Brighton and Sussex University Hospitals NHS Trust

Infections in Pregnancy

Maternity Protocol: MP008

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Guideline Reviewer:	Ryan Hogan
Manager responsible:	Jo Sinclair
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Cross reference:	**MP001** Antenatal Provision and Schedule of Care **MP004** Antenatal Screening: Infectious Diseases - HIV **MP006** Antenatal Screening: Infectious Diseases - Hepatitis B **MP007** Antenatal Screening: Infectious Diseases - Syphilis **MP022** Emergency Admissions Pregnant Women **MP032** ROM (term and pre-term) **MP069** Care of Newborn Immediately after birth

Contents

Key Principles:

A protocol is a set of measurable, objective standards used to determine a course of action. Professional judgement and clinical context should be considered in the application of a protocol.

Scope:

This protocol applies to

- All childbearing women with exposure to, suspected or confirmed infection

Responsibilities

Midwives & Obstetricians:

- To access, read, understand and follow this guidance
- To use their professional judgement in application of this protocol

Management:

- To ensure the protocol is reviewed as required in line with Trust and National recommendations
- To ensure the protocol is accessible to all relevant staff
- To ensure that protocols are available for service users on request

Section 1

1 Management of Group B Streptococcus (GBS) in Pregnancy

Group B streptococcus is the most frequent cause of severe early onset infection in newborn infants. A study conducted in the 1980's approximated that 25% of mothers in the UK were likely to be GBS carriers. However, despite this the incidence of early-onset GBS disease in the UK is 0.5/1000 births.

1.1 Antenatal management

1.1.1 Screening

Routine screening, with either high vaginal or rectal swabs, is NOT recommended for group B streptococcus, as evidence of its clinical and cost effectiveness remains uncertain.

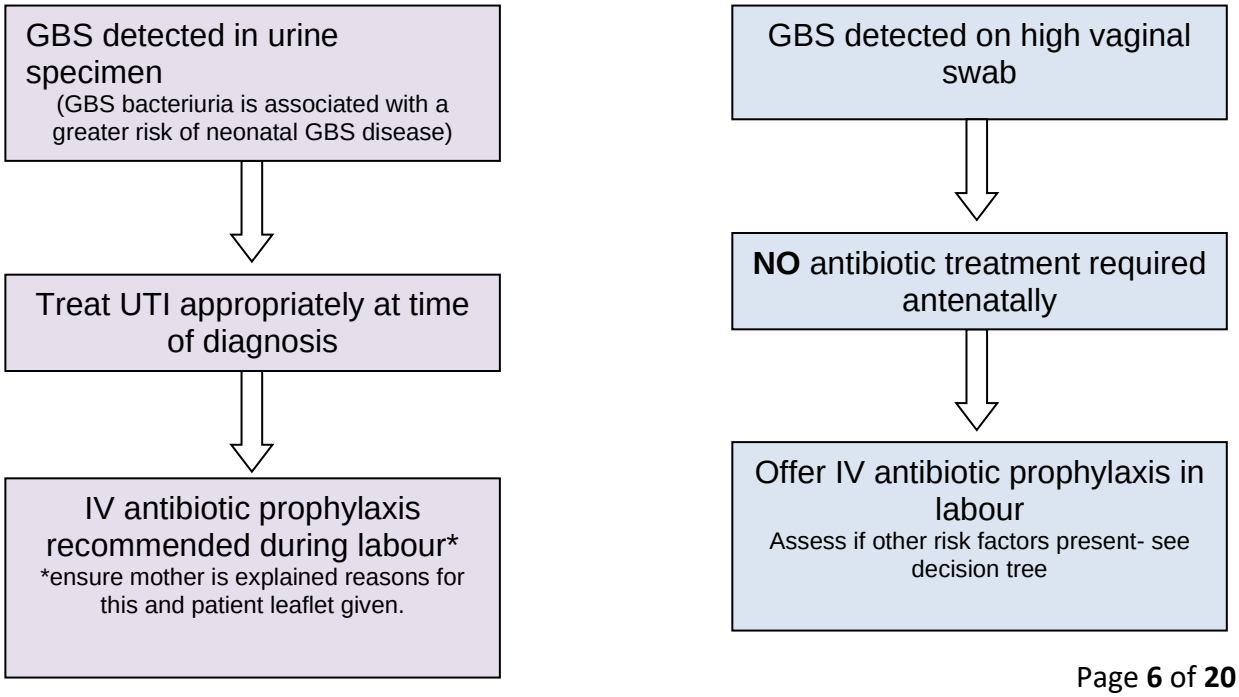
1.1.2 Information for women

All pregnant women should be provided with an information leaflet on GBS in pregnancy by their community midwife, or be directed towards the leaflet on the Trust maternity website

1.1.3 Antenatal detection of GBS in current pregnancy (incidental or planned)

The health professional ordering tests or receiving results is ultimately responsible for:

- Contacting the women
- Discussing implications of GBS to the newborn and advantages, disadvantages of intrapartum antibiotics (if relevant) (see below)
- Organising prescription for antibiotics (if appropriate and consent gained)
- Documenting results and plan of care in the maternal notes



1.2 Women with GBS in previous pregnancies

These women have approximately a 50% likelihood of being GBS positive in a subsequent pregnancy. Discuss the option of:

1.2.1 Intrapartum antibiotic prophylaxis

1.2.2 A low vaginal swab at 35 weeks gestation. If positive for GBS, the woman would be offered intrapartum antibiotic prophylaxis.

1.3 Women with previously affected baby with neonatal GBS disease
Intrapartum antibiotic prophylaxis should be offered to all women with previously affected infants, irrespective of whether GBS was detected in the mother previously. No further tests are required to detect GBS carriage.

1.4 Intrapartum Management

1.4.1 Women should be supported to make an informed choice about their plan of care and whether they have or do not have antibiotics. All discussion and decisions should be documented in the maternal notes. Women who make an informed choice that may be different to our recommendations should be offered a referral to a consultant led clinic and Supervisor of Midwives and supported in this choice.

1.4.2 Use decision map to identify women for whom intrapartum antibiotic prophylaxis is recommended.

1.4.3 Women colonised with GBS with ruptured membranes at 37+0 or more should be offered immediate induction of labour and IV antibiotics offered.

1.4.4 Women colonised with GBS having an elective caesarean with intact membranes do not require GBS IV antibiotic prophylaxis. Use standard C/S antibiotic regime.

1.4.5 Where women give their informed consent to receive antibiotics, document this in the maternal notes and Intravenous antibiotics should be administered as soon as possible after onset of labour. The prophylactic antibiotics should be administered four hours or more before delivery to offer the highest efficacy in preventing the vertical transmission.

1.4.6 Discontinue maternal antibiotics once baby is delivered.

2 Indications for offering GBS-specific IAP:

2.1 Previous baby with invasive GBS infection.

2.2 GBS bacteriuria in the current pregnancy.

2.3 Vaginal swab positive for GBS in current pregnancy.

2.4 Pyrexia (>38°C) in labour or 2 x reading of >37.5 one hour apart (give broad-spectrum antibiotics to include GBS cover).

2.5 Chorioamnionitis (give broad-spectrum antibiotics to include GBS cover). IAP for GBS is not necessary if delivering by pre-labour lower segment caesarean section with intact membranes.

2.6 preterm labour (23- 36+6/40)

3 IV antibiotic prophylaxis for GBS is not indicated in the following circumstances:

3.1 Planned Caesarean section, in the absence of labour and with intact membranes

3.2 Women with rupture of membranes, not in labour and over 34 weeks gestation

3.3 Women with rupture of membranes, not in labour and under 34 weeks gestation should have oral antibiotics (*See Maternity Protocol MP032 Rupture of Membranes Term and Pre-term*). NB if these women develop additional risk factor(s) e.g. maternal pyrexia / fetal heart abnormalities the management plan should be reviewed and consideration given to commencing IV antibiotics and/or expediting delivery

3.4 Broad spectrum antibiotics should replace GBS specific antibiotics when chorioamnionitis is suspected.

4 Other advice for mothers

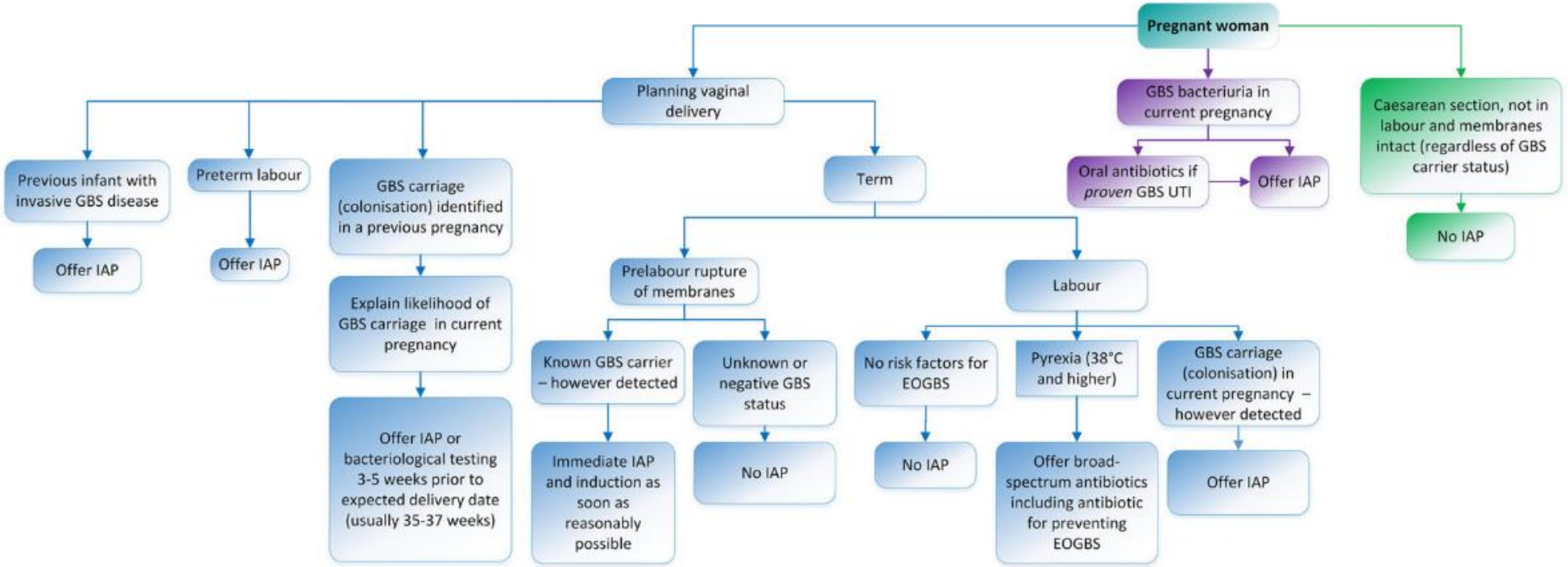
4.1 Women are advised against home births if IV antibiotics are to be given. Women who make an informed choice to have a birth at home should be offered a referral to a LWL/PMA.

4.2 There is no contraindication against using the birthing pool, as long as the venflon site is kept dry.

4.3 There is no contra-indication to breast feeding in women with GBS carriage.

4.4 Decision map for Intrapartum antibiotic prophylaxis

5 GBS Intrapartum Prophylactic Antibiotic Decision Tree



6 Risks and benefits summary

6.1 When considering the use of prophylactic antibiotics, the risks and benefits of antibiotic therapy should be discussed with the woman to allow her to make an informed choice (see information below on incidence of GBS and side-effects of antibiotics).

6.2 About a quarter of pregnant women in the UK carry GBS in their vagina. Many babies therefore come into contact with GBS during labour or during birth, and GBS will colonise some of them. The vast majority of babies are not harmed by contact with GBS at birth.

6.3 **Risks of GBS infection**:

6.3.1 Out of every 2000 newborn babies in the UK and Ireland, only one is diagnosed with GBS infection; this means that about 340 babies each year are diagnosed with early onset neonatal GBS.

6.3.2 Around one baby dies out of every ten who are diagnosed.

6.3.3 Although it is rare, GBS is the most common cause of life-threatening infection in babies during the first week after birth.

6.4 **Risk of Intrapartum Antibiotics**:

6.4.1 Some women may experience temporary side effects such as diarrhoea or nausea

6.4.2 A very few number of women will die or be serious injured from an allergic reaction (anaphylaxis) to the antibiotics

6.4.3 It is thought that babies exposed to antibiotics very early in their lives may have a higher than normal risk of asthma and/or other allergies later in life

6.4.4 Bacteria becoming resistant to antibiotics

7 Intrapartum antibiotics

7.1 3 g intravenous benzylpenicillin should be given as soon as possible after the onset of labour and 1.5 g 4 hourly until delivery

7.2 In the case of non-severe penicillin allergy (eg. **no** anaphylaxis, angioedema, respiratory distress or urticaria), intravenous cefuroxime, 1.5 g loading dose followed by 750 mg every 8 hours should be given.

7.3 In the case of severe penicillin allergy, intravenous vancomycin 1 g every 12 hours should be given.

8 If intrapartum antibiotics are declined

8.1 The neonatal team should be informed at the time of delivery

8.2 The baby should be observed as per Transition Care Pathway

Section 2

1 Herpes Simplex in Pregnancy

Herpes simplex is a virus which can lead to ulcerating lesions either around the mouth or vaginal/rectal area. Neonatal Herpes infection is rare (1/60000 live births) however can potentially be very serious. 30% of neonatal infections present with symptoms localised to the skin, eye or mouth alone and have the best prognosis. 70% of cases present with a disseminated infection or a local central nervous system (CNS) infection. These carry a worse prognosis, particularly CNS infection which often presents later. The infection in neonates is predominantly secondary to maternal primary genital herpes infection within 6 weeks of the time of delivery. In extremely rare circumstances transplacental transmission can occur. It may also arise from postnatal exposure.

1.1 Antenatal Primary Genital Herpes Infection

1.1.1 If a patient has suspected genital herpes please **refer to a genitourinary physician** to confirm the diagnosis with PCR. It is recommended to check for other sexually transmitted infections.

1.1.2 Aciclovir, an anti-viral drug, can be beneficial to reduce the severity and length of symptoms. A reduced dose is not required in pregnancy, however the RCOG state it should be used with caution before 20 weeks gestation. Treat for 5 days with 400mg three times daily. Please ensure women are counselled in regards to side effects by prescribing clinician. MedicinesComplete

1.1.3 Paracetamol and topical lidocaine 2% gel can be offered as symptomatic relief.

1.1.4 If suspected maternal disseminated infection, discuss with the Consultant Virologist in consideration of IV acyclovir.

1.1.5 Providing that delivery does not ensue within the next 6 weeks, the pregnancy should be managed expectantly and vaginal delivery anticipated.

1.1.6 Daily suppressive aciclovir 400 mg three times daily should be considered from 36 weeks of gestation. This reduces HSV lesions at term and hence the need for delivery by caesarean section.

1.2 Antenatal Recurrent genital herpes

1.2.1 Recurrent bouts tend to be short lived and respond to conservative management such as saline baths and analgesia.

1.2.2 No indication for caesarean section if the patient has recurrent episode of genital herpes

If a women says would like a caesarean section if active ulcers at time of birth the RCOG suggest treating her with acyclovir from 36 weeks gestation to reduce the probability of herpes simplex lesions at the time of delivery and thus allowing for vaginal delivery
There is insufficient evidence to determine whether this reduces the incidence of neonatal herpes; however, it reduces viral shredding and recurrences at delivery so may reduce the need for caesarean section. Limited information exists regarding the neonatal safety of prophylaxis. The risks, benefits and alternatives to daily suppressive therapy should be discussed with women who have a history and prophylaxis initiated for women who desire intervention.

1.2.3 If the woman is HIV positive refer to genitourinary consultant in regards to this as transmission rates of both HIV and HSV can be higher to baby if a woman has both.

1.2.4 In case of unreliable previous history of genital herpes, please confirm lesions presented at week 34+ with PCR testing and contact the consultant virologist (or microbiologist) for any needed arrangement for HSV IgG type specific serology testing in the booking blood and/or current blood sample.

1.3 Genital herpes at time of delivery

1.3.1 Primary infection**
Studies have shown with genital ulcers present during primary infection during delivery over 40% of infants suffer with neonatal herpes simplex.

- Caesarean section should be recommended to all women presenting with a first episode of genital herpes within 6 weeks of delivery

- For women who have primary infection within 6 weeks of delivery but decide for a normal vaginal delivery; invasive procedures eg rupture of membranes, fetal blood sample, fetal electrode should be avoided. IV acyclovir to be given to mother during labour (5mg/kg, 8 hourly). Counsel the mother that It is unknown whether intrapartum aciclovir reduces the risk of neonatal HSV infection. Inform Neonatal team about situation as baby may also require acyclovir and be swabbed (skin/Eye/Throat) for PCR testing.

** *In case of unreliable previous history of genital herpes, please confirm lesions presented at labour with PCR testing and contact the consultant virologist (or microbiologist) for any needed arrangement for HSV IgG type specific serology testing in the booking blood and/or current blood sample.*

1.4 Recurrent genital herpes***

1.4.1 If patient has recurrent herpes at the time of labour, please inform neonatology team.

1.4.2 Women should be advised risk of transmission is 0–3% for vaginal delivery

1.4.3 Vaginal delivery should be recommended to the mother in the absence of other obstetric indications for caesarean section.

1.4.4 If rupture of membranes is confirmed woman should be advised to expedite delivery by appropriate methods

1.4.5 If active lesions present, invasive procedures should be avoided.

*** In case of unreliable previous history of genital herpes, please confirm lesions presented at labour with PCR testing and contact the consultant virologist (or microbiologist) for any needed arrangement for HSV IgG type specific serology testing in the booking blood and/or current blood sample.

1.5 Pre-labour preterm rupture of membranes (PPROM) – primary infection

1.5.1 Women with active lesions of a primary infection of genital herpes will benefit from caesarean section to reduce neonatal transmission.

1.5.2 If there is initial conservative management of PPROM, for example, during administration of steroids, the mother should be recommended to receive intravenous aciclovir 5 mg/kg every 8 hours.

1.6 Pre-labour preterm rupture of membranes (PPROM) – recurrent infection

1.6.1 If < 34 weeks gestation and expectant management is planned, offer oral aciclovir 400 mg three times daily for the mother

1.7 Postnatal HSV transmission

1.7.1 Women should be advised to wash their hands thoroughly before touching their baby, avoid kissing their baby if they have cold sores lesions.

1.7.2 Women should be encouraged to breast feed if they intend to, unless they have herpetic lesions affecting the nipples.

Click on the link to access a patient information leaflet on genital herpes

Section 3

1 Chicken Pox in Pregnancy

1.1 Chicken pox (Varicella Zoster Virus, VZV), is a highly infectious condition which is transmitted directly via personal contact or droplet spread. Most infections occur in childhood and 90% of the adult population in the UK is immune, having had the childhood infection (this is greatly reduced in immigrant populations). The incubation period can be between 10-21 days but the infectious period is from 2 days prior to the vesicles appearing until they are completely dry (about 5 days from onset of rash).

1.2 Shingles occur in individuals who have had chickenpox in the past. It is the re-activation of the virus which has remained latent since the initial infection.

1.3 Antenatal screening for varicella susceptibility is not currently recommended in the UK.

2 Contact with Varicella Virus (chickenpox or shingles) in the antenatal period

2.1 Take a careful history to establish the nature of the contact (significant contact is being in the same room for 15 mins, face-to-face contact or being on an open ward) and how susceptible the woman is.

2.1.1 Women who have not had chicken pox or are unsure about whether they have had chicken pox previously should have a blood test to check Varicella zoster virus (VZV) immunity. Contact Virology team to ask if booking blood samples can be used or determine whether further samples are required.

2.1.2 As of 6th July 2018, Public Health England has restricted the use of varicella zoster immunoglobulin (VZIG) due to a supply shortage. The below advice is applicable until further notice:

2.1.3 If the pregnant woman is not immune to VZV and she has had significant contact with the virus, management varies depending on gestation.

- In the first 20 weeks of pregnancy, give VZIG as soon as possible. VZIG is effective when given up to 10 days after contact. Ideally this should be given by the GP, but if this is not possible she must be seen urgently in DAU or triage (provided she has not developed a rash) for VZIG to be given. Virology team will arrange for VZIG to be issued by pharmacy.
- If > 20 weeks gestation, aciclovir should be offered (800mg four times a day from day 7 to 14 after exposure).

2.1.4 If VZIG is given, the woman must be treated as though infectious from days 8-28 after VZIG administered (therefore minimizing risk to other vulnerable groups).

2.1.5 If further significant exposure is recorded within 3 weeks of the initial VZIG, a second dose of VZIG is necessary.

3 Pregnant women who have developed chickenpox

3.1 If maternal infection occurs in the first 28 weeks of pregnancy, congenital varicella syndrome may result, despite this being rare (approx. 2% in the first 20 weeks gestation) there is a high fetal mortality. Fetal varicella syndrome is characterized by one or more of the following:

- scarring of skin in a dermatomal distribution
- eye defects (micropthalmia, chorioretinitis, cataracts)
- hypoplasia of the limbs
- neurological defects (microcephaly, mental restriction, bladder/bowel dysfunction).

3.2 All women who have had chickenpox prior to 28 weeks gestation should be referred to antenatal clinic (see Appendix A below) once the rash is completely dry.

3.3 Pregnant women who develop a rash (any gestation) should be advised to immediately contact their GP.

3.4 The woman should be advised to avoid contact with other susceptible individuals (e.g. other pregnant women, neonates) until the rash is completely dry.

3.5 Women presenting within 24 hours of the onset of the rash should be prescribed oral aciclovir if more than 20 weeks gestation. Aciclovir may considered in women at <20 weeks gestation. Counsel the women on the risks and benefits of taking acyclovir, and that its use is not licensed in pregnancy. Refer to BNF for further information

3.6 Women should be alerted to complications of Varicella infection: e.g. pneumonitis, hepatitis, bleeding disorder, encephalitis and to attend hospital if symptoms of the above are apparent. Those with immunosuppressive disorders also should be assessed in a hospital setting on the Medical ward involving the virologist and medical team.

4 Maternal infection/ rash at term

4.1 If maternal infection is at term, the risk of varicella of newborn is greatest**. Avoid elective delivery until 5-7 days after the onset of maternal rash,** allowing passive transfer of maternal antibodies to the fetus.

4.2 The neonate should have an ophthalmic examination, if there is clinical evidence of neonatal varicella infection.

4.3 If within 7 days of the maternal rash appearing the birth occurs, or mother develops rash within 7 days after birth, the neonate should be given VZIG.

4.4 If within 4 days of the maternal rash appearing the birth occurs, or mother develops rash within 2 days after birth, the neonate should be considered for an additional 10 day course of Aciclovir iv.

4.5 Breast feeding is encouraged, if they intend to, unless there are lesions around the nipples.

4.6 If the baby develops rash despite VZIG prophylaxis, viral lesion swab should be taken for VZV PCR and Aciclovir i.v. started.

4.7 If a non-immune neonate is exposed to chickenpox or shingles within the first seven days of life, VZIG should be given. If the baby develops rash despite VZIG prophylaxis, viral lesion swab should be taken for VZV PCR.

4.8 If neonatal varicella infection is suspected- contact the Neonatologist. Aciclovir is often prescribed in these circumstances.

4.9 Click the link to access a patient information leaflet on chickenpox

Section 3

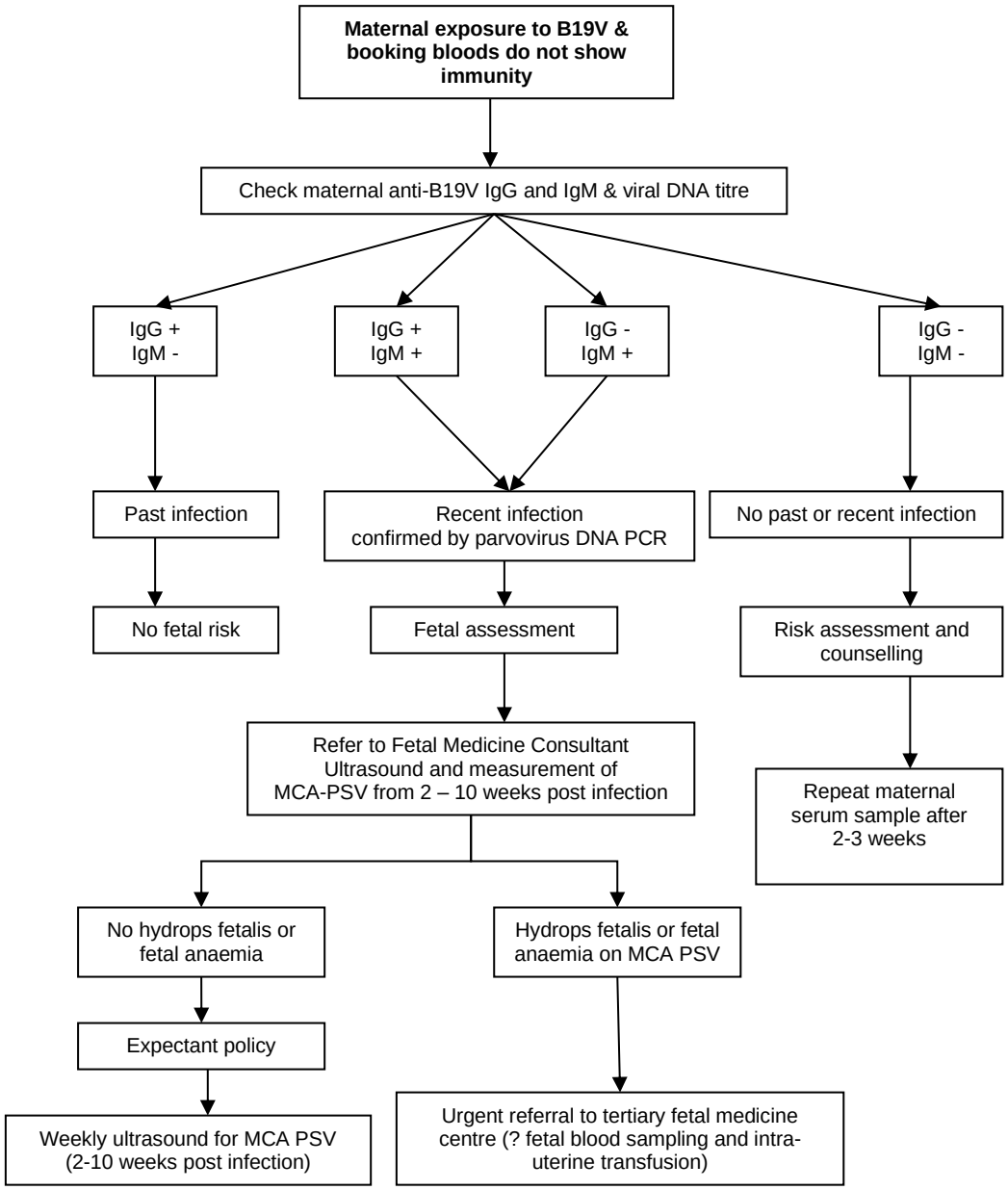
1 Parvovirus Infection (Slapped Cheek Fever)

If there has been contact with Parvovirus B19 in pregnancy the lab will be able to test the booking bloods to ascertain if she is immune or susceptible. If immune, no further action is required. If susceptible, send a clotted blood sample to virology. If negative repeat 2-3 weeks later. If there is a suspicion of actual Parvovirus infection in a pregnant woman, viral "green" throat/mouth swab (for parvovirus B19 DNA) and clotted blood sample should be taken and sent to virology. Clinical features may be indistinguishable from rubella infection. Check the woman's booking blood results for rubella immunity status. See MP005 Protocol, A/N Screening: Infectious Diseases - Rubella antibody, for further guidance.

1.1 If there is confirmed Parvovirus infection in the woman she should be discussed with a Fetal Medicine consultant (directly or via the Antenatal Screening co-ordinators). She should not be seen in a clinic until after the infection has passed and she is no longer infectious (i.e. approx 1-2 weeks later or if a rash appears). Scans should be performed form 2-3 weeks up until 10 weeks or so after her infection. Below 18 weeks the scans are performed to confirm viability and rule out hydrops. From 18 weeks onwards fetal Doppler assessments should be performed to look for signs of fetal anaemia by measuring MCA peak systolic velocity (NOT PI). The sonographers do not currently perform this measurement so please inform the Antenatal Screening Co-ordinator or fetal medicine consultant who will make the necessary arrangements.

1.2 If fetal hydrops is found at any time on a scan it must be discussed urgently with a consultant. If 18 weeks or more urgent referral to a tertiary Fetal Medicine Unit is indicated (e.g. Harris Birthright Unit at King's College Hospital). Otherwise discuss with Fetal Medicine consultant.

1.3 5.5 Parvovirus Infection (Slapped Cheek Fever) – Flow Diagram



2 References:

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