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Management of Infectious Diseases during Pregnancy Guideline

Summary statement: How does the document support patient care?	The purpose of this guideline is to provide evidence based guidance for staff on the timely management of infectious diseases during pregnancy
Staff/stakeholders involved in development:	Consultants in sexual health and HIV medicine, Microbiology Consultants, Obstetric lead for infectious diseases, Paediatric Consultants, Antenatal Screening Co-ordinator
Division:	Women and Children's
Department:	Maternity
Responsible Person:	Chief of Service
Author:	Antenatal Screening Co-ordinator and Consultant in sexual health and HIV medicine
For use by:	Medical and Midwifery staff
Purpose:	To provide guidance for staff in the care of pregnant women/people with infectious diseases in pregnancy
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Key related documents:	**WSHFT Maternity Guidelines:** Antenatal Screening Tests, Induction of Labour, Caesarean section, Rash and Viral Illnesses during Pregnancy Guideline.
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1.0	August 2012	Antenatal Screening Co-ordinator (ASC) and GUM Consultant	Archived	New Trust Maternity guideline
2.0	July 2013	Antenatal Screening Co-ordinator Consultant Paediatricians GUM Consultants	Archived	Tracker form updated to include positive Hep C & syphilis. Addition of management of infants born of syphilis positive mothers
2.1	April 2014	Antenatal Screening Co-ordinator	Archived	Minor update and addition of chlamydia screening
3.0	January 2015	Antenatal Screening Co-ordinator	Archived	Minor updates to guideline and tracker form
4.0	July 2016	Antenatal Screening Co-ordinator	Archived	Syphilis guidance updated
5.0	August 2018	Antenatal Screening Co-ordinator	Archived	Removal of Hep B vaccination for babies of HIV positive women Addition of Quality Monitoring Standards Addition of gonorrhoea testing
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5.2	January 2021	Clinical Effectiveness Midwife S. Glass	Archived	Addition of appendices 2 & 3 Document reformatted and addition of hyperlinks.
5.3	April 2021	Antenatal Screening Coordinator (H. Boiling)	Live	Update to Hepatitis B pathway, Hep C Appendix 1 updated

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Management of Infectious Diseases during Pregnancy Guideline

1.0 Aim

The aim is to provide clear guidance for all staff caring for pregnant women/people with a pre-existing or newly diagnosed sexually transmitted disease.

This guideline covers:

- HIV
- Hepatitis B
- Hepatitis C
- Syphilis
- Genital herpes
- Chlamydia
- Gonorrhoea

2.0 Scope

Midwives
Obstetricians
Microbiology staff
Sexual Health staff

3.0 Responsibilities

3.1 Midwives, Obstetricians and Microbiology staff:

- To access, read, understand and follow this guidance.
- To use their professional judgement in application of this guideline.
- This guidance is for staff employed by Western Sussex Hospitals Trust. The guidance is flexible and should be tailored to the individual circumstances of the parents. If the guidance is not being followed, documentation of the reasoning and/or justification is essential, with clear documentation of alternative plans and discussions.

3.2 Management:

- To ensure the guideline is reviewed as required in line with Trust and National recommendations.
- To ensure the guideline is accessible to all relevant staff.

4.0 HIV

All pregnant women/people are offered screening for HIV each pregnancy as part of the antenatal screening process which occurs at booking. They can request additional screening at any time during the pregnancy.

- If a pregnant woman/person declines screening, this must be entered on maternity Information system (MIS), noted on the risk form and the Screening Team notified.
- A formal re-offer of screening must be made by 20 weeks and documented in the maternity notes and on MIS. This offer consists of a letter with written information about the benefits of screening and the offer of an appointment and contact details.
- Cases of known HIV should be documented on both the booking blood form and the antenatal risk assessment by the booking midwife.
- Antenatal HIV care should be delivered by a multidisciplinary team (MDT) who are responsible for following the current British HIV Association (BHIVA) guideline.

4.1 Positive result

- Consultant Microbiologist informs Antenatal Screening Co-ordinator (ASC) and Sexual Health Advisor via generic email.
- Commence WSFHT Maternity HIV Pathway and Care Plan for Neonate of HIV Positive Woman.
- The Screening team will liaise with the Health Advisor regarding the positive result
- Pregnant women/people with positive screening test results should be contacted and advised about the result, at an appointment made for that purpose, within 10 working days of the result being available to maternity services.
- Screening team midwife will ensure patient has information using IDPS patient information leaflet.
- ASC will liaise with the Consultants in Sexual health and HIV medicine. From this point the care and management of HIV is taken over by the Sexual Health Team.
- The Screening Team will notify National Study of HIV in Pregnancy.
- Management of the HIV, medication and communication with the Primary Care, Obstetric and Paediatric Teams are the responsibility of the Sexual Health Team.
- Non-attendance at specialist appointments should be reviewed within a multidisciplinary framework and an action plan developed.
- Maternal & neonatal alerts are created on the Maternity Information system.

NB. If a pregnant woman/person subsequently miscarries it remains the responsibility of the ASC to co-ordinate ongoing care.

4.2 HIV infected pregnant woman/person known to Sexual Health Team

- Sexual Health Team will inform Consultant Obstetrician, Antenatal Screening Coordinator and Consultant Microbiologist of pregnancy.
- Pregnant women/people will be advised to access primary care team for routine pregnancy care.
- Appointment with Consultant Obstetrician at 12-16 and 34-36 weeks.
- Consultant Obstetrician will make formal referral to Consultant Paediatrician following first appointment.

4.3. Pregnancy management

4.3.1 Key points

- ASC informs Consultant Obstetrician and arranges an Antenatal Clinic appointment with the pregnant woman/person for 12-16 weeks to discuss diagnosis and management of pregnancy. A plan of care should be documented in Maternity hospital record; including an appointment at 34-36 weeks to discuss and document the plan for birth which will be confirmed according to latest viral load result.
- Consultant Obstetrician will make a referral to the Lead Consultant Paediatrician for HIV, who will arrange an appointment with the parents to discuss and document a neonatal care plan which will be held in the Maternity hospital record and copied into hand held records with patient's permission.
- The pregnant woman/person must be assured that their confidentiality with regard to their diagnosis will be respected but should be encouraged to allow disclosure to health professionals such as Community Midwife, Health Visitor and GP.
- They should also be encouraged and supported with disclosing their status to their sexual partner with counselling and support.
- Permission should be asked of the pregnant woman/person to record HIV result in hand held notes. If permission not given to be left blank.
- Sexual health screening is recommended for pregnant women/people newly diagnosed with HIV.
- For HIV-positive pregnant women/people already engaged in HIV care who become pregnant sexual health screening is suggested.
- In pregnant women/people who commence (combination) cART in pregnancy, an HIV viral load should be performed 2–4 weeks after commencing cART, at least once every trimester, at 36 weeks and at birth.
- For pregnant women/people on cART with a viral load of <50 copies/mL at 36 weeks, and in the absence of obstetric contraindications, a planned vaginal birth is recommended.
- For pregnant women/people with a viral load of 50-399 copies/mL at 36 weeks, Caesarean Section (CS) should be considered, taking into account the actual viral load, the trajectory of the viral load, length of time on treatment, adherence issues, obstetric factors and the pregnant woman/person's views.

- Where the viral load is > 400 copies/mL at 36 weeks regardless of ARV therapy, CS is recommended.
- Where the indication for CS is the prevention of MTCT, LSCS should be undertaken at between 38 and 39 weeks' gestation.
- HIV infected pregnant women/people requesting invasive prenatal diagnosis should be counselled by a fetal medicine specialist. This should be done in consultation with the HIV Consultant to optimise treatment to prevent HIV transmission associated with the procedure.
- Intravenous (IV) AZT is recommended for pregnant women/people with a viral load of >1,000 HIV RNA copies/mL or for untreated pregnant women/people presenting in labour, with ruptured membranes or admitted for a planned LSCS. It may be considered in pregnant women/people on zidovudine monotherapy undergoing LSCS, but continued oral dosing is a reasonable alternative.

4.3.2 34- 36 week antenatal appointment

- Prior to this appointment the Sexual Health Consultant will write to the Consultant Obstetrician with a summary of current care, medication, CD4 count and viral load.
- At the appointment, the Consultant Obstetrician will confirm mode of birth and discuss infant feeding. Birth plan may be amended based upon the final 36/40 viral load. The neonatal plan for recommended post-exposure prophylaxis (PEP) should also be discussed.
- The birth plan will be documented in the Maternity HIV Pathway.
- Following this appointment the Consultant Obstetrician will write to the Paediatric and Sexual Health Consultants to notify them of the birth plan.
- If AZT is required, the Consultant for HIV will inform the specialist HIV pharmacist who will order and dispense to Labour Ward by 36 weeks. This will need to be prescribed on admission. A supply of AZT is available in the emergency drug cupboard (contact on- call pharmacist).

4.3.3 HIV infected pregnant women/people refusing advice or treatment

A pre-birth case conference involving social services should be held to plan post-natal interventions to reduce the risk of transmission (RCPCH 2006).

4.4 Complications of Early Pregnancy

4.4.1 Hyperemesis

For HIV positive pregnant women/people, particularly those on cART, a diagnosis of hyperemesis should only be made once acidosis, hepatitis and pancreatitis have been excluded. Controlled interruption of cART may be the best option in severe cases of

hyperemesis. The HIV Consultant must be informed of all women with hyperemesis in order to advise on differentials and optimisation / cessation of cART.

4.4.2 Bleeding

Management of pregnant HIV positive women/people who experience vaginal bleeding is the same as that of pregnant women/people who are HIV negative. The possibility of drug toxicity should be considered in pregnant women/people with abdominal pain.

4.5 Complications of later pregnancy

Some of the medical conditions that may arise as a result of HIV infection can complicate pregnancy. Some of these are known to increase the risk of pregnant woman/peerson -to-child transmission.

- HIV infection may increase the risk of thrombi. All HIV positive pregnant women/people undergoing surgical procedure must have TEDS and/or Fragmin prescribed.
- Thrombophilias – Treatment is the same as for HIV negative women/people, although there are no studies to confirm efficacy.
- Nephropathies associated with HIV infection can occur. Commonest is immunoglobulin A (IgA) nephropathy resulting in large amounts of proteinuria. Increases the risk of PET and hypertension and thromboembolism.
- Consultation with sexual health clinic should be undertaken for management plan.

4.6 Pre-term labour

- Management is the same as for HIV negative pregnant women/people.
- A vaginal swab for bacteriology must be taken.
- Dexamethasone or Betamethasone and anti-tocolytics if advised.

4.6.1 Pre-term Pre-labour Rupture of Membranes (PPROM) <34 weeks

- Consider prolonging pregnancy taking into account maternal cART, viraemia and presence of other pregnancy or HIV related co morbidities.
- Steroids should be administered.
- Look for genital infections and start erythromycin.
- Give prophylaxis for group B streptococcus in labour if Group B strep found on HVS or MSU during index pregnancy. IV benzylpenicillin is recommended even if they have already been started on erythromycin.
- Contact HIV Consultant immediately about admission and optimise cART regime to reduce risk of pregnant woman/person-to-child transmission.

- Strongly consider maternal single-dose NVP / Double dose Tenofovir and Raltegravir if neonate will be unable to take oral PEP.
- Consider IV AZT if viral load is detectable.
- Continue maternal ART.
- There should be multidisciplinary discussion about the timing and mode of birth. Consider transfer to tertiary referral unit if <32 weeks.
- If viral load <50 induction of labour is recommended, if viral load > 50 caesarean section is recommended.

4.6.2 PPROM >34 weeks

- Birth should be expedited regardless of pregnant woman/person's viral load (VL) and therapy.
- If viral load <50 induction of labour is recommended, if viral load >50 caesarean section is recommended.
- Look for genital infections and start erythromycin.
- Give prophylaxis for group B streptococcus in labour.

4.7 Intrapartum care

Please refer to the intrapartum care plan in the patient's HIV care pathway in the green hospital notes. If HIV consultant advice is needed out of hours please contact HIV Clinician on call via switchboard.

4.7.1 Term Pre-labour Rupture of Membranes (PROM)

- Broad spectrum IV antibiotics should be given where there is evidence of chorioamnionitis.
- IOL is recommended for those with a non-detectable viral load and favourable cervix. The aim is birth within 24 hours.

4.7.2 Induction of labour

Pregnant women/person with a non-detectable viral load can be induced for the usual reasons.

4.7.3 VBAC

VBAC carries the same risks as for HIV negative women/people. This should be offered if the criteria are met for vaginal birth - see Birth after Caesarean (BAC) guideline.

4.7.4 Management of vaginal birth

- Each pregnant woman/person will have an individual birth plan documented in the Maternity HIV Pathway, with details of medication and any medical instructions.
- Labour must progress normally, with mother and fetus in good condition throughout. If viral load < 50 management of labour should follow same principles as uninfected population (including use of ARM, fetal blood sampling, FSE application and episiotomy).
- Fetal Blood Sampling and FSE application are contra-indicated in pregnant women/people with detectable viral load.
- Episiotomy if required should be performed immediately prior to birth to minimise the risk of transmission from mother to newborn.
- Do not delay LSCS for those who have presented in labour and are not suitable for vaginal birth.
- Low cavity traction forceps and ventouse are permissible in women with VL< 50
- IV AZT is not indicated for pregnant women/people with an viral load <1000copies/mL.
- If IV AZT/ZDV has been commenced, continue until cord is clamped.

4.7.5 Un-booked woman in labour or undocumented HIV Result

- If undocumented, check whether HIV result is on Semahelix before contacting the laboratory.
- If booked elsewhere but un-booked here and admitted to our unit in labour, check her handheld medical notes and if not evident, contact the hospital she is booked at for the result.
- If positive, HIV Consultant on-call should be notified immediately.

Urgent HIV testing should be offered to women thought to be at high risk of infection, which might include:

- Recent migrants from countries with high rates of HIV infection.
- Women who misuse substances intravenously.
- Suspected sexual abuse.

If urgent HIV test indicated phone laboratory and request ‘Urgent HIV Test’ and notify Pathology laboratory reception. (For out-of-hours call switchboard and ask for **On-Call Biomedical Scientist** to come in to process sample.) Result is available approximately one hour after received in SRH laboratory - NICE NG121 2019.

(See section **8.0** CG1125 Management of non-attendance for maternity care guideline for management of un-booked pregnant women/people in labour.)

4.8 Admission for elective caesarean section

- If AZT infusion required, admit to Labour ward the evening before.
- If AZT infusion not required admit as usual to Labour ward at 0800.
- Weigh patient in kilograms.
- Inform Consultant Obstetrician and Consultant Paediatrician of admission.
- If required commence IV AZT 4 hours before operation (See Appendix 4 for preparation and dose).
- During infusion continue oral doses of any anti-retroviral regime as boarded.
- Continue infusion until cord clamped.
- Check ARVs taken on time and no doses missed last 12 hours. If either of the aforementioned have occurred seek advice from the responsible HIV clinician or out of hours contact the HIV Clinician on call via switchboard.

NB: No special procedures or changes in operating lists are required. Normal precautions and cleaning procedures should be followed.

4.9 Postpartum

- Inform HIV Consultant and antenatal screening team of birth.
- Refer to postnatal care plan (within maternity HIV pathway) for regimen for either continuing or stopping cART.
- If mother/newly birthed person is on cART for treatment of her HIV status, continue.

4.9.1 Infant feeding

- In the UK the recommendation is that the safest way to feed infants born to women/newly birthed people with HIV is with formula milk, as there is no on-going risk of HIV exposure after birth.
- Abstaining from breastfeeding can have financial and psychological repercussions for women/newly birthed people; this may require support from the HIV MDT.

4.9.2 Suppression of lactation

- Women/newly birthed people not breastfeeding their infant by choice, or because of viral load >50 HIV RNA copies/mL, should be offered cabergoline to suppress lactation.

4.9.3 Choosing to breastfeed

- Women/newly birthed people who are virologically suppressed on cART with good adherence and who choose to breastfeed should be supported to do so, but should

be informed about the low risk of transmission of HIV through breastfeeding in this situation and the requirement for extra maternal and infant clinical monitoring.

- When a woman/newly birthed person decides to breastfeed, they and their infant should be reviewed monthly in clinic for HIV RNA viral load testing during and for 2 months after stopping breastfeeding.
- Maternal cART (rather than infant pre-exposure prophylaxis [PrEP]) is advised to minimise HIV transmission through breastfeeding and safeguard the woman/person's health.
- Women/newly birthed people should be provided with the BHIVA breastfeeding patient information leaflets to enable them to make an informed decision.

4.10 Neonatal care plan - key points

- Baby does not need to be transferred to neonatal unit unless clinically indicated.
- Inform on-call Registrar / Consultant Paediatrician prior to birth.
- Refer to Neonatal HIV Care Plan in Maternity notes and transfer this to baby notes following birth.

4.10.1 Infant Post-Exposure Prophylaxis (PEP)

Very low risk

- Two weeks of zidovudine monotherapy is recommended if all the following criteria are met:
  - The woman/person has been on cART for longer than 10 weeks;
  - **And** two documented maternal HIV viral loads <50 HIV RNA copies/mL during pregnancy at least 4 weeks apart;
  - **And** Maternal HIV viral load <50 HIV RNA copies/mL at or after 36 weeks.

Low risk

- Extend to 4 weeks of zidovudine monotherapy:
  - If the criteria above are not all fulfilled but maternal HIV viral load is <50 HIV RNA copies/mL at or after 36 weeks;
  - If the infant is born prematurely (<34 weeks) but most recent maternal HIV viral load is <50 HIV RNA copies/mL.

High risk

- Use combination PEP:
  - If maternal birth HIV viral load is known to be or likely to be >50 HIV RNA copies/mL on day of birth.
  - If uncertainty about recent maternal adherence or if viral load is not known.

Neonatal PEP should be commenced as soon as possible after birth, and at least within 4 hours. In the context of known maternal resistance to zidovudine with very low or low risk, zidovudine monotherapy is still recommended for infant PEP.

If high risk (combination PEP indicated) and there is a history of documented maternal zidovudine and/or nevirapine resistance, seek expert advice. If advice is not immediately available, commence standard three-drug PEP (zidovudine, lamivudine and nevirapine) until guidance is provided.

Septrin should be considered for babies at high risk of HIV transmission or positive first PCR (see Neonatal Care Plan).

A paired sample of the babies blood with the mothers blood should be taken and sent to the laboratory within 48 hours of birth (see care pathway).

Arrange neonatal follow up as per Neonatal HIV Care Plan.

5.0 Hepatitis B

Public Health England (PHE) have produced new hep B guidance for antenatal screening and selective neonatal immunisation to start in April 2021.

5.1 Overview

Hepatitis B is an infectious disease caused by the hepatitis B virus (HBV) that affects the liver. The virus causes both acute and chronic infections. An estimated 257 million people or 3.5% of the global population are living with chronic hepatitis B virus infection.

Clinical picture

The incubation period of HBV infection ranges from 40 to 160 days, with an average of 60 to 90 days.

Acute infection

This can be asymptomatic. If symptoms occur they may include fever, malaise and abdominal pain. Jaundice occurs in approximately 10% of younger children and in 30 to 50% of adults. Most adults (90%) with acute HBV infection recover completely but only 10% of infants will clear the virus. Acute infection may occasionally lead to fulminant hepatic necrosis, which is often fatal.

Chronic infection

This develops in 5 to 10% of adults, 20 to 50% of children under the age of 6 years and over 90% of newborns following infection. Individuals with chronic HBV infection may carry the virus for the rest of their lives. They have an increased risk of developing liver cirrhosis (permanent scarring of the liver) over a period of years and sometimes cancer of the liver. Patients with chronic infection should be managed by a hepatologist or gastroenterologist. Antiviral treatment can help to reduce the progression of liver disease and complications.

Transmission

Globally, perinatal transmission vertically (from mother to baby) is the most common route of HBV acquisition and represents an important contribution to establishing chronic infections within populations. Hepatitis B is more infectious than other blood borne viruses like hepatitis C and HIV.

Hepatitis B virus can be passed from person to person through unprotected sexual intercourse, direct contact with the blood of an infected person, including within the household (horizontal transmission), sharing contaminated needles and through perinatal transmission.

Perinatal transmission rates, in the absence of immunisation of the newborn at birth, can be as high as 90% from higher infectivity mothers/people and approximately 10 to 40% from lower infectivity mothers/people. Of those babies who are infected at birth or during the first year of life, around 90% will go on to develop chronic infection. The disease will progress to liver cirrhosis and liver cancer in 15% to 40% of children with chronic infection.

5.2.1 Screening

All pregnant women/people are offered screening for Hepatitis B each pregnancy as part of the antenatal screening process which occurs at booking. Hep B surface antigen (HBsAg) is tested on all pregnant women/people.

- If a pregnant woman/person declines screening, this must be entered on maternity Information system (MIS), noted on the risk form, and the ASC notified. The pregnant woman/person should be sent a letter outlining the reasons for infectious diseases screening, and offered an appointment with the screening team to discuss.
- A formal re-offer of screening must be made by 20 weeks and documented in the maternity notes, and on MIS (Letter as described in HIV section 4.0)
- Cases of known Hepatitis B should be documented on both the booking blood form and the antenatal risk assessment by the booking midwife.

5.3 Management of Hepatitis B positive women during pregnancy

Following a confirmed positive result the ASC / antenatal screening midwife will:

- Offer a face to face appointment to discuss the result within 10 working days of the confirmed result being made available to the maternity service. This appointment will include a blood test for Hep B viral load (HBC DNA), Hep C and LFTs.
- From April 2021, PHE are increasing their surveillance of both pregnant women/people and infants with Hep B. In addition to the blood tests above, the screening midwife will also take an additional sample for PHE for all cases of Hep B. This sample should be collected in the provided ethylenediaminetetraacetic acid (EDTA) blood tubes and sent to the PHE laboratory in Colindale with a completed request form in pre-paid return packaging. If the pregnant woman/person declines this additional sample, this should be recorded in their notes and on the completed request forms and returned to PHE Colindale.
- Ensure patient has information IDPS patient information leaflet.
- Notify The Community Child Health Information Service (CCHIS) and GP by email using the 'Notification of maternal positive hepatitis B antenatal result form.
- Co-ordinate appointments with the maternal medicine consultant obstetrician who will ensure appropriate management of pregnancy.
- Ensure the required vaccination schedule is documented in the intrapartum record, baby birth record and on Medway.
- Commence PHE Hep B screening and immunisation maternal and paediatric checklist and place in hospital record.
- Liaise with paediatric team regarding postnatal vaccination +/- hepatitis B immunoglobulin (HBIG).
- Create maternal & neonatal alerts on the Maternity Information system.

If the pregnant woman/person is deemed to be higher infectivity, then HBIG should be requested from PHE Colindale's Hepatitis B Infant Coordinator using the current HBIG request form. Indications for HBIG in addition to hep B vaccine are detailed in the Green Book and in Appendix 6.

The antenatal screening midwife will refer pregnant women/people with a positive Hep B result to gastroenterology for an assessment. This will include a review within 6 weeks of the positive result where pregnant women/people are identified as newly positive or high infectivity (see Appendix 6). It must be clearly documented in the maternity notes whether pregnant woman/person is **high or low infectivity.**

The gastroenterologist will update the screening team, Consultant Obstetrician, Consultant Paediatrician with a plan of care for the woman/person and the neonate. This will include the vaccination schedule +/- HBIG. The GP should be notified.

The maternal medicine consultant obstetrician will review, ideally before 20 weeks, and consider repeat HBV DNA at 24 weeks if indicated.

If invasive procedures such as amniocentesis are planned in early gestation, pregnant women/people may be counselled that the risk of transmission of hepatitis B is low even with a high viral load but that antiviral treatment could be considered to commence prior to the procedure if HBV DNA is $>10^7$IU/ml.

Non -attendance at specialist appointments should be reviewed within a multidisciplinary framework and an action plan developed.

Note: If a pregnant women/people subsequently miscarries it remains the responsibility of the ASC to ensure the gastroenterology department are notified.

5.4 Gastroenterology review

At the gastroenterology review, the pregnant woman/person will be assessed and counselled for possible antiviral treatment in the third trimester. Treatment with tenofovir should commence from 28 weeks' gestation. This may only be initiated by the gastroenterology team.

Pregnant women/people on treatment are reviewed monthly in the gastroenterology clinic for side effects with monthly repeat HBV DNA tests (i.e. 32, 36, 40 weeks). They require U&Es, LFTs and phosphate weekly for first 2 weeks of treatment, then fortnightly for 4 weeks and monthly thereafter (gastroenterology to follow up results).

Treatment needs to continue for 4 weeks postpartum to prevent a hepatitis flare. Newly birth women/people should be counselled that the safety of breastfeeding on tenofovir is uncertain.

5.5 Intrapartum care

Key points:

- Inform on-call Neonatal Team on admission in labour or for caesarean section to ensure timely administration of Hep B vaccine / HBIG.
- Avoid FBS and FSE.
- Consider avoiding a difficult instrumental birth although there is no evidence that it increases transmission.
- Antiviral treatment should continue for minimum 4 weeks postpartum and termination of treatment must be made by or in liaison with a consultant gastroenterologist because of risk of hepatitis flare after birth.

5.6 Babies born to Hepatitis B Positive mothers

High Infectivity cases from April 2021

Postnatal maternal surveillance sample

The second maternal venous surveillance sample should be taken on birth suite from those women/people classified as being of higher infectivity after they have birthed their baby.

EDTA blood tubes, request forms and pre-paid return envelopes will be available in the 'hep B birth suite box' which, along with the HBIG, will be sent to maternity units approximately 7 weeks prior to the estimated birth date**.**

Newborn dried bloodspot (NBS) sample

A DBS test should be taken on birth suite from babies born to mothers/people classified as being at higher infectivity before administration of the vaccine and HBIG.

The DBS cards, instructions on collection and pre-paid return envelopes will be provided in the hep B birth suite box, which along with the HBIG, will be delivered to maternity units (ANC) approximately 7 weeks prior to the estimated birth date. This will be brought to labour ward by the screening team.

This surveillance blood sample is different to the newborn blood spot sample taken on day 5 after the baby's birth. The mother/person should be informed that the baby will still need to have the newborn blood spot screen sample on day 5.

If the woman/person declines to have maternal serology and or neonatal DBS taken it should be recorded in their notes and on the completed request forms and returned to PHE Colindale.

All babies will require Hep B (monovalent) vaccination course. The 1st dose must be given within 24 hours of birth (at the earliest opportunity) by the Health Professional. Further doses are required at 4 weeks and 12 months via the GP. This is in addition to the routine childhood vaccination programme which includes hexavalent combination vaccine.

This highlights the importance of notifying CCHIS at the earliest opportunity (see below) to ensure timely vaccination. The baby should also be tested for hepatitis B surface antigen (HBsAG) at 1 year of age.

For mothers/people with high infectivity, the baby will require HBIG and vaccination course. HBIG must be prescribed and will be available from pharmacy and given to the baby as soon as possible after birth by the Health Professional.

Note: Premature babies of Hep B positive mothers weighing less than 1500 grams should be given HBIG and vaccinated regardless of infectivity (seek advice from Microbiology as this will have to be ordered from the duty doctor at Colindale).

Breastfeeding is acceptable if hepatitis B positive and not on treatment.

5.7 The midwife responsible for discharging the woman/person must ensure the following:

- The Child Health Record (red book) insert 'Hepatitis vaccination' is completed and given to the mother.
- The 'Notification of birth: baby of mother with hepatitis B form' is emailed or sent to CCHIS and the GP. The address for CCHIS is: 2nd Floor, Southgate House, Chichester, PO19 8EG. Email address is: sc.tr.cchis@nhs.net.

Note: This postnatal notification form and the red book insert should be placed in the hospital Maternity Record with a Baby Birth Record during the pregnancy by the Screening Team.

5.8 Screening team responsibilities following birth

Actions required

- Check maternal blood and newborn DBS samples have been taken.
- Check laboratory request forms for maternal blood and newborn DBS samples & PHE notification form is fully completed.
- Dispatch maternal samples and DBS to PHE BBVU in Virus Reference department, Colindale using prepaid supplied.
- Ensure the CHIS, Health Visitor and GP or Practice nurse are notified of:
  - Vaccine administration at birth.
  - The requirement for the second vaccine at 4 weeks and completion of selective immunisation schedule.
- Complete:
  - PHE hepatitis B in pregnancy maternal and paediatric checklist.
  - PHE IDPS Integrated screening outcomes surveillance service (ISOSS) hepatitis B database (from April 2021).

6.0 Hepatitis C

6.1 Antenatal screening

Hepatitis C screening is not routinely offered to pregnant women/people. However, if the woman/person discloses she has a history of intravenous drug use or is Hepatitis B positive, screening for Hepatitis C should be requested with consent and full clinical details given.

Where risk factors are present a repeat screen should be considered in the third trimester.

6.2 Management during pregnancy

The Screening Team will make a referral to gastroenterology in a timely manner.

Gastroenterology will email / write to the screening team midwives with the plan of care for the woman/person and neonate. The screening team will update the maternal medicine consultant obstetrician and the paediatric team.

The plan, including referrals, should be documented on the Tracker form (Appendix 1) and neonatal alert created on Medway Maternity Information System.

CCHIS will be notified via email by the screening team of Hep C status.

6.3 Babies born to Hepatitis C positive mothers/people

- Inform paediatrician prior to birth.

- If there is no known positive Hep B source then the infant should be vaccinated according to the routine schedule and would not need to follow the neonatal hepatitis B pathway for babies born to hepatitis B positive mothers/people.
- If, at birth, there is thought to be a clear or imminent risk of hepatitis B / risk factors in the infants household, such as lifestyle factors discussed or identified, father /partner hep B positive, then a single dose of hepatitis B vaccine would be recommended followed by the full hexavalent course.
- Refer to Consultant Paediatrician for clinic review and PCR at 3 months.
- If 3 month PCR is negative, repeat at 6 months.
- If PCR is positive at any time, consider referral to Consultant Paediatrician for infectious diseases at St Georges (for Worthing) and Southampton (for SRH).

7.0 Management of Partners who are HIV, Hep B and C Positive

- Sexual health should be notified of women/people with positive partners for HIV, Hepatitis B or C.
- If father/partner is hep B positive, a single dose of hepatitis B vaccine would be recommended followed by the full hexavalent course for these newborns.

Key point

- IV drug users or women/people with a positive partner should be re-tested for HIV, Syphilis, and Hepatitis B & Hep C in the third trimester.

See Hep B vaccine PGD for inclusion criteria

8.0 Syphilis

Pregnant women/people are offered screening for syphilis at booking of each pregnancy. Cases of known or previous syphilis should be documented on both the booking blood form and the antenatal risk assessment by the booking midwife.

- If a pregnant woman/person declines screening, this must be entered on maternity Information system (MIS), noted on the risk form and the ASC notified.
- A formal re-offer of screening must be made by 20 weeks and documented in the maternity notes and on MIS (letter as in HIV section 4.0).
- The aim of antenatal screening is to contribute to the reduction of congenital syphilis infection.

The urgency to complete the assessment is because:

- Not all positive screening test results will be confirmed as a syphilis diagnosis or as an infection requiring treatment.

- Treatment, when indicated, needs to be instituted as early as possible to avoid adverse outcomes of pregnancy.

8.1 Management during pregnancy

The Screening team will inform the Health Advisor of the positive result.

Pregnant women/people with positive screening test results should be contacted and advised about the result, at an appointment made for that purpose, within 10 working days of the result being available to maternity services. For pregnant women/people treated adequately prior to the current pregnancy, no further action is required, but this will require clinical assessment by the Sexual health team.

8.2 Assessment

Assessment by the Sexual Health Team is needed to provide diagnostic evaluation of maternal infection; and to decide whether treatment and follow up are required. This also provides an opportunity to discuss arrangements for partner notification and management. The Sexual Health Team will write to Consultant Obstetrician, Consultant Paediatrician, GP and the antenatal screening team to confirm details of plan of care for mother/person and baby.

They will also complete the Syphilis Birth Plan (Appendix 5), which should be filed in maternity hospital notes.

- The antenatal screening team will co-ordinate the appointment with the Consultant Obstetrician.
- The plan, including referrals, should be documented on the Tracker form (Appendix 1).
- Screening team midwife will ensure patient has information using IDPS patient information leaflet.
- Non-attendance at specialist appointments should be reviewed within a multidisciplinary framework and an action plan developed.

NB. If a pregnant woman/person subsequently miscarries it remains the responsibility of the ASC to co-ordinate ongoing care.

8.3 Signs and Symptoms of Congenital Syphilis

Early:

- IUGR
- Maculopapular rash (30-60%)
- Vesiculobullous lesions

- Perioral fissures
- Condylomata lata
- Rhinitis (which may be haemorrhagic) (10-50%)
- Osteochondritis (90%), periostitis (40-80%), osteomyelitis
- Hepatosplenomegaly
- Persisting hypoglycaemia
- Lymphadenopathy (50%)
- Pseudoparalysis
- Chorioretinitis, pathologic CSF (40%), meningitis
- Haemolysis/thrombocytopenia
- Hydrops

Late:

- Keratitis (40%)
- Clutton's joints
- Hutchinson's incisors
- Mulberry molars
- High arched palate
- Deafness
- Frontal bossing and small maxilla/protruberant mandible
- Saddle nose
- Neurological or gummatous involvement

8.4 Follow-Up

- Neurodevelopmental, Audiological and ophthalmological follow-up.
- Repeat reactive tests at 3, 6 and 12 months of age or until all tests become negative (usually by 6 months). Also repeat the IgM at 3 months in case the infant's response is delayed or suppressed, LP after 6 months (if CNS initially involved).
- Repeat treatment, if symptoms persist or recur; if titre not $\leq$ ¼ of initial value or increases; if abnormal CSF control.

9.0 Genital Herpes

9.1 Incidence

Neonatal herpes is rare in the UK (between 1986 and 1991 there was an incidence of 1:60,000 live births annually).

9.2 Key points

- Neonatal herpes is a viral infection with a high morbidity and mortality which is most commonly acquired at or near the time of birth.
- Neonatal herpes may be caused by herpes simplex virus type 1 (HSV-1) or herpes simplex virus type 2 (HSV- 2), as either viral type can cause genital herpes. Almost all cases of neonatal herpes occur as a result of direct contact with infected maternal secretions, although cases of postnatal transmission have been found.
- Factors influencing transmission include the type of maternal infection (primary or recurrent), the presence of transplacental maternal neutralising antibodies, the duration of rupture of membranes before birth, the use of fetal scalp electrodes and mode of birth. The risks are greatest when a woman acquires a new infection (primary genital herpes) in the third trimester, particularly within 6 weeks of birth.
- Although recurrent genital herpes is associated with a very low risk of neonatal herpes (3%), recurrent herpes at the time of birth which is commonly asymptomatic or unrecognised, may cause localised forms of neonatal herpes.
- Symptomatic genital herpes infections are diagnosed clinically and confirmed by direct detection of HSV.
- A swab for HSV PCR should be used.

9.3 Management of primary episode

- Pregnant women/people should be referred to a genitourinary physician for management of the condition. Oral or intravenous acyclovir in standard doses should be offered (use with caution before 20 weeks).
- Serological type specific HSV antibody testing, which can help to differentiate between primary and recurrent infections, should be considered if a woman presents with a first episode of genital herpes in the third trimester.
- Following first or second trimester acquisition, daily suppressive acyclovir 400 mg three times daily from 36 weeks of gestation reduces HSV lesions at term and hence the need for birth by caesarean section.
- Caesarean section should be the recommended mode of birth for all women developing first episode genital herpes in the third trimester, particularly those developing symptoms within 6 weeks of expected birth, as the risk of neonatal transmission of HSV is very high at 41%.

9.4 Presentation at time of birth

- Caesarean section should be strongly recommended to all pregnant women/people presenting with primary episode genital herpes lesions at the time of birth, or within 6 weeks of the expected date of birth.
- For these pregnant women/people who opt for a vaginal birth, rupture of membranes should be avoided and invasive procedures should not be used. (If ruptured

membranes are confirmed at term, birth should be expedited by the appropriate means.)

- Intravenous acyclovir given intrapartum to the pregnant woman/person and subsequently to the baby may be considered. The neonatologist should be informed.
- There is insufficient evidence to recommend use of daily suppressive acyclovir from 36 weeks of gestation to reduce the likelihood of HSV lesions at term for pregnant women/people who experience a primary episode of genital herpes earlier in the current pregnancy.

9.5 Recurrent episodes of genital herpes

- Antiviral treatment is rarely indicated for treatment of recurrent episodes of genital herpes during pregnancy. (The majority of recurrent episodes of genital herpes are short lasting and resolve within 7–10 days without antiviral treatment. Saline bathing and analgesia can help relieve symptoms).
- PCR during late gestation are not recommended.
- A recurrent episode of genital herpes occurring during the antenatal period is not an indication for birth by caesarean section.
- Vaginal birth should be anticipated in the absence of other obstetric indications for caesarean section.
- For pregnant women/people with a history of recurrent genital herpes, who would opt for caesarean birth if HSV lesions were detected at the onset of labour, daily suppressive acyclovir given from 36 weeks of gestation until birth may be given to reduce the likelihood of HSV lesions at term.

10.0 Chlamydia and Gonorrhoea testing

Chlamydia is the most commonly diagnosed sexually transmitted infection (STI) in the UK. It is most common in men and women under 25 years old. The bacteria that cause chlamydia are found in the semen, vaginal fluids and saliva of people who have the infection. Chlamydia is easily passed from one person to another through unprotected sex.

If chlamydia is not treated it can cause pelvic inflammatory disease, ectopic pregnancy and infertility.

10.1 Symptoms

Often chlamydia can be asymptomatic. Possible symptoms are:

- Unusual vaginal discharge.
- Pain when urinating or having sex.
- Bleeding after sex or between periods.

- Pelvic pain or painful testicles.

Gonorrhoea is a sexually transmitted infection caused by bacteria called Neisseria gonorrhoeae or gonococcus. The bacteria are mainly found in discharge from the penis and in vaginal fluid.

Gonorrhoea is easily passed between people through:

- Unprotected vaginal, oral or anal sex.
- Sharing vibrators or other sex toys that have not been washed or covered with a new condom each time they're used.
- The bacteria can infect the cervix, the urethra, the rectum and, less commonly, the throat or eyes.
- The infection can also be passed from a pregnant woman/person to her baby.
- Without treatment, gonorrhoea can cause permanent blindness in a newborn baby.

Pregnant women/people 25 years old and younger are offered chlamydia and gonorrhoea testing at booking this should be documented within the handheld records and an information sheet will be provided. This is done by a self-taken low vaginal swab (specific for chlamydia / gonorrhoea testing) which is sent to the microbiology lab. The swabs are provided by the sexual health department.

The result is dealt with by the Sexual Health Team and the woman is informed by text/phone call/email. All subsequent tests or treatment are managed by the Sexual Health Team.

The sole responsibility of the maternity service is to offer the test at booking and deliver the swab to the laboratory.

References

BHIVA guidelines on the management of HIV in pregnancy and postpartum
British HIV Association (BHIVA) 2018

Royal College of Obstetricians and Gynaecologists/BASHH (2014) Management of Genital Herpes in Pregnancy. Foley E, Clarke E, Beckett VA, Harrison S, Pillai A, FitzGerald M, Owen P, Low-Beer N, Patel R.

Department of Health Guideline (2017) Immunisation against infectious disease (The Green Book) Chapter 18. Hepatitis B, 2017)

Public Health England (PHE) Infectious Diseases in Pregnancy Screening programme standards (September 2010).

BASHH UK National guidelines on the management of syphilis (2015)

Public Health England (PHE) Guidance on the hepatitis B antenatal screening and selective neonatal immunisation pathway (January 2021).

Hep B vaccine national PGD (UK Government, PHE)

NICE NG121 Intrapartum care for women with existing medical conditions or obstetric complications and their babies (2019)

Audit

Sample Size	All cases of women diagnosed with HIV, Hepatitis B and syphilis during pregnancy
Frequency of Audit	Triennial
Method for data collection	Approved quality review tool and infectious diseases database
Standards :	IDPS (PHE NSC)
Monitoring of compliance by	Antenatal and newborn screening and immunisations group
Reports to:	Maternity quality and safety group

1. The number of newly diagnosed pregnant women/people with a confirmed antenatal infectious disease result informed within 10 days of the result being communicated to the screening team.

2. The number of babies eligible for Hepatitis B vaccination with documented evidence of receiving Hep B vaccination within 24 hours of birth.

3. The number of babies receiving Hepatitis B vaccination with evidence that the P/N vaccination schedule was emailed / sent to the Community Child Health Information Service (CCHIS).

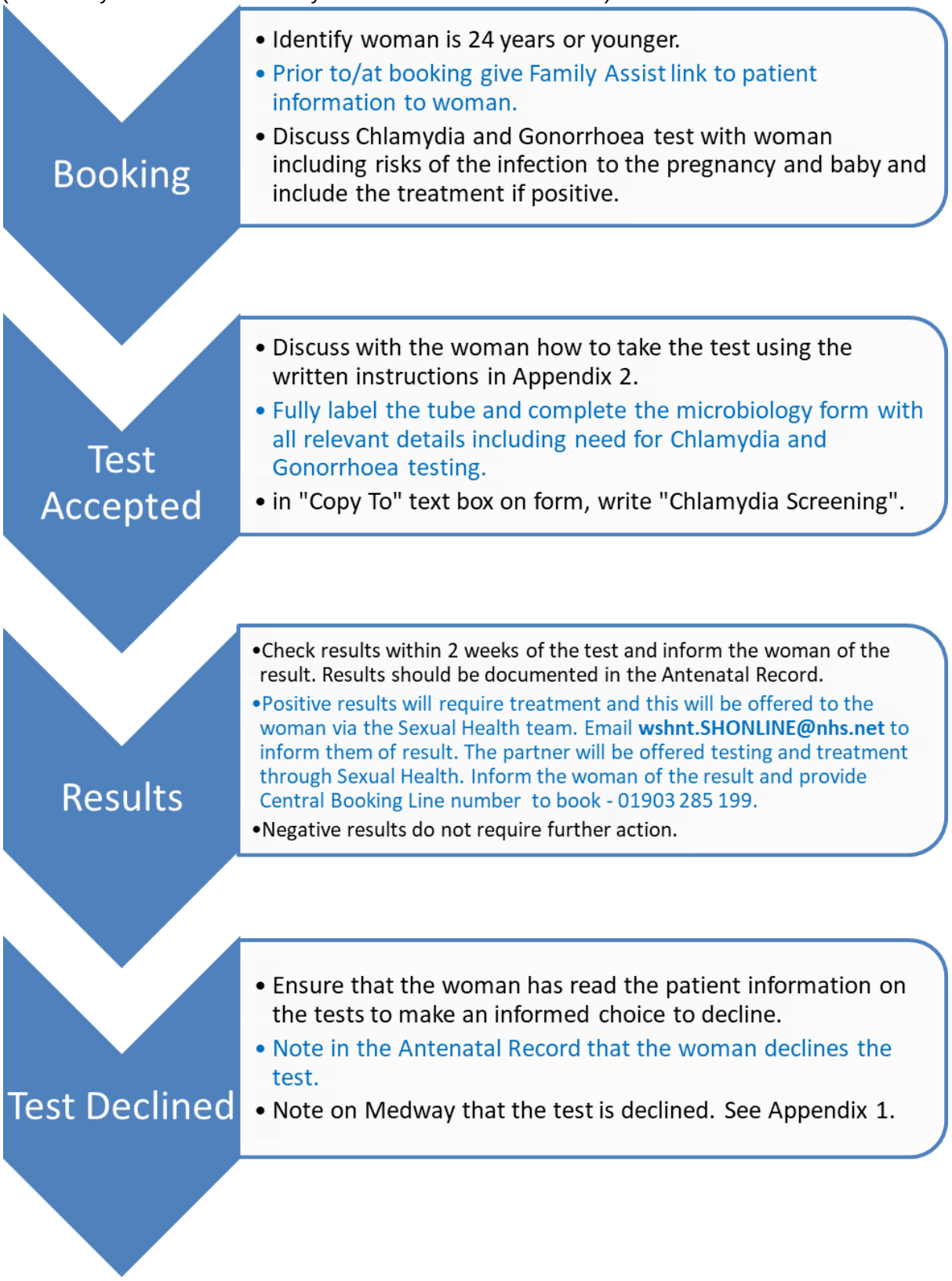
4. In cases where treatment for syphilis was required during pregnancy the number where the baby had a venous blood sample request for ‘syphilis screen + RPR+ treponemal IgM’.

Appendix 1: Tracker Form for Positive Hep C and Syphilis results in pregnancy

Link to form on intranet

Appendix 2: Chlamydia and Gonorrhoea Pathway

(Created by Claire Parr & Merle Symonds October 2020 version 1)



Appendix 3: Medway Antenatal Assessment Guide for Recording Decline

-Log into Medway
-Press F4 and search for your patient using their hospital number
-Open the record
-Click on workflows
-Once on the workflow page click on antenatal, then select antenatal assessment
-Record date and time of assessment then press enter

Type of assessment: (select 'administrative update' from the drop down menu)

Location of assessment: 'select location from drop down menu'

Maternity Lead Provider: 'This Trust'

Patient interaction with: Will automatically default to your name - so just enter through

You can now use your mouse to navigate round the workflow by **selecting the headings from the white banner** on the left hand side of the page - click on **social wellbeing:**

Click on Maternal investigations and then select 'reveal all test & result pages' from investigation actions picklist

Now click on 'other infectious screening' and under chamydia screen question select appropriate answer from drop down menu.

Now complete workflow and finish

Appendix 4: Preparation and Administration of Zidovudine (AZT)

AZT should be administrated in 2 stages:

- Firstly, a **Loading Infusion** of **2mg/kg** IV over 1 hour.
- Then, a **Maintenance Infusion** of **1mg/kg/hr** IV until the umbilical cord is clamped.

For ease of administration the infusion solution is made up to 2mg/ml of AZT in 5% glucose. See below for method of preparation.

Preparation of Zidovudine infusion using aseptic technique

- AZT injection comes in 20ml vial containing 200mg AZT, i.e. 10mg/ml.
- All infusions are prepared with 5% glucose to a **final concentration of 2mg/ml**.
- The infusion needs to be prepared immediately prior to use.
- Remove 50ml of 5% glucose from a 250ml bag and discard. Add 50ml (500mg) of AZT injection (10mg/ml) to the remaining 200ml 5% glucose, to give a final concentration of 2mg/ml. Mix well.
- Use this bag for the Loading Infusion (2mg/kg) in the first 60 minutes. Use the rest of the bag for the maintenance infusion (1mg/kg/hr) until the umbilical cord is clamped. Prepare fresh infusion bag if required.

Example: patient's weight = **W** kg.

- Loading Dose of 2mg/kg = (**W** x 2) mg.
- Infusion fluid required = [(**W** x 2) mg ÷ 2mg/ml] = **W** ml.

Therefore run **W** ml AZT infusion fluid over 1 hr, then run maintenance infusion from the same bag.

Maintenance Infusion at 1mg/kg/hr = **W** mg/hr.
Infusion fluid required = (**W** mg ÷ 2 mg/ml)

Therefore, run (**W** ÷ 2) ml AZT infusion fluid per hr until the umbilical cord is clamped.

This information is not intended to supersede manufacturer's product information.

Appendix 5: Syphilis Birth Plan

Maternal name and demographics:

EDD:

Maternal diagnosis and treatment details & dates:

Other concerns (e.g. re-infection risk from partner, treatment in late pregnancy, etc.):

<u>Genito- urinary management (GUM) advice for infant management:</u>

1. ☐ Pregnant woman/person adequately treated prior to this pregnancy with no risk of congenital syphilis.

- **At birth:** baby requires no additional physical examination or tests for syphilis.
- **Follow up:** no syphilis follow up required for baby.

2. ☐ Pregnant women/people treated for syphilis during this pregnancy with low risk of congenital syphilis.

- **At birth:** assess baby for signs of congenital syphilis. If no concerns perform routine syphilis screening on venous blood sample (not cord).
- Request 'syphilis screen + RPR+ treponemal IgM'.
- **Follow up:** repeat 'syphilis screen + RPR+ treponemal IgM' every 3 months until RPR is negative (this usually occurs by 6 months). If clinical signs suggest congenital syphilis (see 2015 BASHH guideline). Manage according to 'option 3' below.

3. ☐ There is significant risk of congenital syphilis.

- **At birth:** assess baby for signs of congenital syphilis (see 2015 BASHH guideline).
- Request 'syphilis screen + RPR+ treponemal IgM' plus FBC, U&E.LFT & ALT. Lumbar puncture (request WBC, protein, RPR & TPHA) and further tests as clinically indicated; long bones& chest X-ray, ophthalmology& audiology reviews and (if available) samples from lesions for dark ground microscopy and PCR for *T. pallidum*.

- **Treatment for congenital syphilis:** benzylpenicillin 25mg/kg 12 hourly IV for 7 days, the 8 hourly on days 8, 9,& 10 (total 10 days).
- **Follow up months 1 & 3:** Request 'syphilis screen + RPR+ treponemal IgM'.
- **Follow up months 6 & 12:** Request RPR only. Discharge baby when RPR titre has dropped at least fourfold (e.g. from 1 in 32 to 1 in 8) or becomes negative.

Please discuss all babies with suspected syphilis or requiring treatment or any blood tests requiring interpretation with the on-call GUM team.

Local contact details:

Plan completed by:

Date:

Copies to:

Hospital maternity notes (obstetric team) ☐

GP ☐

Paediatric/neonatal team ☐

Appendix 6: Criteria for Hep B Positive pregnant woman/person requiring antenatal referral to Gastroenterology within 6 weeks

Pregnant women/people who were screened positive (newly diagnosed) for hepatitis B and pregnant women/people already known to be hepatitis B positive with high infectivity as defined as:

HBsAg positive and HBeAg positive.
HBsAg positive, HBeAg negative and anti-HBe negative.
HBsAg positive where e-markers have not been determined.
Has acute hepatitis B during pregnancy.
HBsAg seropositive and known to have an HBV DNA level equal or above 10^6IU/ml in an antenatal sample.

Appendix 7: Pathway for babies requiring Hep B vaccination / Hep B Immunoglobulin

Criteria for babies requiring Hep B vaccination:

- Maternal/paternal Hep B (low infectivity) and / or Hep C infection.

Criteria for babies requiring Hep B vaccination and Hep B immunoglobulin:

- High infectivity maternal Hep B infection (viral load greater than 1 x 106 iu/ml).
- Premature babies of Hep B positive pregnant women/people weighing less than 1500 grams should be given HBIG and vaccinated regardless of infectivity (seek advice from Microbiology as this will have to be ordered from the duty doctor at Colindale).

Neonatal Hep B (monovalent) vaccine only

1. Inform on-call paediatrician when woman admitted in labour / for LSCS.
2. Paediatrician to prescribe and give 1st dose of Hep B vaccine at earliest opportunity following birth (must be within 24 hours).
3. Administer vaccine on NNU.
4. Neonatal Hep B vaccine is stored on NNU.
5. The red book insert 'Hepatitis vaccination' should also be completed and given to the newly birthed woman/person.
6. Hepatitis B Postnatal Immunisation notification form is completed and sent or emailed to the Community Child Health Information Service (CCHIS). The address for CCHIS is: 2nd Floor, Southgate House, Chichester, PO19 8EG. Email address is: sc.tr.cchis@nhs.net. This will ensure subsequent injections are arranged.
7. Document administration in baby notes.

Neonatal Hep B Immunoglobulin (200 IU)

1. It will be documented on Medway and in maternal hospital record if immunoglobulin is required as well as Hep B vaccine.
2. Immunoglobulin is ordered by the Antenatal Screening Team at 32 weeks for **named patients** and is stored in pharmacy by 36 weeks.
3. At night, weekends and bank holidays contact on-call pharmacist.
4. Must be prescribed and given by paediatrician on NNU.
5. Complete and send 'After birth' page of Issue of Hepatitis B Immunoglobulin for Infants at Risk of Hepatitis B form (seek advice from Screening Team midwife in ANC if unsure). Also place a copy of this form in the baby's hospital notes.