Montefiore COVID19 Update

Montefiore Infectious Diseases and Epidemiology Team
Agenda

• Brief world COVID update
• Montefiore specific updates
  – PPE/Inpatient flow update
  – COVID Hotline workflow and update
  – Testing update
• Therapeutics
• Clinical trials
What is COVID-19?

- Coronaviruses are a large family of viruses including several that cause the common cold
- A novel coronavirus infection (COVID-19) was first reported December 31, 2019 in Wuhan, Hubei Province, China
- Initial cases were linked to an animal market but subsequent cases occurred through human-to-human spread in China
- **COVID-19 disease** is caused by the **SARS-CoV-2 virus**, which is similar but distinct from SARS and MERS, which are other types of coronavirus infections that have caused outbreaks in the past.
- China and multiple other countries are experiencing widespread sustained local spread (South Korea, Italy, Iran, Japan)
- Since December, >100,000 COVID-19 cases have been reported
- There have been confirmed cases in more than 100 countries
- In the US, 36 states have reported >600 cases, including New York State

Source: CDC
COVID19 Cases

Declared PANDEMIC by WHO 3/11/20
COVID19 Cases
Number of specimens tested for the virus that causes COVID-19 by CDC labs (N=3,791) and U.S. public health laboratories* (N=7,288) by date of specimen collection†

*Reporting public health laboratories are 46 state public health labs (AK, AL, AR, AZ, CA, CO, CT, DE, FL, GA, HI, IA, ID, IL, IN, KS, KY, LA, MA, MD, ME, MI, MN, MO, MS, MT, NC, ND, NE, NH, NJ, NM, NV, NY, OH, OK, OR, PA, RI, SC, TN, TX, VT, WA, WI and WY), New York City, USAF, and S California Counties.

As of 3/12/2020
New York COVID19 Cases
as of March 11, 2020

<table>
<thead>
<tr>
<th>County</th>
<th>Positive Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Westchester County</td>
<td>121</td>
</tr>
<tr>
<td>Nassau County</td>
<td>28</td>
</tr>
<tr>
<td>Suffolk County</td>
<td>6</td>
</tr>
<tr>
<td>Rockland County</td>
<td>6</td>
</tr>
<tr>
<td>Saratoga County</td>
<td>2</td>
</tr>
<tr>
<td>Ulster County</td>
<td>1</td>
</tr>
<tr>
<td>New York State (Outside of NYC)</td>
<td>164</td>
</tr>
<tr>
<td>New York City</td>
<td>52</td>
</tr>
<tr>
<td><strong>Total Positive Cases (Statewide)</strong></td>
<td><strong>216</strong></td>
</tr>
</tbody>
</table>

NYC DOH Novel Coronavirus Hotline: 1-888-364-3065
Source: NYC DOH
How is it Spread?

• What we know is largely based on what is known about similar coronaviruses
• Transmission is Person to Person
  – Persons within 6 feet of each other
  – Respiratory droplets – produces when person coughs or sneezes (large droplets)
  – Also isolated from stool and blood
• Transmission via fomites – touching surface with SARS-CoV-2 on it, then touching mouth or eyes
• Incubation period 1-14 days (median 5-6, max up to 24 days)
• Quarantine is 14 days from last exposure based on other coronaviruses.
• Community spread, not linked to travel
Managing spread

• **Containment** – has not been completely successful

• **Mitigating strategies**
  – Social distancing
  – Isolating ill persons
  – School closures
  – Telecommuniting as much as possible
What are the symptoms of COVID-19?

- From mild to severe and death – more severe in elderly and pts with comorbidities
- Onset 2-14 days after exposure – based on experience with MERS-CoV
- What does this look like clinically?:
  - Fever; Dry Cough; Fatigue and myalgias; Shortness of breath
- Labs: Lymphopenia, prolonged PTT, elevated LDH and LFTs
- Imaging: CXR – bilateral patchy infiltrates, CT chest – ground glass infiltrates

COVID19 Summary

• **Symptoms**: fever, cough, shortness of breath, muscle aches (flu-like symptoms)
  – Some people have sore throat or upset stomach

• **Incubation Period**: 2-14 days

• **Transmission**: Human-to-human spread likely via coughing, sneezing, and direct contact with respiratory secretions

• **Severity**: 80% of people do not require hospitalization

• **Diagnosis**: NY State lab and NYC lab, Labcorp, Quest

• **Treatment**: Supportive (oxygen, fluids, etc.)

• **Prevention**: No vaccine. Hand hygiene, transmission-based precautions, social distancing strategies

Source: Centers for Disease Control and Prevention, World Health Organization
COVID-19 Infection Control

- **Source Control**: Masking the patient has protection and is recommended
- **Isolation**:
  - Droplet+Contact+Standard (including eye protection) for other contact and care
  - Airborne+Contact+Standard (including eye protection) for aerosol generating procedures (performed (BiPAP, CPAP, nebulizer, intubation/extubation, or open airway suctioning) and for intubated patients
- **Environmental Cleaning**: normal terminal cleaning (2 hr rest if possible)
- **Transport**: Patient should wear surgical mask

Source: Centers for Disease Control and Prevention, World Health Organization
COVID-19 prevention

- Hand Hygiene
- Hand Hygiene
- Hand Hygiene
- Avoid touching eyes, nose, mouth
- Stay home if you are sick
- Cover your cough and sneeze
- Clean and disinfect high touch surfaces
- Facemask for people with symptoms of COVID to protect others
Regulatory Updates

• CDC update re PPE use for COVID
• WHO rec for PPE REUSE
• Expanded travel ban
Interim Infection Prevention and Control Recommendations for Patients with Suspected or Confirmed Coronavirus Disease 2019 (COVID-19) in Healthcare Settings

Summary of Changes to the Guidance:

- Updated PPE recommendations for the care of patients with known or suspected COVID-19:
  - Based on local and regional situational analysis of PPE supplies, facemasks are an acceptable alternative when the supply chain of respirators cannot meet the demand. During this time, available respirators should be prioritized for procedures that are likely to generate respiratory aerosols, which would pose the highest exposure risk to HCP.
    - Facemasks protect the wearer from splashes and sprays.
    - Respirators, which filter inspired air, offer respiratory protection.
  - When the supply chain is restored, facilities with a respiratory protection program should return to use of respirators for patients with known or suspected COVID-19. Facilities that do not currently have a respiratory protection program, but care for patients infected with pathogens for which a respirator is recommended, should implement a respiratory protection program.
  - Eye protection, gown, and gloves continue to be recommended.
    - If there are shortages of gowns, they should be prioritized for aerosol-generating procedures, care activities where splashes and sprays are anticipated, and high-contact patient care activities that provide opportunities for transfer of pathogens to the hands and clothing of HCP.

- Included are considerations for designating entire units within the facility, with dedicated HCP, to care for known or suspected COVID-19 patients and options for extended use of respirators, facemasks, and eye protection on such units. Updated recommendations regarding need for an airborne infection isolation room (AIIR).
  - Patients with known or suspected COVID-19 should be cared for in a single-person room with the door closed.
  - Airborne Infection Isolation Rooms (AIIRs) (See definition of AIIR in appendix) should be reserved for patients undergoing aerosol-generating procedures (See Aerosol-Generating Procedures Section)

- Updated information in the background is based on currently available information about COVID-19 and the current situation in the United States, which includes reports of cases of community transmission, infections identified in healthcare personnel (HCP), and shortages of facemasks, N95 filtering facepiece respirators (FFRs) (commonly known as N95 respirators), and gowns.
  - Increased emphasis on early identification and implementation of source control (i.e., putting a face mask on patients presenting with symptoms of respiratory infection).
Montefiore Readiness

Identify

Isolate

Inform
Ambulatory MHS COVID-19 Algorithm

Patient Arrives at Registration

Reg performs screening

Reg performs screening

Mask patient and visitor, escort in gloves/mask

Transfer to designated room & close door

Provider dons PPE, evaluates the patient*

Flu testing at provider discretion, patient should self-quarantine at home until afebrile and asymptomatic x at least 24h, home care handout ** and directions to call provider for worsening symptoms

Call Hospital Epidemiology 718-920-7800, ED notification EMS notification

Is patient stable for home isolation?**

Does patient have fever AND either cough OR SOB

Patient Arrives at Registration

Negative

Positive

Continue with check-in

Visit proceeds

Negative

NO

YES

NO

YES

*Ambulatory PPE is surgical mask, +/- eye protection, gown, gloves

**Consider if patient lives in congregate setting/shelter when determining appropriateness for home care.

MHS Adult ED/Inpatient COVID-19 Screening Algorithm

**Signs and Symptoms**
- Subjective or measured fever ≥38.0°C (100.4°F)
- Cough or shortness of breath

**Mask the patient** and ask about Travel and Exposure

**Travel or Exposure**
- Patient has **traveled to China or an affected area** (see pink box) within the last **14 days**
- OR
- Patient has had **contact** with a **KNOWN** patient infected with COVID-19 in the last **14 days**

**STOP** Green tag, standard precaution no testing

**YES**

**STOP** Issue Blue Tag, Mask patient, start droplet and contact, begin Respiratory Illness Pathway

**STOP** Issue Orange tag mask patient, Isolate, Inform

**STOP** ill-appearing?

**YES**

**NO**

Take vitals

**YES**

Hypotension, Tachypnea or Hypoxia present?

**NO**

**Hospital Epidemiology:** 718-920-7800
**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
- Dutchess County DOH: 845-486-3400
- Ulster County DOH: 845-340-3090

**Personal Protective Equipment (PPE) for Orange and Blue Pathway:**
Contact/Droplet/Standard with Eye Protection recommended in private room with door closed
- Surgical mask
- Contact isolation gown
- Gloves
- N95/face shield (if available) for intubated patients or aerosol-generating event (nebulizer, BiPAP, CPAP, open airway suctioning, intubation/extubation etc.) in a negative pressure room
Respiratory Illness Pathway

- **Isolation**: Droplet and Contact and Standard with Eye Protection
  - Mask patient
  - Post droplet and contact isolation signs and enter isolation orders
  - Cohort if possible
  - Consider N95 fluid shield for any aerosol-generating procedure, if available (intubated patient, BiPAP, CPAP, nebulizer, intubation/extubation, or open airway suctioning)

- **Infectious Workup**
  - Influenza/RSV PCR; if negative then Respiratory Pathogen Panel
  - Blood culture
  - Respiratory culture
  - S. Pneumoniae and Legionella urine antigens

- **Imaging**
  - CXR
  - If CXR indeterminate, consider pulmonary ultrasound (if needed for more information per Pulmonary)
  - CT if needed for other diagnoses (e.g. PE) or for further workup

- **Laboratory Testing**
  - CBC
  - PT
  - LDH
Inpatient workflow

• Decision has already been made to admit this patient
• This means that patient has *severe enough respiratory illness (Influenza like illness ILI)* to require inpatient care.
• Patient destination will depend on their clinical status – this is actually *same* for all ILI (Influenza, etc) regardless of the virus causing respiratory distress or viral pneumonia.
• Management and PPE will, therefore, be SAME regardless of whether patient is confirmed COVID or suspected COVID – will be based on **CLINICAL STATUS**
Inpatient flow and PPE

**Pt with ILI and Respiratory symptoms**

- Stable (non-invasive respiratory support)
  - Blue – pending testing
  - Orange (stable COVID)  

- **Unstable** (respiratory failure or impending respiratory failure)
  - Orange (confirmed COVID or pending)  

- **Inpatient flow and PPE**
  - **Stable** – d/c home
    - Contact+Droplet; Surgical mask with shield, gown and gloves
  - **Floor admission**
    - NC O2 or RA support only
  - **Floor admission**
    - Req Aerosolizing procedures*

  - **Contact+Droplet**  
    - N95 mask* use during aerosol generating procedures

  - **DOOR SIGN:**  
    - STOP: CHECK IF AEROSOL GENERATING PROCEDURE* IS IN PROGRESS! If YES=N95

  - **ICU or Critical Care** level admission
    - Airborne+Contact; N95, Face shield, gown and gloves

Aerosol Generating procedures:
- Upper airway testing (RPP, COVID swabbing)
- Bipap
- CPAP
- HFNC
- Nebulizer Tx
- Bag-Mask ventilation
- Bronchoscopy
- Active Intubation
- Intubated patient
EPIC Updates

• COVID19 Isolation orders indications
  – Contact + Droplet
  – Contact + Airborne

• Respiratory Pathogen Orderset (COVID19)
ED & Inpatient Providers: Respiratory Pathogen Order Set (COVID-19) (available 3-11-2020 1pm)

- An order set has been created for respiratory pathogen testing including COVID-19.

<table>
<thead>
<tr>
<th>Name</th>
<th>User Version Name</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respiratory Pathogen</td>
<td></td>
<td>Order Set</td>
</tr>
<tr>
<td>All-risk for acute respiratory failure</td>
<td></td>
<td>Order Set</td>
</tr>
<tr>
<td>MMC IP newly intubated</td>
<td></td>
<td>Order Set</td>
</tr>
<tr>
<td>ED Adult Cough, Dysnea, Bronchoscopy, Allergy, COPD and Related Respir...</td>
<td></td>
<td>Order Set</td>
</tr>
<tr>
<td>RAPID Response Team ORDER SET</td>
<td></td>
<td>Order Set</td>
</tr>
</tbody>
</table>

**Order Sets**

- **Orders**
  - **Respiratory Pathogen**
    - **Labs**
      - **Labs**
        - Liver tests
        - Venous, Blood Gas, Comprehensive
        - CBC
        - BLOOD CULTURE
        - Lactic Dehydrogenase (LDH)
        - Urine, Bacteriologico Culture
        - Urinalysis
        - Urine, Legionelii Antigen
        - Urine, Streptococcus pneumoniae Antigen
        - Influenza/RSV PCR
        - Respiratory Pathogen Panel
      - **Imaging**
        - XR chest - PA and lateral
        - XR chest - portable AP
    - **Isolation**
      - Contact isolation status
      - Droplet isolation status
      - Contact and airborne isolation status
    - **Consults**
      - Inpatient consult to infectious diseases
      - Inpatient consult to critical care
  - **Additional SmartSet Orders**
INTERNAL MMC HOTLINE

- Employees
- Community calls
- Providers
- Direct Patient calls
- PAC referrals
  - Patient calls

MHS COVID19 Hotline

MMC Email Q&A line
OPEN 3/10/20
HOTLINE PHONE LINE is **914-457-4136**

**Montefiore COVID19 Hotline**

- Providers about **ADULT** patients
  - Outpatients
    - CR1
    - Moses
    - CR3
    - Backup 718-920-7800
  - ED/Inpatients
    - Weiler, Westchester sq
    - CR4
    - Backup 718-920-7800
    - Wakefield
    - CR5
    - Backup 718-920-7800
    - Other MHS hospitals
      - CR1

- Providers about **PEDIATRIC** patients <21 y/o
  - Outpatient
    - CR2
    - Inpatient and NICU
      - CR6
  - Personal health or exposure
    - Call OHS employee hotline
      - 347-380-0049
  - Operational or logistics questions
    - NCR1
    - Backup ??CR8
  - Einstein Employees
    - Einstein Employee health
      - Backup CR8
  - Einstein Medical students
    - Contact your supervisor
      - Backup: CR8
  - Housestaff trainees
    - Contact your supervisor

**Employees**

- **Patients**
  - Well patients general COVID qs
    - Call center answers
      - Will need clear Q&A script
  - Patient with symptoms
    - OUR TELEHEALTH SETUP
    - THIS NEEDS WORK and TRAIGE SYSTEM

**Montefiore COVID19 Hotline**

Email line – COVID19@Montefiore.org
Update in laboratory testing for CoVId-19 (real-time PCR)

Phasing out testing at public health labs due to enormous hurdles (remains a back-up option if needed)

**Inpatient setting:** Critically ill patients, then inpatients will be prioritized

- In-house testing capabilities have gone live this week at central lab (Moses)
- **Tests will need to be approved by our ID/EPI team due to limited kits per day (9 patients, 2 specimens/patient, 1 OP, 1 NP)**
- We need to keep track of all tests and results to report to DOH
- Turn-around-time <24 hours
- Capacity may slowly ramp up over coming weeks
- EPIC order being created

**Outpatient setting:** Symptomatic patients prioritized (not just exposed)

- Symptomatic OHS specimens, urgent care, ED (not admitted), and ambulatory practice patients
- Working on pathway for send out testing (Labcore and Quest)
- Expected role out: 1-2 weeks
Testing of Exposed, Symptomatic Employees

- Ideally, an outdoor, open space outside of one of the practice sites for “drive up testing”
- Employees can be tested through their car windows by a trained associate in full PPE
- Process takes about 5-10 minutes
- Orders can be placed in EPIC by OHS
<table>
<thead>
<tr>
<th>Patient Symptoms</th>
<th>Epidemiologic Risk</th>
<th>Patient Status</th>
<th>Testing Process</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fever, cough, SOB, +/- hypoxia</td>
<td>High risk for COVID-19</td>
<td>• 1&lt;sup&gt;st&lt;/sup&gt; priority – critically ill, respiratory failure, intubated, ECMO, etc.</td>
<td>• Notify ID/EPI for approval</td>
</tr>
<tr>
<td></td>
<td>• Recent travel to a CDC level 2/3 alert country</td>
<td>• 2&lt;sup&gt;nd&lt;/sup&gt; priority - inpatient ward, not intubated, stable hemodynamics</td>
<td>• Place EPIC order (once live)</td>
</tr>
<tr>
<td></td>
<td>• Exposure to confirmed COVID-19 case</td>
<td></td>
<td>• Appropriately label specimen for lab safety protocol</td>
</tr>
<tr>
<td></td>
<td>No recent travel or exposure to confirmed case but patient ill without alternative diagnosis (other respiratory work up neg)</td>
<td></td>
<td>• In-house testing will be performed</td>
</tr>
<tr>
<td>Symptomatic outpatients (urgent care, OHS, planned discharge from ED)</td>
<td>• Furlough due to known exposure</td>
<td>• Send out test (Labcore or Quest)</td>
<td>• Place EPIC order (once live); done by OHS for employees</td>
</tr>
<tr>
<td></td>
<td>• Exposure to confirmed COVID-19 case in community</td>
<td></td>
<td>• Appropriately label specimen for lab safety protocol</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Testing sent out</td>
</tr>
</tbody>
</table>
2 specimens, 1 OP, 1 NP

Swab here in posterior oral pharynx
Treatment Protocol – Yes, we have one
Remdesivir compassionate use for critical illness https://rdvcu.gilead.com/

Gilead is working with government and non-government organizations and regulatory authorities to provide remdesivir to eligible patients with COVID-19 for emergency treatment in the absence of any approved treatment options. Remdesivir is an investigational agent and is not approved for use in any country. It has not been demonstrated to be safe or effective for any use.

Compassionate use requests must be submitted by a patient’s lead treating physician. Gilead is currently assessing requests on an individual basis and requires, at a minimum, that the patient be hospitalized with confirmed COVID-19 infection with significant clinical manifestations.

Please note that we cannot guarantee access to remdesivir. Our ability to provide access to remdesivir, and the timeframe for processing requests and providing investigational medicine, varies from country to country for many reasons, including national and local laws as well as health authority requirements.

Individual compassionate use requests will only be considered when enrollment in a clinical trial is not a feasible option.

To report an adverse event associated with the compassionate use of remdesivir, please contact (800) 445-3235, option 3 (Hours: 24 hrs/day, 7 days/week).

By clicking “I'm a healthcare professional,” you are acknowledging that you are a healthcare professional and that you have read and understood the information above.