Neonatal Resuscitation Training
REPORT

Prepared By:
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# Acknowledgements

We wish to express our sincere gratitude to the management and staff of International Health Sciences University (IHSU) for their financial and moral support that enabled this training to take place. We especially acknowledge the support of the office of the Vice Chancellor (Dr. Nicholas Wooding), the School of Nursing, and the Department of Research and Development.

We would also like to thank the health facilities that responded to our call and sent their health workers to be trained. These Included Kibuli Hospital, Kisugu HCIII, St. Phillips Maternity Clinic, China Uganda Friendship Hospital (Naguru), and Godnet Medical Centre.

We also express our thanks to the Kibuli Village Health Team especially Mr. Kiryowa Muhamood, Ms. Irene Mutesi and Hajat Masitula Birabwa for their efforts in mobilizing the health workers from the community and surrounding clinics.

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**Abbreviations**

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tr>
<td>CME</td>
<td>Continuous Medical Education</td>
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<tr>
<td>IHSU</td>
<td>International Health Sciences University</td>
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<tr>
<td>PMTCT</td>
<td>Prevention of Mother to Child Transmission</td>
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<tr>
<td>PPH</td>
<td>Post Partum Haemorrhage</td>
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<tr>
<td>TBA</td>
<td>Traditional Birth Attendant</td>
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1.0 Background

International Health Sciences University has been conducting a study titled “Confidential Enquiry into Maternal and Child Deaths”. This study conducted in Kibuli Parish sought to identify the deficits in available human resources for primary health care within the Ugandan health system. For this reason, the team investigated all the deaths of mothers, still births and children below the age of five years in Kibuli Parish.

As part of the investigations, the cases investigated were reviewed by a panel of medical personnel, community leaders and other relevant stakeholders. The panels identify causes of death, avoidable factors and recommendations at the different levels of the health system.

One of the avoidable factors was that newborns would have been saved if resuscitation had been attempted or done properly. In response to this, IHSU took on the task of training midwives working in and near Kibuli in neonatal resuscitation as it was discovered that the skills of some of the personnel conducting the births could benefit from the training.

The aim of the training was to equip midwives with neonatal resuscitation skills using basic equipment.

The learning objectives of the participants were that they;

- Demonstrate an understanding of the physiology asphyxia
- Assess the new born at birth
- Perform resuscitation of a new born using basic equipment

2.0 Activities

Activities included;

- Pre-test
- Oral Presentations
- Illustration
- Return Demonstration
- Post test
- Feedback from the participants

3.0 Pre-test

The pre – test included basic questions on initial assessment of the new born, immediate care of the new born and resuscitation techniques.

The highest score was 80% while the lowest scored 16% with an average score of 50%

Traditional birth attendants didn’t attempt the test as they were unable to read and write
Participants during the pre-test session

4.0 Presentations

The first presentation covered; an overview on neonatal deaths, neonatal asphyxia, risk factors of neonatal asphyxia, initial assessment at birth and airway management.

The second presentation covered the equipment used in neonatal resuscitation and steps of neonatal resuscitation
5.0 Demonstration

The participants were divided into four groups and allocated different resuscitation stations. The facilitator demonstrated the steps of neonatal resuscitation and there was a return demonstration from each of the participants.
The same test was done to compare the performance of the participants before and after the training. For the post-test a highest score of 87% and lowest 40% with an average of 72% were obtained.

Health workers were asked which neonatal resuscitation equipment they had and only 3 facilities had 50% or more of the basic required equipment.

### Neonatal resuscitation equipment assessment

<table>
<thead>
<tr>
<th>Health Facility</th>
<th>Ambu bag</th>
<th>Stethoscope</th>
<th>Stop clock</th>
<th>Neonatal face masks</th>
<th>Oxygen source</th>
<th>Incubator</th>
<th>Radiant warmer</th>
<th>Ventilator</th>
<th>Suction device</th>
<th>Bulb syringe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facility 1</td>
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7.0 Achievements

- Bringing the modern health workers and traditional birth attendants enabled us to discuss the strengths and weaknesses of each side.
- We have received positive feedback from the health facilities where the participants came from.
- There was an increase in knowledge of the neonatal resuscitation process at the end of the training as shown in the scores from the post-test.

8.0 Challenges

- The Traditional Birth Attendants could neither read nor write which made it impossible to assess how much knowledge they had gained using the tests given.
- Many of the people trained did not have the needed equipment to carry out neonatal resuscitation. This implies that even with the knowledge gained, unless they are able to purchase this equipment, they may not be able to improve practice.
- Both modern and traditional health practitioners were trained together using mostly English language (and subsequent translation). This made the training unnecessarily long.

9.0 Recommendations

- The training should be done every six months.
- The traditional birth attendants should be trained separately from the midwives.
- For midwives working in hospitals, such training should be incorporated in their Continuous Medical Education (CME) sessions.
- Trainees should disseminate what they have learned to fellow health workers in respective health facilities through CME sessions.
- Birth attendants in clinics in the community need to be attached to health facilities that conduct regular CME sessions.

10.0 Feedback from participants

10.1 Lessons learned

- Proper steps in resuscitation (positioning, when to stop, when to start compressions and suctioning)
- Pathophysiology of asphyxia
- What to do during cardiopulmonary resuscitation
- Making the operating room ready with the resuscitation table
- Preparing the baby for resuscitation (drying, tilting)
- How to use resuscitation equipment (Ambu bag, bulb)
• Importance of immediate referral to Hospital if resuscitation fails
• Use of Stethoscope in monitoring heart rate during resuscitation
• Importance of skin to skin contact after birth of a baby
• Resuscitation of mothers, and neonates with asphyxia
• Appearance of a premature baby
• Keeping the baby warm after birth
• Referring mothers to hospitals after delivery (Traditional Birth Attendants-TBA)

10.2 Suggested topics for further training
• Management/control of Post Partum Haemorrhage (PPH)
• Danger signs in a pregnant mother
• How to use a partograph
• Causes of infertility in women using Family planning
• Management of prolonged labour
• Family planning-how to insert a coil
• Malnutrition among children under 5 years
• Prevention of Mother-To-Child Transmission (PMTCT)
• Obstetric emergencies
• Neonatal abnormalities
• Medication used in resuscitation and that given to neonates
• Management of complicated delivery (face presentation)

At the end of the day, participants were given brochures and notes on neonatal resuscitation.

11.0 Appendices
11.1 Brochure

Ventilation breaths

These are given to establish regular breathing. They are given using the amбу bag each should be 1 second long.

Reassess the baby after 15 ventilation breaths, continue until the baby establishes regular breathing.

Meconium If there is thick Meconium and the baby is not breathing, suction the Meconium before giving inflation breaths.

4. Chest compressions

Chest compressions should only be considered if the heart rate is below 60 beats per minute.

Three chest compressions are given for every breath.

Reassess after 30 seconds, the heart rate should increase.

When to stop resuscitation

If the heart rate is not detectable after 10 minutes of resuscitation

Refer mother to Hospital if:

> Prolonged labour (more than 10 hours)
> Transverse lie or breech presentation
> Signs of preeclampsia (increased blood pressure, dizziness, headache, and Swollen feet)
> Heavy bleeding before delivery

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Neonatal resuscitation
Saving the lives of Newborns in Slums

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PREPARATION

The need for neonatal resuscitation is often unexpected, therefore the person attending the birth must be trained and prepared in every delivery.

Find out if the mother has experienced any conditions that may put the baby at a greater need for resuscitation. Such conditions may include

- Twin pregnancy
- Preterm or small baby
- Maternal infection
- Prolonged labour (more than 10 hours)
- Bleeding before delivery
- Meconium stained liquor (Green)

The delivery room must be warm

If you have a radiant warmer, switch it on

An overhead light or bright source of light or torch

Flat firm surface with warm clean towels

Equipment: Clean amбу bag and mask, stethoscope and stop clock.

STEPS

1. Keep baby warm.

Babies are born wet, as a result can become cold very quickly.

Dry the baby, discard wet towel Wrap baby in a clean dry towel.

2. Assess the baby

Assess the baby’s colour, breathing tone and heart rate

A healthy baby has; Good colour (pink lips and tongue), Good tone (movement of arms and legs), Regular breathing, Heart rate above 100 beats per minute

This baby does not need resuscitation and should be given to the mother.

A baby in need of resuscitation will;
- Have blue or pale lips and tongue, Be floppy, Not breath, Have a heart rate less than 100 beats per minute

3. Open the airway and breathing

Give 5 inflation breaths by slowly squeezing the bag. Each breath should be 2 to 3 seconds long. Allow the bag to re-inflate after each breath, You should see the baby’s chest moving.

Listen to the heart rate which should increase once the lungs have been inflated. If the heart rate is more than 100 beats per minute give this baby to the mother.
11.2 Pre and Post test questions

INTERNATIONAL HEALTH SCIENCES UNIVERSITY
NEONATAL RESUSCITATION TRAINING PRE - TEST

Instruction: Circle the most appropriate answer

Qn1. If during delivery of an infant you notice that the amniotic fluid is greenish in colour, contains thick particles of Meconium, poor muscle tone and poor respiratory effort. Which of the following is the most important initial step?
A. Dry the baby and stimulate the baby    B. Determine the APGAR score
C. Initiate Intubation     D. Suction

Qn2. At birth, an infant has the following findings; poor and irregular respiratory effort, blue all over the body, no reflex irritability, no movement of the limbs, and heart rate of 70 beats per minute. What is the APGAR score?
A. 4   B. 5  C. 2  D. 1

Qn3. All of the following may be required in a one hour old neonate with severe birth asphyxia except;
A. BCG vaccine    B. Oxygen     C. Normal saline    D. Sodium Bicarbonate

Qn4. When are chest compressions initiated in neonatal resuscitation?
A. When the heart rate is below 100 beats per minute    B. When the heart rate is below 60 beats per minute
C. When the heart rate is below 120 beats per minute    D. When the heart rate is below 40 beats per minute

Qn5. What ratio of chest compressions and breaths are given during a cardiopulmonary resuscitation?
A. Three compressions for every one breath    B. Two compressions for every one breath
C. One Compression for every 15 breaths    D. Three compressions for every 15 breaths

Qn6. A midwife has been performing a cardiopulmonary resuscitation for about 90 seconds, the neonate has maintained a heart rate of 40 beats per minute. What should be recommended at this point of time?
A. Continue resuscitating    B. Give more inflation breaths
C. Administer epinephrine    D. Suction

Qn7. Which of the following actions constitutes appropriate stimulation of a neonate?
A. Gently slapping the infants buttocks    B. Gently shaking the infant
C. Blowing the infant    D. Drying the infant and Flicking the infants feet

Qn8. What measures can the Midwife take to prevent heat loss during resuscitation?
1. Dry the infant    2. Remove wet linens and wrap in dry linen
3. Resuscitate on a warmer    4. Measure body temperature
A. 1, 2 and 3    B. 1, 2 and 4    C. 1 only    D. 4 only

Qn9. A neonate has a heart rate of 50 beats per minute what should the midwife do?
A. Administer medication    B. Start chest compressions
C. Give inflation breaths only    D. Do nothing as this neonate cannot be resuscitated

Qn10. The following factors may predispose a neonate to asphyxia except
A. Prolonged labour    B. Small for age Neonate    C. Multiple pregnancy    D. Ante partum bleeding

PART II
a) Name the basic equipment for resuscitation

I. ..................................................................................................................................................
II. ..................................................................................................................................................
III. ..................................................................................................................................................

b) How can you assess whether resuscitation is successful

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 c) When should one stop resuscitation

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