GUIDELINES FOR PREVENTION OF VARICELLA TRANSMISSION IN OREGON SCHOOLS AND CHILDREN'S FACILITIES

BACKGROUND

In September 2000, vaccination against varicella (chickenpox) was required of susceptible children in Oregon children's facilities, and a similar requirement for children in grades K–12 was phased in during 2000–2006. Four percent of school-age children have a non-medical exemption to varicella vaccination. Those who are not immunized may drive or prolong school outbreaks.

Varicella is not reportable in Oregon, and Oregon Administrative Rule 333-019-0010 regarding school-restrictable diseases makes no provision for exclusion of susceptible contacts of non-reportable diseases. In schools where varicella has been identified, parents of susceptible children should be notified, informed of the risks to their children, and, absent medical contraindications, strongly advised to have their children vaccinated.

Parents should be advised that children who lack immunity and continue to attend school are at risk for chickenpox and its complications and, that they, in turn, could expose other students, teachers, and family members. Children with immunocompromising medical conditions are at greatest risk of significant complications, e.g., pneumonia, from varicella.

DEFINITIONS

Varicella absentees

Varicella absentees are defined as students, children's facility attendees, and staff (with contact with children) who are absent from school or work due to varicella of undetermined case status.

Varicella cases

Varicella cases are defined as persons (with or without varicella vaccination) with acute onset of maculopapulovesicular rash that is without other apparent cause and persists longer than 24 hours, **and** at least one of the following:

- Laboratory confirmation by isolation of varicella zoster virus (VZV) from vesicular fluid, demonstration of VZV DNA by polymerase chain reaction, positive serologic test for anti-VZV IgM antibody, or paired acute and convalescent sera demonstrating a 4-fold rise in anti-VZV IgG antibody titer (confirmed varicella);
- varicella diagnosed by a licensed health care provider after physical examination (presumptive varicella); or

- parent-reported varicella with an epidemiologic link to a confirmed or presumptive varicella case in school, in a child care facility, or at home (suspect varicella).

Varicella case contacts

Varicella case contacts are defined as persons potentially exposed to a confirmed, presumptive, or suspect varicella case, from two days before to five days after the case's rash onset date. They include household contacts, those attending or working at a child care venue while the case was present, and school classmates or staff who were in the same classroom with the case. If the rash onset date is unknown, include as contacts those present at the school or child care venue the last day the case attended before being absent for varicella.

Evidence of Immunity

Evidence of immunity to varicella is defined as any of the following:

- documentation of age-appropriate varicella vaccination according to Oregon school law or children's facility requirements*;
- laboratory evidence of immunity or laboratory confirmation of disease;
- born in the United States before 1980;
- history of provider-diagnosed varicella; or
- a healthcare provider diagnosis of herpes zoster.

Varicella susceptibles

Varicella susceptibles are defined as persons who lack evidence of immunity to varicella.

PUBLIC HEALTH APPROACH

The identification of a single case of varicella in a school or children's facility should trigger intervention measures, because the case could lead to an outbreak. When a local public health authority (LPHA) learns of one or more varicella cases or absentees in a school or children's facility, the following steps should be taken.

Discussion with school or children's facility officials

The LPHA should discuss with school or children's facility officials:

- whether the absentees are likely to have varicella;
- the number of varicella cases identified in the facility within the most recent 42-day period.
- potential risks to non-immune staff members, particularly to immunocompromised or pregnant ones.

Isolation and exclusion of cases

The first step is to isolate varicella cases from others immediately. All confirmed and presumptive varicella cases should be excluded from work or attendance at school or day care

* School immunization law (OAR 333-050-0120) requires vaccination with one dose of varicella vaccine if given at 12 months–12 years of age; or two doses, given at least 24 days apart, if the first dose is given at ≥13 years of age.

until all lesions are crusted over, or until no new lesions appear within a 24-hour period — typically, about 5 days after rash onset.

All suspect varicella cases should be similarly excluded until their case status is further characterized or until all lesions are crusted over.

Notification of parents and staff

A notification letter should be sent to those who may have been exposed to the case. In a school setting, the letter might typically be sent home with the children in the same classroom as the case; but how broadly to distribute the notification letter for a single case will be at the discretion of the school or children's facility. The letter should alert the recipient to the possibility of exposure to varicella, describe the disease, and recommend vaccination of persons without evidence of immunity and recommend a second dose of varicella vaccine if only one dose has been given.

An outbreak is defined as three or more cases linked by time and place. All parents of children attending children's facilities or schools where an outbreak occurs should be notified of the outbreak and measures (e.g., vaccination, exclusion) to stem it. In the notification, parents of susceptible children should be advised to have them vaccinated with the appropriate dose or, if vaccination is contraindicated or refused, to keep them from school until 21 days after the last case is identified. During an outbreak, a second dose of varicella vaccine is also recommended for children 1–4 years of age to assist with outbreak control. Active identification of susceptible persons with immunocompromising conditions is also recommended so that they can be advised to avoid contact with cases for 21 days after the last identified case onset and so that passive immunization with varicella-zoster immune globulin [VZIG; see below] can be considered. Students who need to avoid the school setting for prolonged periods may be eligible for home tutors; and staff members who cannot work because of varicella risk may be eligible for medical leave or worker's compensation.

Examples of exposure letters are available at https://www.oregon.gov/oha/ph/preparedness/partners/pages/riskcommunicationtools.aspx.

Exclusion of susceptible contacts

Although OAR 333-019-0010 does not authorize Oregon public health agencies to exclude susceptible children following exposure to non-reportable diseases like varicella, it does permit a school or children's facility to adopt more stringent exclusion standards: see OAR 333-019-0010.

Immunization

Vaccination of susceptibles within 5 days of exposure to varicella may prevent illness. Because varicella outbreaks in schools and children's facilities may persist for several generations of cases, all varicella susceptibles ≥12 months of age in the school or children's facility without a contraindication to vaccination should be offered varicella-containing vaccine—regardless of time since exposure. (Those who also lack immunity to measles could be offered measles-

mumps-rubella-varicella vaccine.) Those with a history of having received one dose should be offered or advised to get a second dose at least 28 days after the first dose was given.

A Varicella-Zoster Immune Globulin (VZIG [VariZIG]) is licensed for use in the United States for postexposure prophylaxis for persons who do not have evidence of varicella immunity and who have contraindications for varicella vaccine. VariZIG is a purified human immune globulin preparation made from plasma containing high levels of anti-varicella antibodies (IgG) that is lyophilized. When properly reconstituted, VariZIG is approximately a 5% solution of IgG that can be administered intramuscularly.

ADDITIONAL RESOURCES

- https://www.cdc.gov/vaccines/pubs/surv-manual/chpt17-varicella.html#case
- https://www.cdc.gov/vaccines/pubs/pinkbook/varicella.html

UPDATE LOG

May 2024: Outbreak definition changed from 5 cases to 3.

March 2017: Title changed from “Exclusion of Susceptibles…” to “Prevention of Transmission…” Revised to indicate that Oregon law no longer requires exclusion of varicella susceptibles. Added recommendations for varicella vaccination and VZIG (VariZIG®) administration. (Juventila Liko, Paul Cieslak)