Neonatal Resuscitation Can Improve Under Five Mortality in Developing Countries

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6.6 million children under age five died in 2012

nearly 18,000 every day
Trend to Under five Mortality

1990: 90/1,000 Births

2012: 48/1,000 Births

47% ↓

http://gamapserver.who.int/mapLibrary/app/searchResults.aspx
Trend to Under five Mortality

Share of global under-five deaths by WHO region, 1990–2012

Update: 13 September 2013


http://www.who.int/gho/child_health/mortality/mortality_under_five/en/
Cause of Under Five Mortality (2011)

- Under five:
  - Pneumonia
  - Prematurity: 17.0%
  - Birth Asphyxia: 12.5%
  - Diarrhea
  - Malaria
  - Others

- Neonates:
  - Prematurity: 34.9%
  - Birth Asphyxia: 26.3%
  - Others
Who is most at risk?

Newborns!

Nearly three million babies die every year in their first month of life and a similar number are stillborn.

- First 24 hours: 50%
- The first week: 75%
Essential care of a newborn

* Ensuring that the baby is breathing
* Starting the newborn on exclusive breastfeeding right away
* Keeping the baby warm
* Washing hands before touching the baby.
Neonatal Resuscitation Skill

International Liaison Committee on Resuscitation (ILCOR)

http://www.ilcor.org/home/
Resuscitation Council of Asia

JAPAN
KOREA
TAIWAN
PHILIPPINES
TAILAND
SINGAPORE
Neonatal Resuscitation Algorithm

Circulation. 2010;19;122:S516-38
Modification of Algorism

Term Infant? Breathing or Crying? Good tone?

Yes  Stay with mother

Routine Care
• Provide warmth
• Assure open airway
• Dry
• Ongoing evaluation

No

• Warm
• Positioning
• Open airway
• Dry
• Stimulate

30sec

Evaluate both HR and Respiratory condition
Evaluate both HR and Respiratory condition

- No
  - Spontaneous Breath and HR over 100
  - Consider SPO2 monitor

- Apnea including gasping or HR below 100
  - Ventilation and chest compression (1:3)
  - Check HR
  - Over 60 bpm
  - Below 60 bpm
    - Ventilation and chest compression (1:3)
    - Check HR

- Below 60 bpm
  - Consider SPO2 monitor

- Over 60 bpm
  - Consider CPAP or O2 supply

The **Golden Minute**®
is the most important
time of a newborn’s life

http://www.helpingbabiesbreathe.org/index.html
Helping Babies Breathe (HBB) is an evidence-based educational program to teach neonatal resuscitation techniques in resource-limited areas.

The objective of HBB is to train birth attendants in developing countries in the essential skills of newborn resuscitation, with the goal of having at least one person who is skilled in neonatal resuscitation at the birth of every baby.
A key concept of HBB is *The Golden Minute ®*: Within one minute of birth, a baby should be breathing well or should be ventilated with a bag and mask. The Golden Minute identifies the steps that a birth attendant must take immediately after birth to evaluate the baby and stimulate breathing.
Prepare for Birth

*Prepare for birth*

- Gloves
- Suction device
- Cloths
- Ventilation bag-mask
- Head covering
- Stethoscope
- Scissors
- Timer (clock, watch)
- Ties
Algorism of Helping Baby Breath

1. Prepare for birth
2. Birth
3. If meconium, clear airway
4. Dry thoroughly
5. Crying
6. Crying?
7. Not crying
8. Clear airway
9. Stimulate
10. Breathing?
11. Not breathing
12. Cut cord
13. Breathing
14. Ventilate
15. Keep warm
16. Check breathing
17. Cut cord
18. 60 sec
Monitor with mother

Not breathing
Call for help

Improve ventilation

Not breathing
Heart rate?

Normal

Continue ventilation
Advanced care

Prepare for birth

*Gloves
*Cloths
*Head covering
*Sissors
*Ties
*Suction device
*Ventilation bag-mask
*Stethoscope
*Timer (clock, watch)
The term “debriefing” refers to conversational sessions that revolve around the sharing and examining of information after a specific event has taken place.
Factor associated placental transfusion

3. Uterin contraction (oxytocin administration)

4. Constriction of umbilical vessels

1. Timing of clamping umbilical cord

2. Height (Gravity)
Definition of Delayed Cord Clamping

Delayed cord clamping means waiting at least 30 second to stop of umbilical cord pulsation after the delivery of an infant.
Timing of cord clamping and infant’s blood volume

70 ml/kg

35 ml/kg

X
3.2 kg

= 112 ml !

Delayed Cord Clamping in Term Infants

Benefit
Elevation of Hb level
Less Iron Deficiency Anemia at 3–6 months of age

Demerit
Risk of hyperbilirubinemia

McDonald SJ. et al.
Cochrane Database Syst Rev. 2013
Delayed cord clamping

WHO recommends cord clamping one to three minutes after birth while initiating simultaneous essential newborn care. Early cord clamping (less than one minute after birth) is not recommended unless the neonate is asphyxiated and needs to be moved immediately for resuscitation.

http://apps.who.int/rhl/pregnancy_childbirth/childbirth/3rd_stage/cd004074_abalose_com/en/
Delayed cord clamping may improve iron status in the infant for up to six months after birth. This may be particularly relevant for infants living in low-resource settings with less access to iron-rich foods.
Non invasive measure approach of Hb

- Hb
- SpO2
- Pulse Rate

IT'S AS EASY AS 1-2-3
valuable screening test for anemia

1. gynecological checkup

2. Children
Conclusion

Establishment of safety delivery

1. All babies are born with at least one skilled birth attendant present.

2. Introduction of standard neonatal resuscitation program

3. Introduction of delayed cord clamping
Thank you very much for your attention

Sharing and Spreading the MOTTAINAI message

MOTTAINAIというメッセージを皆で分かり合い広めていきましょう。