West of Scotland Paediatric Gastroenterology, Hepatology and Nutrition Network

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Guideline on varicella vaccination and the treatment for varicella exposure for the immunocompromised child under the care of Gastroenterology

	GUIDELINE MANUAL
TITLE:	Guideline on Varicella vaccination and the treatment for varicella exposure for the immunocompromised child under the care of Gastroenterology

Responsibility	Last Update	Review Date
Medical and nursing staff within the Paediatric Gastroenterology	February 2014	February 2017

Statement

Varicella Zoster Virus (VZV) causes a primary (chickenpox, or Varicella) and a reactivation disease (Shingle, or herpes zoster).

These guidelines will inform healthcare professionals on the best course of action for a varicella contact or need for vaccination.

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1.0 Indications for use – Gastroenterology

Varicella Zoster Virus is an acute highly infectious disease commonly occurring in children with mild symptoms. It is characterised by a fever and a general itchy vesicular rash. However, varicella can cause serious complications in the immunocompromised patient, which can potentially be severe or even fatal in nature.

The aim

- Determine which gastroenterology patients are non- immune to varicella
- The potentially to vaccinate against Varicella
- Manage the non-immune varicella patient who is immunosuppressed, when there is a varicella contact/contraction of disease

2.0 Varicella: signs and symptoms

The illness usually starts with 1-2 days of fever and malaise although this may be absent, particularly in younger children. Vesicles normally start on the face, scalp, spreading to the trunk, abdomen and eventually the limbs. After 3-4 days the vesicles usually dry up and then these can be followed by a second crop of spots.

Some of the rarer complications of varicella are:

- Secondary bacterial infections of skin lesions, dehydration from diarrhoea and vomiting, viral pneumonia, osteomyelitis, arthritis, septicaemia, thrombocytopenia
- Central nervous systems complications, Reye's syndrome, Guillain-Barre syndrome, encephalitis, meningitis

Someone who is immune-compromised has significant increased risks for the rarer complications carrying a higher risk of morbidity.

Nearly, all children recover completely from varicella and then have detectable antibodies for many years. Re-infection with Varicella is rare. However, the virus can become dormant in sensory nerves and present later in life as herpes zoster (shingles)

3.0 Infectivity

Varicella Zoster Virus is transmitted directly by personnel contact or droplet spread. The virus is shed from the pharynx for up to 5 days but usually 1-2 days before the rash appears and then from the skin lesions for 7 days following the

onset of rash and until the skin lesions have crusted. Incubation period is usually 10-21 days.

4.0 Transition of disease

Varicella zoster virus is spread from person to person by 3 modes of transmission

- Inhalation of virus by the respiratory track or absorption through the conjunctiva
- Direct contact with vesicle fluid
- Contact with articles soiled with vesicle fluid or infected by respiratory secretions

5.0 Screening

Screening for varicella status, is strongly advised in gastroenterology patients that potentially may require immunosuppression therapy or are receiving immunosuppressant therapy, this is irrespective of their chickenpox history.

A varicella zoster serology blood test should be carried out to define status and recorded clearly.

6.0 Recommendation for the use of the Varicella vaccine

Varicella vaccination should be offered to those patients who are identified with varicella Zoster negative or equivocal status. As long as there are no contraindications identified.

With the aim of protecting the children most risk of serious illness from varicella.

Varicella vaccine is also recommended for healthy susceptible close household contacts of immune-compromised patients known to have a negative status.

6.1 Contraindications to receiving the Varicella vaccination

- Patient is less than a 1yr old
- Patient has been given: Immunosuppressant/steroids in last 3 months
- Patient is receiving Prednisolone (2mg/kg/day>1week)
- Patient is receiving Prednisolone (1mg/kg/day>1month)
- Patient has received a live vaccine in last 3 weeks
- Patient has received VIgG in last 3 months
- Patient has an allergy to gelatine

- Patient is hypersensitivity to neomycin
- Patients under 16yrs of age receiving long term salicylate therapy, i.e. aspirin
- Concurrent treatment with acyclovir
- Acute illness (vaccination should be postponed)

6.2 The Varicella Vaccination

Varicella vaccines contain live attenuated virus derived from the Oka strain of the varicella zoster virus. 2 vaccines are currently available:

- **Varilrix (Oka-RIT)** –. Administered as a deep subcutaneous injection.
- **Varivax (Oka/Merck)** -Administered by either intramuscular or a deep subcutaneous injection

On reconstitution both preparations should be given as a 0.5ml dose and used with in 1 hour of reconstitution.

It is suggested a 2 dose schedule should be given, with a 4-8 week interval between doses, exception, being children 1-5yrs of age, a 6-12 week interval between injections in recommended.

Most breakthrough infections are modified and vaccinated individuals who contract Varicella have fewer lesions and less systematic upset than unvaccinated individuals.

NB: If patients have received a VZIG IgG for prevention for varicella, a 3 month interval should be observed before administering a live vaccine. If immunoglobulins have been given 3 weeks post vaccination then the vaccine should be repeated 3 months later.

6.3 Adverse side effects of vaccination

- 5-10% of patients may develop a vaccine-associated rash, either localised or generalised within 1 month of immunisation.
- Rash may vesicular or popular
- Transmission of vaccine virus from an immune-competent vaccine to susceptible close contacts is extremely rare, but occasionally been documented, in people who develop a post vaccine low grade rash.
- Transmission in the absence of a post-vaccine rash has not been documented
- 20% patients report pain and redness at the injection site.
- Occasionally fever, fatigue and headaches are reported

- Rare side effects include; seizures, encephalitis, pneumonia, thrombocytopenia and anaphylaxis

NB: *All suspected reactions in children should be reported to the commission on Human medicines using the yellow card scheme.*

7.0 Indication for the use of Varicella Zoster Immunoglobulin's (VIG IgG) for post-exposure prophylaxis

Varicella zoster immunoglobulins can be given to an 'at risk' patient following a significant exposure to varicella as a prophylaxis measure to stop varicella developing and to avoid serious complications associated with the virus.

VZIG IgG is recommended for patients that fulfil **all** of the **following 3 criteria**:

- The patient lacks evidence of immunity of varicella antibodies i.e. has a negative, equivocal antibody status (If status unknown, this should be identified)
- Where the patient is at greater risk than the general public i.e. Immunosuppressed
- Where exposure is significant enough to result in varicella infection

7.1 Defining varicella antibody status

- Identify varicella status, if positive, consider immune no action required - observe
- If varicella status is identified as negative or equivocal and is identified as immunosuppressed with significant varicella exposure, VIG IgG should be administered
- If varicella status unknown, an urgent Varicella zoster serology blood test should be sent

7.2 Defining gastroenterology immunosuppressed patients

- Receiving immunosuppressant drugs i.e.
  - Steroidal
  - Cytotoxic Drugs
  - Biological Therapy
- Recently had organ transplant
- Has inherent/acquired autoimmune condition

7.3 Defining significant exposure to varicella virus

- Timing of exposure:- Contact with varicella virus between 2-4 days before onset of rash and until the lesions have crusted over.

- Closeness and duration of contact:-
  - Person with continuous exposure to a household member with varicella or herpes zoster
  - Direct contact in the same room i.e. in a house or classroom, for a significant period of time – 15 minutes or longer
  - Face to face contact e.g. conversing for more than 5 minutes

***NB**: Varicella Zoster Immunoglobulin's should not be used as a treatment of clinically active varicella, as it has not been proven to be useful*

7.4 Timing for administering VZIG IgG

VZIG IgG provides maximum benefit when administered as soon as possible after exposure to the Varicella Virus. Most research indicates the best timing is within 3-5 days of exposure, however can be given up to 7 days post exposure. The duration of protection from the VIG IgG lasts 21 days after administration. NB: the incubation period for the varicella virus post administration of VIG IgG may extend to 28 days and potentially the patient could still present with clinical symptoms. The family should be made aware of this and monitor the situation. If the patient has a subsequent exposure to varicella 3 weeks after receiving the VZIG IgG, treatment should be repeated

7.5 Varicella Zoster Immunoglobulin Products

Vials contain 250mg protein in approx. 2-3mls of fluid – it is a clear, pale yellow or light brown solution. VZIG IgG product available is produced by: -

Bio Products Laboratory (BPL)
Dosage for VZIG IgG as followings:

0-5yrs, 250mg (1 Vial)

6-10yrs, 500mg (2 vials)

11-14yrs, 750mg (3 Vials)

15yrs and above, 1000mg (4 vials)

NB: The correct volume to administer a dose of 250mg is variable and is overprinted on the label

VIG IgG are administered by intramuscular injection in the upper outer quadrant of the buttock or the anterolateral thigh.

7.6 Adverse side effects of Varicella Zoster Immunoglobulin Products

- VZIG IgG is usually very well tolerated; very rarely have anaphylaxis reactions been noted
- No blood borne infections have been recorded from intramuscular administration of VZIG IgG.
- Severe or fatal varicella can still occur despite VZIG IgG prophylaxis, immune-compromised patients should be closely monitored by family. Any signs of illness should be treated with either intravenous aciclovir or oral aciclovir.

7.7 Accessing VZIG Immunoglobulins 'Out of Hours'

Within Glasgow Royal Hospital for Sick Children: -

- Emergency drug store cupboard in A&E – VZIG IgG x 6 vials.(Accessed via hospital cover page2502)
- A&E – VZIG IgG x 4 vials
- If unable to access, contact 'on call' pharmacist

Within District General hospitals – enquire locally regarding access and supplies

8.0 Indication for the use of aciclovir for post-exposure prophylaxis

If the patient presents 7-14 days post significant exposure to the varicella virus, they should receive a course of oral aciclovir as a prophylaxis. The patient/family should be advised of varicella symptoms and should monitor for any clinical signs.

8.1 Oral acyclovir dose and duration (check most recent 'BNF for Children' for dose)

- Under 2yrs – 200mgs orally four times a day for 5 days
- 2yr-5yrs – 400mgs orally four times a day for 5 days
- 6yrs – 12years– 800mgs orally four times a day for 5 days
- 12-18years – 800mg orally five times a day for 7 days

8.2 Adverse side effects of aciclovir

- Common: nausea, vomiting, abdominal pain, diarrhoea, fatigue, rash, pruritus, photosensitivity.

- Very rarely: jaundice, dyspnoea, neurological reaction (dizziness, hallucination, convulsion), acute renal failure, anaemia, thrombocytopenia

9.0 Immune-compromised patient exhibiting clinical signs of Varicella Zoster Virus – requires active treatment

Timely assessment regarding the severity of varicella symptoms is required in the immune-compromised patient. If the patient is deemed unwell and the symptoms are moderate to severe the patient should be admitted to hospital for intravenous antiviral drugs – aciclovir. Bloods should be monitored for Full Blood Count and ESR. Length of time requiring IV aciclovir will depend on clinical response to therapy. General hydration should be considered & adequately maintained.

Intravenous aciclovir therapy:

- Up to 3months: 10mg/kg every 8 hours
- 3months – 12years: 500mg/m2 every 8 hours
- 12-18years: 10mg/kg every 8 hours

If the child is generally well with the varicella zoster virus, oral aciclovir can be considered, as above in section 9.1; symptoms should be closely monitored by the family. If symptoms increase or the child becomes unwell, immediate medical advice should be sought.

10.0 Suspension of immunosuppressants

Is a clinical decision needed to be made by the team looking after the child with varicella zoster virus? At the present time there is no consensus on suspending or discontinuing immunosuppressive therapy. However, it should be considered depending on the severity of the disease. In mild, uncomplicated Varicella Zoster Infections it may be possible to continue immunosuppression alongside antiviral therapy.

11.0 Communication

Varicella is a notifiable disease in Scotland/Ireland and should be communicated to the Consultant in Communicable Disease Control.

In the case of patients with complicated Varicella Zoster Virus infections or when treatment is being ineffective in the Gastroenterology immune-compromised patient, advice should be sought from a Consultant Paediatrician of Immunology/ Infectious Disease.

Supporting Literature

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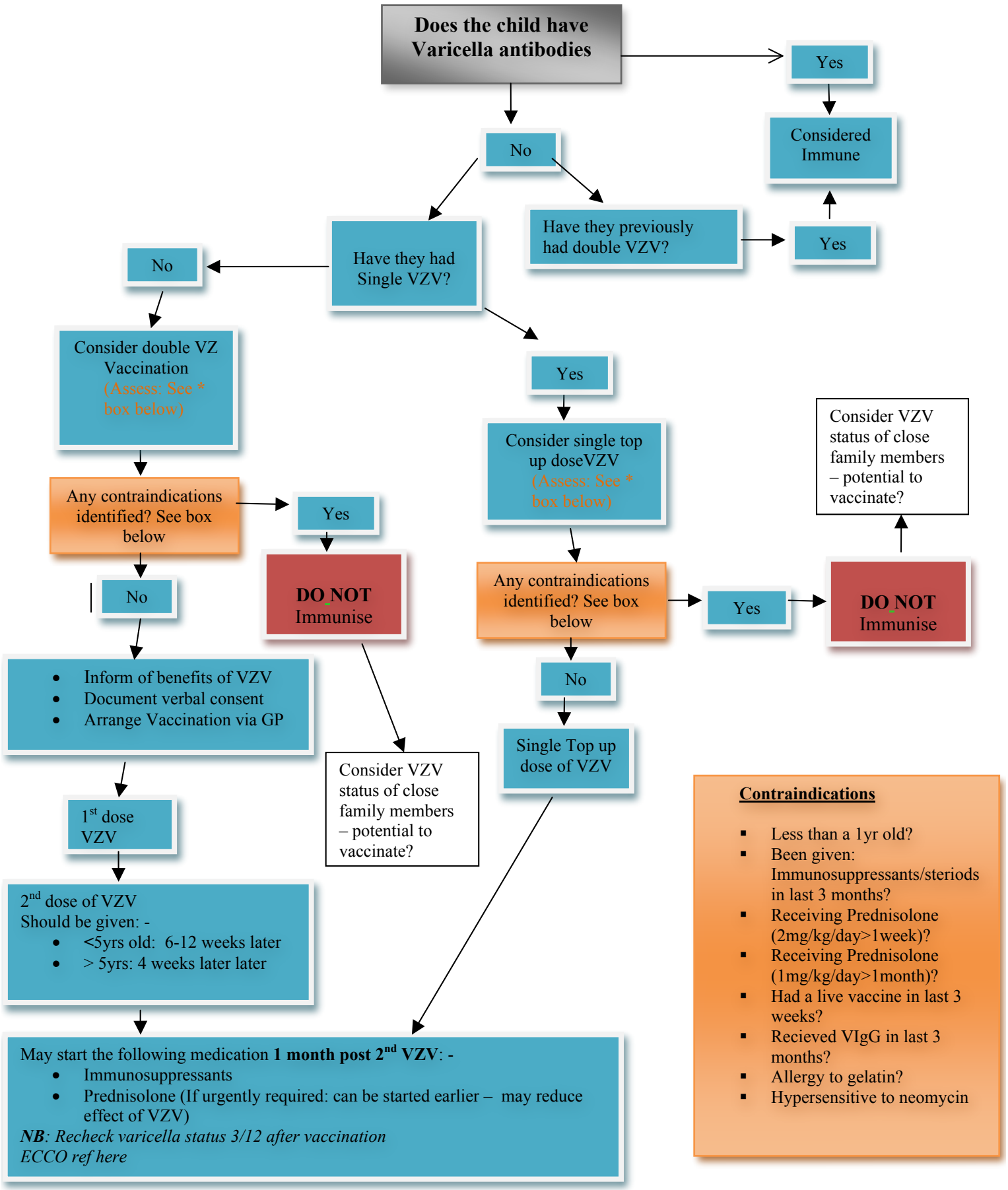
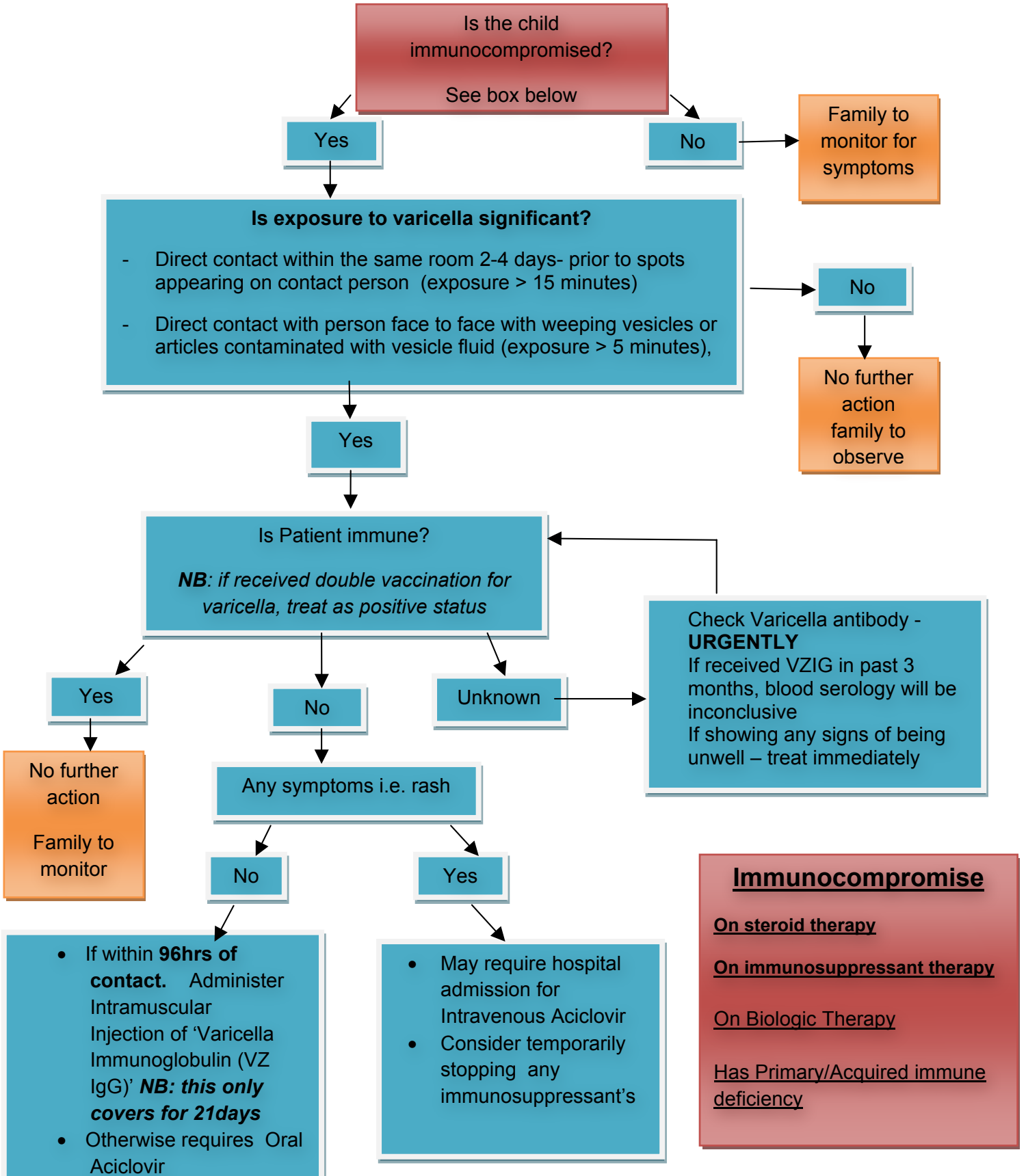
Varicella Zoster Vaccination (VZV) for the Gastroenterology Patients



Management of Varicella exposure in the Immunocompromised Child under the care of Gastroenterology



This information leaflet has been created by WoSPGHaN Medical and nursing staff within the Paediatric Gastroenterology.

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