



Communicable Disease Surveillance Guidance **VARICELLA (Chickenpox)**

I. IDENTIFICATION

A. CLINICAL DESCRIPTION:

An illness with an acute onset of diffuse (generalized) maculopapulovesicular rash without other apparent cause. In persons vaccinated with varicella vaccine who develop varicella more than 42 days after vaccination (breakthrough disease), 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).

Transmission occurs from person to person by direct contact with patients with either varicella or herpes zoster lesions or by airborne spread from respiratory secretions or lesions of persons with chickenpox.

B. REPORTING CRITERIA:

Illness compatible with clinical description

NOTE: Statewide individual case reporting was recommended by the Council of State and Territorial Epidemiologists (CSTE) by 2005. To support case-based varicella surveillance, DHS 145 was amended to require varicella reporting using individual case reports effective March 2008.

C. LABORATORY CRITERIA FOR CONFIRMATION:

- Polymerase chain reaction (PCR) for varicella zoster virus (VZV)
 - Preferred method for rapid clinical diagnosis
- Direct fluorescent antibody (DFA)
 - Use for rapid clinical diagnosis only if PCR is not available (PCR is a more sensitive test)
- Virus culture to distinguish VZV strain
- Serology
 - Four-fold rise in IgG antibodies to varicella from the acute-phase serum to the convalescent-phase serum: Use for mild and atypical cases.
 - Capture IgM: Commercial kits should not be used because they lack sensitivity and specificity and false positive IgM results are common in the presence of high IgG levels; the National VZV Laboratory at CDC has developed a reliable IgM capture assay.

Laboratory confirmation of cases of varicella is increasing in importance. It is recommended in the following settings and circumstances:

- In an outbreak, it is recommended that three to five cases be confirmed, regardless of vaccination status.
- Hospitalized and fatal cases.
- Severe or unusual disease.
- Among recently vaccinated individuals:
 - Rash with more than 50 lesions occurring 7 or more days after vaccination
 - Suspected secondary transmission of the vaccine virus
 - Herpes zoster
 - Serious adverse events

D. WISCONSIN CASE DEFINITION:

- Confirmed:
 - A case that meets the clinical description and is laboratory confirmed.
- OR**
- A case that meets the clinical description and is epidemiologically linked to a confirmed or probable case (two probable cases that are epidemiologically linked are considered confirmed, even in the absence of laboratory confirmation).



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

NOTE: Epidemiologic linkage is characterized by direct face-to-face contact. An epidemiologically linked case is either a source case or same generation case. For epidemiologically linked cases of the same generation, a common exposure is likely.

II. ACTIONS REQUIRED / PREVENTION MEASURES

A. WISCONSIN DISEASE SURVEILLANCE CATEGORY II:

Report to the patient's local health department either electronically through the Wisconsin Electronic Disease Surveillance System (WEDSS), by mail or fax using an Acute and Communicable Disease Case Report ([F-44151](#)) or by other means **within 72 hours** upon recognition of a case or suspected case.

B. EPIDEMIOLOGY REPORTS REQUIRED:

- Electronically – Report through WEDSS, including appropriate disease-specific tabs
OR
- Paper Copy – Acute and Communicable Diseases Case Report ([F-44151](#))

C. PUBLIC HEALTH INTERVENTIONS:

In accordance with Wisconsin administrative rule DHS 145.05, local public health should follow the methods of control recommended in the current edition of *Control of Communicable Diseases Manual*, edited by David L. Heymann, published by the American Public Health Association. For further detailed information regarding control measures, please see the additional references cited at the end of this document. The Wisconsin Division of Public Health Immunization Program should also be consulted regarding state-specific guidelines.

- Individuals with varicella can spread VZV 1-2 days before the appearance of the rash until all lesions are crusted over (usually 4-5 days from rash onset).
- Breakthrough disease is infectious.
- The incubation period is 10-21 days (most commonly 14-16 days).
- Individuals with varicella should be excluded until they are no longer infectious.
- Varicella vaccine should be offered to susceptible individuals as soon as possible, as vaccination within 3-5 days of exposure to rash might modify the disease if infection occurred. Even if more than 5 days have elapsed since exposure, individuals without evidence of immunity should be vaccinated to protect against future infection.
- Varicella-zoster immune globulin (VariZIG) can be used in susceptible high-risk individuals within 10 days of exposure (preferably within 96 hours of exposure for greatest effectiveness).¹
- Individuals working in high-risk settings (e.g., health care settings) without evidence of immunity² should be excluded from days 10-21 after exposure to VZV2 (exposure is counted as day zero).
 - Individuals who have received one dose of varicella vaccine prior to exposure should receive their second dose as soon as possible, preferably within 3-5 days of exposure to VZV (as long as it has been at least 28

¹ Exposure to Varicella Zoster Virus (VZV) consists of: person-to-person by direct contact, droplet or airborne spread of vesicle fluid or secretions of the respiratory tract of chickenpox cases, or of vesicle fluid of patients with herpes zoster; indirectly through articles freshly soiled by discharges from vesicle and mucous membranes of infected people.

² Evidence of immunity includes: documentation of age-appropriate vaccination with varicella vaccine, laboratory evidence of immunity or laboratory confirmation of disease, birth in the United States before 1980 (except for health care providers, immuno-compromised individuals, and pregnant women), or diagnosis or verification of a history of varicella disease or herpes zoster by a healthcare provider.



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days since the first dose- an acceptable minimum interval for all ages for disease control purposes). If they do not receive a second dose or received it >5 days after exposure to VZV, the individual should be excluded from work from days 10-21 after exposure.

- In the event of an ongoing outbreak in a school or daycare, exclusion of susceptible individuals may be warranted. However, the local health department and the Wisconsin Immunization Program should be consulted before exclusion is implemented.
 - Individuals who are susceptible (e.g., unvaccinated and without history of disease) should be excluded from days 10-21 after exposure. If they receive their first dose postexposure, they may return to school and activities immediately.
 - Individuals with only one dose of vaccine should be excluded from days 10-21 after exposure. If they receive their second dose postexposure, they may return to school and activities immediately.
- The DPH regional immunization contact should be alerted if five or more cases of varicella are clustered, or if a case of varicella occurs in a high-risk setting (e.g., hospitals and other health care settings, settings with significant numbers of immuno-compromised or susceptible individuals), because additional control measures may be warranted.

D. PREVENTION MEASURES:

Two doses of varicella vaccine are recommended for children aged >12 months, adolescents and adults without evidence of immunity.¹

- Children aged <13 years: A first dose of varicella vaccine is routinely recommended for all children at age 12-15 months. A second dose of varicella vaccine is recommended for all children at age 4-6 years. However, it may be administered at an earlier age provided the interval between the first and second dose is at least 3 months.
- Adolescents and adults aged >13 years: Individuals without evidence of immunity should receive two doses of varicella vaccine. The two doses must be spaced at least 4 weeks apart.

III. CONTACTS FOR CONSULTATION

A. LOCAL HEALTH DEPARTMENT – REGIONAL OFFICES – TRIBAL AGENCIES:

<http://www.dhs.wisconsin.gov/localhealth/index.htm>

B. REGIONAL IMMUNIZATION PROGRAM REPRESENTATIVES:

<http://www.dhs.wisconsin.gov/immunization/CentralStaff.htm>

C. BUREAU OF COMMUNICABLE DISEASES AND EMERGENCY RESPONSE (BCDER) / IMMUNIZATION PROGRAM: 608-267-9959

D. WISCONSIN STATE LABORATORY OF HYGIENE - Communicable Disease Division:

Customer Service: 800-862-1013 or 608-262-6386

Clinical Supplies: 800-862-1088 or 608-265-2966

IV. RELATED REFERENCES

- Chickenpox (varicella) DPH Disease Fact Sheet: <http://www.dhs.wisconsin.gov/publications/p4/p42035.pdf>
- American Academy of Pediatrics. Varicella-Zoster Infections. 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: AAP 2009:714-727.
- CDC. Varicella. Atkinson W, Wolfe S, Hamborsky J, McIntyre L, eds. Epidemiology and Prevention of Vaccine-Preventable Diseases 12th ed. Washington, DC: Public Health Foundation; 2012: 301-324.



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- CDC. Varicella. Roush SW, McIntyre L, Baldy LM, ed., *Manual for the Surveillance of Vaccine-Preventable Diseases* 5th ed. Atlanta, GA, CDC, 2011:17-1–17-16
<http://www.cdc.gov/vaccines/pubs/surv-manual/chpt17-varicella.html>
- CDC. Prevention of Varicella: Recommendations of the Advisory Committee on Immunization Practices (ACIP), MMWR 2007; 56(RR-4):1-40 http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5604a1.htm?s_cid=rr5604a1_e
- CDC. Immunization of Health-Care Personnel, Recommendations of the Advisory Committee on Immunization Practices (ACIP), MMWR 2011; 60(No. 7) <http://www.cdc.gov/mmwr/preview/mmwrhtml/rr6007a1.htm>
- Heymann DL, ed. *Control of Communicable Diseases Manual*, 19th ed. Washington, DC: American Public Health Association; 2008:109-116