# Information for Clinicians

## Chickenpox and Contact with Chickenpox in Pregnancy

Infection with Varicella-Zoster Virus (VZV) confers immunity to chickenpox. Ninety per cent of all adults in the United Kingdom (UK) are immune to chickenpox. Adults from tropical or subtropical areas are more likely to be susceptible. Approximately 2000 cases of chickenpox occur annually in pregnant women in the UK.

**Chickenpox** – Varicella is an acute generalised viral disease. It is one of the most readily communicable childhood diseases and is spread by direct contact and droplets.

The incubation period is 14 - 21 days. The disease is communicable from at least two days before the onset of the rash until all vesicles have crusted, usually five days after the rash appeared (this may be prolonged in immuno-compromised patients). After the disease process, the virus migrates to nerve ganglia where it may remain dormant for many years.

**Shingles** – Herpes Zoster is a local manifestation of recurrence or reactivation of the virus, which causes chickenpox. It is contagious, the infectious vesicle being the vesicle fluid. The disease is communicable until the lesions are dry. The lesions are restricted to the skin area supplied by the sensory nerves of the dorsal root or cranial nerve ganglia in which the virus has been lying dormant. The distribution is therefore unilateral.

### Maternal and fetal risk of chickenpox

**Maternal risks**
In general chickenpox is a more severe disease in adults than in children. There is anecdotal evidence to suggest that pregnancy increases the risk of severe disease, mainly in the form of varicella pneumonitis, which can be fatal. Up to 10% of pregnant women will develop pneumonitis; reported fatality rates for this range from 3-14%.

**Fetal risks** depend on when the mother develops chickenpox:

- In the first 20 weeks of pregnancy, 1-2% of foetuses will develop the fetal varicella syndrome (also called – congenital varicella syndrome). This comprises abnormalities of the limbs, skin, eyes and peripheral nervous system and may lead to mental retardation and death.
- After 20 weeks gestation maternal infection may result in a mild case of shingles (zoster) at some time after the birth but usually in the first two years of life.
- If maternal chickenpox develops seven days before to seven days after delivery, the neonate is at high risk of developing varicella of the newborn (also called congenital varicella) which has a fatality rate of up to 30%. If a woman with chickenpox is admitted in labour or if she develops chickenpox within 48 hours of delivery the paediatricians must be informed immediately.
- No case of fetal varicella syndrome has been reported when maternal infection has occurred after 28 weeks gestation.

## Contact with chickenpox during pregnancy

'Contact' can be defined as a susceptible (non-immune) person who has had:

- Contact with a case of chickenpox up to 48 hours before the onset of the rash from the source patient and until all the vesicles are dry;
- Contact with a case of disseminated, exposed shingles (e.g. ophthalmic) from the day of the rash until all lesions are dry;
- Contact as above, in the same room for more than 15 minutes;
- Face to face contact, for five or more minutes, for example in a conversation.

An antibody test must be performed as soon as possible after contact to determine whether the woman is immune to VZV. This can be performed on serum taken at booking which is stored by the HPA – Tel: 0117 4146222. Please refer to Appendix 1 and 2 for pathway and responsibility

Bristol HPA tests for Varicella antibodies daily. If alerted by telephone (see above) and the bloods arrive by midday, a result will be read by 4.30pm. Specimens must be sent to the South West Regional Laboratory, National Infection services, Southmead Hospital.
If **antibody positive** the woman is immune and no further action needs to be taken.

If **antibody negative** the woman is susceptible. The case must be discussed with the medical microbiologist on-call who authorises the use of VZIG. This is only effective if given within ten days of the exposure.

While universal serological antenatal testing is not recommended in the UK, seronegative women identified in pregnancy could be offered post partum immunisation. Advise women they will need to discuss this with their GP.

## Chickenpox during pregnancy

**Management of the mother**
All cases of chickenpox in pregnant women must be discussed with the medical microbiologist on call who may recommend the use of aciclovir and who will advise on whether hospital admission is indicated and to which ward these patients must be sent. Ideally these women must not be admitted to an antenatal ward. If they do have to go to a side room on the antenatal ward then they must only be nursed by immune staff and every effort should be made to avoid them coming into contact with susceptible individuals and neonates (other than their own).

**Fetal assessment**
Women who have developed chickenpox at less than 20 weeks gestation should be referred for fetal assessment in the Fetal Medicine Clinic.

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| Public health lab Bristol: | 0117 4146222 | | |
| On Call Microbiologist | 01225 825428 | Out of hours call via switch | |
| On Call Obs and Gynae Cons | 07824363076 | Out of hours call via BBC on 01225 824447 | |
| Antenatal screening office | 01225 825414 | Ruh-tr.maternityscreening@nhs.net | 08.30-16.30 Mon-Fri |
| Ambulatory Care | 01225 821745 | ruh-tr.ambcare@nhs.net | 9am-5pm Monday - Friday |
| Medical therapies Unit | **01225 825394** | | Saturday and Sunday |
| **Pharmacy Department** | **01225 824640** | | |

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| **On Call Pharmacist** | **01225 428331** | NB there is usually no reason why VZIG should need to be dispensed after hours as Pharmacy Department is open 7 days a week. |

**References**

Patient Information http://www.nhs.uk/chq/Pages/2590.aspx

Public Health England Guidance for issuing varicella zoster immunoglobulin (VZIG) – First version Oct 2016, Updated May 2017

Green Book https://www.gov.uk/government/collections/immunisation-against-infectious-disease-the-green-book

Green Book Chapter 34 https://www.gov.uk/government/publications/varicella-the-green-book-chapter-34

RCOG https://www.rcog.org.uk/en/guidelines-research-services/guidelines/gtg13/ (See below)

CKS https://cks.nice.org.uk/chickenpox#!scenario:5

RUH Guideline: M13 Chickenpox and Contact with Chickenpox in Pregnancy Policy Review Date May 2017

**Appendix 1**

**Shared Care Responsibilities**

**Midwife**

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|---|---|
| 1 | Booking bloods and taking history re chicken pox status with pregnant women |
| 2 | At point of booking advise women who may not be immune of what to do when they come into contact. |
| 3 | Usual first point of contact for women who may have come into contact with chickenpox who may not be immune. Take a second blood (post exposure) sample and send to Bristol Lab in case required. |
| 4 | Contact lab in Bristol for testing of booking bloods for immune status giving details on ICE of contact date, time, nature (face to face, meeting etc) Details of birthing centre and contacts requesting test. |
| 5 | Receive the results of the immunology test & contact the woman with results & advise on the course of action. |
| 6 | Contact Ambulatory care (Weekdays) / and Medical Therapies Unit (Saturday and Sundays) ONLY if the 10 day window is likely to be breached & organise and appointment for pregnant woman to have VZIG administered |

**General Practitioners**

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| 1 | Take blood for pregnant women not yet booked with the midwifery service and send to Bristol PHE lab (and follow up with a phone call) |
| 2 | Received the results of the immunology test via the Bristol Labs and On Call Microbiologist |
| 3 | Arrange for the patient to have the VZIG administered by Ambulatory Care (or Medical Therapies Unit – see above) |

**Consultant Microbiologist (or Senior Registrar for Obstetrics if no Consultant Microbiologist on site)**

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| 1 | Be notified of the outcome of the test by Bristol Virology Labs with the information of the contact etc and make a decision whether VZIG is indicated. |
| 2 | Speak to MW / Pregnant woman if required to clarify details relating to the contact. |
| 3 | Write a prescription for VZIG on an Inpatient ePMA Drug Chart |
| 4 | Prescription goes to main Pharmacy. |

**Senior Registrar for Obstetrics if no Consultant Microbiologist on site**

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| 1 | Take advice from Consultant Microbiologist and prescribe VZIG as above on recommendation of Consultant |
| 2 | Write a prescription for VZIG on an Inpatient ePMA Drug Chart |
| 3 | Prescription goes to main Pharmacy for dispensing |

**Lab in Bristol**

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| 1 | Receive the blood and process the request to check immune status |
| 2 | Contact the requestor (usually the midwife) with the result of the test |
| 3 | Contact RUH microbiologist (or on-call microbiologist) with result of the test |

**Pregnant Woman**

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| 1 | Arrange with the Midwife for an appointment to have VZIG administered in Ambulatory Care or Medical Therapies Unit (ONLY if required at the weekend if the 10 day window is to be breached) |

**MAIN Pharmacy Department**

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| 1 | To dispense VZIG (Listed under Human Immunoglobulin Varicella on JAC )to go to Ambulatory care or Medical Therapies – depending upon where the agreement has been made to administer |
| 2 | To manage stock and supply (according to SOP) |

**Ambulatory Care / Medical Therapies (Saturday and Sunday)**

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| 1 | To receive the VZIG from the Pharmacy Department and store in the Fridge |
| 2 | To respond to MW request to book |
| 3 | To administer VZIG in accordance with the prescription |

**Appendix 2**

## ON BOOKING WITH MIDWIFE

Take bloods at point of booking (not routinely screened for varicella antibodies) and send to Virology labs in Bristol
Ask about varicella status at point of booking.
Inform woman what to do / who to contact if possible exposure to chicken pox (Patient InformationLeaflet) RCOG

## ON PRESENTATION TO MIDWIFE OF POSSIBLE NON IMMUNE PREGNANT WOMAN WITH CHICKEN POX CONTACT

Midwife requests a varicella screen on previously stored blood (held at Bristol virology Lab) – via ICE and by phone. (Include date of contact, nature and time of contact. Details of the birthing centre and name of requestor to be included.
Midwife to take post exposure blood and send to Bristol Lab.
Midwife to inform woman of the process.

## ON PRESENTATION TO GP

If woman not yet booked with midwifery service GP to take bloods (add details to ICE re contacts) and send to Bristol Labs (and contact via phone)

## BRISTOL VIROLOGY LABS

Labs to report result via ICE (& phone) to the requestor

Labs to contact the On Call Consultant Microbiologist with the result.

## ON CALL CONSULTANT

Responsible for starting the process when blood results show that VZIG is indicated
Microbiology Consultant notified of outcome via ICE and Call from Bristol Lab and MAKES a decision to approve use of VZIG based on result and nature of contact.
On Call Microbiology Consultant writes an 'In patient' ePMA prescription for VZIG (if on call microbiologist not on site the microbiologist to contact the on call Obs & Gynae Registrar to write prescription).
On Call Microbiology Consultant sends prescription to MAIN pharmacy for dispensing Microbiology Consultant contacts MW and informs MW it has been dispensed

## MAIN PHARMACY

Dispenses VZIG (listed under HUMAN Normal…on JAC) against SOP (NB Fridge line product) and arranges for it to be taken to Ambulatory Care (or Medical Therapies) and stored in fridge

## MIDWIFE (or GP if patient not booked with MW)

To book an appointment for patient to have VZIG administered in Ambulatory Care and to inform patient.

## AMBULATORY CARE *(or MTU if need at weekends if 10 days is going to be breached)*

Receive VZIG and store in fridge. Administer against prescription

**Appendix 3**

**Dosage for VZIG prophylaxis (From PHE – Guidance for issuing varicella zoster immunoglobulin) May 2017**

## Dosage of VZIG for prophylaxis

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|---|---|---|
| 0 – 5 Years | 250mg | By slow intramuscular injection |
| 6 – 10 Years | 500mg | |
| 11 – 14 Years | 750mg | |
| 15 years and older | 1000mg | |

When a large-volume injection such as VZIG is to be given, it should be administered deep into a large muscle mass. If more than 3ml is to be given to young children and infants, or more than 5ml to older children and adults, the immunoglobulin should be divided into smaller amounts and given into different sites. The upper outer quadrant of the buttock can be used for varicella zoster immunoglobulin injection.

## Individuals for whom intramuscular injections are contraindicated

Contacts with bleeding disorders who cannot be given an intramuscular injection should be given intravenous human normal immunoglobulin (IVIG) at a dose of 0.2g per kg body weight (i.e. 4ml/kg for a 5% solution) instead. This will produce serum VZV antibody levels equivalent to those achieved with VZIG.