Guideline for the Management of Chickenpox During Pregnancy

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Section Headings

1.0 Introduction

For simplicity of language, this guideline will use the term 'women' or 'mother' throughout, and this should be taken to include people who do not identify as women but who are pregnant or who have given birth.

The implications of contracting chicken pox (varicella virus) during pregnancy can affect the developing fetus. Babies born to mothers who were infected with varicella-zoster virus up to week 28 of their pregnancy are at risk for a very serious condition known as fetal varicella syndrome. This is characterised by low birthweight, scarring of the skin, withered limbs, small head and/or cataracts.

2.0 Objective

This guideline will guide all maternity health professionals through the process if a pregnant woman comes into contact with chicken pox.

3.0 Scope

This guideline applies to all medical and midwifery staff working on the maternity unit, including any pregnant women who attend any other medical department.

4.0 Main body of the document

Varicella is a virus of the herpes family that is highly contagious and transmitted by respiratory droplets and close personal contact. Primary infection is referred to as Chickenpox, and reactivation is Herpes Zoster (Shingles). Virus from these lesions can be transmitted to susceptible individuals to cause Chickenpox.
The primary infection (Chickenpox) is characterised by:

- Fever
- Malaise
- Pruritic rash which develops into crops of maculopapules. These become vesicular and crust over before healing

The incubation period is 10 - 20 days and the disease is infectious 48 hours before the rash appears and lasts until the vesicles crust over.

90% of the antenatal adult population in the United Kingdom and Ireland are seropositive for VZ (Varicella Zoster) IgG antibody, this means that they are unlikely to contract the virus again due to immunity from a past exposure.

Contact with chickenpox in pregnancy is common but it is estimated to complicate only 3 in every 1000 pregnancies.

Risks to the fetus and neonate from maternal Chickenpox are related to the time of infection in the mother and her gestation during pregnancy:

4.1 Management of a woman with suspected Varicella contact in pregnancy

Up to 28 weeks gestation:	• Women should be advised that the risk of spontaneous miscarriage does not appear to be increased if chickenpox occurs in the first trimester • If the pregnant woman develops Varicella or shows serological conversion in the first 28 weeks of pregnancy, she has a small risk of Fetal Varicella Syndrome (FVS). This occurs in 1-2% of babies, and the mortality rate is high. The woman should be referred to Barnsley Fetal Clinic and a paediatric alert should be created. FVS is characterised by one or more of the following: • Skin scarring in a dermatomal distribution • Microphthalmia • Chorioretinitis • Cataract • Hypoplasia of the limbs • Microcephaly • Cortical atrophy • Intellectual disability • Dysfunction of urinary or bowel sphincters
28 – 36 weeks gestation:	The virus stays in the baby's body but will not cause symptoms. The virus may become active again causing shingles in the first few years of life.
36 weeks gestation and up to 1 week before delivery:	The baby may become infected and could be born with chicken pox.
A week before to a week after delivery:	Severe and even fatal disease in the

	neonate. Before the introduction of Varicella Zoster Immunoglobulin (VZIG) as a treatment in the UK, half of the deaths of infants under one year old (of baby's who have contracted the virus) occurred in those less than 3 weeks old. The infection would have been contracted either before or during birth or in the first week of life

- It is important to establish the contact history with particular reference to the certainty of the infection, the infectiousness (vesicular rash or within 48 hours of a rash developing) and the degree of exposure.
- If the pregnant woman has a previous history of Varicella, it is reasonable to assume that she is immune to primary VZ infection. If there is any doubt, then the VZ IgG titre should be checked
- If the pregnant woman has had a significant contact (contact in the same room e.g. in a house, classroom, 2-4 bed hospital bay for 15 minutes or more, and/or face to face contact e.g. whilst having a conversation or intimacy) and no previous history of Varicella, then check for VZ IgG. A new sample should be taken (search on ICE for chicken pox). The Virology department will cross-reference the booking blood sample with the new result if needed. Seek advice from consultant microbiologist if unsure.
- It is the responsibility of the sample taker to ensure that the request form is completed correctly with details of the type and severity of the exposure. The sample taker must give a contact telephone number on the request form.
- The risk of acquiring the infection from an immunocompetent person with non-exposed zoster lesions is remote.
- The issue of VZIG, to treat the infection, should be restricted to:
  - Those in contact with chickenpox or shingles with exposed lesions
  - Or immunosuppressed patients with localised zoster on any part of the body (in whom viral shedding may be greater).
- If the pregnant woman is not immune to VZ and has had significant contact then she should be given VZIG as soon as possible after contact. It is most effective when it is administered within 10 days following contact or within 10 days of the rash appearing.
- VZIG should be available to all pregnant women who require it but if stocks are limited each case will be risk assessed by the Obstetric Consultant and the Consultant Microbiologist.
- The referrer must liaise with the Consultant Microbiologist, ext: 2749/bleep 207 regarding the ordering and distribution of VZIG.
- The VZIG is ordered by the Consultant Microbiologist and will be available to collect from the inpatient pharmacy. The Consultant Microbiologist will inform the Screening Team either via email and/or telephone to notify it is ready for collection. If the result is available out of hours or during the weekend, the Consultant Microbiologist will contact the BBC.

- The Antenatal and Newborn Screening Coordinator/Deputy will liaise with the woman and arrange for her to attend the hospital for the VZIG within the specified time frame.
- The VZIG will need to be prescribed by a member of the medical team on a treatment sheet (drug Kardex) prior to collection and administration which the Antenatal and Newborn Screening Coordinator/deputy will arrange.
- The VZIG can be administered by either the Antenatal and Newborn Screening Coordinator/Deputy, qualified Midwife or by a member of the medical team. The administration is via intramuscular injection (IM) with full instructions provided by the VZIG information leaflet.
- If VZIG is administrated, the woman she be managed as potentially infectious from 8-28 days after the VZIG.
- A second dose of VZIG may be required if there is a further episode of exposure and 3 weeks have elapsed since the first dose was given.
- Women should be advised to contact their community midwife if they develop a rash following exposure to chicken pox or shingles (regardless of whether they have received VZIG or not).

4.2 Management of a pregnant woman who presents with chickenpox

- Pregnant women who develop a chickenpox rash should be advised to contact their community midwife immediately so a venous blood sample can be obtained to confirm the presence of the varicella virus, and/or immunity. If she is unable to speak to her community midwife she can ring the community administration office or the antenatal clinic.
- The woman should be advised to avoid contact with potentially susceptible individuals including other pregnant women or neonates until the lesions have crusted over (usually around 5 days after the onset of the rash).
- Women should be advised about symptomatic treatment and hygiene to prevent secondary bacterial infections of the lesions.
- If the varicella virus is confirmed then the Antenatal and Newborn Screening Coordinator/Deputy will commence the VZIG (as discussed in 4.1) and will refer the woman to the Barnsley Fetal Clinic for a detailed ultrasound examination at 16-20 weeks gestation, or 5 weeks after the initial diagnosis, which ever is the sooner. The purpose of the referral to the Barnsley Fetal Clinic is to check the baby for:
    - Limb deformities
    - Microcephaly
    - Hydrocephalus
    - Soft tissue calcification
    - Fetal growth restriction
- During the Barnsley Fetal Clinic assessment, the Obstetric Consultant may offer the woman an invasive test such as an amniocentesis. The RCOG suggests that women who develop varicella infection during pregnancy should be counselled about the risks versus benefits of an invasive test. An invasive test should not be performed before the skin lesions have completely healed. The woman should be made aware that the potential level of fetal abnormality may not be detected solely on the

amniocentesis result alone. An amniocentesis offers a strong negative predictive value and a poor positive predictive value of detecting fetal abnormalities.

- VZIG has no therapeutic benefit once chickenpox has developed and should therefore not be used in pregnant women who have developed a chickenpox rash.
- If the woman is > 20 weeks gestation and is seen less than 24 hours after the development of the varicella rash, the administration of acyclovir may reduce the severity and duration of the illness (800mg 5 times a day for 7 days is the recommended dosage). **Please note:** Acyclovir is not licensed for use in pregnancy and the risks and benefits of its use should be discussed with the woman by a member of the obstetric team. Verbal consent must be obtained and the discussion should be fully documented on the EPR.
- Acyclovir should cautiously be used in women < 20 weeks gestation as there are theoretical concerns regarding the teratogenesis when given in the 1st trimester.
- There is an increased morbidity associated with the varicella infection in adults. This includes pneumonia, hepatitis and encephalitis. Any woman who has a confirmed varicella infection and develops the following symptoms should be referred immediately to hospital:
    - Chest symptoms
    - Neurological symptoms
    - Haemorrhagic rash or bleeding
    - A dense rash with or without mucosal lesions
    - Women who are significantly immunosuppressed.
- Varicella Pneumonia is an indication for treatment with intravenous Acyclovir. It may be necessary in certain circumstances to consider mechanical ventilation. In the 3rd trimester delivering the baby may be an option, however it should be considered with the increase risk of the baby developing neonatal varicella.

4.3 Management of delivery

The decision to deliver and the mode of delivery will be dependent upon individual circumstances. Following a discussion with the obstetric and paediatric team.

If the woman requests epidural analgesia during labour then it should be inserted in a site that is lesion free.
If maternal infection occurs 5 days before or 2 days after delivery there is a 20-30% risk of the baby contracting the varicella virus, which in a neonate can be severe and even fatal. Where relevant and practical, delivery should be delayed until 5-7 days after the onset of maternal illness to allow for the passive transfer of antibodies.

4.4 Management post delivery

- Women can breastfeed if they choose to. It is safe to breastfeed if the woman has had chickenpox during pregnancy or after the birth. If the blisters are close to the nipple then it is advisable to express milk from that side (and throw it away) until they crust over (RCOG 2015).

- If a sibling at home develops chickenpox then the risk to the neonate is minimal if the mother is immune.

- If the mother is non-immune then discharge home should be delayed until the lesions have crusted on the sibling (usually 5 days).

- If contact with the neonate has already occurred following discharge home then a discussion with the Consultant Microbiologist should be sought.

5.0 Roles and responsibilities

5.1 Midwives

To ensure that women with suspected or confirmed varicella infection are referred appropriately and receive the appropriate management and treatment to reduce the risks to the mother and her baby.

5.2 Obstetricians

To provide care for women in accordance with appropriate guidance from confirmation of pregnancy/ diagnosis of condition to delivery.

5.3 Paediatricians

To attend delivery when chicken pox has been confirmed in pregnancy. A further review by the Paediatrician should be performed within 6 hours of delivery. A Paediatrician should perform the NIPE examination.

5.4 Anaesthetists

To attend when their presence is requested and provide analgesia/anaesthesia to the women for operations and procedures as appropriate.

6.0 Associated documents and references

Public Health England (2017). Immunisation Against Infectious Disease, Chatper 34 Varicella. [online]. Last accessed 25/01/2023 at Greenbook cover Jan21 (publishing.service.gov.uk)

Royal College of Obstetricians and Gynaecologists (2015). Chickenpox in Pregnancy. Green-top Guideline No. 13. [online]. Last accessed 25/01/2023 at gtg13.pdf (rcog.org.uk)

Royal College of Obstetricians and Gynaecologists (2022). Chickenpox and pregnancy patient information leaflet. [online]. Last accessed 25/01/2023 at Chickenpox and pregnancy patient information leaflet | RCOG

UK Health Security Agency (2018). Guidance. Chickenpox and shingles vaccines: advice for pregnant women. [online]. Last accessed 01/03/2023 at Chickenpox and shingles vaccines: advice for pregnant women - GOV.UK (www.gov.uk)

7.0 Training and resources

Training will be delivered as outlined in the Maternity Training Needs Analysis. This is updated on an annual basis. Any changes to the guideline or the management of chicken pox during pregnancy can be escalated to ALL staff via an email.

8.0 Monitoring and audit

Any adverse incidents relating to the management of chickenpox during pregnancy will be monitored via the incident reporting system. Any problems will be actioned via the case review and root cause analysis action plans. The action plans are monitored by the risk midwife to ensure that improvements in care are made. The trends and any root cause analysis are discussed at the monthly risk meetings to ensure that appropriate action has been taken to maintain safety.

The guideline for the management of chickenpox during pregnancy will be audited in line with the annual audit programme, as agreed by the CBU. The audit action plan will be reviewed at the monthly risk management meetings on a quarterly basis and monitored by the risk midwife to ensure that improvements in care are made.

9.0 Equality and Diversity

This section is mandatory for all Trust Approved Documents and must include the statement below:

The Trust is committed to an environment that promotes equality and embraces diversity in its performance as an employer and service provider. It will adhere to legal and performance requirements and will mainstream equality, diversity and inclusion principles through its policies, procedures and processes. This guideline should be implemented with due regard to this commitment.

To ensure that the implementation of this guideline does not have an adverse impact in response to the requirements of the Equality Act 2010 this policy has been screened for relevance during the policy development process and a full equality impact assessment is conducted where necessary prior to consultation. The Trust will take remedial action when necessary to address any unexpected or unwarranted disparities and monitor practice to ensure that this policy is fairly implemented.

This guideline can be made available in alternative formats on request including large print, Braille, moon, audio, and different languages. To arrange this please refer to the Trust translation and interpretation policy in the first instance.

The Trust will endeavor to make reasonable adjustments to accommodate any employee/patient with particular equality, diversity and inclusion requirements in implementing this guideline. This may include accessibility of meeting/appointment venues, providing translation, arranging an interpreter to attend appointments/meetings, extending policy timeframes to enable translation to be undertaken, or assistance with formulating any written statements.

9.1 Recording and Monitoring of Equality & Diversity

This section is mandatory for all Trust Approved Documents and must include the statement below:

The Trust understands the business case for equality, diversity and inclusion and will make sure that this is translated into practice. Accordingly, all guidelines will be monitored to ensure their effectiveness.

Monitoring information will be collated, analysed and published on an annual basis as part of Equality Delivery System. The monitoring will cover the nine protected characteristics and will meet statutory employment duties under the Equality Act 2010. Where adverse impact

is identified through the monitoring process the Trust will investigate and take corrective action to mitigate and prevent any negative impact.

Appendix 1
Equality Impact Assessment – required for policy only
Please refer to Equality Impact Assessment Toolkit – found in Corporate Templates on PC desktop.
For clinical policies use Rapid Equality Impact Assessment Form
For all other policies use Equality Impact Assessment Blank Template

Appendix 2
Glossary of terms

FVS – Fetal Varicella Syndrome

IM - Intramuscular

VZ – Varicella Zoster

VZIgG – VZ antibodies

VZIgM - VZ Infection

VZIG – Varicella Zoster Immunoglobulin

Appendix 3 (must always be the last appendix)
Maintain a record of the document history, reviews and key changes made (including versions and dates)

Version	Date	Comments	Author

Review Process Prior to Ratification:

Name of Group/Department/Committee	Date
Reviewed by Maternity Guideline Group	N/A
Reviewed at Women's Business and Governance meeting	17/03/2023
Approved by CBU 3 Overarching Governance Meeting	22/03/2023
Approved at Trust Clinical Guidelines Group	N/A
Approved at Medicines Management Committee (if document relates to medicines)	N/A

Trust Approved Documents (policies, clinical guidelines and procedures)

Approval Form

Please complete the following information and attach to your document when submitting a policy, clinical guideline or procedure for approval.

Document type (policy, clinical guideline or procedure)	Guideline
Document title	Guideline for the Management of Chickenpox During Pregnancy
Document author (Job title and team)	Antenatal and Newborn Screening Coordinator/ Deputy Antenatal and Newborn Screening Coordinator/Obstetrician
New or reviewed document	Reviewed
List staff groups/departments consulted with during document development	Screening Team Obstetricians
Approval recommended by (meeting and dates):	WB&G 17/03/2023 CBU3 Governance 22/03/2023
Date of next review (maximum 3 years)	23/03/2026
Key words for search criteria on intranet (max 10 words)	
Key messages for staff (consider changes from previous versions and any impact on patient safety)	
I confirm that this is the FINAL version of this document	Name: Jade Carritt Designation: Governance Midwife

FOR COMPLETION BY THE CLINICAL GOVERNANCE TEAM

Approved by (group/committee): CBU3 Governance **Date approved: 22/03/2023** **Date Clinical Governance Administrator informed of approval: 23/03/2023** **Date uploaded to Trust Approved Documents page: 28/03/2023**