National Women & Infants Health Programme

QUICK SUMMARY DOCUMENT

Varicella in pregnancy

This QSD is a resource for all clinicians working in healthcare in Ireland who are involved in the care of women with varicella in pregnancy.

Following a comprehensive literature review a number of evidence-based recommendations for management of varicella in pregnancy were agreed upon.

Key Recommendations

Antenatal Care and varicella prevention

1. We suggest that women planning to conceive and/or engaging with fertility services, should have their varicella status assessed as part of pre-conception counselling either by history or laboratory testing.
2. We strongly recommend that women should have their immunity to varicella discussed and documented at their booking visit. Their immunity can be confirmed by either reliable history of varicella, two varicella vaccines or by a laboratory test (varicella IgG) following exposure in line with National Immunisation Advisory Committee (NIAC) guidance. Laboratories may choose to only send varicella IgG if a woman is exposed, rather than on all women with an uncertain varicella history.
3. We recommend that if there is any uncertainty around the history of varicella or shingles infection, that immunity should be confirmed by laboratory testing, at either booking or if exposure occurs.
4. We strongly recommend that women who are non-immune to varicella should be offered varicella vaccine in the postnatal period in line with NIAC guidance.
5. We strongly recommend that varicella vaccination should not be given during pregnancy in line with NIAC guidance.
6. We suggest that women with underlying medical conditions, or who are on immunosuppressive drug treatments which would put them at higher risk of severe varicella infection, should have this documented at the time of booking also.
7. We strongly recommend that pregnant women, who have no known immunity to varicella, should avoid children who are ill with varicella where possible.

Post-exposure prophylaxis for the non-immune pregnant woman exposed to varicella

8. If a pregnant woman contacts a healthcare provider following a potential varicella exposure, we strongly recommend that an assessment is done of her immunity and the nature of the exposure, in line with NIAC guidance.
9. We strongly recommend that if the history of immunity is uncertain, that a varicella IgG test is performed either after exposure or at the time of booking.
10. If non-immune, or if immunity tests are pending, we recommend that the woman should be isolated with contact and respiratory precautions, if attending a healthcare facility during her potentially infectious period. This is from day 8-21 post-exposure if they receive aciclovir or no prophylaxis and from day 8-28 post exposure if they receive Varicella-zoster immune globulin (VZIG).
11. If the varicella exposure is deemed significant, and the woman is non-immune, we strongly recommend that post exposure prophylaxis should be given in line with NIAC guidance. This should be oral aciclovir as first line option, with VZIG as an alternative.
12. We recommend that any pregnant woman exposed to varicella, should be encouraged to contact their healthcare provider if a rash or fever develops in the next 3-4 weeks.

13. We suggest that if a woman has additional medical conditions or is on immunosuppressive medications, then this should be taken into account when deciding on post exposure prophylaxis. A woman with prior history of varicella or shingles, may require post exposure prophylaxis if she is on significant immunosuppression. If unsure, consult NIAC guidance (Chapter 3) and liaise with the medical specialty team.

Management of a pregnant woman or recently post-partum (<6 weeks post-birth) woman with suspected or confirmed acute primary varicella infection

14. We strongly recommend that all suspected or confirmed cases of varicella are isolated in a single room with ensuite facilities under airborne precautions if they require admission to hospital.
15. We strongly recommend that staff caring for the woman should be immune to varicella (natural immunity or vaccination or confirmed by laboratory testing as part of an occupational health assessment) to prevent hospital outbreaks, in line with NIAC guidance.
16. We strongly recommend that women with disseminated varicella should avoid contact with other vulnerable people (i.e. immunocompromised due to biologics, chemotherapy or other varicella non-immune pregnant women) until all the lesions are completely crusted. In case of shingles outbreak the lesions should be kept covered where possible.
17. We recommend that if a pregnant woman presents with acute varicella, aciclovir should be given as soon as possible, and ideally within the first 24 hours of the rash appearing. The benefit of aciclovir after 24 hours of the rash should be judged on a case-by-case basis. *Grade 1B*
18. We strongly recommend that IV aciclovir (10mg/kg every 8 hours) is given to pregnant women at all gestations if they have severe varicella with organ dysfunction (i.e. hepatitis, pneumonitis, encephalitis). Renal function should be monitored carefully, especially if receiving other nephrotoxic drugs, as aciclovir dosage adjustment may be required.
19. We strongly recommend that there is no role for VZIG once the rash has started to develop.
20. We suggest that, in addition to the management of acute varicella, pregnant women should be managed in line with the national sepsis guidelines, and be monitored for possible secondary bacterial infection especially with Group A Streptococcus.
21. Women with sepsis (i.e. organ dysfunction and suspected infection) should have their care escalated through established pathways to HDU or ICU level, and be managed in line with national sepsis pathways.
22. We suggest that any pregnant woman with symptoms or signs of meningoencephalitis be discussed with the local adult general medical service.

Management of the pregnant woman whose fetus is exposed to varicella in utero

23. We recommend that women are advised to monitor for rash or symptoms for 8-21 days post exposure if given aciclovir or no prophylaxis, and 8-28 days if given VZIG.
24. The care and follow up of women with acute primary varicella should be individualised, with senior Obstetricians involved in the care.
25. We suggest that routine referral to a Fetal Medicine Specialist is not required for women without symptoms of varicella post exposure, unless there are particular concerns about fetal growth or anomalies.
26. We recommend that women who develop primary varicella infection in pregnancy should be referred to a Fetal Medicine Specialist from 16-20 weeks gestation, and at least 5 weeks after the infection. Consultation with a Neonatologist is recommended if fetal anomalies are diagnosed on antenatal ultrasound.
27. We suggest that women who develop primary varicella infection during pregnancy should be counselled about the risks versus benefits of amniocentesis to detect varicella DNA by polymerase chain reaction (PCR). Amniocentesis should not be performed before the skin lesions have completely healed, and at least five weeks after infection to minimise risk of a false negative result.
28. If the mother develops primary varicella infection in the last four weeks before giving birth, she should be counselled that there is an increased risk of the baby developing severe disseminated varicella which would warrant antiviral treatment as soon as possible.

29. We suggest that clinicians should consider avoiding elective birth as clinically appropriate, until the infectious period has passed.
30. We recommend that care is taken around placement of epidural/spinal anaesthesia in line to avoid vesicles, and this should be done in consultation with senior anaesthetists. The suitability for epidural or spinal anaesthesia will depend on the presence or absence of skin lesions at the site of insertion, suspicion of viraemia and when treatment was commenced.
31. Mode of delivery should be considered on an individualised basis. Where there is evidence of fetal compromise or maternal respiratory failure delivery by emergency caesarean section is recommended.
32. We strongly recommend that all babies born to mothers with acute primary varicella infection during pregnancy or birth, should be referred to the neonatology team at the time of birth.

Management of the neonate exposed to varicella in utero, at time of birth or within first week of life

33. Babies whose mothers develop varicella in pregnancy at any gestation up to 7 days before birth:
    a. We suggest that all babies with in-utero exposure to maternal varicella more than 7 days before birth, should have a neonatal assessment at birth and pre-discharge, and their mother be encouraged to attend the routine developmental checks to ensure that they achieve their developmental milestones.
    b. The risk of severe varicella infection following exposure of preterm infants, i.e. <28 weeks or <1kg birth weight, to varicella should be discussed with senior Neonatologists (Consultant or Specialist Registrar), and Infection Specialists (Microbiology and/or Infectious Diseases)
34. Babies whose mothers develop varicella either within 7 days before birth or 7 days after birth:
    a. We strongly recommend the use of post-exposure VZIG prophylaxis in line with NIAC guidance
35. When the index case is not the mother, then NIAC guidelines should be followed when considering prophylaxis for the neonate.
36. If a varicella exposed baby develops any rash or febrile illness in the neonatal period, we suggest that caregivers should contact the local GP or return to the local paediatric unit rather than the local maternity unit. They should be isolated in a single room to minimise risk of spread pending further investigation.

Management of the neonate with suspected or confirmed varicella in the first month of life

37. We recommend that the neonate should, at a minimum, be referred to the local secondary level paediatric centre for assessment and treatment, if they believe that the neonate has acute varicella infection.
38. We strongly recommend that empirical IV aciclovir should be started in an unwell neonate with a disseminated vesicular rash, pending confirmation of the aetiology (i.e. HSV, VZV or enterovirus).
39. We strongly recommend that babies with disseminated vesicular rash should be isolated in single rooms with airborne and contact precautions, and their placement discussed with local infection control teams to prevent secondary cases in neonatal and paediatric units.
40. If varicella is confirmed, we strongly recommend that IV aciclovir should be continued in preterm infants (<28 weeks gestation or 1kg birthweight) irrespective of maternal immunity, those with respiratory compromise or those with severe end organ damage (encephalitis, hepatitis). These cases should be discussed with local Infection Specialists.

Varicella and breastfeeding

41. We recommend that women with varicella should be supported and encouraged to breastfeed if they wish.
42. Vesicles on the breast should be covered to minimise risk of transmission. If vesicles are present close to the nipple, we suggest that women are advised to express from that side until the vesicles have crusted over. In this instance, the expressed breast milk may be fed to the baby who is receiving treatment with VZIG and/or aciclovir. If the baby is not on VZIG or anti-viral therapy, this expressed milk should be discarded.
43. We recommend that clinicians advise mothers that aciclovir is not contra-indicated in breastfeeding. Aciclovir is present in breast milk after systemic administration but is not expected to cause any adverse effects in breastfed infants.

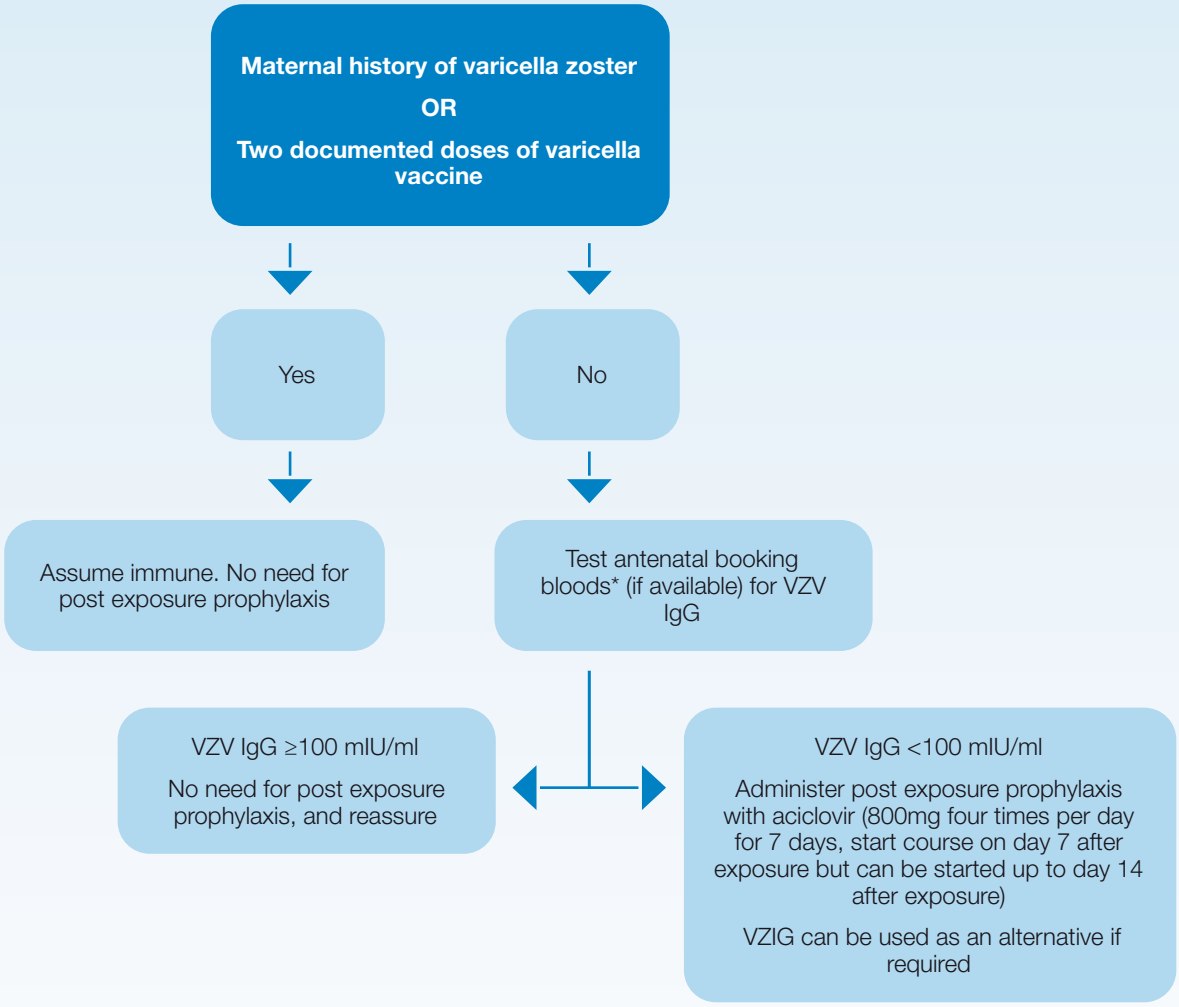
Reactivation of varicella zoster in pregnancy (i.e. localised shingles)

44. We suggest that Fetal Medicine assessment is not required, in the case of secondary infection/herpes zoster infection, as shingles is not associated with fetal varicella syndrome.

45. We suggest that the placement of women with shingles, if admitted to hospital, is discussed with local infection control teams. In the cases of disseminated shingles, vesicles in an exposed site (e.g. ophthalmic shingles) or infection in an immunocompromised woman, infection control precautions are the same as acute primary varicella infection – isolation in a single room with ensuite facilities, under airborne precautions.

46. We suggest that oral aciclovir can be considered in certain women with shingles, but this should be done on a case-by-case basis. Aciclovir may be warranted particularly if the rash has spread to multiple dermatomes, involves non-truncal areas (i.e. near the eye) or the woman is immunocompromised.

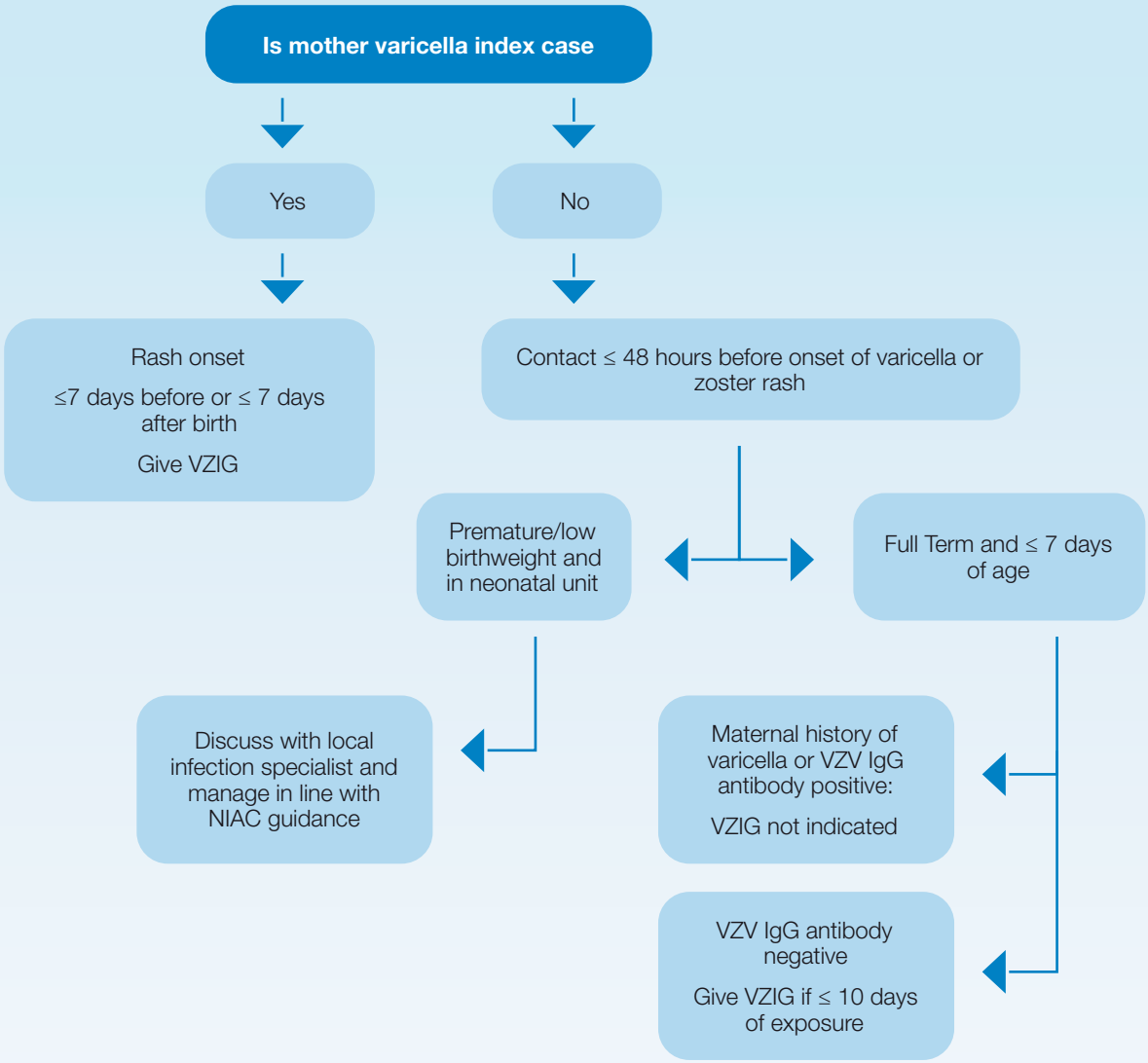
Algorithm 1: Post exposure prophylaxis for pregnant women exposed to Varicella-zoster virus (VZV)[1]



* A repeat serum sample should be taken for VZV IgG in cases of repeated exposure to varicella in the same pregnancy if the booking bloods or most recent serology demonstrate non-immunity, unless the woman has received VZIG or blood products in the last 3 months.

1 https://www.rcpi.ie/Healthcare-Leadership/NIAC/Immunisation-Guidelines-for-Ireland

Algorithm 2: Use of Varicella-zoster immune globulin (VZIG) in neonates exposed to Varicella-zoster virus (VZV)[2]



Auditable standards

Audit using the key recommendations as indicators should be undertaken to identify where improvements are required and to enable changes as necessary, and to provide evidence of quality improvement initiatives.

Auditable standards for this guideline include:

1. Number of women in one year receiving VZIG as post-exposure prophylaxis
2. Number of women whose babies develop congenital varicella syndrome per year
3. Proportion of antenatal booked women who have VZV IgG test sent per 1000 booking serology tests
4. Incidence of acute varicella infection in women who took aciclovir as prophylaxis in one year
5. Number of women treated with VZIG

2 https://www.rcpi.ie/Healthcare-Leadership/NIAC/Immunisation-Guidelines-for-Ireland

Recommended reading:

1. Full Clinical Guideline – https://www.hse.ie/eng/about/who/acute-hospitals-division/woman-infants/clinical-guidelines/
2. HSE Nomenclature for Clinical Audit – https://www.hse.ie/eng/about/who/nqpsd/ncca/nomenclature-a-glossary-of-terms-for-clinical-audit.pdf
3. HSE National Framework for developing Policies, Procedures, Protocols and Guidelines at https://www.hse.ie/eng/about/who/qid/use-of-improvement-methods/nationalframeworkdevelopingpolicies/
4. Freer G, Pistello M. Varicella-zoster virus infection: natural history, clinical manifestations, immunity and current and future vaccination strategies. New Microbiol. 2018;41:95-105. https://pubmed.ncbi.nlm.nih.gov/29498740/
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6. Sile B, Brown KE, Gower C, Bosowski J, Dennis A, Falconer M, Stowe J, Andrews N, Amirthalingam G. Effectiveness of oral aciclovir in preventing maternal chickenpox: A comparison with VZIG. J Infect. 2022;85:147-151. DOI: 10.1016/j.jinf.2022.05.037
7. Royal College of Obstetricians and Gynaecologists, *Chickenpox in Pregnancy, Green-top Guideline No. 13*. 2015. https://www.rcog.org.uk/guidance/browse-all-guidance/green-top-guidelines/chickenpox-in-pregnancy-green-top-guideline-no-13/
8. Heuchan AM, Isaacs D. The management of varicella-zoster virus exposure and infection in pregnancy and the newborn period. Australasian Subgroup in Paediatric Infectious Diseases of the Australasian Society for Infectious Diseases. Med J Aust. 2001;174:288-92. DOI: 10.5694/j.1326-5377.2001.tb143273.x

Authors

Drew RJ, Barry R, Houlihan E, Cahill Ú, Farhan M, Gavin P, Geisler M, Knowles S, Lynch J, Lynch M, Ryan G. National Clinical Practice Guideline: Varicella in pregnancy. National Women and Infants Health Programme and The Institute of Obstetricians and Gynaecologists. October 2023

https://www.hse.ie/eng/about/who/acute-hospitals-division/woman-infants/clinical-guidelines/

https://www.rcpi.ie/faculties/obstetricians-and-gynaecologists/national-clinical-guidelines-in-obstetrics-and-gynaecology/