NHS
Mid and South Essex
University Hospitals Group

Document Title:	**VARICELLA ZOSTER VIRUS (VZV) (CHICKENPOX) and SHINGLES IN MATERNITY**		
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Issuing Division/Directorate:	Women's and Children's		
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Related Trust Policies (to be read in conjunction with)	04071 Standard Infection Prevention 04072 Hand Hygiene 06036 Guideline for Maternity Record Keeping including Documentation in Handheld Records 08072 Isolation Policy Appraisal Policy

Document Review History:			
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1.0	Yvonne Roder		July 2006
2.0	Kathleen Bird		January 2010
3.0	Nicky Leslie		April 2013
4.0	Nicky Leslie		10 June 2016
5.0	Emma Neate	Full review	29th August 2019

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1.0 Purpose

1.1 The aim of this guideline is to assess maternal and fetal risks of varicella, the primary infection with herpes varicella zoster virus (VZV), chickenpox (VZV) infection in pregnancy.

1.2 To assess whether or not these complications can be prevented or modified beneficially by the administration of varicella zoster immunoglobulin (VZIG).

2.0 Equality and Diversity

2.1 Mid Essex Hospital Services NHS Trust is committed to the provision of a service that is fair, accessible and meets the needs of all individuals.
(Refer to Appendix 1)

3.0 Introduction and Background

3.1 VZV is a DNA virus of the herpes family that is highly contagious and transmitted by respiratory droplets and by direct personal contact with vesicle fluid or indirectly via fomites (e.g. skin cells, hair, clothing and bedding).

3.2 The primary infection is characterised by:

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

3.3 The incubation period is between 1 and 3 weeks and the disease is infectious 48 hours before the rash appears and continues to be infectious until the vesicles crust over. The vesicles usually crust over within 5 days.

3.4 Chickenpox (or primary VZV infection) is a common childhood disease that usually causes a mild infection. Over 90% of individuals over 15 years of age in England and Wales are seropositive for VZV immunoglobulin G (IgG) antibody. Although contact with chickenpox is common in pregnancy, especially in women with young children, primary VZV infection in pregnancy is uncommon; it is estimated to complicate 3 in every 1000 pregnancies.

3.5 Women from tropical and subtropical areas are more likely to be seronegative for VZV IgG and are therefore more susceptible to the development of chickenpox in pregnancy.

3.6 Following the primary infection, the virus remains dormant in sensory nerve root ganglia but can be reactivated to cause a vesicular erythematous skin rash in a dermatomal distribution known as herpes zoster, also called ‘zoster’ or ‘shingles’.

3.7 The risk of acquiring infection from an immunocompetent individual with herpes zoster in non-exposed sites (e.g. thoracolumbar) is remote but can occur. However, disseminated zoster or exposed zoster (e.g. ophthalmic) in any individual or localised zoster in an immunosuppressed patient should be considered to be infectious as the viral shedding may be greater.

4.0 The Pregnant Patient at her Initial Antenatal Visit

4.1 At the antenatal booking ask about history of previous Chicken Pox / Shingles infection and document in antenatal notes.

4.2 Women who have not had Chickenpox, or are known to be seronegative for chickenpox, should be advised to avoid contact with chickenpox and shingles during pregnancy and to inform healthcare workers of a potential exposure without delay.

5.0 A Pregnant Patient who gives a History of Contact with Chickenpox or Shingles

5.1 Patients who have had exposure to chickenpox or shingles should be asked to notify their doctor or midwife early if a rash develops. A pregnant woman who develops a chickenpox rash should be isolated from other pregnant women when she attends for assessment.

5.2 Women should avoid contact with potentially susceptible individuals, e.g. other pregnant women and neonates, until the lesions have crusted over. This is usually about 5 days after the onset of the rash**.**

5.3 When contact occurs with chickenpox or shingles, a careful history must be taken to confirm the significance of the contact and the susceptibility of the patient.

5.4 Women should have a blood test for confirmation of VZV immunity. This can be undertaken from her booking bloods. Contact 01245 515052 and request the test via Virology at Broomfield. The laboratory require the following information:

- How many weeks pregnant and what is their EDD?
- What was the date of contact?
- Who the contact was with and when did they come out with the spots or rash?
- Is this a direct contact?
- Has the patient got any symptoms?
- If the pregnant patient is not immune to VZV and she has had a significant exposure, she should be given VZIG as soon as possible. VZIG is effective when given up to 10 days after contact.

5.5 If VZIG is given, the pregnant patient should be managed as potentially infectious from 8–28 days after VZIG (8–21 days if no VZIG given).

5.6 A second dose of VZIG may be required if a further exposure is reported and 3 weeks have elapsed since the last dose.

5.7 The history must be confirmed with particular respect to:

- How long ago was the exposure;
- What contact did they have;

- How long were they in contact for;
- When did their contact develop the rash.

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5.8 Significant contact is defined as contact in the same room for 15 minutes or more, face-to-face contact and contact in the setting of a large open ward. The UK Advisory Group on chickenpox considers any close contact during the period of infectiousness to be significant.

6.0 The Maternal Risks of Varicella in Pregnancy

6.1 Clinicians need to be aware of the excess morbidity associated with varicella infection in adults, including pneumonia, hepatitis and encepahalitis and, occasionally mortality.

6.2 Although varicella infection is much less common in adults than in children, it is associated with greater morbidity, namely pneumonia, hepatitis and encephalitis. Chickenpox results in the death of 25 people/year in England and Wales and 75% of these deaths occur in adults.

6.3 Pneumonia can occur in up to 10% of pregnant patients with chickenpox and the severity of this complication seems increased in later gestation.

7.0 Managing the Pregnant Patient who Develops Chickenpox

(Refer to Appendix 2)

7.1 Pregnant patients who develop the rash of chickenpox should immediately contact their GP. Women who develop the symptoms or signs of severe chickenpox should be referred immediately to hospital:

- Appropriate treatment should be decided in consultation with a multidisciplinary team: obstetrician or fetal medicine specialist, virologist and neonatologist.
- Patients hospitalised with varicella should be nursed in isolation from babies or potentially susceptible pregnant patients or non-immune staff.

7.2 Patients should avoid contact with susceptible individuals; that is, other pregnant patients and neonates, until the lesions have crusted over. This is usually about 5 days after the onset of the rash.

7.3 Symptomatic treatment and hygiene is advised to prevent secondary bacterial infection of the lesions.

7.5 Patients should be informed of the potential risk and benefits of treatment.

7.6 VZIG has no therapeutic benefit once chickenpox has developed.

8.0 Fetal Risks of Varicella Infection in Pregnancy

8.1 Patients should be advised that the risk of spontaneous miscarriage does not appear to be increased if chickenpox occurs in the first trimester.

8.2 If the pregnant patient develops varicella or shows serological conversion in the first 28 weeks of pregnancy, she has a small risk of fetal varicella syndrome and she will need to be informed of the implications.

9.0 Prenatal Diagnosis of Varicella Infection

9.1 Women who develop chickenpox in pregnancy should be referred to a Fetal Medicine Specialist, at 16–20 weeks or 5 weeks after infection, for discussion and detailed ultrasound examination.

9.2 Liaise with the Screening Team on extension 3433 to arrange a plan of care for fetal medicine review. .

9.3 Prenatal diagnosis is possible using detailed ultrasound when findings such as limb deformity, microcephaly, hydrocephalus, soft-tissue calcification and intrauterine growth restriction can be detected.

9.4 Given that amniocentesis has a strong negative predictive value but a poor positive predictive value in detecting fetal damage that cannot be detected by non-invasive methods, women who develop varicella infection during pregnancy should be counselled about the risks versus benefits of amniocentesis to detect varicella DNA by polymerase chain reaction (PCR).

9.5 Amniocentesis should not be performed before the skin lesions have completely healed.

10.0 When should women with chickenpox be delivered?

10.1 If maternal infection occurs in the last 4 weeks of a woman's pregnancy, there is a significant risk of varicella infection of the newborn.

10.2 The timing and mode of delivery of the pregnant woman with chickenpox must be individualised.

10.3 A planned delivery should normally be avoided for at least 7 days after the onset of the maternal rash to allow for the passive transfer of antibodies from mother to child, provided that continuing the pregnancy does not pose any additional risks to the mother or baby.

10.4 A neonatologist should be informed of the birth of all babies born to women who have developed chickenpox at any gestation during pregnancy.

10.5 When epidural or spinal anaesthesia is undertaken in women with chickenpox, a site free of cutaneous lesions should be chosen for needle placement.

11.0 Treatment of Onset of Maternal Rash at Term

11.1 If birth occurs within the 7-day period following the onset of the maternal rash, or if the mother develops the chickenpox rash within the 7-day period after birth, the neonate should be given VZIG.

11.2 If the patient has or develops a rash she should be screened for chicken pox and nursed in isolation.
(Refer to the Trust's 'Isolation policy'; register number 08029)

11.3 On discharge from the maternity unit the isolation room should be deep cleaned.

11.4 The infant should be monitored for signs of infection until 28 days after the onset of maternal infection. VZIG is also recommended for non-immune neonates that are exposed to chickenpox or shingles (other than maternal) in the first 7 days of life.

12.0 Breastfeeding

12.1 Mothers who contract chickenpox can breastfeed as normal. Any vesicles on the breast should be covered until they have crusted over to minimise the risk of transmission. If symptoms of chickenpox appear in the mother less than 5 days before and 2 days after delivery the baby should be seen urgently by health professionals and should receive VZ immunoglobulin and IV acyclovir. Taken from the BNF leaflet on Chickenpox found here https://breastfeedingnetwork.org.uk/wp-content/dibm/chickenpox%202017.pdf.

13.0 Risks to the Neonate if a Sibling has Chickenpox

13.1 If there is contact with chickenpox in the first 7 days of life, no intervention is required if the mother is immune. However, the neonate should be given VZIG if the mother is not immune to varicella or if the neonate delivered prematurely.

14.0 Precautions for Healthcare Workers

14.1 The immune status of healthcare workers in maternity and neonatal units should be determined by history of past infection and by serological testing if the history is negative or equivocal.

14.2 If staff were employed post 2008 their chicken pox status is confirmed with a blood test. For staff employed in the maternity unit prior to this date, occupational health will review their records and contact staff if needed to check their immunity.

15.0 Staffing and Training

15.1 All midwifery and obstetric staff must attend yearly mandatory training which includes antenatal screening.

15.2 All midwifery and obstetric staff are to ensure that their knowledge and skills are up-to-date in order to complete their portfolio for appraisal.

16.0 Infection Prevention

16.1 All staff should follow Trust guidelines on infection prevention by ensuring that they effectively 'decontaminate their hands' before and after each procedure.

16.2 All staff should ensure that they follow Trust guidelines on infection prevention. All invasive devices must be inserted and cared for using High Impact Intervention guidelines to reduce the risk of infection and deliver safe care. This care should be recorded in the Saving Lives High Impact Intervention Monitoring Tool Paperwork (Medical Devices).

17.0 Professional Midwifery Advocates

17.1 Professional Midwifery Advocates provide a mechanism of support and guidance to women and midwives. Professional Midwifery Advocates are experienced practising midwives who have undertaken further education in order to supervise midwifery services and to advise and support midwives and women in their care choices.

18.0 Audit and Monitoring

18.1 Audit of compliance with this guideline will be considered on an annual audit basis in accordance with the Clinical Audit Strategy and Policy (register number 08076), the Corporate Clinical Audit and Quality Improvement Project Plan and the Maternity annual audit work plan; to encompass national and local audit and clinical governance identifying key harm themes. The Women's and Children's Clinical Audit Group will identify a lead for the audit.

18.2 The findings of the audit will be reported to and approved by the Multi-disciplinary Risk Management Group (MRMG) and an action plan with named leads and timescales will be developed to address any identified deficiencies. Performance against the action plan will be monitored by this group at subsequent meetings.

18.3 The audit report will be reported to the monthly Directorate Governance Meeting (DGM) and significant concerns relating to compliance will be entered on the local Risk Assurance Framework.

18.4 Key findings and learning points from the audit will be submitted to the Clinical Governance Group within the integrated learning report.

18.5 Key findings and learning points will be disseminated to relevant staff.

19.0 Guideline Management

18.1 As an integral part of the knowledge, skills framework, staff are appraised annually to ensure competency in computer skills and the ability to access the current approved guidelines via the Trust's intranet site.

20.0 Communication

20.1 A quarterly 'maternity newsletter' is issued and available to all staff including an update on the latest 'guidelines' information such as a list of newly approved guidelines for staff to acknowledge and familiarise themselves with and practice accordingly.

20.2 Approved guidelines are published monthly in the Trust's staff newsletter that is sent via email to all staff.

20.0 References

Health Protection Agency (2013) General information – chicken pox. HPA

Health Protection Agency (2011) Guidance on the management of rash illness and the exposure to rash illness in pregnancy. .HPA

NHS Choices. *What are the risks of chickenpox during pregnancy?* http://www.nhs.uk/chq/pages/1109.aspx?categoryid=54&subcategoryid=137

Royal College of Obstetricians and Gynaecologists (2015) Chickenpox in pregnancy; RCOG Green-top Guideline No. 13 January

PHE 2019 Guidance on the investigation, diagnosis and management of viral illness, or exposure to viral rash illness, in pregnancy

Ainsworth SB Neonatal Formulary: Drug Use in Pregnancy and the First Year of Life 2014

Appendix 1: Preliminary Equality Analysis

This assessment relates to: Varicella Zoster Virus (VZV) (Chickenpox) and Shingles in Maternity (08072)

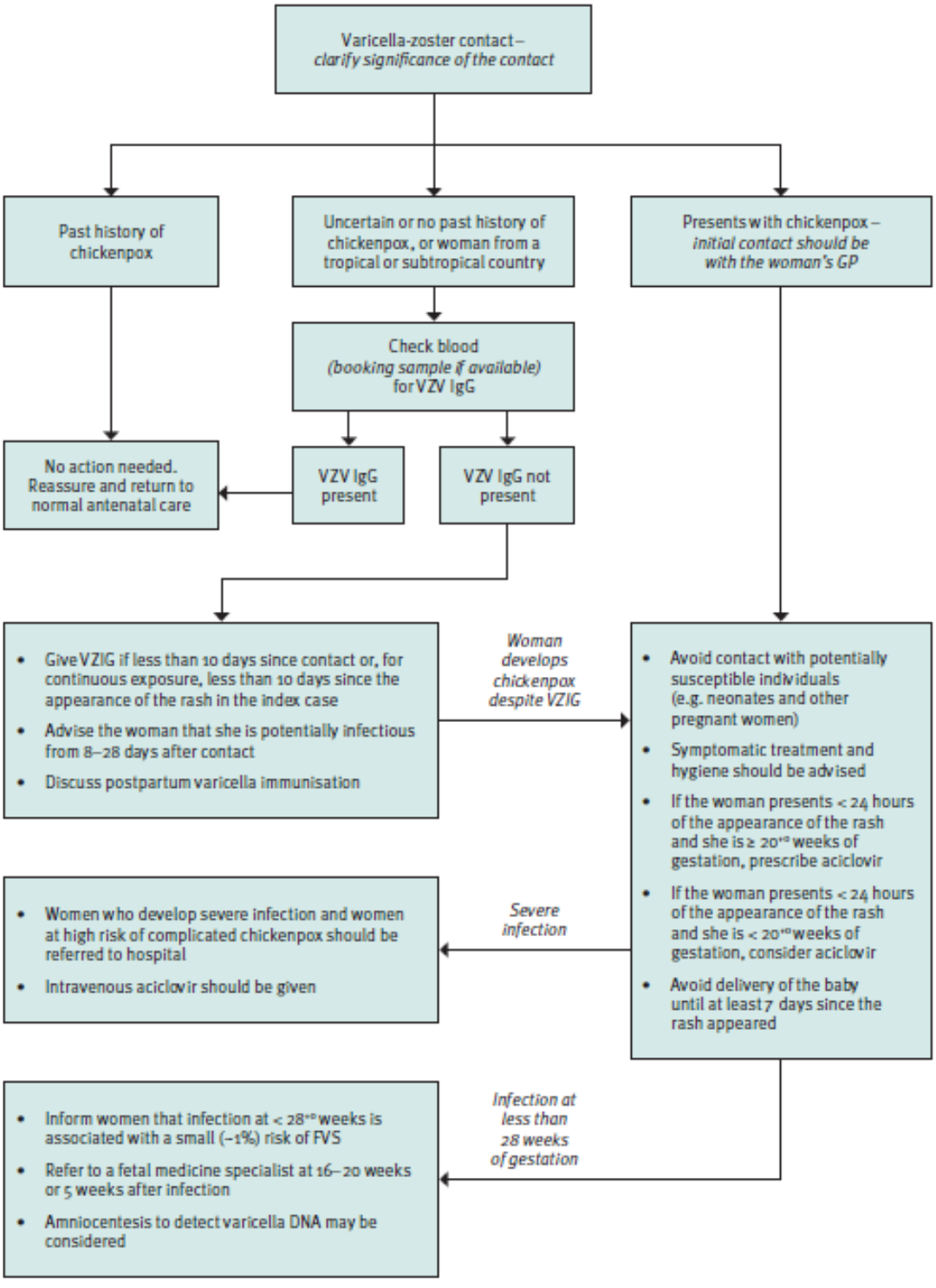
A change in a service to patients		A change to an existing policy	**X**	A change to the way staff work	
A new policy		Something else (please give details)			

Questions	Answers
1. What are you proposing to change?	Full Review
2. Why are you making this change? (What will the change achieve?)	3 year review
3. Who benefits from this change and how?	Patients and clinicians
4. **Is anyone likely to suffer any negative impact as a result of this change?** If **no**, please record reasons here and sign and date this assessment. If **yes**, please complete a full EIA.	No
5. a) Will you be undertaking any consultation as part of this change? **b) If so, with whom?**	Refer to pages 1 and 2

Preliminary analysis completed by:

Name	Emma Neate	**Job Title**	Senior Midwife	**Date**	November 2019

Appendix 2:
Algorithm for the management of varicella-zoster contact in pregnancy



Abbreviations: FVS fetal varicella syndrome; GP general practitioner; IgG immunoglobulin G; VZIG varicella-zoster immunoglobulin; VZV varicella-zoster virus

