

# Home Phototherapy



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## **1. Introduction and Who Guideline applies to**

Babies who require phototherapy treatment for jaundice have traditionally remained in hospital for treatment and monitoring. In circumstances where babies fit the set criteria highlighted in this guidance, phototherapy treatment can be administered in the home setting under the supervision of the neonatal homecare team.

This guideline applies to the neonatal and community midwifery teams caring for babies who are deemed suitable for home phototherapy.

**Related documents;**

[Jaundice Neonatal UHL Childrens hospital guideline](#) UHL Trust C32/2019

[Jaundice in Newborn Babies UHL Obstetric Guideline.pdf](#) Trust C47/2019

[Jaundice Prolonged UHL Childrens Hospital Guideline.pdf](#) UHL Trust C17/2017

## Home Phototherapy



**Contact Numbers: - Homecare Team 0116 258 7706**

**Neonatal Unit Out of Hours: - 07950 882 788 (equipment failure only)**

### 2. Criteria for Home Phototherapy

- Infants of >35 weeks gestation and over 48 hours old with a birthweight >2.5 kg
- Infant otherwise medically fit for discharge home
- Maintaining temperature
- Feeding well, passing urine and stool (if day 5 or more has not lost more than 10% of birth weight )

- The Serum bilirubin concentration levels should be within the threshold level for phototherapy, but < 50 µmol/l above the phototherapy level for the infant's chronological age (based on the infant's gestation- appropriate monogram).
- The serum bilirubin concentration is not rising too sharply (>6 µmol/l/hour) - *if this information is available.*
- Infant's diagnostic work up reveals no abnormal findings.
- No safeguarding concerns. Parents capable of following instructions and understands the requirement for continuous treatment.
- Parents available to receive a daily morning home visit for blood sampling, and receive daily telephone call to discuss blood result and plan of care. Parents should be able to communicate with the Homecare team either directly, or via a suitable interpreter.
- No on-going risk factors for significant jaundice and no elevated conjugated bilirubin concentration.

## 2.1 Home Phototherapy Basic diagnostic work up

History and clinical examination suggestive of a well-baby – assessed by ANNP or tier 2 doctor.

Baby has no known family history or risk factors which might indicate a rapid rate of rise of bilirubin e.g. maternal antibodies/ proven blood group incompatibility (DAT positive), G6PD deficiency, or significant bruising.

Examination finds no indication of organomegaly (spleen and liver) to exclude active haemolysis. No haemolysis on blood film from initial FBC.

Decision to commence Phototherapy will be based on initial gas SBR.

Then the following bloods to be taken before discharge home on treatment;

- Maternal and infant blood typing and Coomb's test
- Full blood count and gas total bilirubin
- The results of ALL initial bloods as above will be reviewed alongside the first Lab sample collected by the homecare team on the first morning at home. The rate of rise will also be assessed if SBR level is increased.

## 2.2 Preconditions for Home Phototherapy

- Neonatal Homecare staff available to monitor the infant's progress and measure serum bilirubin levels every 24 hours.
- Equipment ( Bilicoocoon ) is available for home phototherapy

- (Note: one Bilicocoon unit must remain on NNU at all times in case of equipment failure)
- Neonatal Home care team should be in daily contact with the family during the period of treatment.
- All babies undergoing home phototherapy should be referred to ANNP jaundice clinic to ensure that there are no gaps in service for chasing up of daily blood results.
- All babies receiving home phototherapy treatment should be added to the home phototherapy board in NICU at LRI, ITU corridor.
- The serum bilirubin should be re-measured (in the laboratory) some 12-18 hours after discontinuation of phototherapy to look for a rebound in bilirubin levels.
- The infant should be re-hospitalised if he/she shows signs of illness or serum bilirubin continues to rise in excess of the home phototherapy threshold or non-parental compliance with instructions.

### **2.3 Daily responsibilities for Homecare Nursing Team**

- Ensure equipment and eye protection is being used optimally
- Daily record of hours spent on phototherapy
- Perform SBR
- Review Jaundice clinic bloods- DAT and FBC prior to first visit
- Review feeding, urine and stools and ensure adequacy
- Assess temperature concerns
- Address any parent concerns or needs
- Liaise with Jaundice clinic ANNP team regards to results and treatment plan escalating to SCBU service consultant if required
- Monitor babies weight as per the community midwifery guidelines
- Complete day 5 newborn blood spot if baby in our care on day 5 of life
- Document assessment, SBR and plan in Designated Home Phototherapy folder (kept in jaundice clinic). Paper copy records initially until electronic system in place in order to trial information required after appropriate training to the staff.

### **2.4 Parental Requirements for Safe Home Phototherapy Conduct**

- Parents (or caregivers) should be motivated and capable of following instructions

- Parents should be taught how to use the phototherapy equipment and how to apply the eye patches correctly and to report problems promptly.
- Parents should be instructed to provide adequate hydration during phototherapy with instructions to sustain phototherapy for as long as possible each day (ideally  $\geq 18$  hours per day).
- Parents to be shown the following You Tube demonstration for correct techniques of set up and operation of equipment
  - <https://www.youtube.com/watch?v=hMaKro2KxR8>
- Infants may be removed from phototherapy during feeding and nappy changes, but be mindful of the total time actually receiving phototherapy.
- Parents should be advised to change baby on a changing mat, not on the phototherapy equipment.
- Contact numbers for the NNU nurse in charge should be given to parents to use only in the event of equipment failure so a replacement can be provided. This equipment is kept in the jaundice clinic room. This equipment should be checked weekly by the allocated phototherapy nurse.
- Parent information leaflet will be provided with contact telephone numbers for the Home care team or out of hours.
- Parent information video (available in other languages)



English

- As parental assent for Home Phototherapy is a prerequisite, parents should sign an agreement form that explains the risks and benefits of Home Phototherapy and their agreement to follow all written instructions.

## 2.5 Governance

Safety assessment will be made by Homecare Nursing Team +/- ANNP Jaundice clinic and if needed can take help from SCBU Consultant .

## 2.6 Babies referred in from the community via Jaundice clinic

Most babies will not have had a previous DAT and FBC; this will be checked in hospital if the gas bilirubin suggestive of baby needs home phototherapy treatment. Once decision made for home phototherapy, parents will receive training on how to use the equipment by allocated phototherapy Homecare nurse or ANNP (jaundice clinic) and competency documented.

Baby will require a further SBR repeated next day in the morning by the Homecare team to assess the response to phototherapy.

**If blood results require reviewing outside of Homecare or Jaundice clinic hours, this will be listed on PANDO and handed over to the evening SHO/ ANNP to complete. Any decision made based on these results will be documented on PANDO and parents informed to complete the loop.**

This service will only accept referrals during Homecare and ANNP clinic hours.

We will audit babies who fit criteria but were unable to access service due to outside of service hours. We will review babies admitted to paediatrics the following day and if they meet criteria, can access the home phototherapy service.

ANNP to obtain consent for sucrose

Sucrose will be administered with blood sampling (food product therefore does not require prescribing).

## **2.7 Inpatient referrals from NNU, PNW /TC or Paediatric Ward**

If the DAT is already known, and all diagnostic work up is complete, this training and competency assessment will take place by the Neonatal Homecare Team.

All babies considered for Home phototherapy will be assessed by the ANNP on for jaundice clinic (NNU, PNW /TCU, Paediatric ward)

All babies undergoing home phototherapy should be referred to the ANNP Jaundice clinic team who will be responsible for reviewing results.

In instances where for any reason the Neonatal Home care Team cannot obtain the daily SBR sample, the parents should be asked to bring baby to jaundice clinic for blood testing.

Babies receiving home phototherapy or reaching home phototherapy criteria will be included in the SCBU handover and ward round.

All babies receiving this service need to be seen daily until the rebound bilirubin is deemed to be satisfactory.

Phototherapy treatment can normally be stopped once the level is 5 boxes (50) below treatment line.

If a baby is DAT positive, discussion to be had with the SCBU consultant regarding starting folic acid and ensure a FBC has been collected and reviewed.

**ALL Parents should be advised to stop treatment at a set time of 9pm, to reduce time off phototherapy before rebound results available.**

A database of all babies undergoing home phototherapy will be maintained by the Neonatal Homecare Team so that audit of the service can be undertaken. The phototherapy unit must be returned after use to the neonatal unit where it will be cleaned appropriately by the neonatal homecare team and according to unit protocol.

## 2.8 Documentation

Paper copies will be held in a Home phototherapy file stored in Jaundice clinic. Paper copies are scanned for uploading onto Cito after discharge from home phototherapy.

- Safety assessment for eligibility- tier 2 doctor , ANNP and Neonatal Homecare Nursing Team
- Referral form – ANNP/ Neonatal Homecare team
- Parent training/checklist (see document Page -12 Homecare Nurse or ANNP
- All visits, results and interventions- Homecare Nurse and ANNP

## 2.9 Parent information

The parent information leaflet will be given to all parents undertaking home phototherapy which details how to use the phototherapy equipment.

Parents will be trained in the use of all equipment and in ensuring eye protection.

Parents will be provided with verbal information on temperature monitoring and management; adequacy of feeding and hydration; signs of increasing jaundice and other illness; possible unwanted effects of phototherapy including loose or frequent stools and skin rash; and safe sleeping.

Parents will be encouraged to document all feeds and outputs.

Parents will be given contact information should they have concerns about their baby or equipment.

**Jaundiced newborn infant at home <14 days old  
Follow usual community SOP**

Refer to Jaundice Clinic

Bilirubin at or above treatment thresholds but within 50µmol/l

NO

Severe jaundice at or above Exchange Transfusion Level

ADMIT

NO

Moderately jaundiced babies > 50µmol/l above phototherapy level, but <exchange transfusion

ADMIT

YES

Mild jaundice at or above treatment threshold by up to 50µmol/l and rate of bilirubin rise <6µmol/l/hr

**Basic Diagnostic Workup**  
Physical examination, feeding assessment, Gas, SBR and parental engagements are ALL satisfactory? Medically fit for discharge.

Bilirubin at or above treatment thresholds but within 50µmol/l

YES

Phototherapy with

NO

**Inpatient phototherapy**  
Admit, Feeding and other Support





**Jaundiced newborn inpatient infant on  
NNU/PNW/TCU/PAEDS >35+0 weeks gestation and >2.5kg  
and >48 hours old**



Mild jaundice at or above treatment threshold by up to 50µmol/l  
and rate of Bilirubin rise <6µmol/l/hr



**Basic Diagnostic Workup**  
Physical examination, feeding assessment, Gas SBR and  
parental engagement are ALL satisfactory? Medically fit for  
discharge.



**YES**



**Phototherapy with**



**A daily home visit (AM) and daily lab  
SBR Rebound SBR post phototherapy  
12/24 hours following discontinuation  
Repeat if required**



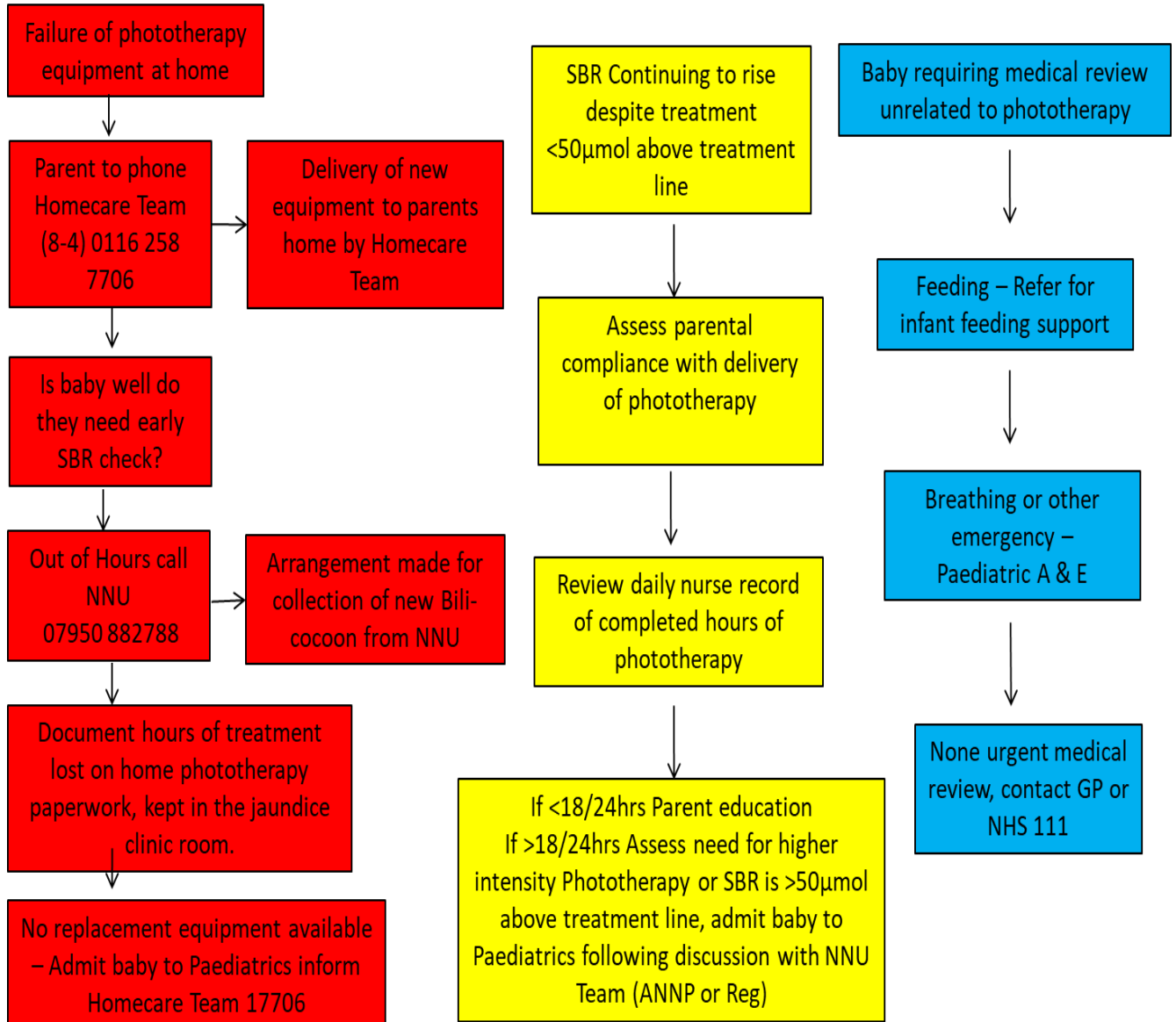
**NO**



**Continue inpatient phototherapy  
Feeding and other Support**

## 2.10 Escalation plan

# Escalation Plan



**Please note this chart is an example only. DO NOT USE! Please ensure you use the correct chart for individual baby's gestation.**

## Example of NICE jaundice threshold chart

Baby's name \_\_\_\_\_

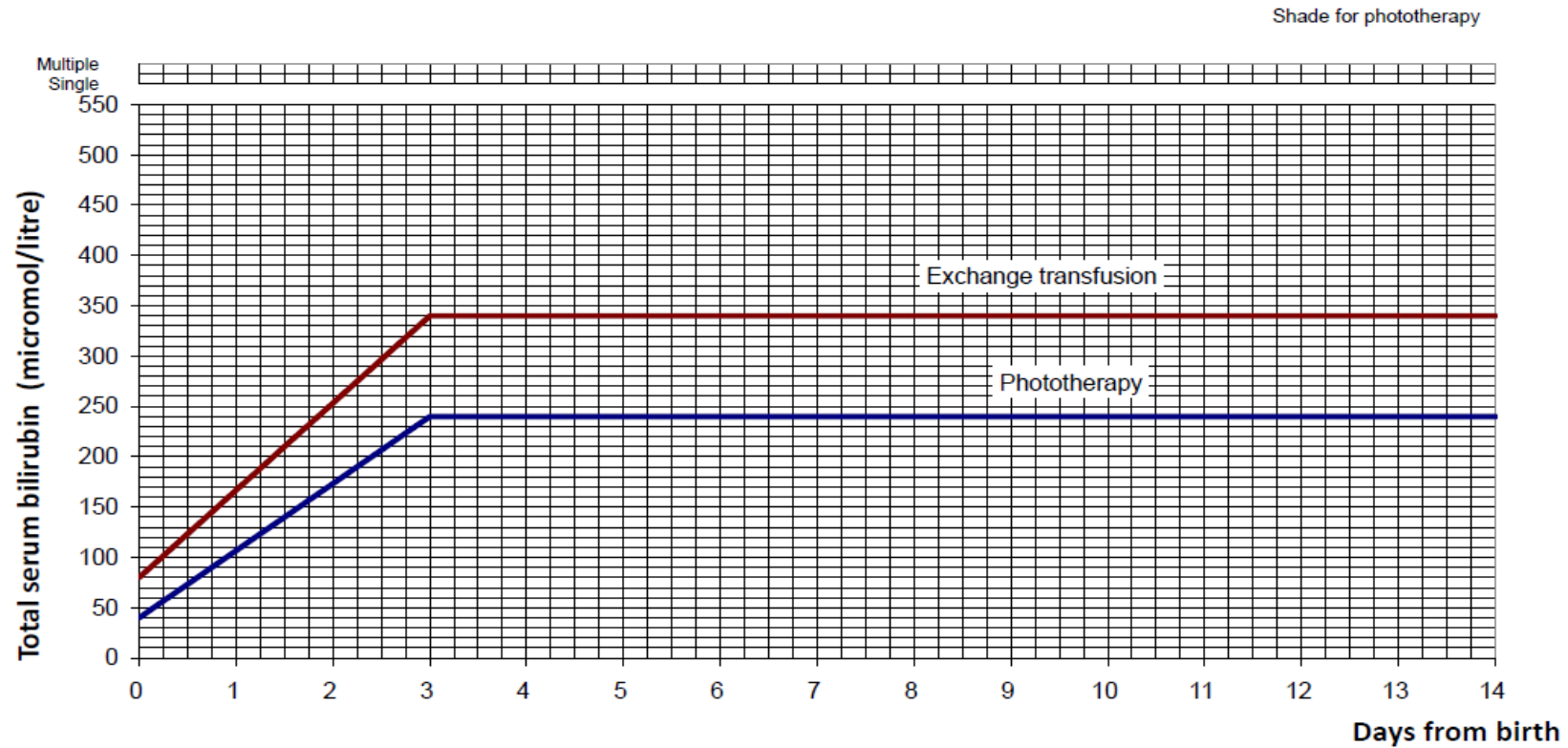
Date of birth \_\_\_\_\_

Hospital number \_\_\_\_\_

Time of birth \_\_\_\_\_

Direct Antiglobulin Test \_\_\_\_\_

**34** weeks gestation



Baby's blood group \_\_\_\_\_

Mother's blood group \_\_\_\_\_

**NHS**  
National Institute for  
Health and Clinical Excellence

## Checklist for the Home Phototherapy Service

The infant's diagnostic work-up was reassuring (see page 7)

Equipment checked: lights switching on, same letters for pad/machine, service due

Treatment time set up for parents to 99hrs 50 mins (maximum time) Parents to press black power switch to restart once home

Parents or home care givers have been shown how to operate the phototherapy unit and are clear as to how to operate the equipment safely.

Parents have been shown the following: <https://www.youtube.com/watch?v=hMaKro2KxR8>



Parents or home care givers are undertake to apply eye patches whenever the infant is receiving phototherapy

Feeding and nappy changing advice discussed including optimising feeding and phototherapy time

Parents or home care givers have signed agreement form. Assent obtained to the provision of Home Phototherapy

Parents or home care givers are aware of the contact details for the Neonatal Homecare team and the 24hour emergency contact numbers, i.e. NNU.

Homecare have been informed of and accepted the referral and have confirmed that there is adequate staffing to ensure the patient will be visited at home within 24 hours of discharge for on-site monitoring and obtaining a blood sample for bilirubin measurement and on-going daily reviews until treatment has been completed

Homecare Nurse name of acceptance

.....



Homecare to notify midwife and GP for information only

Completed by:

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

## Home Phototherapy Referral Form

Name:	DOB:
Gestation:	Current Age:
Birth Weight:	Recent Weight:
S No:	NHS Number:
Address:	Phoned parents to ensure home and setup ok? <input type="checkbox"/>
Postcode:	Parent/Carer 1 Name: Parent/Carer 1 Number: Parent/Carer 2 Name: Parent/Carer 2 Number:
Ethnic Code:	
Mother's Name:	DOB:
S No:	NHS Number:
Feeding intention:	
GP Name:	HV Team Name: HV Team Number: Named HV: Named HV Number:
Address:	
Postcode:	GP Telephone Number:
GP Practice Code:	
<b>Jaundice Diagnostic Work Up</b>	
Mother's Blood Group:	
Baby's Blood Group:	
FBC:	DCT/DAT:
Total Bilirubin: (gas) (lab)	Conjugated Bilirubin:
Other:	
Newborn Blood Spot due:	Complete:
Day 5 weight: weight:	Percentage loss from birth
<b>Community Serum Bilirubin Values – see overleaf</b>	
<b>Community Serum Bilirubin Values</b>	

Date & Time	Serum Bilirubin	Date & Time	Serum Bilirubin

Infant's background details (e.g., birth details, any complications, feeding support advice given, Day 3 or Day 5 weight and percentage loss, jaundice, phototherapy, breast pump loan):

**On admission, through first visit:**

- Community Midwives contacted and notified of baby **receiving** Home Phototherapy and that Neonatal Homecare will take Day 5 NBSS and weight if visiting on Day 5 (ext 14834 and uho-tr.communitymidwifeoffice@nhs.net)
- Health Visiting team ascertained and message left as above, also asking them to task GP to notify them (FYPC Services 0300 300 0007, option 2, option 4) or handed over if baby not recruited on a working day.
- Links sent to parents, i.e. STORK, BiliCocoon video, WhatsApp video, etc.
- Update white board on NNU with new baby details.
- Update equipment log
- $\geq 12.5\%$  loss (breastfed babies) or  $\geq 10\%$  loss (bottle fed babies), *at any time?*
- If yes, refer to Friday feeding clinic (waiting list + book slot) on x14830 and inform Infant Feeding Team on 07765 787 279.

**Comments/updates upon discharge:**

- Community Midwives contacted and notified of **discharge** from Home Phototherapy and update of any NBSS, weight, and feeding (ext 14834 and communitymidwifeoffice@uhl-tr.nhs.uk)
- Health Visiting Team notified of discharge and asked to task GP to notify
- STORK/BLS completed, equipment collected
- Update caseload with discharge and STORK/BLS
- Update white board on NNU to remove baby details, as now discharged
- Update Equipment log

Total hours phototherapy received:

Feeding at discharge:

# Leicester Neonatal Service

## ANNP Clinic Attendance form



Date	Time	Name :	
First Attendance	Yes / No	S Number/NHS Number :	
Repeat or Review	Yes / No	DOB :	
		Self-Referral (Follow up)	Yes / No
Family Contact	Name :	Referring Professional	
	Phone :	Job	
	Relationship to baby :	Contact Number	
GP Details	Name :	Address :	

Current Age and gestation at birth		Investigations
		SBR:
Key Presenting Problem		Clinical Indication for full gas
		Results
History		
Examination		Observations Temp - HR - Resp -  Urine BO -
Impression		



Discussion with family		
Plan		Discussed with Consultant / Registrar Yes / No Name :  Conclusion :
ANNP On Duty (Print)	Signature	

## Home Phototherapy Service

<b>Baby's Name:</b>  <b>DOB:</b>  <b>Date of visit:</b>  <b>Reason for visit:</b>	<hr/> <hr/> <hr/> <hr/> Phototherapy <input type="checkbox"/> discontinued? Date/time: _____ <input type="checkbox"/> SBR <input type="checkbox"/> Rebound SBR <input type="checkbox"/> Weight <input type="checkbox"/> Feeding review / support <input type="checkbox"/> Discharge / STORK
<b>Phototherapy hours on unit display today:</b>	<b>Hours received since last visit:</b>
<b>Blood sample</b> <input type="checkbox"/> SBR <input type="checkbox"/> FBC  <input type="checkbox"/> DAT <input type="checkbox"/> U&E	<b>Time taken:</b> _____ <b>Time delivered to lab:</b> _____
<b>Blood Spot due:</b>   <b>Weight + % loss from birth weight:</b>	<b>Completed?</b> <input type="checkbox"/>  _____ Day 3: _____ Day 5: _____ Day 7: _____ _____ <b>Note:</b> ANNP review + feeding clinic referral if $\geq 12.5\%$ loss for breastfed babies or $\geq 10\%$ loss for bottle fed babies. Also consider 2 <sup>nd</sup> orange bottle for U&Es, if indicated by ANNP.
<b>Feeding assessment:</b>	Feeding method: <input type="checkbox"/> Breast <input type="checkbox"/> Bottle Milk: <input type="checkbox"/> Breast <input type="checkbox"/> EBM <input type="checkbox"/> Formula How many wet nappies in 24hr? _____ How many stools in 24hr? _____ Colour? _____ _____ _____ _____ _____
<b>General comments:</b>	_____ _____ _____ _____ _____ _____ _____ _____
<b>Staff Name &amp; Signature:</b>	_____ _____



- I have been given enough information for me to choose the Phototherapy at Home Service for my new-born baby . The correct use of the equipment has been shown to me and I will be able to follow the guidance given to me for using the phototherapy equipment in our home
- I will make sure that eye patches are worn whenever my baby is receiving phototherapy.
- I understand that it is important that my baby is fed regularly around every 3 hours to make sure they have enough milk feeds during phototherapy treatment.
- I will remove him/her from the phototherapy unit only during feeds and nappy changes. I understand phototherapy treatment needs to be for at least 18 hours per day.
- An adult parent/carer will always be available to monitor the baby while receiving phototherapy.
- I am happy for the homecare team to visit my home each day to take a blood sample until treatment is no longer needed.
- If my baby's jaundice blood levels do not improve during treatment at home , I am aware that my baby will need to be admitted to hospital
- If I am at all concerned about my baby I will contact the Neonatal home care team promptly or urgent care where necessary, or contact the Neonatal Unit via the contact telephone number in the event of equipment failure between 4pm- 8am
- I agree to return the phototherapy equipment to the Neonatal Home care team once phototherapy treatment has stopped.

Baby's Name:

Date of Birth:

Hospital PID:

Parent/Caregivers Name:

Signature:

Date:

## Phototherapy at Home

### Parent satisfaction Survey

***Now that your baby has completed their period of phototherapy at home, we would be grateful if you would give us your feedback or your experience so we can improve the service we provide.***

Do you think the staff explained clearly how the equipment was to be used at the home while you were still in hospital?

YES

NO

Or please give us your thoughts on this:-

When you eventually got home did you find the equipment easy to use?

YES

NO

Alternatively, please give us your thoughts:-

Did you encounter any difficulties with the phototherapy at home service?

YES

NO

Or please provide a full response:-

Did your baby settle on the phototherapy unit well enough not to require you to pick him/her up frequently to settle him/her?

YES

NO

Or please provide a full written response:-

Did the Homecare Team contact you, or visit you each day your baby was receiving phototherapy at home and the day after phototherapy was stopped?

YES

NO

Or please provide a full written response:-

What was your overall experience of having phototherapy at home?

After your recent experience, if you had the time all over again, would you still choose to let your baby have phototherapy at home rather than in hospital?

What would you say were the main advantages of letting your baby have phototherapy at home?

Were there any disadvantages to having phototherapy at home?

Do you have any comments to make about the Neonatal Homecare Team?

Do you have any other comments you wish to make about any other aspects of the care you or your baby received?

Please give an overall rating for your experience of the Home Phototherapy Service on a scale of 1-5. Please circle one of the following options:

Poor	Fair	Above Average	Good	Excellent
1	2	3	4	5

How Likely are you to recommend this service to friends and/or family?

Very Unlikely	Unlikely	Unsure	Likely	Very likely
1	2	3	4	5

***We thank you for your comments and really appreciate the time you have taken to give us your feedback on the service we are offering.***

## Home Phototherapy Service





### **3. Education and Training**

None

### **4. Monitoring Compliance**

Parent satisfaction surveys and compliance record to be assessed

### **5. Supporting References**

Jaundice - Neonatal UHL Childrens Hospital Guideline UHL Trust C32/2019

Jaundice in Newborn Babies UHL Obstetric Guideline UHL Trust C47/2019

Jaundice - Prolonged UHL Childrens Hospital Guideline

NICE 2010. Jaundice in newborn babies under 28 days. Clinical guideline [CG98]

Published: 19 May 2010 Last updated: 26 October

2016<https://www.nice.org.uk/guidance/cg98>

### **6. Key Words**

Bilirubin, Jaundice

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**The Trust recognises the diversity of the local community it serves. Our aim therefore is to provide a safe environment free from discrimination and treat all individuals fairly with dignity and appropriately according to their needs. As part of its development, this policy and its impact on equality have been reviewed and no detriment was identified.**

<b>Contact and review details</b>			
<b>Guideline Lead (Name and Title)</b> C Inglis – Lead Nurse Neonatal Homecare		<b>Executive Lead</b> Chief Nurse	
<b>Details of Changes made during review:</b>			
<b>Date</b>	<b>Issue Number</b>	<b>Reviewed By</b>	<b>Description Of Changes (If Any)</b>
<b>January 2023</b>	<b>1</b>		<b>New document</b>

July 2024	2	<b>C Inglis Neonatal guidelines group Neonatal governance group</b>	<p><b>Criteria for home phototherapy changed from</b> - The serum bilirubin concentration is not rising too sharply (&gt;6 µmol/l/hour) (This will be assessed by calculating the discharge Lab sample SBR with the first sample taken at home) to The serum bilirubin concentration is not rising too sharply (&gt;6 µmol/l/hour) - <i>if this information is available.</i></p> <p><u>Added</u> - All babies receiving home phototherapy treatment should be added to the home phototherapy board in NICU at LRI, ITU corridor.</p> <p>Daily responsibilities for homecare nursing team Added - Review Jaundice clinic bloods- DAT and FBC prior to first visit, Monitor babies weight as per the community midwifery guidelines Complete day 5 newborn blood spot if baby in our care on day 5 of life.</p> <p>Added equipment location and checking frequency details.</p> <p>Added parent information QR code</p> <p>Added - We will review babies admitted to paediatrics the following day and if they meet criteria, can access the home phototherapy service</p>
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