



VARICELLA CASE AND OUTBREAK INVESTIGATION (Updated May 2019)

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I. BACKGROUND

Primary varicella infection, or chickenpox, is a rash illness that occurs globally [1]. Prior to the introduction of vaccine, varicella was an endemic childhood disease in temperate climates, with peak incidence among preschool and school-aged children and during late winter and early spring [1]. In tropical climates, infection tends to occur later during childhood and adolescence, resulting in higher susceptibility among adults [1-3].

Before routine vaccination for varicella was implemented, varicella was common in the United States, with approximately four million cases per year, including 100-150 deaths [4]. Centers for Disease Control and Prevention (CDC) studies estimate that the number of varicella cases declined 97% between 1995 and 2010 [1]. Data from the CDC also indicates that incidence of varicella outbreaks has also decreased due to vaccine use [5-6].

While less common than prior to the introduction of vaccine, varicella outbreaks continue to occur in various settings, including in communities, schools and daycares, prisons, and group residences [5-6].

Case based varicella reporting has been implemented in Georgia since July 2011. All suspect varicella cases and outbreaks should be reported to Public Health as soon as possible.

II. EPIDEMIOLOGY OF VARICELLA**• Infectious Agent**

- Varicella-zoster virus (VZV) or Human herpesvirus 3. After primary infection, VZV remains dormant in the body and can reactivate later in life to cause shingles (Herpes Zoster).

• Reservoir

- Humans are the only reservoir of the virus, and disease occurs only in humans.

• Transmission

- Varicella zoster virus is transmitted person to person by direct contact, inhalation of aerosols from vesicular fluid of skin lesions of varicella or herpes zoster, or from infected respiratory tract secretions that might also be aerosolized. The virus enters the host through the upper respiratory tract or the conjunctiva. Transmission may also occur by contact with articles that have been soiled by fluid from the lesions
- *Incubation Period:* The incubation period for varicella is typically 14-16 days (range 10-21 days) after exposure. The incubation period may be longer in immunocompromised persons.
- *Period of Communicability:* The period of communicability is estimated to begin two days before the onset of rash and ends when all lesions are crusted, typically four to seven days after onset of rash. This period may be longer in immunocompromised people. People with varicella are infectious until all lesions have crusted over. In the absence of crusting, people with varicella are considered infectious until no new lesions appear after 24 hours.

- **Clinical Presentation**

Varicella may begin with prodromal symptoms, including fever and malaise, one to two days before rash onset. This prodromal illness is more common in adults, and in children, a rash is often the first sign of disease. The varicella rash is generalized and progresses rapidly from macules (a change in skin color without elevation or depression), to papules (elevation in skin with no visible fluid) to vesicular (fluid filled) lesions before crusting. The rash usually appears first on the head and trunk, and then spreads to the extremities, with the highest number of lesions appearing on the trunk. Successive crops of lesions appear over several days, with lesions at different stages of development. For example, macular lesions may be observed in the same area of skin as mature vesicles. Healthy children usually have 50-500 lesions in two to four successive crops. Disease severity ranges from I. (mild) to IV. (severe), refer to Table 1 for severity classification criteria. A breakthrough case of varicella is one that occurs > 42 days after receiving a varicella-containing vaccine. Breakthrough varicella is often mild, with fewer than 50 skin lesions, low or no fever, and shorter duration of rash. The rash may be atypical in appearance with fewer vesicles and predominance of maculopapular lesions. Breakthrough varicella is still infectious. Rashes in breakthrough cases may not crust over, and are considered infectious until no new lesions appear after 24 hours.

Table 1. Varicella Severity Classifications

<i>Severity Classification</i>	<i>No. of lesions</i>	<i>Clinical observation</i>
I.	< 50	Can be counted in 30 seconds
II.	50-249	A hand can be placed between lesions without touching a lesion
III.	250-500	A hand cannot be placed between lesions without touching a lesion
IV.	> 500	Cannot see normal skin between lesions

- **Complications**

- Varicella is usually mild and self-limited, but it may be associated with complications. Secondary bacterial infections of skin lesions are the most common varicella-related complications. Other less common complications include pneumonia, central nervous

system manifestations (encephalitis, cerebellitis/ataxia, meningitis), reye syndrome*, and hemorrhagic complications.

- **Vulnerable Populations**

- People that are more at risk for severe varicella and varicella-related complications include:
 - Pregnant women and their babies
 - Congenital varicella syndrome is more likely if maternal infection occurs during the 1st or early 2nd trimester of pregnancy
 - Infants are also at risk for severe infection and mortality if the mother develops varicella from five days before to two days after delivery
 - Immunocompromised individuals (ex: someone with untreated HIV/AIDS) or people taking immunosuppressive medications, like chemotherapy for cancer treatment
 - Adolescents and adults with no evidence of varicella immunity
 - Infants younger than 12 months of age

- **Treatment**

- Varicella treatment is mainly supportive (ex: fever management). Antiviral agents can reduce the duration and severity of illness if given within 24 hours of rash onset. These drugs should be considered for treatment of immunocompromised persons and other persons at risk for severe varicella.

- **Shingles (Herpes Zoster)**

- Following primary infection, VZV remains in the human nerve tissues and can reactivate in people later in life, resulting in shingles. The lifetime risk for shingles in American adults is one in three. This typically happens among older people and those with weakened immune systems. Shingles presents as a red, painful, itchy, and blistering rash, typically in one area on one side of the body, in the distribution of a nerve. A shingles rash will typically scab over in 7-10 days, and resolve completely in two to four weeks. Other symptoms can include fever, headache, chills, and an upset stomach. Sometimes pain and itching in the area of the rash may precede rash by one to five days, and these symptoms can also persist after the lesions have resolved. Shingles sometimes spreads all over the body, resembling varicella, and these cases may be diagnosed as disseminated herpes zoster. Complications of shingles include post-herpetic neuralgia, and rarely, ocular problems, pneumonia, hearing problems, encephalitis, and death. There are vaccines available to help prevent shingles in older adults. Direct contact with an active shingles rash can transmit VZV, causing varicella in those who have never been vaccinated for varicella and have never had varicella disease.

III. VARICELLA PREVENTION

The best way to prevent varicella infection is to be vaccinated with the varicella vaccine. The Advisory Committee on Immunization Practices (ACIP) recommends that all children be routinely vaccinated for varicella for the first time between 12 and 18 months of age and receive a second dose between four

* Associated with aspirin use in children

and six 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/>].

ACIP criteria for evidence of immunity to varicella includes any of the following:

- a. Documentation of age-appropriate varicella vaccination
 - Preschool-aged children \geq 12 months of age: one dose
 - School-aged children, adolescents, and adults: two doses
- b. Laboratory evidence of immunity or laboratory confirmation of prior disease
- c. Born in the US before 1980
 - This is not sufficient evidence of immunity for health-care workers, pregnant women, and immunocompromised individuals. These individuals need to meet one of the other criteria for evidence of immunity
- d. Documented history of varicella
- e. Documented diagnosis of herpes zoster or verification of a history of herpes zoster (shingles)

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

- An epidemiologic link to a typical varicella case or
- 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

- **Post-exposure Prophylaxis**

Post-exposure prophylaxis (PEP) may be considered in the event susceptible individuals are exposed to VZV. Susceptible persons include those with no evidence of varicella immunity, or those who are at a high-risk for varicella-related complications (immunocompromised or immunosuppressed individuals and pregnant women).

The varicella vaccine is effective in preventing infection or modifying the severity of illness if given within five days (ideally within three) of varicella exposure.

For those with contraindications to vaccination, VARIZIG, an immune globulin, may help prevent disease. Administration of VARIZIG is recommended as soon as possible following exposure to the VZV and within 10 days. The patient groups recommended by the ACIP to receive VARIZIG include immunocompromised persons, pregnant women, and neonates whose mothers have varicella five days before to two days after delivery, and certain preterm infants.

IV. DIAGNOSTIC TESTING

Routine laboratory testing to diagnose varicella is not required. Laboratory confirmation is recommended for breakthrough cases, fatal cases, and in the event of an outbreak. During an outbreak, VZV polymerase chain reaction (PCR) laboratory testing is recommended for at least two to three cases to confirm varicella as the rash illness. Laboratory testing is encouraged for breakthrough cases in order to confirm varicella infection, as varicella can be mild or atypical among this group. See Appendices F and G for varicella specimen and collection guidelines. There are multiple means of diagnosing a varicella infection with laboratory testing,[†] they are:

- a. Direct Detection: Test for presence of the VZV antigen
 - Polymerase chain reaction (PCR)[‡]
 - Direct fluorescent antibody (DFA) detection
 - Viral isolation through culturing VZV from a clinical specimen
- b. Serologic Tests: Test for presence of VZV antibody
 - Immunoglobulin G (IgG)
 - Considered evidence of current infection if there is a four-fold or greater rise in VZV IgG antibody level between paired acute and convalescent sera
 - Immunoglobulin M (IgM)
 - Considered evidence of current infection if clinical symptoms of varicella are also present

V. COUNCIL FOR STATE AND TERRITORIAL EPIDEMIOLOGISTS (CSTE) CASE DEFINITION

- **Clinical Case Definition**
 - An illness with acute onset of generalized maculopapulovesicular rash without other apparent cause.
 - 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).
- **CSTE Case Classifications[§]**
 - *Varicella Illness*
 - 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.
 - *Varicella Death*
 - Probable: A probable case of varicella (as described above) which contributes directly or indirectly to acute medical problems which result in death

[†] VZV test results alone do not differentiate between Chickenpox and Shingles infections, clinical symptoms must also be used to diagnose disease

[‡] Preferred laboratory method for diagnosing VZV infection

[§] Cases are designated as confirmed or probable by the Georgia Department of Public Health

^{**} Two probable cases that are epidemiologically linked are considered confirmed, even in the absence of laboratory confirmation

- **Confirmed:** A confirmed case of varicella (as described above) which contributes directly or indirectly to acute medical problems which result in death

VI. OUTBREAK PREVENTION AND CONTROL STRATEGIES

1. A Single VZV infection can be the Source of an Outbreak

a. *Varicella Case: All suspect varicella cases should be investigated and reported to Public Health, recommendations are as follows (see Appendix A for Action Table):*

- Exclude or isolate the suspect case from the setting
- Notify your local health department of a suspect varicella case
- Consider laboratory confirmation if the case has a history of vaccination or in the event of multiple suspect cases
 - Call Public Health for recommendations and instructions
- Obtain an accurate and complete immunization history for cases and contacts
- Identify the source of VZV exposure
 - Exposure to someone with varicella or shingles 10-21 days before developing illness
- Assess potential transmission and identify contacts
 - If susceptible contacts have no contraindications to vaccination, recommend vaccination if within the five day exposure window
 - If contact is at high risk for developing severe disease (e.g., immunocompromised persons, pregnant women), recommend that they contact their primary care provider (regardless of vaccination status).
 - If contact is healthy, but younger than 12 months old, advise the contact's caregivers of the signs and symptoms of varicella to look out for in the next 21 days
- Complete the varicella case report form (Appendix H) found at www.dph.ga.gov/varicella or in the State Electronic Notifiable Disease Surveillance System (SendSS)

b. *Shingles (Herpes Zoster) case: Individual shingles cases are not reportable in Georgia; however, Public Health can provide recommendations in response to shingles exposures.*

- Healthcare workers with an active shingles infection should avoid direct contact with patients even if the rash can be covered, in order to prevent the spread of VZV to patients, who may be at higher risk for varicella-related complications. Healthcare workers can return to direct patient care once the shingles rash is crusted.
- Non-healthcare workers with an active shingles rash do not need to be excluded as long as the lesions can be completely covered, and should avoid contact with those who are immunocompromised or might be pregnant. Varicella can be contracted in susceptible persons following direct contact with a shingles rash.
 - i. If the lesions cannot be completely covered (ex: lesions on the face), the person with shingles 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 or isolated until lesions have crusted over.

2. Outbreak Definition^{††}

- In a childcare or school setting (see Appendix B), regardless of student age, an outbreak is defined as ≥ 3 epidemiologically linked cases, with transmission occurring outside of one household.^{††}
- Outside of childcare or schools, an outbreak is defined as ≥ 3 epidemiologically-linked cases, with transmission occurring in the same setting.

3. Outbreak Control and Investigation^{§§}

a. *Confirm Varicella Infection*

- Laboratory specimens should be taken from two to three cases (irrespective of the patients' vaccination status) at the beginning of the outbreak (see Appendices G, H). Collaborate with Public Health to establish epidemiologic links among cases and period of communicability.

b. *Identify and Exclude Cases*

- The population should be surveyed to identify all suspect varicella cases. Log all cases on the Varicella Outbreak Worksheet in Appendix C. All cases, including breakthrough disease, should be excluded from the school setting. A case should be excluded until all lesions have crusted over, or in the absence of crusting (breakthrough case) there are no new lesions appearing within 24 hours (typically four to seven days).

i. *Logging Information*

In order to establish epidemiologic links and keep track of cases, begin logging information on the Varicella Outbreak Worksheet (see Appendix C). For all cases, collect 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, period of communicability and when the outbreak is coming to an end.

c. *Notification*

- *Notification of Public Health*

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

- *Notification of contacts*

- i. Public Health may recommend sending a letter to contacts who might have been exposed to varicella during an outbreak, or they might request to follow-up with contacts on the phone. Contact Public Health to discuss

^{††} Outbreaks are defined and declared by the Georgia Department of Public Health

^{††} For daycares and schools (except High School) this criteria was recently changed from ≥ 5 cases within a 3 week period to ≥ 3 cases within a 3 week period

^{§§} The following activities may be done concurrently throughout the investigation.

communications recommendations; a varicella fact sheet and sample contact letters can be found in Appendices D and E.

- *Notification of Local Providers*

- i. In the event of a varicella outbreak, district health departments may consider collaborating with the state health department to issue a healthcare provider alert.

d. *Management of Susceptible Persons*

- *Identification of Susceptible Persons:*

- i. Persons with no evidence of immunity ^{***,†††}
- ii. Pregnant women (regardless of vaccination status)
- iii. Immunocompromised or immunosuppressed individuals (regardless of vaccination status)

- *Vaccination of persons without evidence of immunity:*

- i. Persons without evidence of immunity and without a contraindication to varicella vaccination should receive the varicella vaccine. The varicella vaccine is effective in preventing infection or modifying the severity of illness if given within three days after exposure, possibly up to five days. In an outbreak setting, if the vaccine is given more than five days after exposure, immunization can help protect against subsequent exposures. 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 maybe administered to preschool aged children (one to four years of age), given that 12 weeks (three months) have passed since the first dose. Second doses administered four weeks or less after the first are not accepted as valid, and must be repeated at least 12 weeks after administration of last varicella-containing vaccine.

- *Management of persons who refuse vaccination*

- i. Consult with Public Health when considering exclusions in a school setting.

- *Management of persons with contraindications to the vaccine*

- i. Persons with contraindications to vaccination (e.g., immunocompromised persons, pregnant women) who have been exposed should consult their providers about this exposure, regardless of vaccination status. Consult with Public Health when assessing exposure risk of high-risk individuals.

e. *Establish Surveillance for Additional Cases*

*** 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. 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.

††† Birth in the United States before 1980 is considered evidence of immunity UNLESS an individual is a healthcare worker, pregnant, and/or immunocompromised.

- Active surveillance for suspect varicella cases should continue during the outbreak. All suspect varicella cases should be reported to Public Health as soon as possible. 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 and Reporting Future Varicella Outbreaks

- At the conclusion of the outbreak, evaluate why the outbreak occurred. To prevent future outbreaks ensure high levels of varicella immunity, vaccinate persons without evidence of immunity, maintain up-to-date vaccination records, and establish and maintain varicella reporting procedures.

VII. Special Settings

1. Childcare Facilities

- Childcare facilities include daycares and schools. Typically, these settings have immunization requirements for attending children, which play an important role in determining at-risk contacts during VZV exposure assessments. In response to a varicella or shingles case at a childcare facility, contact Public Health for help determining at-risk students and staff.
- In response to a VZV exposure, if a contact has already received one dose of varicella-containing vaccine, parents and guardians should consider getting him/her a 2nd dose, in order to protect against future varicella exposures.
- Infants under 12 months of age are not old enough to be vaccinated against varicella, and are at risk for developing chickenpox. Parents and guardians should monitor infants for the signs and symptoms of chickenpox, and keep them away from people with chickenpox.
- People who are pregnant, immunocompromised or immunosuppressed are at risk for varicella-related complications. If any contacts are immunocompromised, or immunosuppressed, these contacts' healthcare provider should be notified of his or her exposure to chickenpox as soon as possible.
- If a contact develops a rash up to 21 days after their last exposure, refer them to his or her healthcare provider. The GA DPH recommends laboratory testing be performed to confirm chickenpox. Also, parents or guardians should alert their child's healthcare provider of their child's exposure to chickenpox before going, so that additional chickenpox identification and prevention measures can be put into action.
- If a child or staff member has varicella, he or she must remain home until all lesions have scabbed over, or in the absence of scabbing, no new lesions appear over the course of 24 hours.
- Recommendations to exclude unvaccinated students are considered by Public Health on a case-by-case basis.

2. Healthcare Facilities

- VZV exposures in healthcare facilities are important to assess, due to the risk of transmission to high-risk populations, including immunocompromised individuals, pregnant women, and children younger than 12 months old.

- In response to a VZV exposure in a healthcare facility (including an Emergency Department or provider waiting room):
 - a) Identify any patients or staff who may have had contact with the case. Contact Public Health for help identifying exposed groups.
 - b) Refer any immunocompromised or pregnant patients or staff to their providers as soon as possible if they are identified as exposed contacts.
 - c) Recommend vaccination for any exposed contacts without evidence of varicella immunity
 - d) Any exposed healthcare workers without evidence of varicella immunity should be excluded from direct patient care from days 8-21 after their last exposure to VZV. If exposed healthcare workers have previously received one dose varicella-containing vaccine, they can return to work after receiving a second dose varicella-containing vaccine. Contact Public Health for assistance determining evidence of immunity in exposed healthcare workers.

3. 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. *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. A case should be isolated until all lesions have crusted over or in the absence of crusting, no new lesions appear within 24 hours. In residential settings, if available, 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 with no contact with persons without evidence of immunity. Isolated cases should be cared for by staff with evidence of varicella immunity.
 - b. *Management of Susceptible Persons*
 - Susceptible residents and staff without a contraindication to varicella vaccination, should be vaccinated. Susceptible residents who are immunocompromised, pregnant or have contraindications to vaccination should notify their healthcare providers of their exposure, and 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 outbreak setting from the start of the outbreak through 21 days after rash onset of the last identified case.

⁺⁺⁺ The Federal Bureau of Prisons has developed clinical guidelines for the management of varicella and shingles among federal inmates as a resource for federal facilities; a copy of these guidelines are available here: <https://www.bop.gov/resources/pdfs/varicella.pdf>

- Staff who are immunocompromised, pregnant or have contraindications to vaccination should notify their healthcare providers of their exposure, and be excluded from the outbreak setting from the start of the outbreak through 21 days after rash onset of the last identified case.
- 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.

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ADDITIONAL RESOURCES

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APPENDICES

ACTION TABLE FOR VARICELLA OUTBREAK INVESTIGATION AND CONTROL A

VARICELLA (CHICKENPOX) REPORTING AND OUTBREAK RECOMMENDATIONS FOR CHILDCARE AND SCHOOL FACILITIES..... B

VARICELLA (CHICKENPOX) OUTBREAK WORKSHEET C

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GDPH VARICELLA CASE REPORT FORM H

ACTION TABLE FOR VARICELLA OUTBREAK INVESTIGATION AND CONTROL

Daycares and Schools				
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 • High School 	<p>≥ 1 suspected case</p>	<ol style="list-style-type: none"> 1. Confirm case(s) as suspect varicella 2. Identify and exclude acute case(s) (primary and breakthrough) 3. Report suspect varicella cases to Public Health as soon as possible^l 4. Identify susceptibility of contacts; recommend vaccination prophylaxis for those with no evidence of immunity if within 5 days of last exposure 5. Identify susceptible students and staff who are at high risk for complications and recommend physician consult^m 6. Surveillance for more cases 	<p>≥ 3 cases within a 3 week period of time (21 days)ⁿ</p>	<ol style="list-style-type: none"> 1. Confirm cases as suspect varicella 2. Identify and exclude all varicella cases (primary and breakthrough) 3. Report additional cases to Public Health as soon as possible 4. Obtain specimens for lab confirmation, call Public Health to coordinate testing^o 5. With input from Public Health, notify parents and school staff 6. Identify and recommend physician consult for susceptible students and staff who are at high risk for complications 7. Recommend vaccination for all other susceptible contacts 8. Consult with Public Health about susceptible students and staff who refuse vaccination^p 9. Report additional cases to Public Health 10. Continue surveillance for varicella cases 42 days (2 incubation periods) after onset of last case's symptom

^l For more information visit: www.dph.ga.gov/varicella

^m High risk groups include: immunocompromised or immunosuppressed individuals, pregnant women, and infants younger than 12 months old

ⁿ For daycares and schools (except High School) this criteria was recently changed from ≥ 5 cases within a 3 week period to ≥ 3 cases within a 3 week period

^o Varicella-zoster virus (VZV) confirmatory testing is available at Georgia Public Health Laboratory (GPHL), coordinate testing with local Public Health

^p Exclusions of susceptible persons should be considered on a case-by-case basis and at the discretion of Public Health

ACTION TABLE FOR VARICELLA OUTBREAK INVESTIGATION AND CONTROL

Residential Institutions for Adolescents and Adults				
Setting	Primary Action Threshold	Primary Actions	Secondary Action Threshold	Secondary Actions
<ul style="list-style-type: none"> • Prison/Jail^q • Juvenile Hall • Long-term care facility • Homeless shelters • College dormitories • Orphanage 	<p>≥ 1 suspected case</p>	<ol style="list-style-type: none"> 1. Confirm case(s) as suspect varicella 2. Identify and exclude or isolate acute case(s) (primary and breakthrough) 3. Report suspect varicella cases to Public Health as soon as possible* 4. Identify susceptibility of contacts; recommend vaccination prophylaxis for those with no evidence of immunity if within 5 days of last exposure 5. Identify susceptible contacts at high risk for developing severe disease or at high risk for complications and recommend physician consult[‡] 6. Surveillance for more cases 	<p>≥ 3 cases within a 3 week period of time (21 days)</p>	<ol style="list-style-type: none"> 1. Confirm cases as suspect varicella 2. Identify and isolate all varicella cases (primary and breakthrough); airborne isolation is recommended if available 3. Report additional cases to Public Health as soon as possible 4. Obtain specimens for lab confirmation, call Public Health to coordinate testing[§] 5. With input from Public Health, notify residents and staff 6. Screen resident and staff for susceptibility; isolate susceptible staff and residents who are at high risk for complications and recommend physician consult 7. Recommend vaccination for all other susceptible residents and staff 8. Consult with Public Health about susceptible staff and residents who refuse vaccination** 9. Report additional varicella cases to Public Health 10. Continue surveillance for varicella cases 42 days (2 incubation periods) after onset of last case's symptoms

^q The Federal Bureau of Prisons has guidelines for management of varicella in these settings: <https://www.bop.gov/resources/pdfs/varicella.pdf>



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



Surveillance

Individual cases of chickenpox are reportable in the state of Georgia and should be reported to 1-866-PUB-HLTH or the local health department.

Outbreak Control Recommendations

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

- > 3 cases within a 3 week period of time (21 days) in persons of any age

When an outbreak is recognized:

1. Contact your District Health Department immediately. For a list of local health departments go to: <http://health.state.ga.us/epi/disease/districts.asp>
2. Begin logging information on the varicella outbreak report form. Collect name, dob, 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 at high risk for complications.

- ✓ Unvaccinated persons
- ✓ Persons with unknown vaccination status
- ✓ Immunocompromised persons
- ✓ Susceptible pregnant females

- Inform them about their risks
- Recommend vaccination (unless contraindicated)

- 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 without immunity

- Collaborate with Public Health to exclude susceptible students and staff
5. Notify parents and school staff
 - Send a letter home to parents notifying them of the outbreak
 - Provide information about chickenpox including:

- ✓ The availability of the vaccine
- ✓ The 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).
6. Report all students with primary or breakthrough varicella on the outbreak report form.
 7. Obtain specimens for lab confirmation (Note: A specimen is not required from each ill student; a sample from 2 or 3 students is all that is necessary to confirm the outbreak).
 8. Collaborate with Public Health to determine when excluded students and staff may return to school.
 9. The outbreak is deemed ended when no new cases occur within 3 weeks (21 days) from the date the last case is considered to be infectious.

* Note that the steps are not ordered by priority since several of these steps are conducted simultaneously *

Have questions?

<http://health.state.ga.us/epi/vpd/varicella.asp>



VARICELLA (CHICKENPOX) OUTBREAK WORKSHEET

Georgia Department of Public Health: Epidemiology Unit

During an outbreak, report all cases of varicella (chickenpox) in SendSS, including those reported by a parent or guardian via telephone. Please ask parent or patient about grade of lesions. This form might be helpful to track outbreak-associated cases.

Name of Daycare/School/Provider:

Telephone #

Street Address:

City

County

Date of Report

Name of Person Completing Report

	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)



Chicken Pox (Varicella) Questions and Answers

What is chickenpox?

Chickenpox, also known as varicella, is a contagious, rash illness caused by the varicella zoster virus (VZV).

What are the symptoms of chickenpox?

In children, the first sign is often a rash. In adults, fever and fatigue may set in one to two days before the rash. The rash appears as red-raised spots that turn into itchy, fluid filled blisters. Fluid may drain from the blisters before they dry and crust. The blisters may last for 3-7 days before scabbing and crusting over, and there may be two to four successive "crops," or waves, of blisters that appear during the course of the illness.

Who gets chickenpox?

Anyone who has never had the disease or has not received the chickenpox vaccine can get chickenpox. Chickenpox is commonly diagnosed in young children, although teens and adults can get the disease also.

Chickenpox can occur in vaccinated persons. These persons usually have mild symptoms for a shorter amount of time, with fewer than 50 blisters (that rarely contain fluid), and low or no fever.

How is chickenpox spread?

Chickenpox is spread both through the air (by coughing and sneezing), and by direct contact with mucus, saliva, or fluid from blisters. Chickenpox may also be spread by contact with articles (i.e. clothing) that have been soiled by fluid from the rash.

When and for how long is a person contagious?

- A person is contagious from one to two days before the rash appears until all blisters have formed scabs. This usually occurs four to seven days after the rash develops.

- Vaccinated individuals who develop chickenpox are also considered contagious and can spread the virus until all lesions have faded or no new lesions have developed within a 24-hour period.

If a person is exposed to chickenpox, when might a rash appear?

The time period between exposure and the onset of illness is usually about 2 weeks, but can range from 10 to 21 days.

Isn't chickenpox a mild disease?

Most healthy children and adults recover from chickenpox without additional health problems; however, the disease can be severe and may cause serious complications in some circumstances. Before vaccine was available, 11,000 people were hospitalized nationally each year. Possible complications of chickenpox include:

- Infections of the skin and soft tissue
- Dehydration
- Pneumonia
- Encephalitis (inflammation of the brain)
- Fetal complications

My child has been exposed to chickenpox. What should I do?

Contact your doctor immediately if you think your child has been exposed to chickenpox, especially if they have not been vaccinated, never had chickenpox or are younger than one year old.

Is there a treatment for chickenpox?
Healthcare providers may prescribe an antiviral medication to individuals at risk for more serious disease.



Have questions?

Talk with your Doctor.

<http://dph.georgia.gov/varicella>

SAMPLE LETTER TO EXPOSED PERSONS

***NOTE: This is an example letter; contact your district Public Health office for situation-specific recommendations**

[date]

Dear [event] attendee,

You may have been exposed to chickenpox at [event] on [dates]. Chickenpox causes a fever and an itchy rash that starts on the torso and face and then spreads all over the body. The rash has fluid filled blisters that last for 3 to 7 days before they scab. People with chickenpox are contagious from two days before the rash starts until the entire rash scabs over.

Chickenpox spreads by touching someone with the rash or through the air. People can get chickenpox up to three weeks after they are exposed. Someone who is vaccinated or who has had this illness probably will not get chickenpox. However, vaccinated people sometimes get mild cases. People with mild symptoms can still spread chickenpox to others.

Recommendations:

1. Getting vaccinated is the best way to prevent chickenpox. If you are not vaccinated, the chickenpox vaccine may prevent the illness or reduce symptoms if given within five days of exposure. Contact your doctor for questions about vaccinations for you and your family.
2. Pregnant women and people with suppressed immune systems are at risk for severe illness. If you or any members of your family who were at [event] on [date] are pregnant or have a suppressed immune system, notify your doctor of this exposure to chickenpox as soon as possible.
3. Healthcare workers should be vaccinated or have a record of having had chickenpox or shingles. They can also have results of a blood test showing they have had the illness or vaccine. If you or any members of your family who were at [event] on [dates] are healthcare workers, contact your doctor and/or employer.
4. Call your doctor if you get a rash in the next three weeks. Public Health recommends that laboratory testing be performed. Take this letter with you to the doctor's office, and tell them to call Public Health for instructions.
5. If you have chickenpox, stay home until the entire rash scabs over. If the rash does not scab, stay home until no new spots appear within 24 hours. Avoid contact with infants, pregnant women, and anyone with a suppressed immune system.

[health dept] and [event] will continue to monitor this situation. If you or your doctor have any questions, please call [health dept] at [phone number].

Sincerely,

[contact person]

VARICELLA SPECIMEN COLLECTION AND SHIPPING INSTRUCTIONS

Varicella Specimen Collection and Shipping Instructions

Laboratory confirmation of varicella zoster virus is not normally required, because varicella diagnosis is most commonly made by clinical assessment. However, the Georgia Department of Public Health recommends the **collection of lesions to confirm a varicella case**. To coordinate specimen collection and laboratory submission, call your District or County Health Department. **Please do not send specimens directly to the Georgia Public Health Laboratory (GPHL) or the Centers for Disease Control and Prevention (CDC).**

Specimen Collection Instructions:

Viral Testing: To make a laboratory diagnosis of VZV infection using polymerase chain reaction (PCR) method, the presence of the virus DNA should be demonstrated in tissues, vesicular fluid or crusts from lesions. We recommend the following methods for the collection of specimens for PCR testing. As noted below, scabs generally contain sufficient viral DNA for amplification and as such are also useful specimens.

Polyester Swab Method

- Use a sterile needle to unroof the top of the vesicle.
- Use a **synthetic**, sterile swab to vigorously swab the base of the lesion, applying enough pressure to collect epithelial cells without causing bleeding, and collect vesicular fluid (collection of infected epithelial cells in the base of the lesion is important because they usually contain a significant amount of virus).
- Place swab into an empty tube, breakage-resistant snap-cap or screw top tube.
- **DO NOT PLACE TRANSPORT MEDIUM INTO THE TUBE; THE SPECIMEN MUST BE KEPT DRY.**
- Specimen can remain at room temperature.

Glass Slide Method

- Rake the edge of the glass slide over the selected lesion, disrupting the lesion with sufficient vigor to ensure that skin cells are gathered onto the slide. Note: with young children, it may be less stressful if you ask them to help you with this.
- Use a **synthetic**, sterile swab to scrub the disrupted lesion and (using the same swab) collect the skin cells collected on the edge of the slide. Note: if more than one lesion is sampled, a separate swab should be used for each one.
- Place the swab into an empty tube, breakage-resistant snap-cap or screw top tube. Note: the swab for each sampled lesion must be placed in a separate swab tube, but multiple tubes can be shipped in the same envelope.
- **DO NOT PLACE TRANSPORT MEDIUM INTO THE TUBE; THE SPECIMEN MUST BE KEPT DRY.**
- Specimen can remain at room temperature.

Crusts (Scabs)

- Remove a scab from the patient.
- Place specimen into empty tube, breakage-resistant snap cap or screw top tube.
- Specimen can remain at room temperature.

VARICELLA SPECIMEN COLLECTION AND SHIPPING INSTRUCTIONS

Laboratory Submission Instructions

- Notify County or District Public Health Office **immediately** for coordination.
- Label specimen transport tube with the patient name and date of birth
- **UNLABELED SPECIMENS WILL NOT BE TESTED**
- Complete the [GPHL Submission Form](#) with the following information:
 - Submitter code (if known), address, phone number, and contact name
 - Patient name, address, date of birth, sex, race and ethnicity (if available)
 - Date of specimen collection, type of specimen, reason for testing, date of illness onset
 - Test requested—(Molecular Biology) – 421000 VZV (PCR)
- Ship specimens to the following address :
Georgia Public Health Laboratory
1749 Clairmont Road
Decatur, GA 30033-4050
ATTN: Molecular Biology Laboratories

Interpretation of Results

Sequence analysis of a [PCR](#) product derived from a virus isolate or from clinical material confirms the presumptive positive PCR results and provides epidemiologically important information

GPHL—CLINICAL SPECIMEN SUBMISSION FORM



**GEORGIA PUBLIC HEALTH
LABORATORY SUBMISSION FORM**
(Do Not Use for Newborn Screening Tests)

Laboratory use only

Complete a separate form for each test requested

HEALTH CARE PROVIDER INFORMATION				PATIENT INFORMATION							
Submitter Code				Patient ID Number		PATIENT NAME (Last)		First	MI	Suffix	
Submitter Name				County of Residence				DOB			
Street Address				Home Phone:		Work Phone:		Cell Phone:			
City		State	Zip	Address				City,	State	Zip	
Phone Number				Parent / Guardian (if applicable)				Relationship			
Fax Number				RACE				ETHNICITY		Sex	
Contact Name				<input type="checkbox"/> American Indian/Alaska Native <input type="checkbox"/> Asian <input type="checkbox"/> Black/African-American <input type="checkbox"/> Native Hawaiian/Pacific Islander <input type="checkbox"/> White/ Caucasian <input type="checkbox"/> Multi-Racial				<input type="checkbox"/> Hispanic or Latino <input type="checkbox"/> Non-Hispanic or Latino		<input type="checkbox"/> Male <input type="checkbox"/> Female	
				Pregnant? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A							
				Travel in the past month? <input type="checkbox"/> Yes <input type="checkbox"/> No				Travel Dates? _____			
				Where? _____							
<input type="checkbox"/> SELF PAY (SUBMITTER WILL BE INVOICED)				<input type="checkbox"/> APPROVAL CODE: _____							

INSURANCE INFORMATION – COPY OF PATIENT'S INSURANCE ELIGIBILITY DOCUMENT MUST BE SUBMITTED WITH THIS FORM

ACCEPTED INSURANCE	ID Number	Plan Name	Group Number	Policy Holder's Name (Last, First, MI)
<input type="checkbox"/> Amerigroup <input type="checkbox"/> Peach State <input type="checkbox"/> Wellcare <input type="checkbox"/> Medicaid/ Peachcare				
	Policy Holder's DOB	Policy Holder's Mailing Address		Patient's Relationship to Policy Holder
	Insurance Phone #	Insurance Mailing Address		Coverage Effective Date
FOR FUTURE USE				
ICD 9 Diagnosis Codes		Sequence Code 1	Sequence Code 2	Sequence Code 3
Required for insurance purposes only.				

SPECIMEN INFORMATION

All tests are performed at the Decatur Laboratory unless specified.

TEST REQUESTED

Specimen Type: <input type="checkbox"/> Arthropod Type: _____ <input type="checkbox"/> Abscess Source: _____ <input type="checkbox"/> Biopsy Source: _____ <input type="checkbox"/> Bronchial Wash <input type="checkbox"/> Bronchial Brush <input type="checkbox"/> Bronchoalveolar Lavage <input type="checkbox"/> Broth <input type="checkbox"/> Buccal Swab <input type="checkbox"/> Cerebral Spinal Fluid <input type="checkbox"/> Dried Blood Spot <input type="checkbox"/> Endocervical Swab <input type="checkbox"/> Isolate (Bacterial) Source: _____ <input type="checkbox"/> Isolate (Mycobacterial) Source: _____ <input type="checkbox"/> Lesion/General Swab <input type="checkbox"/> Lesion/Genital Swab <input type="checkbox"/> Lymph Node Aspirate <input type="checkbox"/> Nasal Wash		<input type="checkbox"/> Nasal Aspirate <input type="checkbox"/> Nasopharyngeal Aspirate <input type="checkbox"/> Nasal Swab <input type="checkbox"/> Nasopharyngeal Swab <input type="checkbox"/> Pinworm/Adhesive Slide <input type="checkbox"/> Plasma <input type="checkbox"/> Rectal Swab <input checked="" type="checkbox"/> Scab <input type="checkbox"/> Serum <input type="checkbox"/> Sputum <input type="checkbox"/> Stool/Feces (Fresh) <input type="checkbox"/> Stool/Feces (Preserved) <input type="checkbox"/> Tracheal Aspirate <input type="checkbox"/> Throat/Pharynx <input type="checkbox"/> Tissue Source: _____ <input type="checkbox"/> Urethral Swab <input type="checkbox"/> Urine <input type="checkbox"/> Vaginal Swab <input checked="" type="checkbox"/> Vesicle Fluid/Swab <input type="checkbox"/> Whole Blood (EDTA) <input type="checkbox"/> Whole Blood(Heparin) <input type="checkbox"/> Other: _____		Date of Collection _____ Time of Collection _____ AM _____ PM Shipped: <input type="checkbox"/> Frozen <input type="checkbox"/> Refrigerated <input type="checkbox"/> Room Temperature Outbreak related <input type="checkbox"/> Yes <input type="checkbox"/> No If yes, name of outbreak: _____ Symptoms _____ Date of onset _____ Illness related to chemical exposure: <input type="checkbox"/> Yes <input type="checkbox"/> No Event # _____		BLOOD LEAD (Waycross Only) COLLECTION METHOD <input type="checkbox"/> W4050 Blood Lead <input type="checkbox"/> Capillary <input type="checkbox"/> Venous CHEMICAL THREAT Consultation with GPHL Emergency Response Coordinator required. 24/7 contact number: 866-782-4584 <input type="checkbox"/> CT041100 Rapid Toxic Screen (Performed at CDC) <input type="checkbox"/> CT021500 Cadmium, mercury and lead (Blood) <input type="checkbox"/> CT021700 Toxic Elements Screen (TES) (As, Ba, Be, Cd, Pb, Tl, U) (urine) <input type="checkbox"/> CT021600 Mercury (urine) <input type="checkbox"/> CT011100 Cyanide (blood) <input type="checkbox"/> CT011200 Volatile Organic Compounds (VOC) (blood) <input type="checkbox"/> CT011300 Tetramine (urine) <input type="checkbox"/> CT031100 Organophosphate Nerve Agent metabolites (OPNA) (urine) <input type="checkbox"/> Organophosphate Nerve Agent metabolites (OPNA) (serum) <input type="checkbox"/> CT031300 Atrazine and Riddine (ABRC) (urine) <input type="checkbox"/> Hold for testing	
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A correlating list of tests and prices is located at <http://dph.georgia.gov/lab>

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GPHL—CLINICAL SPECIMEN SUBMISSION FORM

PATIENT NAME
 Last: _____ First: _____ MI. _____

For Laboratory Use Only

BACTERIOLOGY

IMMUNOLOGY

Enteric Isolates

1100 *Campylobacter*

1070 STEC

1110 *Salmonella*

1080 *Shigella*

1160 *Yersinia*

1120 Stool Culture - Preserved (Para-Pak C&S, Room Temp)

Routine (*Salmonella*, *Shigella*, *Campylobacter*, *Aeromonas*, STEC, and *Yersinia*)

S. aureus ¹

1140 Stool Culture- Fresh (Refrigerated)

S. aureus ¹

C. perfringens ¹

1130 Special Bacteriology

Neisseria meningitidis

Haemophilus influenzae

Listeria monocytogenes

Vibrio spp.

Other- specify agent _____

1040 Pertussis Direct Fluorescent Antibody (DFA)

1050 Pertussis Culture

1030 Group A Streptococcus

1010 Gonorrhea Culture

Nucleic Acid Amplification Test (Chlamydia/Gonorrhea)

1060 Decatur W1000 Waycross

Nucleic Acid Amplification Test (*Trichomonas vaginalis*)

100100 Decatur W100100 Waycross

1135 Forward to CDC¹ (Please specify) _____

C. botulinum ^{1,2}

1180 ENVIRONMENTAL / FOOD (Epidemiology Use Only)

S. aureus

Campylobacter

C. perfringens

Listeria

STEC / SLT

Salmonella

Shigella

S. aureus

¹ Special arrangement required CALL 404-327-7997

² Epidemiology approval required CALL 404-657-2588

Routine Syphilis

Routine RPR (Choose nearest location)

1610 Decatur W2000 Waycross

1640 TPPA

Special RPR testing request

16150 Quantitative (Titer) and Confirmatory even if screening test (RPR) is negative

No Confirmatory Test needed even if screening test (RPR) is positive

Arbovirus/WNV panel

1595 Arbo IgG panel

1600 Arbo IgM panel

1580 WNV IgG

1585 WNV IgM

1590 WNV IgM (CSF)

16550 Zika IgM

Hepatitis Testing

1411 Hep B (Prenatal)

1410 Hep B (Routine Screen)

1400 Anti-HAV Total Antibody

1405 Anti-HAV-IgM

1470 Anti-HCV (Ab)

1480 Anti-HCV (Ab) with Reflex to HCV Viral Load

1490 HCV Viral Load

Miscellaneous Serology

15300 Toxoplasmosis IgG

15350 Toxoplasmosis IgM

15100 Rubella IgG W15100 Waycross

15150 Rubella IgM

15450 CMV Ig

15500 CMV IgM

15600 HSV1

15650 HSV2

Rubella IgG

15200 Decatur W15200 Waycross

15250 Rubella IgM

Mumps IgG

15550 Decatur W15550 Waycross

Varicella Zoster

15400 Decatur W15400 Waycross

14100 MMR Panel (Measles, Mumps, Rubella)

14101 Torch Panel (CMV, HSV1, HSV2, Rubella, and Toxoplasmosis)

33900 QuantIFERON-TB Gold (IGRA)

1570 Refer to CDC

MYCOBACTERIOLOGY

VIROLOGY

MOLECULAR BIOLOGY

Known TB Patient? Yes, current Yes, former No

Clinical Specimens

30100 Microscopic exam for AFB only

30000 Smear, culture & susceptibility testing (Susceptibility Performed on MTB only)

30800 Nucleic Acid Amplification Testing (NAAT)

This test is intended for use only with specimens from adult infected patients showing signs and symptoms of active pulmonary tuberculosis.

AFB Isolates

34000 Identification

33950 Susceptibility testing (MTB only)

30750 Genotyping only

HIV

CTSH# _____

13700 HIV Ag/Ab Combo

1340 HIV-1 Viral Load

For Epidemiology Use Only:

1360 HIV-1 Ab WB (dried blood spot only)

Viral Culture

62050 CMV Culture/IFA

60300 Measles Culture/IFA

60000 Mumps Culture/IFA

1385 Enterovirus Culture / IFA

1330 Herpes Culture / ELVIS

62000 VZV Culture / IFA

6100 Respiratory Culture / IFA

60040 Viral Culture / Identification (Please specify): _____

Gastrointestinal Outbreak Investigation

60030 Rotavirus

Virology-Molecular
 (Consultation with district epidemiologist required)

17100 Respiratory Viral Pathogen Panel

13750 Enterovirus RT-PCR

Miscellaneous Virology

60160 Virology CDC Sendout (Please specify): _____

Consultation with district epidemiologist required

BT Agent Rule Out (RT-PCR) Isolate:

BTC01005 *Bacillus anthracis*

BTC02005 *Brucella* spp.

BTC03005 *Burkholderia mallei/pseudomallei*

BTC04005 *Francisella tularensis*

BTC06005 *Yersinia pestis*

BT Rule Out (RT-PCR) Clinical Specimen:

BTC01000 - *Bacillus anthracis*

BTC02000 - *Brucella* spp.

BTC03000 - *Burkholderia* spp.

BTC04000 - *Francisella tularensis*

BTC06000 - *Yersinia pestis*

414000 *Bordetella pertussis* (RT-PCR)

400050 Influenza Panel (rRT-PCR)

413000 Mumps (RT-PCR)

416000 Measles (RT-PCR)

411100 Norovirus (RT-PCR)

BTC05000 Rash Illness Panel (RT-PCR)

421000 VZV (RT-PCR)

16600 Molecular Arbovirus (RT-PCR)

16800 Ebola (RT-PCR)

17300 MERS (RT-PCR)

49100 Miscellaneous Molecular

499100 Refer to CDC

PARASITOLOGY

(Choose nearest location)

Ova and Parasites Exam (Includes Formalin and PVA)

Formalin 2100 Decatur W5000 Waycross

PVA 2300 Decatur W5020 Waycross

Pinworm Slide 2200 Decatur W5030 Waycross

2150 PCR

2610 Tissue/tissue smear for parasites

2700 Whole blood/blood smear for parasites - Malaria

2710 Whole blood/blood smear for parasites - Filaria

2800 Miscellaneous Identification _____

For Epidemiology Use Only:

Cryptosporidium (O&P) 2400 Decatur W50100 Waycross

Cyclospora (O&P) 2500 Decatur W50800 Waycross

A correlating list of tests and prices is located at <http://doh.georgia.gov/lab>

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GDPH VARICELLA CASE REPORT FORM



Georgia Department of Public Health
Varicella Case Report Form

SendSS ID: _____

Form Complete Yes No

PATIENT DEMOGRAPHICS				
Patient name: Last, First M.I.		Date of birth:(mm/dd/yy)	Age (enter age and check one): _____ <input type="checkbox"/> Days <input type="checkbox"/> Weeks <input type="checkbox"/> Months <input type="checkbox"/> Years	
Address: Number, Street		City:	State:	ZIP code:
Telephone number: Home () - Work () -		Country of birth:		
Ethnicity (check one): <input type="checkbox"/> Hispanic/Latino <input type="checkbox"/> Non-Hispanic/Latino <input type="checkbox"/> Unknown		Race (check all that apply): <input type="checkbox"/> Black/African-American <input type="checkbox"/> Asian /Pacific Islander <input type="checkbox"/> Unknown <input type="checkbox"/> Native American/Alaskan Native <input type="checkbox"/> Multiracial <input type="checkbox"/> White <input type="checkbox"/> Other (please specify) _____		
TRACKING DATA				
Medical record no. or client no.:			State Case ID (For state use only):	
Date reported to health department (mm/dd/yy):		Date investigation started:	Person/clinician reporting:	Reporter telephone: () -
Case investigator completing form:		Organization:	Investigator phone: () -	
Event Date: ____/____/____	Event Type: <input type="checkbox"/> Rash Onset Date <input type="checkbox"/> Diagnosis Date <input type="checkbox"/> Lab Test Date <input type="checkbox"/> Unknown <input type="checkbox"/> Report Date (County) <input type="checkbox"/> Report Date (State)			
SIGNS AND SYMPTOMS				
Did the patient visit a healthcare provider during this illness? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown				
Diagnosis date: ____/____/____	Illness onset date: ____/____/____	Rash: <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown	Rash onset date: ____/____/____	Estimated number of lesions: <input type="checkbox"/> < 50 <input type="checkbox"/> 50-249 <input type="checkbox"/> 250-500 <input type="checkbox"/> > 500
Rash location: <input type="checkbox"/> Generalized <input type="checkbox"/> Focal <input type="checkbox"/> Unknown	If focal, specify area(s) of body:	Where on body did rash 1st occur? (check all that apply) <input type="checkbox"/> Face/Head <input type="checkbox"/> Legs <input type="checkbox"/> Trunk <input type="checkbox"/> Arms <input type="checkbox"/> Inside mouth <input type="checkbox"/> Other (please specify)		
Character of lesions: Macules (flat) present <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown Papules (raised) present <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown Vesicles (fluid) present <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown Hemorrhagic <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown Itchy <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown Scabs/crusting <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown Crops/waves <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown		Did the rash crust over? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown If yes, how many days until all the lesions crusted over? _____ days (Uk-999) If no, how many days did the rash last? _____ days (Uk-999)	Fever? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown Date of fever onset: ____/____/____	Highest measured temperature: _____ °F (Unknown-999.9) Total number of days with fever: _____ days (Unknown-999)
VACCINATION AND DISEASE HISTORY				
Ever received one or more doses of varicella containing vaccine? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown		Number of doses on or after first birthday: _____ doses	Source of Vaccination History: <input type="checkbox"/> GRITS <input type="checkbox"/> Physician Record <input type="checkbox"/> Parent Held Record <input type="checkbox"/> Patient Recall <input type="checkbox"/> Parent Recall <input type="checkbox"/> Other	
Dose	Vaccination date	Vaccine type	Vaccine manufacturer	Lot number
Dose 1	____/____/____			
Dose 2	____/____/____			
Dose 3	____/____/____			
Dose 4	____/____/____			
Vaccine type codes: V: Varivax M: MMRV (ProQuad) U: Unknown O: Other			Manufacturer codes: M: Merck O: Other U: Unknown	
Previous diagnosis of varicella? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown		If previously diagnosed, age at previous diagnosis: _____ (Unknown-999) <input type="checkbox"/> Days <input type="checkbox"/> Weeks <input type="checkbox"/> Months <input type="checkbox"/> Years		
		Previous diagnosis made by: <input type="checkbox"/> Parent <input type="checkbox"/> Physician/Healthcare Provider <input type="checkbox"/> Other		
Reason for not being age-appropriately vaccinated:				
<input type="checkbox"/> Born outside the U.S. (1)	<input type="checkbox"/> Lab evidence of previous disease (2)	<input type="checkbox"/> MD diagnosis of previous disease (3)	<input type="checkbox"/> Medical contraindication (4)	<input type="checkbox"/> Never offered vaccine (5)
<input type="checkbox"/> Parent/patient forgot to vaccinate (6)	<input type="checkbox"/> Parent/patient refusal (7)	<input type="checkbox"/> Philosophical objection (8)	<input type="checkbox"/> Religious exemption (9)	<input type="checkbox"/> Under age for vaccination (10)
<input type="checkbox"/> Other (11) (specify) _____	<input type="checkbox"/> Unknown (12)			

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Revised February 2016

GDPH VARICELLA CASE REPORT FORM

Varicella Case Report Form cont.--GDPH

COMPLICATIONS		
Hospitalized: <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown	Dates hospitalized: ___/___/___ to ___/___/___ Total # days hosp: _____	Facility name: _____
Primary Reason for Hospitalization: _____		
Did the patient develop any complications that were diagnosed by a healthcare provider? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown		
Skin/soft tissue infection <input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> Unk	Dehydration <input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> Unk	Meningitis <input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> Unk
Cerebellitis/ataxia <input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> Unk	Hemorrhagic condition <input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> Unk	Other (please specify): _____
Encephalitis <input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> Unk	Pneumonia <input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> Unk	
Does case-patient have any co-morbid medical condition(s)? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown		If Yes, specify co-morbid condition(s): _____
Is case-patient immunocompromised? <input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> Unk		If Yes, list immunocompromising medications, conditions: _____
Death: <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown	If yes, date of death: ___/___/___	If case died, please complete and attach varicella death worksheet
TREATMENT		
Did the patient receive any antiviral treatment? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unk		Date treatment started: ___/___/___
Antiviral treatment received: <input type="checkbox"/> Acyclovir <input type="checkbox"/> Valacyclovir <input type="checkbox"/> Famciclovir <input type="checkbox"/> Other (specify) _____		No. of days treatment taken _____ (Unk=999)
LABORATORY TESTS		
Was laboratory testing done for varicella? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown	Case lab confirmed (For state use only) <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown	Isolate/Specimen Available: <input type="checkbox"/> Yes <input type="checkbox"/> No
Culture _____	Result _____ Date specimen taken ___/___/___ Lab name _____	Reason for no laboratory testing: (check all that apply) <input type="checkbox"/> Physician did not request testing <input type="checkbox"/> Rash was resolved at time of PH notification <input type="checkbox"/> Parental/Patient refusal <input type="checkbox"/> Other (specify) _____ **DPH requests lab testing on all vaccinated cases. However, lab confirmation is not a requirement to be considered a case.
PCR _____	_____	
IgM _____	_____	
IgG (acute) _____	_____	
IgG (convalescent) _____	_____	
DFA _____	_____	
Result Codes: P:Positive X:Not done N:Negative I:Indeterminate E:Pending U:Unknown S: Shingles		
EPIDEMIOLOGIC INFORMATION		
Epi-linked to another confirmed or probable case? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown		Is the patient:
If yes, name of epi-linked case: _____		Pregnant? <input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> Unk
SendSS ID of epi-linked case: _____		If Yes, weeks pregnant: _____
Relationship to case: <input type="checkbox"/> Mother <input type="checkbox"/> Brother <input type="checkbox"/> Grandparent <input type="checkbox"/> Cousin <input type="checkbox"/> Sibling N/S <input type="checkbox"/> Father <input type="checkbox"/> Neighbor <input type="checkbox"/> Friend <input type="checkbox"/> Aunt <input type="checkbox"/> Unknown <input type="checkbox"/> Sister <input type="checkbox"/> Daycare <input type="checkbox"/> Baby Sitter <input type="checkbox"/> Uncle		Healthcare worker? <input type="checkbox"/> N <input type="checkbox"/> Unk <input type="checkbox"/> Yes, w/o direct patient contact <input type="checkbox"/> Yes, with direct patient contact
Has this case been in contact with anyone with shingles in the past 21 days? <input type="checkbox"/> Yes : Relationship to case: _____ <input type="checkbox"/> No <input type="checkbox"/> Unk		Employed at or attend daycare? <input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> Unk
Outbreak related? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown		Employed at or attend school? <input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> Unk
Outbreak name or location: _____		Incarcerated? <input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> Unk
Transmission setting (Where did this case acquire varicella?) <input type="checkbox"/> Daycare (1) <input type="checkbox"/> Doctor's Office (8) <input type="checkbox"/> Other (15) <input type="checkbox"/> School (2) <input type="checkbox"/> Unknown (9) <input type="checkbox"/> Work (3) <input type="checkbox"/> College (10) <input type="checkbox"/> Hospital Ward (4) <input type="checkbox"/> Military (11) <input type="checkbox"/> Hospital ER (5) <input type="checkbox"/> Correctional facility (12) <input type="checkbox"/> Outpatient clinic (8) <input type="checkbox"/> Place of worship (13) <input type="checkbox"/> Home (7) <input type="checkbox"/> International travel (14)		Institutionalized? <input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> Unk (nursing home or chronic care facility)
Setting of further documented spread from case (outside of household) (use no. codes from transmission Q above) _____		Was a final follow up call completed at the end of the 21 day incubation period to ensure no contacts developed disease? <input type="checkbox"/> Yes <input type="checkbox"/> No (reason) _____
No. of resident's in case's household: _____		
Comments: _____		

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