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Royal Cornwall Hospitals NHS Trust

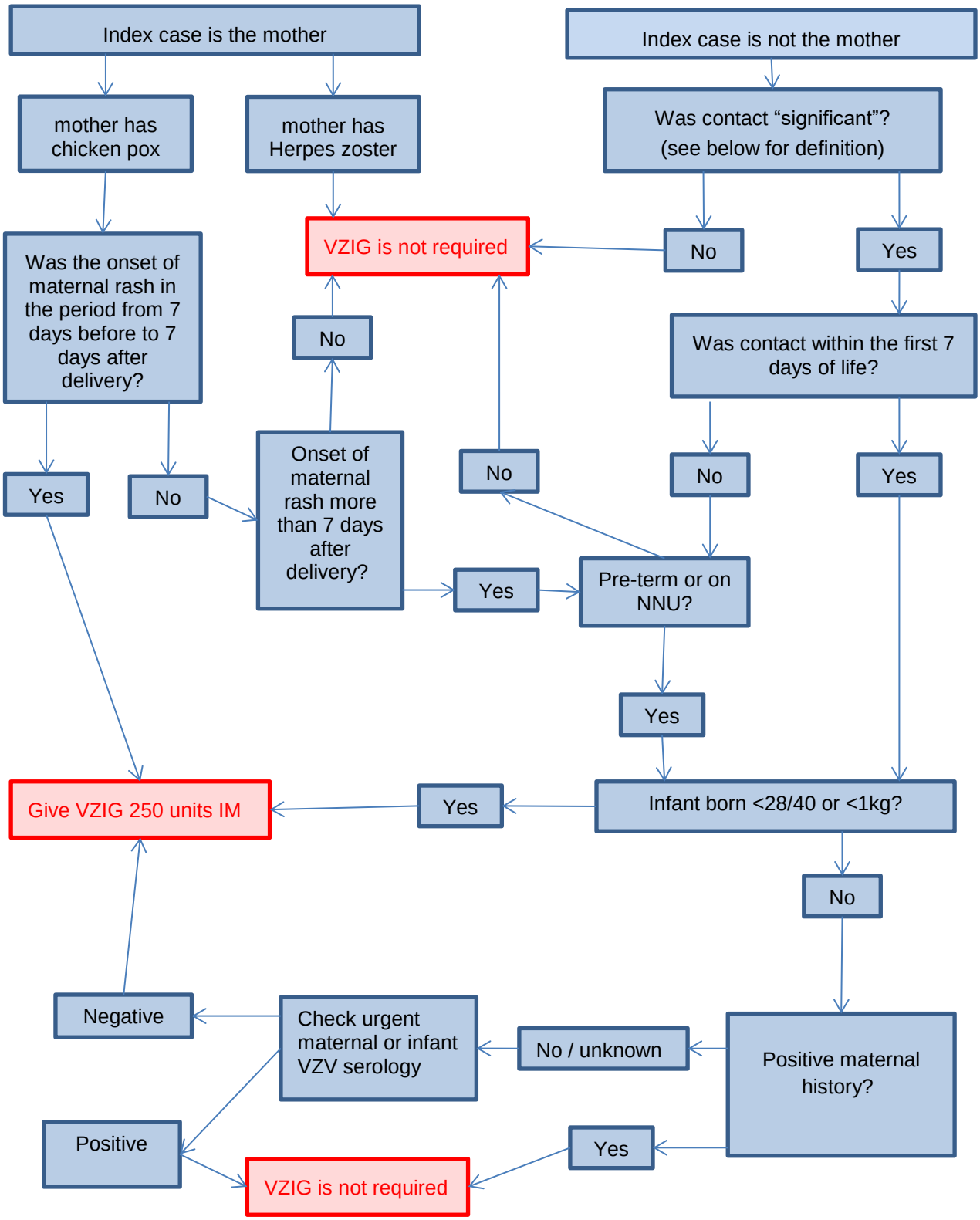
Congenital Varicella Zoster Virus in the Newborn
Neonatal Clinical Guideline

V3.0

September 2019

Summary

Treatment algorithm[1] - VZIG is held by pharmacy but needs discussion with microbiology before it can be released.



1. Aim/Purpose of this Guideline

1.1. To provide guidance on the diagnosis and management of Varicella Zoster virus in the newborn

1.2. This version supersedes any previous versions of this document.

1.3. Data Protection Act 2018 (General Data Protection Regulation – GDPR) Legislation

The Trust has a duty under the DPA18 to ensure that there is a valid legal basis to process personal and sensitive data. The legal basis for processing must be identified and documented before the processing begins. In many cases we may need consent; this must be explicit, informed and documented. We can't rely on Opt out, it must be Opt in.

DPA18 is applicable to all staff; this includes those working as contractors and providers of services.

For more information about your obligations under the DPA18 please see the 'information use framework policy', or contact the Information Governance Team rch-tr.infogov@nhs.net

2. The Guidance

2.1. Background

2.1.1. Clinical manifestations

Chickenpox is the commonest manifestation of primary Varicella Zoster Virus (VZV) infection. Following primary infection VZV establishes latency in dorsal root ganglia. Reactivation results in herpes zoster ("shingles"). Chickenpox remains a common childhood infection; consequently 90% of adults are immune to VZV[1], so varicella is uncommon in pregnancy and peri-partum. However, fetal or perinatal exposure can have serious consequences.

2.1.2. Transmission

Infection occurs via droplet spread from someone with the disease. It may also be transmitted from vesicles. Patients are infectious for around 1 – 2 days before the rash appears until the last lesion has crusted over. The incubation period is from 7-24 days. Infection is endemic in UK, with over 90% of adults showing previous infection, usually in childhood, sometimes sub-clinically. Trans-placental infection can occur but is uncommon (see below).

2.1.3. Congenital varicella

Fetal exposure to VZV before the peripartum period has no clinical consequences in the great majority of fetuses[2]. However, in-utero exposure before 28 weeks gestation can cause varicella embryopathy ("fetal varicella syndrome"), characterized by limb atrophy, scarring of the skin of extremities, central nervous syndrome and ocular abnormalities.

The risk of varicella embryopathy has been estimated at 0.5% if maternal chickenpox develops at 2-12 weeks gestation, 1.4% if it develops at 12-28 weeks, and 0% after 28 weeks[3]. A large prospective cohort study has estimated risk for all stages of pregnancy at 0.4% (95% CI: 0.1-2.4%)[2], and overall risk in the first 20 weeks of pregnancy is estimated at 0.9%[3].

In-utero VZV exposure in the second half of pregnancy can lead to inapparent VZV infection and carries a small (approximately 0.7%[4]) risk of subsequent zoster early in life without a prior history of chickenpox.

2.1.4. Perinatal varicella

The clinical course of neonatal VZV infection is moderated by the presence of passively transferred maternal antibody. Very preterm (<28 weeks gestation) or extremely low birth weight neonates, and those whose mothers develop the rash within the period from 7 days before to 7 days after delivery do not have this protection and are at risk of severe disease[1,5]. Without specific intervention severe neonatal varicella develops in approximately 25% of infants in the latter group, symptoms developing 1-16 days after delivery. Morbidity includes pneumonia, encephalitis, visceral dissemination and hemorrhagic varicella and the mortality is up to 30%.

2.2. Management and Prevention of secondary cases

Infants born to women following VZV infection in pregnancy

Routine neonatal examination should include inspection for scarring skin lesions, limb atrophy, measurement of head circumference, and examination of ocular red reflexes, as well as universal neonatal hearing screening. However, detailed ophthalmological examination of exposed infants has a very low yield, and is not necessary in the absence of other clinical features[2].

2.3. Infants of women with peripartum VZV infection

2.3.1. The flow chart above[1] should be used to determine neonatal eligibility for Varicella zoster immunoglobulin (VZIG). The dose is 250 mg IM, regardless of weight.

2.3.2. In situation where the index contact is not the infant's mother, significant contact is defined in terms of type, timing, closeness and duration of contact. For detailed guidance see the full DH Chapter[1].

2.3.3. VZIG is obtained from pharmacy, it cannot be issued until a consultant microbiologist has authorised its use.

2.3.4. Prophylactic intravenous aciclovir should be considered for infants whose mothers develop varicella four days before to two days after delivery as they are at the highest risk of fatal outcome despite VZIG prophylaxis[6].

2.3.5. Mother and baby should be nursed in a side room. Breastfeeding should be encouraged.

2.3.6. Senior review and early treatment with high dose IV aciclovir 10 mg/kg 8hourly is essential in suspected neonatal chickenpox.

2.3.7. The Infection Control Team should be notified of any cases or suspected cases on the NNU or maternity wards.

Discuss management with Neonatal and Microbiology Consultants; where possible this should be before the birth of the baby.

3. Monitoring compliance and effectiveness

Element to be monitored	In order to monitor compliance with this guideline it will be included in the neonatal clinical audit programme with findings presented at the Child Health directorate audit meeting. Any deficiencies/ action plan will be presented at the Clinical Governance meeting. Any clinical incident reports relating to this guideline will be monitored against it.
Lead	Neonatal Unit Governance Lead Consultant
Tool	Clinical Audit
Frequency	Within neonatal audit programme
Reporting arrangements	Any incident arising or audit findings will be presented at Child Health Directorate Governance meeting
Acting on recommendations and Lead(s)	Any case where these criteria are not met will be discussed and additional training needs identified and acted upon.
Change in practice and lessons to be shared	Lessons will be shared with all relevant stakeholders

4. Equality and Diversity

4.1. This document complies with the Royal Cornwall Hospitals NHS Trust service Equality and Diversity statement which can be found in the 'Equality, Inclusion & Human Rights Policy' or the Equality and Diversity website.

4.2. Equality Impact Assessment

The Initial Equality Impact Assessment Screening Form is at Appendix 2.

Appendix 1. Governance Information

Document Title	Congenital Varicella Zoster Virus in the Newborn Neonatal Clinical Guideline V3.0					
Date Issued/Approved:	08/08/2019					
Date Valid From:	September 2019					
Date Valid To:	September 2022					
Directorate / Department responsible (author/owner):	Neonatal Unit. Dr Chris Bell					
Contact details:	01872 252667					
Brief summary of contents	To provide guidance on the transmission, diagnosis and management of Varicella Zoster virus in the newborn					
Suggested Keywords:	Neonatal. Neonate. Newborn. Varicella Zoster Virus. Chickenpox					
Target Audience	RCHT	CFT	KCCG			
	✓					
Executive Director responsible for Policy:	Medical Director					
Date revised:	August 2019					
This document replaces (exact title of previous version):	Congenital Varicella Zoster Virus in the Newborn. Neonatal Clinical Guideline V2.0					
Approval route (names of committees)/consultation:	Neonatal Guidelines Group					
Care Group General Manager confirming approval processes	Debra Shields					
Name and Post Title of additional signatories	Not Required					
Name and Signature of Care Group/Directorate Governance Lead confirming approval by specialty and care group management meetings	{Original Copy Signed}					
	Name: Caroline Amukusana					
Signature of Executive Director giving approval	{Original Copy Signed}					
Publication Location (refer to Policy on Policies – Approvals and Ratification):	Internet & Intranet	✓	Intranet Only			

Document Library Folder/Sub Folder	Child Health, Neonatal Guidelines
Links to key external standards	None
Related Documents:	1. UK Department of Health Immunisation against infectious disease: Chapter 34 Varicella. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/456562/Green_Book_Chapter_34_v3_0.pdf. 2. Frequency of congenital varicella syndrome is a prospective cohort of 347 pregnant women. J H Harger, J M Ernest, G R Thurnau, et al. Obstetrics and Gynecology 2002; 100 (2): 260-4. 3. Chickenpox, pregnancy and the newborn. Drug and Therapeutics Bulletin 2005: 43; 9; 69-72. 4. Consequences of varicella and herpes zoster in pregnancy: prospective study of 1739 cases. Enders G, Miller E, Cradock-Watson J et al. Lancet 1994; 343 (8927): 950-1. 5. American Academy of Pediatrics. Varicella-Zoster Infections. In: Pickering LK ed. Red Book 2003 Report of the Committee on Infectious Diseases. 6. Morgan-Capner P, Crowcroft NS, on behalf of the PHLSA Joint Working Party of the Advisory Committees of Virology and Immunisation. Guidelines on the management of, and exposure to, rash illness in pregnancy. Common Dis Public Health 2002;5(1):59-71
Training Need Identified?	No

Version Control Table

Date	Version No	Summary of Changes	Changes Made by *(Name and Job Title)*
Dec 2015	V1.0	Initial Issue.	Dr Paul Munyard. Consultant Paediatrician
March 2016	V2.0	Formatted, reviewed and approved by Neonatal Guidelines Group.	Neonatal Guidelines Group Formatted by Kim Smith. Staff Nurse

August 2019	V2.0	Full review. Re-formatted and reference updated – no other changes.	Dr Chris Bell

All or part of this document can be released under the Freedom of Information Act 2000

This document is to be retained for 10 years from the date of expiry.
This document is only valid on the day of printing

Controlled Document

This document has been created following the Royal Cornwall Hospitals NHS Trust Policy for the Development and Management of Knowledge, Procedural and Web Documents (The Policy on Policies). It should not be altered in any way without the express permission of the author or their Line Manager.

Appendix 2. Initial Equality Impact Assessment Form

<table>
<tr><td colspan="6">Name of the strategy / policy /proposal / service function to be assessed

Congenital Varicella Zoster Virus in the Newborn Neonatal Clinical Guideline V3.0</td></tr>
<tr><td colspan="3">Directorate and service area:
Child Health Neonatal</td><td colspan="3">New or existing document:
Existing</td></tr>
<tr><td colspan="3">Name of individual completing assessment:

Dr Chris Bell</td><td colspan="3">Telephone:
01872 252667</td></tr>
<tr><td>1. Policy Aim*

Who is the strategy / policy / proposal / service function aimed at?</td><td colspan="5">This guideline is aimed at all staff responsible for the care of newborn infants with a suspected or actual diagnosis of Congenital Varicella Zoster</td></tr>
<tr><td>2. Policy Objectives*</td><td colspan="5">As Above</td></tr>
<tr><td>3. Policy – intended Outcomes*</td><td colspan="5">Consistent management of the care of newborn infants with a suspected or actual diagnosis of Congenital Varicella Zoster</td></tr>
<tr><td>4. *How will you measure the outcome?</td><td colspan="5">Audit</td></tr>
<tr><td>5. Who is intended to benefit from the policy?</td><td colspan="5">Neonatal Patients Medical and Nursing staff</td></tr>
<tr><td rowspan="3">6a Who did you consult with

b). Please identify the groups who have been consulted about this procedure.</td><td>Workforce</td><td>Patients</td><td>Local groups</td><td>External organisations</td><td>Other</td></tr>
<tr><td>x</td><td></td><td></td><td></td><td></td></tr>
<tr><td colspan="5">Please record specific names of groups
Neonatal Guidelines Group</td></tr>
<tr><td>What was the outcome of the consultation?</td><td colspan="5">approved guideline</td></tr>
</table>

7. The Impact
Please complete the following table. **If you are unsure/don't know if there is a negative impact you need to repeat the consultation step**.

Are there concerns that the policy **could** have differential impact on:

Equality Strands:	Yes	No	Unsure	Rationale for Assessment / Existing Evidence
Age		**X**		
Sex (male, female, trans-gender / gender reassignment)		**X**		
Race / Ethnic communities /groups		**X**		Any information provided should be in an accessible format for the parent/carer's needs – i.e. available in different languages if required/access to an interpreter if required
Disability - Learning disability, physical impairment, sensory impairment, mental health conditions and some long term health conditions.		**X**		Those parent/carers with any identified additional needs will be referred for additional support as appropriate - i.e to the Liaison team or for specialised equipment. Written information will be provided in a format to meet the family's needs e.g. easy read, audio etc
Religion / other beliefs		**X**		All staff should be aware of any beliefs that may impact on the investigation and treatment of Congenital Varicella Zoster Virus in the Newborn and respond accordingly
Marriage and Civil partnership		**X**		
Pregnancy and maternity		**X**		
Sexual Orientation, Bisexual, Gay, heterosexual, Lesbian		**X**		

You will need to continue to a full Equality Impact Assessment if the following have been highlighted:

- You have ticked "Yes" in any column above and
- No consultation or evidence of there being consultation- this excludes any *policies* which have been identified as not requiring consultation**. or**
- Major this relates to service redesign or development

8. Please indicate if a full equality analysis is recommended.	**Yes**		**No**	**x**

9. If you are **not** recommending a Full Impact assessment please explain why.

Not indicated

Date of completion and submission	08/08/2019	Members approving screening assessment	Policy Review Group (PRG) APPROVED

This EIA will not be uploaded to the Trust website without the approval of the Policy Review Group.

A summary of the results will be published on the Trust's web site.