



## HEALTH ADVISORY

November 12, 2019

### Illnesses circulating in younger children

#### **CURRENT SITUATION**

Numerous common childhood diseases which may have similar presentations (including at least fever and rash) have been circulating throughout the county since late summer. Multiple children who have presented to health care providers with fever and rash have been presumptively diagnosed as infected with varicella and provided with advice for management of chicken pox. These provisional diagnoses, not confirmed by available local confirmatory lab testing, have created unnecessary disruptions, anxiety, and concern for parents, school districts and pregnant staff members within those schools, and the public at large.

The number of common illnesses with similar presentations can make it difficult to tease out an exact diagnosis in the duration of a short exam. Given the current state of laboratory capability, a diagnosis based on clinical impression alone is insufficient and not the standard of care. An accurate diagnosis should be supported with appropriate laboratory confirmation.

#### **ACTIONS REQUESTED OF CLINICIANS**

1. **Consider common causes of presenting symptoms of fever and rash first:**
  - A. Enteroviruses including strains of Hand Foot and Mouth Disease
  - B. Parvovirus B19 including Fifth Disease
  - C. Bacterial skin infections such as Impetigo
  - D. Many other viral exanthemas
2. **Consider the vaccination status and travel/ exposure history of the child in your differential.** The California Immunization Registry ([CAIR](#)) can be a useful tool.
3. **Lab confirmation of disease:** May require collection of multiple swabs as each suspected illness may require a different collection method for testing. PCR tests sent to the Humboldt County Public Health Lab have 24 hour turn around for results from time of receipt.
  - A. **Enterovirus PCR-** Dacron- tipped nasopharyngeal swab sent in viral transport media. (Tests for all enteroviruses including enterovirus D68 and 71 and coxsackievirus A16- all common causes for Hand Foot and Mouth Disease.) After initial test, will require send out to state VRDL lab to differentiate virus type.
  - B. **Measles/ Mumps-** Dacron- tipped nasopharyngeal swab in viral transport media
  - C. **Pox Viruses-** Dry scab in sterile container or Dacron- tipped swab of vesicle in a sterile container
  - D. **Bacterial Illnesses-** Dacron- tipped swab of vesicle/ pustule sent in aerobic/ anaerobic bacterial culture media. Send to commercial lab for testing

#### **\* Additional Information**

##### **Humboldt County Public Health Lab PCR Testing:**

- Turn-around time:
  - Same day if received by 10 am otherwise next day service
  - Please contact the lab immediately to arrange for faster testing
- Cost is \$90.00 for PCR per test
- Humboldt County Public Health Lab can bill private insurance and Medi-Cal.

Contact the Humboldt County Public Health Communicable Disease Team at 707-268-2182 with questions





Poxvirus PCR Testing: Varicella-Zoster(Chickenpox), Variola (Smallpox), & non-smallpox poxvirus

**!! If smallpox (Variola virus) is suspected consult the Humboldt County Public Health Department (707) 268-2179 to determine the level of risk associated with the patient and the level of precautions to be used in handling clinical specimens!!**

#### **ACCEPTABLE SPECIMEN TYPES AND SPECIMEN COLLECTION**

- **Testing Rationale:** Collect appropriate specimens to confirm the cause of infection in patients presenting with acute vesicular or pustular rash illness. Testing can be performed by the Humboldt County Public Health Laboratory (HCPHL) to confirm Varicella (VZV), or non-smallpox poxvirus, and/or to rule out Variola virus infection (smallpox) as the cause of infection. Collect specimen as soon as possible after illness onset.
- **Preferred Specimens:**
  - **Scabs:** If lesions have crusted over, scabs provide an excellent source of viral DNA. Lift scab from skin using the beveled point of a 26-gauge needle. Transfer scab to sterile container. **Do not place in viral transport medium (VTM). Transport at ambient temperature.**
  - **Swabs:** Unroof a vesicle using a sterile 26-gauge needle. Using a sterile swab, scrub the base of the lesion vigorously enough to ensure that cells from the lesion are collected. Place swab, (breaking off stick if necessary) into a sterile tube or container. **Do not place in viral transport media (VTM). Transport specimen at ambient temperature.**
- **Acceptable Specimens:**
  - While a dry swab placed into a sterile tube or container is preferred, the HCPHL will accept a specimen collected on a swab placed in VTM and refrigerated.

#### **TEST ORDER OPTIONS FOR THIS KIT**

- Fill out the Humboldt County Public Health Laboratory Requisition completely and legibly
- Either select “Molecular: **VZV PCR**” or indicate on the requisition under “LRN: BIOTERRORISM TESTING” that you are requesting Poxvirus testing.
- Label the specimen with the patient’s full name, date of collection, and specimen source.
- Send copy of insurance card if insurance is to be billed

#### **SPECIMEN STORAGE & TRANSPORT**

- Dry scabs and swabs of lesions should be stored at ambient temperature.
- Swabs in viral transport media (VTM) should be refrigerated.
- Clinical specimens should be shipped at ambient temperature in appropriate packaging.
- All specimens should ideally be received ≤ 3 days from time of collection.
- Deliver to: Humboldt County Public Health Laboratory, 529 I St, Eureka, CA 95501

#### **REJECTION CRITERIA**

- Incomplete specimen labeling/documentation
- Improperly stored specimens.
- Improper sample type such as cotton tipped vesicle swab.

#### **Additional Information**

Humboldt County Public Health Lab PCR turn-around time-Same day if received by 10 am otherwise next day service. Please contact the lab immediately to arrange for faster testing  
Cost is \$90.00 for PCR Humboldt County Public Health Lab can bill private insurance and Medi-Cal.  
For more collection kits and requisitions please contact HCPHL at **(707) 268-2179**  
Courier pick-up is provided by HCPHL; for pick-up, call **(707) 499-4513**





## Varicella Case Definition

The following case definitions were approved by the Council of State and Territorial Epidemiologists (CSTE) for varicella cases in June 1999 with an update in June 2009 [40-41] and for varicella deaths in 1998.[42]

### Varicella clinical case definition

An illness with acute onset of diffuse (generalized) maculopapulovesicular rash without other apparent cause. In vaccinated persons varicella that develops more than 42 days after vaccination (breakthrough disease) due to infection with wild-type VZV, is usually mild, with fewer than 50 skin lesions and of shorter duration of illness. The rash may also be atypical in appearance (maculopapular with few or no vesicles).

### Laboratory criteria for diagnosis

#### Preferred Testing Method

- Demonstration of VZV DNA by polymerase chain reaction (PCR) tests from a clinical specimen, ideally scabs, vesicular fluid, or cells from the base of a lesion [See the [varicella web site](#) for more details] is the preferred method for varicella diagnosis. PCR is also useful for confirming breakthrough disease (Table 1). Other methods, such as DFA and culture, are available for diagnosis but are less sensitive and specific than PCR.

#### Other Testing Methods

- Positive serologic test for varicella-zoster immunoglobulin M (IgM) antibody when varicella-like symptoms are present.
- Four-fold or greater rise in serum varicella immunoglobulin G (IgG) antibody titer by any standard serologic assay between acute and convalescent sera.

Data are limited regarding IgM antibody tests and the timing of the IgM response in unvaccinated persons. Even less information is available on serologic methods for laboratory confirmation for vaccinated persons. Therefore, a negative IgM result should not be used to rule out the diagnosis, and a positive IgM in the absence of rash should not be used to confirm a diagnosis. Furthermore, a 4-fold rise in IgG antibody may not occur in vaccinated persons. VZV IgG avidity testing is a method that can be used to distinguish between primary VZV infection and past infection but this method is not widely available. Therefore, DNA detection methods are the laboratory methods of choice for diagnosis.

For both unvaccinated and vaccinated persons, **PCR is the most reliable method for confirming infection.**

<https://www.cdc.gov/vaccines/pubs/surv-manual/chpt17-varicella.html>

