

Ref: T25/26698

NAME OF DOCUMENT	Hepatitis B Positive Mother – Neonatal management
TYPE OF DOCUMENT	Clinical Business Rule
DOCUMENT NUMBER	RHW CLIN133
DATE OF PUBLICATION	12 May 2025
RISK RATING	Medium
REVIEW DATE	May 2028
FORMER REFERENCE(S)	Hepatitis B Positive Woman and her neonate(s)
EXECUTIVE	Sally Wise, Nursing Co-Director Neonatal Services
SPONSOR	Srinivas Bolisetty, Medical Co-Director Neonatal Services
AUTHOR	S Bolisetty (Neonatologist), P Williams (Paediatric Infectious Diseases Physician)
SUMMARY	To guide clinicians in the management of neonates born to Hepatitis B Positive Mothers
Key Words	Hepatitis B, Hepatitis B immunoglobulin, hepatitis B vaccine, neonate



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Within this document we will use the term woman, this is not to exclude those who give birth and do not identify as female. It is crucial to use the preferred language and terminology as described and guided by each individual person when providing care.

1 BACKGROUND

The aims are (1) reduction in mother to neonate transmission of Hepatitis B virus (HBV), and (2) arrange postnatal follow up of neonates. This CBR is developed in line with the current New South Wales Policy Directive.¹

2 RESPONSIBILITIES

2.1 Staff (medical, midwifery, Nursing, Allied health)

- 2.1.1 Midwifery/nursing Reduce the risk of HBV transmission from mother to neonate by appropriate maternal screening, administer Hepatitis B vaccination (Hep B vaccine) for all newborns, and the use of prophylactic Hepatitis B Immunoglobulin (HBIG) for neonates of HBsAg-positive mothers.
- 2.2.2 Medical Prescription of Hep B vaccine and HBIG for neonates in Newborn Care Centre. Signing of standing orders within 24 hours of administration by a midwife. Arrangement for follow up.

3 PROCEDURE

3.1 Equipment

- Hep B Vaccine
- Intramuscular injection needle 23g or 25g 16mm length
- HBIG 100 International units

3.2 Clinical Practice (Appendix 1)

 Routine antenatal screening of pregnant women for HBsAg enables appropriate management to prevent newborn neonates developing hepatitis B. For maternal management information, including maternal serology, refer to the RHW CBR



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Hepatitis B: Universal Screening in Pregnancy and the Management of a Positive Woman.

- Intramuscular Hep B Vaccine (0.5mL) and HBIG (100 International units) can be administered by a standing order in birth unit. Ensure medical officer signs the order within 24 hours of administration.
- For neonates in NCC; medical officer to prescribe Intramuscular Hep B vaccine (0.5 mL) and HBIG (100 International units) on the neonatal medication chart on day of birth.
- Clean the neonate's eyes and non-intact skin with water as soon as possible after the birth
- Obtain verbal consent from the woman for her neonate to receive Hepatitis B vaccine and written consent for the immunoglobulin using Blood and Blood products Administration form (SEI130.060) [Appendix 2].
- Request immunoglobulin from blood bank on Authority to Issue Blood Products form (S1289) [Appendix 3].
- Administer vaccine and immunoglobulin at birth. Both must be given within 12 hours
 of birth, preferably before leaving birth unit. Ensure this is double checked with a
 second midwife/RN.
- Clean the injection sites with alcohol swab before administering injections, allow skin to dry before administering injections.
- Administer intramuscular HBIG and Hep B vaccine on separate thighs. The
 anterolateral aspect of the thigh is recommended. The gluteal area should not be
 used in a neonate.
- Record administration of the vaccine (including batch number and expiry date) in:
 - o K2 Guardian
 - o eMR medication chart
 - eRIC medication chart (if baby is transferred or admitted to the Newborn Care Centre)
 - Newborn Care Centre (NCC) admission sheet (if baby is transferred or admitted to the Newborn Care Centre)
 - Neonatal Vaccination Record (orange form)
 - Newborn Personal Health Record (blue book)

NOTE:

Missed doses of Hep B vaccine or HBIG significantly increases the risk of neonatal infection. If a dose is missed, this requires an incident management system (IMS+) notification to be made.

- Complete the Neonatal Vaccination Record (Appendix 4) form COMPLETELY and file in maternal/neonatal notes. Provide a copy for the woman.
- Inform the Infection Prevention and Control (IPC) Clinical Midwifery Consultant (CMC) of the maternal and neonatal details. The IPC CMC will inform New South Wales Public Health Unit.
- Remind parents before discharge of the importance of the neonate receiving second, third and fourth vaccinations at six weeks, four months and six months. For newborns admitted to NCC, schedule a task in eRIC to prompt a reminder for the 6-week vaccinations.



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- Ensure women has been given parent information leaflets (<u>Hepatitis B vaccination</u>, <u>For your newborn baby</u> and <u>Hepatitis B Mothers and Babies | Hepatitis NSW</u>).
- Give woman discharge summary and Hepatitis B letter (generated from eMaternity see Appendix 5) to take to GP for follow up testing of baby (HBS Ag and Anti-HBs) at 9-12 months of age.
- The neonate is considered protected against hepatitis B if:
 - anti-HBs (antibody to HBS AG) levels are adequate (≥10 mIU/mL0 and
 - o HBsAg is negative.

NOTE:

Do not test the infant before 9 months of age, to avoid detecting anti-HBs from the HBIG given at birth.⁶

If any follow-up tests return positive, further follow-up by a paediatrician is necessary

3.3 Documentation

- eRIC
- NCC admission sheet
- Neonatal Care plan
- eMEDS
- Guardian K2
- Personal Health Record (Baby's blue book)
- Blood and Blood Products Administration (SEI130060)
- Authority to Issue Blood Products (\$1289)
- Neonatal Hepatitis B Vaccination Record (SMR060481)

3.4 Education Notes

- After acute hepatitis B infection, up to 12% of affected adults and up to 90% of infected neonates may become chronically infected carriers. The virus is spread via blood and body fluids and can potentially be transmitted from mother to baby in-utero (4%)², at birth (most often) or after birth.
- For a neonate born to a mother with HBV infection, the risk of mother-to-child transmission of HBV can be as high as 90% without the use of active and passive immunization.³ Hepatitis B vaccination reduces the risk of infection by 70%; the addition of HBIG at birth augments this risk reduction to over 90%.⁴
- HBsAg positive women can breastfeed their babies providing the baby is immunized.
- Children diagnosed with chronic Hepatitis B should be referred to a paediatric service with expertise in viral hepatitis. Although most will have minimal liver disease early in life, this is not true for all children with chronic infection. A recent study reported that referral of these children for assessment is rarely occurring in Australia.^{5,6}
- Caesarean section is known to lower the risk of perinatal transmission in chronically infected HBeAg positive mothers with high viral loads, however, the benefit of caesarean section is only marginal and caesarean section may not be protective without active/passive immunisation of the baby. Therefore, Hepatitis B infection should not alter



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the mode of delivery with caesarean section being reserved for the usual obstetric indications.⁶

- It is vital to ensure neonates born to HBsAg and HBeAg positive mothers receive HB vaccine plus HB immunoglobulin at birth. The Hepatitis B vaccine course must be completed with doses at 6 weeks, 2 months and 6 months of age. ^{5,6,7,8}
- Birth doses of HB vaccines are monovalent vaccines. There are 2 paediatric monovalent vaccines are available:
 - Engerix-B: Each 0.5 mL contains 10 μg HBsAg protein, adsorbed onto 0.25 mg aluminium as aluminium hydroxide hydrate.
 - H-B-Vax II: Each 0.5 mL contains 5 μg recombinant HBsAg protein, adsorbed onto 0.25 mg amorphous aluminium hydroxyphosphate sulfate.

3.5 Abbreviations

HBV	Hepatitis B Virus	Нер В	Hepatitis B vaccine
		vaccine	
HBIG	Hepatitis B immunoglobulin	HBsAg	Hepatitis B surface Antigen
IPC	Infection Prevention and	CMC	Clinical Midwifery Consultant
	Control		
Anti-HBs	Hepatitis B surface antibody	HBeAg	Hepatitis B e antigen

3.6 Related Policies/procedures

- ANMF Hepatitis B vaccine
- ANMF Hepatitis B Immunoglobulin
- RHW CBR Hepatitis B: Universal Screening in Pregnancy and the Management of a Positive Woman
- RHW CBR Hepatitis B vaccine administration for the neonate
- NSW Health Neonatal and Infant Hepatitis B Prevention and Vaccination Program Policy Directive PD2023 032
- SESLHD Standing Order Hepatitis B vaccine and Hepatitis B Immunoglobulin-Administration in Maternity Services.

3.7 References

- Neonatal and Infant Hepatitis B Prevention and Vaccination Program Policy Directive. PD2023_032. Publication date: 13 October 2023. https://www1.health.nsw.gov.au/pds/ActivePDSDocuments/PD2023_032.pdf. Accessed on 23 July 2024.
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- 6. The Royal Australian and New Zealand College of Obstetricians and Gynaecologists. Hepatitis B. RANZCOG College Statement C-Gen 3. 2019.
- 7. Australian Technical Advisory Group on Immunisation (ATAGI). Australian Immunisation Handbook, Australian Government Department of Health, Canberra, www.immunisationhandbook.health.gov.au. Accessed on 23 July 2024.
- 8. Australasian Society for Infectious Diseases (ASID). Management of Perinatal Infections, Third edition 2022, edited by P Palasanthiran, M Starr, C Jones, M Giles.

4 ABORIGINAL HEALTH IMPACT STATEMENT DOCUMENTATION

- Considerations for culturally safe and appropriate care provision have been made in the development of this Business Rule and will be accounted for in its implementation.
- When clinical risks are identified for an Aboriginal and/or Torres Strait Islander woman or family, they may require additional supports. This may include Aboriginal health professionals such as Aboriginal liaison officers, health workers or other culturally specific services

5 CULTURAL SUPPORT

- For a Culturally and Linguistically Diverse CALD woman, notify the nominated crosscultural health worker during Monday to Friday business hours
- If the woman is from a non-English speaking background, call the interpreter service:
 NSW Ministry of Health Policy Directive PD2017 044-Interpreters Standard
 Procedures for Working with Health Care Interpreters.

6 NATIONAL STANDARDS

- Standard 1 Clinical Governance
- Standard 2 Partnering with Consumers
- Standard 3 Infection Prevention and Control
- Standard 4 Medication Safety
- Standard 5 Comprehensive Care
- Standard 6 Communicating for Safety
- Standard 7 Blood Management



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7 REVISION AND APPROVAL HISTORY

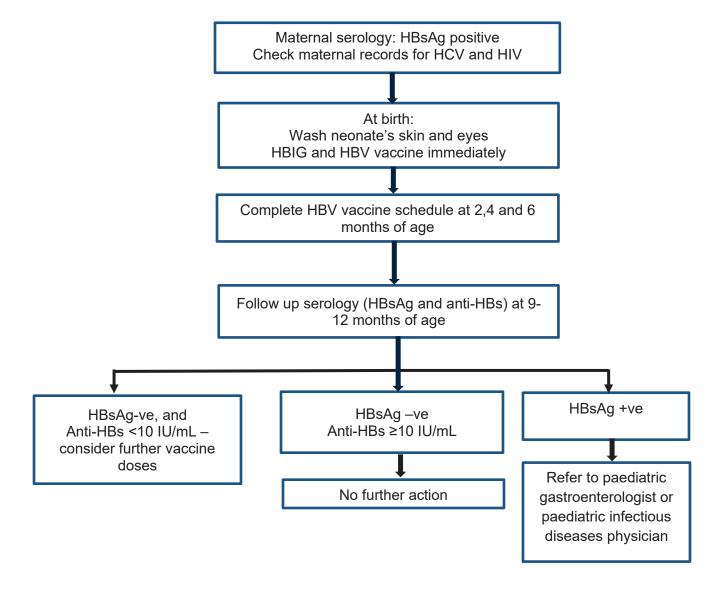
Date	Revision No.	Author and Approval
14/9/04	1	Endorsed Neonatal Clinical Committee 8/7/03 & Maternit Services Clinical Committee 14/9/04
		Approved Quality Council 20/9/04
	2	Previously titled Hepatitis B Program Procedure for Babies of Hepatitis B Positive Mothers
October 2012	3	Reviewed and endorsed Maternit Services Division LOPs group October 2012 Approved Quality & Patient Safety Committee December 2012
9/2/21	4	Reviewed and endorsed Maternity Services LOPs group 9/2/21
6.2.2025	5	Srinivas Bolisetty (Neonatologist), Phoebe Williams (Paediatric Infectious Diseases Physician) Endorsed by NCC CBR Committee
14.4.25	5	RHW BRGC



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Appendix 1. Neonatal management - Algorithm





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Appendix 2 Blood & Blood Products Administration

Health South Eastern Sydney Local Health District Illawaris Shoelheven Local Health District		FAMILY NAME		MRN		
		GIVEN NAME		☐ MALE	☐ FEMALE	
GOVERNMENT	Sydney Children's Hospital Rand	dwick	D.O.B//	M.O.		
Facility:			ADDRESS			
BLO	OD & BLOOD PRO	DUCTS				
ADMINISTRATION			LOCATION / WARD			
	MEDICAL	DEELCED TO	COMPLETE ALL I	ADMINISTRAT		BEL HERE
Indication f	or blood/blood products	5		erse reaction to O (If yes, give details		
				(a you, giro donin		
			signed by Patient/Parent/			Yes □ N
☐ I underst	tand that I may withdraw t	his consent at a	undergoing the treatment of any time prior to, or during	the treatment.		
☐ I hereby Consenting	r consent to the treatmer g Medical Officer:	Medical Officer		d / person under	Date	2
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Appendix 3 Authority to Issue Blood Products

D.O.B.: D.O.B.: District Bleeding Protocol District Bleeding 2 District Bleeding 3 District Bleeding 3 District Bleeding 3 District Bleeding 4 Distr
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Appendix 4 Neonatal Hepatitis B Vaccination Record

NSW Health	The second development of	RN			
NSW		MALE FEMALE			
Facility:	DO.B/ MO.				
ADDRESS					
NEONATAL HEPATITIS B					
VACCINATION RECORD	LOCATION / WARD				
MY PERSONAL HEALTH RECORD	COMPLETE ALL DETAILS OR AFFIX PAT	IENT LABEL HERE			
NEONATE BORN TO HEPATITIS B POSITIVE M	OTHER				
Baby's name (if known):	Birth location:				
Gestational weeks:	Time of birth:: Birth weig	ght: grams			
Indigenous Status: Yes - Aboriginal Yes - To	orres Strait Islander Yes - Both Ne	either Unknow			
NEONATE IMMUNOGLOBULIN/VACCINATION I	DETAILS	12.516			
Hepatitis B Immunoglobulin administered ☐ Yes ☐ No Hepatitis B Immunoglobulin within 12 hours ☐ Yes ☐ No ims+ submitted ☐ Yes ☐ No	Date: / / Time:	-			
Birth dose hepatitis B vaccine Yes No (given within 7 days)	Date:/ / Time:	:			
NEONATE FOLLOW-UP WITH	LINA				
Mother's nominated location for follow-up (GP/ Council Clinic/AMS)	Has the neonate's follow-up care been e	^			
Name:	Copy of GP letter given? Yes Copy of brochure given? Yes				
Address:		ompleted if GP lette			
Phone:					
MOTHER					
	Given names:				
Indigenous Status: Yes - Aboriginal Yes	Torres Strait Islander Yes - Both				
Phone: Unkr	Mobile:				
Email:	MRN:				
Mother referred to GP: Yes No Name of GP: And/Or	Referral d	ate://_			
Mother referred to Specialist: ☐ Yes ☐ No Name o	of Specialist Referral d	ate: / /_			
Highest viral load during current pregnancy:					
Mother's Medicare number	Single	Digit next to			
FATHER/PARTNER/ALTERNATE	Mother	's name			
	Dright Strategy Property				
Family name:	M (445) 1-40 M				
Phone:	Mobile:				
Email:					
Father/Partner's Medicare number (if available/different to mother's):		Digit next to Partner's name			
CHECKLIST	ant LUD materials data have and Mr. B.	D D.			
 Have all vaccination details been entered in the relevement that the relevement of the second (Blue Book)? 		Yes N			
Has a copy of this form been forwarded to the Neona Coordinator following the neonate's discharge from h	atal Hepatitis B Vaccination Program Hospital nospital?	Yes N			
and the same of th		☐ Yes ☐ N			
3. Has a copy of this form been sent to the LHD Neona	ten entra minera i televinita en ecena :				
	Letter been given to the mother/ guardian and a				
 Has a copy of this form been sent to the LHD Neonal Has the Neonatal and Infant Hepatitis B Follow up GP 	Letter been given to the mother/ guardian and a				



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Appendix 5 Letter to General practitioner/paediatrician

Date: xx/xx/xxxx

Address

Dear Dr

RE: Baby of XX DOB: xx/xx/xxxx MRN: XXXXXXXXX. Gender: Birthweight:

- * Hepatitis B vaccine: Given on xx/xx/xxxx
- * Hepatitis B immunoglobulin (HBIG): Given on xx/xx/xxxx xx:00 hrs
- * Peak maternal viral load xxx /mL (datedxx/xx/xxxx) and peak maternal ALT xxx (dated (xx/xx/xxxx)

It is estimated that up to 90% of infants infected with hepatitis B virus (HBV) as neonates become chronic HBV carriers. Therefore, preventing neonates becoming HBV carriers can avoid the serious complications associated with hepatitis B infections.

We recommend the following:

- 1. Complete 3 subsequent doses of hepatitis B containing vaccine as per routine vaccine schedule at 2, 4 and 6 months of age. 2-month dose can be at 6 weeks of age. There is no need to catch-up the birth dose of hepatitis B vaccine if it is not administered within the first 7 days of life.
- 2. Perform Hepatitis B surface antigen antibody (Anti-HBs) and HBsAg levels at 9-12 months of age (not before 9 months of age). This is to confirm the immunity for the infant. Children who have Anti-HBs levels ≥ 10 m IU / mL and are HBsAg negative are considered to be protected.
- 3. If the Anti-HBs level is < 10mIU/mL, the possibility of hepatitis B infection should be investigated, and expert advice sought regarding revaccination and /or further testing. Children who test HBsAg positive should be referred to a paediatrician experienced in viral hepatitis or paediatric infectious diseases specialist clinic at Sydney Children's Hospital, Randwick.</p>

Additional important considerations include:

- Specialist assessment of HBsAg positive mothers.

Hepatitis B vaccination is recommended for any susceptible household contacts.

Please do not hesitate to contact the immunisation team at your local Public Health Unit on 1300 066 055 if you require any additional advice regarding the management of this infant.