

# Jaundice - Phototherapy at Home



## 1. Purpose

This clinical guideline outlines the use of home based phototherapy treatment for jaundice, in well newborn babies who are under the care of the Neonatal Hospital in the Home (NHITH) team at the Women's.

## 2. Definitions

Jaundice:	Yellow discolouration of the skin and sclera caused by high serum levels of bilirubin
Phototherapy:	Light of wavelength ~450 nanometres which isomerises unconjugated bilirubin for excretion
NICU:	Newborn Intensive Care
NHITH:	Neonatal Hospital in the Home
PNCITH:	Postnatal Care in the Home

## 3. Responsibilities

This guideline relates to nurses and midwives, neonatal doctors and NHITH staff caring for jaundiced babies in the maternity wards and NICU in the Women's, and at home.

## 4. Guideline

### 4.1 Eligibility for home phototherapy

Newborn babies who are jaundiced and who require single unit phototherapy are treated on the maternity wards and in NICU using the BiliSoft® fibre optic device.

Babies from maternity or NICU, who are otherwise ready for discharge, may continue BiliSoft® phototherapy treatment at home.

Babies at home who require single unit phototherapy, who are otherwise well, may be eligible to be treated with BiliSoft® phototherapy in the home.

Babies treated with home phototherapy will be under the care of NHITH, and therefore need to fulfil the NHITH and/or PNCITH eligibility criteria. Refer to procedure: [Neonatal Hospital in the Home Eligibility and Transfer](#).

Babies known to be DAT positive can be considered for home phototherapy after discussion with the Neonatal RMO/Fellow, considering the degree of positivity, the postnatal age of the baby and rate of SBR rise.

Eligibility criteria for home phototherapy: families must fulfil all of the criteria below:

- Baby ≥ 35 weeks gestation
- Baby ≥ 48 hours old
- Need for single unit phototherapy
- Baby clinically well
- Baby has a feeding plan
- Has electricity supply and telephone at home
- Has completed parental education on Bilisoft use at home (checklist, refer to [appendix 1](#))
- Live within 20 km of the Women's
- Fulfil PNCITH and/or NHITH eligibility criteria

### 4.2 Preparation for home phototherapy

NICU staff, maternity ward staff and/or PNCITH staff discuss single unit phototherapy with PNCITH/ NHITH eligible mother/ guardian and other carers and determine if they agree to home phototherapy.

NICU Care Manager/ AUM, maternity AUM or PNCITH notify NHITH (in-hours) or NICU AUM (after hours) of patient who will present to NICU for home phototherapy.

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PNCITH midwife or maternity midwife/RN delivers babies clinical notes to NHITH (in-hours) or NICU AUM (after hours).

NHITH (in-hours) or NICU AUM (after hours) reviews NHITH visits and staffing for following day to determine if there are adequate resources for baby to be treated with phototherapy in the home:

- Parents and baby come to NICU
- Baby admitted to NICU treatment room (NICU Team A)
- Admission and assessment by neonatal RMO on for deliveries, etc (form MR/ 1702 completed).
- Transfer and admit to maternity if transpires that unsuitable for home phototherapy during assessment and/or whilst doing education
- Checklist and pack for staff performing education (Appendix 1)
- If after-hours or NHITH not available:
  - NICU Clinical Nurse Specialist (CNS) is responsible for parent education, supported by NICU AUM as indicated
  - NICU AUM responsible for determining NHITH staffing requirements for following day; assessing whether any booked NHITH visits on neonatal database can be postponed to accommodate additional NHITH visit, or if NHITH visit may be delayed to afternoon (not night) with pm NHITH RN, and whether an additional car will be required
  - When needed, the AUM will discuss the possibility of a second car for NHITH for the following day being available with the after-hours manager who will base this on the projected number of postnatal visits for the following day (this is discussed daily towards the end of the PM bed meeting).

If resources cannot be arranged to accommodate NHITH visits for the following day then mother and baby require admission to the maternity postnatal ward for phototherapy. Please communicate the admission to the NHITH nurses so that the mother and baby can be reviewed and reconsidered for home phototherapy the following day.

### 4.3 Parent education for home phototherapy includes

- How to use Bilisoft, pad cover and power adaptor safety box, as per the procedure [Phototherapy](#)
- Safe sleeping and swaddling during Bilisoft use
- Feeding, bathing and temperature during Bilisoft use; requirement for continuous Bilisoft use
- Focus on appropriate feeding plan, recognition of poor feeding/dehydration/unwell baby, possible unwanted effects of phototherapy including loose stools and skin rash
- Give the fact sheets: [Jaundice and your newborn baby](#) and [Phototherapy at Home - A Parent's Guide](#)
- Explanation of daily home visits and blood tests during and following home phototherapy treatment
- Explanation of potential need for readmission should the clinical condition change

### 4.4 Equipment needed at home for phototherapy

- Bilisoft device and disposable pad covers (supplied by RWH)
- Power adaptor safety orange box (supplied by RWH)
- Thermometer (NHITH will supply if family do not already have)
- Cot or bassinette

### 4.5 Management of babies at home during and following home phototherapy treatment

1. Home phototherapy must be planned with NHITH, with education and equipment provided by them, or their delegate. Emphasis is placed on *continuous* Bilisoft use at home, interrupted only for travel to home, and for up to 30 minutes daily for bathing, and need to remain housebound during treatment.
2. At home baby must wear only a nappy, then be wrapped in Bilisoft with pad cover, with baby swaddled with a blanket (attention to safe sleeping guidelines).

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3. NHITH must visit daily during Bilisoft treatment and perform an SBR (with Bilisoft turned off), review should pay particular attention to feeding and weight gain/loss.
4. If phototherapy is first commenced at home, the first repeat SBR must include a DAT.
5. SBR samples are returned to the Women's as per the guideline [Jaundice - Assessment of Babies in the Community](#).
6. The SBR result must be obtained in a timely manner and plotted on the appropriate jaundice treatment chart by the NHITH nurse, as per the guideline [Jaundice \(Hyperbilirubinaemia\) in Newborn Babies Greater than 35 Weeks Gestation](#), either on:
  - a) Treatment of Hyperbilirubinaemia in Newborn Babies (Born > 38 weeks gestation and > 2500g without risk factors for serious jaundice), or
  - b) Treatment of Hyperbilirubinaemia in Newborn Babies (Born 35-37+6 weeks gestation or < 2500g or with risk factors for serious jaundice)
7. NHITH must discuss each baby daily with the neonatal PNW/Delivery Fellow (pager 53313) to plan ongoing phototherapy treatment or cessation, and the timing of an SBR recheck (daily SBR on treatment, and 24-48 hours post cessation).
8. Babies may be recommenced on Bilisoft phototherapy if indicated by the rebound SBR level and as planned in conjunction with the neonatal medical team.
9. A rising SBR whilst on treatment, ongoing weight loss or other signs of an unwell infant are considered indications for readmission to the Women's.
10. Discharge from NHITH must be discussed with the neonatal PNW/Delivery Fellow (pager 53313).

### 4.6 Return and care of the Bilisoft device after use

The Bilisoft device and power adaptor safety box (orange box) will either be collected by the NHITH nurse when the post cessation (rebound) SBR is taken or returned to NICU by the parents within 24-48 hours of discharge from NHITH.

The Bilisoft device should then be returned by NHITH to Biomedical Engineering (BME) for checking, then to NICU for cleaning and reallocation.

## 5. Evaluation, monitoring and reporting of compliance to this guideline

Compliance to this guideline will be monitored, evaluated and reported through incidents reported to VHIMS and by annual audit.

## 6. References

1. American Academy of Pediatrics 1994. 'Practice parameter: Management of hyperbilirubinemia in the healthy term newborn'. Pediatrics. Vol.94 pp.558-562.
2. GE Healthcare. 2014. *Bilisoft phototherapy system*. [ONLINE] Available at: [http://www3.gehealthcare.com/en/products/categories/maternal-infant\\_care/phototherapy/bilisoft\\_phototherapy\\_system.\[2014\]](http://www3.gehealthcare.com/en/products/categories/maternal-infant_care/phototherapy/bilisoft_phototherapy_system.[2014]).
3. Mills JF, Tudehope D 2009. Fiberoptic phototherapy for neonatal jaundice (Review). The Cochrane Collaboration. JohnWiley & Sons, Ltd.

## 7. Legislation/Regulations related to this guideline

Not applicable.

## 8. Appendices

[Appendix 1: Home Phototherapy Checklist](#)

[Appendix 2: Golden Couriers – Staff instructions](#)

[Appendix 3: Phototherapy at home - Equipment](#)

[Appendix 4: Phototherapy at Home- A Users Guide](#)

## Jaundice - Phototherapy at Home



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## Phototherapy at Home – Checklist

- Confirmed NHITH capacity for home visit following day/ afternoon (NHITH or AUM)
- Confirmed vehicle available if second NHITH staff required (NHITH (in-hours)/ AUM (after hours) to liaise with Bed Manager (in-hours)/ After hours manager (after hours)
- Home visiting assessment completed (MR/ 2200); if referred for home phototherapy by PNCITH, use copy of form already completed by PNCITH
- Admission
  1. Deliveries/ WEC/ Postnatal ward RMO (pager 53311) notified for admission (form MR/ 1702)
  2. Ward clerk (in hours)/ AUM (after hours) arranges admission to NICU (treatment room, Team A)
  3. Election Form for Admission (MR/ 1100) is completed
  4. NHITH/ CNS or AUM admits baby to Neonatal Database
- Parent Education regarding home phototherapy, including
  1. Use of Bilisoft, pad cover and power adaptor safety box
  2. Safe sleeping and swaddling during Bilisoft use
  3. Feeding, bathing, skin care and temperature management during Bilisoft use
  4. Need for continuous Bilisoft therapy
  5. Frequent effects of phototherapy: loose stools and skin rash
  6. Feeding plan, including recognition of poor feeding/dehydration/unwell baby
  7. Possibility of daily home NHITH visits and SBR blood tests during and following phototherapy
  8. Potential need for readmission should the baby's clinical condition change
- Parent information: Fact sheets:
  1. [Jaundice and your Newborn Baby](#)
  2. [Phototherapy at Home - A Parent's Guide](#)
- Complete the Neonatal HITH Assessment form (MR/ 1830)
- Record loaned equipment barcode number and patient UR in NHITH Equipment Loan book
- On Neonatal Database, NHITH/ CNS or AUM discharges baby from NICU, transfers baby to NHITH and allocates a NHITH visit for following day

## Golden Couriers – Staff instructions



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493-495 Queensberry Street North Melbourne Victoria 3051  
Postal Address PO Box 313 North Melbourne Victoria 3051  
Telephone (03) 9287 7009 Facsimile (03) 9286 0066  
www.goldenmessenger.com.au

### NHITH - Staff Instructions

The Women's has an account with the external courier Golden Courier who will deliver blood specimens (SBR's) back to the Women's Core Pathology Laboratory for processing.

In addition the courier can deliver home phototherapy equipment back to the hospital after use at home.

All pick-ups have been arranged as a priority pick up (i.e. within 30 minutes of booking).

To make a booking please contact Golden Couriers as per contact numbers and times below.

All Golden Courier phone numbers are listed in the PNCITH and NHITH mobile work phones under contacts.

### Golden Couriers contact phone numbers:

<b>Office Hours Bookings:</b>	6.45 am to 6.45 pm	Monday to Friday (except public holidays)
	8.00 am to 2.00 pm	Saturdays (except public holidays)
	<b>Phone Number:</b>	<b>03 9286 0055</b>
<b>After Hours Bookings:</b>	Saturdays after 2pm, Sundays and all public holidays	
	<b>Mobile Number:</b>	<b>0418 390 861</b>
	<b>Back Up: 2<sup>nd</sup> contact</b>	<b>0400 671 239</b>
	<b>3<sup>rd</sup> contact</b>	<b>0408 390 861</b>
	<b>4<sup>th</sup> contact</b>	<b>0400 671 238</b>

### Please state:

- Staff members name
- Royal Women's Account code: **RWH PAT**
- Full address of the patient / family: Private residence
- Include any special instructions.
- Staff mobile contact number and land line if available. (For collection of phototherapy equipment please give the parent contact number when booking mobile and landline if available).
- Description of item to be collected
- The Delivery >>>> address Royal Women's Hospital

#### SBR (blood test) delivery

The Royal Women's Hospital  
Core Laboratory, level 5  
Cnr Grattan St and Flemington Rd,  
Parkville, 3052  
Ph.: 03 8345 2552

#### Phototherapy Equipment

The Royal Women's Hospital  
Neonatal Nurseries, and Level 4  
Reception Desk  
Cnr Grattan St & Flemington Road  
Parkville, 3052  
Phone contact  
NISC AUM / Floor Coordinator  
8345 3492 or 8345 3493

#### Phototherapy Equipment

The delivery address will be pre -printed and attached to the plastic container which contains the Phototherapy equipment.

Parents should be instructed to ensure that all equipment is present and appropriately placed in the plastic container to minimise damage and for ease of pick up and transport.

The parents should be instructed to give the plastic container to the external courier service.

The parents should be reassured that there is no cost to them for the service.

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[www.goldenmessenger.com.au](http://www.goldenmessenger.com.au)

### **SBR / Blood test delivery**

The delivery address will be pre -printed and attached to the cooler bag which contains the SBR specimen.  
All SBR specimens should be labelled, appropriately bagged and placed in the cooler bag for ease of pick up and transport. The parents should be instructed to give the esky to the external courier service.

The parents/ carers should be advised that if the courier has not picked up the specimen within 1 hour of booking to contact the midwife/ nurse. (PNCITH or NHITH mobile number to be given to the family for contact.)  
Please ensure the family are aware of the follow up plan and communication of results before departure.  
Confirm family contact phone numbers.

If the family has contacted you as there has been a delay in pick up consider best option:

1. Phone Golden couriers to confirm the booking and pick up time. Rebook if necessary.
2. Ask parents / carers to deliver the specimen to WEC for processing.
3. Depending upon time of day, return to the address for pick-up and delivery of specimen to the hospital.



## Phototherapy at Home – Equipment







# PHOTOTHERAPY AT HOME

## A USER'S GUIDE



### What is jaundice?

Jaundice is a yellowish tinge to the skin and sometimes seen in the whites of baby's eyes. This happens when a chemical called bilirubin builds up in baby's blood and tissues.

### How is it treated?

Jaundice is common and sometimes need to be treated with phototherapy. Phototherapy treatment involves exposing the baby's skin to blue light, which helps to break down the bilirubin in the skin until the baby liver takes over.

Phototherapy can be given either in the hospital or at home.

### Is my baby eligible for phototherapy at home?

To be eligible for phototherapy at home, your baby must:

- be 35 weeks gestation or older
- be 48 hours old or older
- be clinically well and otherwise ready to go home
- live within 20 kilometres of the Women's
- have seen a Neonatal Hospital in the Home (NHITH) team nurse or their assistant
- have an electricity supply at home
- have a feeding plan

Parents and carers must have completed training on how to use phototherapy at home

If your baby has home phototherapy, they will be cared for and visited by a nurse from the Neonatal Hospital in the Home team.

### What equipment is needed?

You will need to provide a safe sleeping surface for your baby, such as a cot or bassinet, and blankets to wrap your baby in.

At home, you will use the BiliSoft™ LED phototherapy system. Hospital staff will give you a box containing all of the special equipment needed for phototherapy. All equipment is checked on return to hospital before it is given to you.

In the box, you will find:

- an orange power box (A) and cable (B)
- a white (BiliSoft™) light box (C) and cable (D)
- a light pad (E) and black cable (F)
- a disposable soft cover for the light pad (G)



# Phototherapy at Home – A Users Guide



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[www.thewomens.org.au](http://www.thewomens.org.au)

- a thermometer for taking your baby's temperature (H).



## How to use the phototherapy blanket

1. Place the orange box (A) and the white box (C) on a hard surface such as the floor or table, close to where your baby will be sleeping. You need to be close enough for the black cable (F) to reach your baby's cot, close to where your baby sleeps.
2. Put the BiliSoft™ fibre optic blue light pad light (E) into the soft pad cover (G) ensuring that the light panel faces upwards.



3. Make sure that the pad is positioned with its tail towards the end of your baby's feet, and spread the straps out.
4. Dress baby in just a nappy only. Then place your baby on the light panel with their head above the BiliSoft™ fibre optic blue light pad. Ensure your baby is lying on the correct side of the light pad. HINT: the label should be facing away from your baby.
5. Wrap the straps of the disposable cover (G) and the light panel (E) gently around baby's stomach and chest to hold it in position.
6. Wrap a blanket around your baby so they will feel secure. You can use additional blankets and wraps to keep baby warm.

7. Plug the light pad (E) into the white box (C) by gently pushing the black cable (F) into the connection. You will feel it click into place. To remove it, gently pull the tubing from the connection. No force is needed.
8. Use the orange power cable (D) to connect the white box to the front of the orange power safety box (A). Turn the power switch to ON
9. Plug the orange power safety box (B) into your home's wall power supply.
10. Switch on the wall power and turn the white box (C) on. The BiliSoft™ fibre optic light pad will now show the blue light.



## Safe sleeping

Your baby must be placed to sleep on their back in a cot at all times according to the Safe Sleeping Guidelines.



# Phototherapy at Home – A Users Guide



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## Care of your baby during phototherapy

Phototherapy should only be interrupted for your journey home and for up to 30 minutes daily for bath time. You should keep your baby wrapped in the light panel for all breastfeeding, bottle feeding or settling as shown in these photos.



If your baby is receiving home phototherapy, you will need to remain at home as this treatment should be continuous and is not portable.

Phototherapy works best when most of your baby's skin is exposed to the blue light. Only dress your baby in a nappy when using the phototherapy pad

You should check your baby's temperature with a thermometer each feed. Normal temperature is 36.5 to 37.2 degrees Celsius.

## Are there any side effects of phototherapy?

Becoming warm or cool, slow feeding, loose poo (stool/ faeces) and skin rash are common side effects of phototherapy. These are not harmful to your baby. If you're worried about any of these, be sure to talk to your visiting nurse.

The Neonatal Hospital in the Home nurse will visit daily to check your baby's bilirubin (jaundice) levels with a heel prick blood test. They will also assess

and assist with your baby's feeding, check your baby's weight and discuss any side effects or concerns that you may have.

The nurse will discuss your baby's on-going treatment with the Women's neonatal doctors and inform you of the plan.

Your baby may need to be readmitted to the Women's if:

- jaundice (bilirubin) levels are increasing
- the jaundice (bilirubin) level is not coming down with home phototherapy treatment
- our baby is too sleepy to feed
- feeding is poor and/ or your baby is losing weight
- there are fewer wet or dirty nappies
- there is a combination of the above, or if your baby seems unwell.

A video has been developed to assist you with using phototherapy at home. To watch this video, please visit [www.thewomens.org.au](http://www.thewomens.org.au)

## If you have concerns

If you are concerned about your baby or about the phototherapy device please contact:

### Neonatal Hospital in the Home Nurse

T: 0418 501 253 (8am - 4pm)

Neonatal Intensive Care AUM (nurse in charge)

T: 8345 3492 or 8345 3493 (4pm – 8am)

## Returning equipment to the Hospital

All equipment will be boxed and labelled for safe and easy transport. The Hospital in the Home nurse will arrange for the equipment to be returned to the hospital by courier (free of charge) when the phototherapy treatment is complete. Please ensure that all equipment is placed back in the box and the label with the delivery details remains attached.

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