Management of

Chickenpox and Shingles Policy

Version Number	3.1	Version Date	June 2016
Owner	Director of Infection Prevention and Control		
Author	Nurse Consultant Infection Control		
First approval or date last reviewed	October 2010		
Staff/Groups Consulted	Adapted from the Policy in use at Taunton & Somerset NHS Foundation Trust. The following groups have been consulted: Infection Control Doctor Medical Director Director of Infection Prevention and Control Associate Directors of Nursing Matrons Infection Prevention Control team		
Approved by IPCC	July 2016		
Next Review Due	July 2019		

1. RATIONALE

1.1. To set out the actions to be taken when caring for patients with suspected or confirmed chickenpox or shingles. To ensure that any non-immune individuals exposed are managed appropriately.

1.2. The aim of these guidelines is to provide healthcare workers with the necessary information in relation to:

- The infection prevention and control management of inpatients with chickenpox or shingles.
- The management of non-immune inpatients exposed to individuals with chickenpox or shingles.

2. KEY POINTS

2.1. Chickenpox is highly infectious and easily spread.

2.2. Chickenpox is usually a relatively mild infection in childhood but in adults and some groups (neonates, pregnant women, immunosuppressed) there may be more serious complications.

2.3. Shingles cannot be passed from person to person, however the virus from shingles lesions can cause chickenpox in those who have never had chickenpox before.

2.4. Staff who are not immune to chickenpox should not care for patients with either infective chickenpox or shingles.

2.5. If contact tracing of exposed patients is required this will be carried out by the Infection Prevention and Control Team (IPCT) in liaison with Public Health England (PHE). Contact tracing of exposed staff will be carried out by the Trust's Occupational Health Service in conjunction with Ward/Department managers.

3. BACKGROUND

3.1. Varicella zoster virus is a member of the Herpes virus family and causes two common infections, chickenpox and shingles. Chickenpox (varicella zoster) is the primary infection and usually results in lifetime immunity. Around 90% of the adult population born and raised in the UK are immune.

3.2. Chickenpox is **not** a notifiable disease in England and Wales.

3.3. Following chickenpox infection the virus remains dormant in dorsal root and cranial nerve ganglia and may be reactivated at a later date causing shingles (herpes zoster).

4. DEFINITION OF TERMS

4.1 **Incubation period –** period of time from exposure to development of symptoms

4.2 **Period of infectivity –** period of time when the individual is infectious

4.3 **Maculopapular rash –** a large red area with confluent bumps

4.4 **Vesicles –** small fluid filled blisters

4.5 **Foetal varicella syndrome –** characterised by one or more of the following: skin scarring, eye defects, limb hypoplasia, neurological abnormalities and dysfunction of bladder and bowel sphincters.

4.6 **Neonate –** baby from birth to 4 weeks of age.

4.7 **Disseminated shingles –** widespread shingles. The virus affects multiple body systems and generally only occurs in those whose immune system is not fully functioning.

5. DUTIES AND RESPONSIBILITIES

5.1 **The Director of Infection Prevention and Control (DIPC)** is responsible for overseeing this policy and its implementation.

5.2 **The Infection Prevention & Control (IP&C) Team** are responsible for:

- Advising and supporting clinical staff in the management of inpatients with chickenpox or shingles.
- Carrying out necessary contact tracing and management of in-patients exposed to chickenpox or shingles in liaison with the clinical team caring for the patient.
- Liaising with Occupational Health regarding any patient or healthcare worker diagnosed with chickenpox or shingles so contact management of other staff can be initiated.

5.3 **Occupational health (OH)** is responsible for:

- Liaising with the IP&C team in the event of a member of staff developing chickenpox or shingles at work so contact management of patients can be initiated.
- Carrying out any necessary contact tracing and subsequent management of exposed staff.
- Advising staff exposed to or infected with chickenpox or shingles.

5.4 **Ward managers / Matrons** are responsible for ensuring all their staff are aware of and follow the actions of this policy.

5.5 **All staff** are responsible for:

- Ensuring the infection control precautions detailed in this policy are followed for any patient with suspected or confirmed chickenpox or shingles.
- Informing the IP&C team if a patient is admitted or develops chickenpox or shingles during their hospital stay.
- Informing the OH service if they are not immune and they develop chickenpox or shingles at work or are exposed to a case of chickenpox or shingles.

- Following the actions of this policy.

6. CLINICAL FEATURES

6.1 Chickenpox usually begins with fever and malaise followed by a maculopapular rash progressing to vesicle formation, mainly over the trunk but extending to face, scalp and limbs. The rash often appears in 'crops' over the course of several days. The severity of chickenpox varies and it is possible to be infected but show no symptoms.

6.2 Chickenpox is usually a relatively mild infection but for adults and some groups (neonates, pregnant women, immune-suppressed) there may be more serious complications. These include viral pneumonia, secondary bacterial infections and encephalitis. In addition there are risks to the foetus or neonate if women develop chickenpox during pregnancy. The risks are related to gestation at the time of infection.

6.3 Shingles is caused by the reactivation of an individual's varicella virus and is a localised infection. It begins with increased sensitivity or a burning sensation over an area of skin, known as a dermatome, which follows the line of a nerve. A red vesicular rash then occurs over the same area. It most commonly occurs over one side of the chest, abdomen or around the eye (ophthalmic or facial shingles).

7 IMMUNITY

7.1 Chickenpox infection usually results in lifetime immunity to the virus so re-infection is very rare. A definite history of chickenpox or shingles indicates immunity however, this is a less reliable predictor of immunity for those born and raised outside of the UK and serology testing for the presence of varicella zoster antibodies may be required. A documented history of varicella vaccination (i.e. 2 doses of vaccine) is also satisfactory evidence of immunity. Post Vaccination testing is only considered in staff working with highly vulnerable patients.

7.2 For those who are immunosuppressed, a past history of chickenpox or shingles is not a definitive indication of immunity. For these individuals, serological confirmation of immunity should be considered in the event of exposure.

8. TRANSMISSION AND INFECTIVITY

8.1 Chickenpox is highly infectious. The virus is shed from both the naso-pharynx and vesicles on the skin, therefore transmission occurs via:

- Airborne spread of respiratory secretions.
- Direct contact with vesicles and vesicular fluid.
- Contact with clothing, bedding, equipment, etc. contaminated with respiratory secretions or vesicular fluid.

8.2 The incubation period for chickenpox is between 10 and 21 days following significant exposure to an individual with chickenpox or shingles.

8.3 Individuals are normally regarded as infectious from 2 days prior to the development of the rash until all the vesicles have crusted over, which usually occurs around 7 days after the onset of the rash. Infectivity may be prolonged in patients with altered immunity.

8.4 Significant exposure to chickenpox is assessed as:

- Face to face contact with a case of chickenpox (e.g. having a conversation).
- Being in the same room, bay or whole ward (if nightingale) for 15 minutes or longer with a case of chickenpox.
- Direct contact with a case of chickenpox at any point in the period of time 48 hours before the rash appears until all the vesicles have crusted over.

8.5 Shingles occurs from reactivation of the varicella virus that has lain dormant in nerve tissue following previous infection with chickenpox. Shingles cannot be passed from person to person, however individuals with shingles will shed varicella zoster virus from the vesicles. This can result in the development of chickenpox in those who have never had chickenpox before.

8.6 The route of transmission of varicella virus from an individual with shingles is via direct contact with vesicles or vesicular fluid.

8.7 Individuals are not infectious until appearance of the shingles rash. They then remain infectious until all the vesicles have crusted over. This is usually about 7 days after onset of the rash.

8.8 Significant exposure to shingles is assessed as:

- Close/direct contact with vesicles or vesicular fluid from an individual with shingles.
- Contact with a case of disseminated shingles.
- Contact with immunosuppressed individuals with shingles on any part of the body (viral shedding will be greater in these individuals).
- Contact with the case between the periods of onset of rash until all vesicles are crusted over.

9. VACCINATION & TREATMENT

9.1 Currently there is no widespread varicella vaccination programme in the UK however; since 2003 the Department of Health recommend chickenpox vaccination for all non-immune healthcare workers. Vaccination may also be considered prophylactically (within three days of exposure) on advice of the Consultant Occupational Health Physician.

9.2 Chickenpox infection is usually self-limiting and management is usually based on symptom reduction. For some groups at risk of developing serious complications may require antiviral drugs or immunoglobulin. Treatment of shingles with antiviral drugs may reduce symptoms. The decision to initiate treatment of either chickenpox or shingles will be made by the clinician responsible for the patient. Advice is available from the Consultant Microbiologists.

10.0 ACTION TO BE TAKEN IN EVENT OF CHICKENPOX/SHINGLES OCCURRING ON A WARD

10.1 Only staff with a definite history of chickenpox/shingles or a blood test demonstrating Immunity should provide care for any patient with suspected or confirmed chickenpox or shingles.

10.2 Patients with suspected or confirmed chickenpox or infectious shingles must not be nursed on Oncology wards or near other patients who are immunosuppressed unless there is an urgent clinical need. In this situation further advice can be obtained from the IPCT or on call microbiologists to help reduce the risks to other patients.

10.3 For patients with suspected or confirmed chickenpox or shingles on a ward the following action should be taken (see Flow Chart One)

- Isolate patient (index case) immediately. Difficulty in isolating should be escalated to the IP&C team / Clinical Site Manager.
- Instigate infection control precautions as detailed in Appendix A.
- Inform IPCT on Ext 4401
- In conjunction with IPCT make a list of any individuals (patients, staff and visitors) that may have had contact with the index case (contacts).

11. MANAGEMENT OF CONTACTS

11.1 In the event of a patient developing chickenpox or shingles during their stay other patients, visitors and staff may be at risk of chickenpox infection if their exposure has been significant and they do not have immunity.

11.2 Managing contacts of an index case involves the following process:

- Assessment of immunity status of all contacts.
- Assessment of the significance and timing of the exposure of potentially non-immune contacts.
- Deciding if prophylactic Varicella Zoster Immunoglobulin (VZIG) is required.

11.3 The following process should be followed for all potential contacts:

- Assess the immunity status of all the potential contacts using assessment criteria in Flow Chart Two.
- Assess the significance and timing of the exposure of all potentially non-immune contacts using assessment criteria in Appendix B.
- All individuals who are potentially non-immune and are assessed as having had significant exposure should be listed on the form contained in Appendix C. These names should be given to either Occupational Health, PHE or IPCT, i.e.
    - Staff who are unvaccinated or without a definite history of chickenpox or shingles, and having a significant exposure to VZV, should either be excluded from contact with high-risk patients from 8 to 21 days after

exposure, or should be advised to inform OH before having patient contact if they feel unwell or develop a fever or rash.

- OH are able to provide VZ vaccination to staff who are proven non-immune and within three days of exposure as prophylaxis/to lessen the severity of the disease should it develop.
- Patient contacts who are not immune or for whom immunity is not definitive and have had significant exposure will be followed up by the IPCT. The need for prophylactic VZIG will be made by the Clinician responsible for the patients care in liaison with a Consultant Microbiologist. These patients should be managed as potentially infectious from 8 to 21 days after exposure to the index case. If VZIG is given they should be managed as potentially infectious from 8 to 28 days since VZIG extends the incubation period.

▪ Visitors or close family contacts to the index case will be assessed by the IPCT who will liaise with PHE as necessary.

12. VARICELLA ZOSTER EXPOSURE IN PREGNANCY

12.1 The majority of pregnant women will already be immune to chickenpox. If immune, exposure to individuals with either chickenpox or shingles presents no risks to mother or the foetus and no action is required.

12.2 Pregnant women who have never had chickenpox should avoid exposure to anyone with either chickenpox or shingles during the infectious period.

12.3 Pregnant women who have never had chickenpox or have no recollection of previous chickenpox or shingles who have significant contact with a case of chickenpox or shingles must have serology testing to check for presence of varicella zoster (VZ) antibodies. VZIG is recommended for all VZ antibody negative pregnant contacts exposed at any stage of pregnancy, providing VZIG can be given within 10 days of exposure.

12.4 If VZIG is given the pregnant woman should be managed as potentially infectious from 8-28 days after exposure. If VZIG is not given the pregnant woman should be managed as potentially infectious from 8-21days after exposure.

12.5 Any pregnant woman who has any exposure to chickenpox or shingles (regardless of whether or not they have received VZIG) should be asked to notify their Dr or midwife immediately if a rash develops.

12.6 VZIG has a short duration of effect and therefore a second dose may be required if a further exposure is reported and 3 weeks have elapsed since the last dose.

12.7 VZIG is not required as prophylaxis for non-immune women after delivery of the baby since they are no longer at high risk for complications of chickenpox once they have delivered.

13. VARICELLA ZOSTER INFECTION IN PREGNANCY

13.1 Pregnant women who develop chickenpox are at greater risk of complications themselves which may require hospitalisation e.g. viral pneumonia, haemorrhagic rash. The severity of complications seems to increase in later gestation.

13.2 Pregnant women with chickenpox must not be admitted to the maternity unit unless there is an overriding obstetric clinical need. If admission to the maternity unit is required they must not mix with other mothers or babies whilst still infectious. The same infection control measures should be applied as outlined in Appendix A.

13.3 Varicella zoster immunoglobulin (VZIG) has no therapeutic benefit once chickenpox has developed so is not indicated for maternal chickenpox during pregnancy. The use of antivirals should be made on an individual basis by the Clinician responsible for the patient with advice available from the Consultant Microbiologists.

13.4 There are risks to the foetus and/or new-born if the mother develops chickenpox during pregnancy. The severity of these risks depends on gestation at the time of infection.

13.5 Chickenpox in the first trimester does not increase the risk of miscarriage.

13.6 Chickenpox in the first 28 weeks of pregnancy is associated with foetal varicella syndrome. This is a serious condition that affects foetal development.

13.7 Maternal chickenpox around the time of birth exposes the neonate to varicella zoster virus and there is a risk the baby may be born with chickenpox. Elective delivery (including caesarean) should be avoided, where clinically possible, until 5-7 days after the onset of maternal rash to allow for the passive transfer of antibodies from mother to child.

14. NEONATAL EXPOSURE OR INFECTION

14.1 Neonates born to mothers who were immune to chickenpox will have passively acquired immunity. They are not at risk if exposed to cases of chickenpox or shingles unless they were born before 28 weeks gestation or weighed less than 1 kg at birth as they may lack these maternal antibodies.

14.2 VZIG is recommended for all non-immune neonates that are exposed to a case of chickenpox or shingles within the first 7 days of life.

14.3 VZIG prophylaxis is recommended in the following cases of neonatal exposure:

- Neonates born before 28 weeks gestation or who weighed less than 1 kg at birth
- Neonates born to mothers with no immunity to chickenpox
- Neonates born to mothers who develop chickenpox around or soon after delivery. If birth occurs within 7 days of onset of maternal rash the neonate should be given VZIG.

14.4 Neonates born to mothers who develop shingles around the time of delivery will have passive acquired immunity and are not at risk of developing chickenpox unless they were delivered before 28 weeks gestation or weighed less than 1 kg at birth.

14.5 Administration of VZIG does not guarantee the prevention of chickenpox in the neonate and extends the incubation period. All neonates who have received VZIG should be monitored for signs of infection up to 28 days from exposure or in the case

of maternal chickenpox 28 days from onset of chickenpox in the mother. VZIG is of no benefit once neonatal chickenpox has developed.

14.6 Mothers with chickenpox should be allowed to breast feed. If they have lesions close to the nipple, they should express milk from the affected breast until the lesions have crusted. This expressed milk can be fed to the baby if they are covered by VZIG and/or antivirals.

15. IMMUNOSUPRESSED PATIENTS

15.1 Immunosuppressed patients are at risk of severe varicella infection. Vesicles may arise for several weeks prolonging the period of infectivity in these patients. There is an increased risk that the virus will disseminate throughout the organs of immunosuppressed individuals. In addition any that develop chickenpox or shingles will shed higher levels of the virus and therefore become a higher risk to other individuals that are not immune to chickenpox.

15.2 Immunosuppressed patients include the following conditions:

- Severe primary immunodeficiency.
- Malignant disease treated with immunosuppressive chemotherapy or radiotherapy (classed as immunosuppressed for at least 6 months after terminating such treatment).
- All patients who have received a solid organ transplant and are currently on immunosuppressant treatment.
- Patients who have received a bone marrow transplant until at least 12 months after finishing all immunosuppressant treatment or longer if the patient develops graft- versus- host disease.
- All patients receiving systemic high-dose steroids until at least 3 months after treatment has stopped. This includes children who receive prednisolone at a daily dose (or its equivalent) of 2mg/kg/day for at least one week or 1mg/kg/day for one month. For adults an equivalent dose is harder to define but immunosuppression should be considered in those who receive 40mg of prednisolone per day for more than one week.
- All patients receiving other types of immunosuppressant drugs (e.g. azathiopine, methotrexate etc.).
- All patients with immunosuppression due to HIV infection.
- Patients with gamma globulin deficiencies needing replacement therapy with HNIG **do not** require VZIG.

15.3 Any immunosuppressed patient that is exposed to a case of chickenpox or shingles should undergo the same process of assessment as any other contacts (see section 8 of these guidelines).

15.4 The decision to give prophylactic VZIG is made on an individual basis. Wherever possible, immunosuppressed contacts should be tested for varicella zoster antibodies regardless of a previous history of chickenpox. If testing for antibodies will potentially delay the administration of VZIG beyond 7 days after initial contact with the index

case, then VZIG should be given on the basis of a negative history of chickenpox. If the patient has a positive history of chickenpox, serology results should be obtained first.

15.5 VZIG is not indicated in immunosuppressed contacts with detectable varicella zoster antibodies.

15.6 Patients with no detectable varicella zoster antibodies do require VZIG. The decision to administer VZIG should be made by the Clinician responsible for the patient in liaison with the Consultant Microbiologists.

16. IMPLEMENTATION, MONITORING AND EVALUATION

Responsibility for implementation, monitoring and evaluation is identified in the Trust's Policy on Procedural Documents.

16.1 Daily monitoring is carried out by the IPCT of all patients isolated due to infection control reasons. This will include the monitoring of isolation practice for patients with either chickenpox or shingles.

16.2 Any issues identified from the monitoring process will be raised by the IPCT at the Infection Prevention & Control Committee (IPCC) if necessary.

16.3 Monitoring of these guidelines is overseen by the IPCC.

17. SOURCE REFERENCES AND ACKNOWLEDGEMENTS

17.1 Immunisation against Infectious Disease Chapter 34 (The Green Book), April 2013.

17.2 Public Health England, 2013. Immunisation Against Infectious Disease (The Green Book).

17.3 Public Health England, 2008. Immunoglobulin Handbook.

17.4 Guidance on Viral Rash in Pregnancy (Investigation, Diagnosis and Management of Viral Rash Illness, or Exposure to Viral Rash Illness, in Pregnancy). Health Protection Agency, January 2011.

Equality Impact Assessment Tool

To be completed and attached to any procedural document when submitted to the appropriate committee for consideration and approval.

Name of Document: Management of Chickenpox Policy

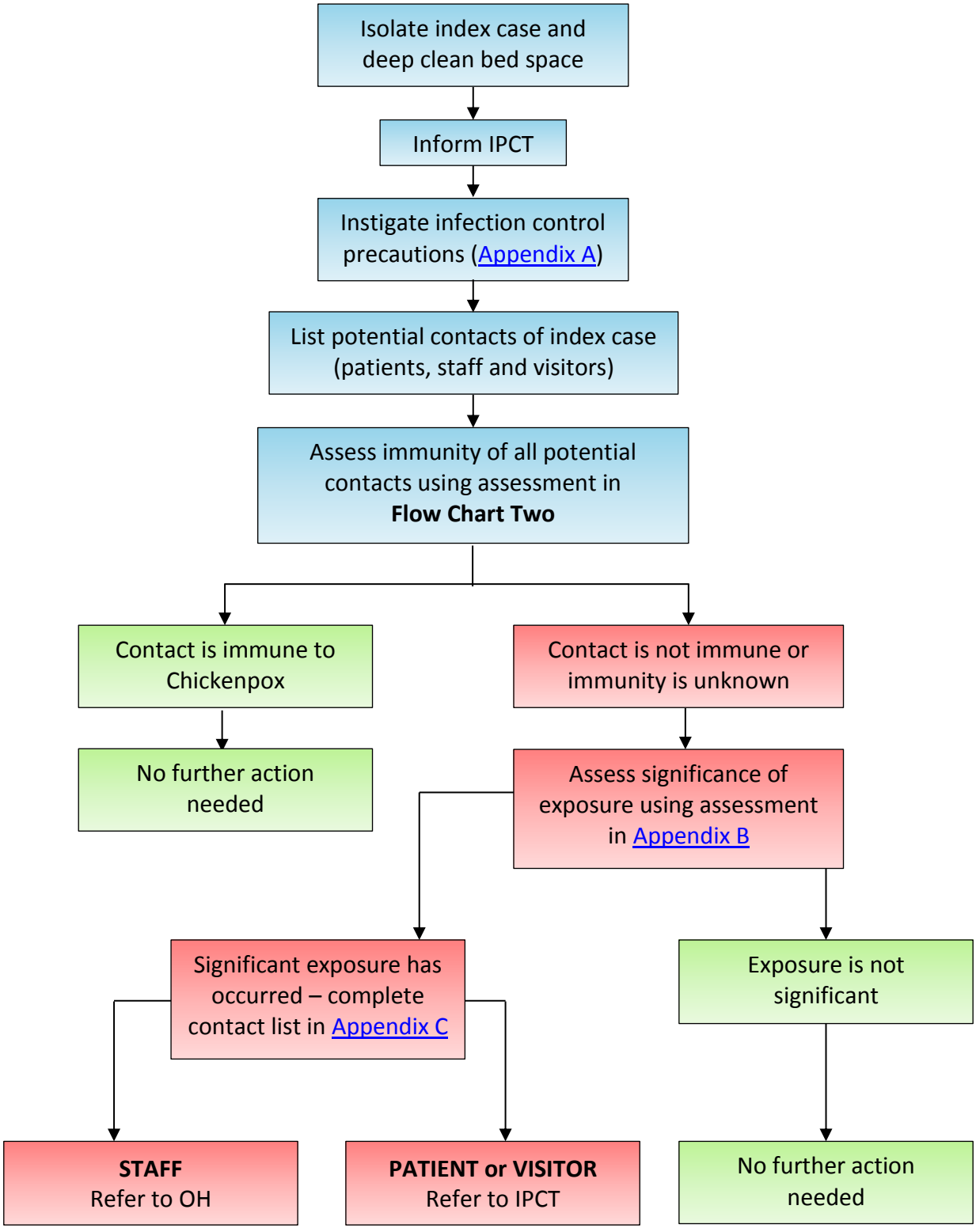
		Yes/No	Comments
1.	Does the policy/guidance affect one group less or more favourably than another on the basis of:		
	Race	No	
	Ethnic origins (including gypsies and travellers)	No	
	Nationality	No	
	Gender	No	
	Culture	No	
	Religion or belief	No	
	Sexual orientation including lesbian, gay and bisexual people	No	
	Age	No	
	Disability	No	
2.	Is there any evidence that some groups are affected differently?	No	
3.	If you have identified potential discrimination, are any exceptions valid, legal and/or justifiable?	N/A	
4.	Is the impact of the policy/guidance likely to be negative?	No	
5.	If so can the impact be avoided?	N/A	
6.	What alternatives are there to achieving the policy/guidance without the impact?	N/A	
7.	Can we reduce the impact by taking different action?	N/A	

For advice or if you have identified a potential discriminatory impact of this procedural document, please refer it to The Equality & Diversity Lead, Yeovil Academy, together with any suggestions as to the action required to avoid/reduce this impact.

Signed **Lisa Eastmead-Hoare** Date: 13/06/2016

FLOW CHART ONE

ACTION TO BE TAKEN IN THE EVENT OF A CASE OF CHICKENPOX OR SHINGLES ON A WARD



FLOW CHART TWO

ASSESSMENT OF IMMUNITY TO CHICKENPOX OR SHINGLES