



# Use of Chlorhexidine to Prevent Infection in Newborns



## An Orientation Manual for Health Workers and Female Community Health Volunteers

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## Cover page

**Photo caption:** Government Health Worker demonstrating correct use of CHX during CB-IMNCI training to FCHVs in Khaira Health Post, Pyuthan District.

**Photo Credit :** Sangita Karki, JSI/CNCP

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## **Introduction to Chlorhexidine Orientation**

This is a one-day orientation on the proper use of Chlorhexidine to prevent newborn infection on the umbilical cord stump. The orientation consists of several participatory exercises that are designed to educate health service providers on the importance of Chlorhexidine causes of newborn deaths, benefits of Chlorhexidine use, proper handwashing techniques, Chlorhexidine application procedures, and the role of the health workers and female community health volunteers (FCHVs).

### **What is Chlorhexidine?**

Chlorhexidine is a broad spectrum antiseptic that is safe and effective for reducing bacterial colonization on the skin and umbilical cord stump of newborns. Studies have shown that application of Chlorhexidine on the umbilical cord area immediately after cord cutting can reduce the risk of serious cord infection by 68% and newborn mortality by 23% (Mullany et al, 2009).

### **Objective of Chlorhexidine intervention**

The primary objective is to reduce newborn mortality

### **Objective of Chlorhexidine orientation**

- Orient health service providers on the Chlorhexidine use and its importance

### **Key takeaways from Chlorhexidine orientation**

At the end of this orientation, all participants will be able to:

- Clearly state the importance of Chlorhexidine and its role in preventing infection
- Demonstrate proper Chlorhexidine application procedure
- Demonstrate the six steps of handwashing technique
- Provide counseling to pregnant women and their families on the use of Chlorhexidine

### **Orientation materials**

- Chlorhexidine tubes
- Application poster
- Reminder poster
- Chlorhexidine job aid
- Baby doll with dress
- Training video
- Other stationaries
  - Markers, Pens and Paper
  - Scissors
  - Tape
  - Pencils with erasers and sharpeners
  - Attendance sheets

### **Evaluation**

Evaluation of participants will be done by question and answer and skill observation.

## Agenda

Time	Content	Responsible person
10:00 - 10:20	Welcome and registration	
10:20 - 10:30	Introduction	
10:30 - 10:40	Chlorhexidine program objective	
10:40 - 10:50	Chlorhexidine orientation objective	
10:50 - 11:20	Current situation of Newborn in Nepal	
11:20 - 11:35	<b>Coffee/tea break</b>	
11:35 - 11:55	Chlorhexidine background	
11:55 - 12:25	Evidence for Chlorhexidine cord care	
12:25 - 12:45	Benefits of Chlorhexidine	
12:45 - 13:15	Six-step handwashing technique	
13:15 - 14:15	<b>Lunch</b>	
14:15 - 15:15	Chlorhexidine application (demonstration)	
15:15 - 15:30	Role of health service providers	
15:30 - 15:40	Role of female community health volunteers/mobilizing the community	
15:40 - 15:50	Role of health facility operation management committee	
15:50 - 16:10	Chlorhexidine distribution mechanisms	
16:10 - 16:40	Recording and reporting	
16:40 - 17:00	Discussion and evaluation	

## Chlorhexidine Orientation Lesson Plan

Total Duration: 5 hours				
Time	Objective	Contents	Activity	Tools
10 minutes	All participants will sign in	Registration	Register names of participants	Sign-in sheet Pens
10 minutes	Create familiarity between the participants and facilitators	Introduction	Participants and facilitators introduce themselves and describe current work and responsibilities	
10 minutes	Welcome participants and introduce the orientation	Welcome and intervention objective	<ul style="list-style-type: none"> <li>Welcome the participants</li> <li>Share the objective of the Chlorhexidine intervention</li> </ul>	
10 minutes	Familiarize participants with the objectives of the orientation	Orientation objectives	Read and post orientation objective	Copy of objectives
20 minutes	Familiarize participants with newborn health and major causes of newborn deaths in the country	Current situation of Newborn in Nepal	<ul style="list-style-type: none"> <li>Initiate with Jamuna story and tell participant to tell similar cases of their communities</li> <li>Ask participants to describe cord care practices in their communities and describe the ill effects of those practices on newborn health and write it on the newsprint</li> <li>Ask the participants if they</li> </ul>	Story  Major causes of newborn mortality

**Total Duration: 5 hours**

Time	Objective	Contents	Activity	Tools
			<p>have heard about or seen newborn death in the past 6 months in their communities. If yes, probe for causes of death</p> <ul style="list-style-type: none"> <li>• Discuss the four major causes of newborn deaths. Explain how traditional practices described by the participants affect these causes</li> <li>• Relate Chlorhexidine and umbilical cord care with major causes of newborn mortality, including infection</li> </ul>	
<b>20 minutes</b>	Learn the five essential newborn care messages	Review essential newborn care	<ul style="list-style-type: none"> <li>• Discuss five essential newborn care messages</li> <li>• Discuss use of Chlorhexidine immediately after cord cutting and the importance of applying nothing else to the cord</li> </ul>	
<b>20 minutes</b>	Learn about Chlorhexidine and its benefits	Chlorhexidine background	<ul style="list-style-type: none"> <li>• Distribute one tube of Chlorhexidine to each participant</li> <li>• Ask them to read the pictorial instruction sheet inside the</li> </ul>	Chlorhexidine tubes, application poster, reminder poster and job aid

Total Duration: 5 hours				
Time	Objective	Contents	Activity	Tools
			packaging and explain what it said <ul style="list-style-type: none"> <li>Discuss in detail the benefits of Chlorhexidine and the proper application technique</li> </ul>	
10 minutes	Learn proper handwashing techniques	Six-step handwashing technique	<ul style="list-style-type: none"> <li>Ask participants if they know the six steps of handwashing and the required preparations before washing hands to apply Chlorhexidine</li> <li>Demonstration of the six steps hand washing technique</li> </ul>	
1 hour	Learn to apply Chlorhexidine to the umbilical stump	Chlorhexidine application (demonstration)	<ul style="list-style-type: none"> <li>Demonstrate the proper procedure for applying Chlorhexidine to the umbilical stump using the doll</li> <li>Divide the participants into different groups and give them one doll. Ask them to conduct a role play as a pregnant woman and health service provider. The health service providers should counsel the pregnant woman and show her how to apply</li> </ul>	Orientation dolls, Chlorhexidine tubes, application poster

Total Duration: 5 hours				
Time	Objective	Contents	Activity	Tools
			Chlorhexidine <ul style="list-style-type: none"> <li>After all participants have had a chance to practice the health service provider role, ask if they have any questions</li> </ul>	
10 minutes	Learn about the roles and responsibilities of the health officer	Role of service providers	<ul style="list-style-type: none"> <li>Discuss the roles and responsibilities of health service providers in Chlorhexidine programs</li> <li>Display the roles and responsibilities of health service providers via PowerPoint or provide this information on paper.</li> </ul>	Roles and responsibilities on paper (see Annex 2) PowerPoint slide
10 minutes	Learn about the roles and responsibilities of female community health volunteers (FCHV) in Chlorhexidine program	Role of FCHVs	<ul style="list-style-type: none"> <li>Discuss the roles and responsibilities of FCHV and note important points generated by discussion</li> <li>Display PowerPoint or distribute copies</li> </ul>	Roles and responsibilities of FCHV (see Annex 2)
10 minutes	Learn the roles and responsibilities of the health facility operation management committee in Chlorhexidine programs	Role of HFOMC	<ul style="list-style-type: none"> <li>Discuss the role and responsibilities of the health facility operation management committee in Chlorhexidine intervention and write down important</li> </ul>	Roles and Responsibilities of health facility operation management committee (see



Total Duration: 5 hours				
Time	Objective	Contents	Activity	Tools
			points generated by the discussion <ul style="list-style-type: none"> <li>• Display in PowerPoint or distribute printed copies</li> </ul>	Annex 2)
20 minutes	Learn how Chlorhexidine is distributed	Chlorhexidine distribution mechanisms	<ul style="list-style-type: none"> <li>• Discuss the distribution mechanisms for Chlorhexidine</li> </ul>	PowerPoint or printed copies of the distribution mechanisms for Chlorhexidine
30 minutes	Learn about the recording and reporting requirements for the Chlorhexidine program	Recording and reporting	<ul style="list-style-type: none"> <li>• Explain the recording and reporting</li> <li>• Demonstrate the correct way of recording and reporting.</li> <li>• Recording and reporting practice</li> </ul>	Required forms Pencils
25 minutes	Evaluate participants and get feedback on orientation	Evaluation and closing	<ul style="list-style-type: none"> <li>• Review the key takeaway messages</li> <li>• Thank the participants</li> <li>• Encourage participants to share what they've learned with colleagues</li> <li>• Collect evaluation forms</li> </ul>	

## Annex 1:

This section provides background information to the facilitator for the orientation.

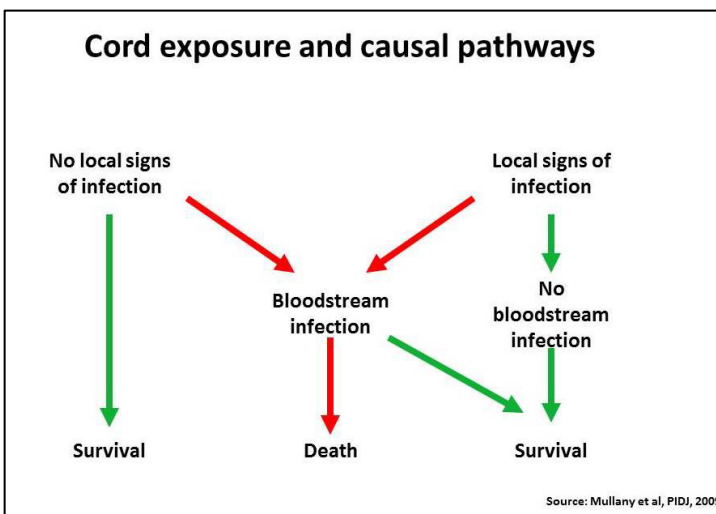
### ***Introduction to Chlorhexidine and its importance***

Chlorhexidine (4% w/w) is an antiseptic gel that is applied to the umbilical cord stump and surrounding skin area of newborns to reduce the risk of infection after cord cutting. Applying Chlorhexidine gel helps prevent bacterial infection. Chlorhexidine has no side effects and does not hurt or burn during or after application. It is easy to apply topically. Chlorhexidine is a single use regime. Chlorhexidine is intended to replace harmful traditional cord care practices. Chlorhexidine is distributed by all FCHVs, public health facilities, and some pharmacies. Below are a few messages about the importance of Chlorhexidine:

- Chlorhexidine is a broad-spectrum antiseptic.
- Applying Chlorhexidine to the umbilical stump and surrounding area helps to prevent infections and thus deaths in newborns.
- Chlorhexidine is superior to other antiseptics for umbilical cord care and has strong skin binding effects.
- Chlorhexidine is safe and has no side effects.
- Chlorhexidine can be applied by mother and family members, after washing their hands with soap and water.
- Chlorhexidine replaces traditional harmful practices for umbilical cord care.
- Chlorhexidine gel (4% w/w) is specifically formulated for use in umbilical cord cleansing. It should not be used in any other clinical cases.

### ***Umbilical cord infections and sepsis***

Infection is the major cause of newborn deaths globally as well in Nepal. The cut umbilical cord is the major entry point for infectious agents in newborns. Pathogens can easily pass through the cut cord leading to sepsis (serious generalized infection) or death. Applying Chlorhexidine



after cord cut is a crucial strategy to prevent life-threatening sepsis and cord infections. The diagram below shows pathways of infections that can occur through the umbilical cord:

### ***Points to consider before applying Chlorhexidine***

Chlorhexidine gel should be applied to the umbilical cord stump and the

surrounding skin area after cord cutting. To prevent hypothermia, only the navel area should be

exposed when applying Chlorhexidine. The baby should be wrapped properly and kept warm. Chlorhexidine gel takes 3–5 minutes to dry so the navel area should be left untouched.

### ***Steps for Chlorhexidine application***

1. Use the sharp protuberance of the lid to break the inner shield of the tube. Place the tube in a clean place.
2. Wash your hands with soap and water following the six-steps of handwashing in case gloves are not used.
3. After cutting the umbilical cord, apply the Chlorhexidine gel from the tip of the umbilical cord stump to the base and surrounding area.
4. Keep the cord untouched by clothes for 3–5 minutes.
5. Counsel family members and mother not to apply anything else to the umbilical cord stump. Also, inform the caregivers that Chlorhexidine application might delay the cord separation by 2–3 days which is normal.

### ***Chlorhexidine distribution mechanisms***

- Provide each FCHV with three tubes of Chlorhexidine during the orientation.
- Keep the necessary stock for resupply in local health facilities.
- Provide Chlorhexidine to pregnant women during the 8<sup>th</sup> month of pregnancy, after ensuring that they understand the importance and the proper application techniques.
- Retrieve unused Chlorhexidine from postpartum mothers during field visits and postnatal appointments.

### ***Recording and reporting mechanisms***

The Chlorhexidine intervention should be incorporated into immediate newborn care and integrated into existing reporting systems (Health Management Information System).

## **Annex 2**

### ***Roles and responsibilities of health service providers***

- Participate in Chlorhexidine orientation program.
- Orient and coach all FCHVs in their catchment area.
- Counsel women and families about Chlorhexidine and its importance.
- Counsel and distribute Chlorhexidine to pregnant women during ANC checkup at the 8<sup>th</sup> month of pregnancy.
- Apply Chlorhexidine to every newborn's umbilical cord immediately after birth and communicate to the women and their family about Chlorhexidine application.
- Counsel women and their families not to use anything else.
- Ask mother to bring newborn to the health facility if baby develops any sign of infection.
- Ensure adequate availability of Chlorhexidine tubes at the health center.
- Monitor and supervise FCHVs regularly and provide them Chlorhexidine as needed.
- Assist FCHVs if they have any difficulties with the Chlorhexidine program.
- Discuss on Chlorhexidine in FCHV's monthly meeting.
- Record the services provided.
- Submit reports timely.

### ***Roles and responsibilities of female community health volunteers***

- Identify pregnant women.
- Participate in Chlorhexidine orientation program.
- Discuss Chlorhexidine with women and their families.
- Counsel pregnant women and their families.
- Provide Chlorhexidine to pregnant women in the 8<sup>th</sup> month of pregnancy with proper counseling.
- Apply Chlorhexidine to the umbilical cord of newborns if she is present at the time of delivery at home.
- Ensure the use of Chlorhexidine during a follow up visit.
- Record and report Chlorhexidine use at home births.
- Get regular supply of Chlorhexidine from health facility

### ***Roles and responsibilities of health facility operation management committees***

- Participate in Chlorhexidine related programs.
- Inform people in their catchment area, about the importance of Chlorhexidine.
- Encourage and motivate FCHVs' to provide Chlorhexidine service regularly.

## Annex 3

### Jamuna's Daughter

In Tarkutar of Lamjung, Nepal, Jamuna was living with her family. After long time of marriage, Jamuna gave birth to a baby girl. The baby girl was healthy and beautiful. The family was very happy. Grandmother happily took care of the baby like bathing, massaging, and new clothes. Grandmother used to apply various substances on the cord considering that it will be beneficial. After 2-3 days of her birth, pus was seen in the umbilical area. The cord became red and swollen. The family was worried about her situation and took her to the traditional healer. The traditional healer, however, could not help her. So, Jamuna took her daughter to the nearby health facility as FCHV suggested.

At the health facility, health service providers quickly identified the umbilical cord infection and explained that the reason for the infection might be the use of various substances on the umbilical cord. After a thorough examination, the service provider gave some oral and injectable medicines. The health worker then advised Jamuna not to apply anything else, including mustard oil, turmeric powder, or ash, to the umbilical cord.

The service provider suggested keeping cord dry and clean. The health service provider also told Jamuna about Chlorhexidine, a new preventive medicine for cord care. The medicine should be applied immediately after cord cutting to prevent infection. The health service provider asked Jamuna to tell other women and families in her community about the importance of using Chlorhexidine which prevent infections. Jamuna thanked the health service provider and she promised to tell about Chlorhexidine to other women in the communities. Finally, Jamuna's families are very happy.



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