COVID-19 Situation Summary

Situation and Background

A novel coronavirus infection (COVID-19), caused by the SARS-CoV-2 virus, was first reported in December 2019 in Wuhan, Hubei Province, China. The virus is similar but distinct from SARS and MERS. Initial cases were linked to an animal market but subsequent cases occurred through human-to-human spread.

In early 2020, widespread local transmission of COVID-19 occurred in China, followed by sustained local transmission in other countries across the world including most of Europe, Iran and the US, including New York State. Currently, COVID-19 is considered a global pandemic.
Daily Totals: Persons Tested and Persons Tested Positive

Hover over a bar to see details
Symptoms: Fever, chills, cough, dyspnea, malaise and fatigue, poor appetite. Some patients have sore throat, GI symptoms, headache, and/or loss of smell/taste. In children, Pediatric Multi-system
Inflammatory Syndrome (PMIS) due to COVID-19 has occurred. Symptoms of PMIS include Persistent fever, inflammation (e.g. neutrophilia, elevated C-reactive protein and lymphopenia) and evidence of single or multi-organ dysfunction (shock, cardiac, respiratory, renal, GI or neuro disorder). This may include children meeting full or partial criteria for Kawasaki disease.

**Incubation Period:** The incubation period is 2-14 days, with an average of 5 days.

**Transmission:** Human-to-human spread through respiratory route and droplets (e.g. coughing, sneezing) and direct contact with respiratory secretions. Asymptomatic transmission and pre-symptomatic transmission can occur. Duration of infectious period varies by severity of illness, but appears to be highest in the first week of illness. The distance that viable infectious aerosols can travel, and the number of viral particles needed to cause infection is not known. The highest risk appears to be through prolonged close contact (within 6 feet) in enclosed spaces.

**Severity of Disease:** Approximately 80% of individuals infected with COVID-19 will have mild symptoms. The remaining 20% will require acute care in a medical setting, including 5% that will require ICU-level care. The elderly and those with chronic medical conditions have a higher likelihood of severe disease, but severe illness in young, healthy individuals also occurs. Children more rarely have severe disease including PMIS.

**Treatment:** Treatments of COVID-19 are evolving as we gain more clinical experience along with more published data. Results from the NIH ACTT1 trial show that those who received remdesivir had significantly shorter duration of hospitalization and lower mortality than those receiving placebo. Based on this observed benefit, the FDA issued an Emergency Use Authorization (EUA) for remdesivir, and the federal government has distributed much of Gilead’s existing limited supply of remdesivir to hospitals across the US, including Montefiore. Trials are ongoing to use other experimental therapeutic options at Montefiore, as well. Remdesivir access pathways and other treatment protocols are available on the intranet and should be referenced for admitted patients.

**Prevention:** No vaccine currently exists for COVID-19. Diligent handwashing for at least 20 seconds with soap and water, or alcohol-based hand sanitizer can help prevent transmission. Social distancing strategies have been implemented nationwide and in New York to reduce the chance for transmission. For healthcare providers, use of proper personal protective equipment when indicated and isolation of suspected or confirmed cases also reduces the risk of transmission. For Montefiore associates, masks should be worn while at work unless alone with the door closed. Droplet and standard precautions should be used at all times, even for patients not suspected of having COVID-19. CDC Travel advisories should be followed. [https://www.cdc.gov/coronavirus/2019-ncov/travelers/index.html](https://www.cdc.gov/coronavirus/2019-ncov/travelers/index.html)

**Risk of Exposure:** At this time, there is widespread community transmission of COVID-19. Therefore, all staff and patients are at risk of exposure in the community.

**Re-Infection, Mutation, and Immunity:** There is limited data on re-infection. There are scattered reports of persons with COVID-19 disease who, during recovery, had a documented negative test and then on repeat test had another positive result. Most were asymptomatic at the time of the “new” positive test and did not transmit the virus to others, and it is postulated that the prior negative result was due to a poor sample, or that the repeat positive test was due to low levels of non-viable virus after the initial
infection. There are some persons who do not have antibody that we can detect in the blood after infection; the significance of this is unknown. There is one study of previously SARS-CoV-2 infected monkeys that showed protective antibodies and no re-infection after repeat challenge to SARS-CoV-2. It is not yet known if this will also be true for humans.

**Assessment and Recommendations:**

Widespread local transmission in New York is occurring. Screening in Montefiore emergency departments (ED) and outpatient practices has been implemented, including pre-procedure screening. Epic will be continuously updated to reflect documentation of this screening. Updated signs have been produced and distributed by Marketing.

**Universal droplet precautions should be used for all patients and universal masking of all associates and patients (when possible) is required.**

The situation is rapidly evolving, and all procedures and guidance are subject to change.

**COVID-19 Person Under Investigation (PUI) Definition:**

- Fever (measured or subjective), chills, rigors, cough, chest tightness, sore throat, malaise, myalgia, persistent headache, unexplained diarrhea, anosmia, ageusia, shortness of breath with clinical suspicion based on clinical data and patient presentation
- Known COVID-19 PCR+ in the last 4 weeks (unless at least 10 days from symptom onset, 72h without fever, symptoms resolved, and the patient has 2 serial negative PCR 24h apart)
- Known exposure AND fever (measured or subjective), chills, rigors, cough, chest tightness, sore throat, malaise, myalgia, persistent headache, unexplained diarrhea, anosmia, ageusia, shortness of breath OR other clinical suspicion
- Travel to a high-risk area AND fever (measured or subjective), chills, rigors, cough, chest tightness, sore throat, malaise, myalgia, persistent headache, unexplained diarrhea, anosmia, ageusia, shortness of breath or other clinical suspicion

The objective is to **Identify, Isolate, and Inform.**

**Identify:**

Screen every patient in the ED, pre-procedural areas, and ambulatory practices per protocol. Ask all patients about history of known COVID19, travel to affected areas, contact with anyone who has or might have COVID-19, or symptoms. **All patients to be admitted must have a COVID test** to determine placement, and serology should be sent (but cannot yet be used for risk stratification).

Basic screening questions** are:

1. Have you been diagnosed with COVID-19 or had a positive test for COVID-19 in the last 4 weeks?
2. Have you been in contact with someone who has known or suspected COVID-19 in the last 14 days?
3. Have you had fever, chills, shaking, cough, sore throat, diarrhea, muscle aches, persistent headache, loss of taste or smell, chest tightness, or shortness of breath in the last 14 days, or been in contact with someone with one of these symptoms?

4. Have you traveled in the last 14 days?

Any of the above should trigger immediate masking of the patient and anyone with them, and placement in isolation.

**These questions have been adapted for optimal workflow in specific healthcare settings in some cases.

Calls to 911 will be screened for symptoms and epidemiologic risk, and will notify EMS personnel responding to the call. EMS personnel will assess the patient wearing PPE, mask the patient, and inform the hospital on arrival and pre-notify when possible.
Clinical Profile of COVID-Like Illness

<table>
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<th>Major Features</th>
<th>Clinical Symptoms and Syndromes</th>
<th>Negative Infectious Workup for Other Pathogens</th>
<th>Imaging Consistent with Viral Pneumonitis</th>
<th>Laboratory Abnormalities</th>
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<tr>
<td></td>
<td>• Fever/Chills/Rigors</td>
<td>• Blood culture</td>
<td>• CXR with bilateral infiltrates</td>
<td>• Leukopenia/lymphopenia</td>
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<td>• Cough</td>
<td>• Respiratory culture</td>
<td>• Pulmonary ultrasound with bilateral infiltrates</td>
<td>• Thrombocytopenia</td>
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<td>• Sore Throat</td>
<td>• S. Pneumonia &amp; Legionella urine antigens</td>
<td>• CT with bilateral ground glass opacities</td>
<td>• Elevated PT</td>
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<td>• Chest Tightness</td>
<td>• Strong clinical suspicion for or witnessed aspiration</td>
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<td>• Elevated D-dimer</td>
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<td></td>
<td>• Shortness of breath</td>
<td>• If done, Flu and/or RPP negative</td>
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<td></td>
<td>• Headache</td>
<td>• Positive SARS-CoV-2 PCR or Antigen</td>
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<td>• Myalgia/Fatigue</td>
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<td></td>
<td>• Anosmia/Ageusia</td>
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<td>• Unexplained Diarrhea</td>
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<td>• Need for non-invasive or</td>
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<td>Findings</td>
<td>oxygen</td>
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If a patient has or develops a COVID-like illness during ED stay or admission → convert to ORANGE:

1. Mask the patient
2. Isolate (droplet/contact/standard in a private room with door closed if safe to do so, OR airborne/contact/standard in a negative pressure room IF aerosol-generating procedure required*) with order in Epic and signs up for isolation
3. Infectious Diseases and Critical Care Consult (if unstable)

*Aerosol-generating procedures: BiPAP/CPAP, NFNC, Bag-Mask ventilation, cardiopulmonary resuscitation, nebulizer, intubation/extubation, ongoing ventilation with a device that does not have a closed circuit such as LTV, bronchoscopy, sputum induction, or open airway suctioning

Admission Guidelines for COVID-19

- Patients with respiratory symptoms, fever, cough, shortness of breath on presentation, or Fever, Chills, Cough, Dyspnea, Odynophagia (FCCO) signs:
  - Send in-house SARS-CoV-2 test on all discharged patients and arrange a follow-up call within 24 hours.

- Patients with acute respiratory distress or hypoxia (HR: 85-99):
  - Oxygen saturation < 95%:
    - Consider admission for patients with acute respiratory distress or hypoxia (HR: 85-99) or with significant comorbidities such as BMI > 35, chronic lung disease, active immune suppression, chemotherapy, etc. Order full/wa with in-house SARS-CoV-2 test and contact/droplet isolation.
    - Consider discharge for patients with acute respiratory distress or hypoxia (HR: 85-99) or with significant comorbidities such as BMI > 35, chronic lung disease, active immune suppression, chemotherapy, etc. Order full/wa with in-house SARS-CoV-2 test and contact/droplet isolation.

- Patients with acute respiratory distress or hypoxia (HR: 70-84):
  - Consider admission for patients with acute respiratory distress or hypoxia (HR: 70-84) or with significant comorbidities such as BMI > 35, chronic lung disease, active immune suppression, chemotherapy, etc. Order full/wa with in-house SARS-CoV-2 test and contact/droplet isolation.

- Patients with acute respiratory distress or hypoxia (HR: 50-69):
  - Consider admission for patients with acute respiratory distress or hypoxia (HR: 50-69) or with significant comorbidities such as BMI > 35, chronic lung disease, active immune suppression, chemotherapy, etc. Order full/wa with in-house SARS-CoV-2 test and contact/droplet isolation.

- Patients with acute respiratory distress or hypoxia (HR: < 50):
  - Consider admission for patients with acute respiratory distress or hypoxia (HR: < 50) or with significant comorbidities such as BMI > 35, chronic lung disease, active immune suppression, chemotherapy, etc. Order full/wa with in-house SARS-CoV-2 test and contact/droplet isolation.

- Patients with acute respiratory distress or hypoxia (HR: 0-49):
  - Consider admission for patients with acute respiratory distress or hypoxia (HR: 0-49) or with significant comorbidities such as BMI > 35, chronic lung disease, active immune suppression, chemotherapy, etc. Order full/wa with in-house SARS-CoV-2 test and contact/droplet isolation.
Isolate:

If a patient screens positive, tests positive, or there is clinical concern for potential COVID-19, the patient should be escorted to an isolation room or private room. **PLEASE ENSURE ALL PATIENTS ARE MASKED AT ALL TIMES WHEN TOLERATED**

Most patients can be placed in a private room with the door closed (if safe to do so) with droplet, contact, and standard precautions including eye protection unless the patient requires an aerosol-generating procedure. Intubated patients do not necessarily require negative pressure unless the ventilator does not have a closed circuit like LTV. NP or OP swab does not require negative pressure. Guidelines for respiratory therapy for covid-19 suspect or confirmed cases should be followed. For aerosol generating procedures airborne, contact, and standard including eye protection should be used, and the patient should be placed in a negative pressure room if the procedure will be frequent or ongoing. Aerosol-generating procedures include: BiPAP, CPAP, HFNC, nebulizer treatments, bag-mask ventilation, bronchoscopy, active intubation/extubation, cardiopulmonary resuscitation, sputum induction, open airway suctioning.

Associates who have direct patient care responsibilities or who enter the rooms of suspected or confirmed COVID-19 patients may wear N95 masks (instead of surgical masks) if available, even if the patient is not on airborne isolation. It is recommended that safe PPE use and reuse guidelines (available on the intranet) are followed to safely protect the N95 for re-use and to prevent self-contamination or contamination of the mask inadvertently.
Procedures for positive COVID screen or suspected/confirmed COVID Patients

- ED:
  - Patient (and anyone accompanying them) is offered a surgical mask and escorted to a private room with the door closed or designated area.
  - No aerosol-generating procedure required: Providers should don either N95 or surgical mask, with eye protection (full face shield preferred), yellow gown, gloves in a private
room with the door closed. Patients known to have confirmed COVID-19 could be coholed in a room together with the door closed if necessary and if safe to do so.

- If an aerosol-generating procedure is required (BiPAP/CPAP, NFNC, bag-mask ventilation, nebulizer, active intubation/extubation, cardiopulmonary resuscitation, ongoing mechanical ventilation via a ventilator without a closed circuit such as LTV’s, bronchoscopy, sputum induction, or open airway suctioning; please avoid these procedures when possible), providers should don N95 mask with face shield, yellow gown, gloves and the patient should be placed in a negative pressure room/area. Nasopharyngeal or oropharyngeal swab acquisition and mechanical ventilation alone do not require airborne isolation or N95 mask use.

- Epic isolation orders and COVID flags should be entered and signs should be posted for isolation

- Perform a clinical assessment:
  - Define detailed travel history including any healthcare exposures
  - Determine if patient had close contact with a symptomatic traveler/case or someone with compatible symptoms
  - Define duration and timeline of specific symptoms
  - Assess severity of illness and any known prior testing
  - Assess risk factors for severe disease (elderly, immunocompromise, chronic cardiopulmonary disease, etc.)
  - Assess patient’s living arrangement (private home vs. shelter, SNF, LTCF, etc.)

- If patient potentially meets PUI criteria or clinical concern exists for COVID-19, and will be admitted to the hospital, SARS-CoV-2 testing should be ordered. Influenza is no longer prevalent, so influenza testing is not routinely recommended. If influenza testing is desired, it can be ordered separately but will be processed from the same swab that was sent for SARS-CoV-2; no need to send a separate specimen. RPP is not recommended routinely as part of the COVID-19 workup.

- Patients with CONFIRMED COVID-19 can be coholed in an area or room together

- Patients COVID-LIKE ILLNESS can be coholed together if no readily available private rooms are available; in this case both patients must be on droplet and contact isolation and curtain should separate patients at all times. If the patients have discordant results, the exposed patient should remain on isolation if possible and a private room is preferred for the exposed patient, if available.

- Patients with a clinical presentation concerning for COVID who have a negative test but no other definitive diagnosis should remain on isolation for COVID, as false negative tests can sometimes occur; err on the side of caution. COVID-like illness flag should be added in Epic.

- Consider Infectious Diseases Consult if indicated, and a Critical Care Consult if unstable and ICU level care might be needed

- Outpatient: Patient (and anyone accompanying them) is offered a surgical mask, and patient is escorted to a private room with the door closed. Providers should don either N95 (or surgical mask if unavailable), with eye protection, yellow gown and gloves.
  - Perform a clinical assessment:
• Define detailed history including any healthcare exposures and travel
• Determine if patient had close contact with a symptomatic traveler/case or someone with compatible symptoms
• Define duration and timeline of specific symptoms
• Assess severity of illness
• Assess risk factors for severe disease (elderly, immunocompromise, chronic cardiopulmonary disease, etc.)
• Assess patient’s living arrangement (private home vs. shelter, SNF, LTCF, etc.)
  o If patient potentially meets PUI criteria or clinical concern exists for COVID-19, and is not safe for home isolation, call ahead to ED and alert EMS to potential COVID prior to transfer to an acute care facility.

• Inpatient or main ED: If a patient develops fever or respiratory symptoms (or any other concerning symptoms/signs for COVID-19), and after appropriate evaluation the clinical profile is concerning for COVID-19, the patient should be treated as a possible PUI.
  o Mask the patient, close the door, and post isolation signs
  o No aerosol-generating procedure required: Providers should don either N95 or surgical mask, with eye protection (full face shield preferred), yellow gown, gloves in a private room with the door closed.
  o If an aerosol-generating procedure is required (BiPAP/CPAP, NFNC, bag-mask ventilation, nebulizer, intubation/extubation, cardiopulmonary resuscitation, ongoing mechanical ventilation via a ventilator without a closed circuit such as LTV’s bronchoscopy, sputum induction, or open airway suctioning), providers should don N95 mask with face shield, yellow gown, gloves and the patient should be placed in a negative pressure room. Nasopharyngeal swab acquisition or mechanical ventilation alone do not require a negative pressure room or N95 mask.
  o Epic isolation orders and COVID flag should be entered.
  o Identify an available private or negative pressure room for transfer, preferably in a COVID+ designated area
  o Patients with CONFIRMED COVID-19 can be cohorted in an area or room together
  o Patients with COVID-LIKE ILLNESS can be cohorted in an area or room together
  o Patients with COVID-LIKE ILLNESS can only be cohorted with confirmed COVID-19 patients if no readily available private rooms are available and clinical suspicion for COVID-19 is very high after discussion with Infection Prevention; in this case both patients must be on droplet or airborne and contact isolation and curtain should separate patients at all times. If the patients have discordant results, the exposed patient should remain on isolation if possible and a private room is preferred for the exposed patient, if available.
  o Once receiving area is ready, the patient should be escorted/transported to the private or negative pressure room
  o SARS-CoV-2 PCR testing should be sent as soon as possible. Influenza is no longer prevalent, so influenza testing is not routinely recommended. If influenza testing is desired, it can be ordered separately but will be processed from the same swab that was
sent for SARS-CoV-2; no need to send a separate specimen. RPP is not recommended routinely as part of the COVID-19 workup.

- **Patients with a clinical presentation concerning for COVID who have a negative test but no other definitive diagnosis should remain isolated, as false negative tests can sometimes occur; err on the side of caution. COVID-like illness flag should be added in Epic.**
- Consider Infectious Diseases Consult if indicated, and a Critical Care Consult if unstable and ICU level care might be needed

**Inform:**

Suspicion or confirmation of COVID-19 should prompt a conversation with the care team, nurse manager, and any receiving services. If the patient is part of a cluster or from a congregate setting, DOH notification is required. Isolation orders and flags must be placed, and signs posted.

**Respiratory Therapy Guidelines:**

Please refer to Respiratory Therapy Guidelines for adults and pediatrics on the intranet, and the Surviving Sepsis Campaign: Guidelines on the Management of Critically Ill Adults with Coronavirus Disease 2019 (COVID-19).

![Diagram of COVID-19 with hypoxia]

**Guideline for Respiratory Care of Mechanically Ventilated Suspected or Confirmed COVID Patients**

1. A Resuscitator Bag and Mask must be at bedside and provided for transport in the event of self-extubation.

2. Ventilator will be set up with Aerogen nebulizer and inline suction ballard.
3. Ventilator circuit changes will be done PRN. Changing the ventilator circuit is considered an aerosol generating procedure. Respiratory Therapist must wear N95 Mask. Circuit change will be done for the following reasons: • If there is visible physical damage to the circuit causing interference with ventilation • If there is a circuit occlusion alarm that is unresolved after troubleshooting • RT must consult with Attending MD prior to changing the circuit

4. Inline suction ballard will be changed PRN. Changing the inline suction ballard is considered an aerosol generating procedure. Respiratory Therapist must wear N95 mask. Change of inline suction ballard will only be done if the ballard is non-functional.

5. Ventilator will be set up with Servo-guard HEPA Filter (or other approved HEPA filter) on expiratory limb prior to the expiratory cassette.

6. HEPA filter will be changed PRN. Changing the filter is considered an aerosol generating procedure. Respiratory Therapist must wear N95 mask. Change of filter will be done for the following reasons: • PIP is >15cmH2O and/or AutoPeep >10cmH2O above baseline for >30 minutes after patient has already been suctioned AND is not related to worsening lung compliance • Circuit Occlusion Alarm • RT must consult with Attending MD prior to changing the expiratory filter

7. During circuit changes, ballard changes, and filter changes, all healthcare workers in the patient room must wear N95 mask. The door to the patient room must be closed during all circuit changes, ballard changes, and filter changes.

8. Patients on mechanical ventilation via Servo ventilator will remain on the ventilator during transport. Patient will be accompanied by a Respiratory Therapist and personnel according to the Montefiore transport policy.

9. Every Servo ventilator has 2 batteries each lasting approximately 45 minutes.

10. Oxygen tank will be connected to high pressure hose – patient will be on 100% oxygen during transport. RT will determine how many tanks will be needed for transport.

Admission for PUI

It is imperative to avoid ED visits and admission for patients not requiring acute care, such as supplemental oxygen, intravenous medications, etc. to reserve this resource for patients with severe disease. If a patient at Montefiore is considered a PUI or there is clinical concern and requires admission, the patient will be admitted to an isolation or negative pressure room. Decisions will be made on a case-by-case basis regarding which location is optimal for ED or inpatient care of a PUI, based on the patient’s condition and level of care required, need for aerosol generating procedures, and volume of admitted patients requiring private and negative pressure rooms. Particular units may be designated for cohorting. ICU beds are limited. As such, these beds will be reserved for patients requiring the highest level care, such as ECMO, CVVH, or hemodynamic instability or respiratory failure that cannot be managed elsewhere, as determined by Critical Care Medicine.
Home Care

Duration of home isolation:
- At least 7 days since symptom onset
- Respiratory symptoms are improving
- The patient has been afebrile for at least 72 hours without needing antipyretics (Tylenol, ibuprofen, etc.)
- Mask should be worn for 14 days from symptom onset

Please provide the patient with the Home Isolation Guidelines document available on the intranet if discharged.

Transport

The patient should be transported wearing a surgical mask. **Staff transporting a PUI should wipe down the bed, ensure the patient has clean linen, wear an N95 or surgical mask and perform diligent hand hygiene.** Gloves are not required. Transport should be limited; any therapeutic or diagnostic procedures including X-ray should be done in the patient’s room whenever possible. If procedures outside the patient’s room are required, advanced notification (receiving area, infection prevention, and EVS) and removal of other patients and extra staff from the area are required. Staff performing the procedure should wear recommended PPE. Radiology guidelines for COVID-19 are available on the intranet.

Care of PUI and Confirmed Cases in Isolation

Entry of staff into the room should be limited to essential functions only, and clinical staff should be dedicated to COVID-19 patients only when possible; however, as volume of patients increases this will likely not be sustainable. Isolation will continue until the patient is cleared by Infection Prevention. All Montefiore clinical staff are eligible to care for a PUI/confirmed patient with the exception of pregnant staff. Students should not care for these patients.

Diagnostics

Please note that the Respiratory Pathogen Panel used at Montefiore will **NOT** identify COVID-19. Furthermore, a patient who has a positive result for coronavirus on this panel should **NOT** be treated as a person under investigation nor should disposition planning be delayed or care altered due to such a result. Coronaviruses represent a large family of viruses, and are a common cause of upper respiratory infections/common cold in the community.

All specimens for suspected or confirmed COVID-19 patients must be clearly labeled as such for the protection of lab personnel using an Epic-generated COVID alert label (based on isolation status), an orange sticker, Alert sticker, and/or printed alert to be put in the bag. All specimens including blood and other specimens from these patients should be hand-delivered to the laboratory and a supervisor notified immediately. The pneumatic tube system should not be used for specimens from suspected or confirmed COVID-19 patients.
Montefiore Medical Center has in-house COVID-19 testing available. This test can be ordered without approval from ID, and priority for in-house testing (versus commercial lab send out) will be given to patients with critical illness and other patients with illness requiring hospitalization at the discretion of Pathology, Hospital Epidemiology or Infectious Diseases. Both a nasopharyngeal swab and a separate oropharyngeal swab should be obtained and both swabs should be placed in one viral transport media tube. Do NOT waste an entire viral swab kit with transport media if there is only one swab; either another individually wrapped swab can be used, or the same swab can be used for OP collection then NP collection in the same patient. If the provider also orders an influenza swab (not routinely recommended due to low influenza activity at this time), the same specimen can be used for BOTH COVID and influenza; a separate swab is not necessary.

**Instructions for collection of NP swab:** Use a synthetic fiber swab with plastic shaft. Do not use calcium alginate swabs or swabs with wooden shafts. Leave swab in place for 2-3 seconds then rotate completely around for 10-15 seconds, and repeat in other naris. Place swab immediately in a sterile tube
with 2-3 ml of viral transport media. Then perform a separate OP swab using a synthetic fiber shaft and place immediately in the tube with viral transport media. If unavailable, E-swabs can be substituted.

**COLLECT BOTH NP AND OP**
*(Same process for inpatient or ambulatory collection)*

**PCR Testing Sensitivity and Serology:** While true sensitivity and specificity of SARS-CoV2 PCR is not yet established, false negative NP/OP PCR results have been noted in patients with symptoms very consistent with COVID (persistent fevers, hypoxia, shortness of breath, pulmonary infiltrates, diarrhea, neutrophilia, lymphopenia, elevated inflammatory markers and acute phase reactants, etc.). Studies suggest maximal viral shedding and maximal RNA test sensitivity occurs in week 1 of illness, then steadily declines in week 2 and beyond, while antibodies are building up. Providers can consider, if COVID-19 is strongly suspected, sending a repeat NP/OP test 48-72 hours after original test if initially negative. BAL or deep tracheal specimens can be tested for SARS-CoV2 by send out labs.

The Department of Pathology has validated serologic testing which could be helpful in such patients to confirm prior diagnosis, however, this test has significant limitations (e.g. false positive and false negative results). Serologic testing (IgG) is available for all associates by request to OHS; if the associate had symptoms of COVID-19 it is recommended to wait until ≥ 21 days after symptoms began to ensure sufficient time has passed to develop antibody. Please note that many non-FDA tests available have limited sensitivity and specificity, and thus conclusions cannot be drawn from these test results and serology will not be used to determine fitness for work. Please contact ID with any questions.
Appropriate PPE Use and Conservation: N95 and other PPE supply chain is extremely strained by the demand in the setting of the current outbreak and disruptions in manufacturing; consequently, extraordinary efforts must be taken to reduce utilization and preserve supply so it is available when needed for the weeks to come as we respond to this pandemic:

- Mask distribution upon hospital entry (based on associate role and responsibilities), and at non-hospital based sites is ongoing to optimize timely access to needed PPE based on associate feedback. All associates should wear a surgical mask while working unless alone in a room with the door closed. N95 masks for patient-facing staff should be worn when in patient care areas in the hospital, but these masks can be difficult to wear for prolonged periods of time. Surgical masks can be worn when outside of airborne isolation areas, cohorting units, or direct patient care areas.
- N95 masks are available in ambulatory facilities for aerosol generating procedures or COVID+ or suspected COVID patients.
- N95 masks will be actively stocked on units and in procedural/OR areas, pharmacy, and the laboratory. Remaining stock will be secured in Central Supply, by specified unit leaders, and/or ADN’s. PPE requests should be requested from central supply directly during regular hours, and to the ADN off hours.

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<th>COVID Symptoms and/or Nasal PCR Result</th>
<th>COVID-19 IgG Antibody Result</th>
<th>Interpretation</th>
<th>Do I have protection from future COVID-19 infection?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive</td>
<td>Positive</td>
<td>COVID-19 Infection occurred and antibodies against the virus are present in your blood</td>
<td>We don’t know yet</td>
</tr>
<tr>
<td>Positive</td>
<td>Negative</td>
<td>COVID-19 Infection occurred and antibodies against the virus are absent from your blood</td>
<td>We don’t know yet</td>
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<tr>
<td>Symptoms were present, but test was Negative or no test</td>
<td>Positive</td>
<td>COVID-19 Infection likely occurred</td>
<td>We don’t know yet</td>
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<tr>
<td>Symptoms were present, but test was Negative or no test</td>
<td>Negative</td>
<td>COVID-19 Infection either did not occur or occurred but wasn’t confirmed</td>
<td>We don’t know yet</td>
</tr>
<tr>
<td>No symptoms, no test or Negative test</td>
<td>Positive</td>
<td>COVID-19 Infection could have occurred, but cross reactivity with other seasonal coronaviruses is possible</td>
<td>We don’t know yet</td>
</tr>
<tr>
<td>No symptoms, no test or Negative Test</td>
<td>Negative</td>
<td>COVID-19 Infection likely did NOT occur</td>
<td>Likely no protection</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>COVID-19 Symptoms and/or Nasal PCR Result</th>
<th>COVID-19 IgG Antibody Result</th>
<th>Interpretation</th>
<th>Do I have protection from future COVID-19 infection?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive</td>
<td>Positive</td>
<td>COVID-19 Infection occurred and antibodies against the virus are present in your blood</td>
<td>We don’t know yet</td>
</tr>
<tr>
<td>Positive</td>
<td>Negative</td>
<td>COVID-19 Infection occurred and antibodies against the virus are absent from your blood</td>
<td>We don’t know yet</td>
</tr>
<tr>
<td>Symptoms were present, but test was Negative or no test</td>
<td>Positive</td>
<td>COVID-19 Infection likely occurred</td>
<td>We don’t know yet</td>
</tr>
<tr>
<td>Symptoms were present, but test was Negative or no test</td>
<td>Negative</td>
<td>COVID-19 Infection either did not occur or occurred but wasn’t confirmed</td>
<td>We don’t know yet</td>
</tr>
<tr>
<td>No symptoms, no test or Negative test</td>
<td>Positive</td>
<td>COVID-19 Infection could have occurred, but cross reactivity with other seasonal coronaviruses is possible</td>
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</tr>
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<td>Negative</td>
<td>COVID-19 Infection likely did NOT occur</td>
<td>Likely no protection</td>
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</tbody>
</table>
• N95 masks can be removed and re-used by the same provider for multiple uses for airborne isolation patients only OR for airborne and contact patients IF the N95 mask is completely covered by a barrier (such as a full face shield or hood) during use, unless/until integrity is compromised, or the mask becomes soiled/wet. Providers should avoid touching the mask with gloved/soiled hands. The provider should perform hand hygiene immediately prior to removing the mask. Masks should be stored in a paper bag with name on it between uses.
• N95 masks can be continuously worn for an extended period of time to care for multiple patients, unless/until integrity is compromised, or the mask becomes soiled/wet. Providers should avoid touching the mask with gloved/soiled hands between patients and should not reuse the mask as above after removal if aerosol generating procedures were performed and there was incomplete coverage of the mask.
• Face Shields and goggles should be reused by the same provider on an ongoing basis if integrity is not compromised, and if carefully removed and disinfected by wiping with PDI purple top or gray top wipes between uses. Face shields and goggles should be stored and labelled in a clean, dry place, similar to N95 masks.
• Surgical masks without a fluid shield CAN in times of short supply be reused if not touched with unwashed hands, soiled, wet, or contaminated. Providers should leave the patient care areas if they need to remove the facemask. Facemasks should be carefully folded so that the outer surface is held inward and against itself to reduce contact with the outer surface during storage. The folded mask can be stored between uses in a clean sealable paper bag or breathable container labeled with the provider’s name. The facemask should be removed and discarded if soiled, damaged, or hard to breathe through. The facemask should never be worn/stored under the chin. If not touched with unwashed hands, soiled, wet, or contaminated, surgical masks can also be worn continuously for an extended period of time (i.e. a shift).
• N95 masks are for ASSOCIATES ONLY (never patients/visitors).
• Routine fit testing has been suspended and replaced by just-in-time fit testing (available in the lobby of each hospital or upon request to IPC, EHS) and positive and negative pressure checks. Associates with failed test should re-attempt with a size small N95 instead of regular. Small masks can be obtained at entrances, on units, or by directly requesting from central supply at each campus. If the associate’s fit test fails with both sizes of the model, repeat fit testing with an alternative model.
• Seal check should be performed each time the N95 is used to ensure proper fit.
• Please avoid using thick skin barrier items or tissues over the bridge of the nose that interfere with seal; liquid skin protectant materials that do not cause eye irritation are acceptable if the seal can be maintained (please follow NPIAP guidance on the intranet).
Environmental Cleaning: Not considered Category A waste, no special cleaning procedures beyond normal terminal cleaning. Rooms where a patient ordered for airborne isolation due to aerosol generating procedures was located should be rested (time-based on air exchanges, up to 2h) prior to cleaning and the opening to further patient care; however, if another patient with COVID-19 infection will be moved into the area after, and all associates are wearing N95 masks, eye protection, gowns, and gloves, it is not necessary to rest the room prior to cleaning. If UV is available for terminal cleans and discharge cleaning, it should be used.

Duration of Isolation:

For patients going home, home isolation after discharge should continue until:

- At least 7 days since symptom onset
- Symptoms are improving
- The patient has been afebrile for at least 72 hours without needing antipyretics (Tylenol, ibuprofen, etc.)
- Mask should be worn for 14 days from symptom onset

Patients being discharged to a SNF must first have a negative SARS-CoV-2 PCR.

For patients still in the hospital, available evidence indicates that more severely affected patients and the immunocompromised are more likely to have prolonged shedding of COVID-19, so it is recommended that isolation continue for the duration of admission. If the admission is prolonged or a patient is re-admitted to the hospital, consideration can be given to re-testing with 2 PCR tests at least 24 hours apart in consultation with Infectious Diseases and Infection Prevention to determine if isolation can be discontinued. Isolation should not be discontinued until approved by Infection Prevention. The following guide can be used for determining PCR testing needs to discontinue isolation:
<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>No known history of COVID-19</td>
<td>No</td>
<td>n/a</td>
<td>1 PCR</td>
<td>PCR- COVID-neg</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>PCR+ COVID+</td>
</tr>
<tr>
<td>No known history of COVID-19</td>
<td>Yes-current</td>
<td>n/a</td>
<td>1 PCR</td>
<td>PCR- CLI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>PCR+ COVID+</td>
</tr>
<tr>
<td>COVID-like illness but negative testing</td>
<td>At least 10 days since symptom onset, afebrile 72h, symptoms improving</td>
<td>n/a</td>
<td>1 PCR</td>
<td>PCR- COVID-neg</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>PCR+ COVID+</td>
</tr>
<tr>
<td>+COVID-19</td>
<td>At least 10 days since symptom onset, afebrile 72h, symptoms improving</td>
<td>&lt;6 weeks</td>
<td>2 PCR 24h apart</td>
<td>PCR- x 2 COVID-neg</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>PCR+ COVID+</td>
</tr>
<tr>
<td>+COVID-19</td>
<td>Afebrile 72h, symptoms improving</td>
<td>≥6 weeks</td>
<td>1 PCR</td>
<td>PCR- COVID-neg</td>
</tr>
<tr>
<td></td>
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</table>

**Visitors:** Visitor restrictions are being reviewed on an ongoing basis and are subject to change at any time as the situation evolves.

All hospital visitation has been suspended except when medically necessary. Exceptions to this policy will be made for the following care areas:

- For Labor and Delivery, one healthy partner may accompany the patient (subject to COVID test results)
For Pediatrics, including the Pediatric Emergency Department and the NICU, one healthy visitor may accompany the child;
For Palliative care patients, one healthy visitor at a time;
For Geriatrics patients seen either in the ambulatory setting or coming in for surgery, one healthy visitor may accompany the patient;
At discharge, one healthy visitor may come to assist in discharge;
In the Adult Emergency Departments, one healthy visitor is allowed for patients requiring assistance.

All visitors will be screened for COVID-19 symptoms at entrances and will be asked to leave if they display symptoms. All visitors should be encouraged to perform hand hygiene, wear a surgical mask at all times (but never N95 mask), wear other PPE when appropriate, and use respiratory etiquette (cover cough in tissue or arm).

**Post-Mortem Care**

If a patient with suspected or confirmed COVID-19 expires, the following steps should be taken:

- If the patient lives or works in a congregate setting (nursing home, group home, dorm, shelter, etc), the primary clinical service should call the NY City DOH to report death of a COVID19 patient. The death of a healthcare worker who works at a hospital or nursing home should also prompt a call to the NY City DOH. NY Provider Access Line 866-692-3641
- If report to DOH is required, the primary clinical team should document in the chart that report was made to the NY City DOH and document the DOH case number
- Office of the medical examiner is no longer accepting COVID19 cases
- Associates who place the patient in a body bag and transfer the body to or from the bed in the hospital room or in the morgue should wear gown, gloves, and surgical mask with eye shield
- Advance notice should be given to the morgue that a deceased patient with COVID19 will be coming
- Transport guidelines should be followed during transport to the morgue, with the exception that surgical masks are not needed for the deceased patient or the transporter
- The entire body of the deceased patient should be fully covered by clean linen during transport
- Other post-mortem care should be dictated by pathology policy and procedure

Due to the COVID-19 pandemic and a shortage of Personal Protective Equipment (PPE):

The Montefiore Pathology Department cannot perform autopsies except under very limited conditions.

- Clinicians can no longer routinely offer autopsies to next of kin for every death.
- Only autopsies discussed with and approved by the autopsy attending pathologist (pager (917) 956-7007) will be performed.
• See the full policy on the intranet for more details.

Communication:

The intranet has an extensive FAQ section on the COVID-19 landing page. Please consult this page for all questions.

There is also a COVID-19 hotline (914-457-4136) or email COVID19@Montefiore.org for questions that cannot be answered by the intranet page.

All communication with Montefiore associates, the community, and the media regarding PUI or patients with confirmed COVID-19 should occur through Public Relations in coordination with Executive Leadership and Hospital Epidemiology in order to provide the most accurate information and promote safety and security for all. Montefiore’s public relations policy and HIPAA regulations must be followed at all times.

Employee Exposure and Illness:

Any employee ordered for quarantine by a public health entity such as DOH or CDC must notify their supervisor and Occupational Health Service (including documentation of public health order), and will be furloughed for 14 days per human resources. All other associates with a known or suspected COVID-19 exposure who are asymptomatic should continue working unless symptoms develop. ALL healthcare workers, regardless of whether they have had a known COVID-19 exposure, should self-monitor by taking their temperature twice daily and assessing for COVID-19 like illness (Fever >100.0F, muscle aches, severe fatigue, persistent or unusual headache, upper respiratory symptoms, sore throat, dry cough, shortness of breath, chest pressure, diarrhea, chills or loss of smell/taste). Individual presentations can vary, and associates should call MMC OHS to discuss any symptoms of concern. If healthcare workers develop any signs or symptoms of a COVID-19 like illness, they should NOT report to work, and should notify their supervisor and OHS. If any signs or symptoms occur while working, healthcare workers should immediately leave the patient care area, inform their supervisor and OHS, and isolate themselves from other people.

In addition, by the Governor’s Executive Order, staff that work in adult care facilities must have twice weekly SARS-CoV-2 PCRs, to be arranged according to written plans issued by each facility. SNF personnel who test positive for COVID-19 but remain asymptomatic are not eligible to return to work for 14 days from the date of the first positive test. Symptomatic nursing home employees may not return to work until 14 days after the onset of symptoms, provided at least 3 days (72 hours) have passed since resolution of fever without the use of fever-reducing medications and respiratory symptoms are improving. A negative PCR test is not required before returning to work. Staff who work at a facility on three days per week or less only need to be tested one time per week. At this time, staff who have documentation of a positive diagnostic test for COVID-19 or a positive serologic test for IgG against SARS-CoV-2 are currently exempt from this testing requirement. This exemption might change as more is learned about immunity following COVID-19.

OHS can be contacted at: (718) 920-5406 for any Montefiore associate experiencing COVID-19 symptoms. After consultation with OHS, if indicated, testing can be arranged. Per the NY State Department of Health, associates with COVID-19 symptoms can return to work if symptoms are
substantially improved, at least 7 days after onset of symptoms, and when fever is absent for 72 hours without fever reducing medications, whichever is longest, with the approval of OHS. Sick associates should contact OHS before coming back to work to confirm these parameters are met. Associates returning after a COVID-like illness or confirmed COVID-19 should wear a surgical mask at all times for 14 days from the onset of symptoms. In addition, for any associate requiring hospitalization for COVID-19 related disease, OHS will require the associate to complete their recommended care as directed by their own physicians and the associate must have their physician provide a doctor’s note clearing the associate to return to work.

If an associate who is asymptomatic is tested for COVID-19 for any reason, and that test is positive, the associate must remain out of work for 7 days from the date of the test assuming symptoms do not develop within 7 days of testing. If symptoms do occur, the criteria above for symptomatic associates should be used to determine readiness to return to work.

OHS can also be contacted to schedule SARS-CoV-2 IgG antibody testing upon request. If the associate had known COVID-19 or a COVID-like illness, they should wait 21 days from the date of symptom onset prior to antibody testing to ensure sufficient time has passed for antibody formation.

Employee Travel:

Montefiore employees may not travel to any destination for business purposes at this time. Employees are urged to follow CDC guidance regarding non-essential travel to high-risk areas. Employees choosing to travel for personal reasons to will not be offered special pay if mandated to self-quarantine by CDC or DOH on return.


Important Contacts:

Internal inquiries regarding COVID-19 should be directed to the intranet FAQ page, and to the associate’s supervisor and site leadership. If the question cannot be answered, 914-457-4136 or COVID19@Montefiore.org can be used to direct the inquiry to the appropriate department.

For all other questions regarding Infection Prevention issues, please contact your site-specific Infection Prevention Office and ask for the Infection Preventionist assigned to your unit/site. For Montefiore Medical Center, this information is available on the intranet on the Infection Prevention Department page. For off hours questions, ask the operator to page Infection Prevention on-call. For employees seeking information related to furlough or exposure, please call your local Occupational Health Services office. Contact information can be found in the intranet page for Occupational Health Services.

Health Department Provider access lines:

- NYC DOH 866-692-3641
- Westchester County DOH: 914-813-5000
- Rockland County DOH M-F 8am-5pm: 845-364-2997
- Rockland County DOH after hours/weekend: 845-364-8600
- Orange County DOH: 845-291-2330
Additional Resources:

Information, workflow, protocols, and documents for COVID-19 are available on the Montefiore intranet, on the COVID-19 page. Montefiore’s external website also has community-oriented information.

The NYC DOH has many helpful and informative documents, tools, and guides for the general public and for providers and a hotline for questions:

NYC DOH COVID-19 Hotline 1-888-364-3065

https://www1.nyc.gov/site/doh/health/health-topics/coronavirus.page

The CDC has up-to-date information, comprehensive guidance, risk assessment, preparedness checklists, provider and laboratory guidance, travel information, and more:


The WHO also has comprehensive guidance and daily global situation summaries on COVID-19:

https://www.who.int/health-topics/coronavirus