CHICKENPOX

PRACTICE GUIDELINE ©

DOCUMENT SUMMARY/KEY POINTS

- Chickenpox is a highly contagious disease. It is spread by direct contact with respiratory secretions or vesicle fluid and can also be airborne.
- All children admitted to the hospital must be assessed for chickenpox immunity status.
- All cases of active chickenpox or contact with active chickenpox in patients and staff **must** be reported to Infection Control (or the AHNM if after hours).
- A person with chickenpox is *contagious* from one to two days before the rash develops until all lesions are crusted.
- An exposed and susceptible subject is considered *potentially infectious* from the 8th day after the first contact until 21st day after the last contact. If prophylactic immunoglobulin is given (VZIG), the incubation period is extended by another 7 days (28th day following last contact).
- People who have never been infected with or immunised against varicella zoster are universally susceptible.
- A child with active chicken pox must be cared for in a 100% exhaust ventilation room. On Variety Ward or PICU using Standard & Airborne precautions until all lesions are crusted.
- A child at risk of developing chickenpox must be cared for in a 100% exhaust ventilation room using standard & airborne precautions. This applies for the duration of the incubation period which is 8-21 days following contact and 8-28 days if VZIG is administered.
- Non-urgent admissions of patients with chickenpox (or suspected chickenpox) should be postponed until after the infectious period has passed.
- All personnel must be aware of their immune status with respect to chickenpox[5].

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Team Leader:	Clinical Nurse Consultant	**Area/Dept**: Infection Control

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CHANGE SUMMARY

Outline a summary of changes to the revised document.

- Update references
- Minor updates throughout the document.
- Hyperlinks to factsheets included

READ ACKNOWLEDGEMENT

Outline who needs to read or know about the document (roles only – do not use names).

- Read Acknowledge Only – Medical and Nursing staff working in a clinical area.

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Introduction

Aetiology

Chickenpox is a highly contagious disease caused by *Varicella-Zoster* virus.

Clinical Manifestations

Childhood chickenpox is usually not heralded by a prodrome although chickenpox in adults and adolescents may be preceded by a prodrome of nausea, myalgia, anorexia, and headache.

The triad of rash, malaise, and low-grade fever signals the onset of chickenpox. Small, erythematous macules appear on the scalp, the face, the trunk, and the proximal limbs. Progression to papules, clear vesicles and pustules is rapid over the next 12-14 hours, ending in crust formation. New crops of lesions then form, which subsequently progress to vesicles with crusting. Vesicles may appear on the palms and the soles and on the mucous membranes, with painful, shallow, oropharyngeal or urogenital ulcers. Intense pruritus commonly accompanies the vesicular stage of the rash.

Mode of Transmission

Chickenpox is spread by the airborne route from contact with patients with vesicular lesions (varicella zoster or herpes zoster). Transmission via direct contact with respiratory secretions or vesicle fluid is also possible. Children with chickenpox pneumonia are highly infectious.

Infectious Period

The typical patient is infectious from one -two days prior to the development of rash until the last crop of vesicles has crusted over, which is usually about five days. Immunosuppressed persons and those with pneumonitis may be infectious for much longer.

Incubation Period

The incubation period (period from contact until symptoms appear) is 10 to 21 days. An exposed and susceptible subject is considered potentially infectious from the 8th day after first contact until the 21st day following the last contact with chickenpox. If prophylactic immunoglobulin is given (VZIG), the incubation period is extended by another 7 days (28th day following last possible contact).

Risk of Infection

People who have never been infected with or immunised against varicella zoster are universally susceptible. Vaccination is effective. Children ≤14 years of age can be considered immune two weeks after a single dose of vaccine. Immunocompromised children may be susceptible despite prior infection or vaccination.

Command and Control

Responsibility for implementation of this policy is the direct responsibility of appropriate clinical line managers caring for affected patients.

- The clinical line Managers will consult with the Infection Control team regarding appropriate patient placement and infection control procedures.
- If there is no policy on a particular issue or the policy needs updating then there needs to be further discussion between clinical line Managers, Infection Control, Microbiology and the Director of Clinical Operations to develop a consensus agreement based on best evidence. If a dispute arises about policy it is to be referred to the Chief Executive (CE) for resolution.
- Chicken pox infections are not mandated as a reportable infection to Public Health Units,
- A Reportable Incident Brief (RIB) will be sent to NSW Department of Health on any potential media interests or problems. This is currently the responsibility of the Executive Assistant to the CE.
- The Microbiologist or Infection Control Practitioner will notify the Director of Clinical Operations of identification of any known chicken pox clusters. The Director of Clinical Operations will in turn notify the Chief Executive.

Infection Control Measures

Standard & Airborne precautions apply.

Refer to Infection Control: Isolation Practice Guideline

Management

Patients

All children admitted to the hospital must be assessed for chickenpox immunity status. This involves taking a clear history of previous infection with chickenpox disease, previous vaccination against the disease and recent contact with someone infected with the disease.

If a child develops chickenpox or zoster or is found to have been exposed to chickenpox (only if they have not already had chickenpox), management is as follows. The Infection Control Team or the After Hours Nurse Manager must be notified.

The Child Presenting with Active Chickenpox in ED

A child presenting to ED with suspected chickenpox must be reviewed by a consultant paediatrician to confirm the diagnosis. If confirmed the child must be isolated in a single room

and discharged promptly if found to be well enough. If admission is required the child must be transferred to a 100% exhaust ventilation room on either Variety Ward or PICU, depending on the child's condition. This child must be nursed with standard and airborne precautions in place until all lesions are crusted.

If a child with active chickenpox requires an investigation (such as a CT or MRI scan) or a surgical procedure, these should be performed whenever possible at the end of the day as the last case. The following precautions should also be followed:

- Minimise time outside of the isolation room by ensuring the receiving department is ready for the patient (ie patient not to wait in radiology or theatre waiting rooms).
- Patient to wear an N95/P2 mask and cover all skin lesions as much as possible.
- Any areas in which the child has been should be thoroughly cleaned with a neutral detergent once the child has left.
- Avoid other children entering these areas for at least 30 minutes and ideally 4 hours after the child has vacated the area and the area has been cleaned.
- Following a surgical procedure the child should be "recovered" in the same operating theatre and then transported immediately back to their isolation room.

The Inpatient found to have Active Chickenpox

A child who is already an inpatient and found to have active chicken pox must be transferred as a matter of priority to a 100% exhaust ventilation room on either Variety Ward or PICU, depending on the child's condition. This child must be nursed with contact and airborne precautions in place until all lesions are crusted.

Infection Control must be informed immediately in order to commence necessary contact tracing of patients and staff.

The Child Who Has Recently Been Exposed to Chickenpox

Significant contact is defined as,

- Direct face to face interaction for at least 5 minutes, or
- Being in the same room for at least one hour, or
- Living in the same household as a person who has chickenpox in the infectious phase (i.e. 48 hours prior to the appearance of the rash until all lesions are crusted).

If a child's history reveals recent close contact with a person who has active chickenpox the following must be considered:

- If the child has a clear history of previously having had chickenpox disease or vaccination, they are considered immune and no action is required.
- If the child is aged less than 6 months and was born at full term, maternal history of chickenpox disease or vaccination may be protective. Such patients are usually considered immune and no further action is required. Cases can be discussed with the infectious diseases or microbiology team for clarification.
- Neonates born to mothers with active chickenpox at around the time of delivery are at high risk of severe chickenpox and should be offered VZIG. Isolate these neonates for the first 21 days of life or 28 days if VZIG has been given.

- If there is no history of previous chickenpox disease or vaccination and the contact was a household member or other close contact, the child is at risk of developing the disease.
    - Elective admissions should be rearranged.
    - Emergency admissions must be isolated in a room with 100% exhaust air conditioning during the risk period. This is 8 – 21 days post exposure unless VZIG has been given which extends the period to 28 days. (Refer to Appendix 1 - Chickenpox Contact Flowchart).
    - Varicella zoster vaccination can be offered to patients over 12 months of age, in whom no other contra-indications (such as significant immune compromise) exist for vaccination. The vaccine should be administered ideally within the first 3 days, but up to 5 days following exposure and may prevent or attenuate infection although it is not 100% effective.

High-Risk Contacts

High risk contacts are pregnant women, neonates, premature infants, children who are immunocompromised, particularly those with cellular immune deficiency (eg. HIV, SCID or BMT recipients). These people may be offered VZIG after consultation with the Infectious Diseases Team. VZIG should be given as soon as possible after exposure (ideally within 96 hours) but may be given up to 10 days following exposure to prevent or modify the course of the disease. VZIG is not effective as therapy once disease is established.

These patients should not be offered vaccination as secondary prophylaxis.

Healthcare Workers

All personnel must be aware of their immune status with respect to chickenpox[(5)]. Staff with a definite history of having had chickenpox or chickenpox vaccine are immune and not at risk of spreading or acquiring the disease. Staff with no clear history of chickenpox infection or vaccine should be offered serological testing to determine their immunity by Occupational Health, Rehabilitation and Safety. Staff who have patient contact and who are not immune should not care for patients with chickenpox and are required to be vaccinated (Occupational Assessment, Screening & Vaccination Against Specified Infectious Diseases PD 2007_006)

If exposed to chickenpox and non-immune, staff are potentially infectious from days 8 to 21 after contact and during that period should work only with children known to have had chickenpox. Daily monitoring for symptoms of chickenpox must be carried out and the staff member excluded from work immediately symptoms develop. Infection control must be informed promptly to enable contact tracing of susceptible persons.

Varicella zoster vaccination can be offered to exposed, non-immune staff in whom no other contra-indications (such as significant immune compromise) exist for vaccination. The vaccine should be administered ideally within the first 3 days, but up to 5 days following exposure and may prevent or attenuate infection although it is not 100% effective.

Non-immune pregnant staff are at particular risk from chickenpox. If exposed they should have their immunity checked urgently and if found to be non-immune, be referred to their obstetrician. VZIG may be offered. The varicella vaccination should not be given during pregnancy.

Visitors and siblings

Admitted patients with active chickenpox may have visitors but these visitors should be restricted to those who are immune to varicella. Visitors do not have to wear gowns but must adhere to thorough hand washing practices on entering and leaving the room.

Equipment and Environment

- The room must be thoroughly cleaned with a neutral detergent after the child has vacated the room (discharge or transfer).
- If the child is relocated, all equipment if possible should be moved with the child to the new location. Equipment should not be shared with other children.
- If equipment has to be used for other children it must be adequately cleaned by wiping over with 70% Isopropyl alcohol impregnated wipes.
- No special handling of linen is required.
- Avoid other children being admitted to the room vacated by a patient with active chickenpox for at least 30 minutes and ideally 4 hours after the child has vacated the area and the area has been cleaned.

References

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2. Australian Commission on Safety and Quality in Healthcare "Australian Guidelines for the Prevention and Control of Infection in Healthcare. Australian Government National Health and Medical Research Council 2010Heymann, D (ed). Chickenpox/Herpes Zoster. *Control of Communicable Diseases Manual*. 19th ed. American Public Health Association, Washington DC; 2008:109-116.
3. National Health & Medical Research Council. Varicella Zoster. *The Australian Immunisation Handbook*. 9th ed. Commonwealth of Australia; 2008:309-321.
4. NSW Health Policy Directive "Occupational assesment, screening and vaccination against specified infectious diseases. 2011_005 (2011) http://www0.health.nsw.gov.au/policies/pd/2011/pdf/PD2011_005.pdf

Isolation information

Chicken Pox - Patient / Parent/Carers

- Standard and Airborne precautions apply for cases of chicken pox until all lesions are crusted.
- Children with children pox must be nursed in a single room or cohorted with other children with chicken pox in a 100% exhaust ventilation room in Variety Ward or PICU
- Hands must be washed on entering the child's room.
- On leaving the child's room wash hands with the chlorhexidine hand wash, dry hands thoroughly and then apply 1% chlorhexidine and 70% alcohol hand rub.
- Visitors according to the medical team's discretion.
- Parent / Carers and siblings with no immunity to varicella must not visit the child
- The child with chicken pox cannot use the Starlight Room.
- The child with chicken pox cannot visit any of the dining areas within the hospital.
- The child with chicken pox cannot visit other inpatients.
- The child with chicken pox cannot attend the schoolroom.
- Movement from the room is restricted to outdoor areas and only under exceptional circumstances. This must be negotiated with the Infection Control Team.

Fact sheet for parents/carers

http://kidshealth.schn.health.nsw.gov.au/fact-sheets/chickenpox

For further information please contact Infection Control:

- Page Nos: 6131 / 6550
- Ext 52578 / 52534.

Chicken pox - Staff

- Standard and Airborne precautions apply for cases of chicken pox until all lesions are crusted.
- Children with children pox must be nursed in a single room or cohorted with other children with chicken pox in a 100% exhaust ventilation room in Variety Ward or PICU or a single room in Emergency with the door shut.
- Hands must be washed on entering the child's room.
- On leaving the child's room wash hands with the chlorhexidine hand wash, dry hands thoroughly and then apply 1% chlorhexidine and 70% alcohol hand rub.
- Visitors according to the medical team's discretion.
- Staff, parents/ carers and visitors with no immunity to varicella must not visit or care for the child
- The child with chicken pox cannot use the Starlight Room.
- The child with chicken pox cannot visit any of the dining areas within the hospital.
- The child with chicken pox cannot visit other inpatients.
- The child with chicken pox cannot attend the schoolroom.
- Movement from the room is restricted to outdoor areas and only under exceptional circumstances. This must be negotiated with the Infection Control Team.
- All clinical staff must provide evidence to prove they have protection against varicella.
- Staff who have no immunological protection against varicella should be vaccinated.
- Staff who refuse vaccination must acknowledge this in writing.
- Unprotected staff who are exposed to chicken pox will be monitored by OHR&S and excluded from work if symptomatic. Exclusion from work will continue until all lesions are crusted.

Appendix 1

Chickenpox Contact Flow-Chart