New Jersey Department of Health
Surveillance Criteria and Testing for Middle East Respiratory Syndrome (MERS)
Protocol for Healthcare Providers and Local Health Departments
August 17, 2017

Key steps in case screening for Middle East Respiratory Syndrome (MERS)

1. Confirm that the case meets current SURVEILLANCE CRITERIA
2. Ensure implementation of CONTROL MEASURES
3. Ensure COLLECTION OF SPECIMENS for diagnostic testing
4. Ensure NOTIFICATION procedures are followed
5. Ensure completion of the MERS PERSON UNDER INVESTIGATION FORM

SURVEILLANCE CRITERIA

Healthcare Providers

To rapidly detect the importation of MERS-CoV, NJDOH request providers report patients meeting one of the following criteria.

1. A patient with fever\(^1\) AND pneumonia or acute respiratory distress syndrome (based on clinical or radiologic evidence) **AND one of more of the following:**
   a. History of travel from countries in or near the Arabian Peninsula\(^2\) within 14 days before symptom onset **OR**
   b. Close contact\(^3\) with a symptomatic traveler who developed fever\(^1\) and acute respiratory illness (not necessarily pneumonia) within 14 days after traveling from countries in or near the Arabian Peninsula **OR**
   c. A member of a cluster of patients with severe acute respiratory illness (e.g., fever\(^1\) and pneumonia requiring hospitalization) of unknown etiology in which MERS-CoV is being evaluated by state or local health officials
2. A patient with fever\(^1\) AND symptoms of respiratory illness (not necessarily pneumonia; e.g., cough, shortness of breath) **AND** history of being in a healthcare facility (as a patient, worker, or visitor) within 14 days before symptom onset in countries in or near the Arabian Peninsula\(^2\) in which recent healthcare associate cases of MERS have been identified, **OR**
3. Fever\(^1\) OR symptoms of respiratory illness (not necessarily pneumonia; e.g., cough, shortness of breath) **AND** close contact\(^3\) with a confirmed MERS case while the case was ill.

1. Fever ($\geq 100.4^\circ\text{F}$) may not be present in some patients, such as those who are very young, elderly, immunosuppressed, or taking certain medications. Clinical judgement should be used to guide testing of patients in such situations.
2. Countries considered in the Arabian Peninsula and neighboring include: Bahrain; Iraq; Iran; Israel, the West Bank, and Gaza; Jordan; Kuwait; Lebanon; Oman; Qatar; Saudi Arabia; Syria; the United Arab Emirates; and Yemen.
3. Close contact is defined as: a) being within approximately 6 feet (2 meters) or within the room or care area for a prolonged period of time (e.g., healthcare personnel, household members) while not wearing recommended personal protective equipment (i.e., gowns, gloves, respirator, eye protection–see http://www.cdc.gov/coronavirus/mers/infection-prevention-control.html); or b) having direct contact with infectious secretions (e.g., being coughed on) while not wearing recommended personal protective equipment (i.e., gowns, gloves, respirator, eye protection–see http://www.cdc.gov/coronavirus/mers/infection-prevention-control.html). Data to inform the definition of close contact are limited. At this time, brief interactions, such as walking by a person, are considered low risk and do not constitute close contact.
Health care entities should put in place activities to detect suspect cases early (e.g., signage, triage assessments) and isolate all suspect cases immediately upon suspicion.

**Standard, contact, and airborne precautions** are recommended for management of hospitalized patients with known or suspected MERS-CoV infection, based on CDC's case definition. Information regarding room placement, personal protective equipment and environmental cleaning is available at:

Appropriate measures should be used to prevent MERS-CoV from spreading in homes and communities and can be found at:

These recommendations will be updated as additional information on MERS, its transmissibility, epidemiology, available treatment, or vaccine options become available. These interim recommendations are based upon current available information.

**COLLECTION AND TRANSPORT OF CLINICAL SPECIMENS**

The New Jersey Public Health and Environmental Laboratories (PHEL) has the capability to test for Middle East Respiratory Syndrome Coronavirus (MERS-CoV) using CDC's rRT-PCR assay. Approval for testing will be granted only after clinical and epidemiologic criteria of the suspect case is reviewed by the local and state health departments.

CDC currently recommends the collection of specimens from three different sources for each suspect case. Collection of one lower respiratory tract specimens (i.e., bronchoalveolar lavage, tracheal aspirate, pleural fluid, sputum), one upper respiratory tract specimen (nasopharyngeal and oropharyngeal (NP/OP)), and one serum sample are strongly recommended. The type of specimens requested may vary for each case depending upon the length of time between symptom onset and specimen collection. It is advisable for respiratory specimens to be collected as soon as possible after symptoms begin – ideally within 7 days of symptom onset. However, if more than a week has passed since symptom onset and the patient is still symptomatic, respiratory samples should still be collected, especially lower respiratory specimens since respiratory viruses can still be detected by rRT-PCR. If preliminary results at PHEL are positive or inconclusive, specimens will be sent to CDC for additional testing and/or confirmation.

Additional information on specimen collection, handling and testing is available at:

Appropriate infection control procedures should be followed when collecting samples and can be found at:

The SRD-1 form (available at http://www.state.nj.us/health/forms/srd-1.dot) should be completely filled out for *each* specimen that is sent. Label the *vial containing the specimen* with
patient’s first and last name, date of birth, medical record number, date of collection, and specimen type. Incorrectly labeled samples may be denied for testing.

The timeframe in which testing is conducted by PHEL or CDC will be determined on a case-by-case basis. **No specimen will be tested by PHEL until the case has been reviewed and approved by the CDS staff.**

NOTE: If PHEL receives a specimen without CDS review and approval, PHEL will hold the specimen and contact CDS.

**Shipping**

CDS staff will carefully evaluate each report to determine the immediacy in which the specimen should be transported and tested. Samples may be shipped to PHEL via commercial carrier, private courier or hand carried. If CDS staff feels that immediate testing of the sample is warranted, the local health department and hospital will be asked to assist in transporting specimens to PHEL. In most cases CDS will ask the facility or LHD to hand carry specimens to PHEL on the same day the specimen was approved for testing. Directions to PHEL can be found at: [http://www.nj.gov/health/forms/vir-16_instr1.pdf](http://www.nj.gov/health/forms/vir-16_instr1.pdf). If CDS determines the case to be a low priority, commercial carriers can be used to ship samples, which should be handled as Biologic Substance, Category B. When shipping via commercial carrier you must abide by IATA shipping regulations which can be found at [www.iata.org](http://www.iata.org) or [http://www.fmcsa.dot.gov/regulations/hazardous-materials](http://www.fmcsa.dot.gov/regulations/hazardous-materials). Specific specimen storage instructions can be found in the following document on the CDC website: [http://www.cdc.gov/coronavirus/mers/guidelines-clinical-specimens.html](http://www.cdc.gov/coronavirus/mers/guidelines-clinical-specimens.html)

**NOTIFICATION**

**Healthcare Providers**

Cases meeting the above surveillance criteria should be reported **IMMEDIATELY** to the local health department (LHD) where the patient resides. If patient residence is unknown, report to your own local health department. Local health departments are available 24/7/365. Contact information for local health departments during business hours can be found at: [www.localhealth.nj.gov](http://www.localhealth.nj.gov). Contact information for local health departments after business hours or on weekends can be found at: [http://nj.gov/health/lh/documents/lhd_after_hours_emerg_contact_numbers.pdf](http://nj.gov/health/lh/documents/lhd_after_hours_emerg_contact_numbers.pdf). If LHD personnel are unavailable, healthcare providers should report the case to the New Jersey Department of Health (NJDOH), Communicable Disease Service (CDS) at 609-826-5964, Monday through Friday 8:00 AM - 5:00 PM. On weekends, evenings and holidays, CDS can be reached at (609) 392-2020.

**Local Health Departments**

When a local health department receives a report regarding a patient meeting the MERS surveillance criteria, the protocols contained within this document for screening, isolation, and
collection of lab specimens should be followed. Information should be communicated IMMEDIATELY to NJDOH CDS at 609-826-5964, Monday through Friday 8:00 AM - 5:00 PM. On weekends, evenings and holidays, CDS can be reached at (609) 392-2020.

The healthcare provider and/or the local health department should complete the Middle East Respiratory Syndrome (MERS) Patient Under Investigation (PUI) Short Form (please see last page of this document). Completed forms should be faxed to CDS at 609-826-5972. This form will be reviewed by CDS staff who will make the final determination if the case meets surveillance criteria and if a specimen will be accepted for testing. In addition to the PUI Form, details regarding the case should be entered into the Communicable Disease Reporting and Surveillance System (CDRSS) under “MIDDLE EAST RESPIRATORY SYNDROME CORONAVIRUS (MERS-COV)”.

REFERENCES

NJDOH – General Information Page
http://www.nj.gov/health/cd/topics/mers.shtml

CDC – General Information Page

CDC – Information on Infection Control in Health Care Setting

CDC – Information for Laboratories
https://www.cdc.gov/coronavirus/mers/lab/index.html
Middle East Respiratory Syndrome (MERS) Patient Under Investigation (PUI) Short Form

For Patients Under Investigation (PUIs), complete and send this form to influenzaadvisorygroup@doh.state.nj.us or fax to 609-826-5972.

Today's Date: ___________________ STATE ID (CDRSS): ___________________ STATE: _______ COUNTY: _______________________

Interviewers: Name: ___________________ Phone: ___________________ Email: ___________________

Sex: ☐ M ☐ F Age: _______ yr ☐ mo Residency: ☐ US resident ☐ non-US resident, country: ______________________

Date of symptom onset: ___________________ Symptoms (mark all that apply): ☐ Fever ☐ Chills ☐ Cough ☐ Sore throat
☐ Shortness of breath ☐ Muscle aches ☐ Vomiting ☐ Diarrhea ☐ Other: ______________________

In the 14 days before symptom onset did the patient (mark all that apply):
☐ Have close contact¹ with a known MERS case?
☐ Have close contact¹ with an ill traveler from the Arabian Peninsula/neighboring country²? If Yes, countries: ______________________
☐ Visit or work in a health care facility in the Arabian Peninsula/neighboring country²? If Yes, countries: ______________________
☐ Travel to/from the Arabian Peninsula/neighboring country²? If Yes, countries: ______________________

Date of travel TO this area: ___________________ Date of travel FROM this area: ___________________

Is the patient a member of a severe respiratory illness cluster of unknown etiology? ☐ Yes ☐ No ☐ Unknown

Is the patient a health care worker (HCW)? ☐ Yes ☐ No ☐ Unknown If Yes, did the patient work as a HCW in/near a country in the Arabian Peninsula² in the 14 days before symptom onset? ☐ Yes ☐ No ☐ Unknown If Yes, countries: ______________________

Does the patient have any comorbid conditions? (mark all that apply): ☐ None ☐ Unknown ☐ Diabetes ☐ Cardiac disease ☐ Hypertension
☐ Asthma ☐ Chronic pulmonary disease ☐ Immunocompromised ☐ Other: ______________________

Was the patient: Hospitalized? If Yes, admission date: ___________________

Admitted to the Intensive Care Unit (ICU)? ___________________

Intubated? ___________________

Did the patient die? If Yes, date of death: ___________________

Did the patient have clinical or radiologic evidence of pneumonia? ___________________

Did the patient have clinical or radiologic evidence of acute respiratory distress syndrome (ARDS)? ___________________

General non-MERS-CoV Pathogen Laboratory Testing (mark all that apply)

<table>
<thead>
<tr>
<th>Pathogen</th>
<th>Pos</th>
<th>Neg</th>
<th>Pending</th>
<th>Not Done</th>
<th>Pathogen</th>
</tr>
</thead>
<tbody>
<tr>
<td>Influenza A PCR</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Rhinovirus and/or Enterovirus</td>
</tr>
<tr>
<td>Influenza B PCR</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Coronavirus (not MERS-CoV)</td>
</tr>
<tr>
<td>Influenza Rapid Test</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Chlamydophila pneumoniae</td>
</tr>
<tr>
<td>RSV</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Mycoplasma pneumoniae</td>
</tr>
<tr>
<td>Human metapneumovirus</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Legionella pneumophila</td>
</tr>
<tr>
<td>Parainfluenzavirus</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Streptococcus pneumoniae</td>
</tr>
<tr>
<td>Adenovirus</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Other: ________________________</td>
</tr>
</tbody>
</table>

MERS-CoV RRT-PCR Testing (mark all that apply)

<table>
<thead>
<tr>
<th>Specimen Type</th>
<th>Date Collected</th>
<th>Positive</th>
<th>Negative</th>
<th>Equivocal</th>
<th>Pending</th>
<th>Not Done</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sputum</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bronchoalveolar lavage (BAL)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tracheal Aspirate</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NP³ OP³</td>
<td>NP/OP³</td>
<td>(circle one)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Serum</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

For CDC ONLY:

MERS-CoV Serology Testing

<table>
<thead>
<tr>
<th></th>
<th>Date Collected</th>
<th>Positive</th>
<th>Negative</th>
<th>Pending</th>
<th>Not Done</th>
</tr>
</thead>
</table>

---

¹ Close contact is defined as: a) being within approximately 6 feet (2 meters) or within the room or care area for a prolonged period of time (e.g., healthcare personnel, household members) while not wearing recommended personal protective equipment (i.e., gowns, gloves, respirator, eye protection); or b) having direct contact with infectious secretions (e.g., being coughed on) while not wearing recommended personal protective equipment. Data to inform the definition of close contact are limited. At this time, brief interactions, such as walking by a person, are considered low risk and do not constitute close contact.

² Countries considered in the Arabian Peninsula and neighboring include: Bahrain; Iraq; Iran; Israel, the West Bank and Gaza; Jordan; Kuwait; Lebanon; Oman; Qatar; Saudi Arabia; Syria; the United Arab Emirates (UAE); and Yemen.

³ NP = nasopharyngeal, OP = oropharyngeal (throat swab)