



Measles

Investigation checklist for Local Health Departments

Local health department staff should follow these steps, not necessarily in order, when investigating measles reports. For more detailed information, refer to the measles disease webpage which can be accessed at: <https://www.nj.gov/health/cd/topics/measles.shtml>

- [Obtain/assess](#) clinical and epidemiologic information
 - Interview diagnosing medical provider(s), obtain:
 - Clinical presentation, specifically measles-like symptoms including onsets
 - Reason(s) provider specifically considering measles diagnosis
 - Level of measles suspicion (high vs low on differential)
 - Alternate diagnoses (e.g., possible drug reactions, influenza, other illnesses)
 - Pending laboratory tests?
 - Any potential exposures to measles within the last month (including travel to or visitors from other countries or areas known to have recent cases)
 - Picture of rash if available (no eyes/genitals)
 - Immune status (is measles immunity documented for the patient?)
 - Determine whether case was evaluated by a different provider at a different time; interview alternate provider for additional clinical information
 - Interview case/guardian/proxy, obtain:
 - Timeline and description of symptoms, be as detailed as possible (e.g., rash progression and specific description)
 - Request pictures if not already obtained (no eyes/genitals)
 - Any new products or medications recently used (e.g., antibiotics)
 - Any travel or visitors within the last month) – include dates and locations
 - Assess immune status, attempt to obtain documentation/dates of measles-containing vaccine – review [NJIS](#) registry (for case and household contacts)
- Ensure case remains in isolation throughout infectious period (unless measles is ruled out)
- Provide [specimen collection guidance](#) to medical provider. If measles is highly suspected, provider may collect and hold viral specimens, **pending NJDOH approval** for submission (following assessment of epidemiologic information).
 - While PCR testing is available commercially, results will not be received in a timely manner and is NOT recommended when there is a high index of suspicion.
 - If provider refers case to another medical facility for collection, provider must call ahead so arrangements can be made to prevent additional exposures (e.g., seen as last appointment or specimen collected outside)



- Provide [measles exposure guidance](#) to medical provider and request they begin to assess all staff present in office during exposure period for documented proof of measles immunity. Exposure period = time suspect case arrived in office plus two hours after leaving office (or being placed in negative pressure room).
- Assess potential exposures
 - Calculate infectious period based on rash onset date (4 days before rash onset through 4 days after rash onset, a total of 9 days)
 - Obtain a detailed [timeline](#) of potential exposures during case's infectious period (dates, times, locations, method of transportation, persons in attendance)
 - If traveled via flight during infectious period, collect the following information: airline, flight number, seat, date, departure and arrival airports
 - Inquire about exposure setting type (e.g., private home vs apartment building, stand-alone building vs multi-office building)
- Report
 - Ensure case has been created and updated in the Communicable Disease Reporting and Surveillance System ([CDRSS](#)).
 - If additional guidance or specimen approval is needed, contact NJDOH by calling (609) 826-5964 during regular business hours or (609) 392-2020 after business hours or on the weekend.

Please consult with NJDOH before proceeding with further public health response (additional actions may depend on level of suspicion)

- Notify exposed contacts of measles exposure
 - Educate on signs/symptoms of measles
 - Assess [evidence of immunity](#) of exposed contacts, attempt to obtain documentation of measles-containing vaccine dates
 - Recommend PEP, as appropriate
 - Quarantine, when necessary
 - Provide [Exposed to Measles?](#) document
 - Follow up with exposed individual at the end of a full incubation period to ensure they remained asymptomatic
- Finalize CDRSS data entry, assign appropriate [case classification](#), and LHD Close case when investigation is complete.

LHD Measles Case Triage One-Pager

Case ID: _____

Transmission: Airborne¹

Incubation period: 5-21 days (average: 8-12 days)

Infectious period: 4 days before rash onset through 4 days after rash onset (total of 9 days)

1) Assessment of Likelihood

a) Symptoms

Fever: Yes No	Onset Date: ___/___/___	Temperature (≥101): _____
Rash: Yes No	Onset Date: ___/___/___ Duration of rash: _____	Description: _____ Progression: _____ <i>*generally starts at head moving downward & outward and fades in the same order it appears</i>
Cough: Yes No	Onset Date: ___/___/___	
Coryza (runny nose): Yes No	Onset Date: ___/___/___	
Conjunctivitis (red, watery eyes): Yes No	Onset Date: ___/___/___	
How does the patient feel? <i>(Patients generally report feeling "very sick")</i>		

Clinically compatible case: fever (≥101), rash, and at least one of the following: cough, coryza, or conjunctivitis

- b) Alternate Diagnosis:** Is there anything else that could cause these symptoms; such as antibiotics or new medicine, recent vaccination, or other rash illness? **Yes (explain: _____) No**
- i. Any pending laboratory tests for other organisms (e.g. influenza, strep)? **Yes (explain: _____) No**
- c)** Is the person **vaccinated** for measles? If yes, # of vaccines and when (if they don't know, have the person estimate the year, and request their immunization records)

Vaccination:	Date: ___/___/___
Vaccination:	Date: ___/___/___

d) Exposures

- i. Was the person exposed to anyone with similar symptoms (i.e. a school, daycare or outbreak community)? **Yes No**
- ii. Did the person have any contact with foreign visitors? **Yes (where and what dates? _____) No**
- iii. Did the person travel anywhere recently? **Yes (where and what dates? _____) No**
- IF YES and while infectious, **collect more information** on transport, i.e. mass transportation, what carrier, departure/arrival times, locations, dates, seats, etc. _____

2) Determine infectious period: 4 days before rash onset through 4 days after rash onset. Rash onset is day 0.



3) Determine contacts/ exposures

- a)** Obtain detailed timeline of potential exposures during person's infectious period (dates, times, locations, methods of transportation, other persons in attendance) – use attached *Measles Exposure Timeline Template*.
- b)** Determine other known contacts (*continue on back if more*)

Name	Full Address	Telephone #	Date of Contact	Vaccination/Disease Status

¹ Infectious particles may remain suspended in air for up to 2 hours

4) Other Information/Key Messages

- a) **Incubation period for contacts-** monitor contacts for symptoms from **5 days from first exposure through 21 days from last exposure**. **For assistance calculating incubation periods for exposures >1 day but less than the whole 9-day infectious period, please contact NJDOH.

i. Single exposure:

Incubation period is (Date of Exposure + 5) through (Date of Exposure + 21) = ___ / ___ to ___ / ___

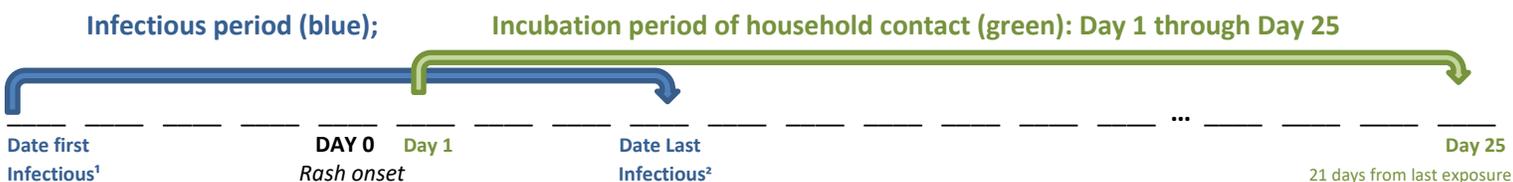
- Ex. If person has a single exposure to a case on the 1st of the month, their incubation period is the 6th-22nd.



ii. Exposure through whole infectious period (i.e. household contacts):

Incubation period is **Day 1** (Date first infectious¹ + 5) to **Day 25** (Date last infectious² +21) = ___ / ___ to ___ / ___

- Ex. If household contact has exposure to a case from 1st -9th of the month, their incubation period is the 6th-30th.



- b) **Exposed contacts:** For **all** contacts, obtain [evidence of immunity](#), exposure date, calculate incubation period, educate on signs/symptoms*, and provide [exposure document](#).

i. IMMUNE PERSONS

- Verify immune status- have them provide documentation (NJIS is a good resource).
- If immune, have person monitor himself/herself for symptoms, * but no restrictions on activity.
If they are feeling a little off one day, instruct them to try to stay home and take a sick day. They may end up feeling fine after a few hours, but if not, they can prevent future exposures and prevent people from going through the same process as they are now.

ii. NON-IMMUNE/QUESTIONABLE IMMUNITY (NON-HEALTH CARE PERSONNEL)

- Contacts can receive MMR as post-exposure prophylaxis within 3 days of **first exposure** and can return to normal activity in most circumstances, still monitoring for signs/symptoms.
- Contacts must **self-quarantine and monitor for symptoms for the whole incubation period (provide appropriate dates)** unless MMR is appropriately administered within 3 days or immunization record or titers are provided (+ Measles [Rubeola] IgG) - no work, no school, no leaving home.

iii. HEALTH CARE PERSONNEL (HCP) - refers to all paid and unpaid persons serving in healthcare settings who have the potential for direct or indirect exposure to patients or infectious materials.

- HCP without documented evidence of immunity should be given the first dose of MMR and excluded from work from 5 days after first exposure through 21 following last exposure. HCP can **NOT** return to work, even if they receive MMR or immune globulin following exposure.

* FOR ANYONE WHO DEVELOPS SYMPTOMS

- Instruct person to stay home and call public health.
- If the person is ill enough to want to seek care, they **MUST CALL THEIR PROVIDER BEFORE** seeking care and explain to doctor that they were exposed to measles and are now symptomatic. Instruct them to **NOT** enter any medical facility without notifying facility ahead of arrival.
- If they need to go into the office or get specimens collected/ blood drawn, be sure arrangements are made to minimize exposures (airborne isolation if available, or specimen collected outside, or the LAST appointment of the day with no other patients in the office and only HCP with documented measles immunity). Otherwise, anyone in the office during and two hours after they leave will be exposed.

c) Testing

- **Viral specimens are preferred** (nasopharyngeal swab, throat swab, or urine) and should be collected as soon as possible after onset of rash. See additional [testing guidance](#).
- Viral samples for measles can be tested by NJDOH PHEL. NJDOH approval is required prior to submission.
- Serology can be tested commercially, but is hard to interpret in vaccinated persons.

MEASLES EXPOSURE TIMELINE | CDRSS ID _____

DATE	DAY OF WEEK	LOCATION NAME AND ADDRESS	PHONE NUMBER	ARRIVAL TIME	DEPARTURE TIME	MODE OF TRANSPORTATION	COMMENTS (ADDITIONAL CONTACTS, TYPE OF EVENT, ETC.)
Day -4							
Day -3							
Day -2							
Day -1							
Onset Date							
Day +1							
Day +2							
Day +3							
Day +4							