

Distinguishing Smallpox from Chickenpox

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Characteristic	Smallpox	Chickenpox
Mode of Transmission	Airborne droplets plus contact with lesions	Airborne droplets plus contact with lesions
Incubation Period	Average = 12-14 days (range is from 7-17 days)	Average = 14-16 days (range is from 10-21 days; prophylactic acyclovir and varicella zoster immune globulin extend incubation period to 28 days)
Prodrome Symptoms	<ul style="list-style-type: none"> • High fever, malaise, prostration, headache, and myalgias in the 48-hour period before rash develops • Vomiting is 50% 	<ul style="list-style-type: none"> • Fever, malaise, and pharyngitis in the 24-48 hour period before rash occurs
Rash/Diagnostic Characteristics	<ul style="list-style-type: none"> • Rash begins as maculopapular lesions on face and oral mucosa • Spreads centrifugally to trunk and legs • Becomes vesicular within two days • Does NOT usually have surrounding erythema • Becomes pustular over next 2-3 days • May occur on palms and soles • Rash progresses uniformly -- all lesions have the same appearance • Lesions occur deep in dermis -- lesions feel "thick" or indurated • More pain than pruritis • Crusts begin to form on day eight or nine of rash • Scabs fall off by days 14-21; residual scar common 	<ul style="list-style-type: none"> • Rash begins as pruritic papules on trunk • Centripetal rash -- more concentrated on trunk, then spreads to face/scalp followed by upper arms and thighs • May be present on oral mucosa • Becomes vesicular with surrounding erythema ("dew drop on rose petal") • Lesions are superficial • New crops of lesions appear over 2-4 days -- lesions at various stages can be seen at the same time on the same area of skin • Almost NEVER on palms and soles • Most lesions have crusted by rash day seven
Period of Infectivity	<ul style="list-style-type: none"> • NOT infectious until rash develops • Infectious until all lesions have scabbed over • About 60% of unvaccinated household contacts become infected 	<ul style="list-style-type: none"> • Most infectious in the 48-hour period before rash develops • Infectious until all lesions have scabbed over • About 90% of unvaccinated household contacts become infected
Isolation Category	<ul style="list-style-type: none"> • Airborne-National Institute of Occupational Safety and Health Respiratory Required Precautions plus Contact Precautions • Negative pressure room with high efficiency particulate air filtration or direct exhaust • Continue isolation until all lesions have crusted 	<ul style="list-style-type: none"> • Airborne plus Contact Precautions • Negative pressure room with high efficiency particulate air filtration or direct exhaust • Continue isolation until all lesions have crusted
Personal Protective Equipment	<ul style="list-style-type: none"> • N95 or other approved, fit-tested respirator • Gloves • Gowns • Dispose of personal protective equipment before leaving room 	<ul style="list-style-type: none"> • Standard mask (may omit if known to be immune to varicella) • Gloves and gowns for contact with patient • Dispose of personal protective equipment before leaving room
Treatment	<ul style="list-style-type: none"> • Smallpox vaccine may prevent or lessen severity of illness if given within four days of an exposure • Cidofovir may prevent or lessen severity of smallpox if given within two days of an exposure (non-Food and Drug Administration approved use of this drug) 	<ul style="list-style-type: none"> • Acyclovir decreases days of fever and number of new lesions • Currently, prophylactic acyclovir is NOT recommended after an exposure • Varicella zoster immune globulin may be required to treat immune suppressed patients, pregnant health care workers who are exposed to varicella, and neonates who have been exposed.

Distinguishing Influenza-like Illness from Inhalational Anthrax

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	Influenza-like Illness	Inhalational Anthrax
Epidemiological Considerations	<ul style="list-style-type: none"> • Millions of cases of influenza-like illness occur each year • Seasonal occurrence is common: influenza and respiratory syncytial virus in winter; rhinoviruses and parainfluenza in fall and spring • Highly communicable 	<ul style="list-style-type: none"> • At press time, only 10 cases in 2001 • No seasonal variation • No person-to-person spread occurs. Risk factors (known so far) include postal workers, media personnel, and persons exposed to letters or exposed to areas known to be contaminated by anthrax spores
Clinical Considerations	<ul style="list-style-type: none"> • Nasal congestion is common • Rhinorrhea and coryza are common • Pharyngitis is common • Chest X-ray with pleural effusion is uncommon • Chest X-ray with widening of mediastinum does NOT occur from influenza-like illness • Chest X-ray evidence of pneumonia is uncommon (exceptions: elderly and those with underlying chronic lung disease) 	<ul style="list-style-type: none"> • Nasal congestion is uncommon • Rhinorrhea and coryza are uncommon • Pharyngitis is uncommon • Chest X-ray with pleural effusion is common • Chest X-ray with widening of mediastinum is common • Chest X-ray evidence of pneumonia is common
Diagnostic Considerations	<ul style="list-style-type: none"> • Rapid antigen detection tests are available for influenza and respiratory syncytial virus but associated with low sensitivity 	<ul style="list-style-type: none"> • Blood cultures positive in all cases of inhalational anthrax (if did not take antibiotics prior to blood cultures) • At press time, peripheral blood smear has revealed bacteria in all cases in 2001 (if did not take antibiotics prior to test)
Prevention	<ul style="list-style-type: none"> • Influenza vaccine 70–90% effective in preventing influenza infections in healthy adults 	<ul style="list-style-type: none"> • No vaccine is available for routine public use • Post-exposure prophylaxis with antibiotics such as ciprofloxacin, doxycycline, and amoxicillin are effective (if indicated based on public health recommendation)

Source: Roger D. Lovell, MD, Infectious Diseases and Hospital Epidemiologist, Carolinas Medical Center, Charlotte, NC.