

# Introduction of the Varicella (Chickenpox) Vaccine Effectiveness Project in School Settings Through Varicella Outbreak Investigation

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Divisions of Infectious Disease Epidemiology, Immunization Services &  
Information Services  
Office of Epidemiology & Prevention Services (OEPS)  
West Virginia Bureau for Public Health

# Reporting Requirement

- West Virginia Communicable Disease Rule (64CSR7) requires:
  - Immediate: varicella outbreak to local health department (LHD). You may report outbreaks to the Div. of Infectious Disease Epidemiology (DIDE) at 1-800-423-1271.
  - Weekly: total number of cases of varicella.

# Recommendation

- Two (2) doses of varicella (chickenpox) vaccination for new school enterers in 2008-2009.

# Background(1)

## The Disease

- Highly infectious disease caused by Varicella Zoster Virus
  - Person-to-person by direct contact
  - Inhalation of aerosols from vesicular fluid of skin lesion
  - Infected respiratory tract secretions
- Period of contagiousness:  
1-2 days before rash onset to crusting of all lesions.
- Incubation Period: 10-21 days

## BACKGROUND (2)

- In 1995: Varicella vaccine was licensed for use in the US
- In 2006: Routine two-dose schedule for children.

*Rationale for the second-dose recommendation: to reduce the number of varicella outbreaks.*

# Objectives of the Project

- To develop or improve outbreak detection and investigation in schools.
- To evaluate effectiveness of two-dose varicella vaccination in the context of an outbreak.

# You are a Key Player!

- WV is one of 6 sites awarded by the CDC to conduct this project.
- One-time and short-term opportunity
- Information may impact CDC recommendations for varicella vaccine guidelines.
- WVDHHR will offer ready assistance to school nurses.

# Project Support Information

**Project dates: 12/1/09 - 12/31/2011**

## **Varicella Outbreak Team**

**Varicella Surveillance Nurse: Jeannie Shifflett, RN**

**Varicella Project Coordinator: Stephen Frame, BS**

**Epidemiologist: Thein Shwe, MPH, MS, MBBS**

# Procedures

- All public schools (elementary, middle/Jr., high)
- Respond to monthly survey (by email) from project coordinator by the 30<sup>th</sup> of each month.
- Report case(s) of chickenpox to LHD every week.

Immediately report outbreak to LHD or DIDE at 1-800-423-1271.

# Monthly Varicella Surveillance Survey

**Demographic Information**

Please fill out fields below.

**Nurse's Name:**

**School Name:**

**School Address:**

**City/Town:**

**ZIP/Postal Code:**

**County:**

**School Phone Number:**

**Person Completing Survey:**

What type of facility is in operation?

School Type:  Choices:

What is the current enrollment at this school?

Please enter a numerical number.

# Monthly Varicella Surveillance Survey

- A survey must be completed for each school a nurse services.
  - Ex. Jean has 8 schools, she must complete 8 surveys (1 per school).
- A survey can be completed from any computer with internet access.
- There is a time limit for survey completion!
- Dates for survey closure will be noted in the email and on our website.

# Vaccine Effectiveness Project

- Outbreaks
  - Case report on “ill children” and “well children” in the same classroom or all children in the same school will be collected

*Help is available*

Contact Jeannie Shifflett

1-800-423-1271



# Varicella Case Report Form

West Virginia Bureau for Public Health  
 Office of Epidemiology & Prevention Services  
 Division of Infectious Disease Epidemiology (DIDE)  
 350 Capitol St. Rm. 125, Charleston, WV 25301  
 304-558-5358 (Phone) 304-558-8736 (Fax)  
 Please fax the completed form to DIDE

## Varicella Outbreak Case Report Form

### Demographic Information

1. Name \_\_\_\_\_ Gender: \_\_\_\_\_
2. Date of Birth: \_\_\_\_\_ Age: \_\_\_\_\_ years
3. Name of School attended: \_\_\_\_\_
4. Grade: \_\_\_\_\_ Classroom: \_\_\_\_\_
5. Type of School: \_\_\_\_\_  
 (Elementary (E), Middle (M), High (H))
6. County where School located: \_\_\_\_\_

### Clinical Information

\_\_\_\_\_ For Control Case, go to #10

7. Rash Onset Date: \_\_\_\_\_  
 (mm/dd/yyyy)
8. Severity of Rash (in number of lesions):  
 <50 \_\_\_\_\_ 50-249 \_\_\_\_\_ 250-499 \_\_\_\_\_ ≥500 \_\_\_\_\_  
 Mild: Can easily count within 30 seconds  
 Moderate: Can place hand on body without covering any lesions  
 Moderately severe: Hand placed on body will cover one or more lesions  
 Severe: Difficult to see normal skin
9. Is patient hospitalized due to varicella?  
 Yes \_\_\_\_\_ No \_\_\_\_\_

### Vaccination and Disease History

#### 10. Varicella Vaccination Status

|                   | One Dose | Two Doses | None | Unknown |
|-------------------|----------|-----------|------|---------|
| Varicella Vaccine |          |           |      |         |

#### 11. Varicella Disease History

|                 |                     | <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> Unknown |
|-----------------|---------------------|------------------------------|-----------------------------|----------------------------------|
| Date of Disease | Source of Diagnosis |                              |                             |                                  |

12. Has specimen been collected for laboratory confirmation?  
 Yes \_\_\_\_\_ No \_\_\_\_\_ For Control Case indicate Not Applicable \_\_\_\_\_  
 If yes, Date Collected \_\_\_\_\_

## Guidance for estimating number of lesions

- $< 50$  = Can easily count # of lesions within 30 seconds.
- $50 - < 250$  = Can place hand on body without covering any lesions.
- $250 - < 500$  = Hand placed on body will cover one or more lesions.
- $\geq 500$  = Difficult to see normal skin.

# 2010 Case Definition

- CSTE Position Statement Number : 09-ID-68

# CDC Clinical Case Definition of Varicella

- An illness with acute onset of diffuse (generalized) maculo-papulovesicular rash without other apparent cause.

# Breakthrough Disease

- In vaccinated persons who develop Varicella more than 42 days after vaccination (i.e., breakthrough disease), the rash may be atypical in appearance (maculo-papulovesicula w/ fewer number of vesicles).

# Varicella Outbreak Case Definition

For the purposes of this project from December 2009 to December 2011,  
the case definition has been changed to

*Three (3) or more cases in a school within one (1) incubation period (10-21 days).*

## Laboratory criteria for diagnosis

- Isolation of varicella virus from a clinical specimen, or
- Varicella antigen detected by direct fluorescent antibody test, or
- Varicella-specific nucleic acid detected by polymerase chain reaction (PCR), or
- Significant rise in serum anti-varicella immunoglobulin G (IgG) antibody level by any standard serologic assay.

# Case Classification

*Probable:*

- A acute illness with
  - Diffuse (generalized) maculopapulovesicular rash, AND
  - Lack of laboratory confirmation, AND
  - Lack of epidemiologic linkage to another probable or confirmed case.

## Case Classification, cont'd

### *Confirmed:*

- An acute illness with diffuse (generalized) maculopapulovesicular rash, AND
  - Epidemiologic linkage to another probable or confirmed case, OR
  - Laboratory confirmation by any of the following: *(see next slide)*

## Case Classification, cont'd

- ❑ Isolation of varicella virus from a clinical specimen, OR
- ❑ Varicella antigen detected by direct fluorescent antibody test, OR
- ❑ Varicella-specific nucleic acid detected by polymerase chain reaction (PCR), OR
- ❑ Significant rise in serum anti-varicella immunoglobulin G (IgG) antibody level by standard serologic assay.

# Varicella Outbreak Investigation Resources

All Resources listed below are found on our website:

<http://www.wvidep.org/AZIndexofInfectiousDiseases/VaricellaChickenpox/tabid/1491/Default.aspx>

- Varicella disease investigation protocol
- Varicella Case Report Form
- Outbreak Line list Form
- Varicella Information Sheet for Health Care Providers
- Varicella Information Sheet for Public/Parents
- Sample letters for healthcare providers and parents
- Division of Immunization Services provides varicella vaccines to control the outbreak (if resources available)
- School nurses and LHD collaborate to do outbreak investigation and vaccination clinics at schools

Questions?

Thank You!

## **Stephen Frame, BS**

Varicella Surveillance Project Coordinator

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WV Toll Free: 1-800-423-1271

# Contact Information

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