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Training Manual Application of 7.1% Chlorhexidine Digluconate for prevention of umbilical cord Infections

Department of Health, Government of Sindh, 2014

Department of Health
Government of Sindh
2014

This training package was adapted from the *7.1% Chlorhexidine Digluconate w/v Training Manual* developed by Family Health Division/Child Health Division, Department of Health Services, Ministry of Health and Population, Government of Nepal. It has been endorsed by the Department of Health, Sindh Province, and printed by the Maternal, Newborn and Child Health Services Component of USAID/Pakistan's Maternal and Child Health Program.

In this context, the efforts of Director General Health Sindh, Provincial Programme Director National MNCH Program Sindh, Provincial Programme Coordinator of National Programme for FP & PHC Sindh and technical inputs of MCHIP team (Dr Salim Sadruddin, Dr Farhana Shahid, and Dr Qamar u Zaman Jamali) are commendable.

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TRAINING AGENDA

Time	Contents	Facilitator
09:00AM - 09:20AM	Registration	
09:20AM - 10:00AM	Introduction - Neonatal Situation in Pakistan (10 Min) - 7.1 % Chlorhexidine Digluconate Gel for umbilical cord care (10 Min) - Policy Recommendations for Chlorhexidine in Pakistan (20 Min)	
10:00AM - 10:20AM	Training Objectives and Expected Outcome	
10:20AM - 10:30AM	Umbilical infections and Sepsis	
10:30AM – 10:40A,	Video on Umbilical infections and cord care	
10:40AM - 11:00AM	Introduction to Chlorhexidine and its importance in preventing umbilical cord infection	
11:00AM - 11:20AM	Tea Break	
11:20AM - 11:40AM	Application procedure of Chlorhexidine	
11:40PM - 12:20PM	Practice session	
12:20PM - 12:40PM	Roles and Responsibilities of SBAs and LHWs	
12:40PM - 01:00PM	Chlorhexidine distribution, recording, and reporting mechanism	
01:00PM - 02:00PM	Skills assessment	
02:00PM - 02:20PM	Discussion and Q &A session	
02:20PM	Closing and Refreshment	

For district level training (TOT) a PowerPoint presentation will be used. For community health workers training printed copies of this manual will be used.

INTRODUCTION

Neonatal mortality is still high in Pakistan at 55 neonatal deaths per 1000 live births (DHS 2012–13). Each year, approximately 202,000 newborns die within 28 days of birth in Pakistan (UNICEF 2013). The majority of these newborn deaths are from preventable or treatable causes: infections, complications at birth and complications of prematurity. The second most common killer of newborns is infections; sepsis (blood infection), pneumonia (lung infection) and meningitis (infection of lining of brain).

7.1 % Chlorhexidine digluconate

7.1% Chlorhexidine digluconate (delivering 4% chlorhexidine) is a broad spectrum antiseptic that is safe and effective for reducing bacterial colonization on the skin and umbilical stump of newborns. Research evidence shows that application of 7.1% Chlorhexidine digluconate (hereafter referred to as Chlorhexidine) on the umbilical cord immediately after cord cutting helps prevent infection by 68% and reduces neonatal mortality by 23%.

Every three minutes a newborn baby dies in Pakistan. Most of these deaths are in the first week of life and are preventable.

7.1% Chlorhexidine digluconate is a low-cost antiseptic that prevents umbilical cord infections. Research in Pakistan found it reduced newborn mortality by 38%.

(Save the Children 2013)

Policy Recommendations for Chlorhexidine in Pakistan

In November 2014, Ministry of National Health Services Regulations & Coordination, Government of Pakistan approved following recommendations on use and scale up of Chlorhexidine for umbilical cord care in Pakistan.

1. Application of Chlorhexidine in gel form for umbilical cord care:
 - a) All newborn babies should receive Chlorhexidine in gel form for application on the umbilical cord within 24 hours of birth (preferably within one hour of birth), regardless of place of birth or mode of delivery;
 - b) Once-a day application of Chlorhexidine gel should be continued for up to seven days after birth or separation of cord, whichever comes first;
 - c) The person applying Chlorhexidine gel must adequately wash and dry his/her hands as per standard recommendations for hand washing;
 - d) Mothers must be properly educated not to apply anything else on the cord, other than Chlorhexidine, under any circumstances;
 - e) Mothers should be instructed to immediately contact their LHW or healthcare provider if any sign of cord infection appears;
2. Provincial Departments of Health will ensure the distribution of Chlorhexidine gel to all pregnant women delivering in health facilities or at home (through LHWs and clean delivery kits, preferably during third trimester of pregnancy)

Chlorhexidine Initiative Goal

- To reduce neonatal morbidity and mortality

¹ In Sindhi language, the umbilical stump is referred to as “Dunn”

Training Objectives

- To build skilled birth attendant (SBAs) and lady health worker (LHWs) capacity to educate mothers on appropriate cord care
- To build skilled birth attendant and lady health worker capacity to teach pregnant women proper procedure of Chlorhexidine application on the umbilical cord stump

Expected Training Outcomes

At the end of the training, participants will be able to do the following:

- State the importance of Chlorhexidine and its role in preventing umbilical cord infection
- Counsel pregnant women (and associate family members) on essential newborn care and Chlorhexidine application
- Demonstrate 11 steps of hand washing
- Demonstrate proper procedure of Chlorhexidine application on a doll

Training Curriculum

This is a one-day training for SBAs and LHWs covering following topics: causes of neonatal mortality in Pakistan; evidence on effect of Chlorhexidine; application of Chlorhexidine (including counseling and handwashing); Chlorhexidine-related roles and responsibilities of SBAs and LHWs; Chlorhexidine distribution mechanism; and recording and reporting system.

Training Methodology

This is a participatory training using discussion, demonstration, hands on practice, question/answer, observation and role play.

Training Materials

- Printed copies of manual
- Chlorhexidine job aids (see Appendix B,C, and D)
- Chlorhexidine tube
- Baby Doll

Evaluation

The training will end with skills assessment of all trainees (Appendix E), a question/answer session and discussion. All participants must correctly demonstrate all steps of Chlorhexidine application.

NOTES

Causes of Neonatal Mortality

According to PDHS 2006–2007 in Pakistan, following are the main causes of neonatal mortality:

1. Birth asphyxia
2. Infections
3. Low birth weight/prematurity

Umbilical infections and Sepsis

The umbilicus is a dangerous entry point for infection, which can easily pass through the cord into the baby's body and lead to sepsis and death. Infection is the leading cause of newborn deaths. The baby can be infected during the birth process by an unclean umbilical cord or skin pustules. Infection can spread fast and affect the whole baby's body leading quickly to death. This generalized infection is called sepsis. Ensuring optimal cord care at birth and in the first week of life (including use of Chlorhexidine), especially in settings with poor hygiene, is a crucial strategy to prevent life-threatening sepsis and cord infections, and avert preventable neonatal deaths.

Introduction to Chlorhexidine and its Importance

- Chlorhexidine is an antiseptic
- This antiseptic gel is to be used only on the umbilical area of neonates and is to be used immediately after cord cutting on the umbilical stump and surrounding area.
- Application of Chlorhexidine gel helps prevent bacterial infection for a long period of time (24–48 hours).
- Once-a day application for up to seven days after birth or separation of cord, whichever comes first
- Use of Chlorhexidine gel has no side effects.
- It is easy to use.
- Use of Chlorhexidine is helpful in replacing other harmful traditional cord care practices.

Application Procedure of Chlorhexidine

- Wash hands properly with soap and water before piercing the tube, following all 11 steps of proper hand washing.
- Use sharp protuberance of the lid to pierce tube. Before applying Chlorhexidine, ensure the baby is warm and is wrapped properly exposing only the naval area.
- Apply Chlorhexidine immediately after cord cutting. Use Chlorhexidine gel on umbilical stump and spread it using index finger around the abdominal area that comes in contact with umbilical stump.
- Apply Chlorhexidine gel once -a day up to seven days after birth or separation of cord, whichever comes first.
- Gel takes 2–3 minutes to dry. Cover it with light clothe to avoid spreading.

Role and Responsibilities of SBAs

- Participate in the Chlorhexidine training program.
- Provide information regarding Chlorhexidine to all relevant labor room and delivery staff.
- During ANC visits provide information on Chlorhexidine and counsel on avoiding harmful umbilical cord practices to pregnant women and their families.
- Distribute IEC materials to pregnant women during ANC visit in the last trimester.

- Ensure availability of Chlorhexidine in the labor and delivery room.
- If present during delivery (at home or in a health facility), apply Chlorhexidine on umbilical cord stump of newborn baby soon after birth.
- Educate mothers to continue to apply gel up to seven days after birth or separation of cord, whichever comes first;
- Keep record of births and Chlorhexidine application in DHIS/OBS Register
- Keep track of Chlorhexidine stock.

Role and Responsibilities of Lady Health Workers (LHWs)

- Participate in Chlorhexidine training program.
- Identify and follow all pregnant women in her catchment area.
- Conduct sessions on importance of Chlorhexidine and avoidance of harmful umbilical cord practices in women's support group meetings.
- Provide counseling to pregnant woman and her family regarding Chlorhexidine during home visits.
- Provide Chlorhexidine gel tubes and IEC material to pregnant women during counselling sessions / regular home visits preferably during third trimester of pregnancy.
- If present during delivery, apply Chlorhexidine on umbilical cord stump of newborn baby soon after birth.
- If a delivery is not attended by a skilled attendant, then the LHW should conduct a home visit to the new mother within 24 hours and check the umbilical cord and use of Chlorhexidine.
- Record Chlorhexidine distribution data in the pregnant women register
- Regularly replenish Chlorhexidine from health facility to prevent stock out.
- Submit Chlorhexidine distribution/use data in LHW monthly report on time.

Chlorhexidine Distribution Mechanism

Facility- level distribution:

- DHOs will receive Chlorhexidine tubes on quarterly basis upon submission of quarterly consumption/demand report.
- Upon receipt of Chlorhexidine the DHO will ensure entry in stock register and distribute the Chlorhexidine to selected health facilities as per requisition on monthly basis.
- Chlorhexidine will be kept in the labour room for application on the umbilical stump of every newborn soon after birth

Community- level distribution:

- District Coordinator LHW Program will submit a requisition on quarterly basis and upon receipt of Chlorhexidine will ensure entry in DPIU stock register.
- DPIU will distribute Chlorhexidine to LHW through Lady health supervisors (LHSs) on the basis of monthly requisition submitted by LHWs..
- The LHS will maintain medicine stock register as per LHW program protocol.
- LHWs will distribute CHX to pregnant women during third trimester of pregnancy.

Note: The distribution mechanism at both levels is based upon supplies to be provided by USAID/MCHIP. Once the local manufacturing will be started and DoH will procure directly than proposed mechanism will be replaced by DoH existing supply system.

Chlorhexidine Recording and Reporting Mechanism

Facility –level:

- Chlorhexidine consumption and demand record will be maintained in following DHIS tools.
- DHIS Obstetric register
- DHIS Daily Medicine Expense Register
- DHIS Stock Register (Medicine/Supplies)
- Health Facility Monthly Report Form
-

Community- level:

- The LHW will maintain the distribution and use of Chlorhexidine record in “Hamla Khawateen List” in Daily Diary of LHW.
- LHWs will report the number of Chlorhexidine tubes distributed and balance in their monthly report.
- The LHS will submit the distribution and balance of Chlorhexidine in compiled monthly report to DPIU.
- The DPIU will submit the monthly report to PPIU and DHO.

Frequently Asked Questions

When and where Chlorhexidine is used?

- Chlorhexidine is applied on the umbilical cord stump of a newborn after birth.
- It can be used in any setting where a birth occurs: at home after a home birth or after a delivery in a health facility.

What are its advantages?

- It is preventative. It works before the infection begins.
- It is simple to use. The instructions are simple and have been shown to be easy to follow by mothers, families, community health workers and health care providers (such as skilled birth attendants). It is important to wash hands before use.
- It does not require special storage, such as refrigeration.
- It is equitable. All newborns should receive Chlorhexidine immediately after birth.
- It is safe. Chlorhexidine has been used for umbilical cord care in developed countries for 40 years.
- The concentration of 7.1% Chlorhexidine Digluconate was selected because it is strong enough to work as an antiseptic, but at a low enough concentration not to have other effects (i.e., absorption into the bloodstream).
- This formulation of Chlorhexidine is water-based. Many other antiseptics are alcohol-based, which are not recommended for premature babies.
- As with many medicines intended for topical use, avoid contact with eyes or ears.
- It is very effective, more than other antiseptics. It reduces infections and prevents newborn deaths.

What is its correct application procedure?

- Please refer to the Chlorhexidine job aid (Appendix C) to follow the correct steps.
- Apply immediately after birth, following these five steps:
 1. Wash hands properly with soap and water before applying Chlorhexidine to the baby.
 2. Open the tube by pressing the sharp tip of the lid to break the inner shield of the tube. Apply the Chlorhexidine gel on the umbilical cord stump and the surrounding areas of the cord.
 3. Spread the gel gently on the stump and surrounding areas using your index finger.
 4. After applying Chlorhexidine, apply nothing else to the cord stump and keep it clean.

5. Apply Chlorhexidine gel once-day for seven days after birth or separation of cord, whichever comes first.

Are there any side effects of Chlorhexidine?

- No, there are no side effects of Chlorhexidine use for cord care. It has been noted, however, that using Chlorhexidine can delay cord separation; however, delayed cord separation with the use of Chlorhexidine does not harm the baby.

APPENDIX A: THE TALE OF TWO NEWBORNS IN THATTA DISTRICT²

In neighboring villages of Thatta district of Sindh Province of Pakistan, there were two women who were pregnant at the same time. One woman was named Jameela, and the other was named Sameena. Both Sameena and Jameela had healthy pregnancies, visiting the ANC clinic several times, eating well and taking rest. In the first week of October, they both gave birth to baby girls.

In Jameela's home, her mother-in-law took the responsibility of bathing her newborn granddaughter, then giving her an oil massage and changing the clothes. As has been done in this village for many generations, she applied cow dung on the newborn's umbilical cord stump area. Sameena, however, had learned during pregnancy about the common ways that newborns fall ill during the first few days after birth from the LHW in her village. She was careful to keep the baby dry and warm, and she used a small tube of medicine (Chlorhexidine gel) that the LHW gave her on the baby's umbilical cord stump.

When the LHW visited Sameena three days after the birth for a postnatal checkup, the newborn baby girl was in good health. The LHW reminded the family about all the danger signs for newborns and postpartum mothers.

In the other village, Jameela noticed her child's umbilical area had become swollen and red. There was pus around the area as well. Fearing someone's evil eye in the family's happiness, Jameela and her husband took their daughter to the local shaman. The shaman could not help. The next day they went to see the nearby LHW, who suspected umbilical cord infection and immediately referred the newborn to the nearby health facility.

The skilled birth attendant (SBA) there identified the problem: it was a local cord infection, probably caused by something applied to the cord stump. She gave oral antibiotics and topical medicine (Gentian violet) and asked the parents to come for follow-up visit after two days. She further advised parents that the cord should be kept clean and dry, and they should not apply anything else to or around the umbilical cord (such as cow dung, mustard oil, turmeric powder, ash etc.) She also instructed them to return immediately if any danger signs for newborns and postpartum mothers occurred.

At the end of October, still in the first month of life, both newborn girls were healthy. Both sets of mothers and fathers shared their stories in the next local support group meeting in their respective villages about the dangers of cord infections, and the LHWs talked with all group members about how Chlorhexidine can prevent life-threatening newborn cord infections.

² This story is not based on real events, but created for this training to engage participants in analyzing the possible scenarios related to the need for Chlorhexidine and key behaviors about cord care and care-seeking for newborns.

APPENDIX B: ESSENTIAL NEWBORN CARE JOB AID



Five Key Messages of Essential Newborn Care

The following care should be given to all newborn babies



1.

Wipe the baby dry immediately after birth using a soft, clean and dry cloth, and wrap the baby with another dry cloth to keep the baby warm



2.

Apply CHX gel on the cord immediately after cord cutting and keep the cord clean and dry. Apply nothing else on the cord and surrounding areas



3.

Keep the baby in skin to skin contact with the mother



4.

Initiate breast feeding within one hour of birth

5. Delay bathing for at least 24 hours after birth

APPENDIX C: CHLORHEXIDINE JOB AID



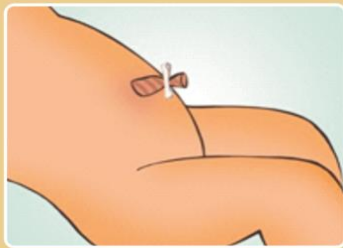
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Chlorhexidine Gel (Dunn Malam)

Use of Chlorhexidine to prevent infection in newborn babies

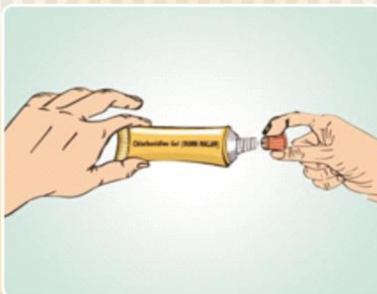


- All newborn babies should receive Chlorhexidine gel application on umbilical stump soon after birth (preferably within one hour after birth)
- Chlorhexidine gel should be applied on umbilical stump once-a day for up to seven days after birth or separation of cord, whichever comes first



.1

Wash hands properly with soap
And water before applying CHX



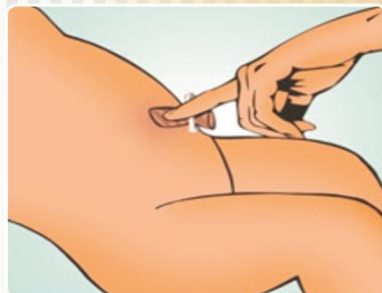
.2

Use the sharp point of the top
To break the inner shield of the tube



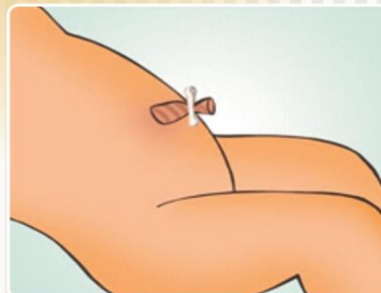
.3

Apply the gel on the stump
And surrounding areas of the cord



.4

Spread the gel gently on the stump and
Surrounding areas using index finger



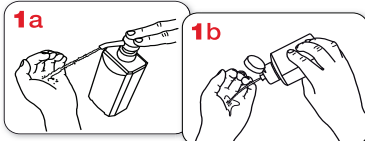
.5

After applying CHX gel, apply nothing else
on the cord. Keep the cord clean and dry

APPENDIX D: HANDWASHING JOB AID



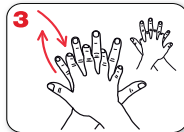
How to handrub? WITH ALCOHOL-BASED FORMULATION



Apply a palmful of the product in a cupped hand and cover all surfaces.



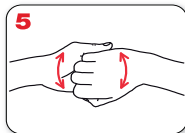
Rub hands palm to palm



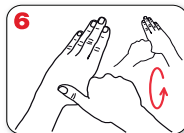
right palm over left dorsum with interlaced fingers and vice versa



palm to palm with fingers interlaced



backs of fingers to opposing palms with fingers interlocked



rotational rubbing of left thumb clasped in right palm and vice versa



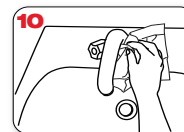
rotational rubbing, backwards and forwards with clasped fingers of right hand in left palm and vice versa



rinse hands with water



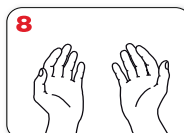
dry thoroughly with a single use towel



use towel to turn off faucet



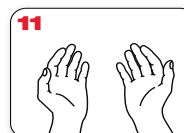
20-30 sec



...once dry, your hands are safe.



40-60 sec



...and your hands are safe.



WHO acknowledges the Hôpitaux Universitaires de Genève (HUG), in particular the members of the Infection Control Programme, for their active participation in developing this material.



October 2006, version 1. 39

APPENDIX E: SKILLS CHECKLIST FOR CHLORHEXIDINE APPLICATION


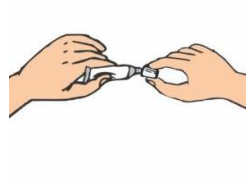



Name of SBA or LHW: _____

Facility: _____

Date: _____

Instructions:

Assess the skills of the SBA or LHW based on the following steps and mark the appropriate box. Allow participants to use the job aid to guide the process, as needed.

STEP		DONE CORRECTLY	DONE INCORRECTLY	NOT DONE
	1. Wash hands properly with soap and water before applying Chlorhexidine.			
	2. Use the sharp protuberance of the lid to break the inner shield of the tube.			
	3. Apply Chlorhexidine gel on the stump and the surrounding areas of the cord.			
	4. Spread the gel gently on the stump and surrounding areas using index finger.			
	5. After applying Chlorhexidine gel, apply nothing else on the cord and keep the cord clean and dry.			

Scoring

Successful completion of the training requires all steps to be completed correctly. Participants should be supported to repeat steps until they perform satisfactorily.

All Steps Done Correctly?	
Facilitator Name and Initials	
Date	

