe

Lessons learned guiding the way forward

A 5-year report from the HBB Global Development Alliance

Selected references

HBB: Tanzania


HBB: Kenya and Rwanda


HBB: India, Nepal, Honduras


HBB: Global


ECEB and ECSB