Frimley Health
NHS Foundation Trust

Chickenpox in Pregnancy

Key Points

- Management of Chickenpox in pregnancy
- Immunity
- VZIG
- Chickenpox suspected or confirmed. Essential to isolate patient if outpatient or inpatient care is required

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Abbreviations

EBM	Expressed breast milk
FVS	Fetal Varicella Syndrome
VZIG	Varicella zoster immunoglobulin
VZV	Varicella - zoster virus

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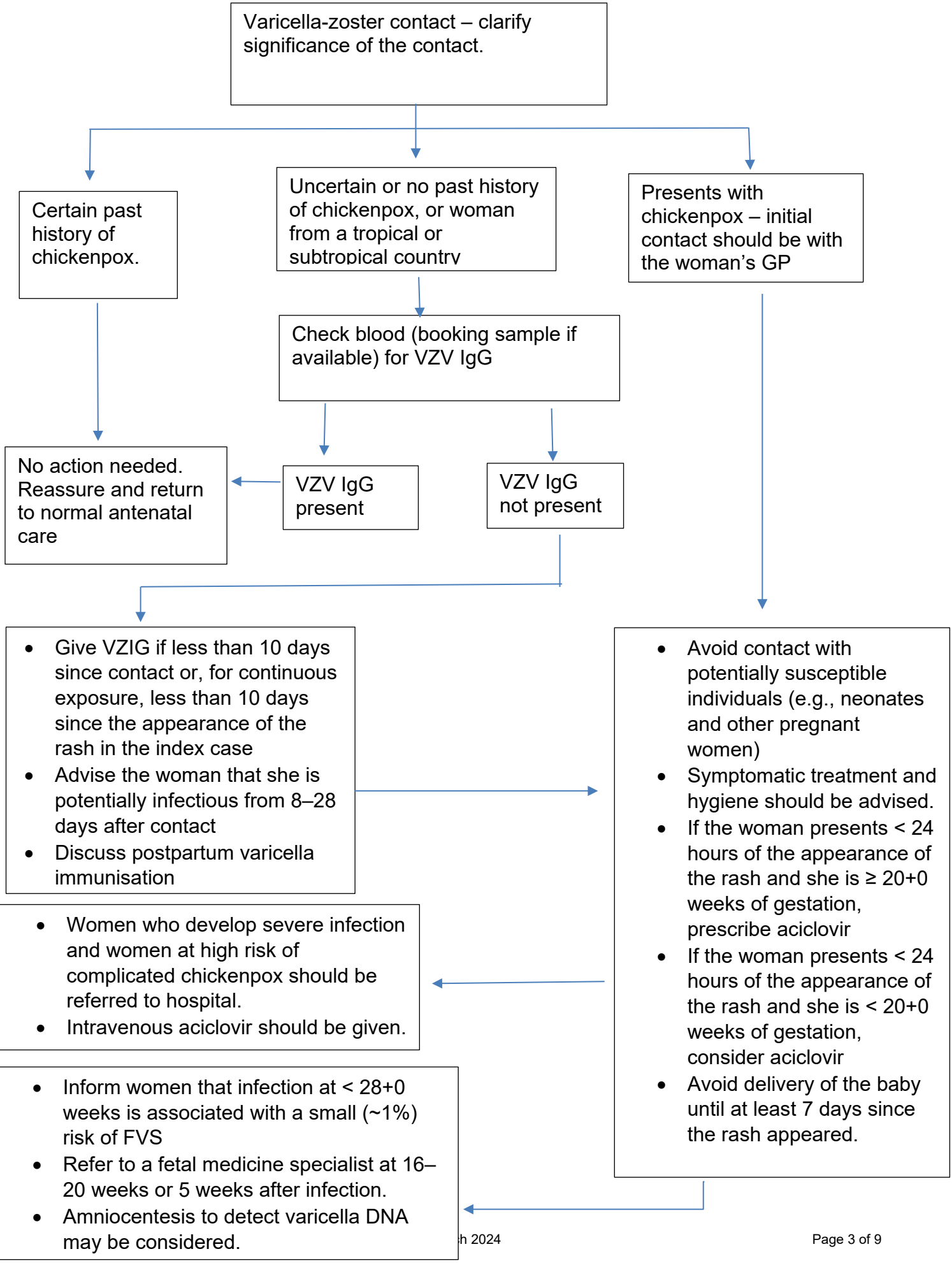
Algorithm for the management of varicella-zoster contact in pregnancy



1.0 Introduction

- 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, usually within 5-6 days.

- It is a common childhood disease and as a result over 90% of the antenatal population in the UK and Ireland are seropositive for VZV immunoglobulin IgG antibody. Primary VZV infection in pregnancy is uncommon: it is estimated to complicate 3 in every 1000 pregnancies. Women from tropical and subtropical areas are more likely to be seronegative to VZV IgG and therefore more susceptible to the development of chickenpox in pregnancy.

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

- Infection in adulthood, particularly in pregnancy can be more severe and mortality has occurred. Pneumonia can occur in 10% of cases and ventilatory support may be required. Other severe morbidities include hepatitis and encephalitis.

- Risks to the fetus and neonate from maternal Chickenpox are related to the time of infection in the mother and her gestation during pregnancy (see Appendix 1)

2.0 Known or suspected contact in pregnancy

- A careful history must be taken to confirm the significance of the contact and the susceptibility of the woman.
- Women should have a blood test for confirmation of VZV immunity. If immunity is unknown or in doubt, or for women who have come from tropical or subtropical countries serum VZV IgG should be tested. If booking antenatal bloods have been taken earlier, the serum stored in the laboratory may be used. The screening team can support with requesting and following up on VZV status.
- If the pregnant woman has had a significant exposure and is not immune to VZV at any stage of the pregnancy and postnatally if birth occurs within 10 days of exposure, VZIG should be considered. VZIG is effective when given up to 10 days after contact. In the case of continuous exposures, this is defined as 10 days from the appearance of the rash in the index case.
- Contact the Consultant virologist for further advise and to authorise and issue the VZIG if appropriate. Virology.asph@nhs.net Tel 01932 723729
- If VZIG is given, the pregnant woman should be managed as potentially infectious from 8–28 days after VZIG (8–21 days if VZIG is not given).
- Significant contact is defined as contact in the same room for 15minutes or more, face-to face contact, continuous home contact or 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.

- Women who have had exposure to chickenpox or shingles (regardless of whether or not they have received VZIG) 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 a GP surgery or hospital for assessment.
- A second dose of VZIG may be required if a further exposure is reported and 3 weeks have elapsed since the last dose of VZIG.
- Adverse effects of VZIG include pain and erythema at the injection site.

3.0 Clinical infection in the pregnant woman

3.1 Management of chickenpox in pregnant woman

- Health care professionals should be aware of the increased morbidity associated with varicella infection in adults, including pneumonia, hepatitis and encephalitis.
- Pregnant women who develop a rash of chickenpox should immediately contact their GP.
- Women should avoid contact with susceptible individuals, e.g., other pregnant women and neonates until lesions have crusted over. Therefore, women should be advised not to attend the Antenatal Clinic/ MAC/DAU until then.
- Symptomatic treatment and hygiene is advised to prevent secondary bacterial infection of the lesions.
- Oral Aciclovir (800mg five times a day for 7 days) should be prescribed if pregnant women present within 24 hours of the onset of the rash and is more than 20+0 weeks gestation (UK Advisory Group on Chickenpox). Oral Aciclovir reduces the duration of fever and symptomology of varicella infection in immunocompromised adults if commenced within 24 hours of developing the rash. Informed consent should be obtained from the patient when Aciclovir is used in this context.
- Aciclovir should be used cautiously before 20+0 weeks of gestation
- VZIG has no therapeutic benefit once chickenpox has developed.

3.2 Indication for hospital referral

- The pregnant woman with chickenpox should be asked to contact her doctor immediately if she develops respiratory symptoms or any other deterioration in her condition.
- Women who develop symptoms or signs of severe chickenpox should be referred immediately to hospital.
- A hospital assessment should be considered in a woman at high risk of severe or complicated chickenpox even in the absence of concerning symptoms or signs, e.g., smokers, have chronic obstructive lung disease, are immunosuppressed (including those who have taken systemic corticosteroids in the preceding 3 months), have a more extensive or haemorrhagic rash or who are in the latter half of pregnancy. The assessment needs to take place in an area she will not come into contact with other pregnant women, i.e., avoiding general outpatient areas but could consider isolation on labour ward.
- Appropriate treatment should be decided in consultation with a multidisciplinary team: obstetrician or fetal medicine specialist, virologist and neonatologist.
- Women hospitalised with varicella should be nursed in isolation from babies, susceptible pregnant women or non-immune staff.
- Timing and mode of birth must be individualised. Birth during the viraemic period while the chickenpox vesicles are active may be extremely hazardous. Maternal risks are haemorrhage and/or coagulopathy due to thrombocytopaenia or hepatitis. There is also a high risk of varicella infection of the newborn with significant morbidity and mortality.

- If the maternal infection occurs in the last 4 weeks of a woman's pregnancy there is a significant risk of varicella infection of the newborn.
- Planned birth should be avoided for at least 7 days after the onset of maternal rash to allow passive transfer of antibodies from mother to child providing that continuing the pregnancy does not pose any additional risks to the mother or baby

3.3 Fetal and neonatal risk

3.3.1 Fetal risk

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).
- FVS has been reported to complicate maternal chickenpox occurring as early as 3 weeks and as late as 28 weeks gestation and is characterised by one of more of the following:
  - Skin scarring in a dermatomal distribution
  - Eye defects
  - Hypoplasia of the limbs
  - Neurological abnormalities
  - Low birth weight

- Women who develop chickenpox in pregnancy should be referred to a fetal medicine specialist at 16-20 weeks gestation or 5 weeks after infection for discussion and detailed ultrasound examination.
- A fetal chart should be completed by the screening team during pregnancy to alert the paediatric team and a neonatologist should be informed of the birth of all babies born to women who have developed chickenpox at any gestation during pregnancy.
- Neonatal ophthalmic screening should be organised after birth.

3.3.2 Neonatal risk

- Varicella infection of the newborn (previously called congenital varicella) refers to VZV infection in early neonatal life resulting from maternal infection near the time of the birth or immediately postpartum or from contact with a person other than the mother with chickenpox or shingles during this time.
- Severe chickenpox is most likely to occur if the infant is born within 7 days of onset of the mother's rash or if the mother develops the rash up to 7 days after the birth.
- If birth occurs within 7 days following the onset of maternal rash, or if the mother develops the chickenpox rash within the 7 days period after birth, the neonate should be given VZIG as soon as possible. The infant should also 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.
- Neonatal blood should be sent for VZV IgM antibody and later a follow up sample

4.0 Breastfeeding

Women with chickenpox should breastfeed if they wish to and are well enough to do so. If there are active chickenpox lesions close to the nipple, they should express breast milk (EBM) from the affected breast until the lesions have crusted over. The EBM may be fed to the baby who is receiving treatment with VZIG and/or Aciclovir.

5.0 Advice for someone with chickenpox

5.1 Alleviation of symptoms

- Encourage adequate fluid intake to avoid dehydration
- Dress appropriately to avoid overheating or shivering
- Wear smooth cotton fabrics
- Keep nails short to minimise dangers from scratching

5.2 Additional advice

- Advise that the most infectious period is 1-2 days before the rash appears, but infectivity continues until all the lesions have crusted over (commonly 5-7 days after the onset of illness)
- During this time advise the person with chickenpox to avoid contact with people who:
  - are immunocompromised (e.g., receiving cancer treatment or high doses of oral steroids, or those with conditions that reduce immunity)
  - are pregnant and
  - infants aged 4 weeks or less.

- Inform the person to seek urgent medical advice if their condition deteriorates or they develop complications e.g., bacterial superinfection manifesting as sudden high-grade pyrexia, erythema and tenderness surrounding the original chickenpox lesions, or if signs.

6.0 Precautions for healthcare workers

- Immune status of healthcare workers in maternity units is determined as part of pre-employment checks by Occupational Health.
- Non-immune individuals should be offered varicella vaccination.
- If non-immune healthcare workers have significant exposure to infection, they should be warned they may develop chickenpox and should be reallocated to minimise patient contact from 8 – 21 days post-contact and be advised to seek advice from their GP before patient contact if they are feeling unwell or develop a fever or rash.

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Appendix 1: Management of a women 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 for a Fetal Medicine at 16-20 weeks or 5 weeks after infection for discussion and detailed ultrasound examination. 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 tract or bowel
	Screening team should ensure fetal chart is created on EPIC to alert Paediatric team at delivery.
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 chickenpox.
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.

Full version control record

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This guideline has been registered with the Trust. However, clinical guidelines are guidelines only. The interpretation and application of clinical guidelines will remain the responsibility of the individual clinician. If in doubt, contact a senior colleague or expert. Caution is advised when using guidelines after the review date.

This guideline is for use in Frimley Health NHS Foundation Trust hospitals only. Any use outside this location will not be supported by the Trust and will be at the risk of the individual using it.

Version History

Version	Date	Guideline Lead(s)	Status	Comment
1.0	March 2024	K. Franks	Final	First cross site version. Ratified at Cross site obstetric clinical governance meeting 27 March 2024

Related Documents

None