LRI Children's Hospital

Management of Neonatal Jaundice

Staff relevant to:	Medical & Nursing staff working within the UHL Children's Hospital caring for babies presenting with neonatal jaundice
Team approval date:	November 2022
Version:	5
Revision due:	November 2025
Reviewed by:	N Muhammad
Trust Ref:	C32/2019

1. Introduction and who this guideline applies to

This guideline does not provide advice on treatment of jaundice outside of the early neonatal period (14 days in term infants and 21 days if premature).

Related documents:

- Jaundice - Prolonged UHL Childrens Hospital Guideline **Trust ref: C17/2017**
- Examination of the Newborn on the Postnatal Ward UHL Neonatal Guideline **Trust ref: C98/2008:**
- Jaundice in Newborn Babies UHL Obstetric Guideline **Trust ref: C47/2019**

Jaundice (aka hyperbilirubinaemia) refers to the yellow colouration of the skin and the sclera caused by the accumulation of bilirubin. For most babies, jaundice is physiological and usually harmless. However, pathological jaundice requires appropriate investigation and treatment.

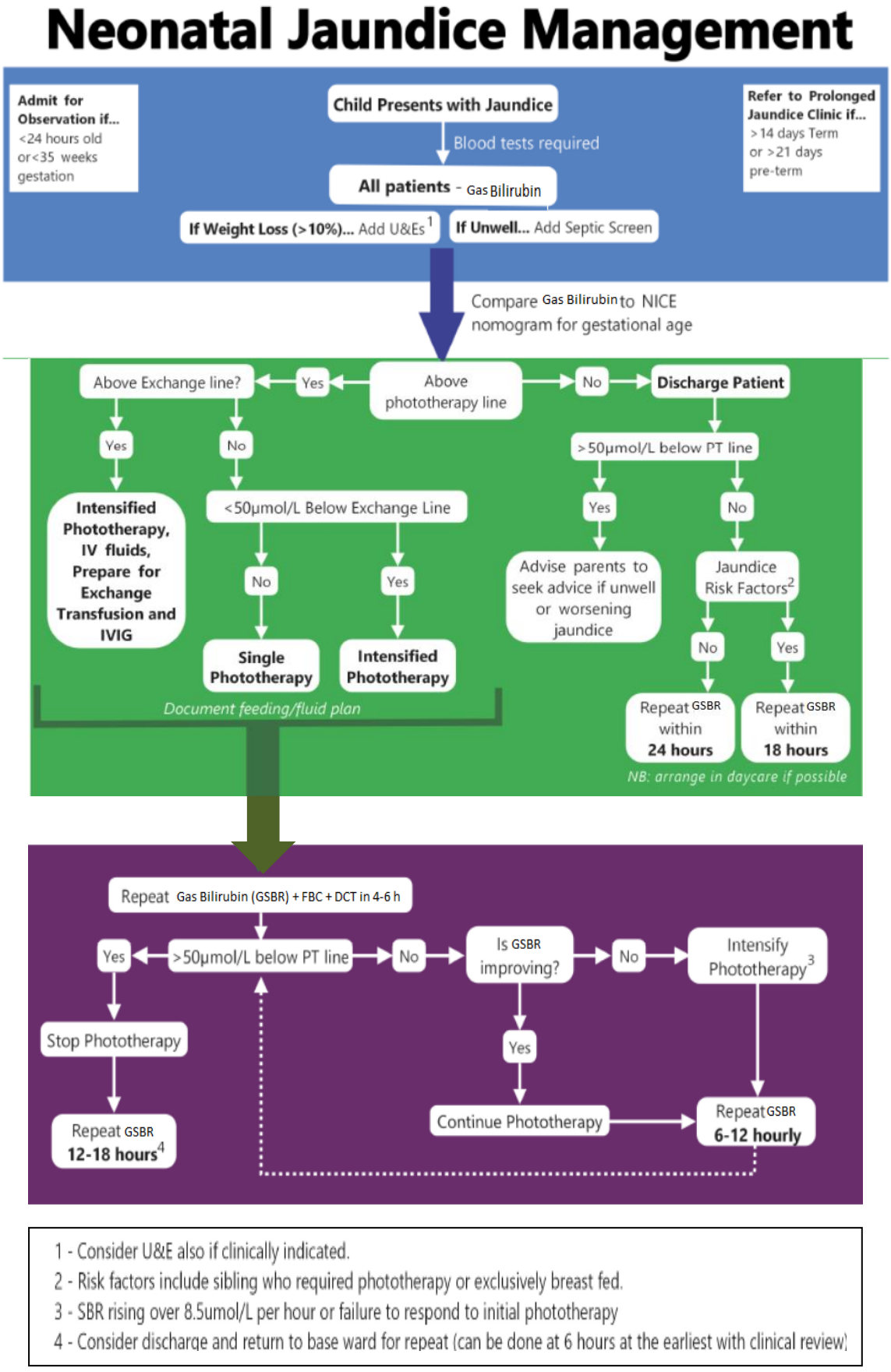
Approximately 60% of healthy term and 80% of preterm babies develop jaundice in the first week of life, and about 10% of breastfed babies are still jaundiced at 1 month. Neonates are prone to physiological jaundice as they are relatively polycythaemic with high red cell turnover and immature liver and gut flora.

This guideline is for use by Medical & Nursing staff working within the UHL Children's Hospital caring for babies presenting with neonatal jaundice referred to hospital via the community midwife, ANNP clinic, health visitor or GP.

Other related documents:
UHL Aseptic non-touch technique policy B20/2013
UHL Infant feeding E1/2015
UHL Infection Prevention Policy B4/2005
UHL Paediatric Sepsis Guideline (Sepsis 6) B29/2016
UHL Policy for Consent to Examination or Treatment A16/2002
UHL Vascular access policy B13/2010

Contents

2. Management of Neonatal Jaundice



1 - Consider U&E also if clinically indicated.
2 - Risk factors include sibling who required phototherapy or exclusively breast fed.
3 - SBR rising over 8.5umol/L per hour or failure to respond to initial phototherapy
4 - Consider discharge and return to base ward for repeat (can be done at 6 hours at the earliest with clinical review)

2.1 Don't miss:

Jaundice is pathological in the following situations:

1. **The child is unwell**
    - Sepsis must be treated and investigated as per UHL guidelines
2. **Within the first 24 hours of life**
    - Highly suggestive of haemolysis, sepsis or dehydration and requires inpatient investigation and treatment
3. **Jaundice levels sufficiently high to require treatment**
    - Risk of bilirubin crossing the blood brain barrier and facilitating encephalopathy (aka kernicterus)
4. **Prolonged jaundice (>14 days in term infants and 21 days if premature)**
    - See Prolonged Jaundice guideline

NICE threshold graphs can be downloaded using the following hyperlinks or copy and paste into search bar:
https://www.nice.org.uk/guidance/cg98/resources/treatment-threshold-graphs-excel-544300525
http://www.gosh.nhs.uk/file/7151/download?token=bO1f4K8M

2.2 Treatment:

<u>During phototherapy:</u>

- Ensure treatment is applied to the maximum area of skin
- Give the baby eye protection and routine eye care
- Using clinical judgement, encourage short breaks (of up to 30 minutes) for breastfeeding, nappy changing and cuddles
- Continue lactation/feeding support
- Do not give additional fluids

<u>Intravenous immunoglobulin:</u>

- Adjunct to continuous intensive phototherapy whilst arranging exchange transfusion
- Dose: 500mg/kg over 4 hours
- Indications:
    - ABO/rhesus haemolytic disease AND
    - SBR continues to >8.5µmol/L per hour

<u>Double-volume exchange transfusion:</u>

- **Note: this procedure should be conducted on CICU**

- Indications:
    - SBR above the exchange line
    - and/or with clinical features of acute bilirubin encephalopathy
- During exchange transfusion **do not:**
    - Stop continuous intensified phototherapy
    - Perform a single-volume exchange
    - Use albumin priming
    - Routinely administer intravenous calcium
- Following exchange transfusion:
    - Maintain continuous intensified phototherapy
    - Measure gas bilirubin within 2 hours and manage according to the treatment threshold graphs.
- Offer parents or carers information on exchange transfusion including:
    - The baby will require admission to the intensive care unit
    - Why the procedure is required
    - Possible adverse effects
    - When it will be possible for parents or carers to see and hold the baby after the procedure

2.3 Discharge criteria and advice

- Patients can be safely discharged home when the gas bilirubin is >50µmol/l below the phototherapy line apart from those with jaundice within the first 24 hours of life who require close inpatient observation
- Patients are not required to stay as inpatients for the rebound gas bilirubin and can be discharged to return for rebound as needed (see below)
- **Repeat SBR should be arranged as follows when needed:**
    - If available, repeat gas bilirubin can be done in day care;
    - otherwise the patient should return to the base ward for repeat gas bilirubin as needed.
    - Only patients who were seen in ED and did not require admission for phototherapy but who require a repeat gas bilirubin should return to ED for repeat
- Please ensure arrangement of repeat gas bilirubin are at a suitable time for parents and staff within the specified time frame.
- Parents should be advised to seek advice if the child is unwell or there is an increasing level of jaundice

3. Education and Training

Ensure all healthcare professionals commencing phototherapy are competent in setting up the equipment.

4. Monitoring and Audit Criteria

What will be measured to monitor compliance	How will compliance be monitored	Monitoring Lead	Frequency	Reporting arrangements
Babies with hyperbilirubinaemia are started on treatment in accordance with standardised threshold tables or charts	Audit of case notes	Consultant	2 Yearly	Clinical audit meeting

5. Supporting Documents and Key References

National Institute for Health and Clinical Excellence (2010). Neonatal Jaundice: Treatment Threshold graphs [Online]. Available at: https://www.nice.org.uk/guidance/cg98/resources/treatment-threshold-graphs-excel-544300525

National Institute for Health and Clinical Excellence (2010). Jaundice in newborn babies under 28 days (CG98) [Online]. Available at: Overview | Jaundice in newborn babies under 28 days | Guidance | NICE

American Academy of Paediatrics. Management of Hyperbilirubinemia in the Newborn Infant 35 or More Weeks of Gestation. Paediatrics 2004;114(1):297-316.

6. Key Words

Jaundice, Bilirubin, Phototherapy, Exchange transfusion, Treatment threshold graphs

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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.

CONTACT AND REVIEW DETAILS	
Guideline Lead (Name and Title) N Muhammad - Locum Registrar S Kapoor - Consultant	**Executive Lead:** **Chief Medical Officer**
Details of Changes made during review: Reference to admission via ANNP clinic added to introduction. Reference to SBR changed to gas bilirubin throughout the document. 16/8/24 Minor Changes : NICE reference hyperlink updated Appendix 2.1 updated with contact times	

Appendix 1. Jaundice Proforma

EXAMINATION

PATIENT STICKER

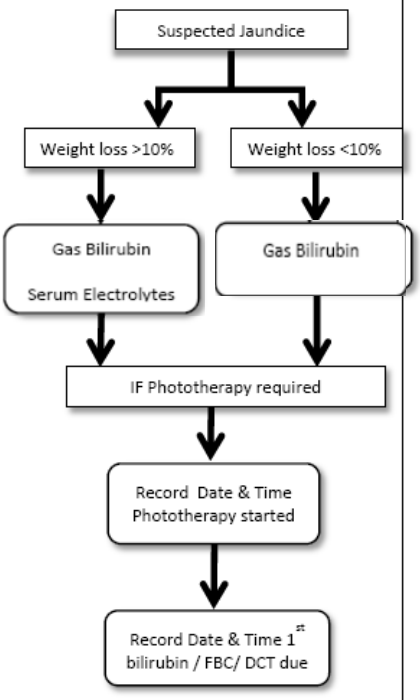
PEW/POP score	
Heart rate	
Respiratory rate	
Temperature	
Saturation	

MANAGEMENT

REPEAT WEIGHT AND % WEIGHT LOSS :
FEEDING PLAN (please document type/ amount of feed):

SEEN BY (SHO) :_____
DATE & TIME:_____

SENIOR REVIEW



Senior review done by: _____ **Date and Time Seen :** _____

DATE AND TIME PHOTOTHERAPY COMMENCED:
DATE AND TIME REPEAT BLOOD TEST NEEDED:
DATE AND TIME REPEAT BLOOD TEST TAKEN:

PATIENT STICKER

JAUNDICE PROFORMA

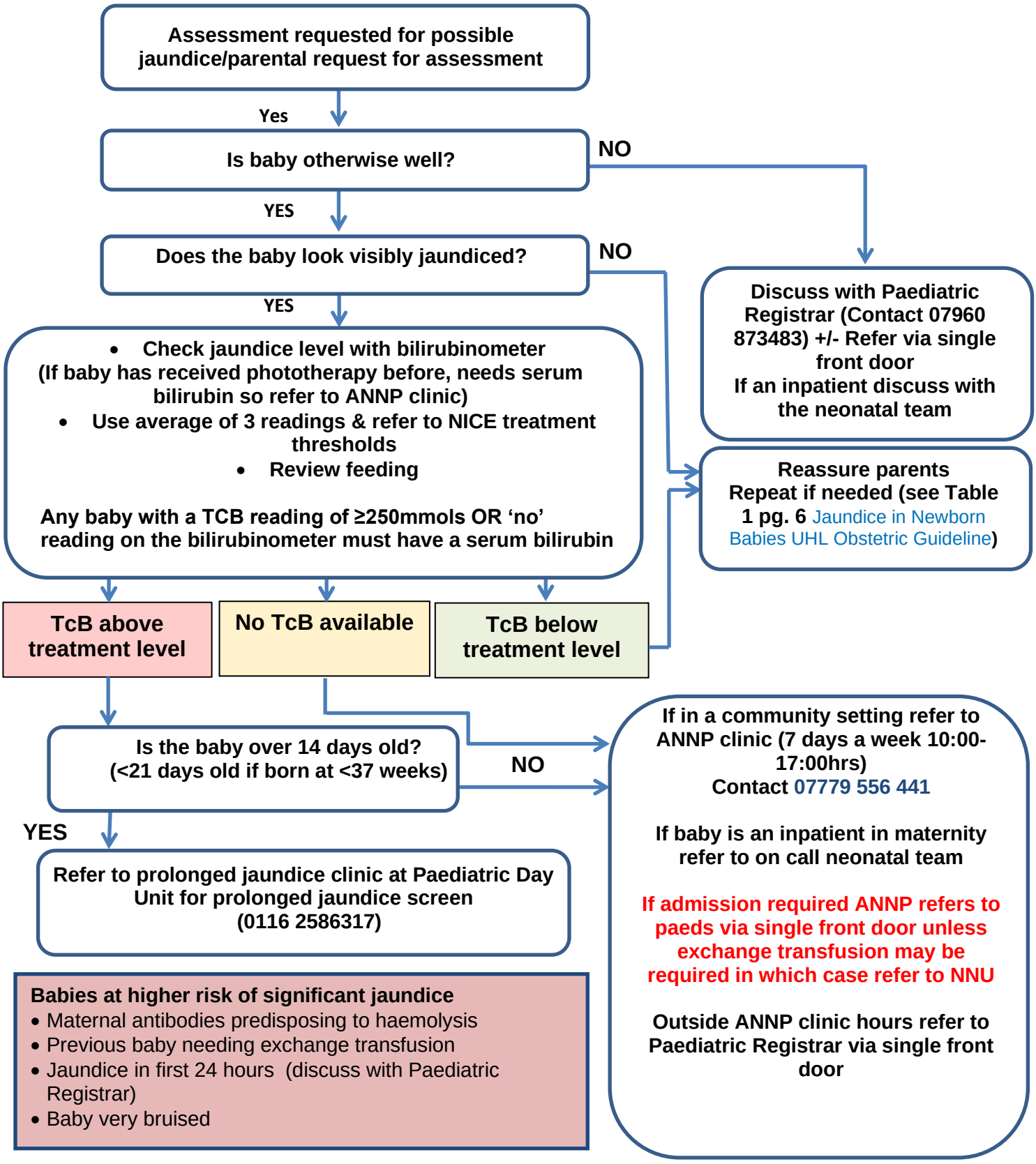
DEMOGRAPHICS			
DATE OF BIRTH		TIME OF BIRTH	
GESTATION AT BIRTH		BIRTHWEIGHT (G)	
BABY'S BLOOD GROUP & DAT		MATERNAL BLOOD GROUP	
CURRENT WEIGHT (G):		% WEIGHT LOSS	

BIRTH AND ANTENATAL HISTORY			
Type of delivery		Did baby require resuscitation at birth?	Yes / No
History of PROM > 48 hours?	Yes / No	History of GBS/ positive swab or previous child with GBS infection	
Any other risk factors for sepsis?		Maternal pyrexia, baby pyrexia, other	
Antenatal scans: Normal/Abnormal			
Did baby require phototherapy before?		Yes / No If Yes Specify:	

FEEDING
Method of feeding : Breast / Bottle / Mixed Specify the amount of feed, no of feed, duration of feed, vomits. **Stools:** Specify frequency/meconium/yellow/pale **Wet Nappies**:

FAMILY HISTORY (e.g sibling neonatal jaundice, G6PD, hereditary spherocytosis)

Appendix 2. Use of Transcutaneous Bilirubinometers (TcB) in the community for babies ≥35 weeks gestation and over 24 hours (taken from Jaundice in Newborn Babies UHL Obstetric Guideline)



If a baby is referred for a TcB or serum bilirubin measurement and does not attend notify the community midwifery office on 01162584834 or email uho-tr.communitymidwifeoffice@nhs.net

Appendix 3. Table 1: When does a TcB need repeating in the community? (taken from Jaundice in Newborn Babies UHL Obstetric Guideline)

Assessment number	Gestation	Amount Bilirubin is below treatment threshold	Action
1st Community reading	≥38 weeks	≤ 50	Repeat within 24 hours or 18 hours if risk factors present
		> 50	Repeat not needed
	35-37 weeks completed weeks	≤ 50	Repeat the next morning
		> 50	Repeat within 24 hours or 18 hours if risk factors present
2nd Community reading	≥38 weeks	≤ 50	Repeat within 24 hours or 18 hours if risk factors present
		> 50	Repeat not needed
	35-37 weeks completed weeks	≤ 50	Repeat the next morning
		>50	Repeat not needed
3rd Community reading	Any	Below treatment threshold	Result still < treatment level and baby well – repeat reading if visibly jaundiced and review on Day 14 Advise parents to make contact if they have any concerns prior to this

- **Any baby with jaundice in the first 24 hours needs to be discussed with the paediatric registrar and referred via the single front door or referred to the duty team in hospital, these babies require an urgent** SBR(gas bilirubin)
- **Any baby with jaundice levels above treatment level needs to be referred to the ANNP clinic or Paediatric Registrar (out of hours) following a face to face assessment**
- **ANNP clinic runs Mon-Fri 9-5pm, outside these times referrals go via the single front door**
- **Consider previous jaundice levels when making your assessment and assess the rate of rise and consider how rapidly levels are likely to rise. Plot on the NICE threshold chart and contact ANNP or Paediatric Registrar (outside of ANNP clinic hours)if concerned**
- **Conduct a full clinical assessment (page 7**Jaundice in Newborn Babies UHL Obstetric Guideline**) if either you or baby's parents have concerns**
- **Be aware of risk factors that might make bilirubin levels rise faster than usual**

If unsure what to do at any stage discuss with ANNP

Appendix 4. Community referral letter

Date:

Patient Name:

Hospital Number (if known): *Date of Birth:*

NHS Number:

Dear Doctor/Clinician,

As per UHL guidelines I am referring this _____day old baby to you Birth Weight: _____Kg

There were born (circle)

Preterm (<30 weeks), Preterm (30-33week), Preterm (34-36weeks), Term (37+ weeks)

Observations Temp: Heart rate: Resp Rate:

Urine: Bowels:

Behaviour (circle) : Floppy Jittery Irritable Appropriate

Feeding (circle): Breast Formula Mixed

They are presenting with (Check all that apply)

o **Weight Loss**

Today's weight……..... % loss……

o **Jaundice**

Transcutaneous bilirubin level (TCB): ……..

Thank you for seeing this baby,

Yours sincerely,

Sign…… Print…… Midwife / MCA

Contact
Number……
……

Appendix 5.

ANNP or Hospital Assessment discharge

Seen By:

Brief History:

Relevant Exam Findings:

Investigations: SBR _____

Follow up (if any):

Clinician Signature: _____ Date: _____

Patient under Consultant:

IF YOU ARE DISCHARGING THE PATIENT FROM THE CHILDRENS EMEGENCY DEPARTMENT PLEASE PHOTOCOPY THIS LETTER AND PLACE A COPY IN THE NOTES.
THE ORIGINAL SHOULD BE RETAINED BY THE PARENTS.