Babies at High Risk of Hepatitis B - Full Clinical Neonatal Guideline - Joint Derby & Burton

Reference no.: NIC IN 15/Aug 20/v003

1. Introduction

Hepatitis B is an infection of the liver caused by the hepatitis B virus (HBV). The World Health Organisation (WHO) estimates >390 million people worldwide are chronically infected. The overall prevalence of HBV antenatal women in the UK is around 0.14%, although there are regional variations with some inner cities rising to 1% (DH 2006).

Transmission – the virus is transmitted by parental exposure to infected blood or body fluids. Vertical transmission (mother to child) is an effective mode of transmitting HBV infection and can happen any time during pregnancy or at delivery. Babies who are infected during pregnancy and at birth are at high risk of being chronic carriers (DH 2000). Hepatitis B prophylaxis (via an accelerated four dose immunisation programme) is given to babies born to infected mothers can be 90-95% effective in preventing the development of chronic Hepatitis B infection (HPA 2005).

The Hepatitis B programme was highlighted to NICE because some babies born to infected mothers are not receiving the complete course of vaccines at the right time (NICE 2009).

Since 2017 Hepatitis B vaccination has been part of the routine childhood immunisation schedule. This guideline covers babies who are at high risk of early viral transmission and therefore require an accelerated schedule.

2. Aim and Purpose

For Health care professionals to correctly identify all babies born to Hepatitis B or high risk families and ensure that they follow and complete the immunisation programme as directed by the NICE guidelines (2009).

3. Definitions, Keywords

See appendix 1 for important definitions

Hepatitis B, Hep B, IVDU, Immunoglobulin, Vaccination, Unbooked Mothers

4. Identifying Risk

High Risk Babies include:

- All babies born to mothers who are known to be hepatitis B positive
- Babies born to mothers who are Hepatitis B negative but are returning to a household where a person is known to be Hepatitis B positive.

Babies Born to hepatitis B infected mothers

Hepatitis status of the mother **(see appendix for definitions)**	**Baby should receive Hepatitis B vaccine**	**Hepatitis B Immunoglobulin**
HBsAg positive & HBeAg positive	Yes	Yes
HBsAg positive, HBeAg negative & anti-HBe negative	Yes	Yes
HBsAg positive where e-markers have not been determined	Yes	Yes
Mother had acute Hepatitis B during pregnancy	Yes	Yes
Mother is HBsAg seropositive & infant is born weighing 1500g or less	Yes	Yes
HBsAg positive & anti-HBe positive (unless < 1500g)	Yes	No

Babies born to hep b negative mothers with household hep b infection

- Single dose of monovalent hepatitis B vaccine before discharge and then go onto the normal schedule. No further follow-up is required. GP should be notified.

Babies born to mothers inject drugs or with Hepatitis C Infection

- Routine vaccination schedule.

5. Pathways of Care

Maternal screening - Positive Hepatitis B serology

When a positive hepatitis serology is identified the Antenatal Screening Coordinator (ANSC) or Consultant Obstetrician will issue a letter documenting details of:

- Maternal Hep B e antigen and antibody status (as below)
- Recommended vaccination course for baby.
- Request for Hepatitis B immunoglobulin to be administered if required.

This information can be found in maternal obstetric notes, documented in baby notes and a copy of the maternal Hepatology referral letter is sent to the Consultant Paediatrician by email outlining the maternal serology:

- Hepatitis B surface antigen **positive**
- Hepatitis B e antigen **Detected / NOT detected** delete as appropriate
- Hepatitis B e antibody **Detected / NOT detected** delete as appropriate
- Hepatitis B DNA Quantification: **Detected / NOT detected** delete as appropriate

These letters are kept in the NICU Hepatitis B expected babies file

It is the responsibility the neonatal doctor completing the alert form to ensure that immunoglobulin is ordered (see section 6).

Unbooked mothers presenting in labour

Should have a rapid HBsAg test and vaccination given as appropriate to infant. Discuss high risk or low birth weight babies with ANSC or on-call consultant Microbiologist.

Mother declined screening

Consider screening bloods in baby after birth and if high risk repeat at 3 months of age.

6. Actions after Birth

Babies identified as high risk (section 4) should receive their first dose of vaccination as soon as possible after birth. If Immunoglobulin is required this should be given at the same time ***intramuscularly*** in the contralateral thigh.

Prior to vaccination informed consent should be sought from parents and the appropriate page of the red book signed.

Hepatitis B Vaccination

Monovalent Hepatitis B Vaccination should be given intramuscularly into the thigh by the neonatal team. It is available from Pharmacy at both sites.

Hepatitis B Immunoglobulin

200 international units should be given into the contralateral thigh by the neonatal team. It should be ordered in advance and available from pharmacy at both sites.

If no immunoglobulin is available it can be sourced in the following manner:

- HBIG will be issued in response to a telephone call to Colindale 020 8327 6439 or 020 8327 7906 (in-hours) or 020 8200 6868 by speaking to a duty doctor (out-of-hours).
- If administration of HBIG is delayed for more than 48 hours, Consultant Microbiologist and/or Consultant in Communicable disease (Stoke-on-Trent) should be consulted.

Cautions:

- If HBIG has been administered then an interval of 3 months should be observed before administering a live virus vaccine
- If HBIG has been given within 3 weeks of administering a live vaccine, then the vaccine should be repeated 3 months later (except in yellow fever vaccine)

Breast Feeding

Breast feeding should be encouraged and supported. There is no contra-indication to breast feeding when a baby is born to a Hep B positive mother and begins the Hep B immunisation programme within 24 hours of birth.

Documentation

- After indicating there are risk factors for Hepatitis B during the NIPE examination a letter will be generated by NIPE Smart. This must be printed off and sent to the appropriate parties as listed (See appendix)
- In Derby this includes (Total 8)
    - 1 Copy in Medical Notes
    - 1 Copy To GP, by post or electronically attached to discharge – address FAO Practice Nurse (Please DO NOT give to mother)
    - 1 Copy To Health Visitor
    - 1 Copy To Antenatal Screening specialist midwife, Antenatal Clinic, Level 1 Royal Derby Hospital DE22 3NE
    - 1 copy to Consultant Paediatrician Specialist Infectious Diseases Dr Balasubramaniam, Level 3 Childrens Hospital RDH
    - 1 Copy to Tracey Desmond East Midlands Health Protection Team, Seaton House, City Link , Nottingham, NG2 4LA or email to t.desmond@nhs.net
    - 1 Copy to CHIS Team Manager Child Heath, Cardinal Square, 3rd Floor East Point, City Link, Nottingham NG2 4LA or email to AGCSU.DerbyshireChildHealth@nhs.net (request email receipt)
    - 1 copy to NHS England Screening & Immunisation team via email England.scrimms@nhs.net (request receipt)

- In Burton this includes (Total 7)
    - 1 copy to be scanned into babies Electronic Medical Records (EMR)
    - 1 Copy to GP, by post or electronically attached to discharge – address FAO Practice Nurse (Please DO NOT give to mother)
    - 1 Copy to Health Visitor
    - 1 Copy to Antenatal Screening specialist midwife, Antenatal Clinic or email bhft.antenatalscreening@nhs.net
    - 1 Copy to CHIS, Team Manger Child Health, Mellor House, Corporation Street, Stafford, ST16 3SR or email sshis.childhealth@nhs.net (request confirmation of receipt)
    - 1 Copy to West Midlands North Health Protection Team, Stonefield House, Corporation Street, Stafford, ST16 3SR or phe.wmn@nhs.net (request confirmation of receipt)
    - 1 Copy to NHS England Screening & Immunisation Team via email phe.sssit@nhs.net (request confirmation of receipt)
- Also complete and Insert 'Hepatitis B infant immunisation programme' (Appendix 2) in Personal Child Health Record (Red book).

7. Follow-up

Babies covered by the above guideline will require Hepatitis serology (anti-HBs) at 15-16 months. This should be initiated by the GP.

Immunisation Schedule

Age	Routine Childhood Programme	Babies born to hepatitis B infected mothers	Responsible Clinician
Birth	X	Monovalent Hep B +/- HBIG	Neonatal Staff
4 weeks	X	Monovalent Hep B	GP
8 weeks	DTaP/IPV/Hib/HepB	DTaP/IPV/Hib/HepB	GP
12 weeks	DTaP/IPV/Hib/HepB	DTaP/IPV/Hib/HepB	GP
16 weeks	DTaP/IPV/Hib/HepB	DTaP/IPV/Hib/HepB	GP
1 year	Non-hep B Vaccinations	Monovalent Hep B Test for HBsAG	GP

8. References (including any links to NICE Guidance etc.)

1 Green Book Chapter 18, Hepatitis B (babies born after July 2017) https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/628602/Greenbook_chapter__18.pdf

2 Hepatitis B antenatal screening and newborn immunisation programme, Best Practice Guideline (department of health 2011) https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/215622/dh_132637.pdf

3 Immunisation of Neonates at high risk of hepatitis B in England and Wales: National Surveillance. BMJ 1988, 297:249-253.

4 Department of Health Document (28.1.02) "Consultation on Guidance on Children in Need and Blood-borne viruses" - HIV & Hepatitis

9. Documentation Controls

Development of Guideline:	Version 3 January 2020 – Based on previous Derby and Burton Guideline Dr Bala Subramaniam Consultant Paediatrican Derby Dr Dominic Muogbo Consultant Paediatrician Burton Dr Jonathan Riley Paediatric Registrar
Consultation with:	Paediatric Team Derby and Burton Public Health England
Approved By:	*Paediatric Business Unit Guidelines Group, Women and Children's Division – 27th August 2020*
Review Date:	August 2023
Key Contact:	Dr Bala Subramaniam

10. Appendices

Appendix 1 – Definitions

HBsAg is Hepatitis B surface antigen, historically and familiarly known as Australia antigen. This marker is found in both acute and carrier states. In most cases HBsAg disappears about 3 months after the onset.

Anti-HBs is the antibody to the above. When a case of Hepatitis B seroconverts, anti-HBs can be detected and the patient is no longer infectious. Anti-HBs is also detectable after successful vaccination or treatment with HBIG (Hepatitis B Immunoglobulin).

HBcAG Hepatitis B core antigen is the infectious DNA core of the virus particle. It is produced only in the liver and does not circulate in the blood. It is not, therefore, ordinarily detectable nor is it tested for (but see 'e' markers, below).

Anti-HBc is the immune response to core antigen. It is found in acute, convalescent and carrier states. It does NOT confer immunity and is not found in the vaccine response. In the absence of HBsAg, the test for core antibody is used to detect past experience of the virus in selected cases, e.g. organ donors, drug abusers with a history of hepatitis, chronic hepatitis and so on.

HBeAg Hepatitis Be antigen. This antigen is produced in the liver as an essential part of the process of core antigen production. It follows that the presence of 'e' antigen in the blood indicates that complete virus is being produced and that the patient is infectious. It is not necessary to test for it in acute cases since it will always be present. An HBsAg carrier who also has HB'e'Ag is considered to be able to infect contacts far more easily than a carrier of HBsAg only. HBsAg carriers will be tested for 'e' markers.

Anti-HBe This marker, the antibody to 'e' antigen, indicates that a patient producing little or no complete virus particles and is NOT a dangerous carrier.

Appendix 2 – Derby Notification Letter

«GPName»
«GPAddress1»
«GPAddress2»
«GPAddress3»
«GPAddress4»
«GPAddress5»
«GPPostCode»

Royal Derby Hospital
X
X
X
X
x

18 September 2020

Consultant Paediatrician: «PaediatricianName»

Name: «PatientLastName», «PatientFirstName» **DOB:** «PatientDOB» («PatientTOB») **Address:** «Address1» «Address2» «Address3» «Address4» «Address5» «PostCode»	**NHS Number:** «PatientNHSNo» **Gender:** «PatientGender» **Birth Weight:** «BW»g **Gestation at birth:** «PatientGA» weeks **Mode of delivery:** «DeliveryType»

Dear GP

This baby is at risk of Hepatitis B infection and requires a full course of Hepatitis B vaccine. This infant is at risk of Hepatitis B infection for the following reason *(please tick)*:

1. Mother has Hepatitis B infection (needs additional doses) ☐

2. Any of the following: ☐

Father or close household contact has Hepatitis B (should follow routine vaccine schedule)

Maternal Details (affix label)

Surname: …….. First name: ……

DOB: …….. NHS No: ……

Hospital No:

Maternal Hepatitis Status:

	Positive	Negative	Unknown
HBs Antigen	☐	☐	☐
HBe Antigen	☐	☐	☐
Anti-HBe	☐	☐	☐

The first dose has been given (see details below). This infant needs further doses of Hepatitis B vaccine to complete the course, and we would be grateful if this could be arranged through your practice. (only applies if Mother is Hepaitits B infection (see box 1)

- The next dose at 4 weeks of age
- Routine Hepatitis B vaccine at 8, 12 and 16 weeks of age (Given to all babies)
- A booster at 12 months of age

Infant Details (affix label)

Surname: …….. First name……..

DOB: …… NHS number……

Hospital No:……..

Hep B vaccine given: Yes/No

Batch No: …… Thigh: Left / Right

Date: …… Time: ……

Hep B immunoglobulin given: Yes / No

Batch No: ……. Thigh: Left / Right

Date: …… Time: …….

Subsequent arrangements

Antigen and antibody (HBs Ag and anti-HBs) level should be checked 2 – 4 months following completion of immunisation schedule. This can preferably be done at the same appointment as the 12 month dose.

The Hepatitis B vaccine does not interfere with any of the other immunisations in the infant schedule, and they can be given as normal.

Please do not hesitate to contact us should there be any problems regarding the further Hepatitis B Immunisations.

Yours sincerely,

«ScreenerName»
«ScreenerRoleLatest»

Copies to:
1 Copy in Medical Notes
1 Copy To GP, by post or electronically attached to discharge – address FAO Practice Nurse (Please DO NOT give to mother)
1 Copy To Health Visitor
1 Copy To Antenatal Screening specialist midwife, Antenatal Clinic, Level 1 Royal Derby Hospital DE22 3NE
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Appendix 2 – BurtonNotification Letter

«GPName»

«GPAddress1»

«GPAddress2»

«GPAddress3»

«GPAddress4»

«GPAddress5»

«GPPostCode»

Queen's Hospital

Belvedere Road

Burton upon Trent

Staffordshire

DE13 0RB

18 September 2020

Consultant Paediatrician: «PaediatricianName»

Name: «PatientLastName», «PatientFirstName» **DOB:** «PatientDOB» («PatientTOB») **Address:** «Address1» «Address2» «Address3» «Address4» «Address5» «PostCode»	**NHS Number:** «PatientNHSNo» **Gender:** «PatientGender» **Birth Weight:** «BW»g **Gestation at birth:** «PatientGA» weeks **Mode of delivery:** «DeliveryType»

Dear GP

This baby is at risk of Hepatitis B infection and requires a full course of Hepatitis B vaccine. This infant is at risk of Hepatitis B infection for the following reason *(please tick)*:

2. Mother has Hepatitis B infection (needs additional doses) ☐	2. Any of the following: ☐ • Father or close household contact has Hepatitis B (should follow routine vaccine schedule)

Maternal Details (affix label)

Surname: …….. First name: ……

DOB: …….. NHS No: ……

Hospital No: ……..

Maternal Hepatitis Status:

	Positive	Negative	Unknown
HBs Antigen	☐	☐	☐
HBe Antigen	☐	☐	☐
Anti-HBe	☐	☐	☐

The first dose has been given (see details below). This infant needs further doses of Hepatitis B vaccine to complete the course, and we would be grateful if this could be arranged through your practice. (Only applies if Mother is Hepaitits B infection (see box 1)

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- Routine Hepatitis B vaccine at 8, 12 and 16 weeks of age (Given to all babies)
- A booster at 12 months of age
-

Infant Details (affix label)

Surname: …….. First name……..

DOB: …… NHS number……

Hospital No:……..

Hep B vaccine given: Yes/No

Batch No: …… Thigh: Left / Right

Date: …… Time: ……

Hep B immunoglobulin given: Yes / No

Batch No: ……. Thigh: Left / Right

Date: …… Time: …….

<u>Subsequent arrangements</u>

Antigen and antibody (HBs Ag and anti-HBs) level should be checked 2 – 4 months following completion of immunisation schedule. This can preferably be done at the same appointment as the 12 month dose.

The Hepatitis B vaccine does not interfere with any of the other immunisations in the infant schedule, and they can be given as normal.

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«ScreenerRoleLatest»

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