

# **Ohmeda BiliBlanket™** Phototherapy System

## **A Parent's Guide**



**A BOC Health Care  
Company  
Critical Care  
Worldwide**

# **A Parent's Guide to jaundice and its treatment**

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Your baby has been diagnosed with a common and temporary condition known as jaundice. This parents guide will help you to understand jaundice, how it affects you and your baby, and how your baby will be treated for this condition. It will also provide you with information on your role in assisting to provide treatment for your child.

This guide will explain the BiliBlanket Phototherapy System and how it is used. This information is intended to supplement the instruction given by the Operations, Maintenance and Service Manual, the hospital and your home health care providers. If at any time you have questions that are not answered, please call your physician, home health care dealer, or hospital.

## **Important Phone Numbers**

Physician \_\_\_\_\_

Home Health Care \_\_\_\_\_

Hospital \_\_\_\_\_

Before using the BiliBlanket Phototherapy System

- Read through this Parents Guide and sections one through four of the Operations, Maintenance, and Service Manual. If a copy is not with this guide call 800 345 2700 to receive one (PN 6600-0099-000)
- Pay special attention to the Safety Precautions and User Responsibility sections on page 9 of this guide which describe what is expected of you to maintain a safe and accurate product

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# What is jaundice?

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**Jaundice** is a common, temporary and usually harmless condition in newborn infants. It affects both full-term and premature babies, appearing during the first week of the baby's life.

Jaundice occurs when there is a build-up of the naturally occurring substance in the blood called **bilirubin**. Bilirubin is an orange/ red pigment. As bilirubin begins to build up, it deposits on the fatty tissue of the skin causing the baby's skin and whites of the eyes to appear yellow.

Bilirubin is released into the bloodstream when red blood cells are broken down. The bilirubin is then processed in the liver and is eventually excreted from the body. It is normal for everyone to have low levels of bilirubin in their blood.

'Normal' jaundice occurs in newborns because their liver is not yet fully developed and cannot handle the bilirubin. This creates the condition of high levels of bilirubin in the blood called **hyperbilirubinemia**. In some cases, jaundice is associated with breast feeding.

High levels of bilirubin can be dangerous to a baby. It is important to monitor levels and if necessary to treat jaundice to ensure the healthy development of your child. Phototherapy is the most common form of treatment for jaundice. Normal jaundice is usually treated with phototherapy for a few days until the liver is mature enough to handle the bilirubin on its own.

Other types of jaundice can occur if babies are bruised in birth, if the mother has diabetes, or if the mother and child have different blood types.

# What is phototherapy treatment?

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Some "normal" jaundice will disappear within a week or two without treatment. Other babies will require treatment for jaundice because of the severity of the jaundice, the cause of the jaundice or how old the baby is when jaundice appears.

**Phototherapy** (photo = light; therapy = treatment) is the process of using special light to eliminate bilirubin in the blood. These light waves absorbed by your baby's skin and blood change bilirubin into products which can pass through their system.

For over 30 years, phototherapy treatment has been provided by a row of lights or a spotlight suspended at a distance from a baby. This would provide light shining directly on an undressed baby whose eyes would need protection from the light with eye patches. Often this was only administered in the hospital. Today, your baby can receive safe and effective treatment in your home. The separation and inconvenience of hospital treatment of jaundice is eliminated and you are able to give your child love and attention during the essential phototherapy treatment.

# How does the BiliBlanket system work?

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Your doctor has prescribed the BiliBlanket system from Ohmeda as treatment for your child's jaundice. This system uses **fiber optics** and represents advanced technology in phototherapy treatment given either in the hospital or at home.

A pad of woven fibers is used to transport light from a light source to your child. This covered pad is placed directly against your baby to bathe the skin in light. Absorption of this light leads to the elimination of bilirubin.

The BiliBlanket system can be used 24 hours a day to provide continuous treatment if prescribed by your physician or healthcare professional. Blood will be drawn and tested daily to check bilirubin levels and determine when normal levels are reached and phototherapy is no longer needed.

With this convenient, safe form of phototherapy you can diaper, clothe, hold, and nurse your child during treatment.

## Getting acquainted with the BiliBlanket system

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**Illuminator** - box which contains the light bulb and electrical components.

The illuminator contains a custom halogen light bulb which is the source of the therapeutic light. When the unit is turned on, you will hear a familiar sound from the illuminator fan. The level of light (low o, medium o, high O) may be adjusted using the brightness selector knob. You will set the knob to the level prescribed by your healthcare professional. A spare bulb is included with your BiliBlanket system and can be easily replaced. (see p.8 for instructions). The illuminator may be placed upright or on its side during treatment.



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**Fiberoptic Pad** - transmits light from the light source to the baby through 2400 woven plastic fibers.

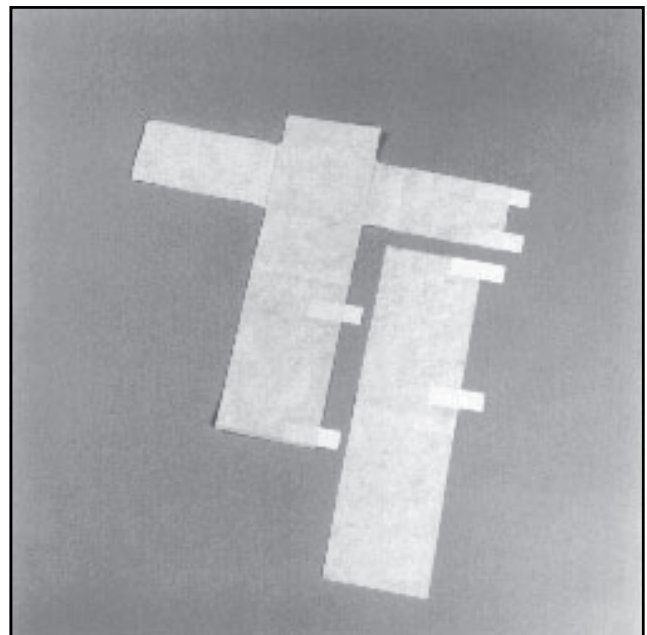
The fiberoptic pad cable plugs directly into the illuminator. The cable transmits the light from the illuminator to the pad. The pad is designed to disconnect easily from the illuminator as a safety precaution for your baby to prevent the illuminator from being knocked over when the pad is pulled beyond its length during treatment. The cable is approximately 4 feet long.

The covered pad is placed against the baby's back or chest and can be held with the baby in your arms. The blue light shining from the pad is not harmful. It is safe to look at and touch. This light is providing maximum therapy when placed against your baby's skin.



**Disposable Cover/Vest** - soft, water-resistant pad cover provides a comfortable surface for the baby and protects the pad.

The pad should always be covered with a disposable vest or cover. The disposable cover or vest is placed over the pad and is in direct contact with the baby's skin. The vest wraps around the baby to hold the pad in one place against the skin. This is helpful when your baby is active, sleeping unattended, or being held. Self-adhesive tabs secure the covers around the pad at the cable. Extra disposable covers and vests are included with the BiliBlanket. When the cover or vest becomes soiled or wet, replace it with a clean one.



# Using the BiliBlanket system

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Plan your treatment location so that the illuminator can sit on a flat, solid surface within a few feet of where your baby will lay. You will need a 3-pronged electrical outlet close by. The illuminator can be placed flat on its side or upright. Place it away from busy areas and out of the reach of children or pets in your home.



Place the following items close to the treatment area:

- Phone numbers of doctor, hospital and home healthcare provider
- Temperature thermometer
- Record sheets and pencils
- Extra pad covers or vests (and bulbs if provided)

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## Step One

Insert the fiberoptic pad into a new, disposable cover or vest.

The white side of the disposable vest goes over the clear illuminating side of the pad. Be sure to insert the pad to the end of the vest/cover.



Secure the cover or vest around the cable with the self-adhesive tabs.

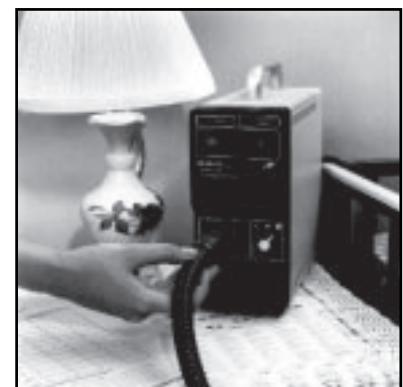


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## Step Two

Connect the power cord to the illuminator and plug into a grounded electrical outlet. Firmly place the fiber optic cable connector into the illuminator port.

Place the unit so that there is no strain on the cable. The cable disconnects easily from the illuminator as a safety precaution to prevent the illuminator from being knocked over when the pad is pulled beyond its length during treatment.



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### Step Three

Lay the covered pad on a mattress or other flat surface with the white illuminating side facing up. Place the infant's back or chest directly on the white side of the pad with the tip of the pad at the baby's shoulders and the cable at the infant's feet.



### Important

Assure that:

- as much of the infant's skin is in direct contact with the illuminating section of the pad as is possible (diapers may be worn)
- there is nothing between the infant's skin and the light pad other than the disposable cover (T-shirts and other clothing may be worn **over** the pad)
- you do not position your baby on his/her back when unattended.

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### Step Four

When using the vest, wrap the strap section snug around the infant's mid-section to hold the pad in position and secure it with the tape tabs.



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### Step Five

Set the brightness selector switch on the front panel to the level (low O, medium O, high O) recommended by your healthcare professional. Turn the power switch to on.



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### Step Six

Your baby may be clothed or bundled in a blanket and will continue to receive effective phototherapy treatment as long as the lighted section of the pad remains in contact with the skin. Using the vest, it is possible to hold and nurse the infant while continuing treatment.



# Your questions about the BiliBlanket system

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## **Are there side effects of using the BiliBlanket system?**

The BiliBlanket is an effective, safe method of phototherapy treatment. It provides the highest level of therapeutic light available to treat your baby. This form of light is also found in sunlight. However, the strength of light from the BiliBlanket is about the same as you would get in the shade on a sunny day, yet is safer because the BiliBlanket system filters out harmful ultraviolet and infrared energy.

Babies under any type of phototherapy treatment will have frequent and loose bowel movements that are sometimes greenish in color. This will be temporary and will stop when treatment is completed. Record this on your daily record sheets and contact your doctor if it persists after treatment is completed.

## **Can my baby sleep on the BiliBlanket system?**

Yes, your healthcare professional will outline the schedule for your child's treatment. However, the BiliBlanket system is safe to use 24 hours a day for as long as necessary. It is recommended that the disposable vest be used while the baby is sleeping unattended to hold the BiliBlanket system pad in place against the baby's skin.



## **How should I clean the BiliBlanket system pad?**

Be sure to disconnect the illuminator power cord before cleaning. Use a mild detergent (such as dishwashing detergent) solution applied with a clean, soft cloth or sponge to clean the pad. **Do not saturate or immerse the pad, or cable in liquid.** Do not use abrasive cleaners on the pad.

## **How long will I use the BiliBlanket system?**

The length of time phototherapy treatment is needed varies from one child to the next as each child's condition is different. Your healthcare professional will prescribe the amount of time your baby will be on the BiliBlanket system each day. Most babies have phototherapy treatment for several days. During phototherapy treatment, the baby's skin color should not be used as the indicator of how severe the jaundice is. Your baby's bilirubin level will be tested daily, usually by a small sample of blood taken from the baby's heel. These tests will determine when normal levels of bilirubin are reached and phototherapy is no longer needed.



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**Why is my baby's skin "bleached or reddened" where the BiliBlanket pad is in contact with his skin?**

The skin in direct contact with the pad is the first area where bilirubin is broken down. This breakdown process is not harmful, in fact it contributes to the treatment of your baby and causes this portion of skin to turn to its normal color. As the treatment process continues, bilirubin is removed from the blood and the rest of the skin. As the bilirubin lowers to acceptable levels, all of the baby's skin will return to its normal color.

**Do I need to rotate my baby on the pad to treat all of his/her skin?**

No, only a small portion of the bilirubin is in the fatty tissue of the skin. The majority of the bilirubin is in the blood. The circulation of the blood will bring the bilirubin to the lighted area where it will be broken down.

What **is** important is making sure the lighted area of the pad is on the baby's skin at all times during treatment. The tip of the pad should be placed at the baby's shoulders with the lighted area directly in contact with as much of the baby's skin as possible.

**Do I need to cover my baby's eyes with eye patches during phototherapy?**

Eye patches are not necessary when your baby's back is lying on the covered pad, when the vest is used, or when the baby's chest is lying on the pad and the baby's clothing holds the pad in place. As with any bright light, you will not want it shining directly into your baby's eyes. Therefore, do not let your baby's face lay directly on the lighted area of the pad.

**Will the lighted pad heat the baby?**

No. The light provided by the custom halogen bulb does not transmit heat to the pad.

# Replacing the BiliBlanket system bulb

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- ∫ Please follow the directions below to replace a BiliBlanket system bulb.
  - ∫ Please do not change the BiliBlanket bulb, call your health care dealer for this service.
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## Step one

Switch off the BiliBlanket system and disconnect the power cord. **ALLOW THE BULB TO COOL FOR AT LEAST 10 MINUTES.**

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## Step two

Locate the bulb replacement door on the left side of the unit. Using a flat head screwdriver or a dime, turn the bulb access door screw one quarter turn counter-clockwise and pull open the panel.

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## Step three

Observe how the bulb fits in the compartment. Only handle the bulb by the stem, do not touch the glass bulb or mirror surface with your fingers. Gently release the bulb by sliding the wire lever from right to left and remove the bulb.



## Step four

Move the lever back to its original position. Hold the new bulb by the stem and align the bulb rim flat against the front panel underneath the wire brackets and align the bulb pins with the slots in the lamp socket. **Firmly** slide the bulb into the socket until it clicks.



## Step five

Close the lamp access panel and turn the panel screw a quarter turn clockwise.

*To prolong bulb life, do not move the unit while in use, allow to cool 10 minutes before transporting, and minimize switching on and off.*

*Only a custom made Ohmeda halogen bulb can be used in the BiliBlanket system to provide the correct therapeutic light.*

## **Safety precautions**

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This device is restricted to use only when prescribed by a licensed medical practitioner.

Always cover the BiliBlanket system pad with a disposable cover or vest. These covers are water resistant and protect the pad from damage and contamination.

Check that the air circulation vents on the top and the bottom of the illuminator are unobstructed at all times and that the blocked air circulation indicator is not on.

A hot surface is exposed when the pad is disconnected from the illuminator port after use. Do not insert fingers or other objects in the illuminator port or end of cable at any time.

Cover the baby's eyes when using the BiliBlanket system to shield the eyes if they will be in direct contact with light from the BiliBlanket system pad. (This is not necessary when using the vest or when the pad can be maintained on the baby's back.)

Always check that the illuminator power cord is disconnected from the power source before cleaning the unit or changing the bulb and that the unit is completely dry before using it.

Do not move the unit while in use and allow the unit to cool 10 minutes before moving. Halogen bulbs are susceptible to damage when heated.

Do not immerse or saturate the pad or illuminator in water.

Keep the pad connector clean and free of fingerprints.

Allow the BiliBlanket system bulb to cool for 10 minutes before changing the bulb.

Disconnect the power cord from the power source before opening the bulb access door.

Always keep the bulb access door closed during use.

## **User responsibility**

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This product will perform in conformity with the description contained in the BiliBlanket Operations, Maintenance and Service Manual and accompanying labels and/or inserts, when assembled, operated, maintained and repaired in accordance with the instructions provided. A defective BiliBlanket system should not be used. Parts which are broken, missing, plainly worn, distorted, or contaminated should be replaced immediately. Should such repair or replacement become necessary, please contact your home healthcare dealer immediately.

# Recording daily phototherapy activities

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You have been provided with a record sheet to keep a record of your baby's activities and condition. Your healthcare provider will explain how to record this information. These records will give your healthcare provider or physician a description of activities during home phototherapy.

## **Temperature Taking**

It is important to monitor your baby's temperature. Your doctor will inform you of the range of acceptable temperatures for your infant and may suggest a method to use for taking temperatures. It is important that you use the same method of temperature taking for charting purposes. Taking temperatures under the arm is one safe and convenient method.

- Place the tip of the probe snugly under the armpit so that the tip is touching the skin.
- Hold the thermometer with the arm against the body to ensure that the tip of the probe is well-covered and not influenced by air temperature. Hold for 3-5 minutes. Record temperature on record sheet.

## **Urine/Stools**

It is important to count and record the number of wet diapers and stools. You will also need to describe stools. Loose stools, black or dark green sticky stools are common during phototherapy. These observations will help determine if your baby is getting enough fluids and notes any significant changes in their condition. Record the occurrences under the appropriate column and describe the stool on your record sheet.

## **Feeding**

Follow your regular feeding schedule. Your healthcare provider can help you determine this. Note times of feedings and amount of formula taken or the length of time nursed on the record sheet.

## **Treatment Time**

Record the actual times at which your baby is taken off and put back on the BiliBlanket system during that 24 hour period.

# Daily record sheet

## Day One

Date: \_\_\_\_\_ Name: \_\_\_\_\_

Bilirubin Level: \_\_\_\_\_ Birth Date: \_\_\_\_\_

Form of Temp. Taking: \_\_\_\_\_ BiliBlanket Setting: \_\_\_\_\_

Time	Temperature	# of Wet diapers	# of Stools & Description	Feeding Amount

### Time baby is off phototherapy treatment:

Off \_\_\_\_\_ On \_\_\_\_\_ Off \_\_\_\_\_ On \_\_\_\_\_ Off \_\_\_\_\_ On \_\_\_\_\_

**Comments:** \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

# Daily record sheet

## Day Two

Date: \_\_\_\_\_ Name: \_\_\_\_\_

Bilirubin Level: \_\_\_\_\_ Birth Date: \_\_\_\_\_

Form of Temp. taking: \_\_\_\_\_ BiliBlanket Setting: \_\_\_\_\_

Time	Temperature	# of Wet diapers	# of Stools & Description	Feeding Amount

### Time baby is off phototherapy treatment:

Off \_\_\_\_\_ On \_\_\_\_\_ Off \_\_\_\_\_ On \_\_\_\_\_ Off \_\_\_\_\_ On \_\_\_\_\_

**Comments:** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

# Daily record sheet

## Day Three

Date: \_\_\_\_\_ Name: \_\_\_\_\_

Bilirubin Level: \_\_\_\_\_ Birth Date: \_\_\_\_\_

Form of Temp. Taking: \_\_\_\_\_ BiliBlanket Setting: \_\_\_\_\_

Time	Temperature	# of Wet diapers	# of Stools & Description	Feeding Amount

**Time baby is off phototherapy treatment:**

Off \_\_\_\_\_ On \_\_\_\_\_      Off \_\_\_\_\_ On \_\_\_\_\_      Off \_\_\_\_\_ On \_\_\_\_\_

**Comments:** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

# Daily record sheet

## Day Four

Date: \_\_\_\_\_ Name: \_\_\_\_\_

Bilirubin Level: \_\_\_\_\_ Birth Date: \_\_\_\_\_

Form of Temp. Taking: \_\_\_\_\_ BiliBlanket Setting: \_\_\_\_\_

Time	Temperature	# of Wet diapers	# of Stools & Description	Feeding Amount

### Time baby is off phototherapy treatment:

Off \_\_\_\_\_ On \_\_\_\_\_ Off \_\_\_\_\_ On \_\_\_\_\_ Off \_\_\_\_\_ On \_\_\_\_\_

**Comments:** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



# Consent form

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I understand that my baby has jaundice and that phototherapy using the BiliBlanket system has been prescribed by a physician.

I have been instructed on the use of the BiliBlanket Phototherapy System to my satisfaction and would like to use this system for phototherapy treatment of my baby.

I have received the Parent's Guide to BiliBlanket system phototherapy and will read and follow the instructions it provides.

I agree to the responsibility of:

- Having visits by healthcare professionals and bilirubin blood testing daily.
- Carefully monitoring my child and filling out record sheets to help my doctor treat my child including:
  - watching my child's intake and output
  - taking my child's temperature

I understand that home phototherapy is a cost-effective alternative to hospital phototherapy allowing my baby to come home earlier, and enhancing family bonding by allowing my baby to be fed and held during treatment.

I understand that the BiliBlanket is rented and I will stop using the BiliBlanket system if it is not functioning properly and notify the home care provider of the problem.

If I have any questions or problems I will contact my doctor or healthcare provider.

Parent or Guardian's Signature \_\_\_\_\_

Parent of Guardian's Signature \_\_\_\_\_

Date \_\_\_\_\_

# Glossary

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**Bilirubin** - a result of the natural breakdown of red blood cells. Normally processed in the liver and excreted from the body. Everyone has low levels of this yellow pigment in their blood.

**Bilirubinemia** - presence of bilirubin in the blood.

**Disposable Cover** - soft, water-resistant pad cover which ensures a clean and comfortable surface for the baby's skin to contact.

**Disposable Vest** - soft, water-resistant pad cover which ensures a clean and comfortable surface for the baby's skin. Vest wraps around infant to hold pad in place against skin especially when holding and nursing the infant during treatment.

**Fiber Optic Pad** - contains over 2400 individual plastic fibers which transmit the light from the light source to the baby. The light pad is constructed by weaving these fibers into a mat which produces light over the entire surface.

**Fiber Optics** - use of very thin glass or plastic fiber that transmits light throughout its length by internal reflections.

**Hyperbilirubinemia** - High levels of bilirubin in the blood. Condition results when an infant's liver is not mature enough to produce the enzymes required to break down the bilirubin.

**Pigment** - a substance that gives color to a physical material.

**Jaundice** - a condition characterized by the yellowing of the skin and whites of the eyes which is a common result of hyperbilirubinemia.

**Phototherapy** - the safest, most widely used treatment for mild to moderate jaundice using special light to break down bilirubin.

# Ohmeda

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