

SUBJECT: MANAGING VARICELLA INFECTIONS (CHICKENPOX AND ZOSTER)

EFFECTIVE DATE: 04/16/15

---

**I. PURPOSE:**

This document sets forth instructions for management of cases of infections caused by varicella-zoster virus including chickenpox (varicella), localized zoster (shingles), and disseminated zoster.

*These standards and responsibilities apply to both Department staff and Comprehensive Health Care Contractor (CHCC) staff.*

**II. CHICKEN POX**

A. General Information

1. Disease

- a. Chicken pox is caused by the varicella-zoster virus.
- b. Chicken pox is a systemic disease that is seen on the first (1<sup>st</sup>) infection by this virus. This form of infection is usually seen in young children. However, a small proportion of the adult population is non-immune (approximately 10 %) and can get primary chicken pox infection.

2. Transmission

- a. Chicken pox is the most readily communicable of infectious
- b. diseases. The disease is spread by airborne and contact methods.

3. Communicability

- a. The incubation period for chicken pox is from ten (10) to twenty-one (21) days after a significant exposure.
- b. Patients are contagious for about two (2) days before the onset of rash and usually five (5) to seven (7) days after the onset of the rash until lesions have crusted. NOTE: Patients with underlying immunocompromising medical conditions (e.g., cancer, chronic steroid use, HIV/AIDS) are more likely to have a more severe case of chicken

---

**SUBJECT: MANAGING VARICELLA INFECTIONS (CHICKENPOX AND ZOSTER)****EFFECTIVE: 04/16/15**

---

pox and a longer time to crusting of lesions; therefore, they may shed virus from skin lesions for a prolonged period.

**B. Establishing Inmate Immunity**

1. Establish an immunity status for each inmate at reception (see HSB 15.01.06, *Reception Process for New Commitments*).
  - a. Ask the inmate if:
    - (1) she/he remembers having chicken pox; or
    - (2) she/he was told by a parent or guardian that they had chicken pox as a child; or
    - (3) they have a known positive Varicella IgG titer).
2. If the health care professional who is assessing the inmate for this history believes that the responses are reliable, the information that the inmate is immune to chicken pox will be recorded on form DC4-710, *Communicable Diseases Record*, and on form DC4-730, *Problem List*. Otherwise, chart that immunity to chicken pox is unknown.

**C. Suspected Chicken Pox Case**

If an inmate with a skin rash is thought to have chicken pox, the following steps are to be followed.

1. Immediately put surgical mask on inmate or place inmate in a negative pressure isolation room until he/she is examined by a physician.
2. Have the inmate seen by a physician as quickly as possible to establish the diagnosis. If the inmate hasn't been placed in AIIR (Airborne Infection Isolation Room), this evaluation is to be done in an area of the clinic away from all other inmates.
3. If chicken pox is confirmed, the inmate is to be placed immediately in strict isolation in AIIR according to *Infection Control Manual*, Chapter XIII, C. Isolation.
4. If inmate has been seen during regular Sick Call hours and has been sitting in the waiting room with other inmates, determine what inmates were in "close contact" with the inmate. They will need to be part of the close contact investigation to determine their immunity and possible need for isolation on the 10<sup>th</sup> day.
5. Only staff that are immune to varicella by history should provide care for or

---

**SUBJECT: MANAGING VARICELLA INFECTIONS (CHICKENPOX AND ZOSTER)****EFFECTIVE: 04/16/15**

---

assist in transport of an inmate with chicken pox. Use questions listed in section B. 1. to establish employee immunity status.

6. In any of the above situations where isolation is necessary and the appropriate isolation room is not available, the inmate will be transferred to the nearest institution with an appropriate isolation room.
    - a. Inmate is to wear a regular surgical mask during transport - - mask should be placed on inmate before removing him/her from AIIR.
    - b. Transporting staff - - if staff has a negative chicken pox history or is unsure of their chicken pox history, staff member is to wear a HEPA mask (N95). Also, both front windows of the transport vehicle should be left open to promote constant air circulation. If transporting staff have had chicken pox, they don't need to wear a mask as they are not at risk for contracting chicken pox.
    - c. Once the transport is completed, the inside of the transport vehicle is to be wiped down using the same cleaning solution that is used to clean Infirmary surfaces. Windows should then be left rolled down for 8 hours and the van shouldn't be used during those 8 hours.
  7. When the chief health officer / medical director or her/his designee is not available, the nurse supervisor / institutional director of nursing, infection control nurse or the nurse in charge (in this order of priority) shall implement appropriate isolation. An appropriate note shall be charted in the inmate's record and the chief health officer / medical director or designee shall be notified as soon as possible.
  8. The physician will write an order for isolation as soon as possible.
  9. When an institution has a strong suspicion or definite case of chicken pox the nurse supervisor / institutional director of nursing, infection control nurse, or charge nurse is to notify the regional infection control coordinator immediately during regular working hours (outside of business hours contact the on-call Regional Medical Director) for assistance in determining close contact isolation dates and need for movement restriction.
- D. Determining Significant Exposure/Close Contact with the Chicken Pox Infection
1. A true exposure to chicken pox requires a significant exposure/close contact with the infected inmate.

---

**SUBJECT: MANAGING VARICELLA INFECTIONS (CHICKENPOX AND ZOSTER)****EFFECTIVE: 04/16/15**

---

Definition of significant exposure/close contact: At least one hour of contact with:

- a. nasopharyngeal secretions or lesions,
  - b. face-to-face interaction, or
  - c. sharing indoor airspace (usually within 3 feet, e.g., occupying the same 2-4 bed ward, or adjacent beds in a large ward) during the infectious period, which is 2 days before rash onset until all the lesions are crusted.
2. Once an inmate has been diagnosed with chicken pox, nursing staff will need to determine which inmates are at risk for developing chicken pox. This is done by:
- a. Determining the location of the inmate during the 48 hours prior to the onset of the rash to the current time. Locations to consider include: dorm, classroom, chow hall, medical department waiting room, work assignment area, etc.
  - b. Determining which inmates were close contacts of the inmate at those locations.
  - c. Interviewing the close contact inmates AND reviewing the DC4-710 “Communicable Diseases Record” located on the left side of the medical record, to determine their chicken pox history and immunity status.
- NOTE:** If what the inmate is telling you now varies from the response documented at the reception center, use the documented response. Inmates without a history of chicken pox or inmate's history is unknown, draw an IgG titer to determine their immunity status and document the result on their DC4-710.
- d. Get a list of inmates who transferred out of the inmate's dorm starting the 2 days (48 hours) prior to the onset of rash until inmate was diagnosed and placed in isolation. E.g., the inmate declares a medical emergency on Saturday morning with a history of rash onset on Wednesday. The nurse supervisor / institutional director of nurses' will need to get a list of inmates who transferred out of the same dorm Monday – Friday, and follow-up with those inmates to determine: 1) close contact with patient, and 2) immunity to varicella (chicken pox).

---

SUBJECT: MANAGING VARICELLA INFECTIONS (CHICKENPOX AND ZOSTER)

---

EFFECTIVE: 04/16/15

---

- e. Once a “close contact” list has been created, determine which inmates on the list are also immuno-suppressed. The 2 non-immune close contact groups (immuno-suppressed and non-immunosuppressed) will need to be segregated (*housed separately*) during the incubation period, (Day 10 at 0001 until Day 21 at 2359).

E. Obtaining Varicella IgG Titers

1. A positive Varicella IgG titer will tell you if the inmate has had chicken pox in the past or has received the Varivax series - - and is therefore immune to chicken pox.
2. Once you’ve developed your significant exposure/close contact non-immune inmate list, draw Varicella IgG titers ASAP (you’d like to get your titer results back before the isolation period begins to decrease the number of inmates needing to be isolated initially) on all of these inmates to determine their true immunity. MANY adults who believe they’ve never had chicken pox or the Varivax vaccine series do in fact, end up having positive titers indicating immunity. Titer results usually take 3-5 days.
3. Those inmates in isolation who have positive IgG titer results during the isolation period may be released back into open population immediately.

F. The Isolation or Movement Restriction Period

1. Only those inmates that have been determined to have had significant exposure/close contact with the infectious inmate AND have negative or unknown histories will need to be isolated during the possible infectious period (Day 10 – Day 21). The isolation period is the time in which the contacts are most likely to breakout in chicken pox and thus be infectious to other inmates.
  - a. The isolation period is calculated from 2 days before the inmate with chicken pox broke out in the rash (*known as the prodromal period*).

Example:

March 3: Chicken pox inmate reports to Sick Call stating he woke up covered in a rash (when he/she went to bed the night before he/she didn’t notice any blisters or rash anywhere); he/she gives history of not feeling well the past day or two – generalized mild muscle aches with headache, anorexic, and feeling warm.

---

**SUBJECT: MANAGING VARICELLA INFECTIONS (CHICKENPOX AND ZOSTER)****EFFECTIVE: 04/16/15**

---

- March 1: His/her infectious period started on March 1; two days before the rash began he/she was possibly infecting other inmates with chicken pox during this time).
- March 10 at 0001: The isolation period starts for his/her non-immune close contacts 10 days from March 1 (start of prodromal infectious period), or on March 10<sup>th</sup> at 0001.
- March 21 at 2359: The isolation period ends 21 days from the first infectious day (March 1), so the isolated inmates will be released from the Movement Restriction on March 21 at 2359.
2. Non-immune inmates will be placed in an area or dorm (preferable with a closed air space) separate from other inmates starting on the tenth (10th) day of exposure at 0001. They will not be allowed to have contact with other inmates or visitors during this period. All staff that comes in contact with the inmates should have a positive history of chicken pox. These inmates may be isolated in one dorm wing or in a 2-man confinement cell.
  3. Immuno-suppressed inmates in the non-immune, close contact group must be isolated separately from the non-immunosuppressed non-immune inmates. They may be isolated in a dorm wing or in a 2-man confinement cell.
    - a. The most common cause of immuno-suppression will be HIV infection. Other causes include: 1) leukemia or other cancers with systemic effects; 2) cancer treatments, chemotherapy, radiation therapy; 3) immuno-suppressive drugs, such as heavy prolonged course of corticosteroids, azathioprine, cyclosporine, etc.; and 4) any severe, debilitating illness.
  4. If the number of exposed inmates requiring isolation is large and an adequate isolation room is not available, consideration can be given to cohorting the inmates in an area that has controlled ventilation. Refer to departmental procedure 401.001, *Movement Restrictions During Communicable Disease Outbreak*, for additional information.
  5. The Director of Medical Services or his/her designee will place a movement restriction on the identified close contact inmates based on the calculated isolation period (Day 10 – Day 21).

---

SUBJECT: MANAGING VARICELLA INFECTIONS (CHICKENPOX AND ZOSTER)

---

EFFECTIVE: 04/16/15

---

6. Nursing/Medical staff will go to the dorm and evaluate these inmates' everyday for new cases of chicken pox from the tenth (10<sup>th</sup>) day to the twenty-first (21<sup>st</sup>) day. A note will be made in each inmate's medical record on a DC4- 701, Chronological Record of Health Care.

G. Documentation

1. All inmates with suspected or diagnosed chicken pox are to be evaluated using form DC4-683EE, *Herpes Protocol*.
2. Once an inmate has been identified as either a chicken pox suspect or chicken pox case, nursing staff should initiate the DC4-672A, *ChickenPox Checklist* form, and complete it step by step.
3. Compile the initial list of close contact inmates on the DC4-544C, *Infectious Diseases Outbreak Worksheet* completing all columns per instructions, and submit as soon as possible to the regional infection control coordinator.
4. Update the list daily (working off the previous day's saved file), include and indicate what symptoms the inmates are currently experiencing and their current disposition (infirmary? disposition would be a number 2, released back to open population? Disposition would be a number 5, etc.).
5. The DC4-544C form is to be submitted daily by 1000 a.m. to the regional infection control coordinator; if the region's ICC is out of the office, submit it to the nurse covering their absence.
6. The regional infection control coordinator or the nurse covering their absence will review the DC4-544C for completeness, and forward a copy to the central office clinical contract monitor – public health or designee daily by 1200 noon.
7. The DC4-539A, *Summary of Infection Control Investigations – Table V Form*, is to be completed and submitted to the regional infection control coordinator within seven (7) days of the close of the investigation. The regional infection control coordinator or nurse covering their absence will review the DC4-539A for completeness, and forward a copy to the central office clinical contract monitor – public health or designee by the seventh (7<sup>th</sup>) day of the close of the investigation

H. Employee Issues

1. No pregnant employee shall be in contact with an inmate diagnosed

---

**SUBJECT: MANAGING VARICELLA INFECTIONS (CHICKENPOX AND ZOSTER)****EFFECTIVE: 04/16/15**

---

with chicken pox during the contagious period.

2. A pregnant employee will be advised to discuss issues of exposure with her personal physician.
3. Employees with a rash thought to possibly be chicken pox will be excused from duty and asked to leave the institution/facility immediately. A recommendation may be made for the ill employee to seek medical care from her/his private physician. Employees with chicken pox will not return to work until the rash has crusted over (usually four [4] days).
4. An employee diagnosed with chicken pox and who has worked during the contagious period of the infection (two days prior to the eruption of the rash) will notify the infection control nurse or nursing supervisor /institutional director of nursing who will do the appropriate follow-up of exposures.

### **III. SHINGLES**

#### **A. General Information**

1. Disease
  - a. Shingles (zoster) is caused by the varicella-zoster virus.
  - b. Zoster or shingles is a recurrent or reactivation infection that occurs years after the initial chickenpox infection. It is a local infection and usually shows on just one (1) side of the body. Although shingles can occur anywhere on the body, it most often appears as a band of blisters that wraps from the middle of the back around one side of the chest to the breastbone. The rash usually clears in 2 to 4 weeks.
  - c. Disseminated zoster - - reactivation disease that becomes systemic, i.e., the rash spreads over the entire body and appears similar to the rash of chickenpox infection- - can occur in immuno-suppressed people. Disseminated herpes zoster is defined as more than twenty skin lesions outside the affected dermatome; but other organs, such as the liver (causing hepatitis) or brain (causing encephalitis) may also be affected, and the condition may be life-threatening.
2. Transmission
  - a. Zoster (shingles) is not spread from person to person by the airborne

---

**SUBJECT: MANAGING VARICELLA INFECTIONS (CHICKENPOX AND ZOSTER)****EFFECTIVE: 04/16/15**

---

route since it is a reactivation disease. However, persons not immune to this virus can get chicken pox if they come in direct contact with a case of shingles since the virus may be in the lesions (rash) of shingles.

- b. Shingles cannot be passed from one individual to another. If a person with a positive history of chicken pox comes in contact with a person with shingles lesions → nothing happens; the person has varicella antibodies. A person can only get shingles “from himself” i.e., the dormant varicella viruses that have remained in certain nerve roots near the spinal cord and brain after an active case of chickenpox suddenly become active and present as shingles.
- c. If a person with a negative history of chicken pox comes in direct contact with shingles fluid from the lesions (either through a break in the skin or through mucous membranes) → the person may develop chicken pox (not shingles) in 10-21 days.

3. Communicability

- a. Shingles is less contagious than chickenpox and the risk of a person with shingles spreading the virus is low if the rash is kept covered.
- b. A person can no longer spread the herpes zoster virus once the rash lesions crust over.

4. Risk factors for shingles

- a. Anyone who has had chickenpox is at risk for developing shingles. Nearly all adults — 9 out of 10 — in the United States are at risk for shingles.
- b. Additional risk factors for shingles include 1) increasing age and 2) having a weakened immune system caused by AIDS, cancer, and certain drugs (e.g., steroids, anti-rejection transplant drugs).
- c. Almost half the cases of shingles will occur in people 60 years of age or older (believed to be due to their declining immune system). As the population ages, the number of cases of shingles is likely to increase.

B. Suspected Shingles Case

---

**SUBJECT: MANAGING VARICELLA INFECTIONS (CHICKENPOX AND ZOSTER)****EFFECTIVE: 04/16/15**

---

1. Shingles occurs in 2 stages: the prodromal stage and the eruptive stage.
2. The prodromal stage occurs about 2 to 5 days before the rash appears. Symptoms during the prodromal stage may include:
  - a. Fever, headache, nausea, and chills
  - b. Numbness on one side of the body or face
  - c. Tingling, burning, or shooting pain (can be intense and sometimes unrelenting) on one side of the body or face
  - d. Itching on one side of the body or face

**NOTE:** The patient isn't infectious before blisters appear.

3. The eruptive stage
  - a. During the eruptive stage, redness and swelling will appear at the site of the pain, along with clusters of blisters filled with clear fluid.
  - b. New blisters will continue to appear for up to 5 days. These blisters can be scattered in patches or form a continuous band on the skin (dermatome), and they look a lot like chicken pox. The blisters can be mildly irritating, itchy, or intensely painful.
  - c. Within 14 days, the blisters become filled with pus and then form a scab. At this point, they no longer contain the virus.
  - d. The rash usually goes away in about 3 to 5 weeks. The blisters leave no scars, but there may be discoloration of the skin where they once were.
4. If you believe the inmate has shingles, immediately cover area with a dry dressing. Have the inmate wash his hands and instruct him not to touch the lesions or the dressing. Inmate is to be evaluated using protocol DC4-683EE, *Herpes Protocol*.
5. Follow the orders on DC4-683EE and notify clinician immediately if shingles is suspected ( so antiviral medication can be started as soon as possible).

**D. Determining Significant Exposure/Close Contact with the Shingles Infection**

1. Ask the patient if any inmate has had had direct physical contact with him/her, especially direct contact with the rash/non-crusted lesions, the

---

**SUBJECT: MANAGING VARICELLA INFECTIONS (CHICKENPOX AND ZOSTER)****EFFECTIVE: 04/16/15**

---

contaminated dressing, or with the patient's contaminated clothing, towels, bed linens, etc.

2. If the answer is yes, interview those inmates and review their medical charts for history of chickenpox to determine immunity.
3. Draw Varicella IgG titers on those inmates with a negative history of chicken pox.
4. Notify the regional infection control coordinator as soon as possible of the inmate/s who will require isolation pending titer results.
5. Isolate the non-immune close contact inmates from Day 10 post contact to Day 21 post contact (see chicken pox section for a more thorough explanation of isolation procedure) pending titer results for observation of chicken pox infection.

**E. When is Isolation Needed for an Inmate with Shingles?**

1. Isolation measures depend on whether the inmate with shingles is immuno-competent or immuno-compromised, AND whether the rash is localized or disseminated. In all cases, Standard infection control precautions should be followed.

Standard infection control precautions: all human blood, certain body fluids, as well as fresh tissues and cells of human origin are handled as if they are known to be infected with HIV, HBV, and/or other blood-borne pathogens.

2. If inmate is immuno-competent
  - a. Localized rash – just needs Standard Precautions; keep shingles area covered with dry gauze dressing (change as needed) and inmate may be returned to open population dorm.
  - b. Disseminated rash – needs Standard Precautions plus Airborne and Contact Precautions should be followed. Place inmate into AIIR until lesions are crusted over (just like with chicken pox).
3. If inmate is immuno-compromised (HIV+, chronic steroid use, chemotherapy, etc.)
  - a. Localized rash

---

**SUBJECT: MANAGING VARICELLA INFECTIONS (CHICKENPOX AND ZOSTER)****EFFECTIVE: 04/16/15**

---

Standard Precautions plus Airborne and Contact Precautions should be followed; until disseminated infection is ruled out (dissemination usually occurs within a few days of onset). Place inmate in AIIR and release back into open population when dissemination has been ruled out - - only Standard Precautions are required at that time.

- b. Disseminated rash – Standard Precautions plus Airborne and Contact Precautions should be followed. Place inmate in AIIR until lesions are crusted over.

**F. Documentation**

1. All inmates with suspected shingles are to be evaluated using form DC4-683EE, *Herpes Protocol*.
2. Once an inmate has been identified as either a shingles suspect or shingles case, nursing staff should initiate the DC4-672B, *Shingles Checklist* form, and complete it step by step.
3. A case of shingles is not an “outbreak” and therefore doesn’t need to be reported to Central Office. If the institution’s nursing staff need assistance with a patient with shingles, the regional infection control coordinator should be contacted during regular business hours. After hours the on-call Regional Medical Director should be contacted for assistance and direction.
4. Forms DC4-544C, *Infectious Diseases Outbreak Worksheet* and DC4-539A, *Summary of Infection Control Investigations – Table V* do not need to be completed and submitted on a patient with shingles.
5. Forms DC4-544C and DC4-539A do need to be submitted on close-contact inmates who required isolation and who were part of a Movement Restriction.

**G. Employee Issues**

1. Employees with shingles may be allowed to continue working as long as the affected area is covered by a dressing and a layer of clothing.
2. Employees should not touch their dressing during work and should practice good hand hygiene.

**IV. REFERENCES**

SUBJECT: MANAGING VARICELLA INFECTIONS (CHICKENPOX AND ZOSTER)

EFFECTIVE: 04/16/15

---

<http://www.cdc.gov/chickenpox/hcp/index.html>

<http://www.cdc.gov/shingles/hcp/index.html>

---

Assistant Secretary of Health Services

---

Date

---

This Health Services Bulletin Supersedes:

TI 15.03.34 dated 10/6/95 and 6/2/97

HSB 15.03.34 dated 8/25/00, 8/25/03, 3/16/06 and 04/27/12.

---