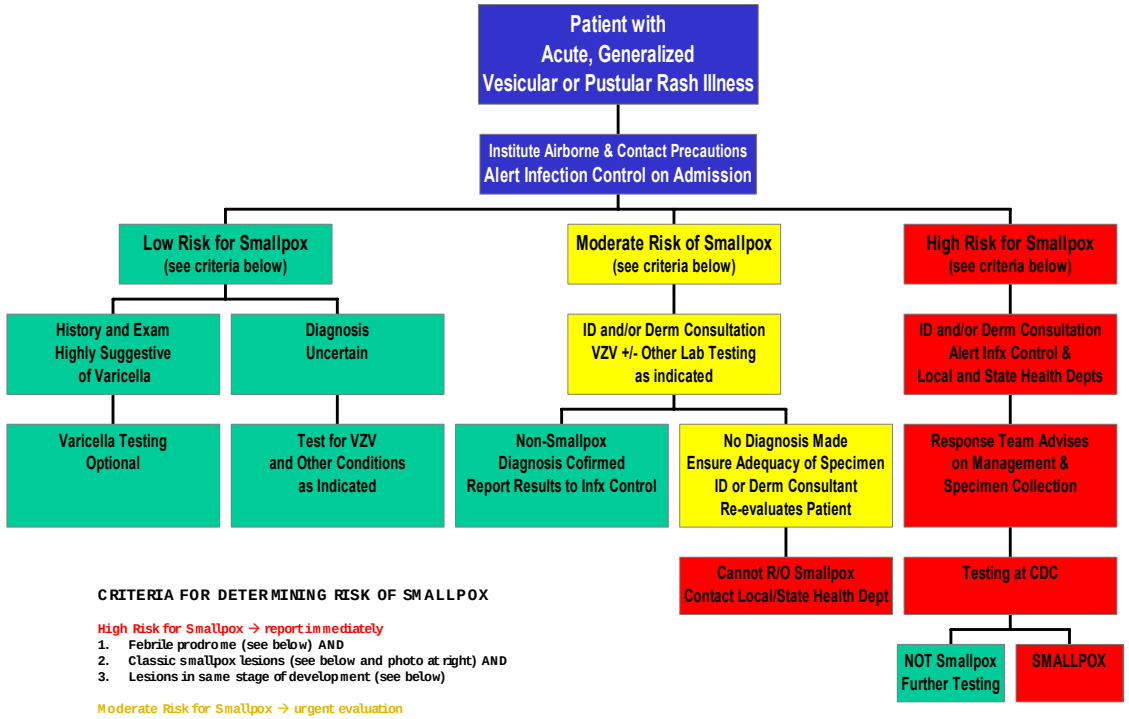
Generalized Vesicular or Pustular Rash Illness Protocol



A suspected case of smallpox is a public health and medical emergency.

Clinical case definition of smallpox: an illness with acute onset of fever ≥101°F followed by a rash characterized by vesicles or firm pustules in the same stage of evolution without other apparent cause.

Report ALL *suspected* cases (without waiting for lab results) to:
1. Hospital Infection Control ( )___-____ or ( )___-____ Pager
2. (Local) health department ( )___-____ or ( )___-____ Pager
3. (State) health department ( )___-____ or ( )___-____

Questions ? Centers for Disease Control and Prevention:
(404)639-3532 days; Nights/weekends/holidays: (770) 488-7100

Conditions With Vesicular or Pustular Rashes

Condition	Clinical Clues
Varicella (primary infection with varicella-zoster virus)	Most common in children <10 years; children usually do not have a viral prodrome
Disseminated herpes zoster	Prior history of chickenpox; immunocompromised hosts
Impetigo (*Streptococcus pyogenes, Staphylococcus aureus*)	Honey-colored crusted plaques with bullae are classic but may begin as vesicles; regional not disseminated
Drug eruptions and contact dermatitis	Exposure to medications; contact with possible allergens
Erythema multiforme (incl. Stevens Johnson Sd)	Major form involves mucous membranes and conjunctivae
Enteroviruses incl. Hand, Foot and Mouth disease	Summer and fall; fever and mild pharyngitis at same time as rash; distribution of small vesicles on hands, feet and mouth or disseminated
Disseminated herpes simplex	Lesions indistinguishable from varicella; immunocompromised host
Scabies; insect bites (incl. fleas)	Pruritis; in scabies, look for burrows (vesicles and nodules also occur); flea bites are pruritic; patient usually unaware of flea exposure
Molluscum contagiosum	Healthy afebrile children; HIV+ individuals
Bullous Pemphigoid	Bullous lesions. Positive Nikolski sign.
Secondary syphilis	Rash can mimic many diseases; rash may involve palms and soles; 95% maculo-papular, may be pustular. Sexually active persons

Variant presentations of smallpox: approximately 3-5% of persons never vaccinated for smallpox will present with **hemorrhagic smallpox** (see photo-- can be mistaken for meningococcemia, hemorrhagic varicella, Rocky Mountain spotted fever, erlichiosis, acute leukemia) and 5-7% with **flat-type smallpox** (see photo). Both variants are highly infectious and carry a high mortality.

CRITERIA FOR DETERMINING RISK OF SMALLPOX

High Risk for Smallpox → report immediately
1. **Febrile prodrome (see below) AND**
2. **Classic smallpox lesions (see below and photo at right) AND**
3. **Lesions in same stage of development (see below)**

Moderate Risk for Smallpox → urgent evaluation
1. **Febrile prodrome (see below) AND**
2. **One MAJOR smallpox criterion (see below)**

OR

1. **Febrile prodrome (see below) AND**
2. **≥4 MINOR smallpox criteria (see below)**

Low Risk for Smallpox → manage as clinically indicated
1. **No viral prodrome OR**
2. **Febrile prodrome and <4 MINOR smallpox criteria (no major criteria) (see below)**

Smallpox Criteria

MAJOR SMALLPOX CRITERIA

▪**FEBRILE PRODROME**: occurring 1-4 days before rash onset: fever >102°F **and** at least one of the following: prostration, headache, backache, chills, vomiting or severe abdominal pain. All smallpox patients have a febrile prodrome. The fever may drop with rash onset.

▪**CLASSIC SMALLPOX LESIONS**: deep, firm/hard, round, well-circumscribed; may be umbilicated or confluent

▪**LESIONS IN SAME STAGE OF DEVELOPMENT**: on any one part of the body (e.g., the face, or arm) all the lesions are in the same stage of development (i.e. all are vesicles, or all are pustules)

MINOR SMALLPOX CRITERIA

▪Centrifugal distribution: greatest concentration of lesions on face and distal extremities

▪First lesions on the oral mucosa/palate, face, forearms

▪Patient appears toxic or moribund

▪Slow evolution: lesions evolve from macules to papules→pustules over days

▪Lesions on the palms and soles (majority of cases)

CHICKENPOX (VARICELLA) IS THE MOST LIKELY CONDITION TO BE MISTAKEN FOR SMALLPOX.

How varicella (chickenpox) differs:

▪No or mild, brief (1 day) prodrome

▪Lesions are superficial vesicles: "dewdrop on a rose petal"

▪Lesions appear in crops; on any one part of the body there are lesions in different stages (papules, vesicles, crusts)

▪Centripetal distribution: greatest concentration of lesions on the trunk, fewest lesions on distal extremities. May involve the face/scalp. Occasionally entire body equally affected.

▪First lesions appear on the trunk, or occasionally on face

▪Patients rarely toxic or moribund

▪Rapid evolution: Lesions evolve from macules → papules→ vesicles →crusts quickly (<24 hours)

▪Palms and soles spared

▪Patient lacks reliable history of varicella or varicella vaccination

▪50-80% recall an exposure to chickenpox or shingles 10-21 days before rash onset

Laboratory Testing for Varicella: Collect *at least* 3 good specimens from each patient

- Direct fluorescent antibody (DFA)--rapid, depends on adequate specimen (see below)
- Indirect fluorescent antibody (IFA) --rapid, depends on adequate specimen (see below)
- Polymerase chain reaction (PCR)--available in research labs, some tertiary care centers
- Serologic testing: an IgG (collected at time of rash) provides evidence of prior varicella, and makes acute varicella infection unlikely but does not rule out herpes zoster in persons at risk of dissemination. IgM is not useful for diagnosis.
- VZV culture --results delayed, useful only if processed in-house
- EM (electron microscopy) --can identify herpes viruses

How to Collect a Specimen for DFA or IFA Testing

1. Unroof (open) vesicle or pustule with a sterile lancet
2. Swab base of vesicle vigorously with a sterile swab
3. Smear swab onto 3 areas (or wells) of a microscope slide
4. Allow slide to air dry
5. Transport to lab for immediate fixing and staining
6. VZV positive specimens are seen with varicella (chickenpox) and herpes zoster (shingles)

The hospital lab performs _____ test
For DFA/IFA, call _____ (specimen is tested at outside lab)