



Georgia Department of Public Health Epidemiology Branch

GUIDELINES FOR VARICELLA OUTBREAK PREVENTION AND CONTROL

I. DISEASE DESCRIPTION	2
II. SUSCEPTIBLE PERSONS	3
III. LABORATORY TESTING.....	4
IV. CDC CASE DEFINITION	4
V. OUTBREAK PREVENTION AND CONTROL STRATEGIES	6
VI. SPECIAL SETTINGS	10
REFERENCES	12
APPENDICES	
ACTION TABLE FOR VARICELLA OUTBREAK INVESTIGATION AND CONTROL	A
REPORTING AND OUTBREAK RECOMMENDATIONS FOR DAYCARE AND SCHOOL.....	B
VARICELLA OUTBREAK REPORTING FORM	C
VARICELLA FACT SHEET	D
SAMPLE LETTER: TO PARENTS.....	E
VARICELLA SPECIMEN COLLECTION AND SHIPPING INSTRUCTIONS.....	F
GPHL: MOLECULAR BIOLOGY UNIT—CLINICAL SPECIMEN SUBMISSION FORM	G

I. Disease Description

Varicella (chickenpox) is a vaccine preventable disease characterized by an itchy rash and caused by the varicella zoster virus (VZV). VZV also causes shingles (herpes zoster), a painful, localized rash due to a reactivation of VZV in persons previously infected. Susceptible persons may develop varicella after exposure to the wild-type virus or through reactivation of a previous VZV infection.

Modes of Transmission

Varicella is spread by close contact (respiratory or direct contact) with secretions from the nose, throat, or rash of an infected person. Spread may also occur by contact with articles that have been soiled by fluid from the lesions

Incubation Period

The incubation period is 14-16 days after exposure, with a range of 10-21 days. The incubation period may be longer in immunocompromised persons.

Period of Communicability

A typical infectious period lasts about 5 days, beginning 1-2 days before and rash onset and lasting until all lesions are crusted over.

Clinical Presentation

Chickenpox

In children, a rash is often the first sign of disease, while fever and malaise, lasting 1-2 days, may precede the onset of rash in adults. The rash is generalized and progresses rapidly from macules, to papules to vesicular lesions before crusting. The rash usually appears first on the head, then trunk, and then extremities, with the highest number of lesions appearing on the trunk. Successive crops of lesions appear over several days, with varying stages of development. Healthy children usually have 50-500 lesions in 2 to 4 successive crops.

The severity of disease can be classified in the following way:

Table 1. Varicella Severity Classifications			
I.	II.	III.	IV.
< 50 lesions	50-249	250-500	> 500
(could be counted in 30 seconds)	(a hand can be placed between lesions without touching a lesion)	(a hand cannot be placed between lesions without touching a lesion)	(cannot see normal skin between lesions)

Shingles

Following primary infection, VZV remains in the human nerve tissues and is reactivated in approximately 15% of infected persons, resulting in shingles. Shingles presents as a red, painful, itchy, and blistering rash, typically on one side of the body, in the distribution of a sensory nerve. Usually, there are no systemic symptoms. Pain in the area of the rash may persist after the lesions have resolved.

Breakthrough Disease

A case of wild-type varicella occurring >42 days after vaccination is called breakthrough disease. Breakthrough cases are generally milder, with a shorter duration of illness, fewer symptoms and fewer than 50 skin lesions. The rash is typically maculopapular, with fewer vesicles. People with breakthrough disease are still considered infectious.

Complications

Acute varicella is usually mild and self-limited, but can be associated with complications. Secondary bacterial infection of skin lesions and pneumonia are the most common causes of hospitalization. Complications from varicella increase after puberty. Adults without history of disease, who are unvaccinated or immunosuppressed are more likely to have complications. Women infected with varicella during the first or second trimester of pregnancy may give birth to infants with congenital varicella syndrome. Women infected within 5 days of delivery may put their infant at risk for neonatal varicella, which may be severe.

II. Susceptible Persons

A person is susceptible to varicella infection if: they have no history of vaccination, they have no history of the disease, they are immunocompromised, or they are currently pregnant.

a. Vaccination

A vaccine for varicella is available. It is recommended that all children be routinely vaccinated between 12 and 18 months of age and receive a second dose between 4 and 6 years of age. Healthy people over the age of 13 who have no history of the disease and have never been vaccinated against the disease should get two doses of the vaccine four to eight weeks apart. For additional information on varicella vaccination visit <http://www.cdc.gov/vaccines/vpd-vac/varicella/default.htm>. Information on Georgia's immunization requirements for school and daycare can be found at: <http://health.state.ga.us/pdfs/prevention/immunization/Summ3231%20REQ.pdf>.

b. Proof of Immunity

Table 2. The Advisory Committee on Immunization Practices (ACIP) Criteria for Evidence of Immunity to Varicella includes any of the following:

1. Documentation of two doses of varicella vaccine
 - a. Preschool-aged children \geq 12 months of age: one dose
 - b. School-aged children, adolescents, and adults: two doses
2. Laboratory evidence of immunity or laboratory confirmation of prior disease
3. Born in the US before 1980, excluding health-care workers, pregnant women, and immunocompromised individuals. These individuals need to meet one of the other criteria for evidence of immunity
4. Receipt from a healthcare provider of a diagnosis of chickenpox or history of chickenpox
5. Receipt from a healthcare provider of a diagnosis of herpes zoster or verification of a history of herpes zoster (shingles)

For people reporting a history of or presenting with an atypical and/or mild case, assessment by a physician or their designee is recommended and one of the following should be sought:

- a. An epidemiologic link to a typical varicella case or
- b. Evidence of laboratory confirmation

When such documentation is lacking, people should not be considered as having a valid history of disease because other diseases may mimic mild atypical varicella

III. Laboratory Testing

Routine laboratory testing to diagnose varicella is not generally recommended. Laboratory confirmation is recommended for fatal cases and in the case of an outbreak. During an outbreak VZV PCR laboratory testing is recommended for 2 to 3 cases, but not all cases. See “Directions for the Collection of Specimens for Varicella Testing”.

IV. CDC Case Definition

Clinical Case Definition

An illness with acute onset of generalized papulovesicular rash without other apparent cause.

Note: In vaccinated persons who develop “breakthrough” varicella more than 42 days after vaccination, the disease is almost always mild with fewer than 50 skin lesions and shorter duration of illness. The rash may also be atypical in appearance (maculopapular with few or no vesicles).

Case Classification:

Probable: A case that meets the clinical case definition, is not laboratory confirmed, and is not epidemiologically linked to another probable or confirmed case.

Confirmed: A case that is laboratory confirmed or that meets the clinical case definition and is epidemiologically linked to a confirmed or probable case.

Note: Two probable cases that are epidemiologically linked are considered confirmed, even in the absence of laboratory confirmation

Varicella Death

Case Classification

Probable: A probable case of varicella (as described above) that contributes directly or indirectly to acute medical complications that result in death

Confirmed: A confirmed case of varicella (as described above) that contributes directly or indirectly to acute medical complications that result in death

V. Outbreak Prevention and Control Strategies

1. A Single Varicella Case can be the Source of an Outbreak

A single case of varicella should prompt intervention measures. When a single case is identified, the first step is to exclude or isolate the case from the setting. Next, identify close contacts of the case. Ensure none of the contacts are susceptible persons. If a contact is not vaccinated, recommend vaccination, if not contraindicated. For immunocompromised persons or pregnant women, recommend that they contact their primary care provider to receive VZIG. Follow-up with contacts to make sure chemoprophylaxis was received.

2. Outbreak Definition

In a childcare or school setting, where children are < 13 years of age, an outbreak is defined as ≥ 5 cases occurring within a 3 week period (21 days).

In a school setting, where children are ≥ 13 years of age, an outbreak is defined as ≥ 3 cases occurring within a 3 week period (21 days).

In residential settings and healthcare settings an outbreak is defined as ≥ 3 cases occurring within a 3 week period (21 days).

3. Outbreak Control and Investigation

Note: Implementing outbreak control measures requires various activities. The following activities may be done concurrently throughout the investigation.

a. Confirm the Outbreak

The first step during an outbreak is to confirm that it is an outbreak. Laboratory specimens should be taken from 2 to 3 cases (irrespective of the patients' vaccination status) at the beginning of the outbreak (See "Directions for the Collection of Specimens for Varicella Testing"). Collaborate with Public Health to establish epidemiologic links among cases and period of communicability.

b. Identify and Exclude Cases

Once the outbreak has been confirmed, the population should be surveyed to identify all cases. Log all cases on the Varicella Outbreak Report form. All cases, including breakthrough disease, should be excluded from the school setting (See Management of Persons with Shingles for guidelines on exclusion). A case should be excluded until there are no new lesions appearing within 24 hours (typically 4 to 7 days).

i. Logging Information

In order to establish epidemiologic links and keep track of cases, begin logging information on the Varicella Outbreak Reporting form. For all cases, document the date you were notified of the case, first and last name,

date of birth, rash onset date, vaccination status, vaccination dates and severity of disease. Logging information will assist in establishing epidemiologic links, tracking new cases, assessing whether or not control measures are working, and determining when the outbreak is coming to an end.

c. Notification

i. Notification of Public Health

The facility where the outbreak is taking place should notify the district health department of a varicella outbreak. In turn, the district health department should notify the state health department.

ii. Notification of parents, students and staff

Students, faculty, staff, residents and parents should be notified of an outbreak once it has been confirmed. A letter along with a disease fact sheet should be distributed. The fact sheet should include the signs and symptoms of varicella, possible complications, and basic facts about the vaccine. A varicella fact sheet can be found in Appendix X.

A sample letter is provided in Appendix Y.

iii. Notification of Local Providers

District health departments should collaborate with the state health department to issue a healthcare provider alert. The alert should inform providers of the outbreak, and ask them to collect clinical specimens from and report any suspect varicella cases to public health. A sample letter to physicians is provided in Appendix Z.

d. Management of Susceptible Persons

i. Identification

The identification of persons without evidence of immunity (see Table 2) who are immunocompromised is important for preventing the spread of disease and for protecting those susceptible persons from serious complications.

Note: Georgia requires every child entering kindergarten or 6th grade to have received 2 doses of varicella containing vaccine, unless the child has a medical exemption. Also, every child in a school or childcare setting should have an immunization record on file. Susceptible persons can be identified by checking immunization records on file or checking the Georgia Immunization Registry (GRITS) (<https://www.grits.state.ga.us>) Faculty and staff should be surveyed to determine history of disease or vaccination status.

Note: Birth in the United States before 1980 is considered evidence of immunity in most cases; however, it is not considered as evidence of immunity for healthcare personnel, pregnant women, and immunocompromised persons.

ii. *Vaccination of persons without evidence of immunity*

Persons without evidence of immunity and without a contraindication to varicella vaccination should be vaccinated within 72 hours and possibly up to 120 hours (5 days) after exposure. Persons who are vaccinated with a first or second dose of varicella may immediately return to the facility. For outbreaks in childcare settings, a second dose should be administered to preschool aged children (1-4 yrs. of age), given that the appropriate time interval has passed since their last varicella containing vaccination.

Varicella vaccine is effective in preventing infection or modifying the severity of illness if given within 3 days after exposure and possibly up to 5 days. If not exposed, immunization will protect against subsequent exposures.

iii. *Management of persons who refuse vaccination*

Children, faculty, staff and residents who have been exposed, lack evidence of immunity and refuse to get vaccinated should be excluded from the setting from the start of the outbreak until 21 days after rash onset of the last identified case.

Note: Because Georgia law requires all children to have 2 doses of varicella containing vaccine before entering kindergarten and middle school, children who have had only one dose of varicella vaccine and whose parents refuse a second dose, should be excluded from the childcare or school setting (this decision should be made jointly with Public Health).

iv. *Management of persons with contraindications to the vaccine*

Persons with contraindications to vaccination (e.g., immunocompromised persons, pregnant women) who have been exposed should be excluded from the setting until 21 days after rash onset of the last identified case. If these persons are exposed to a varicella case or herpes zoster, they should contact their primary care physician to receive VZIG. VZIG should be administered as soon as possible and within 96 hours of exposure.

v. *Management of persons with breakthrough disease*

Varicella in vaccinated persons (breakthrough disease) is a varicella-like rash that occurs more than 42 days after vaccination. Susceptible persons can develop chickenpox after being exposed to breakthrough disease. Persons with breakthrough disease should be excluded from the school or

daycare setting until there are no new lesions appearing within a 24-hour period.

vi. *Management of persons with herpes zoster (shingles)*

Immunocompetent persons with herpes zoster (shingles) can remain in the setting as long as the lesions are completely covered. If the lesions cannot be completely covered and close contact cannot be avoided, the person should be excluded from the setting until lesions have crusted over. If a person has disseminated herpes zoster, he or she should immediately be excluded from the setting until lesions have crusted over.

e. *Establish Surveillance for Additional Cases*

Active surveillance should continue during the outbreak. Establish regular reporting protocols. At the beginning of the outbreak decide how often new cases are going to be reported to the district. Also, establish a contact person who will field questions about the outbreak and act as the liaison between the district and setting.

Cases should be considered part of an outbreak if they occur within at least one incubation period (21 days) from the previous case-patient. Surveillance should continue through two full incubation periods (42 days) after the rash onset of the last identified case-patient to ensure the outbreak has ended.

f. *Develop a Plan for Preventing Future Varicella Outbreaks*

At the conclusion of the outbreak, determine why it occurred, and evaluate reporting protocols and investigation procedures. To prevent future outbreaks vaccinate persons without evidence of immunity, maintain up-to-date vaccination records, establish and maintain varicella surveillance and reporting, and update the response action plan for future varicella outbreaks.

g. *Educate*

Below are suggestions for activities that can be done after the outbreak has concluded. The goal of these educational activities is to educate staff, faculty, parent and students in order to prevent future outbreaks.

1. Debrief faculty, parents, physicians and additional stakeholders after the outbreak
2. Distribute vaccination materials (i.e. immunization schedules, disease fact sheets)
3. Conduct a question and answer session for parents, physicians, faculty, staff and other interested persons
4. Hold a one-day seminar on vaccine-preventable diseases
5. Implement a supplemental science lesson plan to teach students about vaccine-preventable diseases and the immune system
6. Remind people of common practices to prevent the spread of diseases

- a. Keeping hands clean by frequent washing
- b. Covering coughs and sneezes
- c. Avoiding close contact when sick
- d. Keeping sick children at home

IV. Special Settings

1. Residential Settings

Residential settings are places where people are housed together for a period of time. Residential settings include, but are not limited to prisons/jails, juvenile hall, long-term care facilities, homeless shelters, orphanages, college dormitories, boarding schools and over-night camps.

These settings are environments in which transmission of varicella can occur easily. Outbreaks in residential settings can be reduced or prevented if new residents and staff, who do not have evidence of immunity, are vaccinated before moving in or beginning employment at the setting. Some special considerations need to be taken when handling a varicella outbreak in a residential setting.

a. *Outbreak Definition*

In residential settings and healthcare settings an outbreak is defined as ≥ 3 cases occurring within a 3 week period (21 days).

b. *Identification and Isolation of Cases*

In residential settings, the exclusion of residents is often not an option, therefore, all cases, including breakthrough disease, should be isolated from other residents. (See “Management of Persons with Shingles” for guidelines on exclusion of shingles cases). A case should be isolated until there are no new lesions appearing within 24 hours (typically 4 to 7 days for patients with wild-type varicella). If possible, case-patients should be isolated in negative air-flow rooms. If negative air-flow rooms are not available, cases should be isolated in closed rooms away from susceptible patients. Isolated cases should be cared for by staff with evidence of varicella immunity.

c. *Management of Susceptible Persons*

Residents and staff, who lack evidence of immunity and without a contraindication, should be vaccinated. Persons who are vaccinated with a first or second dose of varicella may return to the residential setting. Susceptible residents who are immunocompromised, pregnant or have contraindications to vaccination should be isolated to ensure they are not exposed.

Staff who lack evidence of immunity and who refuse to get vaccinated should be excluded from the residential setting from the start of the outbreak through 21 days after rash onset of the last identified case.

Staff who are immunocompromised, pregnant or have contraindications to vaccination should be excluded from the residential setting from the start of the outbreak 21 days after rash onset of the last identified case.

Note: To prevent outbreaks of vaccine-preventable diseases residential settings should require residents and/or staff to have evidence of immunity or receive vaccinations before moving in residence or starting employment. Additionally, immunization records should be kept on file for all residents and staff.

REFERENCES

1. The American Academy of Pediatrics. Varicella. In: Pickering LK, Baker CJ, Kimberlin DW, Long SS, eds. *Red Book: 2009 Report of the Committee on Infectious Diseases*. 28th ed. Elk Grove Village, IL: American Academy of Pediatrics; 2009: [717-727]
2. Centers for Disease Control and Prevention. Manual for the surveillance of vaccine preventable disease. Centers for Disease Control and Prevention: Atlanta, GA 2008.
3. Centers for Disease Control and Prevention: Epidemiology and Prevention of Vaccine-Preventable Diseases. Atkinson W, Hamborsky J, McIntyre L, Wolfe S, eds. 10th ed. Washington DC: Public Health.
4. Centers for Disease Control and Prevention: Strategies for the Control and Investigation of Varicella Outbreaks. Lopez A, Marin M. Atlanta, GA: 2008.

ACTION TABLE FOR VARICELLA OUTBREAK INVESTIGATION AND CONTROL

Setting	Primary Action Threshold	Primary Actions	Secondary Action Threshold	Secondary Actions
<ul style="list-style-type: none"> • Childcare Facility* • Pre-School* • Kindergarten* • Elementary School* • Middle School* 	≥ 1 suspected case	<ol style="list-style-type: none"> 1. Confirm case(s) as probable varicella 2. Identify and exclude acute case(s) (primary and breakthrough) 3. Identify vaccination status of contacts 4. Identify susceptible students and staff who are at high risk for developing severe disease or at high risk for complications 5. Surveillance for more cases 	≥ 5 cases within a 3 week period	<ol style="list-style-type: none"> 1. Log information on the varicella outbreak form 2. Obtain specimens for lab confirmation 3. Identify and exclude all varicella cases (primary and breakthrough) 4. Notify parents and school staff 5. Identify and prophylax susceptible students and staff who are at high risk for developing severe disease or complications. 6. Recommend vaccination for susceptible contacts 7. Collaborate with Public Health to exclude susceptible students and staff 8. Report the outbreak to the Health Department
<ul style="list-style-type: none"> • High School* 	≥ 1 suspected case	<ol style="list-style-type: none"> 1. Confirm case(s) as probable varicella 2. Identify and exclude acute case(s) (primary and breakthrough) 3. Identify vaccination status of contacts 4. Identify susceptible students and staff who are at high risk for developing severe disease or at high risk for complications 5. Surveillance for more cases 	≥ 3 cases within a 3 week period	<ol style="list-style-type: none"> 1. Log information on the varicella outbreak form 2. Obtain specimens for lab confirmation 3. Notify all residents and staff 4. Identify and isolate all varicella cases (primary and breakthrough) 5. Screen residents and staff for susceptibility 6. Collaborate with Public Health to exclude susceptible staff 7. Vaccinate susceptible staff and residents 8. Report the outbreak to the Health Department
<ul style="list-style-type: none"> • Residential Institutions for adolescents and adults: <li style="padding-left: 20px;">✓ Prison/Jail <li style="padding-left: 20px;">✓ Juvenile Hall <li style="padding-left: 20px;">✓ Long-term Care Facility <li style="padding-left: 20px;">✓ Homeless Shelters <li style="padding-left: 20px;">✓ College dormitories <li style="padding-left: 20px;">✓ Orphanage 	≥ 1 suspected case	<ol style="list-style-type: none"> 1. Confirm case(s) as probable varicella 2. Identify and isolate acute case(s) (primary and breakthrough) 3. Identify vaccination status of contacts; recommend vaccination for all susceptible persons 4. Identify and prophylax susceptible contacts at high risk for developing severe disease or at high risk for complications 5. Surveillance for more cases 	≥ 3 cases within a 3 week period	<ol style="list-style-type: none"> 1. Log information on the varicella outbreak form 2. Obtain specimens for lab confirmation 3. Notify all residents and staff 4. Identify and isolate all varicella cases (primary and breakthrough) 5. Screen residents and staff for susceptibility 6. Collaborate with Public Health to exclude susceptible staff 7. Vaccinate susceptible staff and residents 8. Report the outbreak to the Health Department

* See: Varicella (Chickenpox): Reporting and Outbreak Recommendations for Daycare and School



Varicella (Chickenpox): Case Reporting and Outbreak Control Recommendations for Childcare and School

Case Reporting

Individual cases of varicella should be reported to public health. Please contact your local health department to report a single case of varicella.

Outbreak Control Recommendations

An outbreak of chickenpox in a daycare or school setting is defined as:

≥ 5 cases within a 3 week period of time (21 days) in persons <13 years of age

≥ 3 cases within a 3 week period of time (21 days) in persons ≥ 13 years of age

When an outbreak is recognized:

1. Contact your District Health Department immediately
<http://health.state.ga.us/epi/disease/districts.asp>
2. Begin logging information on the varicella outbreak report form
 - Collect name, date of birth, date of rash onset, vaccination status, disease severity and classroom for every case
3. Collaborate with Public Health to exclude all varicella cases (primary or breakthrough) until there are no new lesions appearing within 24 hours (usually 4–7 days after rash onset)
4. Identify susceptible students and staff who are at high risk for developing severe disease or complications.
 - ✓ Unvaccinated persons
 - ✓ Persons with unknown vaccination status
 - ✓ Immunocompromised persons
 - ✓ Susceptible pregnant females
5. Inform them about their risks
6. Recommend vaccination (unless contraindicated)
7. Recommend that they contact their healthcare provider. The provider can determine whether the following are necessary:
 - ✓ Immune status testing
 - ✓ Postexposure prophylaxis for those who are at high risk for severe disease and complications
5. Collaborate with Public Health to exclude susceptible students and staff
6. Notify parents and school staff
 - Send a letter home to parents notifying them of the outbreak
 - Provide information about chickenpox including:
 - ✓ Availability of the vaccine
 - ✓ Potential for varicella to cause severe complications, especially in those who are high risk
 - Recommend a second dose of varicella vaccine for students and staff with no disease history or with a history of only one dose of varicella vaccine (provided the appropriate interval has passed since the first dose)
7. Report all students affected with primary or breakthrough varicella on the outbreak report form.
8. Obtain specimens for lab confirmation (Note: A specimen from 2 or 3 students is all that is necessary to confirm the outbreak).
9. Collaborate with Public Health to determine when excluded students and staff may return to school.
10. The outbreak has ended when no new cases occur within 21 days of the date the last case is considered to be infectious.



Georgia Department of Public Health: Epidemiology Unit Varicella (Chickenpox) Outbreak Reporting Form

During an outbreak, report all cases of varicella (chickenpox), including those reported by a parent or guardian via telephone. Please ask parent or patient about grade of lesions. **Please fax this form to Ebony S. Thomas at 404-657-2608**

Name of Daycare/School/Provider:

Street Address:

Month and Year of Report

City

Name of Person Completing Report

Telephone # ()

County

	Date Notified	Name (Last, First)	DOB	Rash Onset Date	Vaccinated	Vaccination Dates	Severity*
1			/ /	/ /	<input type="checkbox"/> Yes <input type="checkbox"/> No	Date 1: Date 2:	<input type="checkbox"/> I <input type="checkbox"/> II <input type="checkbox"/> III <input type="checkbox"/> IV
2			/ /	/ /	<input type="checkbox"/> Yes <input type="checkbox"/> No	Date 1: Date 2:	<input type="checkbox"/> I <input type="checkbox"/> II <input type="checkbox"/> III <input type="checkbox"/> IV
3			/ /	/ /	<input type="checkbox"/> Yes <input type="checkbox"/> No	Date 1: Date 2:	<input type="checkbox"/> I <input type="checkbox"/> II <input type="checkbox"/> III <input type="checkbox"/> IV
4			/ /	/ /	<input type="checkbox"/> Yes <input type="checkbox"/> No	Date 1: Date 2:	<input type="checkbox"/> I <input type="checkbox"/> II <input type="checkbox"/> III <input type="checkbox"/> IV
5			/ /	/ /	<input type="checkbox"/> Yes <input type="checkbox"/> No	Date 1: Date 2:	<input type="checkbox"/> I <input type="checkbox"/> II <input type="checkbox"/> III <input type="checkbox"/> IV

*Severity of Disease

I : < 50 lesions (can be counted in 30 seconds)

II: 50-249 lesions (a hand can be placed between lesions without touching a lesion)

III: 250-500 lesions (a hand cannot be placed between lesions without touching a lesion)

IV: >500 lesions (cannot see normal skin between lesions)



VARICELLA (CHICKENPOX) FACT SHEET

Agent: Varicella Zoster Virus

Reservoir: Humans

Brief Description: Varicella (chickenpox) is a contagious, vaccine-preventable disease caused by the varicella zoster virus (VZV). VZV also causes shingles (herpes zoster), a localized rash in persons who have already had varicella. Varicella in vaccinated persons (breakthrough disease) is a chickenpox-like rash that occurs more than 42 days after vaccination. People who have never had varicella can acquire the disease after being exposed to persons with primary varicella, shingles or breakthrough disease.

Modes of Transmission: Varicella is spread by close contact with secretions from the nose, throat, or skin lesions of an infected person.

Incubation Period: The incubation period is 14-16 days after exposure, with a range of 10-21 days. The incubation period may be longer in immunocompromised persons.

Period of Communicability: A person is typically infectious for about 5 days, starting 1-2 days before rash onset and continuing until all lesions are crusted over.

Clinical Presentation:

Varicella

Infection in adults often begins with a 1 to 2 day period of fever and malaise before rash onset, but in children the rash is often the first sign of illness. The rash consists of small (1-4 mm) red lesions that itch and progress within hours to fluid filled vesicles, which eventually crust over. It can occur all over the body, but concentrates primarily on the trunk. Several stages of lesions can be present at the same time. Healthy children with primary infection usually have 200-500 lesions in 2 to 4

successive crops. A person is considered infectious from 1 to 2 days before the rash appears and until all lesions are crusted over (4-7 days).

Shingles

Following primary varicella infection, VZV remains in the human nerve tissues and is reactivated in approximately 15% of people, resulting in shingles. Shingles presents as a red, painful, itchy, and blistering rash, typically on one side of the body, in the distribution of a nerve. Pain in the area of the rash may persist after the lesions have resolved.

Breakthrough Disease

Breakthrough disease is often milder than varicella with a shorter duration of illness, fewer symptoms and fewer than 50 skin lesions. Although the rash is milder, people with breakthrough disease are considered infectious.

Complications: Acute varicella infection is usually mild and self-limited, but can be associated with complications. Secondary bacterial infections of the skin or lungs are the most common causes of hospitalization. Complications from varicella increase after puberty. Adults without history of disease, who have never been vaccinated or who have weakened immune systems, such as persons on medications or radiation for cancer or other diseases, and persons who have HIV or AIDS, are more likely to have complications resulting from varicella infection. Pregnant women who get chickenpox during pregnancy are at risk of congenital infection of the fetus.

Laboratory Testing: Routine laboratory testing to diagnose varicella is not generally recommended. Laboratory confirmation is recommended for fatal cases and in outbreak situations. In an outbreak setting, testing of 2 or 3 patients is sufficient.

See “Directions for the Collection of Specimens for Varicella Testing” for guidelines on specimen collection and submission.

CDC Case Definition:

Clinical Case Definition

An illness with acute onset of generalized papulovesicular rash without other apparent cause. Note: In vaccinated persons who develop “breakthrough” varicella more than 42 days after vaccination, the disease is almost always mild with fewer than 50 skin lesions and shorter duration of illness. The rash may also be atypical in appearance (maculopapular with few or no vesicles).

Case Classification:

Probable: A case that meets the clinical case definition, is not laboratory confirmed, and is not epidemiologically linked to another probable or confirmed case.

Confirmed: A case that is laboratory confirmed or that meets the clinical case definition and is epidemiologically linked to a confirmed or probable case. Note: Two probable cases that are epidemiologically linked are considered confirmed.

Treatment

The decision to use antiviral therapy depends on the severity of infection, age of the patient, and underlying medical condition, and should be made by a physician on a case by case basis. In otherwise healthy children treatment is primarily supportive.

Vaccination

Varicella vaccine is recommended for all children with the first dose administered

between 12 and 18 months of age and a second dose between 4 and 6 years of age. Healthy people over the age of 13 who have no history of chickenpox and have never been vaccinated against the disease should get two doses of the vaccine four to eight weeks apart. For additional information on varicella vaccination visit

<http://www.cdc.gov/vaccines/vpd-vac/varicella/default.htm>. Information on Georgia’s immunization requirements for school and daycare can be found at: <http://health.state.ga.us/pdfs/prevention/immunization/Summ3231%20REQ.pdf>.

Prevention

The spread of chickenpox can be reduced if infected persons remain home during their infectious period until all lesions have crusted over, thereby avoiding exposure of susceptible persons. Unnecessary contact with infants, pregnant women, and immunocompromised individuals should be avoided.

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1. The American Academy of Pediatrics. Varicella. In: Pickering LK, Baker CJ, Kimberlin DW, Long SS, eds. *Red Book: 2009 Report of the Committee on Infectious Diseases*. 28th ed. Elk Grove Village, IL: American Academy of Pediatrics; 2009: [717-727]
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Brenda Fitzgerald, Commissioner

Georgia Department of Public Health
2 Peachtree Street NW • Suite 15.470 • Atlanta, Georgia 30303-3142
404-657-2700 • FAX: 404-657-2715

Dear Parent or Guardian,

This letter is to inform you that your child may have recently been exposed to a student with chicken pox at _____ school. Chickenpox is a common childhood infection, which may spread rapidly to people who have never had the disease or been vaccinated against it... If your child has previously been vaccinated against chickenpox or has had the disease, the risks from this exposure are minimal. However, in rare instances chickenpox can sometimes occur even after immunization. If an immunized child does get chickenpox, it is usually a mild case with fewer lesions (from less than 10 up to 50), low grade fever, and a shorter duration of illness. Please understand that although the symptoms are mild, a child would still be considered infectious for up to 4 days after the appearance of the first lesion and he or she should not attend school during that time.

Chickenpox is spread by respiratory droplets or by direct contact with the rash of an infected person.. Spread may also occur by contact with articles that have been soiled by fluid from the lesions (rash). Once exposed, a person may develop symptoms after 2-3 weeks (average 14-16 days). Infected persons are contagious from 1 to 2 days before onset of the rash until all the lesions are scabbed over or have disappeared. If your child develops a rash illness during the next 3 weeks, please be aware that your child may have been exposed to chickenpox.

For those persons who have never had the disease or the vaccine, the symptoms are usually mild fever and fatigue followed by skin rash. The rash is itchy, with discrete red lesions that progress to fluid filled vesicles within hours. Within 3-5 days the lesions crust over at which time the person is no longer contagious. The rash may appear on any part of the body. Occasionally chickenpox can have serious complications. Complications are more likely to occur in those who are immune suppressed, due to cancer treatment or chronic disease such as HIV. Pregnant women who are not immune can be particularly susceptible to complications, as can their unborn babies.

Since January of 2007, the official recommendation by the national Advisory Committee on Immunization Practices is for children to have two doses of varicella vaccination by age six for optimal protection. If your child or adolescent has only received one dose, please follow up with your health care provider or health department to obtain a second (booster) dose.

If you have any questions or concerns, please contact your child's health care provider, the school nurse, or the health department.

Sincerely,



Georgia Department of Public Health

Epidemiology Branch

Varicella Specimen Collection and Shipping Instructions

Submission Requirements

- Any lesion at any stage (macule, papule, vesicle, crust/scab) may be submitted for testing.
- A sterile or clean urine cup, sterile centrifuge tube, or any unused container with a lid may be used to store collected specimens for shipment to the laboratory.
- Label each specimen transport container with the patient name and date of birth.
- Form #3409 for Molecular Biology submissions must be completed and accompany each specimen submission.
- **UNLABELED SPECIMENS OR IMPROPERLY SUBMITTED SPECIMENS WILL NOT BE TESTED.**
- **PUBLIC HEALTH MUST BE NOTIFIED BEFORE SUBMITTING SPECIMENS TO GEORGIA PUBLIC HEALTH LABORATORY FOR TESTING.**

Specimen Collection and Handling

- Maculopapular lesions or crusts - Samples can be collected by using a scalpel blade or the side of a microscope slide. (Microscope slides tend to work well with children who may get frightened by a scalpel.) The lesion or crust is shaved off and placed in a sterile or clean container and sealed. The microscope slide or scalpel is discarded.
- Fluid-filled vesicular lesions – Samples can be collected by unroofing a vesicle and swabbing the base of the lesion to collect the fluid. The swab is placed in a sterile or clean container and sealed. The swab shaft is cut if necessary to securely close the container.

Test Request Form Completion

- Complete Molecular Biology Form #3409 with the following information:
 - Name, address, phone number, and contact person submitting specimen (Contact local health department for submitter code information)
 - Name, address, birth date, and gender of the patient
 - Specimen date/time of collection, type (vesicle, scab, etc.), and test requested (PCR)

Shipping Instructions

- Collected specimens may remain at room temperature for shipment.
- Place container(s) into cardboard shipping carton, close lid, and seal.
- Ship specimen(s) to the following address:
 - Molecular Biology Section
 - Georgia Public Health Laboratory
 - 1749 Clairmont Road
 - Decatur, GA 30033-4050

Contact Information

For questions about specimen collection and shipment, please contact Ebony Thomas at 404-463-0781 or Jessica Tuttle at 404-657-2553 at the State Epidemiology Office