USAID | PAKISTAN
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Technical **A**ssistance for **C**apacity building in **M**idwifery, **I**nformation and **L**ogistics
(TACMIL) Health Project

IMMEDIATE NEWBORN CARE

Lesson Plans

October 2009

Newborn Care

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Topic: Immediate Newborn Care Time: 3 Hours

Session Objective: Use evidence based practices in immediate newborn care as described in the skill checklist.

Specific Objectives:

1. Explains evidence based practices for immediate newborn care.
2. Describe the steps of immediate newborn care.
3. Demonstrate providing immediate newborn care.

Homework:

Read the skill checklist: Immediate Newborn Care

TEACHING SESSION

TIME	TEACHING METHOD	CONTENT	MATERIALS NEEDED	EVALUATION
5 min	Reading	**Introduction** Ask a participant to volunteer to read the objectives from the flip chart or transparency	Flip chart or transparency with objectives	
60 min	Illustrative Discussion	**1. Explains evidence based practices for birth and immediate newborn care.** Show and discuss transparencies from "What is Evidence Based Care" up to the transparency with the graph showing "Distribution of Blood Between Infant and Placenta". Ask participants to take turns reading the transparencies. Ask many how and why questions	Transparencies from "What is Evidence Based Care" up to the transparency showing the graph "Distribution of Blood Between Infant and Placenta" (19 transparencies)	Participant's explanations and answers to questions
30 min	Discussion Question and Answer	**2. Describe the steps of immediate newborn care.** ▪ Ask participants: Based on the information we just reviewed about evidence based practices for newborn care, please tell me which of those practices can be applied to the baby's IMMEDIATE care. Answers should include: · Not drying the baby's hands · No need to suction routinely	Transparencies: · Immediate Newborn Care Steps 1 - 6 (3 transparencies)	Participant's explanations and answers to questions

TIME	TEACHING METHOD	CONTENT	MATERIALS NEEDED	EVALUATION
		▪ Using skin-to-skin care ▪ Not separating the mother and baby until the baby has breastfed ▪ Delaying the clamping of the cord for 2 to 3 minutes. ▪ Show the remaining transparencies on immediate newborn care. Ask participants to take turns reading. Ask why questions. Ask if anyone has any questions.		
1 hour 20 min	Question and Answer Demonstration Return Demonstration	**3. Demonstrate providing immediate newborn care.** ▪ **Teacher demonstrates slowly:** Demonstrate immediate newborn care with the baby model and a volunteer as the delivering woman. Ask participants to open their Skill Checklist Handout and follow the demonstration with their skill checklist, Immediate Newborn Care. Review the equipment and supplies needed. During the demonstration, remind the participants how to clamp, milk and cover the cord when cutting to prevent splashes ▪ **Participant demonstrates for whole group:** ▪ Ask for a participant to volunteer to do the demonstration ▪ Ask observers to watch carefully using their skill checklist. ▪ After the demonstration do feedback: ▪ Participant does self evaluation first ▪ Observers give feedback next ▪ Then facilitator gives feed back as needed ▪ **Participants practice in groups:** Ask all participants to use their skill checklists during the group practice. Divide participants in groups. Ask them to take turns performing the skill, being the woman in labor and following the skill with the skill checklist, until everyone has performed the skill. After each demonstration feedback should be done as explained above.	Skill Checklist: Immediate Newborn Care Equipment: ▪ Pelvis model ▪ Placenta model ▪ Baby model ▪ 2 drapes ▪ 2 blankets/cloths - 1 to dry baby and 1 to warm baby ▪ Suction device ▪ Baby hat ▪ Cord clamp or ties ▪ Scissors to cut cord ▪ 2 artery forceps or hemostats	Participant's answers to questions and ability to do return demonstration
5 min	Question and answer	**Summary:** Can be done by: ▪ Facilitator asking participants questions, OR ▪ Facilitator asking 1 or more participants to summarize		Participant's answer to questions

What is Evidence Based Care?

- **Making clinical decisions and providing care based on knowledge gained from clinical research**
- **Limiting the influence of personal bias**

Albers, L. Evidence and Midwifery Practice. Journal of Midwifery & Women's Health, 46: 130-6. 2001.

Where to Access Evidence Based Information

- Cochrane Library: www.cochranelibrary.com
- WHO Reproductive Health Library (CD-Rom)
- WHO's IMPACT Series Manuals
  - Managing Complications in Pregnancy and Childbirth
  - Managing Newborn Problems
  - Essential Care Practice Guide
- Life Saving Skills Manual for Midwives

Where to Access Evidence Based Information

A Guide to Effective Care in Pregnancy and Childbirth (1995 and 2000)

- **Editors: M. Enkin; M. Keirse; M. Renfrew & J. Neilson**
- **Provides conclusions from many research studies**
- **Organizes interventions and practices from helpful to harmful**

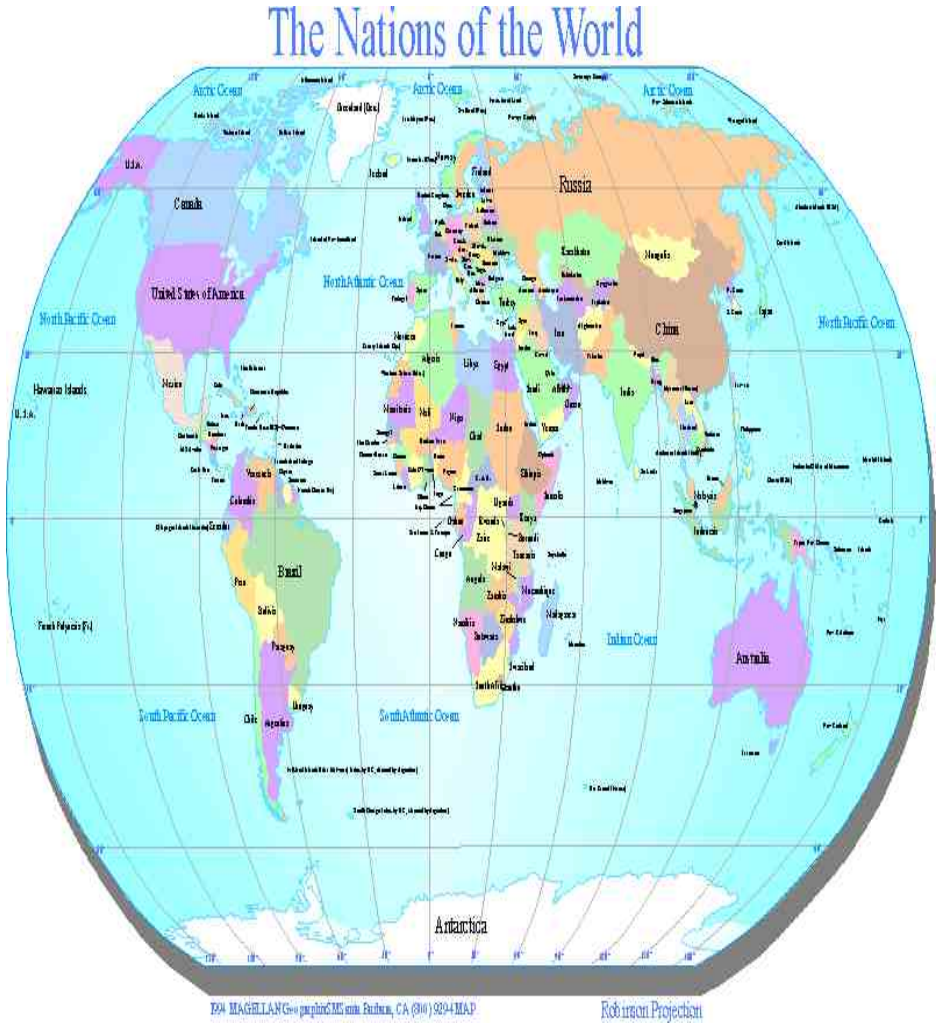
What Does the Evidence Say About Newborn Care?

Newborn Mortality

Worldwide 83.1% of newborn deaths occur during the first 7 days of birth

Causes of death include:

- **Asphyxia**
- **Infection (tetanus, sepsis, pneumonia)**
- **Hypothermia**



What Every Newborn Needs

- **Dry**
- **Warm**
- **Breathing**
- **Skin to skin contact with the mother**
- **Early breastfeeding**

Essential Newborn Care Includes:

- **Clean delivery and cord care**
- **Support breathing and do resuscitation if needed**
- **Keep warm**
- **Delayed cord clamping**
- **Early (within an hour after birth) and exclusive breastfeeding**

Essential Newborn Care Includes:

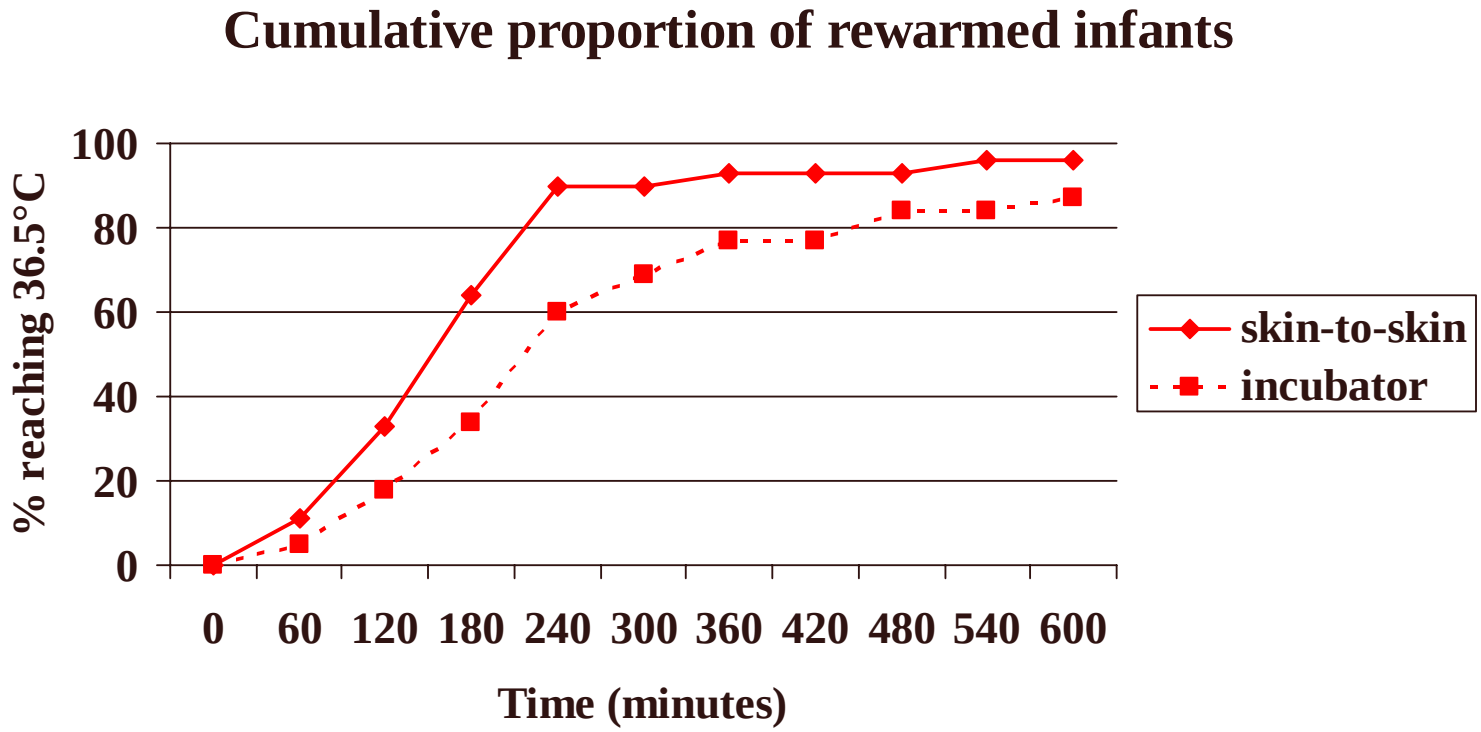
- **Eye care to prevent and manage ophthalmia neonatorum**
- **Immunization: At birth BCG, OPV and HBV vaccine (WHO)**
- **Identification and management of sick newborn**
- **Care of preterm and/or low birthweight newborn**

Keep Baby Warm

- **Normal temperature: 36.5 - 37.5 0C**
- **Deliver in a warm room**
- **Dry thoroughly (except hands)**
- **Place baby on mother's chest, SKIN-TO-SKIN**
- **Cover mother and baby together. Put hat on baby if available**
- **Check warmth by feeling baby's abdomen every 15 minutes**
- **Bath when temperature is stable (after 24 hours)**

Skin-to-skin Contact to Rewarm Cold Babies

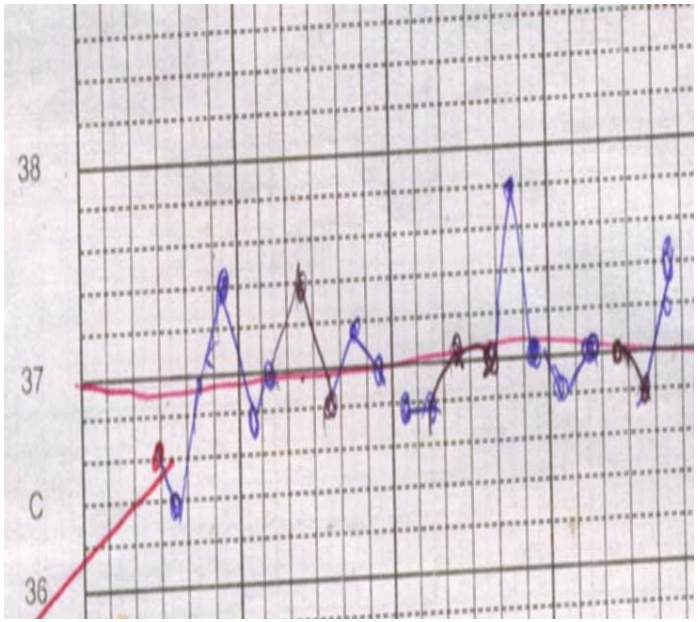
Christensson K et al. Lancet 1998;352:1115



With skin-to-skin cold babies became warmer more quickly than in an incubator!

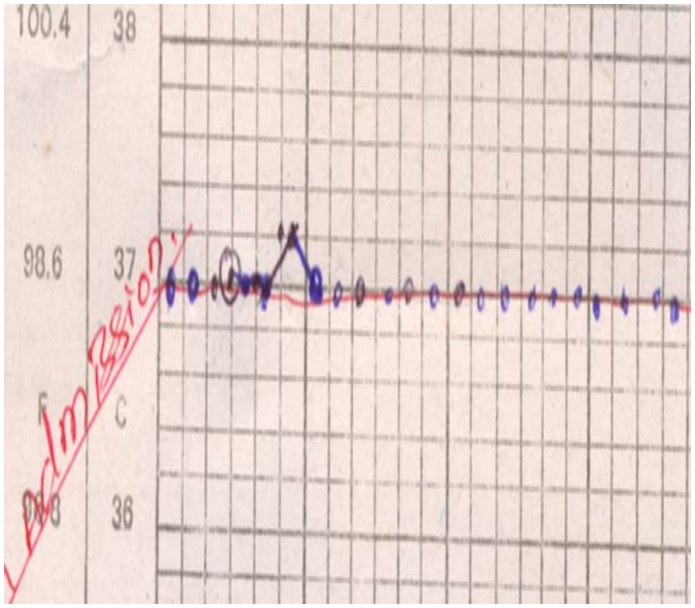
Changes in Temperature

No Skin-to-Skin



Swings in temperature

Skin-to-Skin



Constant temperature

Skin-to-Skin Effect on Breastfeeding

Study	Outcome	Skin-to-Skin	No Skin-to-Skin
Schmidt	Daily volume	640 ml	400 ml
	Daily feeds	12	9
Wahlberg	BF at discharge	77%	42%
Whitelaw	BF >6 weeks	55%	28%

Better Breastfeeding Rates!

Support Breathing

- **Spontaneous breathing will happen in most newborn babies (> 30 breaths per minute)**
- **Only gentle stimulation, if at all, is needed**
- **NO need to suction routinely**

Early and Exclusive Breastfeeding

- **Place baby on mother's chest SKIN-TO-SKIN so baby can begin early breastfeeding**
- **Best practices:**
  - **Encourage first breastfeed within first hour**
  - **DO NOT separate mother and baby until 1st breastfeed**
  - **Breastfeed on demand**
  - **Psycho-social support to breastfeeding mother**
  - **No prelacteal feeds or other food**

Eye Care to Prevent or Manage Ophthalmia Neonatorum

- **Caused by gonorrhea and chlamydia (30-50% transmission rate)**
- **Appears usually 2-5 days after birth**
- **Corneal eye damage if untreated**
- **Can become systemic if not managed**

Eye Care to Prevent or Manage Ophthalmia Neonatorum

Provide eye care before 1 hour

- **1% Silver nitrate (Not effective for chlamydia)**

OR

- **1% Tetracycline (not effective for some gonorrhea strains)**

OR

- **0.5% Erythromycin**

Note: The above is a WHO recommendation, Pakistan is reviewing it's eye care protocol because of the low rate of Chlamydia.

Care of the Umbilical Cord

- **Delay cord clamping for 2 – 3 minutes**
- **Before cutting, milk cord toward placenta and cover with gauze**
- **General Care**
  - **Keep dry and expose to air with no bandages**
  - **Keep clean**
  - **Protect by only using clean clothes**
  - **Wash with clean water and soap ONLY IF CORD APPEARS DIRTY (NO need for alcohol) and dry with clean gauze or cloth**

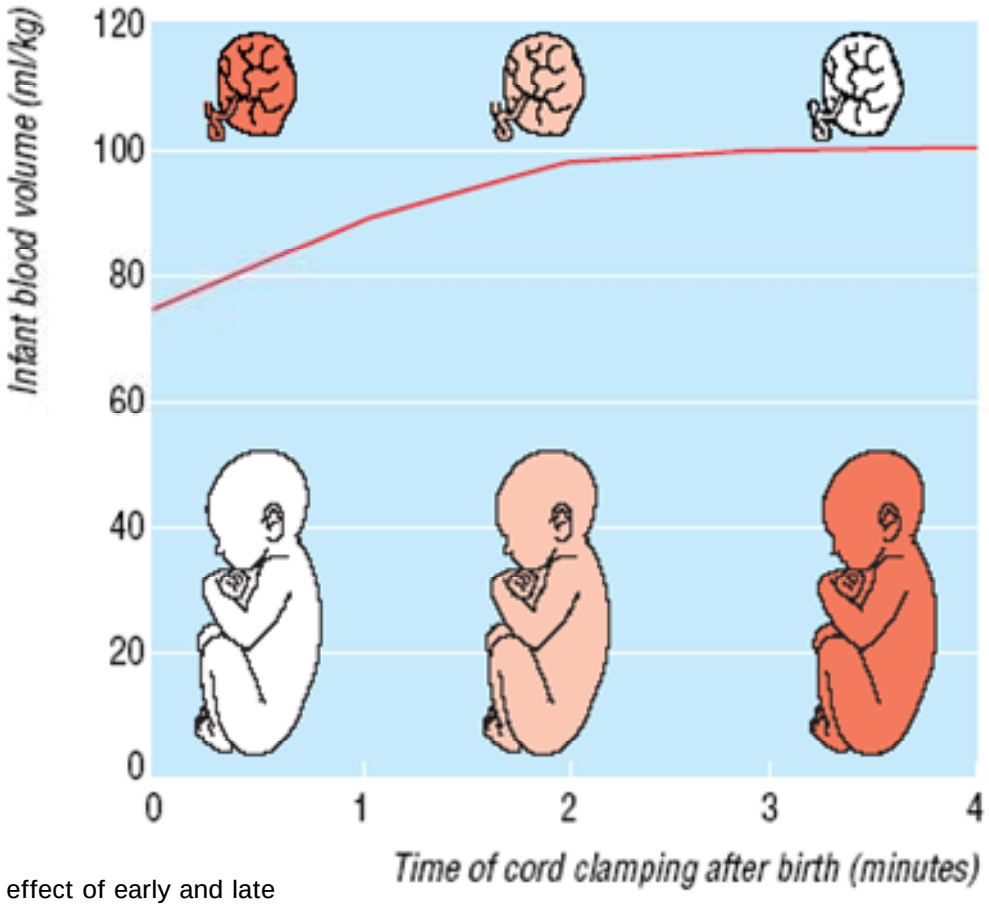
Delayed Cord Clamping

Immediate clamping and cutting of the umbilical cord can decrease the red blood cells an infant receives at birth by more than 50%. Wait until 2 – 3 minutes after baby's birth. Delayed clamping and cutting is helpful to both term and preterm babies.

- Term babies have less anemia at 2-6 months of age and increased duration of early breastfeeding.
- Preterm babies have higher hemoglobin levels and less need for transfusions in the first 4 to 6 weeks of life.
- From 10 cm above and below the level of the placenta, there is good flow of blood to the baby. Therefore, if you put the baby on the mother's abdomen, the baby will still be within 10 cm of the placenta, so blood in the cord will flow normally.
- Recommended by World Health Organization.

Patrick F van Rheenen and Bernard J Brabin, *BMJ* 2006;333;954-958

Distribution of blood between infant and placenta depending on time of cord clamping after birth with term baby at perineal level



Adapted from Linderkamp O, et al. The effect of early and late cord-clamping on blood viscosity and other hemorheological parameters in full-term neonates. *Acta Paediatr* 1992;81:745-50.

Immediate Newborn Care Steps

1. **Dry (except the hands) and stimulate the baby**. The smell of the amniotic fluid on the baby's hands smells much like the mother's nipple/areola area. When the baby crawls up the abdomen of the mother the smell on the hands helps the baby find the breast.
2. **Assess baby's breathing and color** (decide if the baby needs resuscitation).
3. **Remove the wet cloth** used to dry baby.

Immediate Newborn Care Steps
(continued)

4. **Place baby on the mother's abdomen, SKIN-TO-SKIN**, and cover both mother and baby with a warm cloth. Cover baby's head or put a hat on baby (if available).
   - Skin-to-skin is the direct body contact between baby's front and mother's chest.
   - Supports baby's warmth, breathing and breastfeeding.

Immediate Newborn Care Steps (continued)

5. **Do delayed cord clamping.**
6. **Do not separate mother and baby until after the first breastfeeding.**
   - Have patience, the baby will crawl up the mother's abdomen, find the nipple and attach to the breast without assistance within 30-50 minutes.
   - **Wait to do routine care** such as weighing, giving of Vitamin K injection, eye drops and measurement until baby is warm and has breastfed.

Topic: Newborn Resuscitation Time: 3 Hours 30 Minutes

Session Objective: At the end of the session participants will be able demonstrate newborn resuscitation according to the newborn resuscitation skill checklist.

Specific Objectives:

1. Define asphyxia and hypoxia
2. Describe possible causes of hypoxia in the newborn.
3. Describe symptoms of a newborn needing resuscitation.
4. Discuss materials and equipment needed to perform newborn resuscitation
5. Demonstrate newborn resuscitation using an ambu bag as described in the newborn resuscitation skill checklist.
6. Use infection prevention procedures during and after newborn resuscitation
7. Describe care for a baby after resuscitation.

Homework:

Read the skill checklist: Newborn Resuscitation

TEACHING SESSION

TIME	TEACHING METHOD	CONTENT	MATERIALS NEEDED	EVALUATION
10 min	Reading Question and Answer	**Introduction** ▪ Ask one participant to volunteer to read the objectives to the group from the flip chart or transparency. ▪ Ask participants: ▪ Has anyone had the experience of caring for a baby who does not breathe at birth? ▪ Of those who raise their hands, ask one or two to describe the action they took to care for the baby.	Flip chart or transparency with objectives	
20 min	Question and Answer	**1. Define asphyxia and hypoxia, and** **2. Describe possible causes of hypoxia in the newborn**	Flip chart stand and blank flip chart paper	Participant's answer to questions

TIME	TEACHING METHOD	CONTENT	MATERIALS NEEDED	EVALUATION
	Brainstorming	Ask participants: ▪ What does asphyxia and hypoxia mean? Show the transparency, Asphyxia and Hypoxia Defined, and ask a participant to read it. Then ask a participant to explain in their own words. Answer: Asphyxia: When a baby does not begin or sustain adequate breathing at birth. Hypoxia: Not enough oxygen in the body tissues. Brainstorm causes of newborn hypoxia and put on flip chart or white board. After participants have fully responded, look at information on prepared flipchart or transparency	Flip Chart or transparency: ▪ Asphyxia and Hypoxia Defined ▪ Hypoxia Causes OHP Markers	
15 min	Question and Answer	**3. Describe symptoms of a newborn needing resuscitation**. Ask participants: ▪ What are the signs and symptoms that a newborn needs resuscitation? Answer: The baby is not breathing or is gasping. ▪ Do you use the Apgar Score to decide if resuscitation is needed? Answer: Apgar Score is done at 1 minute after birth. Resuscitation must be started as soon after birth as possible. Therefore Apgar Score is NOT used to decide the need for resuscitation. Resuscitation must be started <u>before</u> the Apgar Score is given at 1 minute! Apgar Score is used to evaluate the results of resuscitation. Show participants the flip chart or transparency, How do you Decide If a Baby Needs Resuscitation. Ask a participant to read it and discuss.	Flip Chart or transparency: How do you Decide If a Baby Needs Resuscitation?	Participant's answer to questions

TIME	TEACHING METHOD	CONTENT	MATERIALS NEEDED	EVALUATION
10 min	Question and Answer Demonstration	**4. Discuss materials and equipment needed to perform newborn resuscitation** Ask participants: ▪ In the delivery room, when should you set up the equipment for newborn resuscitation and why? Answer: The equipment should always be set up and ready for use because you never know when a baby may need resuscitation. ▪ What equipment is needed for newborn resuscitation? Have all equipment and supplies ready on a demonstration table. Ask participants what equipment is needed for newborn resuscitation. As they name the item, pick it up and show it.	▪ 2 Cloths: one for drying and one for wrapping the baby ▪ Towel-small to position head ▪ Suction ▪ Apron ▪ Gauze ▪ Watch with second hand ▪ Baby hat/cap ▪ Newborn ambu bag ▪ Clean gloves	Participant's answer to questions
40 min	Demonstration and Return Demonstration	**5. Demonstrate newborn resuscitation using an ambu bag as described in the newborn resuscitation skill checklist.** Show the transparencies on Newborn Resuscitation Steps. Ask participants to take turns reading. Answer any questions they may have. **Facilitator demonstrates slowly:** Explain to participants you will demonstrate slowly and ask questions. Ask participants to also follow in their Skill checklist. ▪ The first steps are to dry and warm the baby. Ask: Why is it important to dry (except the hands) and warm a baby? Answer: 1) To prevent hypothermia that depresses respiration and increases the risk of infection and death, and 2) The smell of the amniotic fluid on the baby's hands also smells much like the mother's nipple/areola area. When the baby crawls up the abdomen of the mother the smell on the	Transparencies: Newborn Resuscitation Steps Equipment and supplies as above Skill checklist: Newborn Resuscitation	

TIME	TEACHING METHOD	CONTENT	MATERIALS NEEDED	EVALUATION
		hands help the baby to find the breast. ▪ **Dry the baby** with a towel or a cloth, from head to toe except the hands, until most of the amniotic fluid is gone. Ask: What do we do with the towel after we use it? Answer: Take it away. ▪ Ask: What do I do next? Answer: **Warm the baby** by quickly wrapping with a warm dry towel or cloth. Keep the chest uncovered to see the baby's breathing. Cover the head with the cloth or a hat if one is available. You can also put a light over the baby to provide extra heat if you have one. ▪ **Position the baby** by placing a small folded towel or cloth under the baby's shoulders so the head is slightly extended ("sniffing" position). This is the best position to keep the airway open. Ask: What happens when the baby's head is not extended at all or is extended too much (show this with the model)? Answer: The airway closes so air cannot go in or out. ▪ **Suction baby** with a bulb syringe or suction tube. Suction the mouth first then the nose (the mouth has more secretions than the nose… if you suction the nose first and the baby breathes in, the baby will breath in what is in the mouth). Suction only while pulling suction tube out, NOT while putting it in. Compress bulb before inserting in mouth, release compression to suction, remove from mouth and expel contents. Repeat for each nostril. Do not insert suction tube or bulb more than 5 cm into the mouth or 3 cm into the nose. Ask: If there is meconium in the amniotic fluid, when and how should you suction the baby? Answer: After delivery: ▪ If baby is vigorous: No SPECIAL suctioning of baby is needed		

TIME	TEACHING METHOD	CONTENT	MATERIALS NEEDED	EVALUATION
		▪ If baby NOT vigorous and meconium is thick: suction baby immediately after birth. Suction the mouth first. Then suction nose. ▪ **Stimulate the baby** by rubbing your hand up and down the baby's spine. This can be done without removing the cloth or towel in which the baby is wrapped. **Group Practice on Stimulation:** Ask participants to stand up and get into a line to practice stimulation. Ask for a volunteer on whose back you can demonstrate stimulation. Stand where everyone can see you demonstrating. Then ask each person to stimulate the back of the person in front of them. Check if they are doing the stimulation correctly and give advice if help is needed. Then have everyone turn so the line is going in the opposite direction. Again ask everyone to stimulate the back of the person in front of them and give help where needed. ▪ Ask: Is oxygen needed to resuscitate a baby? Answer: Most babies can be resuscitated without oxygen. Oxygen can be used after resuscitation if needed. **Give the baby oxygen (if available)**. If oxygen is used during ventilation of a baby, give at 5 – 6 liters per minute. After ventilation and the baby is breathing but still pale, give oxygen at 2 liters/minute. ▪ **Breathe for the Baby** 1. Place the mask over the baby's mouth and nose and make a good seal. 2. Compress the ambubag 2 times to see if the baby's chest rises. 3. If the chest does not rise: 1) reposition the baby, 2) reposition the mask on the newborn's face to get a better seal between mask and face, and 3) suction the mouth and nose. Repeat step 1. 4. If the chest rises: Breathe 40 times for the baby in 1		

TIME	TEACHING METHOD	CONTENT	MATERIALS NEEDED	EVALUATION
		minute. 5. Recheck respirations. Do this by raising the mask only slightly, so if you need to begin respirations you can do it quickly. 6. If the baby is breathing: Continue to support the baby with warmth, stimulation and oxygen, if available, until the baby is pink and active. 7. If the baby is not breathing: Continue to breathe for the baby, checking for respirations after each 40 breaths. Do this until the baby is breathing on her/his own. Then continue to support the baby with warmth, stimulation and oxygen (if you have oxygen) until the baby is pink and active. 8. If there is no gasping or breathing at all after 10 minutes of bag and mask breathing, stop breathing for the baby. ▪ Ask: **How long should it take from the time an asphyxiated baby is born until you start breathing for the baby?** Answer: No more than 30 seconds.		
10 min	Question and Answer Demonstration	**6. Use infection prevention procedures during and after newborn resuscitation** Ask participants: What do you do during resuscitation and after resuscitation to prevent spreading infection: ▪ Wear gloves. After resuscitation, rinse gloves in decontamination solution. Remove turning them inside out. Put in decontamination solution if reusing, or discard in leak-proof container or plastic bag. ▪ If a suction tube was used, use a syringe to flush with decontamination solution. Soak tube for 10 minutes in decontamination solution. ▪ If bulb syringe or suction tube was used, fill and flush 3 times with decontamination solution. Fill again and leave in decontamination solution for 10 minutes. Flush 3 times also during the cleaning step when using soap water and then rinse water.	Bucket holding pretend decontamination solution Gloves Gauze 10 cc Syringe Bulb syringe Suction tube Newborn Ambubag	Participant's answer to questions

TIME	TEACHING METHOD	CONTENT	MATERIALS NEEDED	EVALUATION
		▪ Wipe exposed surfaces of bag and mask with gauze soaked with decontamination solution. Wipe immediately with gauze soaked with soap water and then rinse water.		
10 min	Question and Answer	**7. Describe care for a baby after resuscitation.** Ask: What should you do after resuscitating a baby successfully? ▪ Place the baby skin to skin ▪ Do not bathe until at least 6 hours (or up to 24 hours) after birth ▪ Assist the mother with breast feeding ▪ Monitor the baby for a breathing problem: rapid (more than 60 breaths per minute), noisy, grunting, flaring of nostrils, chest indrawing, poor color ▪ If breathing problem or Apgar is 6 or less, consult or refer		Participant's answer to questions
1 hour 20 min	Demonstration Return Demonstration	**Continue with demonstration and participant practice:** Ask participants if they have any questions about the demonstration and discuss them. **Facilitator demonstrates quickly:** ▪ Explain to participants that you will now demonstrate doing newborn resuscitation at the speed it should be done while they observe and follow their skill checklist. ▪ After the demonstration ask participants if they have any questions or comments. **Participant demonstrates for whole group:** ▪ Ask for a participant to volunteer to do the demonstration for everyone. ▪ Ask observers to watch carefully using their skill checklist. ▪ After the demonstration do feedback: ▪ Participant does self evaluation first ▪ Observers give feedback next ▪ Then facilitator gives feed back as needed	One set of equipment for infant resuscitation includes (need 1 set per group): ▪ Towels – 2 big/ 1 small ▪ Oxygen tube ▪ Manual sucker ▪ Aprons ▪ Clean gloves ▪ Gauze ▪ Watch with clear second hand ▪ Baby hat/cap ▪ Newborn Resuscitation doll ▪ Newborn Ambubag ▪ Table	Participants able to do return demonstration according to the skill checklist.

TIME	TEACHING METHOD	CONTENT	MATERIALS NEEDED	EVALUATION
		Participants practice in groups: Divide participants in groups. Ask them to take turns reading the skill checklist and performing the skill until everyone has performed the skill. After each demonstration feedback should be done as explained above.	Skill checklist: Newborn Resuscitation	
10 min	Question and answer	**Summary:** Can be done by: ▪ Facilitator asking participants questions, OR ▪ Facilitator asking 1 or more participants to summarize		Participant's answer to questions

Asphyxia and Hypoxia Defined

Asphyxia	When a baby does not begin or sustain adequate breathing at birth.
Hypoxia	Not enough oxygen in the body tissues

POSSIBLE CAUSES OF HYPOXIA

- **POOR OXYGEN CIRCULATION IN THE UTERUS:**
  - Not enough oxygen in maternal blood, e.g., mother with heart disease, asthma.
  - Low blood pressure in the mother, e.g. compression of vena cava or aorta by the uterus, **maternal bleeding.**
  - Not enough uterine relaxation due to oxytocin administration.
- **PLACENTAL FACTORS:**
  - Premature placental separation, causing maternal hemorrhage → reduced maternal BP → reduced placental circulation → less oxygen to baby.
  - Placental insufficiency, e.g., PIH, postmaturity, maternal high BP or infection
- **UMBILICAL CORD COMPRESSION:**
  - Poor blood circulation through the cord due to compression or knotting
- **TRAUMA DUE TO INSTRUMENTAL DELIVERY**

How Do You Decide If a Baby Needs Resuscitation?

Signs for Resuscitation:

The baby needs resuscitation if there is
no breathing or the baby is gasping.

Do You Use the Apgar Score to Decide If Resuscitation is Needed?

Apgar Score is done at 1 minute after birth. Resuscitation must be started as soon after birth as possible (at least within 30 seconds of birth). Therefore Apgar Score is NOT used to decide if resuscitation is needed.

Apgar Score is used to evaluate
the results of resuscitation.

NEWBORN RESUSCITATION STEPS	
1. DRY	➢ Dry the baby with a towel or a cloth, from head to toe, until most of the amniotic fluid is gone. ➢ Take away the wet towel.
2. WARM	➢ Warm the baby by quickly wrapping with a warm dry towel or cloth. Keep the chest uncovered to see the baby's breathing. Cover the head with the cloth or a hat if one is available. You can also put a light over the baby to provide extra heat if you have one.
3. POSITION	➢ Place a small rolled towel or cloth under the baby's shoulders so the head is slightly extended in the "sniffing" position. This is the best position to keep the airway open.

NEWBORN RESUSCITATION STEPS	
4. *SUCTION*	➢ Suction with a bulb syringe or suction tube. ➢ Suction the mouth first then the nose (the mouth has more secretions than the nose… if you suction the nose first and the baby breathes in, the baby will breath in what is in the mouth). ➢ Suction only while pulling suction tube out, NOT while putting it in. For bulb, compress before inserting in mouth, release compression to suction, remove from mouth and compress bulb again to expel contents. Repeat for each nostril. Do not insert suction tube or bulb more than 5 cm into the mouth or 3 cm into the nose. ➢ If meconium is present: After delivery: ▪ If baby is vigorous: No SPECIAL suctioning is needed ▪ If baby NOT vigorous and meconium is thick: Suction baby immediately after birth. Suction the mouth first. Then suction nose.

NEWBORN RESUSCITATION STEPS	
5. *STIMULATE*	➢ Rub your hand up and down the baby's spine to stimulate the baby. This can be done without removing the cloth or the towel in which the baby is wrapped.
6. *OXYGEN (IF AVAILABLE)*	➢ If oxygen is used during ventilation, give at 5 – 6 liters per minute. ➢ After ventilation and the baby is breathing but still pale, give oxygen at 2 liters/minute.

NEWBORN RESUSCITATION STEPS	
7. *BREATHE FOR BABY*	Note: Time from “decision to start resuscitation” to “time to start ventilation” should be no more than 30 seconds. 1. If doing mouth-to-mouth resuscitation wipe baby’s face with: 1) gauze wet with soap water, 2) gauze wet with clean water. Then cover mouth and nose with a dry gauze. 2. Cover the baby’s chin, mouth and nose and make a good seal. If using an ambubag, put the mask on the baby. If doing mouth-to-mouth use your mouth. 3. Do 2 test breaths to observe if the chest rises. Compress ambubag or breathe into the baby using a mouthful of air only with each breath. 4. If the chest does not rise: Suction the mouth and nose, reposition the baby and check the seal between the baby’s face and the mask (or your mouth). Ventilate the baby again. 5. If the chest rises: Breathe 40 times in 1 minute for the baby.

NEWBORN RESUSCITATION STEPS	
7. BREATH FOR BABY (CONT)	6. **Recheck respirations.** 7. **If the baby is breathing: Continue to support baby with warmth, stimulation and oxygen, if available, until baby is pink and active.** 8. **If baby is not breathing: Continue to breathe for the baby. Check for respirations after each 40 breaths. Do this until the baby is breathing. Then continue to support baby with warmth, stimulation and oxygen (if available) until the baby is pink and active.** 9. **If there is no gasping or breathing at all after 10 minutes of bag and mask breathing, stop breathing for the baby.**

Topic: Infection Prevention Time: 3 Hours 40 Minutes

Session Objective: At the end of the session participants will be able to use infection prevention standard precautions as described in the skill checklist to protect self and clients when giving care.

Specific Objectives:

1. Discuss infection prevention standard precautions
2. Discuss hand hygiene practices to use to prevent infection
3. Demonstrate hand washing
4. Describe ways to provide personal protection when giving care (use of personal protective equipment and preventing splashes)
5. Describe ways to prevent injuries from sharps
6. Describe infection prevention housekeeping practices
7. Explain methods of safe waste disposal
8. Discuss antiseptics and disinfectants
9. Discuss making 0.5% chlorine decontamination solution from liquid and powder concentrates
10. Demonstrate how to process patient care instruments and supplies safely: 1) decontamination, 2) cleaning, 3) high level disinfection or sterilization, 4) storage

Homework: Read Skill Checklist: Infection Preventions

TEACHING SESSION

TIME	TEACHING METHOD	CONTENT	MATERIALS NEEDED	EVALUATION
5 min		Ask one participant to volunteer to read the objectives to the group from the flip chart or transparency	Flip chart or transparency with objectives	

TIME	TEACHING METHOD	CONTENT	MATERIALS NEEDED	EVALUATION
10 min	Brainstorming Question and answer Discussion	**1. Identify the components of infection prevention standard precautions** Explain that standard precautions are routine procedures that protect both health workers and patients from contact with infectious materials. Many infections can be prevented by always using standard precautions. Ask participants to name some of the standard precautions. Ask for a volunteer participant to write what participants say on the white board or flip chart. After they have responded, show them the flip chart with the standard precautions listed. Ask them to compare their answers to the list on the flip chart. Congratulate participants on their answers.	Flip chart or Transparency: Standard precautions	Participant's answers about standard precautions
10 min	Question and answer Brainstorming Demonstration	**2. Discuss hand hygiene practices to use to prevent infection (when to wash hands, what can be used to wash hands, fingernail hygiene, removing jewelry)** Ask participants: ▪ What is the most important infection prevention practice in the world? Answer: Handwashing ▪ What percent of germs are killed by washing your hands with plain water? Can anyone guess? Answer: 50% ▪ What percent of germs are killed by washing your hands with soap and water, and then rinsing? Can anyone guess? Answer: 80% ▪ When should you wash your hands? After participants have fully responded, look at information on the flipchart or transparency. ▪ What can you use instead of soap and water to wash your hands? Answer: Antiseptic handrub. Show the flipchart on Antiseptic Handrub and ask a participant to read the chart. After reading ask a participant to demonstrate how to use the handrub after pouring 5mL into her hand. ▪ Why should nails be short and why should handwashing include cleaning under the nails? Answer: Area under nails has the highest germ count on the hand and can be a place especially for bacteria and fungi to grow. ▪ How short should nails be kept? Answer: No more than 3 mm.	Antiseptic handrub solution Flips charts or transparencies: ▪ Always wash hands ▪ Antiseptic Handrubs	Participant's answer to questions
10 min	Discussion Demonstration	**3. Demonstrate hand washing with soap and water** Ask participants to look at their Infection Prevention skill checklist. Ask one	Infection Prevention Skill checklist	Participant demonstration

TIME	TEACHING METHOD	CONTENT	MATERIALS NEEDED	EVALUATION
		participant to read the section on "How to Wash Hands". After, ask another participant to demonstrate to all the steps of handwashing. After the demonstration, ask observers for feedback. Give any needed suggestions. Congratulate the participant on her demonstration.	▪ Container with clean water ▪ Soap ▪ Bowel	Participant's feedback to demonstration
20 min	Question and answer Discussion Demonstration	**4. Describe ways to provide personal protection when giving care (use of personal protective equipment and preventing splashes)** Tell participants that you are very impressed with their knowledge about infection prevention. Explain that you do have more questions. ▪ What personal protection can be used by health care providers and when should the protection be used? After participants have fully responded, look at information on the flipchart or transparency. ▪ How can splashes be dangerous to health care workers? Answer: Splashes of body fluids can carry germs. If the splashes have contact with our eyes or mucus membranes, the germs can enter our body and infect us. ▪ What are ways to prevent splashes in our work? Answer: o Wear protective glasses when there is a chance of getting splashed with body fluids (rupturing membranes, during delivery, during surgery, etc.) o When rupturing membranes: 1) stand to the side of the woman's vagina, 2) rupture membranes between contractions. o When cutting umbilical cord: 1) milk cord toward the placenta before tying or clamping, 2) cover cord with hand/gauze while cutting. o Remove contaminated gloves carefully ▪ Rinse the outside of gloves while on your hand in decontamination solution ▪ Carefully remove gloves by slowly pulling them down from the cuff, turning them inside out ▪ Put gloves into decontamination solution Ask participants to look at their Infection Prevention Skill checklist and ask one participant to read the section on "Preventing Splashing of Body Fluids". After, ask another participant to demonstrate how to remove contaminated gloves. After the demonstration, ask observers for feedback. Give any needed suggestions. Congratulate the	Infection Prevention Skill checklist Flip chart or Transparency: ▪ Personal Protective Equipment/Clothing	Participant's answer to questions Participant demonstration Participant's feedback to demonstration

TIME	TEACHING METHOD	CONTENT	MATERIALS NEEDED	EVALUATION
		participant on the demonstration.		
10 min	Discussion	**5. Describe ways to prevent injuries from sharps** Ask participants to look at their Infection Prevention Skill checklist. Ask one participant to read the section on "Safe Handling of Sharps". Ask if anyone has a comment or question.	Infection Prevention Skill checklist	Participant comment or questions
40 min	Discussion Question and Answer	**6. Describe infection prevention housekeeping practices** Explain to participants that the next area of discussion will be about housekeeping practices. Show the transparencies one at a time and ask participant to take turns reading. After reading, ask why questions and ask if anyone has any questions.	Flip Chart or Transparency: ▪ Housekeeping in Clinical Areas ▪ Different Types of Cleaning Solutions ▪ General Housekeeping Guidelines ▪ Cleaning Schedule: Client Care Areas ▪ Cleaning Schedule: Toilets, Latrines and Sluice Rooms ▪ Recommended Cleaning for a Health Facility ▪ Triple Bucket Technique for Cleaning Floors ▪ What Waste Bins Should be Used in the Labor Ward	Participant's answer to questions

TIME	TEACHING METHOD	CONTENT	MATERIALS NEEDED	EVALUATION
15 min	Discussion Question and Answer	**7. Explain methods of safe waste disposal** Show the flip chart or transparency "Ways to Dispose of Contaminated Waste". Ask participants to take turns reading the chart. After reading, cover the chart and then ask: ▪ How can you make a pit "safe" to use for contaminated waste? Show the flip chart again. Thank participants for their answers and ask if there are other questions.	Flip Chart or transparency: ▪ Ways to Dispose of Contaminated Waste	Participant's answer to questions
15 min	Discussion Question and Answer	**8. Discuss antiseptics and disinfectants** ▪ Explain to participants that many people confuse antiseptics and disinfectants. Ask: What is the difference between antiseptics and disinfectants? After participants have answered the question, show the transparency "What is an Antiseptic?". Ask a participant to read the transparency. Ask another participant to explain in her own words what the transparency says (if more clarification is needed). ▪ Show the next 2 transparencies "What are the Antiseptic Chemicals?" and "What are the Disinfectant Chemicals?". Again ask participants to take turns reading. Ask participants what they use in their place of work.	Transparencies: ▪ What is an Antiseptic? ▪ What are the Antiseptic Chemicals? ▪ What are the Disinfectant Chemicals?	Participant's answer to questions

TIME	TEACHING METHOD	CONTENT	MATERIALS NEEDED	EVALUATION
20 min	Discussion Case Study	**9. Discuss making 0.5% chlorine decontamination solution from liquid and powder concentrates** Show the transparency, Making a Dilute Solution from a Concentrated Liquid Solution. Ask a participant to read the transparency. ▪ Ask participants if they have ever had to use a formula to calculate how much water to mix with the chlorine? ▪ Give participants another example to calculate: You have chlorine, which is 3.5% concentrated, and need to make a 0.5% concentrated decontamination solution. How many parts of water do you need to mix with the chlorine? Ask a participant to volunteer to write the calculations on a flip chart. Answer: 6 parts water to 1 part chlorine. Show the transparency, Making a Dilute Solution from Dry Powder. Ask a participant to read the transparency. ▪ Ask participants if they have ever had to use a formula to calculate how much powder chlorine to mix with 1 liter of water? ▪ Give participants another example to calculate: You have 70% calcium hypochlorite powder, and need to make a 0.5% concentrated decontamination solution. How many grams of powder do you need to mix with water? Ask a participant to volunteer to write the calculations on a flip chart. Answer: 7.1 grams of powder per liter of water.	Transparencies: ▪ Making a Dilute Solution from a Concentrated Liquid Solution ▪ Making a Dilute Solution from Dry Powder Flip chart Flip chart markers	

TIME	TEACHING METHOD	CONTENT	MATERIALS NEEDED	EVALUATION
60 min	Question and answer Discussion Demonstration by Trainers Return Demonstration by Participants	**10. Demonstrate how to process patient care instruments and supplies safely** Show the flip chart "The 4 Steps of Processing Instruments and Supplies". Ask participants to take turns reading the chart. Ask "why" questions and discuss. <u>Demonstration and return demonstration</u> **Teacher demonstrates slowly:** Explain that in this demonstration, you have just completed a delivery. You have your contaminated instruments and equipment. You are still wearing your apron and have on contaminated gloves. You will demonstrate doing the 4 steps for processing instruments and supplies. Ask participants to follow with their skill checklist. While you are doing the steps, ask participants what the next step is instead of you telling them the next step. Be sure that during the demonstration you explain how to: ▪ Prepare decontamination solution ▪ Decontaminate ▪ Clean ▪ High level disinfection by boiling/steaming ▪ How to store After the demonstration ask for questions. **Ask a participant to volunteer to do the return demonstration:** After the demonstration do feedback: ▪ Participant does self evaluation first ▪ Observers give feedback next ▪ Then facilitator gives feed back as needed **If there is time and enough equipment sets, ask all participants to do a return demonstration:** • Participants divide into groups to do return demonstration. • Facilitator goes from group to group to support and monitor. • The groups re-assemble and the facilitator summarizes results of return demonstration.	Flip Chart or Transparency: ▪ The 4 Steps of Processing Instruments and Supplies Infection Prevention Skill checklist Infection Prevention Demonstration Equipment/Supplies (1set). Have 4 sets available if possible: ▪ Chlorine or bottle labeled chlorine ▪ Dish soap ▪ Sharps box ▪ Instrument tray or kidney dish ▪ Foley catheter ▪ Needle/syringe ▪ Scissor ▪ Hemostat ▪ 3 plastic pails ▪ Tooth brush ▪ Sterile gloves ▪ Heavy cleaning gloves ▪ Pot with lid ▪ Cheatle forceps or other forcep with string attached	Participant's answer to questions Participant demonstration Participant's feedback to demonstration

TIME	TEACHING METHOD	CONTENT	MATERIALS NEEDED	EVALUATION
5 min	Question and answer	**Summary:** Can be done by: ▪ Facilitator asking participants questions, OR ▪ Facilitator asking 1 or more participants to summarize		Participant's answer to questions

USING STANDARD PRECAUTIONS MEANS TO ALWAYS:

- CONSIDER **EVERY** PERSON POSSIBLY INFECTIOUS. This includes even the baby and medical staff.
- Take ALL STANDARD PRECAUTIONS WITH ALL PATIENTS.
- Wash your hands.
- Wear protective clothing when needed (gloves, eye protection, aprons, closed shoes).
- Prevent injuries with sharps.
- Process patient care instruments and equipment safely.
- Keep the environment clean.

- Dispose and transport wastes safely.

Always Wash Hands

With Soap and Water:
• When visibly dirty • When possible exposure to spore-forming germs, such as *Clostridium difficile* or *Clostridium tetani*. (causes tetanus) • When blood and body fluids are on skin • After using toilet • Whenever hand cleaning is necessary but no alcohol-based handrub is available
With Alcohol-based Handrub:

- When arriving / leaving work place
- Before / after touching a patient (woman, baby)
- After contact with body fluids or excretions, mucous membranes, skin that is not intact or wound dressings
- If moving from a contaminated body site to another body site on the same patient
- Before / after using gloves
- Before handling medicines or foods
- Before and after eating and after coughing or blowing nose.

ALCOHOL-BASED HANDRUBS

What is it?

Cleaning hands with antiseptics such as alcohol (60–90% ethyl or isopropyl)

Advantages:

- Inhibits or kills most gram negative and gram positive bacteria, TB, viruses (HIV) and fungi. More effective than handwashing, which removes dirt, blood and some transient germs, but not all.
- If used with hand softeners like glycerin or propylene glycol, protects and softens skin.

Alcohol-Based Handrubs

How to Make:

Mix 100 mL 60–90% ethyl or isopropyl alcohol with 2mL skin softener (glycerin, propylene glycol, sorbitol)

How to Use:

- Pour about 5 mL into hands
- Rub solution into hands. Clean the palm, fingers and under nails, until dry.
- Wash hands with soap and water after every 5 – 10 uses to reduce the build-up of hand softeners.

PERSONAL PROTECTIVE ITEMS	
MASK AND EYE PROTECTION	Used for: • Sorting and cleaning instruments and linens • Attending a vaginal delivery • Cutting umbilical cord *Note: Eye protection can include goggles, face shields, or plain glasses*
APRON OR GOWN	Used for: • Sorting and cleaning instruments and linens • Attending a vaginal delivery

PERSONAL PROTECTIVE ITEMS	
FEET PROTECTION	Closed shoe or boot made from rubber or leather. Protects the wearer from: • Injury by sharps or heavy items • Blood or other body fluids on the floor

PERSONAL PROTECTIVE ITEMS	
GLOVES	**Utility or Heavy Duty Gloves:** To touch dirty instruments, linens and waste, doing housekeeping and cleaning contaminated surfaces. **Single Use Examination Gloves:** Use if having contact with intact mucous membranes and when at risk of exposure to blood or other body fluids. **Surgical Gloves:** For all procedures having contact with tissues under the skin or with the blood stream.

Housekeeping in Clinical Areas

Cleaning Solutions

Three types of cleaning solutions are used during housekeeping at a health facility. It is important for everyone to understand the different types of cleaning agents and how each should be used.

DIFFERENT TYPES OF CLEANING SOLUTIONS

1. **Plain detergent and water:** Used for low risk areas and general cleaning.
2. **Disinfectant solution:** 0.5% chlorine solution. Quickly kills germs during cleaning. Can be used to clean up spills of blood or other body fluids.
3. **Disinfectant cleaning solution:** Solution containing a disinfectant, a detergent and water. Used to clean areas contaminated with infectious materials. The disinfectant quickly kills germs while the detergent removes dirt and organic material, which cannot be done by water or disinfectants alone.

Making a Disinfectant Cleaning Solution:

Step 1: Prepare 0.5% chlorine solution

Step 2: Add detergent and mix. Continue adding detergent until the solution is mildly sudsy.

Caution: Never mix chlorine solutions with cleaning products containing ammonia, ammonium chloride or phosphoric acid. Mixing these chemicals releases a chlorine gas that can cause nausea, eye irritation, headache and shortness of breath.

GENERAL HOUSEKEEPING GUIDELINES

Although certain areas of a clinic or hospital need special housekeeping procedures, the following list applies to all:

1. Develop and post a cleaning schedule where all housekeeping staff can see the schedule. Make sure cleaning schedules are closely maintained.
2. Always wear gloves (preferably thick utility gloves) when cleaning.
3. Use a damp or wet mop or cloth for walls, floors, and surfaces instead of dry dusting or sweeping to reduce the spread of dust and microorganisms.
4. Scrubbing is the most effective way to remove dirt and microorganisms. Scrubbing should be a part of every cleaning procedure.
5. Wash surfaces from top to bottom so that debris falls to the floor and is cleaned up last. Clean the highest fixtures first and work downward. For example, clean ceiling lamps, then shelves, then tables, and then the floor.
6. Change cleaning solutions whenever they appear to be

dirty. A dirty solution is less likely to kill germs.

Cleaning Schedule: Client Care Areas	
Between Clients	· Clean delivery/examination tables (mattress, frame, legs), trolley tops, counters, lamps, and any other surface that could be contaminated with a cloth damp with disinfectant cleaning solution. · Clean spills of blood/other body fluids with 0.5% chlorine solution immediately. · Clean any dirty areas you can see of the floor, wall, and ceiling with a mop or cloth damp with disinfectant cleaning solution. · Put waste in a leakproof container. Empty the container when it is $\frac{3}{4}$ full.

Cleaning Schedule: Client Care Areas	
At the End of Each Clinic or Shift	· Wipe down all surfaces (counters, tables, sinks, lights, door handles, walls with a cloth damp with disinfectant cleaning solution and wipe). · Clean floors with a mop soaked in a disinfectant cleaning solution. · Check sharps and disposal waste containers and remove and replace them if they are ¾ full. · Remove hospital/clinic waste and burn or bury as soon as possible. · Wash waste containers with disinfectant cleaning solution. Rinse with water.
Each Week	Clean ceilings with a mop damp with a disinfectant cleaning solution.

Cleaning Schedule: Toilets, Latrines, and Instrument Cleaning Area/Room	
What to Clean	**Schedule (clean more often if needed) / What to Use**
Clean Walls	Wipe every day with a disinfectant cleaning solution
Clean Ceilings	Wipe each week with a disinfectant solution
Clean Counters and Other Surfaces	Wipe every day with a cloth wet with disinfectant cleaning solution
Clean Floors	Mop every day with a disinfectant cleaning solution
Clean sinks and Toilets/Latrines	Scrub every day with a disinfectant cleaning solution and rinse with clean water
Clean Waste Containers	Every day scrub to remove contaminated material with a disinfectant cleaning solution and rinse with clean water

Triple-Bucket Technique for Cleaning Floors

Helps the decontamination solution last longer.

Use 3 buckets:

1st = Decontamination solution
2nd = Detergent water
3rd = Rinse water

Always rinse and wring out mop before dipping it into the decontamination solution. When rinse water becomes very dirty, dispose and put in clean rinse water.

What Waste Bins Should be Used?

- Placenta: 30 – 50 liters (smaller if fewer deliveries) in red
- Contaminated instruments: 30 - 40 liters (smaller if fewer deliveries) contains decontamination solution
- Wet waste/swabs/gloves: 20 - 40 liters
- Dry waste: 40 liters
- Hospital Linen: 60 liters in gray
- Basin: to rinse gloves with decontamination solution before removing

Note:

1. **All bins and basins must be made of plastic.**
2. **Empty containers when $\frac{3}{4}$ full.**

3. **Put a label on each bin (placenta, dirty instruments, wet waste, dry waste, linen)**

WAYS TO DISPOSE OF CONTAMINATED WASTE	
SINK, TOILET OR LATRINE	Before pouring liquid waste in a sink or toilet, think about where the drain empties. It is dangerous for liquid medical waste to run through open gutters or sewers.
BURY	Bury contaminated waste. Use a pit that is in a safe location, is correctly filled in and is covered. A safely located pit: • Has a fence around it • Is at least 50 meters from any water source • Is downhill from any wells • Is not in a flood area • Has a water level more than 4 meters below surface.

Ways to Dispose of Contaminated Waste	
BURN	This is the best method to dispose of contaminated waste. It prevents people and animals from collecting used supplies and reusing.
ENCAPSULATE	Seal the container that has waste in it by filling it completely with cement or clay and wait until it dries. Then either bury the sealed container or dispose of it in a landfill. This method can be used for disposal of sharps and other hazardous materials.

What is an Antiseptic?

It is a chemical that is **PUT ON THE SKIN** to kill or inhibit almost all bacteria and many viruses. This is often used on a patient before surgery or delivery.

What is a Disinfectant?

It is a chemical used to disinfect (kills bacteria, viruses, fungi) **CONTAMINATED INSTRUMENTS, EQUIPMENT, SUPPLIES**
or to clean a contaminated **ENVIRONMENT.**

What are the Antiseptic Chemicals?

Alcohol	60 – 90% ethyl or isopropyl are excellent antiseptics. Do not use on mucous membranes. Menthylated spirit (ethyl alcohol denatured with a small amount of wood [methyl] alcohol) is the least effective alcohol antiseptic.
Iodine	Dilute ~ 3% such as aqueous iodine or tincture of iodine. Must never be used on mucous membranes because it rapidly absorbs and irritates the epithelium.
Iodophors	7.5 – 10% such as betadine. Can be used on mucous membranes.
Chlorhexidine	2 – 4% such as hibitane or hibiscrub. Savlon contains chlorhexidine but must be in concentrations of at least 2%. Many savlon solutions are less than 1%.
Chloroxylenol	0.5 – 4% such as Dettol. In Dettol, the antiseptic action is mostly due to alcohol, not chloroxylenol. A 60 – 90% ethyl or isopropyl alcohol is just as effective and cheaper.

What are the Disinfectant Chemicals?

Chlorine Solutions	Soak items in 0.5% for 10 minutes, OR 0.1% for 20 minutes (less damaging to metals). To make 0.1% solution, use boiled water.
Glutaraldehydes (Cidex)	Less irritating than formaldehydes. Protect from fumes (use in well ventilated area) and use gloves and eye protection.

NOTE: Glutaraldehyde stays on instruments so must rinse with **boiled** water **three** times before using instrument.

Make a Decontamination Solution from Concentrated Liquid Chlorine

1. **Check percent concentration of the chlorine you are using**
2. **Decide total parts of water needed.**

- **Total Parts (TP) water = ($\frac{\%\ \text{Chlorine available}}{\%\ \text{Chlorine Required}}$) -1**

3. **Mix 1 part concentrated chlorine with the total parts water needed**

Example: Make a 0.5% solution from 5% concentrated solution

- **Calculate TP water = ($\frac{5.0\%}{0.5\%}$) -1 = 10-1 = 9**
- **Take 1 part concentrated solution and add to 9 parts water**

Make a
Decontamination Solution
from Dry Powder Chlorine

1. **Check percent concentration of powder you are using**
2. **Decide grams bleach powder needed**

- **Grams per liter = ($\frac{\text{\% Chlorine required}}{\text{\% Available chlorine powder}}$) X 1000**

3. **Mix measured amount of powder with 1 liter of water**

Example: Make a 0.5% solution from 35% concentrated powder

- **Calculate grams/liter = ($\frac{0.5\%}{35\%}$) X 1000 = 14.2 gms/ L**

- **Add 14.2 grams or approximately 14 grams to 1 liter of water**

4 STEPS OF PROCESSING INSTRUMENTS AND SUPPLIES		
Step 1	Decontaminate	• Kills viruses and many other germs • Makes items safer to handle during cleaning • Only use plastic container for decontamination solution, not metal • Prepare new decontamination solution every 24 hours or when solution begins to look cloudy • Soak item x 10 minutes in 0.5 % solution • Helps to use timer

4 Steps of Processing Instruments and Supplies		
		• Always use utility gloves to remove items

4 Steps of Processing Instruments and Supplies		
Step 2	Clean	• Removes blood, other body fluids, tissue and dirt • Reduces the number of germs • Makes sterilization or high-level disinfection effective. If blood clot remains on instrument, germs in clot may not be completely killed by sterilization or HLD.

4 Steps of Processing Instruments and Supplies		
Step 3	High Level Disinfect (HLD)	• **Kills all germs but not all endospores (tetanus)** • Use for items having contact with broken skin / intact mucous membranes • If sterilization not possible, HLD only other choice • Can be done by boiling, steaming or chemical disinfection (soak in 0.5% chlorine solution x 20 minutes)
	OR	
	Sterilization	• **Kills all germs including endospores.** • May not be possible to do in all settings. • Can be done by dry heat or wet heat (autoclave).

4 Steps of Processing Instruments and Supplies		
Step 4	Store or Use	• Use immediately • Store in a high level disinfected or sterile covered tray up to 1 week • Put label with expiration date • If autoclaved and wrapped: Good for at least 30 days unless something causes the package to become contaminated (package is torn or wet).