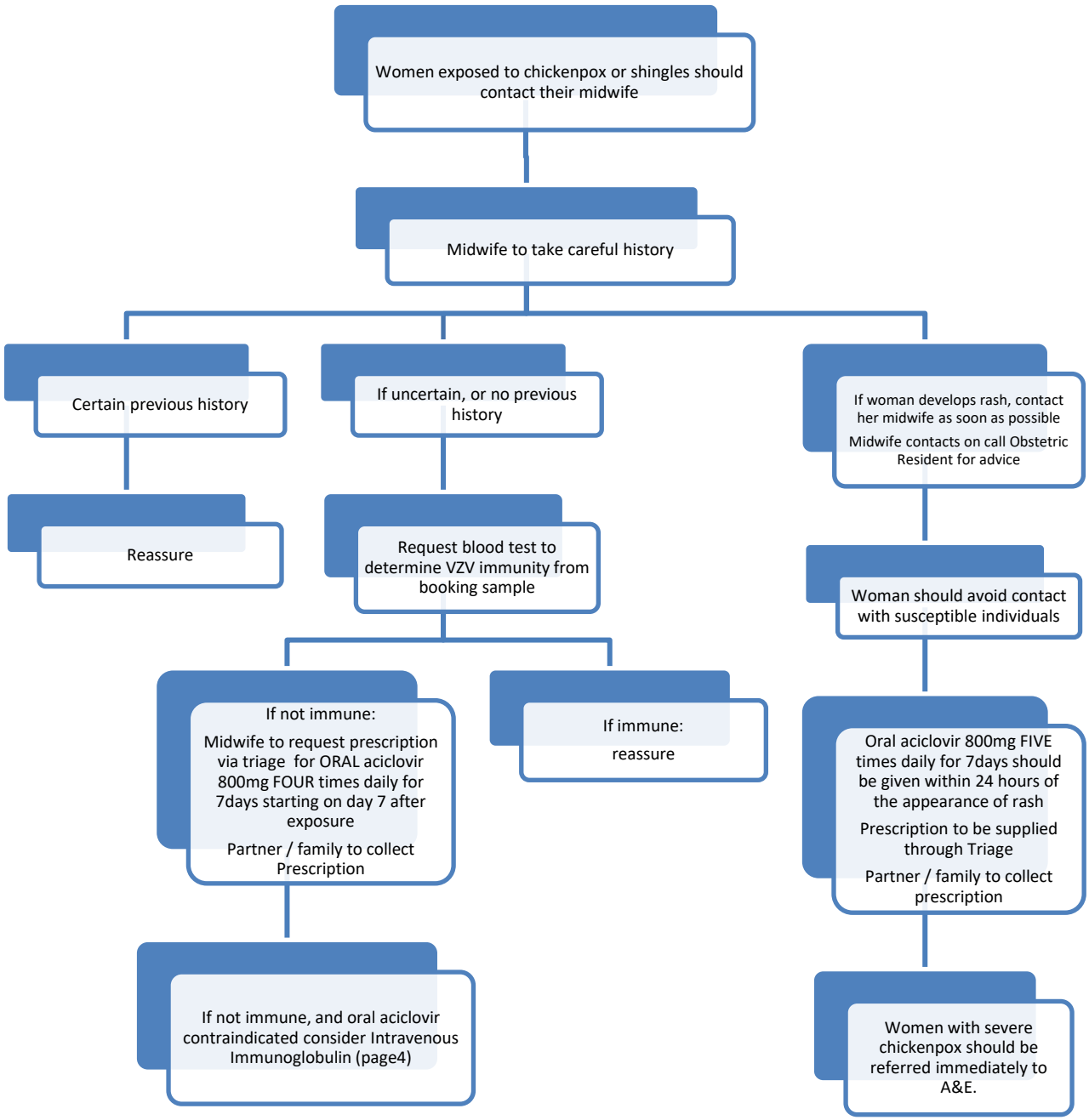
GUIDELINE for the MANAGEMENT of CHICKENPOX in PREGNANCY

TARGET AUDIENCE	All Midwifery and Medical Staff providing maternity care in NHS Lanarkshire
PATIENT GROUP	All pregnant patients exposed to chickenpox or shingles

Clinical Guidelines Summary Algorithm



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Introduction

Varicella Zoster Virus (VZV) is a DNA virus of the herpes family that is highly contagious and transmitted by respiratory droplets or by direct contact with the vesicle fluid. The primary infection is characterised by fever, malaise and a pruritic rash that develops into crops of maculopapules, which become vesicular and crust over before healing. 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 within 5 days.

Over 90% of individuals over 15 years of age in England and Wales are seropositive for VZV immunoglobulin G (IgG) antibody (RCOG, 2015). Contact with chickenpox is common in pregnancy although primary VZV infection in pregnancy is uncommon; it is estimated to complicate 3 in every 1000 pregnancies. At booking women should be asked about past history of chickenpox or shingles. But this is not tested for routinely. Known seronegative women should avoid contact with chickenpox or shingles.

The risks are those of fetal varicella syndrome before 28 weeks and neonatal infection if delivered less than 4 weeks after infection

Assessment of women in contact with chickenpox

Woman who gives history of contact with chickenpox or shingles during pregnancy:

- Careful history taking to confirm the significance of the contact
- Pregnant women with uncertain or absent history should have blood test to determine VZV immunity. VZV IgG should be tested from the booking bloods.

Significant exposure

Significant exposure is defined as, contact with chicken pox/disseminated or localised exposed zoster and meeting one or more of the following criteria:

- Contact in the same room for 15 minutes or more
- Face-to-face contact
- Contact in the setting of a large open ward
- Contact with immunocompromised people with zoster on any part

Prophylaxis for the non-immune woman:

- Women who have had exposure to chickenpox or shingles should be asked to notify their 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&E for assessment, if required.
- After reviews of the effectiveness of antivirals and varicella zoster immunoglobulin (VZIG) in prevention of chickenpox, the UK Health Security Agency (UKHSA) recommends that oral antiviral medication (aciclovir or valaciclovir) is now the post exposure (PEP) treatment of choice for all pregnant women, regardless of stage in pregnancy. (UKHSA, 2024)
- VZIG was discontinued in 2024 with no direct equivalent intramuscular varicella zoster immunoglobulin product available in Scotland. Intravenous Immunoglobulin (IVIG) may be considered as an alternative where oral antivirals are contraindicated (UKHSA, 2024)
- The only group of individuals where IVIG is recommended for PEP is those in whom oral antivirals are contraindicated due to severe renal impairment, significant intestinal malabsorption or hyperemesis.
- The day of exposure is defined as the date of the onset of the rash if the index is a household contact and date of first or only contact if the exposure is on multiple or single occasions.

- **First line offer Aciclovir:**
  - If the woman is not immune to VZV and has had significant exposure, she should be offered Aciclovir for 7days to start from day 7 post exposure. (see Table 1. Page 4, for dosing)
  - If the woman presents after day 7 of exposure, a 7-day course of antivirals can be started up to day 14 after exposure, if necessary.
  - If there is a second or subsequent exposure to chickenpox or shingles within the first 7 days of treatment, the course of antivirals may need to be extended until 14 days after the first day of exposure
  - If the subsequent exposure occurs 8 or more days are the first exposure, then a new course of antivirals should be started.
  - Aciclovir use for PEP of chickenpox is currently an off-label indication, however its use is recommended by UHKSA, and use in treatment of chickenpox is well established. (UKHSA, 2024)
  - Previously concerns have been raised about using antivirals in the early stages of pregnancy but neither US nor Danish studies (1200 and 1800 exposures respectively) found an increase in major congenital malformations following exposure to antiviral agents in pregnancy.
  - The most up to date information on aciclovir use in pregnancy is available from UK Teratology Information Service (UKTIS) can be found at: https://uktis.org/monographs/use-of-aciclovir-in-pregnancy/
  - Oral valaciclovir can be used as an alternative to aciclovir. Valaciclovir is a pro-drug of aciclovir therefore is not suitable in aciclovir allergy (See Table 1, page 4, for dosing).

- Antiviral doses may need to be adjusted in patients with renal impairment, see BNF for information.

Table 1. Prophylaxis for non-immune pregnant women (BNF, 2024)			
Drug	**Route**	**Dose**	**Duration**
Aciclovir	Oral	800mg FOUR times daily*	7days
Valaciclovir	Oral	1000mg THREE times daily*	7days
*For those under 18years old use the BNF for Children dosing for "Post-exposure prophylaxis of varicella zoster infection"			

- **Second line – Intravenous Immunoglobulin (IVIG):**
  - If oral antivirals are contraindicated IVIG may be considered.
  - UKHSA recommends the use of IVIG for contacts who cannot receive antivirals. IVIG is a blood product and should only be offered if the woman is unable to take oral antivirals due to allergy, significant intestinal malabsorption or severe renal impairment (eGFR <10ml/min/1.73m^2).
  - IVIG at a dose of 0.2g/kg body weight will produce serum VZV antibody levels equivalent to those that were achieved with VZIG (UKHSA, 2024). IVIG should ideally be administered within 10 days (preferably 7 days for immunosuppressed contacts), of the first contact, but can be given later if necessary.
  - If IVIG is considered, it is important to demonstrate that the patient will benefit from the blood product by demonstrating that they are sero-negative with VZV IgG antibody levels < 100 mIU/ml.
  - If time does not permit quantitative testing, a qualitative test must be performed and shown to be negative.
  - If the pregnant woman is not immune to VZV and has had significant exposure, and oral aciclovir or valaciclovir are contraindicated she should be offered IVIG.
  - IVIG should be ordered from the hospital pharmacy using the NHS Scottish Immunglobulin request form: https://www.nn.nhs.scot/hats/wp-content/uploads/sites/12/2024/08/IVIG-request-form-V10-April-2021.pdf
  - Non-immune pregnant women who have been exposed to chickenpox should be managed as potentially infectious from 8–21 days after exposure
  - If a subsequent exposure occurs a new risk assessment is required. A second dose of IVIG may be required. (UKHSA, 2024)
  - If the second exposure occurs:
    - within 3 weeks of administration IVIG, a further dose of VZIG is not required
    - between 3 and 6 weeks following administration of IVIG, PEP should be administered without further testing
    - more than 6 weeks following administration of IVIG, retesting of a new sample is required (UKHSA, 2024)

Vaccination –

Vaccination against chickenpox is not currently part of routine vaccination schedule, however the JCVI advised in November 2023 that it should be introduced to the routine childhood vaccination schedule. (PHS, 2023)

Varicella vaccines are live vaccines and should not be administered during pregnancy. Pregnancy should be avoided for 4weeks after administration of the vaccine.

Outpatient Treatment of women with varicella in pregnancy

- Women who develop a chickenpox rash should immediately contact their Midwife.
- Women should avoid contact with potentially susceptible individuals, e.g. other pregnant women and neonates, until the lesions have crusted over which is usually about 5 days after the onset of the rash.
- Symptomatic treatment and hygiene is advised to prevent secondary bacterial infection of the lesions.
- Oral aciclovir (800 mg 5 times a day for 7 days) should be prescribed for pregnant women with chickenpox if they present within 24 hours of the onset of the rash.
- If women present more than 24 hours from the onset of the rash and there are no indications of complications, antivirals are not routinely advised. There is no evidence that antivirals alter the natural history of uncomplicated chickenpox when given more than 24 hours after rash onset; however, this is a clinical decision.
- VZIG has no place in treatment once the rash appears.
- Aciclovir is licensed for treatment of VZV in pregnancy when potential benefits of treatment outweigh the potential unknown risks of aciclovir exposure.

Inpatient treatment of women with varicella in pregnancy

- Intravenous aciclovir should be given to all pregnant women with severe chickenpox or where there are any complications.
- **All patients with severe chickenpox should be discussed with the on-call infection specialist**
- Treatment of pneumonia associated with chickenpox in hospital is with intravenous aciclovir 10mg/kg/dose every 8 hours for 5 to 10 days (UKHSA, 2024)
    - This may require transfer to a specialist unit
    - Seek urgent advice from Infectious Disease
    - High risk of mechanical ventilation

Criterion for admission to hospital (UKHSA, 2024):

- Respiratory symptoms
- Neurological symptoms other than headache
- Haemorrhagic rash/bleeding
- Severe disease (eg. Dense rash with or without numerous mucosal lesions)
- Immunosuppression
- Persistent fever or cropping of rash continuing after 6 days

Maternal and fetal risks of varicella

<u>Maternal</u>

- Development of rash
- Pneumonia
- Hepatitis
- Encephalitis

- Death
- Risk of spontaneous miscarriage is not increased if chicken pox occurs in first trimester.

Fetal

Fetal varicella syndrome (FVS)

- If the pregnant woman develops varicella or shows serological conversion in the first 28 weeks of pregnancy, she has a small risk of FVS (Fetal varicella syndrome) and she should be informed of the implications.
- FVS is characterised by one or more of the following: skin scarring in a dermatomal distribution; eye defects (microphthalmia, chorioretinitis or cataracts); hypoplasia of the limbs; and neurological abnormalities (microcephaly, cortical atrophy, mental retardation or dysfunction of bowel and bladder sphincters), low birth weight, withered limbs.
- 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. A planned delivery should normally be avoided for at least 7 days after the onset of the maternal rash if possible clinically.
- A neonatologist should be informed of the birth of all babies born to women who have developed chickenpox at any gestation during pregnancy.
- Women with chickenpox should be encouraged to breastfeed if they wish to and are well enough to do so.

References/Evidence

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Appendices

1. Governance information for Guidance document

Lead Author(s):	S Maharaj (obs) H Fulton (pharmacist)
Endorsing Body:	ADTC
Version Number:	4
Approval date	January 2025
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Responsible Person (if different from lead author)	

CONSULTATION AND DISTRIBUTION RECORD	
Contributing Author / Authors	H Fulton (Maternity Pharmacist)
Consultation Process / Stakeholders:	Maternity CEG process Feedback from ADTC
Distribution	Maternity and neonatology

CHANGE RECORD			
Date	**Lead Author**	**Change**	**Version No.**
December 2016	MJani S Maharaj	Initial version	1
September 2020	H Narang S Maharaj	Update	2
October 2023	S Maharaj	Update	3
September 2024 January 2025	S Maharaj H Fulton H Fulton S Maharaj	Change to first line PEP agent Updated in accordance with national guidance following the withdrawal of VZIG. Inclusion of IVIG Valaciclovir added as additional oral antiviral Removal of references to primary care	4
			5

2.You can include additional appendices with complimentary information that doesn't fit into the main text of your guideline, but is crucial and supports its understanding.

e.g. supporting documents for implementation of guideline, patient information, specific monitoring requirements for secondary and primary care clinicians, dosing regimen/considerations according to weight and/or creatinine clearance