

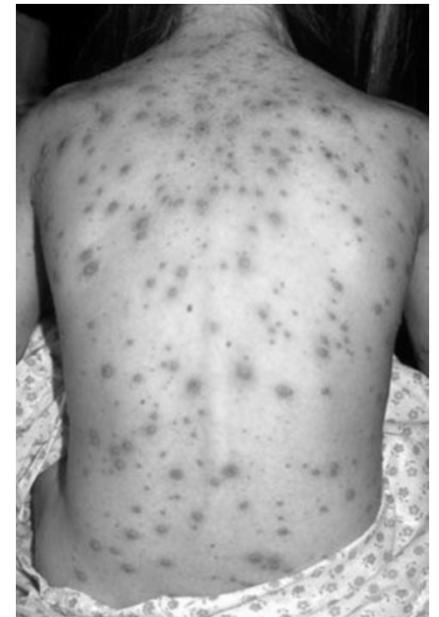
# Spots and Pox: Contact Tracing and Follow-Up for Measles and Chickenpox

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# Chickenpox

- Caused by the Varicella Zoster Virus (VZV)
- VZV causes chickenpox and shingles
  - Primary infection: chickenpox
  - Reactivation: shingles
- Chickenpox is reportable within 24 hours
- Shingles is currently not reportable



# When is a Person Contagious?

- Infectious period: 2 days before onset of rash until all lesions have crusted
  - In vaccinated persons, there can be an atypical rash that does not crust. These persons would be considered infectious until no new lesions appear within a 24-hour period, usually by the 5<sup>th</sup> day.
- Incubation period: 10 from first exposure through 21 days after exposure

# Case Definition

- An illness with acute onset of diffuse (generalized) maculo-papulovesicular rash without other apparent cause
- Outbreak definition: 5 or more cases of chickenpox in a particular setting that are epidemiologically linked

# Investigation Steps

- Verify the diagnosis
- Interview the patient and others who may be able to provide pertinent information
- Consider the need to identify and contact all those exposed
- Institute disease control measures

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# Exposure

- Exposure to chickenpox is defined as contact with nasopharyngeal secretions or lesions, face-to-face interaction, or sharing indoor airspace with an infectious person

# Proof of Immunity to Chickenpox

- Documentation of age-appropriate vaccination
  - Preschool-aged children (12 months of age through 3 years): 1 dose
  - School-aged children, adolescents, and adults: 2 doses
- Laboratory evidence of immunity or laboratory confirmation of disease
- Born in the United States before 1980
  - For healthcare workers and pregnant women, birth before 1980 should not be considered evidence of immunity
- A healthcare provider diagnosis of varicella or verification of history of varicella disease
- History of herpes zoster based on healthcare provider diagnosis

# Contact Tracing

- Identify all persons exposed
  - Consider household members, daycare/school attendees and staff, staff or patients in healthcare facilities the patient visited, workplace contacts, friends, etc.
  - If exposed persons do not have proof of immunity, vaccination can be recommended (best within 3 days of 1<sup>st</sup> exposure)
- Identify high-risk susceptibles among the exposed
  - Immunocompromised persons
  - Susceptible pregnant women
  - Newborns
    - \*Some high-risk susceptibles are eligible for varicella immunoglobulin (VariZIG)

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# Contact Tracing (con't.)

- Supply potentially exposed individuals (or their guardians) with written or verbal notification
  - Encourage consultation with medical provider to consider vaccination if unvaccinated
  - Reiterate infection control practices such as good hand-washing and covering cough
- Conduct surveillance in exposed persons for 21 days from final contact

# Exclusions

- Exclusions not recommended for most sporadic cases of chickenpox
  - Exceptions: Neonates born to mothers with active varicella and healthcare workers
- In outbreak settings, please consult with NJDOH before instituting control measures or exclusions
  - Generally, exclusions of non-immune persons would begin when an outbreak is declared
    - Exclude through day 21 following last exposure
    - People who develop chickenpox can be readmitted once their symptoms resolve

# Managing Exposed Healthcare Personnel

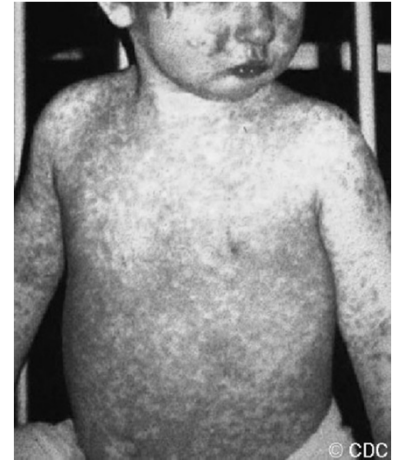
- Same steps as above to identify and notify contacts of a case
- Healthcare facilities should ensure their employees have documented proof of immunity upon hire
  - If 2 documented doses, or positive titers, monitor for symptoms for 21 days
  - If 1 documented dose, administer 2<sup>nd</sup> dose and monitor like a 2 dose recipient
  - If unvaccinated, or negative titers, furlough or temporarily reassign to a remote location away from patient care from day 8 through day 21 from exposure

\*Birth before 1980 is not considered proof of immunity for healthcare workers

# Measles



# Measles



- Also known as Rubeola (NOT Rubella)
- Highly contagious
  - Attack rate in susceptible household contacts: 75%-90%
- Transmitted via respiratory droplets and aerosol
  - Spread by coughing and sneezing, close personal contact or direct contact with infected nasal or throat secretions
  - Remains up to 2 hours after person with measles occupied an area

# Clinical Presentation

- Prodrome (a few days before rash)
  - Fever (greater than 101)
  - The “three C’s”
    - Cough
    - Coryza
    - Conjunctivitis
  - Koplik spots
- Rash
  - Maculopapular
  - Begins on face and head, and progresses downward and outward, fades in same order
  - Persists 5-6 days



# When is a Person Contagious?

- Contagious from 4 days before through 4 days after rash onset (day 0)
- Incubation period: 7-21 days (average 10-12)

# When a Provider Suspects Measles

- Suspect case should be reported to LHD immediately
- Things to consider to help determine how suspicious a reported suspect case is:
  - Vaccination status
  - Travel or exposure to travelers or persons with rash illness
  - All symptoms (does presentation fit?)
  - Any other causes (antibiotics, vaccine, other rash illnesses at school/daycare)
  - Laboratory testing

# Public Health Response

- Isolation of case
- Collection of appropriate specimens for laboratory testing
- Notification to LHD/NJDOH
- Contact investigations and other response efforts

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# Isolation of Case

- If measles is suspected, isolate patient immediately
- Airborne isolation room if available, otherwise private room with door closed and patient masked if feasible
  - Do not use private room for at least 2 hours after patient leaves
- Ensure healthcare workers have evidence of immunity
  - Recommend that facility starts compiling this information as soon as they notify LHD of the suspected case
- Respiratory precautions for healthcare workers, even with proof of immunity

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# Laboratory Testing

- Viral specimen for PCR/viral isolation
    - Collect ASAP (most successful within 3 days of rash onset)
    - Nasopharyngeal/nasal swab preferred
    - Urine samples may also contain virus
    - Commercial labs don't do PCR testing currently (we send to CDC through the state lab)
    - Documents available on NJDOH website with information on collection and materials:  
<http://www.nj.gov/health/cd/measles/techinfo.shtml>
  - Serology for IgM & IgG
    - Collect ASAP
      - 30% false negatives for IgM when collected within 72 hours of rash onset
        - If negative and high index of suspicion remains repeat  $\geq 72$  hours of rash onset
- \* Serology may be difficult to interpret in those previously vaccinated

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# Contact Investigation

- Compile list of all places suspect case visited during infectious period (4 days before rash onset through 4 days after rash onset)
- Identify persons exposed during case's infectious period
  - Includes exposure area up to 2 hours after case left
- Establish presumptive evidence of immunity for contacts

# Measles Proof of Immunity

- Written documentation of adequate vaccination:
  - 1 or more doses of a measles-containing vaccine administered on or after the first birthday for preschool-age children and adults not at high risk
  - 2 doses of measles-containing vaccine for school-age children and adults at high risk, including college students, healthcare personnel, and international travelers
- Laboratory evidence of immunity
- Laboratory confirmation of measles
- Birth before 1957

Healthcare providers should not accept verbal reports of vaccination without written documentation as presumptive evidence of immunity <http://www.cdc.gov/measles/hcp/>

# Contact Investigation (con't.)

- Quarantine of contacts without presumptive evidence of immunity
  - Starting day 5 from first exposure through 21 days after last exposure
  - Consult with NJDOH before recommending quarantine
- Post-exposure prophylaxis (PEP)
  - Vaccine (within 72 hours from 1<sup>st</sup> exposure) or Immune globulin (IG -within 6 days from 1<sup>st</sup> exposure)
  - Note: healthcare workers who receive PEP can NOT return to healthcare setting

<http://www.cdc.gov/measles/hcp/>

# Thank you!

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